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Fishers Canyon Drainage Basin Planning Study

TECHNICAL APPENDIX

Prepared For:

El Paso County
Department of Public Works

Prepared By:

Muller Engineering Company

September, 1991

**FISHERS CANYON
DRAINAGE BASIN PLANNING STUDY
TECHNICAL APPENDIX**

Prepared For:

**EL PASO COUNTY
DEPARTMENT OF PUBLIC WORKS
3105 North Stone
Colorado Springs, Colorado 80907**

Prepared By:

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550 South Wadsworth Boulevard, Suite 500
Lakewood, Colorado 80226
Project No. 8933**

September, 1991

TECHNICAL APPENDIX

The following pages include detailed and summary calculations for the hydrologic and hydraulic analysis completed for the Fishers Canyon Drainage Basin Planning Study. The Technical Addendum supplements the final study report entitled "Fishers Canyon, Drainage Basin Planning Study". The Technical Addendum includes five appendices as listed below:

- Appendix A: Fishers Canyon Basin Hydrology
TR-20 Model, Input Data
- Appendix B: Fishers Canyon Basin Hydrology
Existing Condition, TR-20 Model
- Appendix C: Fishers Canyon Basin Hydrology
Future Condition, TR-20 Model
- Appendix D: Fishers Canyon Basin Hydraulics
Existing Channel Flood Plain Analysis, HEC-2
Resource Consultants, Inc.
- Appendix E: Fishers Canyon Basin Hydraulics
Improved Channel Hydraulics

Methodology

Storm runoff hydrographs for the Fishers Canyon Basin were generated using the Soil Conservation Service Technical Release 20 Computer Program (TR-20). Use of the TR-20 model is in compliance with the El Paso County and City of Colorado Springs Drainage Criteria Manual (Criteria). Several sub-basins which did not require the generation of hydrographs for design purposes, and which were under 90 acres in area, were modelled using the Rational Method.

Hydrographs were developed for existing and future development conditions, with an initial storm recurrence interval of 10 years and a major storm recurrence interval of 100-years. Storms of both 2-hour and 24-hour rainfall duration were modelled, in accordance with the Criteria.

Previous Studies

The Fishers Canyon Basin was the subject of previous hydrologic analyses. Portions of the Fishers Canyon Basin were studied by Drexel, Barrell and Company for the Gates Land Company. The summary reports were entitled "Final Drainage Report for Portions of Broadmoor Bluffs and Cheyenne Meadows South at Cheyenne Mountain Ranch" (Cheyenne Mountain Ranch Report) and "FEMA Map Revision for Spring Run, Cheyenne Meadows Drainage Channel" (Cheyenne Meadows Report). The Colorado Department of Highways recently performed a hydrologic analysis of the Fishers Canyon Basin to size a culvert under Interstate 25. More recently, Resource Consultants has investigated Fishers Canyon basin hydrology under contract to the Federal Emergency Management Agency (FEMA Report).

Basin information from the previous studies was checked for reasonableness and, where appropriate, was used in the current hydrologic analysis. Using existing information avoided unnecessary differences in basin modelling and facilitated the comparison of model results.

Sub-Basin Delineation

The Fishers Canyon Basin includes twenty-one sub-basins. Sub-basins and flow paths are indicated in Figure V-1. The sub-basins west of the City/County boundary were modelled as shown in the FEMA Report and the Cheyenne Mountain Ranch Report. The basin designation system used in the FEMA Report was utilized, and extended to include those sub-basins located east of the City/County boundary and south of Academy Boulevard.

Portions of the drainage basin within the City, which is primarily the Gates Land Company annexation, were not included in the detailed study area, as that area is not a part of the drainage fee system and are not reimbursed for drainage project construction. No evaluation was made of the adequacy of hydraulic structures within the City.

USGS quadrangle maps, in combination with basin maps from the Cheyenne Mountain Center Report, were used to verify the sub-basin boundaries of the FEMA Report. Additional sub-basins were delineated within El Paso County based on one-inch equals 200 feet, 2-foot contour interval mapping dated February 9, 1990.

Sub-basins 1 through 4D, 6A through 6D, and SH2 were modelled using TR-20. Runoff from sub-basins 5A through 5D, 6E, and 7A through 7C was calculated using the Rational Method.

Curr Reservoir, a large existing detention facility in the Fishers Canyon basin, was included in the TR-20 model. Stage/storage/discharge information was referenced from the FEMA report and verified using record drawings for Curr Reservoir. The future basin condition model included a diversion of historic flow rates from sub-basin 3A into Fort Carson, in accordance with the Cheyenne Mountain Ranch Report. This diversion is part of a future development plan by the Gates Land Company as approved by the City and Ft. Carson, and is not a part of this drainage basin master plan.

Land Use

Existing land use was determined using aerial photography of the basin dated November 10, 1989. The basin is currently about two thirds developed. At the time of this study approximately twenty percent of the total basin area, more or less, could expect to be developed in the immediate future. Future land use was estimated based on City and County zoning maps and land use planning information. Future land use information is shown in Figure V-2.

Soils Information

Soils types were identified using the SCS "Soil Survey of El Paso County Area, Colorado", dated 1981. Soils for the basin are categorized as loamy, but with significant percentages of clay in some areas. Substantial rock outcrops exist at the highest elevations up on the mountain side. In general, the steep upper sections of the basin are type "C" soils. The remainder of the basin falls in either the type B or type C category of soils. Soils information is shown in Figure V-2.

SCS Curve Numbers

SCS curve numbers representative of sub-basin land use and soils types were interpolated from Table 5-5 (24-hour storm) and Table 5-7 (2-hour storm) of the City/County Criteria. Curve number calculations and other TR-20 input data are shown in the calculations.

Rainfall

Ten-year and 100-year recurrence interval hyetographs were developed for 2-hour and 24-hour storm durations. Figures 5-4a to 5-4e of the Criteria were used to derive the following rainfall depths:

	2-Hour		24-Hour	
	<u>10-year</u>	<u>100-year</u>	<u>10-year</u>	<u>100-year</u>
Rainfall Depth, inches	2.06	3.05	3.20	4.50

Estimates of Peak Discharge

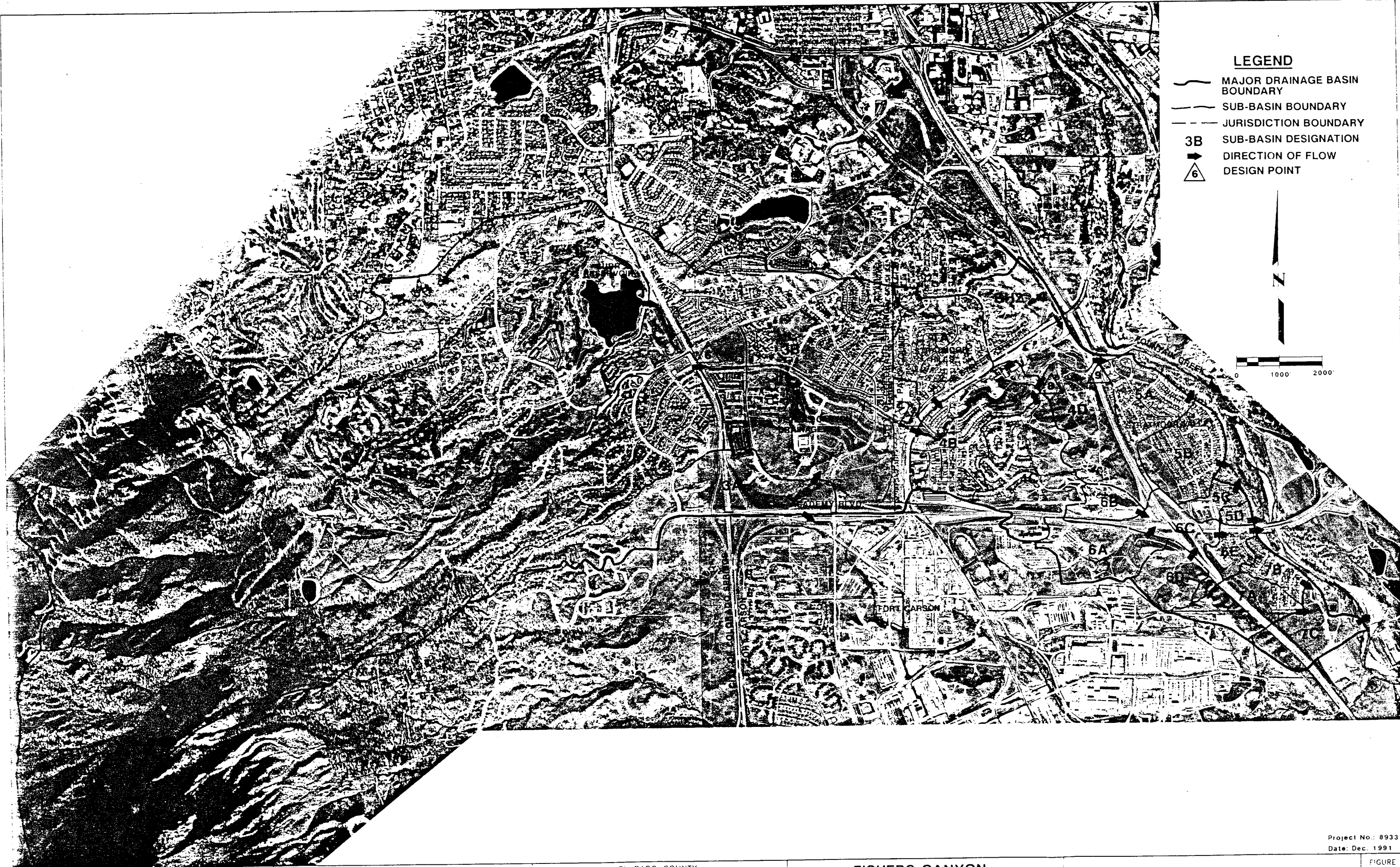
Table V-1 provides a comparison between 100-year existing condition flow rates estimated in the FEMA Report and existing and future development condition flow rates estimated in the current study. The flow rates are generated from the 2-hour storm, which in all cases creates higher peaks than the 24-hour storm. Peak flow rates are indicated at Design Points shown on Figure V-1.

TABLE V-1
FISHERS CANYON BASIN 100-YEAR PEAK FLOW COMPARISON
(all flows in cfs)

<u>Design Point</u>	<u>FEMA Report (Existing Conditions)</u>	<u>Current Study (Existing Conditions)</u>	<u>(Future Conditions)</u>
6	1,640	1,640	1,640
7	2,490	2,690	2,590
8	2,870	3,000	3,020
9	3,090	3,090	3,170

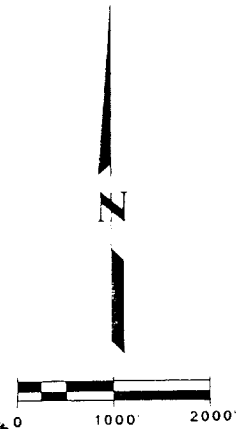
Design Point 7 represents the Fishers Canyon drainageway at the City/County boundary. The peak flow estimated at Design Point 7 in the current study is slightly greater than the flow estimated in the FEMA Report. The difference in peak flow is attributed to the inclusion of Sub-basin 3A in the current study, but not in the FEMA Report. The future condition flow rate is lower than the existing condition flow at Design Point 7 due to the planned diversion of "historic" flows from Sub-basin 3A into Fort Carson, in accordance with the Cheyenne Mountain Ranch Report for the Gates Land Company. At present, the culvert under Highway 83, which is necessary to divert historic flows into Fort Carson, has not been constructed. Therefore the existing condition case does not reflect the diversion. Design Point 9 represents the Fishers Canyon drainageway at Interstate 25. The FEMA Report and the current study correlate well at Design Point 9, with each analysis predicting a 100-year peak flow of 3090 cfs for existing development conditions.

Design peak discharges for storm sewer systems are shown on Figure VIII-1 through VIII-4. These discharges have been calculated at each inlet using the Rational method.



LEGEND

- MAJOR DRAINAGE BASIN BOUNDARY
- SUB-BASIN BOUNDARY
- JURISDICTION BOUNDARY
- 3B SUB-BASIN DESIGNATION
- DIRECTION OF FLOW
- DESIGN POINT



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FISHERS CANYON
DRAINAGE BASIN PLANNING STUDY

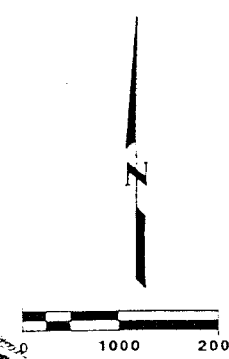
SUB-BASIN MAP

Project No.: 8933
Date: Dec. 1991
FIGURE
V-1



LEGEND

- MAJOR BASIN BOUNDARY
- JURISDICTION BOUNDARY
- LAND USE BOUNDARY
- 1 AGRICULTURAL/PARK/OPEN SPACE (0-10% IMPERVIOUS)
- 2 1 TO 5 ACRE RESIDENTIAL LOTS (10-20% IMPERVIOUS)
- 3 0.2 TO 0.5 ACRE RESIDENTIAL LOTS (25-40% IMPERVIOUS)
- 4 SCHOOLS (40-50% IMPERVIOUS)
- 5 MULTI-FAMILY RESIDENTIAL (60-70% IMPERVIOUS)
- 6 COMMERCIAL/INDUSTRIAL (70-85% IMPERVIOUS)
- B SCS TYPE B SOILS
- C SCS TYPE C SOILS



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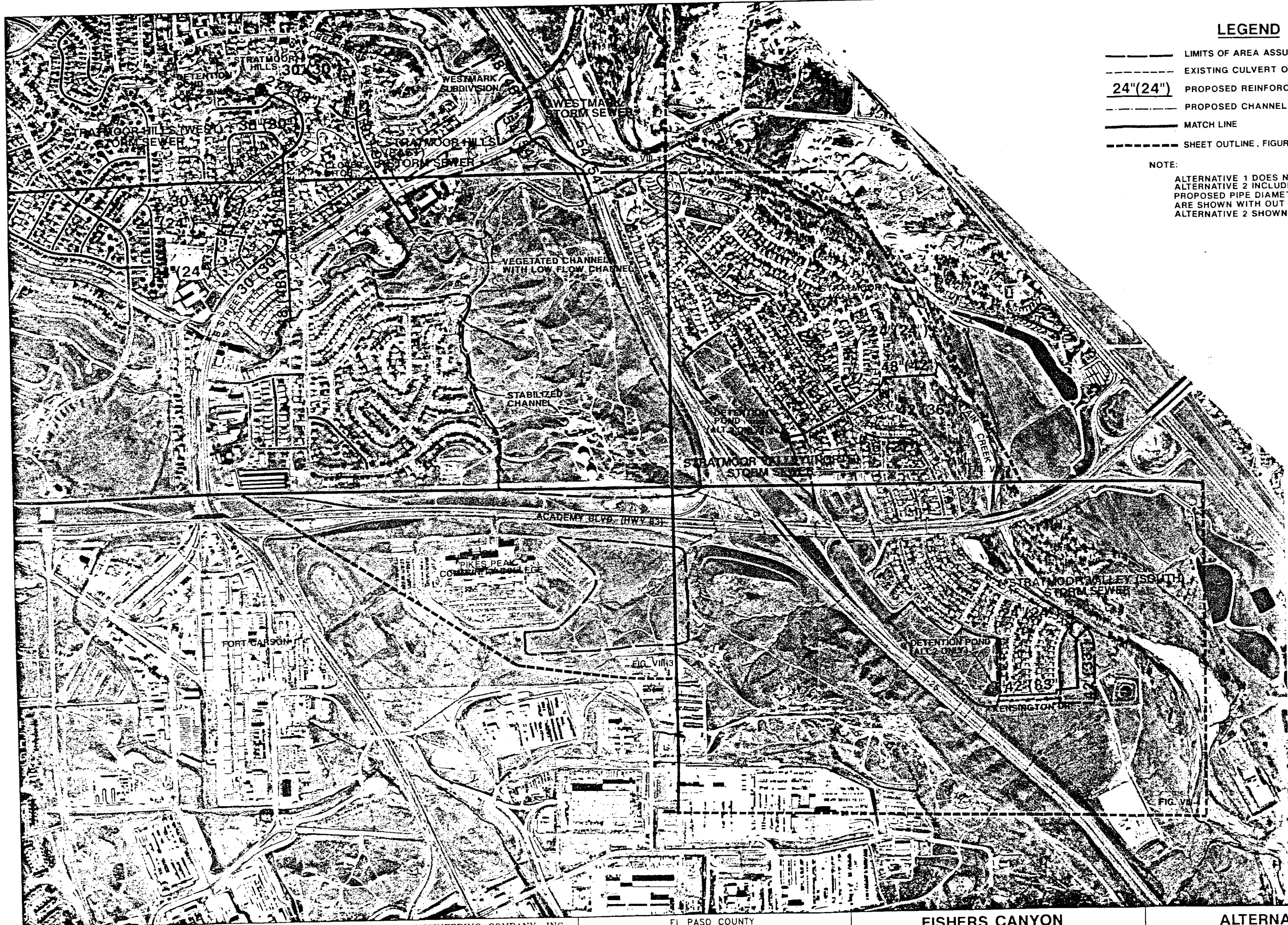
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FISHERS CANYON
DRAINAGE BASIN PLANNING STUDY

FUTURE LAND USE AND
SOILS INFORMATION

Project No.: 8933
Date: Dec. 1991

FIGURE
V-2

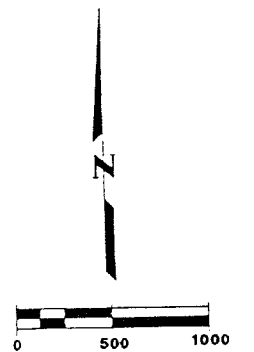


LEGEND

- LIMITS OF AREA ASSUMED TO CONTRIBUTE TO DRAINAGE FEES
- EXISTING CULVERT OR STORM SEWER
- 24"(24") PROPOSED REINFORCED CONCRETE PIPE
- PROPOSED CHANNEL IMPROVEMENTS
- MATCH LINE
- SHEET OUTLINE, FIGURES VII-1 THROUGH VII-4

NOTE:

ALTERNATIVE 1 DOES NOT INCLUDE DETENTION POND,
ALTERNATIVE 2 INCLUDES DETENTION POND.
PROPOSED PIPE DIAMETERS FOR ALTERNATIVE 1
ARE SHOWN WITH OUT PARENTHESES.
ALTERNATIVE 2 SHOWN IN PARENTHESES.



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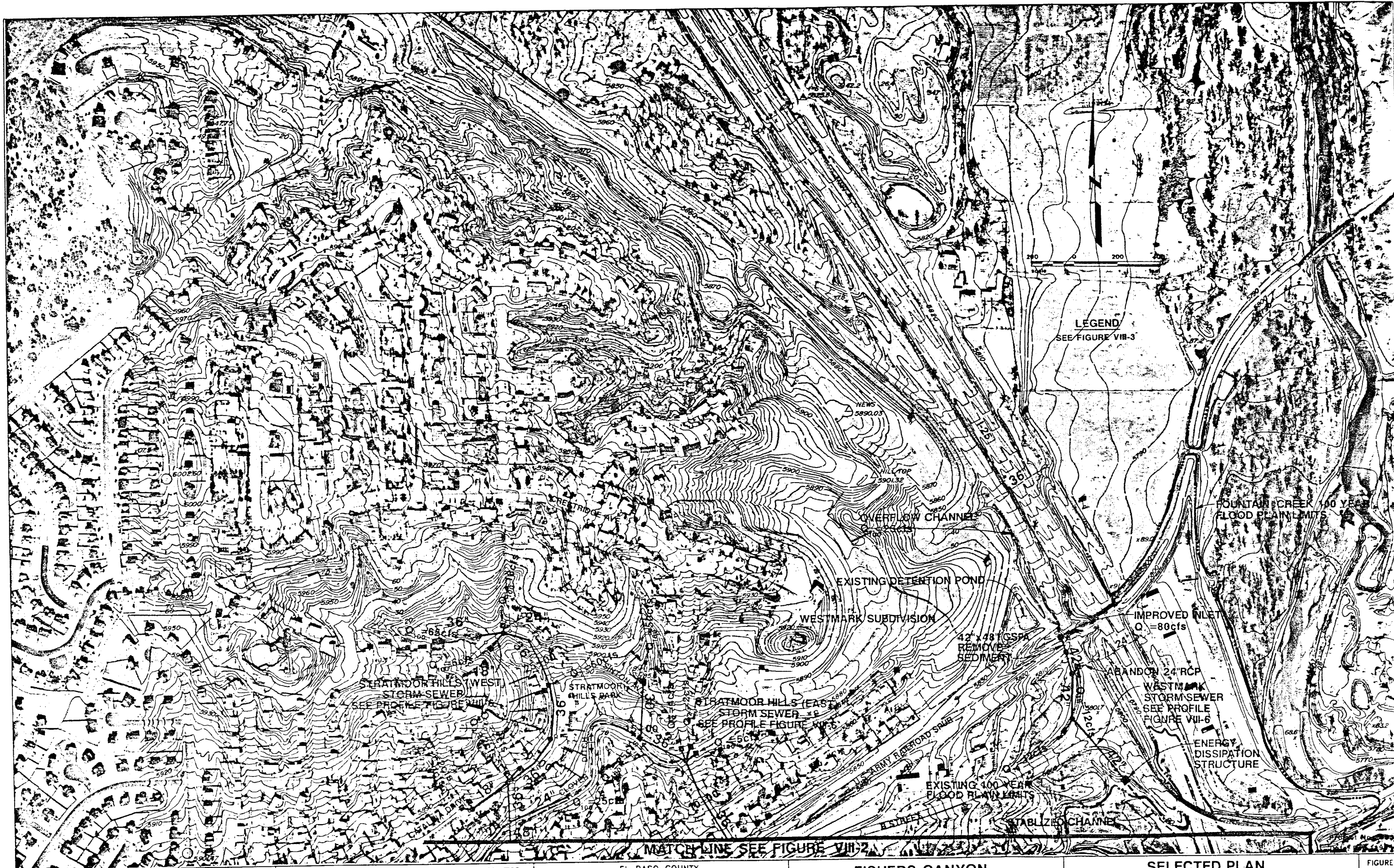
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FISHERS CANYON
DRAINAGE BASIN PLANNING STUDY

ALTERNATIVE 1 AND
ALTERNATIVE 2 PLANS

FIGURE
VII-1

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GROUND CONTROL SURVEY BY: B.J.I. SURVEYING
 AERIAL PHOTOGRAPHY BY: ROCKY MOUNTAIN AERIAL SURVEYS, INC.
 TOPOGRAPHIC MAPPING BY: REID'S AERIAL MAPPING
 DATE FLOWN: 2/9/90

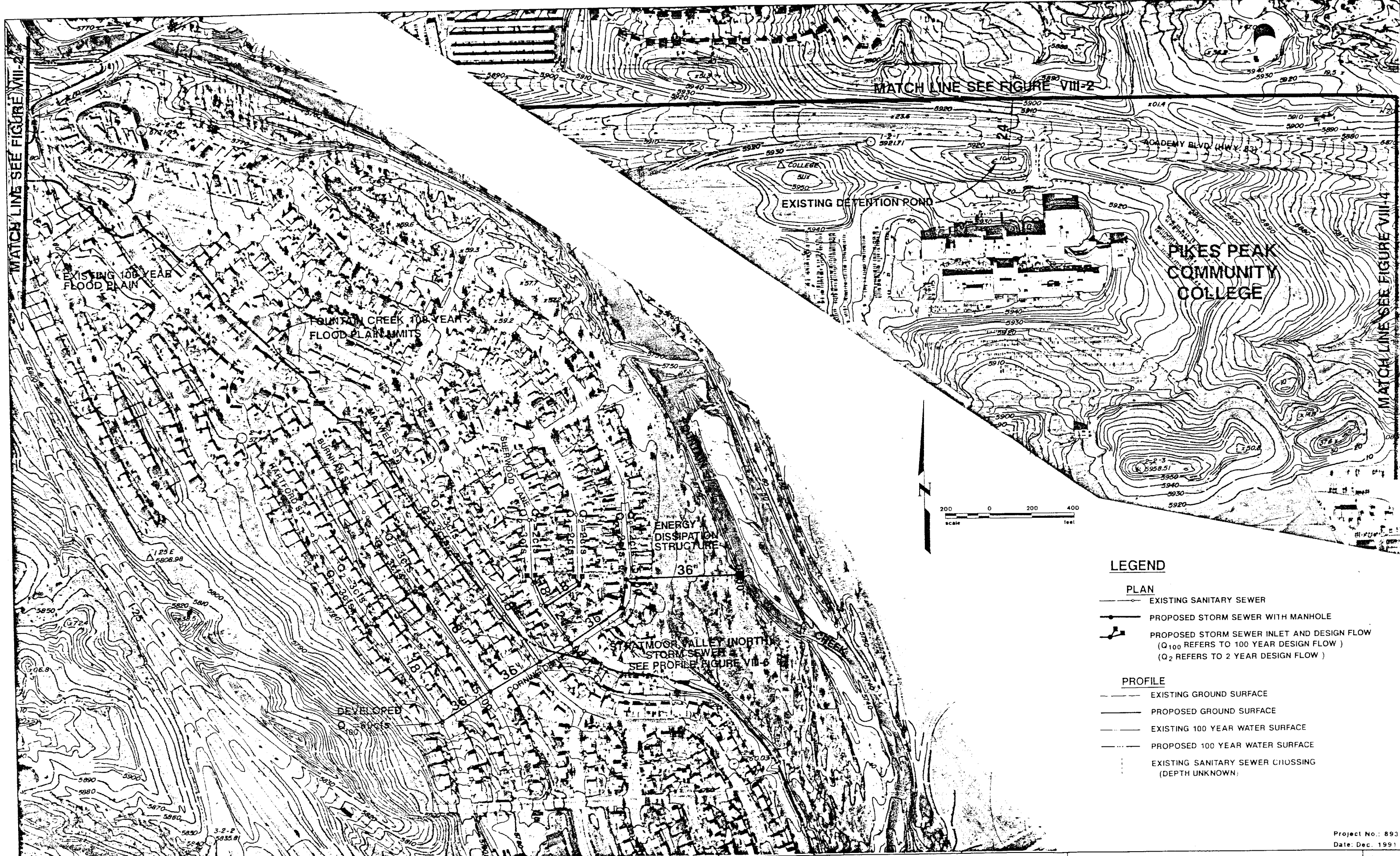
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FISHERS CANYON
 DRAINAGE BASIN PLANNING STUDY

SELECTED PLAN
 SHEET 1 OF 4

FIGURE
 VIII-1



LEGEND

PLAN

- EXISTING SANITARY SEWER
- PROPOSED STORM SEWER WITH MANHOLE
- PROPOSED STORM SEWER INLET AND DESIGN FLOW
(Q₁₀₀ REFERS TO 100 YEAR DESIGN FLOW)
(Q₂ REFERS TO 2 YEAR DESIGN FLOW)

PROFILE

- EXISTING GROUND SURFACE
- PROPOSED GROUND SURFACE
- EXISTING 100 YEAR WATER SURFACE
- PROPOSED 100 YEAR WATER SURFACE
- EXISTING SANITARY SEWER CROSSING
(DEPTH UNKNOWN)

GROUND CONTROL SURVEY BY: B.J.I. SURVEYING
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FISHERS CANYON
DRAINAGE BASIN PLANNING STUDY

SELECTED PLAN
SHEET 3 OF 4

Project No.: 8933
Date: Dec. 1991
FIGURE
VII-3

APPENDIX A

**FISHERS CANYON BASIN HYDROLOGY
TR-20 MODEL, INPUT DATA**

DESIGN NOTES AND COMPUTATIONS

SUBJECT: El Paso County

PREPARED BY: CSS

DATE

4-10-90

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DATE

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1

OF

5

JOB NUMBER

8933

Storm Rainfall for Input to TR-20:

From Isoplethical Maps, Figs. 5-4a to 5-4e,
Drainage Criteria Manual.

For all Sub-basins	{	2-yr, 6 h precip.	= 1.60 in	X1	10-yr, 24 h = 2.30 in, RCI
		2-yr, 24 h	= 2.00 in	X2	
		100-yr, 6 h	= 3.50 in	X3	
		100-yr, 24 h	= 4.50 in	X4	
		Elevation:	= 6000	Z	(100's of feet from isoplethals)

$$2\text{-yr, 1-hr rainfall} = 0.218 + 0.709 [(X1)(X1/X2)] \quad (5-14)$$

$$= 1.126 \text{ in} \approx 1.13 \text{ in}$$

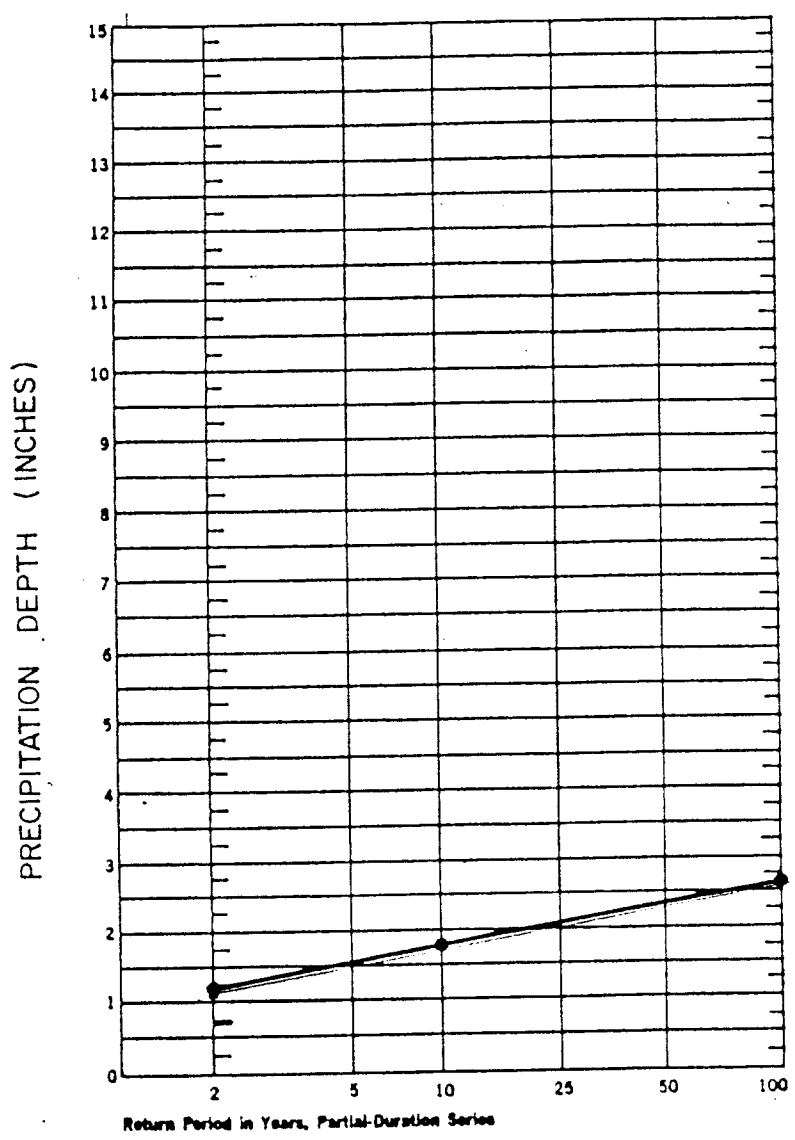
$$100\text{-yr, 1-hr rainfall} = 1.897 + 0.439 [(X3)(X3/X4)] - 0.008Z$$

$$= 2.61 \text{ in}$$

$$\{100\text{-yr, 2-hr rainfall} = 2.61 \text{ in} \times 1.156 = 3.02 \text{ in} \approx 3.05 \text{ in} \leftarrow \text{RCI}$$

$$10\text{-yr, 2-hr rainfall} = 1.73 \text{ in} \times 1.157 = 2.00 \text{ in} \approx 2.06 \text{ in} \leftarrow \text{RCI}$$

8933
 155
 4-25-90



EXAMPLE

2 yr. 1 hr rainfall (calculated) = 1.19" / 1.13"
 100 yr. 1 hr rainfall (calculated) = 2.64" / 2.61"
 10 yr. 1 hr rainfall (interpolated) = 1.78" / 1.73"

REFERENCE : NOAA Atlas 2, Volume 3 - Colorado

NOTE: This example is for Colorado Springs as indicated on the isopluvials.

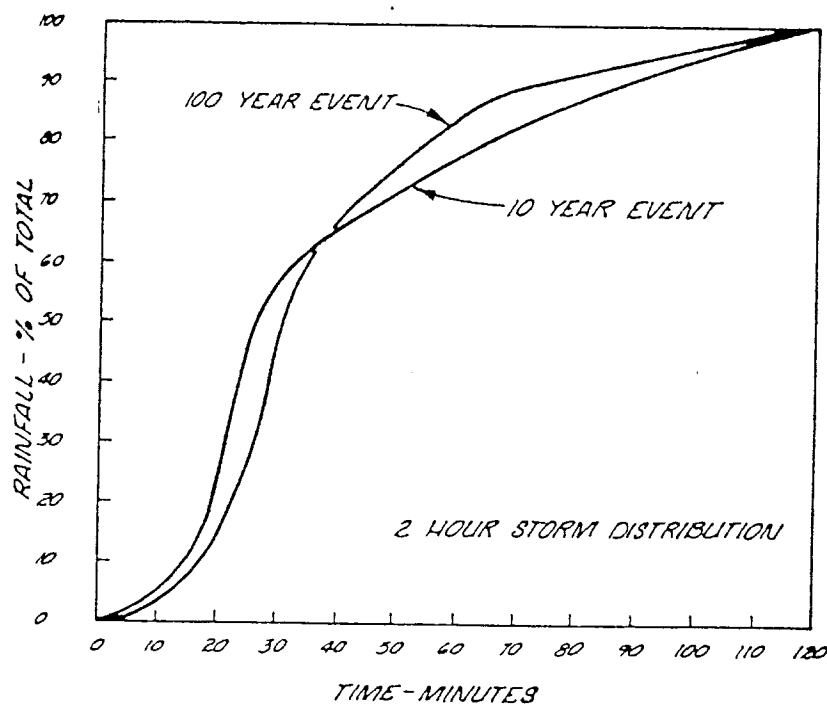


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The City of Colorado Springs / El Paso County
 Drainage Criteria Manual

RAINFALL DEPTH - DURATION RELATIONSHIP

Date
 OCT. 1987
 Figure
 5 - 6



2-HR DESIGN STORM DISTRIBUTION

Time (Minutes)	Percent of 1-Hr Rainfall	
	10 Year	100 Year
5	2.0	1.0
10	3.7	3.0
15	8.2	4.6
20	15.0	8.0
25	25.0	14.0
30	42.0	25.0
35	56	44.0
40	65	65.0
45	72	78.0
50	78	88.0
55	82	94.0
60	85	97.0
65	87	98.0
70	88	99.0
75	89	99.5
80	90	99.8
85	91	99.9
90	92	100.0
95	93	100.0
100	94	100.0
105	95	100.0
110	96	100.0
115	97	100.0
120	98	100.0
	115.7	115.6

RE: Urban Drainage & Flood Control District



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The City of Colorado Springs / El Paso County
Drainage Criteria Manual

Critical Storm Rainfall Distributions

Date

OCT. 1987

Figure

5-5a

DESIGN NOTES AND COMPUTATIONS

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PREPARED BY: CES

DATE 4-25-90

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DATE

SHEET NO.

4

OF 5

JOB NUMBER

8723

Cumm. 24 - 10yr Design Storm dist for TR-20

Time, min.	% 1hr rainfall	Cumm.	For Unit Graph:
5	.103	.02	0.0173
10	.103	.057	0.0493
15	.103	.139	0.1301
20	.115	.289	0.2498
25	.125	.539	0.4659
30	.142	.659	0.5696
35	.150	.715	0.6180
40	.143	.758	0.6557
45	.138	.796	0.6880
50	.132	.828	0.7156
55	.132	.86	0.7433
60	.132	.893	0.7710
65	.132	.924	0.7986
70	.132	.956	0.8263
75	.132	.988	0.8539
80	.125	1.012	0.8755
85	.119	1.032	0.8920
90	.119	1.051	0.9084
95	.119	1.07	0.9248
100	.119	1.09	0.9421
105	.119	1.108	0.9596
110	.119	1.127	0.9741
115	.117	1.144	0.9888
120	.113	1.157	1.0

DESIGN NOTES AND COMPUTATIONS

SUBJECT: El Paso Co.

SHEET NO. 5

OF 5

PREPARED BY: CSS

DATE

4-16-90

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DATE

JOB NUMBER

8933

Cumulative 2h Design Storm Dist. for Input to TR-20

NOTE: Use 1 HOUR RAINFALL DEPTH!

Time, min	100 yr % 1 hr rainfall	Comm.	for Unit Graph	Use 2h Rainfall
5	.01	.01	0.0087	
10	.03	.04	0.0246	
15	.046	.086	0.0714	
20	.08	.164	0.1436	
25	.14	.306	0.2647	
30	.25	.556	0.4810	
35	.14	.696	0.6021	
40	.08	.776	0.6713	
45	.062	.838	0.7249	
50	0.05	.888	0.7682	
55	0.04	.928	0.8028	
60	.04	.968	0.8374	
65	.04	1.008	0.8720	
70	.02	1.128	0.8893	
75	.02	1.148	0.9066	
80	.012	1.160	0.9170	
85	.012	1.172	0.9273	
90	.012	1.184	0.9377	
95	.012	1.196	0.9481	
100	.012	1.108	0.9585	
105	.012	1.120	0.9689	
110	.012	1.132	0.9792	
115	.012	1.144	0.9896	
120	.012	1.156	1.000	

DESIGN NOTES AND COMPUTATIONS

SUBJECT: EPC

PREPARED BY: CSS

DATE 4-30-90

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SHEET NO.

1

OF 2

JOB NUMBER

8922

Times of Concentration:

Basin 1: From PCI, $T_c = 0.76$ hr.Basin 2: From PCI, $T_c = 0.88$ hr.Basin 3A: From D/B, $T_c = 0.64$ hr.Basin 3B: From PCI, Basin 2, $T_c = 0.55$ hr.

Basin 3C: $\rightarrow$ no time of concentration / For Future Conditions,
it is included in Basin 3A; for existing
Conditions it is include in Basin 3B

Basin 4A:

Reach	Description	Slope, %	Length, ft.	T_t , min	
1	Overland Flow, 3-P-1	10%	150'	2.4	$T_t = 1.87(1.1 - C_{10})L^{1/2}$
	Soil Type B ($C_{10} = 0.40$)				
2	Shallow Street Flow	10%	250'	0.6	$T_t = C/60V$
	$V = 6.5$ fps				
3	Channelized Flow	10%	1500'	5	
	$V = 5$ fps				

Total: 13 min = 0.22 h.

Basin 4B

1	Overland Flow 3-P-2	8%	150'	6.9 min.	
	Soil Type C ($C_{10} = 0.5$)				
2	Shallow Gutter Flow	10%	900'	2.3 min	
	$V = 6.5$ fps				

Total: 9.2 min = 0.15 h.

DESIGN NOTES AND COMPUTATIONS

SUBJECT: EPO
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SHEET NO. 2 OF 2
JOB NUMBER 8923

Times of Concentration, Cont.

Basin 40:

Reach	Description	Slope, %	Length, ft.	T_t , min.
-------	-------------	----------	-------------	--------------

1	Overland Flow, 7-A-2, Type C ($C_{10} = 0.55$)	16%	300'	8.2
---	--	-----	------	-----

2	Channelized Flow $V = 2$ fps	4%	1500'	8.2
---	---------------------------------	----	-------	-----

Total = 16.6 min = 0.28 hr

Basin 4B

Reach	Description	Slope, %	Length, ft.	T_t , min
-------	-------------	----------	-------------	-------------

1	Channelized Flow $V = 4.5$ fps	8%	1300'	4.8 min = 0.08 hr.
---	-----------------------------------	----	-------	--------------------

→ use 0.1 hr. min.
to avoid kinematic
routing difficulties

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SUBJECT: EPC
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SHEET NO. 1

OF 4

JOB NUMBER 8933

Curve No. 1's

- * Basin 1: From RCI, $CN = 75.0$ (presume 24h) $\therefore$ 2h $CN = 88$
- * Basin 2: From RCI, $CN = 76.0$ (presume 24h) $\therefore$ 2h $CN = 89$
- Existing + Future Conditions - Basins almost entirely built-out

Basin 3A: From Drexel-Bartel, $CN = 82.6$ → Note that this was for

* Revised for Future Cond's: 6-18-90, see 86

a six hour storm, AMC II >

→ use $CN = 82.6$ for 24h storm, AMC II,
 $\therefore$ 2h $CN = 92.6$ (AMC III)

Basin 3A: Existing Conditions: about 30% built-out:

$$24h: (0.3)(82.6) + (0.7)(74) \xrightarrow{\text{good Cond, Type C, open space}} = 76.6$$

$$2h: (0.3)(92.6) + (0.7)(88) = 89.4$$

DESIGN NOTES AND COMPUTATIONS

SUBJECT: EPC

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DATE 6-18-90

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Future Conditions Basins 1 & 2
(Revised Based on New Land-Use information):

Basin 1: Area = 2,357 s.m. = 105,709,388 ft²

Approx Land Use:

			CN (24h)	CN x %
Type 1: Agric/Open Space	Type B	0.15	61	9.15
	Type C	0.25	74	18.5
Type 2: 1 to 5 Ac Res	Type B	0.02	68	1.36
	Type C	0.08	79	6.32
Type 3: 0.1 to 0.5 Ac Res	B	0.1	72	7.2
	C	0.2	81	16.2
Type 5: Multi-Family	B	0.07	85	5.95
	C	0.08	90	7.2
Type 6: Industrial	C	0.05	94	4.7

Total CN: 76.6

Basin 2: Area = 1,234 s.m. = 34,40,946 ft² = 790 ac.

Type 1: Agric/Open Space	Type B	0.01	61	0.61
	C	0.38	74	28.12
3: 0 to 0.5 Ac Res	B	0.37	72	26.64
	C	0.09	81	7.29
5: Multi-Family	B	0.05	85	4.25
	C	0.07	90	6.30
6: Industrial/Comm	C	0.03	94	2.82

} 76.03 -
Use 76.1 }

DESIGN NOTES AND COMPUTATIONS

SUBJECT: E/P

SHEET NO.

2

OF 4

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4-30-90

CHECKED BY:

DATE

JOB NUMBER

8922

Curve # Calculations

(Note: Basins 1 & 2 from calculations made by RCI, Basin 3A from Drexel/Borrell).

Basin 3B: Area = $\frac{25.157 \text{ km}^2}{25.157} = 25,157,000 \text{ ft}^2 = 578 \text{ ac} = 0.90 \text{ s.m.}$

Hydrologic Soil Type	Land-Use Type	Area, in^2	Area, ac.	CN 2h	CN 24h	CN(A), ac. 2h	CN(A), ac. 24h
B	1 R			78	61		6.8 (1/9)
	3 R-1 6000			86	72		8 (1/9)
	4 R-5			94	85		9 (1/9)
	4 PUB			94	85		
	5 PBC-2			97	92		
	6 C5		2.4	95	88		
C	1 R			88	74		16.4 (2/9)
	3 R-1			92	81		18 (2/9)
	3 R-1 6000			92	81		
	4 R-5			96	90		
	7			91	80		20 (2/9)

→ (RCI, Basin 3: CN's: 2h = 92, 24h = 81, existing)

→ Estimate CN, future conditions: 2h = 95, 24h = 86 ←

Basin 3C: Area = 40 ac = 1,742,400 ft^2 = 0.06 s.m.

All Hydrologic Soil Type C, 4-R-5

CN: 2h = 96, 24h = 90

Basin 4A: Area = $\frac{5.193 \text{ km}^2}{5.193} = 5,193,000 \text{ ft}^2 = 119.3 \text{ ac} = 0.186 \text{ s.m.}$

All Land-use Type 3-R-1, 4.2 ac Soil Type B

Soil Type	Land-Use	Area, ac.	CN 2h	CN 24h	CN(A), ac. 2h	CN(A), ac. 24h
B	3-R-1	4.2	86	72	3.61	3.02
C	3-R-1	115	92	81	10,580	9,315
Total		119.2	91.8	80.7	10,941	9,617
			→ 92	81		

DESIGN NOTES AND COMPUTATIONS

SUBJECT: EPC
PREPARED BY: CSS

DATE 4-30-90

CHECKED BY:

DATE

SHEET NO. 3 OF 4
JOB NUMBER 8933

Curve No. Calc's, Cont'd.

$$\text{Basin 4B: Area} = \frac{5.1627}{5.115} \times 5.1225 \text{ in}^2 = 5,138,500 \text{ ft}^2 = 118 \text{ ac} = 0.1845 \text{ sm.}$$

All Soil Type C. Approx $\frac{1}{2}$ 5-C-1, $\frac{1}{2}$ 3 R-2

$$2\text{h storm: } (.5)(98) + (.5)(92) = 95$$

$$24\text{h storm: } (.5)(94) + (.5)(81) = 87.5 \approx 88$$

$$\text{Basin 4C: Area} = \frac{5.549}{5.534} \times 5.515 \text{ in}^2 = 5,541,500 \text{ ft}^2 = 127 \text{ ac} = 0.198 \text{ sm}$$

All Soil Type C - Almost entirely 3 R-2

$$2\text{h storm: } 92$$

$$24\text{h storm: } 81$$

$$\text{Basin 4D: Area} = \frac{5.9527}{5.979} \times 5.975 \text{ in}^2 = 5,975,500 \text{ ft}^2 = 137 \text{ ac} = 0.214 \text{ sm}$$

All Soil Type C. Approx $\frac{1}{2}$ 5-C-1, $\frac{1}{2}$ 3 R-2
(as 4B above):

$$2\text{h} = 95$$

$$24\text{h} = 88$$

$$\text{Total Area, 4A to 4D } 0.166 \text{ sm} + 0.1845 \text{ sm} + 0.198 \text{ sm} + 0.2145 \text{ sm} \\ = 0.763 \text{ sm. Compared to } 0.75 \text{ sm., RCI}$$

$$501.2 \text{ ac.} / 480 \text{ ac.}$$

Note → Contains ~20 ac in Basin 4D not included
in Basin 4 by RCI.

$$\text{Total Area, 3B + 3C: } \left\{ \begin{array}{l} \text{Area, 3A} = 0.295 \text{ sm (D/B)} \rightarrow \text{including 3C?} \\ + \text{ 3B} = 0.90 \text{ sm} \\ \text{3C} = 0.06 \text{ sm} \\ \hline 0.96 \text{ sm} = 0.96 \text{ sm from RCI} \end{array} \right.$$

DESIGN NOTES AND COMPUTATIONS

SUBJECT: EPC

SHEET NO. 4

OF 4

PREPARED BY: CSS

DATE 4-28-90

CHECKED BY:

DATE

JOB NUMBER 8922

Curve No. Calc's, Existing Conditions.

Basin 3B: Note: Under existing conditions, Basin 3C is included in Basin 3B, + no diversion to Ft. Carson is made.

Under ex. conditions, 3B is approx. $\frac{1}{2}$ built-out

Area = 0.90 S.M.

Check:

$$2h \text{ CN: } (0.5)(95) + (0.5)(88) = 91.5 \approx 92 \checkmark$$

$$24h \text{ CN: } (0.5)(86) + (0.5)(74) = 80 \checkmark$$

Basin 4A: almost entirely built-out $\rightarrow$ no change

Basin 4B: ~ 80% built-out:

$$2h: (0.8)(95) + (0.2)(88) = 92.6 \approx 94$$

$$24h: (0.8)(88) + (0.2)(74) = 85.2 \approx 85$$

Basin 4C: Approx $\frac{1}{2}$ built-out:

$$2h: (0.5)(92) + (0.5)(88) = 90$$

$$24h: (0.5)(81) + (0.5)(74) = 77.5 \approx 78$$

Basin 4D: Almost entirely undeveloped:

$$\begin{array}{l} 2h = 88 \\ 24h = 74 \end{array} \left\{ \begin{array}{l} \text{Type C, good cond.} \\ \text{Open Space} \end{array} \right.$$

DESIGN NOTES AND COMPUTATIONS

SUBJECT: EPC

PREPARED BY: CSS

DATE 5-1-90

CHECKED BY:

DATE

SHEET NO.

1

OF 1

JOB NUMBER

8922

Reach lengths:

1 to 2: 2500' per RCI ✓ $x = 0.76 \text{ m} = 1.50$

1+2 to 3B: 4700' per RCI ✓ $x = 0.40 \text{ m} = 1.60$

3A to 3B: 2200' (storm sewer) } future conditions } generate $x + m$ for Circular Conduit, see below

3A to 3B: 4700' (overland) } existing conditions } $x = 0.15 \text{ m} = 1.3$ } A channel

1+2+3A+3B to 4B: 3500' $x = 0.60 \text{ m} = 1.57$ } RCI

4A to 4B: 1600' $x = 0.60 \text{ m} = 1.57$ } same as other channel } RCI

1+2+3A+3B+4A+4B+4C to 4D: 2100' $x = 0.60 \text{ m} = 1.57$ RCI

Derivation of $x + m$ for Circular pipe:

$$\text{Mannings eq.: } Q = \left(\frac{1.49 S^{1/2}}{n P^{2/3}} \right) A^{5/3} = x A^m$$

→ use $m = 1.67 (= 5/3)$

set $S = 0.005$

$n = 0.015$ (conc. pipe)

$P = \text{wetted perimeter} = 1/2 \phi d$ ($\phi = x$) ($d = \text{diam.}$)

For design conditions, (2 hr. storm) $Q_{2A} = \frac{550 \text{ cfs}}{100 \text{ yr.}} = \frac{328 \text{ cfs}}{229 \text{ cfs}}$

→ From Design Chart 1 →

Can use a 72" ϕ pipe with 0.9' head

or a 78" ϕ pipe flowing almost full

→ Choose 78" pipe: $P = 2\pi r = 2\pi (3.95') = 20.4'$

$$x = \left(\frac{1.49 S^{1/2}}{n P^{2/3}} \right) = 0.94$$

APPENDIX B

**FISHERS CANYON BASIN HYDROLOGY
EXISTING CONDITION, TR-20 MODEL**

DESIGN NOTES AND COMPUTATIONS

SUBJECT: EPC
 PREPARED BY: CSS

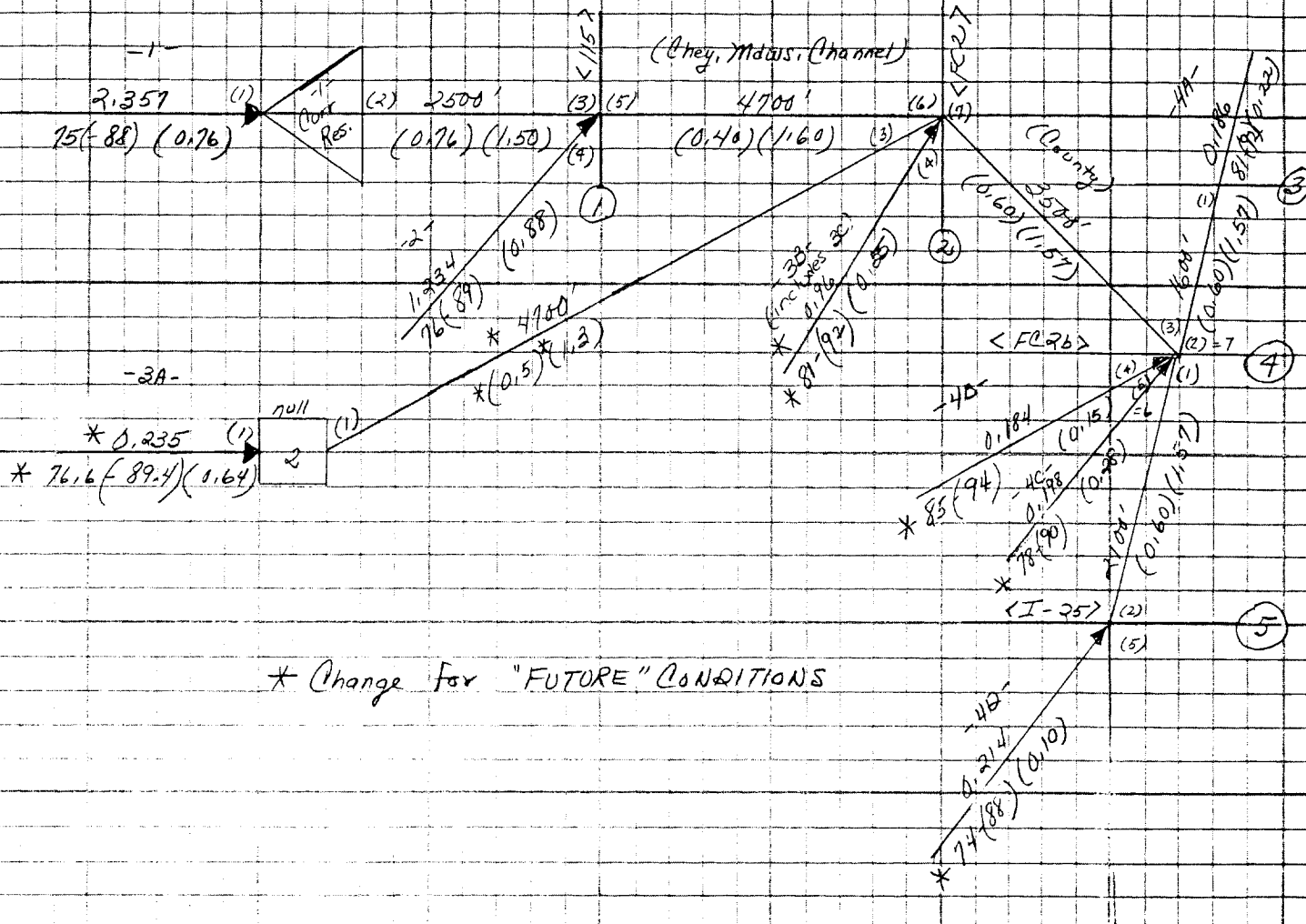
DATE 5-1-90

CHECKED BY:

DATE

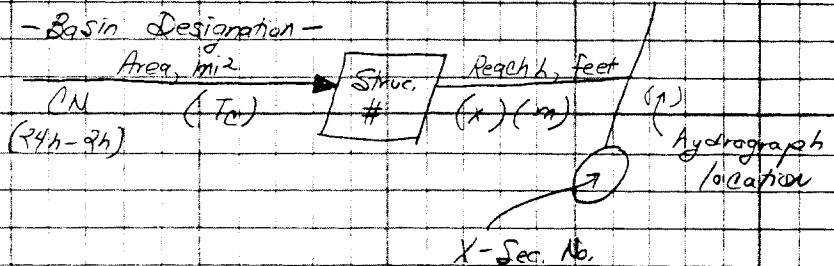
SHEET NO. 1 OF 30
 JOB NUMBER 8933

FLOW CHART, FISHERS CANYON - EXISTING CONDITIONS



* Change for "FUTURE" CONDITIONS

Legend:



TR-20 S/N: 32001697

DATE: 05/02/1990

TIME: 11:53:50.40

DATA FILE: FISHX.T20

*****80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****

JOB TR-20

SUMMARY

TITLE 1 FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS

TITLE ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

5 RAINFL 9	0.0833				
8	0.0	0.0173	0.0493	0.1201	0.2498
8	0.4659	0.5696	0.6180	0.6551	0.6880
8	0.7156	0.7433	0.7710	0.7986	0.8263
8	0.8539	0.8755	0.8920	0.9084	0.9248
8	0.9421	0.9576	0.9741	0.9888	1.0

9 ENDTBL

5 RAINFL 8	.0833				
8	.0	.0087	.0346	.0744	.1436
8	.2647	.4810	.6021	.6713	.7249
8	.7682	.8028	.8374	.8720	.8893
8	.9066	.9170	.9273	.9377	.9481
8	.9585	.9689	.9792	.9896	1.0

9 ENDTBL

5 RAINFL 7	.25				
8	0	0.0005	0.0015	.0030	0.0045
8	0.006	.008	.01	.012	.0143
8	.0165	.0188	.021	.0233	.0255
8	.0278	.032	.039	.046	.053
8	.06	.075	.1	.14	.17
8	.725	.75	.765	.78	.79
8	.8	.81	.82	.825	.83
8	.835	.84	.845	.85	.855
8	.86	.8638	.8675	.8713	.875
8	.8788	.8825	.8863	.89	.8938
8	.8975	.9013	.905	.9083	.9115
8	.9148	.918	.921	.924	.927
8	.93	.9325	.935	.9375	.94
8	.9425	.945	.9475	.95	.9525
8	.955	.9575	.96	.9625	.965
8	.9675	.97	.9725	.975	.9775
8	.98	.9813	.9825	.9838	.985
8	.9863	.9875	.9888	.99	.9913
8	.9925	.9938	.995	.9963	.9975
8	.9988	1.0	1.0	1.0	1.0

9 ENDTBL

3 STRUCT 1

8	5970.0	0.0	0.0
8	5970.5	45.0	18.0
8	5971.0	120.0	35.0
8	5971.5	240.0	53.0
8	5972.0	365.0	70.0
8	5973.0	395.0	108.0

*****80-80 LIST OF INPUT DATA (CONTINUED)*****

8			5974.0	425.0	151.0		
8			5975.0	450.0	195.0		
8			5976.0	473.0	248.0		
8			5977.0	495.0	302.0		
8			5978.0	1145.0	357.0		
9	ENDTBL						
6	RUNOFF	1	1	1	2.357	75.0	.761 1 1
6	RESVOR	2	1	1	2	5970.0	1 1 1 1
6	REACH	3	1	2	3	2500.0	0.76 1.501 1 1
6	RUNOFF	1	1		4	1.234	76.0 .881 1 1
6	ADDHYD	4	1	3	4	5	1 1 1
6	REACH	3	2	5	6	4700.0	0.40 1.601 1 1
6	RUNOFF	1	2		1	0.235	76.6 .641 1 1
6	REACH	3	2	1	3	4700.0	0.50 1.331 1 1
6	RUNOFF	1	2		4	0.96	81.0 .551 1 1
6	ADDHYD	4	2	3	4	5	1 1 1
6	ADDHYD	4	2	5	6	7	1 1 1
6	REACH	3	4	7	3	3500.0	0.60 1.571 1 1
6	RUNOFF	1	3		1	0.186	81.0 .221 1 1
6	REACH	3	4	1	2	1600.0	0.60 1.571 1 1
6	ADDHYD	4	4	3	2	7	
6	RUNOFF	1	4		4	0.184	85.0 .151 1 1
6	RUNOFF	1	4		5	0.198	78.0 .281 1 1
6	ADDHYD	4	4	4	5	6	
6	ADDHYD	4	4	6	7	1	1 1 1
6	REACH	3	5	1	2	2100.0	0.60 1.571 1 1
6	RUNOFF	1	5		3	0.214	74.0 .101 1 1
6	ADDHYD	4	5	2	3	5	1 1 1
ENDATA							
7	INCREM	6			.05		
7	COMPUT	7	1	5	0.0	4.50	1.07 2 1 1
ENDCMP 1							
7	COMPUT	7	1	5	0.0	3.20	1.07 2 1 2
ENDCMP 1							
7	COMPUT	7	1	5	0.0	3.05	1.08 3 2 1
ENDCMP 1							
7	COMPUT	7	1	5	0.0	2.06	1.09 3 2 2
ENDCMP 1							
ENDJOB 2							

*****END OF 80-80 LIST*****

TR20 XEB 05/02/1990
REV 09/01/83

FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

JOB 1 PASS 1
PAGE 1

FILE NO. 1

COMPUTER PROGRAM FOR PROJECT FORMULATION - HYDROLOGY USER NOTES

THE USERS MANUAL FOR THIS PROGRAM IS THE MAY 1982 DRAFT OF TR-20. CHANGES FROM THE 2/14/74 VERSION INCLUDE:

REACH ROUTING - THE MODIFIED ATT-KIN ROUTING PROCEDURE REPLACES THE CONVEX METHOD. INPUT DATA PREPARED FOR PREVIOUS PROGRAM VERSIONS USING CONVEX ROUTING COEFFICIENTS WILL NOT RUN ON THIS VERSION.

THE PREFERRED TYPE OF DATA ENTRY IS CROSS SECTION DATA REPRESENTATIVE OF A REACH. IT IS RECOMMENDED THAT THE OPTIONAL CROSS SECTION DISCHARGE-AREA PLOTS BE OBTAINED WHENEVER NEW CROSS SECTION DATA IS ENTERED. THE PLOTS SHOULD BE CHECKED FOR REASONABLENESS AND ADEQUACY OF INPUT DATA FOR THE COMPUTATION OF "M" VALUES USED IN THE ROUTING PROCEDURE.

GUIDELINES FOR DETERMINING OR ANALYZING REACH LENGTHS AND COEFFICIENTS (X,M) ARE AVAILABLE IN THE USERS MANUAL. SUMMARY TABLE 2 DISPLAYS REACH ROUTING RESULTS AND ROUTING PARAMETERS FOR COMPARISON AND CHECKING.

HYDROGRAPH GENERATION - THE PROCEDURE TO CALCULATE THE INTERNAL TIME INCREMENT AND PEAK TIME OF THE UNIT HYDROGRAPH HAVE BEEN IMPROVED. PEAK DISCHARGES AND TIMES MAY DIFFER FROM THE PREVIOUS VERSION. OUTPUT HYDROGRAPHS ARE STILL INTERPOLATED, PRINTED, AND ROUTED AT THE USER SELECTED MAIN TIME INCREMENT.

INTERMEDIATE PEAKS - METHOD ADDED TO PROVIDE DISCHARGES AT INTERMEDIATE POINTS WITHIN REACHES WITHOUT ROUTING.

OTHER - THIS VERSION CONTAINS SOME ADDITIONS TO THE INPUT AND NUMEROUS MODIFICATIONS TO THE OUTPUT. USER OPTIONS HAVE BEEN MODIFIED AND AUGMENTED ON THE JOB RECORD, RAINTABLES ADDED, ERROR AND WARNING MESSAGES EXPANDED, AND THE SUMMARY TABLES COMPLETELY REVISED. THE HOLDOUT OPTION IS NOT OPERATIONAL AT THIS TIME.

PROGRAM QUESTIONS OR PROBLEMS SHOULD BE DIRECTED TO HYDRAULIC ENGINEERS AT THE SCS NATIONAL TECHNICAL CENTERS:

CHESTER, PA (NORTHEAST) -- 215-499-3933, FORT WORTH, TX (SOUTH) -- 334-5242 (FTS)
LINCOLN, NE (MIDWEST) -- 541-5318 (FTS), PORTLAND, OR (WEST) -- 423-4099 (FTS)
OR HYDROLOGY UNIT, ENGINEERING DIVISION, LANHAM, MD -- 436-7383 (FTS).

PROGRAM CHANGES SINCE MAY 1982:

12/17/82 - CORRECT PEAK RATE FACTOR FOR USER ENTERED DIMHYD

CORRECT REACH ROUTING PEAK TRAVEL TIME PRINTED WITH FULLPRINT OPTION

5/02/83 - CORRECT COMPUTATIONS FOR ---

1. DIVISION OF BASEFLOW IN DIVERT OPERATION
2. HYDROGRAPH VOLUME SPLIT BETWEEN BASEFLOW AND ABOVE BASEFLOW
3. CROSS SECTION DATA PLOTTING POSITION
4. INTERMEDIATE PEAK WHEN "FROM" AREA IS LARGER THAN "THRU" AREA
5. STORAGE ROUTED REACH TRAVEL TIME FOR MULTIPLE PEAK HYDROGRAPH
6. ORDERING "FLOW-FREQ" FILE FROM SUMMARY TABLE #3 DATA
7. BASEFLOW ENTERED WITH READHYD
8. LOW FLOW SPLIT DURING DIVERT PROCEDURE #2 WHEN SECTION RATINGS START AT DIFFERENT ELEVATIONS

ENHANCEMENTS ---

1. REPLACE USER MANUAL ERROR CODES (PAGE 4-9 TO 4-11) WITH MESSAGES
2. LABEL OUTPUT HYDROGRAPH FILES WITH CROSS SECTION/STRUCTURE, ALTERNATE AND STORM NO'S

09/01/83 - CORRECT INPUT AND OUTPUT ERRORS FOR INTERMEDIATE PEAKS

CORRECT COMBINATION OF RATING TABLES FOR DIVERT

CHECK REACH ROUTING PARAMETERS FOR ACCEPTABLE LIMITS

ELIMINATE MINIMUM REACH TRAVEL TIME WHEN ATT-KIN COEFFICIENT EQUALS ONE

TR20 XEB 05/02/1990
REV 09/01/83

FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

JOB 1 PASS 1
PAGE 2

EXECUTIVE CONTROL OPERATION INCREM MAIN TIME INCREMENT = 0.05 HOURS

RECORD ID

EXECUTIVE CONTROL OPERATION COMPUT FROM STRUCTURE 1 TO XSECTION 5

RECORD ID

STARTING TIME = 0.00 RAIN DEPTH = 4.50 RAIN DURATION = 1.00 RAIN TABLE NO. = 7 ANT. MOIST. COND = 2
ALTERNATE NO. = 1 STORM NO. = 1 MAIN TIME INCREMENT = 0.05 HOURS

OPERATION RUNOFF STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.35	2262.15	(RUNOFF)
13.01	77.26	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.78 WATERSHED INCHES, 2705.14 CFS-HRS, 223.55 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.38	402.78	5973.26

TIME(HRS)	FIRST HYDROGRAPH POINT = 0.00 HOURS	TIME INCREMENT = 0.05 HOURS	DRAINAGE AREA = 2.36 SQ.MI.
5.50	DISCHG 0.00 0.00 0.02 0.10 0.34 0.90 2.04 4.08 7.46 12.62		
5.50	ELEV 5970.00 5970.00 5970.00 5970.00 5970.00 5970.01 5970.02 5970.05 5970.08 5970.14		
6.00	DISCHG 20.04 30.05 42.83 68.44 99.87 141.93 197.04 253.96 313.57 365.50		
6.00	ELEV 5970.22 5970.33 5970.48 5970.66 5970.87 5971.09 5971.32 5971.56 5971.79 5972.02		
6.50	DISCHG 371.08 376.20 380.77 384.80 388.27 391.22 393.71 395.71 397.27 398.57		
6.50	ELEV 5972.20 5972.37 5972.53 5972.66 5972.78 5972.87 5972.96 5973.02 5973.08 5973.12		
7.00	DISCHG 399.65 400.53 401.23 401.78 402.20 402.49 402.68 402.77 402.77 402.70		
7.00	ELEV 5973.15 5973.18 5973.21 5973.23 5973.24 5973.25 5973.26 5973.26 5973.26 5973.26		
7.50	DISCHG 402.56 402.35 402.10 401.79 401.44 401.06 400.65 400.21 399.75 399.28		
7.50	ELEV 5973.25 5973.25 5973.24 5973.23 5973.21 5973.20 5973.19 5973.17 5973.16 5973.14		
8.00	DISCHG 398.79 398.28 397.77 397.24 396.70 396.14 395.57 394.97 394.28 393.56		
8.00	ELEV 5973.13 5973.11 5973.09 5973.07 5973.06 5973.04 5973.02 5973.00 5972.98 5972.95		
8.50	DISCHG 392.81 392.04 391.25 390.44 389.62 388.77 387.92 387.05 386.18 385.30		
8.50	ELEV 5972.93 5972.90 5972.87 5972.85 5972.82 5972.79 5972.76 5972.73 5972.71 5972.68		
9.00	DISCHG 384.41 383.52 382.63 381.73 380.84 379.94 379.05 378.15 377.26 376.37		
9.00	ELEV 5972.65 5972.62 5972.59 5972.56 5972.53 5972.50 5972.47 5972.44 5972.41 5972.38		
9.50	DISCHG 375.48 374.59 373.70 372.81 371.93 371.05 370.17 369.29 368.42 367.55		
9.50	ELEV 5972.35 5972.32 5972.29 5972.26 5972.23 5972.20 5972.17 5972.14 5972.11 5972.08		
10.00	DISCHG 366.68 365.82 364.58 363.68 362.00 361.53 360.26 359.16 358.23 357.46		
10.00	ELEV 5972.06 5972.03 5972.00 5971.97 5971.94 5971.91 5971.88 5971.85 5971.82 5971.79		
10.50	DISCHG 306.83 300.35 294.01 287.81 281.75 275.82 270.04 264.40 258.91 253.56		
10.50	ELEV 5971.77 5971.74 5971.72 5971.69 5971.67 5971.64 5971.62 5971.60 5971.58 5971.55		
11.00	DISCHG 248.36 243.30 238.52 234.17 229.93 225.79 221.77 217.84 214.03 210.31		
11.00	ELEV 5971.53 5971.51 5971.49 5971.48 5971.46 5971.44 5971.42 5971.41 5971.39 5971.38		

TR20 XED 05/02/1990
REV 09/01/83

FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

JOB 1 PAGE 1
PAGE 3

11.50	DISCHG	206.69	203.17	199.74	196.40	193.15	189.99	186.91	183.92	181.01	178.18
11.50	ELEV	5971.36	5971.35	5971.33	5971.32	5971.30	5971.29	5971.28	5971.27	5971.25	5971.24
12.00	DISCHG	175.43	172.75	170.14	167.61	165.14	162.74	160.41	158.14	155.93	153.78
12.00	ELEV	5971.23	5971.22	5971.21	5971.20	5971.19	5971.18	5971.17	5971.16	5971.15	5971.14
12.50	DISCHG	151.70	149.67	147.69	145.77	143.91	142.09	140.32	138.61	136.94	135.31
12.50	ELEV	5971.13	5971.12	5971.12	5971.11	5971.10	5971.09	5971.08	5971.08	5971.07	5971.06
13.00	DISCHG	133.74	132.20	130.71	129.25	127.83	126.44	125.07	123.73	122.41	121.11
13.00	ELEV	5971.06	5971.05	5971.04	5971.04	5971.03	5971.03	5971.02	5971.02	5971.01	5971.00
13.50	DISCHG	119.88	119.03	118.19	117.35	116.51	115.67	114.85	114.03	113.22	112.42
13.50	ELEV	5971.00	5970.99	5970.99	5970.98	5970.98	5970.97	5970.97	5970.96	5970.95	5970.95
14.00	DISCHG	111.63	110.85	110.09	109.33	108.58	107.84	107.11	106.38	105.66	104.95
14.00	ELEV	5970.94	5970.94	5970.93	5970.93	5970.92	5970.92	5970.91	5970.91	5970.90	5970.90
14.50	DISCHG	104.24	103.53	102.84	102.15	101.46	100.78	100.12	99.46	98.80	98.16
14.50	ELEV	5970.90	5970.89	5970.89	5970.88	5970.88	5970.87	5970.87	5970.86	5970.86	5970.85

RUNOFF VOLUME ABOVE BASEFLOW = 1.54 WATERSHED INCHES, 2341.68 CFS-HRS, 193.52 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING - REACH 1 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 98.16 CFS, 24.37 % OF PEAK.

OPERATION REACH CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.48	402.69	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.53 WATERSHED INCHES, 2331.53 CFS-HRS, 192.68 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.43	1109.75	(RUNOFF)
13.03	41.26	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.85 WATERSHED INCHES, 1472.15 CFS-HRS, 121.66 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.51	1401.53	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.64 WATERSHED INCHES, 3803.69 CFS-HRS, 314.34 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.63	1349.10	(NULL)

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FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
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RUNOFF VOLUME ABOVE BASEFLOW = 1.63 WATERSHED INCHES, 3787.46 CFS-HRS, 313.00 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.27	275.83	(RUNOFF)
9.98	10.41	(RUNOFF)
12.97	7.97	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.90 WATERSHED INCHES, 288.66 CFS-HRS, 23.85 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.71	178.90	(NULL)
13.25	7.95*	(NULL) * FIRST POINT OF FLAT PEAK

RUNOFF VOLUME ABOVE BASEFLOW = 1.88 WATERSHED INCHES, 284.70 CFS-HRS, 23.53 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.20	1497.26	(RUNOFF)
9.98	46.31	(RUNOFF)
12.95	35.28	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.25 WATERSHED INCHES, 1395.41 CFS-HRS, 115.32 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.21	1538.05	(NULL)
12.95	43.23	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.18 WATERSHED INCHES, 1680.12 CFS-HRS, 138.84 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.35	2264.45	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.77 WATERSHED INCHES, 5467.58 CFS-HRS, 451.84 ACRE-FEET; BASEFLOW = 0.00 CFS

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FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

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OPERATION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.43	2250.30	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.77 WATERSHED INCHES, 5454.36 CFS-HRS, 450.75 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.03	428.56	(RUNOFF)
7.95	17.70	(RUNOFF)
9.98	9.00	(RUNOFF)
12.79	6.89	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.27 WATERSHED INCHES, 271.97 CFS-HRS, 22.48 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING REACH 4 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

OPERATION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.09	419.91	(NULL)
8.01	17.69	(NULL)
10.03	8.99	(NULL)
12.85	6.88	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.26 WATERSHED INCHES, 271.60 CFS-HRS, 22.44 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.99	507.13	(RUNOFF)
6.98	27.98	(RUNOFF)
7.98	18.90	(RUNOFF)
9.98	9.51	(RUNOFF)
12.75	7.26	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.61 WATERSHED INCHES, 310.42 CFS-HRS, 25.65 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 4

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FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.03	382.21	(RUNOFF)
7.95	17.72	(RUNOFF)
9.97	9.04	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.02 WATERSHED INCHES, 258.36 CFS-HRS, 21.35 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.33	2459.09	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.82 WATERSHED INCHES, 6294.73 CFS-HRS, 520.20 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING REACH 5 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

OPERATION REACH CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.38	2458.70	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.82 WATERSHED INCHES, 6284.05 CFS-HRS, 519.31 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.99	446.31	(RUNOFF)
6.48	42.27	(RUNOFF)
6.98	25.92	(RUNOFF)
7.98	17.83	(RUNOFF)
9.98	9.05	(RUNOFF)
12.73	6.97	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.73 WATERSHED INCHES, 238.79 CFS-HRS, 19.73 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.38	2500.18	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.82 WATERSHED INCHES, 6522.83 CFS-HRS, 539.05 ACRE-FEET; BASEFLOW = 0.00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

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FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
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EXECUTIVE CONTROL OPERATION COMPUT FROM STRUCTURE 1 TO XSECTION 5 RECORD ID
STARTING TIME = 0.00 RAIN DEPTH = 3.20 RAIN DURATION= 1.00 RAIN TABLE NO.= 7 ANT. MOIST. COND= 2
ALTERNATE NO.= 1 STORM NO.= 2 MAIN TIME INCREMENT = 0.05 HOURS

OPERATION RUNOFF STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.37	1112.56	(RUNOFF)
13.03	46.53	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 0.93 WATERSHED INCHES, 1411.63 CFS-HRS, 116.66 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.25	269.41	5971.62

TIME(HRS)	FIRST HYDROGRAPH POINT = 0.00 HOURS				TIME INCREMENT = 0.05 HOURS				DRAINAGE AREA = 2.36 SQ.MI.		
5.50	DISCHG	0.00	0.00	0.00	0.01	0.05	0.18	0.48	1.09	2.20	4.05
5.50	ELEV	5970.00	5970.00	5970.00	5970.00	5970.00	5970.00	5970.01	5970.01	5970.02	5970.04
6.00	DISCHG	6.89	10.96	16.41	23.29	31.53	40.93	55.85	74.56	93.23	111.28
6.00	ELEV	5970.08	5970.12	5970.18	5970.26	5970.35	5970.45	5970.57	5970.70	5970.82	5970.94
6.50	DISCHG	132.43	155.74	176.43	194.39	209.67	222.41	232.91	241.64	249.32	255.45
6.50	ELEV	5971.05	5971.15	5971.24	5971.31	5971.37	5971.43	5971.47	5971.51	5971.54	5971.56
7.00	DISCHG	260.25	263.88	266.48	268.20	269.14	269.41	269.10	268.28	267.02	265.37
7.00	ELEV	5971.58	5971.60	5971.61	5971.61	5971.62	5971.62	5971.62	5971.61	5971.61	5971.60
7.50	DISCHG	263.40	261.14	258.64	255.95	253.11	250.15	247.10	243.99	240.86	237.93
7.50	ELEV	5971.59	5971.58	5971.57	5971.56	5971.55	5971.54	5971.53	5971.52	5971.50	5971.49
8.00	DISCHG	235.07	232.23	229.39	226.57	223.74	220.91	218.05	215.15	212.20	209.21
8.00	ELEV	5971.48	5971.47	5971.46	5971.44	5971.43	5971.42	5971.41	5971.40	5971.38	5971.37
8.50	DISCHG	206.17	203.08	199.96	196.82	193.66	190.50	187.34	184.21	181.11	178.05
8.50	ELEV	5971.36	5971.35	5971.33	5971.32	5971.31	5971.29	5971.28	5971.27	5971.25	5971.24
9.00	DISCHG	175.04	172.07	169.16	166.31	163.51	160.77	158.10	155.48	152.93	150.44
9.00	ELEV	5971.23	5971.22	5971.21	5971.19	5971.18	5971.17	5971.16	5971.15	5971.14	5971.13
9.50	DISCHG	148.01	145.64	143.33	141.08	138.89	136.75	134.68	132.65	130.68	128.77
9.50	ELEV	5971.12	5971.11	5971.10	5971.09	5971.08	5971.07	5971.06	5971.05	5971.04	5971.04
10.00	DISCHG	126.91	125.09	123.32	121.60	119.95	118.35	117.76	116.68	115.60	114.53
10.00	ELEV	5971.03	5971.02	5971.01	5971.01	5971.00	5970.99	5970.98	5970.98	5970.97	5970.96
10.50	DISCHG	113.45	112.38	111.30	110.23	109.16	108.09	107.03	105.98	104.94	103.91
10.50	ELEV	5970.96	5970.95	5970.94	5970.94	5970.93	5970.92	5970.91	5970.91	5970.90	5970.89
11.00	DISCHG	102.89	101.89	100.90	99.92	98.96	98.01	97.08	96.17	95.26	94.38
11.00	ELEV	5970.89	5970.88	5970.87	5970.87	5970.86	5970.85	5970.85	5970.84	5970.83	5970.83
11.50	DISCHG	93.51	92.65	91.81	90.99	90.18	89.38	88.60	87.83	87.07	86.33

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11.50	ELEV	5970.82	5970.82	5970.81	5970.81	5970.80	5970.80	5970.79	5970.79	5970.78	5970.78
12.00	DISCHG	85.61	84.89	84.19	83.51	82.83	82.17	81.52	80.88	80.25	79.64
12.00	ELEV	5970.77	5970.77	5970.76	5970.76	5970.75	5970.75	5970.74	5970.74	5970.73	5970.73
12.50	DISCHG	79.04	78.45	77.87	77.30	76.74	76.19	75.65	75.12	74.60	74.10
12.50	ELEV	5970.73	5970.72	5970.72	5970.72	5970.71	5970.71	5970.70	5970.70	5970.70	5970.69
13.00	DISCHG	73.60	73.11	72.63	72.15	71.69	71.23	70.77	70.32	69.86	69.41
13.00	ELEV	5970.69	5970.69	5970.68	5970.68	5970.68	5970.67	5970.67	5970.67	5970.67	5970.66
13.50	DISCHG	68.96	68.51	68.06	67.61	67.16	66.72	66.28	65.84	65.40	64.97
13.50	ELEV	5970.66	5970.66	5970.65	5970.65	5970.65	5970.65	5970.64	5970.64	5970.64	5970.63
14.00	DISCHG	64.55	64.13	63.72	63.31	62.91	62.51	62.12	61.73	61.34	60.95
14.00	ELEV	5970.63	5970.63	5970.62	5970.62	5970.62	5970.62	5970.61	5970.61	5970.61	5970.61
14.50	DISCHG	60.57	60.19	59.81	59.43	59.06	58.69	58.33	57.97	57.62	57.27
14.50	ELEV	5970.60	5970.60	5970.60	5970.60	5970.59	5970.59	5970.59	5970.59	5970.58	5970.58

RUNOFF VOLUME ABOVE BASEFLOW = 0.76 WATERSHED INCHES, 1160.17 CFS-HRS, 95.88 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING - REACH 1 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 57.27 CFS, 21.26 % OF PEAK.

OPERATION REACH CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.37	268.47	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 0.76 WATERSHED INCHES, 1153.74 CFS-HRS, 95.34 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.46	555.13	(RUNOFF)
13.04	25.10	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 0.98 WATERSHED INCHES, 779.48 CFS-HRS, 64.42 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.56	645.49	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 0.83 WATERSHED INCHES, 1933.22 CFS-HRS, 159.76 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING - REACH 2 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 78.85 CFS, 12.22 % OF PEAK.

OPERATION REACH CROSS SECTION 2

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FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.73	620.73	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 0.83 WATERSHED INCHES, 1920.98 CFS-HRS, 158.75 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.29	140.49	(RUNOFF)
10.00	6.31	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.02 WATERSHED INCHES, 154.31 CFS-HRS, 12.75 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.82	83.76	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.00 WATERSHED INCHES, 151.32 CFS-HRS, 12.51 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.21	827.12	(RUNOFF)
9.99	29.32	(RUNOFF)
12.76	22.51	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.28 WATERSHED INCHES, 792.39 CFS-HRS, 65.48 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.22	837.11	(NULL)
12.96	27.37	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.22 WATERSHED INCHES, 943.71 CFS-HRS, 77.99 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.32	1125.40	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 0.93 WATERSHED INCHES, 2864.69 CFS-HRS, 236.74 ACRE-FEET; BASEFLOW = 0.00 CFS

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OPERATION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.43	1106.49	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 0.92 WATERSHED INCHES, 2855.18 CFS-HRS, 235.95 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.04	247.70	(RUNOFF)
7.96	11.13	(RUNOFF)
9.98	5.70	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.29 WATERSHED INCHES, 154.53 CFS-HRS, 12.77 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.10	237.74	(NULL)
8.03	11.14	(NULL)
10.03	5.70	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.29 WATERSHED INCHES, 154.26 CFS-HRS, 12.75 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.00	313.27	(RUNOFF)
6.98	18.15	(RUNOFF)
7.98	12.34	(RUNOFF)
9.98	6.24	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.56 WATERSHED INCHES, 185.48 CFS-HRS, 15.33 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.07	207.99	(RUNOFF)
7.97	10.81	(RUNOFF)
9.98	5.57	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.10 WATERSHED INCHES, 141.00 CFS-HRS, 11.65 ACRE-FEET; BASEFLOW = 0.00 CFS

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OPERATION ADDHYD CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.32	1239.47	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 0.97 WATERSHED INCHES, 3335.93 CFS-HRS, 275.68 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING REACH 5 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

OPERATION REACH CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.38	1239.61	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 0.98 WATERSHED INCHES, 3328.44 CFS-HRS, 275.06 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.99	238.96	(RUNOFF)
6.48	24.12	(RUNOFF)
6.98	14.96	(RUNOFF)
7.98	10.41	(RUNOFF)
9.98	5.34	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 0.89 WATERSHED INCHES, 122.93 CFS-HRS, 10.16 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.38	1263.18	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 0.96 WATERSHED INCHES, 3451.38 CFS-HRS, 285.22 ACRE-FEET; BASEFLOW = 0.00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP COMPUTATIONS COMPLETED FOR PASS 2

RECORD ID

EXECUTIVE CONTROL OPERATION COMPUT FROM STRUCTURE 1 TO XSECTION 5

RECORD ID

STARTING TIME = 0.00 RAIN DEPTH = 3.05 RAIN DURATION = 1.00 RAIN TABLE NO. = 8 ANT. MOIST. COND = 3
ALTERNATE NO. = 2 STORM NO. = 1 MAIN TIME INCREMENT = 0.05 HOURS

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TR20 XEB 05/02/1990
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FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

JOB 1 PASS 3
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OPERATION RUNOFF STRUCTURE 1

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
1.10 2608.23 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.86 WATERSHED INCHES, 2832.76 CFS-HRS, 234.10 ACRE-FeET; BASEFLOW = 0.00 CFS

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
2.43 436.59 5974.46

TIME(HRS)	FIRST HYDROGRAPH POINT = 0.00 HOURS	TIME INCREMENT = 0.05 HOURS	DRAINAGE AREA = 2.36 SQ.MI.
0.00	DISCHG 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.02 0.12 0.44		
0.00	ELEV 5970.00 5970.00 5970.00 5970.00 5970.00 5970.00 5970.00 5970.00 5970.00 5970.00 5970.00 5970.00		
0.50	DISCHG 1.29 3.12 6.48 11.94 20.11 31.43 46.85 78.03 113.67 169.23		
0.50	ELEV 5970.01 5970.03 5970.07 5970.13 5970.22 5970.35 5970.51 5970.72 5970.96 5971.21		
1.00	DISCHG 230.99 299.41 365.34 372.61 379.68 386.45 392.82 398.33 403.20 407.68		
1.00	ELEV 5971.46 5971.74 5972.01 5972.25 5972.49 5972.71 5972.93 5973.11 5973.27 5973.42		
1.50	DISCHG 411.77 415.47 418.79 421.76 424.38 426.37 428.01 429.44 430.68 431.77		
1.50	ELEV 5973.56 5973.68 5973.79 5973.89 5973.98 5974.05 5974.12 5974.18 5974.23 5974.27		
2.00	DISCHG 432.71 433.54 434.27 434.90 435.43 435.87 436.22 436.45 436.57 436.58		
2.00	ELEV 5974.31 5974.34 5974.37 5974.40 5974.42 5974.44 5974.45 5974.46 5974.46 5974.46		
2.50	DISCHG 436.47 436.25 435.93 435.51 435.01 434.42 433.78 433.07 432.32 431.53		
2.50	ELEV 5974.46 5974.45 5974.44 5974.42 5974.40 5974.38 5974.35 5974.32 5974.29 5974.26		
3.00	DISCHG 430.70 429.85 428.98 428.08 427.17 426.25 425.32 424.23 423.07 421.90		
3.00	ELEV 5974.23 5974.19 5974.16 5974.12 5974.09 5974.05 5974.01 5973.97 5973.94 5973.90		
3.50	DISCHG 420.73 419.55 418.37 417.19 416.01 414.83 413.64 412.46 411.29 410.11		
3.50	ELEV 5973.86 5973.82 5973.78 5973.74 5973.70 5973.66 5973.62 5973.58 5973.54 5973.50		
4.00	DISCHG 408.94 407.76 406.59 405.43 404.26 403.10 401.94 400.78 399.63 398.48		
4.00	ELEV 5973.46 5973.43 5973.39 5973.35 5973.31 5973.27 5973.23 5973.19 5973.15 5973.12		
4.50	DISCHG 397.33 396.19 395.05 393.77 392.49 391.21 389.93 388.66 387.40 386.14		
4.50	ELEV 5973.08 5973.04 5973.00 5972.96 5972.92 5972.87 5972.83 5972.79 5972.75 5972.70		
5.00	DISCHG 384.88 383.63 382.38 381.13 379.89 378.65 377.42 376.19 374.96 373.74		
5.00	ELEV 5972.66 5972.62 5972.58 5972.54 5972.50 5972.46 5972.41 5972.37 5972.33 5972.29		
5.50	DISCHG 372.53 371.31 370.10 368.90 367.70 366.50 365.30 364.17 363.03 361.88		
5.50	ELEV 5972.25 5972.21 5972.17 5972.13 5972.09 5972.05 5972.01 5971.97 5971.92 5971.88		
6.00	DISCHG 325.77 316.02 306.57 297.39 288.49 279.86 271.48 263.35 255.47 247.83		
6.00	ELEV 5971.84 5971.80 5971.77 5971.73 5971.69 5971.66 5971.63 5971.59 5971.56 5971.53		
6.50	DISCHG 240.41 233.84 227.48 221.30 215.29 209.44 203.75 198.21 192.82 187.58		
6.50	ELEV 5971.50 5971.47 5971.45 5971.42 5971.40 5971.37 5971.35 5971.33 5971.30 5971.28		
7.00	DISCHG 182.49 177.53 172.70 168.01 163.45 159.00 154.68 150.48 146.39 142.41		
7.00	ELEV 5971.26 5971.24 5971.22 5971.20 5971.18 5971.16 5971.14 5971.13 5971.11 5971.09		
7.50	DISCHG 138.54 134.78 131.12 127.55 124.09 120.71 118.29 116.16 114.06 112.00		
7.50	ELEV 5971.08 5971.06 5971.05 5971.03 5971.02 5971.00 5970.99 5970.97 5970.96 5970.95		
8.00	DISCHG 109.97 107.99 106.04 104.12 102.24 100.39 98.58 96.80 95.05 93.33		

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TR20 XEQ 05/02/1990
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FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
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8.00	ELEV	5970.93	5970.92	5970.91	5970.89	5970.88	5970.87	5970.86	5970.85	5970.83	5970.82
8.50	DISCHG	91.65	89.99	88.37	86.77	85.20	83.66	82.15	80.67	79.21	77.78
8.50	ELEV	5970.81	5970.80	5970.79	5970.78	5970.77	5970.76	5970.75	5970.74	5970.73	5970.72
9.00	DISCHG	76.37	74.99	73.64	72.31	71.00	69.72	68.46	67.22	66.01	64.82
9.00	ELEV	5970.71	5970.70	5970.69	5970.68	5970.67	5970.67	5970.66	5970.65	5970.64	5970.63
9.50	DISCHG	63.65	62.50	61.37	60.26	59.17	58.10	57.05	56.02	55.01	54.01
9.50	ELEV	5970.62	5970.62	5970.61	5970.60	5970.59	5970.59	5970.58	5970.57	5970.57	5970.56
10.00	DISCHG	53.04	52.08	51.14	50.22	49.31	48.42	47.54	46.68	45.84	45.01
10.00	ELEV	5970.55	5970.55	5970.54	5970.53	5970.53	5970.52	5970.52	5970.51	5970.51	5970.50
10.50	DISCHG	44.54	44.09	43.63	43.19	42.74	42.30	41.87	41.44	41.01	40.59
10.50	ELEV	5970.50	5970.49	5970.48	5970.48	5970.48	5970.47	5970.47	5970.46	5970.46	5970.45
11.00	DISCHG	40.17	39.76	39.35	38.95	38.55	38.15	37.76	37.37	36.99	36.61
11.00	ELEV	5970.45	5970.44	5970.44	5970.43	5970.43	5970.42	5970.42	5970.42	5970.41	5970.41
11.50	DISCHG	36.23	35.86	35.49	35.12	34.76	34.41	34.05	33.70	33.36	33.01
11.50	ELEV	5970.40	5970.40	5970.39	5970.39	5970.39	5970.38	5970.38	5970.37	5970.37	5970.37
12.00	DISCHG	32.67	32.34	32.01	31.68	31.35	31.03	30.71	30.39	30.08	29.77
12.00	ELEV	5970.36	5970.36	5970.36	5970.35	5970.35	5970.34	5970.34	5970.34	5970.33	5970.33
12.50	DISCHG	29.47	29.16	28.86	28.57	28.27	27.98	27.70	27.41	27.13	26.85
12.50	ELEV	5970.33	5970.32	5970.32	5970.32	5970.31	5970.31	5970.31	5970.30	5970.30	5970.30
13.00	DISCHG	26.57	26.30	26.03	25.76	25.50	25.24	24.98	24.72	24.47	24.22
13.00	ELEV	5970.30	5970.29	5970.29	5970.29	5970.28	5970.28	5970.28	5970.27	5970.27	5970.27
13.50	DISCHG	23.97	23.72	23.48	23.23	23.00	22.76	22.53	22.29	22.07	21.84
13.50	ELEV	5970.27	5970.26	5970.26	5970.26	5970.26	5970.25	5970.25	5970.25	5970.25	5970.24
14.00	DISCHG	21.61	21.39	21.17	20.95	20.74	20.53	20.31	20.11	19.90	19.69
14.00	ELEV	5970.24	5970.24	5970.24	5970.23	5970.23	5970.23	5970.23	5970.22	5970.22	5970.22
14.50	DISCHG	19.49	19.29	19.09	18.90	18.70	18.51	18.32	18.13	17.95	17.76
14.50	ELEV	5970.22	5970.21	5970.21	5970.21	5970.21	5970.21	5970.20	5970.20	5970.20	5970.20

RUNOFF VOLUME ABOVE BASEFLOW = 1.81 WATERSHED INCHES, 2746.66 CFS-HRS, 226.98 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.53	436.48	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.80 WATERSHED INCHES, 2745.06 CFS-HRS, 226.85 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.20	1286.45	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.91 WATERSHED INCHES, 1521.84 CFS-HRS, 125.77 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 1

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TR20 XEB 05/02/1990
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FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.25	1635.93	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.84 WATERSHED INCHES, 4266.90 CFS-HRS, 352.62 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.37	1594.20	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.84 WATERSHED INCHES, 4264.70 CFS-HRS, 352.43 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.99	301.66	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.94 WATERSHED INCHES, 294.68 CFS-HRS, 24.35 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.41	211.43	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.94 WATERSHED INCHES, 294.66 CFS-HRS, 24.35 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.89	1530.89	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.17 WATERSHED INCHES, 1345.20 CFS-HRS, 111.17 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.91	1613.71	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.13 WATERSHED INCHES, 1639.85 CFS-HRS, 135.52 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 2

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TR20 XED 05/02/1990
REV 09/01/83

FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.24	2690.16	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.91 WATERSHED INCHES, 5904.55 CFS-HRS, 487.95 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING REACH 4 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

OPERATION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.31	2680.35	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.91 WATERSHED INCHES, 5903.18 CFS-HRS, 487.84 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.63	470.19	(RUNOFF)
1.93	42.71	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.17 WATERSHED INCHES, 260.53 CFS-HRS, 21.53 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING REACH 4 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

OPERATION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.70	456.09	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.17 WATERSHED INCHES, 260.37 CFS-HRS, 21.52 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.57	607.36	(RUNOFF)
1.98	44.20	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.40 WATERSHED INCHES, 284.62 CFS-HRS, 23.52 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.68	409.00	(RUNOFF)

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FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
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RUNOFF VOLUME ABOVE BASEFLOW = 2.01 WATERSHED INCHES, 256.95 CFS-HRS, 21.23 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.19	3002.44	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.94 WATERSHED INCHES, 6705.12 CFS-HRS, 554.11 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING REACH 5 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

OPERATION REACH CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.25	3002.03	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.94 WATERSHED INCHES, 6704.21 CFS-HRS, 554.04 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.55	562.43	(RUNOFF)
1.98	47.76	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.81 WATERSHED INCHES, 249.88 CFS-HRS, 20.65 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.17	3087.38	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.94 WATERSHED INCHES, 6954.09 CFS-HRS, 574.69 ACRE-FEET; BASEFLOW = 0.00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP COMPUTATIONS COMPLETED FOR PASS 3

RECORD ID

EXECUTIVE CONTROL OPERATION COMPUT FROM STRUCTURE 1 TO XSECTION 5

RECORD ID

STARTING TIME = 0.00 RAIN DEPTH = 2.06 RAIN DURATION= 1.00 RAIN TABLE NO.= 9 ANT. MOIST. COND= 3
ALTERNATE NO.= 2 STORM NO.= 2 MAIN TIME INCREMENT = 0.05 HOURS

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FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

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OPERATION RUNOFF STRUCTURE 1

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
1.03 1111.87 (RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.01 WATERSHED INCHES, 1541.75 CFS-HRS, 127.41 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
2.40 373.46 5972.28

TIME(HRS)	FIRST HYDROGRAPH POINT = 0.00 HOURS	TIME INCREMENT = 0.05 HOURS	DRAINAGE AREA = 2.36 SQ.MI.
0.00	DISCHG 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.04 0.21 0.57		
0.00	ELEV 5970.00 5970.00 5970.00 5970.00 5970.00 5970.00 5970.00 5970.00 5970.00 5970.00 5970.00 5970.01		
0.50	DISCHG 1.65 3.39 6.17 10.25 15.78 22.75 30.98 40.23 54.18 72.50		
0.50	ELEV 5970.02 5970.04 5970.07 5970.11 5970.18 5970.25 5970.34 5970.45 5970.56 5970.68		
1.00	DISCHG 91.06 109.46 131.08 156.73 180.70 202.98 223.70 243.34 263.26 281.88		
1.00	ELEV 5970.81 5970.93 5971.05 5971.15 5971.25 5971.35 5971.43 5971.51 5971.59 5971.67		
1.50	DISCHG 299.27 315.44 330.38 344.11 356.63 365.32 368.44 367.46 368.40 369.27		
1.50	ELEV 5971.74 5971.80 5971.86 5971.92 5971.97 5972.01 5972.05 5972.08 5972.11 5972.14		
2.00	DISCHG 370.06 370.77 371.42 372.00 372.50 372.91 373.21 373.39 373.46 373.39		
2.00	ELEV 5972.17 5972.19 5972.21 5972.23 5972.25 5972.26 5972.27 5972.28 5972.28 5972.28		
2.50	DISCHG 373.19 372.87 372.43 371.89 371.25 370.52 369.72 368.86 367.95 367.00		
2.50	ELEV 5972.27 5972.26 5972.25 5972.23 5972.21 5972.18 5972.16 5972.13 5972.10 5972.07		
3.00	DISCHG 366.02 365.00 358.49 346.02 336.67 327.44 318.35 309.43 300.68 292.11		
3.00	ELEV 5972.03 5972.00 5971.96 5971.92 5971.89 5971.85 5971.81 5971.78 5971.74 5971.71		
3.50	DISCHG 283.73 275.54 267.55 259.75 252.16 244.76 237.78 231.41 225.20 219.14		
3.50	ELEV 5971.67 5971.64 5971.61 5971.58 5971.55 5971.52 5971.49 5971.46 5971.44 5971.41		
4.00	DISCHG 213.23 207.48 201.87 196.41 191.09 185.91 180.87 175.96 171.18 166.53		
4.00	ELEV 5971.39 5971.36 5971.34 5971.32 5971.30 5971.27 5971.25 5971.23 5971.21 5971.19		
4.50	DISCHG 162.01 157.60 153.32 149.15 145.10 141.16 137.32 133.59 129.96 126.43		
4.50	ELEV 5971.17 5971.16 5971.14 5971.12 5971.10 5971.09 5971.07 5971.06 5971.04 5971.03		
5.00	DISCHG 122.99 119.77 117.60 115.48 113.39 111.35 109.33 107.36 105.42 103.51		
5.00	ELEV 5971.01 5971.00 5970.98 5970.97 5970.96 5970.94 5970.93 5970.92 5970.90 5970.89		
5.50	DISCHG 101.64 99.81 98.00 96.23 94.50 92.79 91.11 89.47 87.85 86.26		
5.50	ELEV 5970.88 5970.87 5970.85 5970.84 5970.83 5970.82 5970.81 5970.80 5970.79 5970.77		
6.00	DISCHG 84.70 83.17 81.67 80.20 78.75 77.32 75.93 74.56 73.21 71.89		
6.00	ELEV 5970.76 5970.75 5970.74 5970.73 5970.73 5970.72 5970.71 5970.70 5970.69 5970.68		
6.50	DISCHG 70.59 69.31 68.06 66.83 65.62 64.44 63.27 62.13 61.01 59.91		
6.50	ELEV 5970.67 5970.66 5970.65 5970.65 5970.64 5970.63 5970.62 5970.61 5970.61 5970.60		
7.00	DISCHG 58.82 57.76 56.72 55.69 54.69 53.70 52.73 51.78 50.84 49.92		
7.00	ELEV 5970.59 5970.58 5970.58 5970.57 5970.56 5970.56 5970.55 5970.55 5970.54 5970.53		
7.50	DISCHG 49.02 48.14 47.27 46.41 45.57 44.86 44.40 43.94 43.49 43.04		
7.50	ELEV 5970.53 5970.52 5970.52 5970.51 5970.50 5970.50 5970.49 5970.49 5970.48 5970.48		
8.00	DISCHG 42.60 42.16 41.73 41.30 40.88 40.45 40.04 39.63 39.22 38.82		

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FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

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8.00	ELEV	5970.47	5970.47	5970.46	5970.46	5970.45	5970.45	5970.44	5970.44	5970.44	5970.43
8.50	DISCHG	38.42	38.02	37.63	37.25	36.86	36.48	36.11	35.74	35.37	35.01
8.50	ELEV	5970.43	5970.42	5970.42	5970.41	5970.41	5970.41	5970.40	5970.40	5970.39	5970.39
9.00	DISCHG	34.65	34.29	33.94	33.59	33.25	32.90	32.57	32.23	31.90	31.57
9.00	ELEV	5970.38	5970.38	5970.38	5970.37	5970.37	5970.37	5970.36	5970.36	5970.35	5970.35
9.50	DISCHG	31.25	30.93	30.61	30.29	29.98	29.67	29.37	29.07	28.77	28.47
9.50	ELEV	5970.35	5970.34	5970.34	5970.34	5970.33	5970.33	5970.33	5970.32	5970.32	5970.32
10.00	DISCHG	28.18	27.89	27.60	27.32	27.04	26.76	26.49	26.21	25.94	25.68
10.00	ELEV	5970.31	5970.31	5970.31	5970.30	5970.30	5970.30	5970.29	5970.29	5970.29	5970.29
10.50	DISCHG	25.41	25.15	24.89	24.64	24.39	24.13	23.89	23.64	23.40	23.16
10.50	ELEV	5970.28	5970.28	5970.28	5970.27	5970.27	5970.27	5970.27	5970.26	5970.26	5970.26
11.00	DISCHG	22.92	22.68	22.45	22.22	21.99	21.77	21.54	21.32	21.10	20.88
11.00	ELEV	5970.25	5970.25	5970.25	5970.25	5970.24	5970.24	5970.24	5970.24	5970.23	5970.23
11.50	DISCHG	20.67	20.46	20.25	20.04	19.83	19.63	19.43	19.23	19.03	18.84
11.50	ELEV	5970.23	5970.23	5970.23	5970.22	5970.22	5970.22	5970.22	5970.21	5970.21	5970.21
12.00	DISCHG	18.64	18.45	18.26	18.07	17.89	17.70	17.52	17.34	17.16	16.99
12.00	ELEV	5970.21	5970.21	5970.20	5970.20	5970.20	5970.20	5970.19	5970.19	5970.19	5970.19
12.50	DISCHG	16.81	16.64	16.47	16.30	16.13	15.97	15.80	15.64	15.48	15.32
12.50	ELEV	5970.19	5970.19	5970.18	5970.18	5970.18	5970.18	5970.18	5970.17	5970.17	5970.17
13.00	DISCHG	15.16	15.01	14.85	14.70	14.55	14.40	14.25	14.10	13.96	13.82
13.00	ELEV	5970.17	5970.17	5970.17	5970.16	5970.16	5970.16	5970.16	5970.16	5970.16	5970.15
13.50	DISCHG	13.67	13.53	13.39	13.26	13.12	12.99	12.85	12.72	12.59	12.46
13.50	ELEV	5970.15	5970.15	5970.15	5970.15	5970.15	5970.14	5970.14	5970.14	5970.14	5970.14
14.00	DISCHG	12.33	12.20	12.08	11.96	11.83	11.71	11.59	11.47	11.35	11.24
14.00	ELEV	5970.14	5970.14	5970.13	5970.13	5970.13	5970.13	5970.13	5970.13	5970.13	5970.12
14.50	DISCHG	11.12	11.01	10.89	10.78	10.67	10.56	10.45	10.35	10.24	10.13
14.50	ELEV	5970.12	5970.12	5970.12	5970.12	5970.12	5970.12	5970.12	5970.11	5970.11	5970.11

RUNOFF VOLUME ABOVE BASEFLOW = 0.98 WATERSHED INCHES, 1492.76 CFS-HRS, 123.36 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.50	373.32	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 0.98 WATERSHED INCHES, 1491.62 CFS-HRS, 123.27 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.14	561.15	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.05 WATERSHED INCHES, 837.40 CFS-HRS, 69.20 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 1

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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.73	752.99	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.00 WATERSHED INCHES, 2329.02 CFS-HRS, 192.47 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.85	748.30	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.00 WATERSHED INCHES, 2327.48 CFS-HRS, 192.34 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.91	132.71	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.08 WATERSHED INCHES, 163.16 CFS-HRS, 13.48 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.47	88.22	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.08 WATERSHED INCHES, 163.12 CFS-HRS, 13.48 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.80	733.42	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.26 WATERSHED INCHES, 780.48 CFS-HRS, 64.50 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.82	770.07	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.22 WATERSHED INCHES, 943.61 CFS-HRS, 77.98 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 2

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FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.39	1173.27	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.06 WATERSHED INCHES, 3271.09 CFS-HRS, 270.32 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.48	1170.75	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.06 WATERSHED INCHES, 3270.08 CFS-HRS, 270.24 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.55	241.28	(RUNOFF)
1.23	69.90	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.26 WATERSHED INCHES, 151.18 CFS-HRS, 12.49 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.62	225.09	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.26 WATERSHED INCHES, 151.21 CFS-HRS, 12.50 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.49	340.22	(RUNOFF)
1.23	74.32	(RUNOFF)
1.69	46.03	(RUNOFF)
1.83	44.26	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.45 WATERSHED INCHES, 172.41 CFS-HRS, 14.25 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.60	195.44	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.13 WATERSHED INCHES, 144.44 CFS-HRS, 11.94 ACRE-FEET; BASEFLOW = 0.00 CFS

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FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
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OPERATION ADDHYD CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.34	1364.85	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.08 WATERSHED INCHES, 3738.14 CFS-HRS, 308.92 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING REACH 5 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

OPERATION REACH CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.40	1363.82	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.08 WATERSHED INCHES, 3737.29 CFS-HRS, 308.85 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.47	266.22	(RUNOFF)
1.23	70.57	(RUNOFF)
1.67	45.21	(RUNOFF)
1.84	43.73	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 0.98 WATERSHED INCHES, 135.15 CFS-HRS, 11.17 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.34	1420.02	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.08 WATERSHED INCHES, 3872.44 CFS-HRS, 320.02 ACRE-FEET; BASEFLOW = 0.00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP COMPUTATIONS COMPLETED FOR PASS 4

RECORD 10

EXECUTIVE CONTROL OPERATION ENDJOB

RECORD 10

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FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
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SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION			RUNOFF AMOUNT (IN)	PEAK DISCHARGE				
						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)		ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)	
ALTERNATE 1 STORM 1														
STRUCTURE 1	RUNOFF	2.36	7	2	0.05	0.0	4.50	24.00	1.78	---	6.35	2262.15	959.8	
STRUCTURE 1	RESVOR	2.36	7	2	0.05	0.0	4.50	24.00	1.54	5973.26	7.38	402.78	170.9	
XSECTION 1	REACH	2.36	7	2	0.05	0.0	4.50	24.00	1.53	---	7.48	402.69	170.8	
XSECTION 1	RUNOFF	1.23	7	2	0.05	0.0	4.50	24.00	1.85	---	6.43	1109.75	899.3	
XSECTION 1	ADDHYD	3.59	7	2	0.05	0.0	4.50	24.00	1.64	---	6.51	1401.53	390.3	
XSECTION 2	REACH	3.59	7	2	0.05	0.0	4.50	24.00	1.63	---	6.63	1349.10	375.7	
STRUCTURE 2	RUNOFF	0.23	7	2	0.05	0.0	4.50	24.00	1.90	---	6.27	275.83	1173.7	
XSECTION 2	REACH	0.23	7	2	0.05	0.0	4.50	24.00	1.88	---	6.71	178.90	761.3	
XSECTION 2	RUNOFF	0.96	7	2	0.05	0.0	4.50	24.00	2.25	---	6.20	1497.26	1559.7	
XSECTION 2	ADDHYD	1.19	7	2	0.05	0.0	4.50	24.00	2.18	---	6.21	1538.05	1287.1	
XSECTION 2	ADDHYD	4.79	7	2	0.05	0.0	4.50	24.00	1.77	---	6.35	2264.45	473.1	
XSECTION 4	REACH	4.79	7	2	0.05	0.0	4.50	24.00	1.77	---	6.43	2250.30	470.2	
XSECTION 3	RUNOFF	0.19	7	2	0.05	0.0	4.50	24.00	2.27	---	6.03	428.56	2304.1	
XSECTION 4	REACH	0.19	7	2	0.05	0.0	4.50	24.00	2.26	---	6.09	419.61	2257.6	
XSECTION 4	ADDHYD	4.97	7	2	0.05	0.0	4.50	24.00	1.78	---	6.40	2322.63	467.1	
XSECTION 4	RUNOFF	0.18	7	2	0.05	0.0	4.50	24.00	2.61	---	5.99	507.13	2756.1	
XSECTION 4	RUNOFF	0.20	7	2	0.05	0.0	4.50	24.00	2.02	---	6.05	382.21	1930.4	
XSECTION 4	ADDHYD	0.38	7	2	0.05	0.0	4.50	24.00	2.31	---	6.02	868.21	2272.8	
XSECTION 4	ADDHYD	5.35	7	2	0.05	0.0	4.50	24.00	1.82	---	6.33	2459.09	459.3	
XSECTION 5	REACH	5.35	7	2	0.05	0.0	4.50	24.00	1.82	---	6.38	2458.70	459.2	
XSECTION 5	RUNOFF	0.21	7	2	0.05	0.0	4.50	24.00	1.73	---	5.99	446.31	2085.6	
XSECTION 5	ADDHYD	5.57	7	2	0.05	0.0	4.50	24.00	1.82	---	6.38	2500.18	449.0	
ALTERNATE 1 STORM 2														
STRUCTURE 1	RUNOFF	2.36	7	2	0.05	0.0	3.20	24.00	0.93	---	6.37	1112.56	472.0	
STRUCTURE 1	RESVOR	2.36	7	2	0.05	0.0	3.20	24.00	0.76	5971.62	7.25	269.41	114.3	
XSECTION 1	REACH	2.36	7	2	0.05	0.0	3.20	24.00	0.76	---	7.37	268.47	113.9	
XSECTION 1	RUNOFF	1.23	7	2	0.05	0.0	3.20	24.00	0.98	---	6.46	555.13	449.9	
XSECTION 1	ADDHYD	3.59	7	2	0.05	0.0	3.20	24.00	0.83	---	6.56	645.49	179.8	
XSECTION 2	REACH	3.59	7	2	0.05	0.0	3.20	24.00	0.83	---	6.73	620.73	172.9	
STRUCTURE 2	RUNOFF	0.23	7	2	0.05	0.0	3.20	24.00	1.02	---	6.29	140.49	597.8	
XSECTION 2	REACH	0.23	7	2	0.05	0.0	3.20	24.00	1.00	---	6.52	83.76	356.4	
XSECTION 2	RUNOFF	0.96	7	2	0.05	0.0	3.20	24.00	1.28	---	6.21	827.12	861.6	

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ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

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SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION			RUNOFF AMOUNT (IN)	PEAK DISCHARGE				
						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)		ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)	
ALTERNATE 1 STORM 2														
XSECTION	2 ADDHYD	1.19	7	2	0.05	0.0	3.20	24.00	1.22	---	6.22	837.11	700.5	
XSECTION	2 ADDHYD	4.79	7	2	0.05	0.0	3.20	24.00	0.93	---	6.32	1125.40	235.1	
XSECTION	4 REACH	4.79	7	2	0.05	0.0	3.20	24.00	0.92	---	6.43	1106.49	231.2	
XSECTION	3 RUNOFF	0.19	7	2	0.05	0.0	3.20	24.00	1.29	---	6.04	247.70	1331.7	
XSECTION	4 REACH	0.19	7	2	0.05	0.0	3.20	24.00	1.29	---	6.10	237.74	1278.2	
XSECTION	4 ADDHYD	4.97	7	2	0.05	0.0	3.20	24.00	0.94	---	6.39	1155.64	232.4	
XSECTION	4 RUNOFF	0.16	7	2	0.05	0.0	3.20	24.00	1.56	---	6.00	313.27	1702.6	
XSECTION	4 RUNOFF	0.20	7	2	0.05	0.0	3.20	24.00	1.10	---	6.07	207.99	1050.5	
XSECTION	4 ADDHYD	0.38	7	2	0.05	0.0	3.20	24.00	1.32	---	6.02	506.44	1325.8	
XSECTION	4 ADDHYD	5.35	7	2	0.05	0.0	3.20	24.00	0.97	---	6.32	1239.47	231.5	
XSECTION	5 REACH	5.35	7	2	0.05	0.0	3.20	24.00	0.96	---	6.38	1239.61	231.5	
XSECTION	5 RUNOFF	0.21	7	2	0.05	0.0	3.20	24.00	0.89	---	5.99	238.96	1116.6	
XSECTION	5 ADDHYD	5.57	7	2	0.05	0.0	3.20	24.00	0.96	---	6.38	1263.18	226.9	
ALTERNATE 2 STORM 1														
STRUCTURE	1 RUNOFF	2.36	8	3	0.05	0.0	3.05	2.00	1.86	---	1.10	2608.23	1106.6	
STRUCTURE	1 RESVOR	2.36	8	3	0.05	0.0	3.05	2.00	1.81	5974.46	2.43	436.59	185.2	
XSECTION	1 REACH	2.36	8	3	0.05	0.0	3.05	2.00	1.80	---	2.53	436.48	185.2	
XSECTION	1 RUNOFF	1.23	8	3	0.05	0.0	3.05	2.00	1.91	---	1.20	1286.45	1042.5	
XSECTION	1 ADDHYD	3.59	8	3	0.05	0.0	3.05	2.00	1.84	---	1.25	1635.93	455.6	
XSECTION	2 REACH	3.59	8	3	0.05	0.0	3.05	2.00	1.84	---	1.37	1594.20	443.9	
STRUCTURE	2 RUNOFF	0.23	8	3	0.05	0.0	3.05	2.00	1.94	---	0.99	301.66	1283.7	
XSECTION	2 REACH	0.23	8	3	0.05	0.0	3.05	2.00	1.94	---	1.41	211.43	899.7	
XSECTION	2 RUNOFF	0.96	8	3	0.05	0.0	3.05	2.00	2.17	---	0.89	1530.89	1594.7	
XSECTION	2 ADDHYD	1.19	8	3	0.05	0.0	3.05	2.00	2.13	---	0.91	1613.71	1350.4	
XSECTION	2 ADDHYD	4.79	8	3	0.05	0.0	3.05	2.00	1.91	---	1.24	2690.16	562.1	
XSECTION	4 REACH	4.79	8	3	0.05	0.0	3.05	2.00	1.91	---	1.31	2680.35	560.0	
XSECTION	3 RUNOFF	0.19	8	3	0.05	0.0	3.05	2.00	2.17	---	0.63	470.19	2527.9	
XSECTION	4 REACH	0.19	8	3	0.05	0.0	3.05	2.00	2.17	---	0.70	456.09	2452.1	
XSECTION	4 ADDHYD	4.97	8	3	0.05	0.0	3.05	2.00	1.92	---	1.28	2791.22	561.4	
XSECTION	4 RUNOFF	0.18	8	3	0.05	0.0	3.05	2.00	2.40	---	0.57	607.36	3300.9	
XSECTION	4 RUNOFF	0.20	8	3	0.05	0.0	3.05	2.00	2.01	---	0.68	409.00	2065.7	
XSECTION	4 ADDHYD	0.38	8	3	0.05	0.0	3.05	2.00	2.20	---	0.61	931.16	2437.6	
XSECTION	4 ADDHYD	5.35	8	3	0.05	0.0	3.05	2.00	1.94	---	1.19	3002.44	560.8	
XSECTION	5 REACH	5.35	8	3	0.05	0.0	3.05	2.00	1.94	---	1.25	3002.03	560.7	
XSECTION	5 RUNOFF	0.21	8	3	0.05	0.0	3.05	2.00	1.81	---	0.55	562.43	2828.2	
XSECTION	5 ADDHYD	5.57	8	3	0.05	0.0	3.05	2.00	1.94	---	1.17	3087.53	554.5	

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A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION			RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)		ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE	2	STORM	2										
STRUCTURE 1	RUNOFF	2.36	9	3	0.05	0.0	2.06	2.00	1.01	---	1.03	1111.87	471.7
STRUCTURE 1	RESVOR	2.36	9	3	0.05	0.0	2.06	2.00	0.98	5972.28	2.40	373.46	158.4
XSECTION 1	REACH	2.36	9	3	0.05	0.0	2.06	2.00	0.98	---	2.50	373.32	158.4
XSECTION 1	RUNOFF	1.23	9	3	0.05	0.0	2.06	2.00	1.05	---	1.14	561.15	454.7
XSECTION 1	ADDDHYD	3.59	9	3	0.05	0.0	2.06	2.00	1.00	---	1.73	752.99	209.7
XSECTION 2	REACH	3.59	9	3	0.05	0.0	2.06	2.00	1.00	---	1.85	748.30	208.4
STRUCTURE 2	RUNOFF	0.23	9	3	0.05	0.0	2.06	2.00	1.08	---	0.91	132.71	564.7
XSECTION 2	REACH	0.23	9	3	0.05	0.0	2.06	2.00	1.08	---	1.47	86.22	375.4
XSECTION 2	RUNOFF	0.96	9	3	0.05	0.0	2.06	2.00	1.26	---	0.80	733.42	764.0
XSECTION 2	ADDDHYD	1.19	9	3	0.05	0.0	2.06	2.00	1.22	---	0.82	770.07	644.4
XSECTION 2	ADDDHYD	4.79	9	3	0.05	0.0	2.06	2.00	1.06	---	1.39	1173.27	245.1
XSECTION 4	REACH	4.79	9	3	0.05	0.0	2.06	2.00	1.06	---	1.48	1170.75	244.6
XSECTION 3	RUNOFF	0.19	9	3	0.05	0.0	2.06	2.00	1.26	---	0.55	241.28	1297.2
XSECTION 4	REACH	0.19	9	3	0.05	0.0	2.06	2.00	1.26	---	0.62	225.09	1210.1
XSECTION 4	ADDDHYD	4.97	9	3	0.05	0.0	2.06	2.00	1.07	---	1.43	1234.93	248.4
XSECTION 4	RUNOFF	0.18	9	3	0.05	0.0	2.06	2.00	1.45	---	0.49	340.22	1849.0
XSECTION 4	RUNOFF	0.20	9	3	0.05	0.0	2.06	2.00	1.13	---	0.60	195.44	987.1
XSECTION 4	ADDDHYD	0.38	9	3	0.05	0.0	2.06	2.00	1.29	---	0.52	488.27	1278.2
XSECTION 4	ADDDHYD	5.35	9	3	0.05	0.0	2.06	2.00	1.08	---	1.34	1364.85	254.9
XSECTION 5	REACH	5.35	9	3	0.05	0.0	2.06	2.00	1.08	---	1.40	1363.82	254.7
XSECTION 5	RUNOFF	0.21	9	3	0.05	0.0	2.06	2.00	0.98	---	0.47	266.22	1244.0
XSECTION 5	ADDDHYD	5.57	9	3	0.05	0.0	2.06	2.00	1.08	---	1.34	1420.02	255.0

29/20

TR20 XED 05/02/1990
REV 09/01/83

FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

JOB 1 SUMMARY
PAGE 25

SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS
(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTSIDE ACCEPTABLE LIMITS, SEE PREVIOUS WARNINGS)

HYDROGRAPH INFORMATION									ROUTING PARAMETERS							PEAK			
XSEC REACH ID	LENGTH (FT)	INFLOW		OUTFLOW		OUTFLOW+ INTERV.AREA		BASE- FLOW (CFS)	VOLUME ABOVE BASE (IN)	MAIN TIME INCR (HR)	ITER- ATION #	Q AND A EQUATION		LENGTH FACTOR (K*)	PEAK RATIO Q/I (Q*)	S/Q @PEAK (K)	ATT- KIN COEFF (C)	TRAVEL TIME	
		PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)					COEFF (X)	POWER (M)					STOR- AGE (HR)	KINE- MATIC (HR)
ALTERNATE		1	STORM	1															
1	2500	403	7.4	403	7.5	1400	6.5	0	1.54*	0.05	1	0.760	1.50	0.003	1.000	271	0.50	0.10	0.08
2	4700	1400	6.5	1348	6.7	---	---	0	1.64	0.05	1	0.400	1.60	0.010	0.963	344	0.41	0.15	0.10
2	4700	275	6.2	179	6.7	1537	6.2	0	1.90	0.05	1	0.500	1.33	0.419	0.650	1477	0.11	0.30	0.43
4	3500	2264	6.3	2249	6.5	---	---	0	1.77	0.05	1	0.600	1.57	0.005	0.993	187	0.65	0.10	0.05
4	1600	423	6.1	419	6.1	2323	6.4	0	2.27	0.05	1	0.600	1.57	0.030	0.989	157	0.73?	0.05	0.04
5	2100	2458	6.3	2458	6.4	2500	6.4	0	1.82	0.05	1	0.600	1.57	0.002	1.000	109	0.91?	0.05	0.03
ALTERNATE		1	STORM	2															
1	2500	269	7.2	268	7.3	645	6.6	0	0.76*	0.05	1	0.760	1.50	0.005	0.996	310	0.45	0.10	0.09
2	4700	645	6.6	620	6.7	---	---	0	0.83*	0.05	1	0.400	1.60	0.014	0.961	460	0.33	0.20	0.13
2	4700	140	6.3	84	6.8	835	6.2	0	1.02	0.05	1	0.500	1.33	0.492	0.596	1745	0.10	0.30	0.51
4	3500	1123	6.3	1105	6.5	---	---	0	0.93	0.05	1	0.600	1.57	0.007	0.984	241	0.54	0.15	0.07
4	1600	246	6.1	238	6.1	1155	6.4	0	1.29	0.05	1	0.600	1.57	0.042	0.965	191	0.64	0.05	0.05
5	2100	1239	6.3	1239	6.4	1263	6.4	0	0.97	0.05	1	0.600	1.57	0.003	1.000	140	0.78?	0.10	0.04
ALTERNATE		2	STORM	1															
1	2500	437	2.5	436	2.5	1636	1.2	0	1.81	0.05	1	0.760	1.50	0.002	1.000	264	0.51	0.10	0.07
2	4700	1636	1.2	1592	1.4	---	---	0	1.84	0.05	1	0.400	1.60	0.010	0.973	325	0.43	0.10	0.09
2	4700	301	1.0	211	1.4	1612	0.9	0	1.94	0.05	1	0.500	1.33	0.447	0.702	1444	0.12	0.35	0.42
4	3500	2690	1.2	2680	1.3	---	---	0	1.91	0.05	1	0.600	1.57	0.005	0.996	176	0.68?	0.05	0.05
4	1600	467	0.7	456	0.7	2789	1.3	0	2.17	0.05	1	0.600	1.57	0.035	0.977	152	0.75?	0.05	0.04
5	2100	3002	1.2	3002	1.2	3085	1.1	0	1.94	0.05	1	0.600	1.57	0.002	1.000	101	0.94?	0.05	0.03
ALTERNATE		2	STORM	2															
1	2500	373	2.4	373	2.5	753	1.7	0	0.98	0.05	1	0.760	1.50	0.005	1.000	278	0.49	0.10	0.08
2	4700	753	1.7	748	1.9	---	---	0	1.00	0.05	1	0.400	1.60	0.012	0.994	434	0.34	0.10	0.12
2	4700	133	0.9	88	1.3	768	0.8	0	1.08	0.05	1	0.500	1.33	0.432	0.665	1770	0.10	0.55	0.52
4	3500	1173	1.4	1170	1.5	---	---	0	1.06	0.05	1	0.600	1.57	0.006	0.998	237	0.55	0.10	0.07
4	1600	241	0.6	221	0.6	1234	1.5	0	1.26	0.05	1	0.600	1.57	0.043	0.916	193	0.64	0.05	0.05
5	2100	1365	1.4	1364	1.4	1420	1.4	0	1.08	0.05	1	0.600	1.57	0.002	0.999	135	0.80?	0.05	0.04

PR20 XEQ 05/02/1990
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FISHER'S CANYON BASIN -- EXISTING 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

JOB 1 SUMMARY
PAGE 26

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

SECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS.....	
		1	2
STRUCTURE 2	0.23		
ALTERNATE 1		275.83	140.49
ALTERNATE 2		301.66	132.71
STRUCTURE 1	2.36		
ALTERNATE 1		402.78	269.41
ALTERNATE 2		436.59	373.46
XSECTION 1	3.59		
ALTERNATE 1		1401.53	645.49
ALTERNATE 2		1635.93	752.99
XSECTION 2	4.79		
ALTERNATE 1		2264.45	1125.40
ALTERNATE 2		2690.16	1173.27
XSECTION 3	0.19		
ALTERNATE 1		428.56	247.70
ALTERNATE 2		470.19	241.26
XSECTION 4	5.35		
ALTERNATE 1		2459.09	1239.47
ALTERNATE 2		3002.44	1364.55
XSECTION 5	5.57		
ALTERNATE 1		2500.18	1263.18
ALTERNATE 2		3087.38	1420.02

APPENDIX C

**FISHERS CANYON BASIN HYDROLOGY
FUTURE CONDITION, TR-20 MODEL**

DESIGN NOTES AND COMPUTATIONS

SUBJECT: EPC

PREPARED BY: CSS

DATE 5-1-90

CHECKED BY:

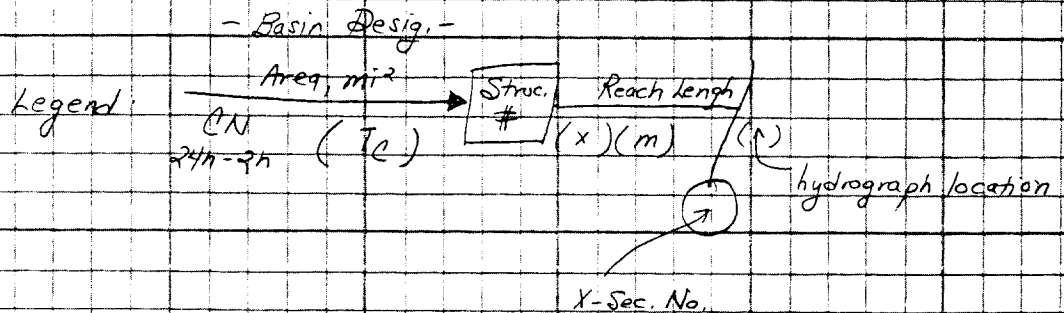
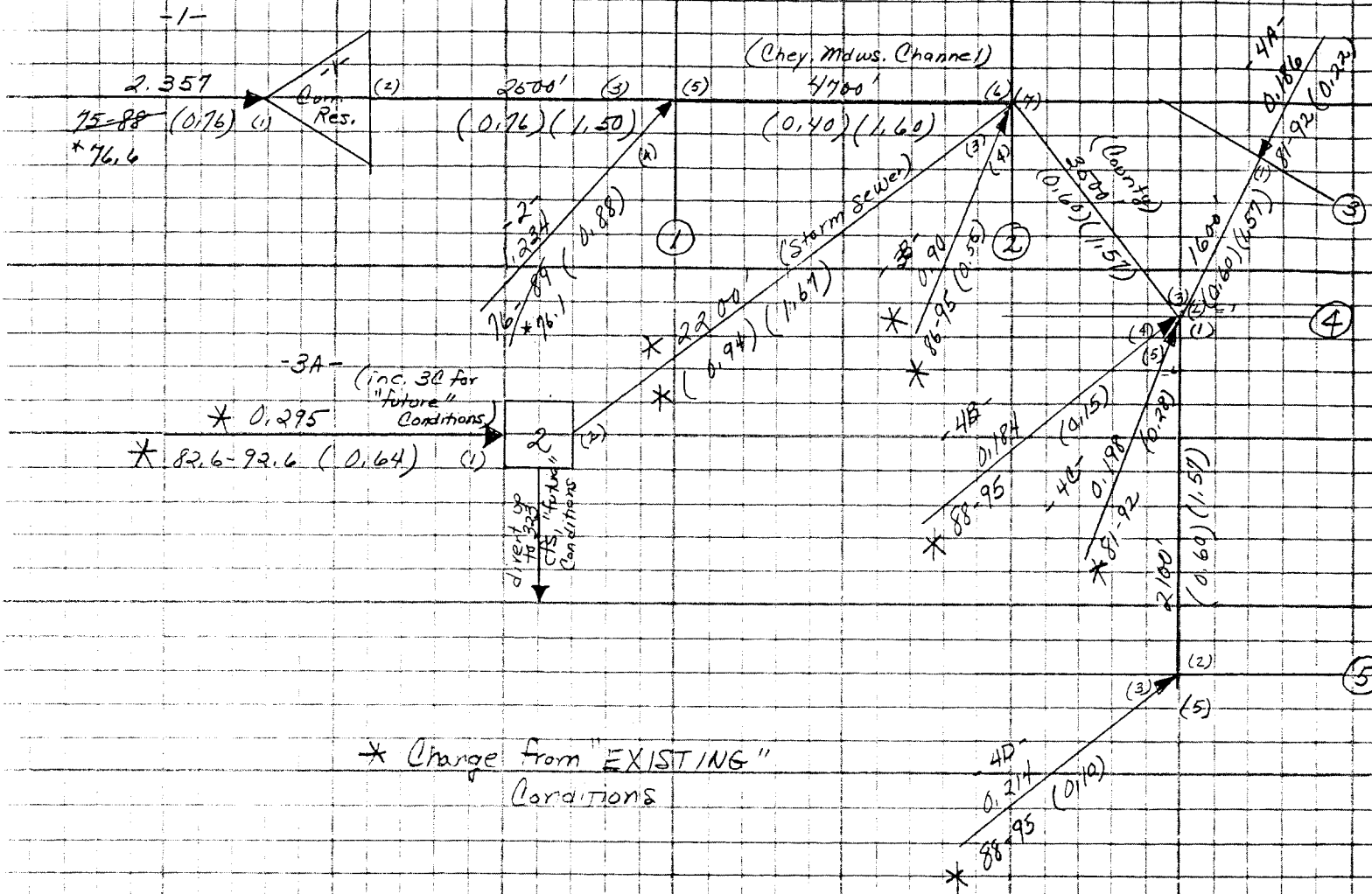
DATE

SHEET NO. 1

OF 28

JOB NUMBER 8933

FLOW CHART, FISHER'S CANYON - FUTURE CONDITIONS



* Rev. 6-18-90

R-20 S/N: 32001697

2/28

ATE: 05/23/1990

TIME: 09:14:12.16

Rev. for new land use
6-18-90

ATA FILE: fishf.t20

*****90-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****

JOB TR-20

SUMMARY

TITLE 1 FISHER'S CANYON BASIN -- FUTURE 10 & 100 YEAR FLOWS

TITLE ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

5 RAINFL 8		.0833			
8	.0	.0087	.0346	.0744	.1436
8	.2647	.4810	.6021	.6713	.7249
8	.7682	.8028	.8374	.8720	.8893
8	.9066	.9170	.9273	.9377	.9481
8	.9585	.9689	.9792	.9896	1.0

9 ENDTBL

5 RAINFL 7		.25			
8	0	0.0005	0.0015	.0030	0.0045
8	0.006	.008	.01	.012	.0143
8	.0165	.0188	.021	.0233	.0255
8	.0278	.032	.039	.046	.053
8	.06	.075	.1	.4	.7
8	.725	.75	.765	.78	.79
8	.8	.81	.82	.825	.83
8	.835	.84	.845	.85	.855
8	.86	.8638	.8675	.8713	.875
8	.8788	.8825	.8863	.89	.8938
8	.8975	.9013	.905	.9083	.9115
8	.9148	.918	.921	.924	.927
8	.93	.9325	.935	.9375	.94
8	.9425	.945	.9475	.95	.9525
8	.955	.9575	.96	.9625	.965
8	.9675	.97	.9725	.975	.9775
8	.98	.9813	.9825	.9838	.985
8	.9863	.9875	.9888	.99	.9913
8	.9925	.9938	.995	.9963	.9975
8	.9988	1.0	1.0	1.0	1.0

9 ENDTBL

5 RAINFL 9		0.0833			
8	0.0	0.0173	0.0493	0.1201	0.2498
8	0.4659	0.5696	0.6180	0.6551	0.6880
8	0.7156	0.7433	0.7710	0.7986	0.8263
8	0.8539	0.8755	0.8920	0.9084	0.9248
8	0.9421	0.9576	0.9741	0.9888	1.0

9 ENDTBL

3 STRUCT 1

8	5970.0	0.0	0.0
8	5970.5	45.0	18.0
8	5971.0	120.0	35.0
8	5971.5	240.0	53.0
8	5972.0	365.0	70.0
8	5973.0	395.0	108.0

*****80-80 LIST OF INPUT DATA (CONTINUED)*****

8			5974.0	425.0	151.0		
8			5975.0	450.0	195.0		
8			5976.0	473.0	248.0		
8			5977.0	495.0	302.0		
8			5978.0	1145.0	357.0		
9	ENDTBL						
6	RUNOFF	1	1	1	2.357	75.0 76.6	.761 1 1
6	RESVDR	2	1	1	5970.0		1 1 1 1
6	REACH	3	1	2	2500.0	0.76	1.501 1 1
6	RUNOFF	1	1	4	1.234	76.0 76.1	.881 1 1
6	ADDHYD	4	1	3	4		1 1 1
6	REACH	3	2	5	4700.0	0.40	1.601 1 1
6	RUNOFF	1	2	1	0.295	82.6	.641 1 1
6	DIVERT	6	2	1	3	322.7	002.01 1 1
6	REACH	3	2	2	3	2200.0	0.94 1.671 1 1
6	RUNOFF	1	2	4	0.90	86.0	.551 1 1
6	ADDHYD	4	2	3	4		1 1 1
6	ADDHYD	4	2	5	6		1 1 1
6	REACH	3	4	7	3	3500.0	0.60 1.571 1 1
6	RUNOFF	1	3	1		0.186	81.0 .221 1 1
6	REACH	3	4	1	2	1600.0	0.60 1.571 1 1
6	ADDHYD	4	4	3	2	7	
6	RUNOFF	1	4	4		0.184	88.0 .151 1 1
6	RUNOFF	1	4	5		0.198	81.0 .281 1 1
6	ADDHYD	4	4	4	5	6	
6	ADDHYD	4	4	6	7	1	
6	REACH	3	5	1	2	2100.0	0.60 1.571 1 1
6	RUNOFF	1	5	3		0.214	88.0 .101 1 1
6	ADDHYD	4	5	2	3	5	
ENDATA							
7	INCREM	6			.05		
7	COMPUT	7	1	5	0.0	4.50	1.07 2 1 1
ENDCMP 1							
7	COMPUT	7	1	5	0.0	3.20	1.07 2 1 2
ENDCMP 1							
7	COMPUT	7	1	5	0.0	3.05	1.08 3 2 1
ENDCMP 1							
7	COMPUT	7	1	5	0.0	2.06	1.09 3 2 2
ENDCMP 1							
ENDJOB 2							

*****END OF 80-80 LIST*****

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FISHER'S CANYON BASIN -- FUTURE 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

JOB 1 PASS 1
PAGE 1

FILE NO. 1

COMPUTER PROGRAM FOR PROJECT FORMULATION - HYDROLOGY USER NOTES

THE USERS MANUAL FOR THIS PROGRAM IS THE MAY 1982 DRAFT OF TR-20. CHANGES FROM THE 2/14/74 VERSION INCLUDE:

REACH ROUTING - THE MODIFIED ATT-KIN ROUTING PROCEDURE REPLACES THE CONVEX METHOD. INPUT DATA PREPARED FOR PREVIOUS PROGRAM VERSIONS USING CONVEX ROUTING COEFFICIENTS WILL NOT RUN ON THIS VERSION.

THE PREFERRED TYPE OF DATA ENTRY IS CROSS SECTION DATA REPRESENTATIVE OF A REACH. IT IS RECOMMENDED THAT THE OPTIONAL CROSS SECTION DISCHARGE-AREA PLOTS BE OBTAINED WHENEVER NEW CROSS SECTION DATA IS ENTERED. THE PLOTS SHOULD BE CHECKED FOR REASONABLENESS AND ADEQUACY OF INPUT DATA FOR THE COMPUTATION OF "M" VALUES USED IN THE ROUTING PROCEDURE.

GUIDELINES FOR DETERMINING OR ANALYZING REACH LENGTHS AND COEFFICIENTS (X,M) ARE AVAILABLE IN THE USERS MANUAL. SUMMARY TABLE 2 DISPLAYS REACH ROUTING RESULTS AND ROUTING PARAMETERS FOR COMPARISON AND CHECKING.

HYDROGRAPH GENERATION - THE PROCEDURE TO CALCULATE THE INTERNAL TIME INCREMENT AND PEAK TIME OF THE UNIT HYDROGRAPH HAVE BEEN IMPROVED. PEAK DISCHARGES AND TIMES MAY DIFFER FROM THE PREVIOUS VERSION. OUTPUT HYDROGRAPHS ARE STILL INTERPOLATED, PRINTED, AND ROUTED AT THE USER SELECTED MAIN TIME INCREMENT.

INTERMEDIATE PEAKS - METHOD ADDED TO PROVIDE DISCHARGES AT INTERMEDIATE POINTS WITHIN REACHES WITHOUT ROUTING.

OTHER - THIS VERSION CONTAINS SOME ADDITIONS TO THE INPUT AND NUMEROUS MODIFICATIONS TO THE OUTPUT. USER OPTIONS HAVE BEEN MODIFIED AND AUGMENTED ON THE JOB RECORD, RAINTABLES ADDED, ERROR AND WARNING MESSAGES EXPANDED, AND THE SUMMARY TABLES COMPLETELY REVISED. THE HOLDOUT OPTION IS NOT OPERATIONAL AT THIS TIME.

PROGRAM QUESTIONS OR PROBLEMS SHOULD BE DIRECTED TO HYDRAULIC ENGINEERS AT THE SCS NATIONAL TECHNICAL CENTERS:

CHESTER, PA (NORTHEAST) -- 215-499-3933, FORT WORTH, TX (SOUTH) -- 334-5242 (FTS)
LINCOLN, NB (MIDWEST) -- 541-5318 (FTS), PORTLAND, OR (WEST) -- 423-4099 (FTS)
OR HYDROLOGY UNIT, ENGINEERING DIVISION, LANHAM, MD -- 436-7383 (FTS).

PROGRAM CHANGES SINCE MAY 1982:

12/17/82 - CORRECT PEAK RATE FACTOR FOR USER ENTERED DIMHYD

CORRECT REACH ROUTING PEAK TRAVEL TIME PRINTED WITH FULLPRINT OPTION

5/02/83 - CORRECT COMPUTATIONS FOR ---

1. DIVISION OF BASEFLOW IN DIVERT OPERATION
2. HYDROGRAPH VOLUME SPLIT BETWEEN BASEFLOW AND ABOVE BASEFLOW
3. CROSS SECTION DATA PLOTTING POSITION
4. INTERMEDIATE PEAK WHEN "FROM" AREA IS LARGER THAN "THRU" AREA
5. STORAGE ROUTED REACH TRAVEL TIME FOR MULTYPEAK HYDROGRAPH
6. ORDERING "FLOW-FREQ" FILE FROM SUMMARY TABLE #3 DATA
7. BASEFLOW ENTERED WITH READHYD
8. LOW FLOW SPLIT DURING DIVERT PROCEDURE #2 WHEN SECTION RATINGS START AT DIFFERENT ELEVATIONS

ENHANCEMENTS ---

1. REPLACE USER MANUAL ERROR CODES (PAGE 4-9 TO 4-11) WITH MESSAGES
2. LABEL OUTPUT HYDROGRAPH FILES WITH CROSS SECTION/STRUCTURE, ALTERNATE AND STORM NO'S

09/01/83 - CORRECT INPUT AND OUTPUT ERRORS FOR INTERMEDIATE PEAKS

CORRECT COMBINATION OF RATING TABLES FOR DIVERT

CHECK REACH ROUTING PARAMETERS FOR ACCEPTABLE LIMITS

ELIMINATE MINIMUM REACH TRAVEL TIME WHEN ATT-KIN COEFFICIENT EQUALS ONE

TR20 XEG 05/23/1990
REV 09/01/83

FISHER'S CANYON BASIN -- FUTURE 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

JOB 1 PASS 1
PAGE 2

EXECUTIVE CONTROL OPERATION INCREM MAIN TIME INCREMENT = 0.05 HOURS

RECORD ID

EXECUTIVE CONTROL OPERATION COMPUT FROM STRUCTURE 1 TO XSECTION 5

RECORD ID

STARTING TIME = 0.00 RAIN DEPTH = 4.50 RAIN DURATION = 1.00 RAIN TABLE NO. = 7 ANT. MOIST. COND = 2
ALTERNATE NO. = 1 STORM NO. = 1 MAIN TIME INCREMENT = 0.05 HOURS

OPERATION RUNOFF STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.35	2262.15	(RUNOFF)
13.01	77.26	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.78 WATERSHED INCHES, 2705.14 CFS-HRS, 223.55 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.38	402.78	5973.26

TIME(HRS)	FIRST HYDROGRAPH POINT = 0.00 HOURS	TIME INCREMENT = 0.05 HOURS	DRAINAGE AREA = 2.36 SQ.MI.
5.50	DISCHG 0.00 0.00 0.02 0.10 0.34 0.90 2.04 4.08 7.46 12.62		
5.50	ELEV 5970.00 5970.00 5970.00 5970.00 5970.00 5970.01 5970.02 5970.05 5970.08 5970.14		
6.00	DISCHG 20.04 30.05 42.83 68.44 99.87 141.93 197.04 253.96 313.57 365.50		
6.00	ELEV 5970.22 5970.33 5970.48 5970.66 5970.87 5971.09 5971.32 5971.56 5971.79 5972.02		
6.50	DISCHG 371.08 376.20 380.77 384.80 388.27 391.22 393.71 395.71 397.27 398.57		
6.50	ELEV 5972.20 5972.37 5972.53 5972.66 5972.78 5972.87 5972.96 5973.02 5973.08 5973.12		
7.00	DISCHG 399.65 400.53 401.23 401.78 402.20 402.49 402.68 402.77 402.77 402.70		
7.00	ELEV 5973.15 5973.18 5973.21 5973.23 5973.24 5973.25 5973.26 5973.26 5973.26 5973.26		
7.50	DISCHG 402.56 402.35 402.10 401.79 401.44 401.06 400.65 400.21 399.75 399.28		
7.50	ELEV 5973.25 5973.25 5973.24 5973.23 5973.21 5973.20 5973.19 5973.17 5973.16 5973.14		
8.00	DISCHG 398.79 398.28 397.77 397.24 396.70 396.14 395.57 394.97 394.28 393.56		
8.00	ELEV 5973.13 5973.11 5973.09 5973.07 5973.06 5973.04 5973.02 5973.00 5972.98 5972.95		
8.50	DISCHG 392.81 392.04 391.25 390.44 389.62 388.77 387.92 387.05 386.18 385.30		
8.50	ELEV 5972.93 5972.90 5972.87 5972.85 5972.82 5972.79 5972.76 5972.73 5972.71 5972.68		
9.00	DISCHG 384.41 383.52 382.63 381.73 380.84 379.94 379.05 378.15 377.26 376.37		
9.00	ELEV 5972.65 5972.62 5972.59 5972.56 5972.53 5972.50 5972.47 5972.44 5972.41 5972.38		
9.50	DISCHG 375.48 374.59 373.70 372.81 371.93 371.05 370.17 369.29 368.42 367.55		
9.50	ELEV 5972.35 5972.32 5972.29 5972.26 5972.23 5972.20 5972.17 5972.14 5972.11 5972.08		
10.00	DISCHG 366.68 365.82 364.58 356.68 349.00 341.53 334.26 327.16 320.23 313.46		
10.00	ELEV 5972.06 5972.03 5972.00 5971.97 5971.94 5971.91 5971.88 5971.85 5971.82 5971.79		
10.50	DISCHG 306.83 300.35 294.01 287.81 281.75 275.82 270.04 264.40 258.91 253.56		
10.50	ELEV 5971.77 5971.74 5971.72 5971.69 5971.67 5971.64 5971.62 5971.60 5971.58 5971.55		
11.00	DISCHG 248.36 243.30 238.52 234.17 229.93 225.79 221.77 217.84 214.03 210.31		
11.00	ELEV 5971.53 5971.51 5971.49 5971.48 5971.46 5971.44 5971.42 5971.41 5971.39 5971.38		

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11.50	DISCH6	206.69	203.17	199.74	196.40	193.15	189.99	186.91	183.92	181.01	178.18
11.50	ELEV	5971.36	5971.35	5971.33	5971.32	5971.30	5971.29	5971.28	5971.27	5971.25	5971.24
12.00	DISCH6	175.43	172.75	170.14	167.61	165.14	162.74	160.41	158.14	155.93	153.78
12.00	ELEV	5971.23	5971.22	5971.21	5971.20	5971.19	5971.18	5971.17	5971.16	5971.15	5971.14
12.50	DISCH6	151.70	149.67	147.69	145.77	143.91	142.09	140.32	138.61	136.94	135.31
12.50	ELEV	5971.13	5971.12	5971.12	5971.11	5971.10	5971.09	5971.08	5971.08	5971.07	5971.06
13.00	DISCH6	133.74	132.20	130.71	129.25	127.83	126.44	125.07	123.73	122.41	121.11
13.00	ELEV	5971.06	5971.05	5971.04	5971.04	5971.03	5971.03	5971.02	5971.02	5971.01	5971.00
13.50	DISCH6	119.88	119.03	118.19	117.35	116.51	115.67	114.85	114.03	113.22	112.42
13.50	ELEV	5971.00	5970.99	5970.99	5970.98	5970.98	5970.97	5970.97	5970.96	5970.95	5970.95
14.00	DISCH6	111.63	110.85	110.09	109.33	108.58	107.84	107.11	106.38	105.66	104.95
14.00	ELEV	5970.94	5970.94	5970.93	5970.93	5970.92	5970.92	5970.91	5970.91	5970.90	5970.90
14.50	DISCH6	104.24	103.53	102.84	102.15	101.46	100.78	100.12	99.46	98.80	98.16
14.50	ELEV	5970.90	5970.89	5970.89	5970.88	5970.88	5970.87	5970.87	5970.86	5970.86	5970.85

RUNOFF VOLUME ABOVE BASEFLOW = 1.54 WATERSHED INCHES, 2341.68 CFS-HRS, 193.52 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING - REACH 1 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 98.16 CFS, 24.37 % OF PEAK.

OPERATION REACH CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.48	402.69	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.53 WATERSHED INCHES, 2331.53 CFS-HRS, 192.68 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.43	1109.75	(RUNOFF)
13.03	41.26	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.85 WATERSHED INCHES, 1472.15 CFS-HRS, 121.66 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.51	1401.53	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.64 WATERSHED INCHES, 3803.69 CFS-HRS, 314.34 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.63	1349.10	(NULL)

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RUNOFF VOLUME ABOVE BASEFLOW = 1.63 WATERSHED INCHES, 3787.46 CFS-HRS, 313.00 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.25	448.06	(RUNOFF)
12.98	11.12	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.39 WATERSHED INCHES, 454.40 CFS-HRS, 37.55 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION DIVERT STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.10	322.70*	(DIVERT) * FIRST POINT OF FLAT PEAK
12.98	11.12	(DIVERT)

RUNOFF VOLUME ABOVE BASEFLOW = 2.39 WATERSHED INCHES, 420.90 CFS-HRS, 34.78 ACRE-FEET; BASEFLOW = 0.00 CFS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.25	125.36	(DIVERT)

RUNOFF VOLUME ABOVE BASEFLOW = 0.18 WATERSHED INCHES, 33.50 CFS-HRS, 2.77 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.33	117.51	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 0.18 WATERSHED INCHES, 33.73 CFS-HRS, 2.79 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.18	1702.38	(RUNOFF)
9.98	46.99	(RUNOFF)
12.95	35.60	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.69 WATERSHED INCHES, 1560.37 CFS-HRS, 128.95 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 2

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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.20	1764.57	(NULL)
9.98	46.99	(NULL)
12.95	35.60	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.07 WATERSHED INCHES, 1594.09 CFS-HRS, 131.74 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.30	2445.47	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.74 WATERSHED INCHES, 5381.56 CFS-HRS, 444.73 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.38	2421.03	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.74 WATERSHED INCHES, 5368.97 CFS-HRS, 443.69 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.03	428.56	(RUNOFF)
7.95	17.70	(RUNOFF)
9.98	9.00	(RUNOFF)
12.79	6.89	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.27 WATERSHED INCHES, 271.97 CFS-HRS, 22.48 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING REACH 4 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

OPERATION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.09	419.91	(NULL)
8.01	17.69	(NULL)
10.03	8.99	(NULL)
12.85	6.88	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.26 WATERSHED INCHES, 271.60 CFS-HRS, 22.44 ACRE-FEET; BASEFLOW = 0.00 CFS

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PERATION RUNOFF CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.99	546.55	(RUNOFF)
6.98	29.31	(RUNOFF)
7.98	19.73	(RUNOFF)
9.98	9.90	(RUNOFF)
12.75	7.53	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.89 WATERSHED INCHES, 343.28 CFS-HRS, 28.37 ACRE-FEET; BASEFLOW = 0.00 CFS

PERATION RUNOFF CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.05	426.56	(RUNOFF)
7.95	18.83	(RUNOFF)
9.96	9.56	(RUNOFF)
12.81	7.32	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.26 WATERSHED INCHES, 289.25 CFS-HRS, 23.90 ACRE-FEET; BASEFLOW = 0.00 CFS

PERATION ADDHYD CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.16	2706.20	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.82 WATERSHED INCHES, 6273.09 CFS-HRS, 518.41 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING REACH 5 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PERATION REACH CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.24	2705.77	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.81 WATERSHED INCHES, 6263.00 CFS-HRS, 517.57 ACRE-FEET; BASEFLOW = 0.00 CFS

PERATION RUNOFF CROSS SECTION 5

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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.98	662.12	(RUNOFF)
6.46	56.15	(RUNOFF)
6.98	34.32	(RUNOFF)
7.98	23.18	(RUNOFF)
9.98	11.57	(RUNOFF)
12.73	8.78	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.89 WATERSHED INCHES, 399.63 CFS-HRS, 33.03 ACRE-FEET; BASEFLOW = 0.00 CFS

URATION ADDHYD CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.07	2826.33	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.85 WATERSHED INCHES, 6662.63 CFS-HRS, 550.60 ACRE-FEET; BASEFLOW = 0.00 CFS

CUTIVE CONTROL OPERATION ENDCMP COMPUTATIONS COMPLETED FOR PASS 1 RECORD ID

CUTIVE CONTROL OPERATION COMPUT FROM STRUCTURE 1 TO XSECTION 5 RECORD ID
STARTING TIME = 0.00 RAIN DEPTH = 3.20 RAIN DURATION= 1.00 RAIN TABLE NO.= 7 ANT. MOIST. COND= 2
ALTERNATE NO.= 1 STORM NO.= 2 MAIN TIME INCREMENT = 0.05 HOURS

URATION RUNOFF STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.37	1112.56	(RUNOFF)
13.03	46.53	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 0.93 WATERSHED INCHES, 1411.63 CFS-HRS, 116.66 ACRE-FEET; BASEFLOW = 0.00 CFS

URATION RESVOR STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.25	269.41	5971.62

(HRS)	FIRST HYDROGRAPH POINT = 0.00 HOURS	TIME INCREMENT = 0.05 HOURS	DRAINAGE AREA = 2.36 SQ.MI.
0.50	DISCHG 0.00 0.00 0.00 0.01 0.05 0.18 0.48	1.09 2.20 4.05	
0.50	ELEV 5970.00 5970.00 5970.00 5970.00 5970.00 5970.01 5970.02 5970.04		
0.00	DISCHG 6.89 10.96 16.41 23.29 31.53 40.93 55.85 74.56 93.23 111.28		
0.00	ELEV 5970.08 5970.12 5970.18 5970.26 5970.35 5970.45 5970.57 5970.70 5970.82 5970.94		

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6.50	DISCHG	132.43	155.74	176.43	194.39	209.67	222.41	232.91	241.64	249.32	255.45
6.50	ELEV	5971.05	5971.15	5971.24	5971.31	5971.37	5971.43	5971.47	5971.51	5971.54	5971.56
7.00	DISCHG	260.25	263.98	266.48	268.20	269.14	269.41	269.10	268.28	267.02	265.37
7.00	ELEV	5971.58	5971.60	5971.61	5971.61	5971.62	5971.62	5971.62	5971.61	5971.61	5971.60
7.50	DISCHG	263.40	261.14	258.64	255.95	253.11	250.15	247.10	243.99	240.86	237.93
7.50	ELEV	5971.59	5971.58	5971.57	5971.56	5971.55	5971.54	5971.53	5971.52	5971.50	5971.49
8.00	DISCHG	235.07	232.23	229.39	226.57	223.74	220.91	218.05	215.15	212.20	209.21
8.00	ELEV	5971.48	5971.47	5971.46	5971.44	5971.43	5971.42	5971.41	5971.40	5971.38	5971.37
8.50	DISCHG	206.17	203.08	199.96	196.82	193.66	190.50	187.34	184.21	181.11	178.05
8.50	ELEV	5971.36	5971.35	5971.33	5971.32	5971.31	5971.29	5971.28	5971.27	5971.25	5971.24
9.00	DISCHG	175.04	172.07	169.16	166.31	163.51	160.77	158.10	155.48	152.93	150.44
9.00	ELEV	5971.23	5971.22	5971.21	5971.19	5971.18	5971.17	5971.16	5971.15	5971.14	5971.13
9.50	DISCHG	148.01	145.64	143.33	141.08	138.89	136.75	134.68	132.65	130.68	128.77
9.50	ELEV	5971.12	5971.11	5971.10	5971.09	5971.08	5971.07	5971.06	5971.05	5971.04	5971.04
10.00	DISCHG	126.91	125.09	123.32	121.60	119.95	118.85	117.76	116.68	115.60	114.53
10.00	ELEV	5971.03	5971.02	5971.01	5971.01	5971.00	5970.99	5970.98	5970.98	5970.97	5970.96
10.50	DISCHG	113.45	112.38	111.30	110.23	109.16	108.09	107.03	105.98	104.94	103.91
10.50	ELEV	5970.96	5970.95	5970.94	5970.94	5970.93	5970.92	5970.91	5970.91	5970.90	5970.89
11.00	DISCHG	102.89	101.89	100.90	99.92	98.96	98.01	97.08	96.17	95.26	94.38
11.00	ELEV	5970.89	5970.88	5970.87	5970.87	5970.86	5970.85	5970.85	5970.84	5970.83	5970.83
11.50	DISCHG	93.51	92.65	91.81	90.99	90.18	89.38	88.60	87.83	87.07	86.33
11.50	ELEV	5970.82	5970.82	5970.81	5970.81	5970.80	5970.80	5970.79	5970.79	5970.78	5970.78
12.00	DISCHG	85.61	84.89	84.19	83.51	82.83	82.17	81.52	80.88	80.25	79.64
12.00	ELEV	5970.77	5970.77	5970.76	5970.76	5970.75	5970.75	5970.74	5970.74	5970.73	5970.73
12.50	DISCHG	79.04	78.45	77.87	77.30	76.74	76.19	75.65	75.12	74.60	74.10
12.50	ELEV	5970.73	5970.72	5970.72	5970.72	5970.71	5970.71	5970.70	5970.70	5970.70	5970.69
13.00	DISCHG	73.60	73.11	72.63	72.15	71.69	71.23	70.77	70.32	69.86	69.41
13.00	ELEV	5970.69	5970.69	5970.68	5970.68	5970.68	5970.67	5970.67	5970.67	5970.67	5970.66
13.50	DISCHG	68.96	68.51	68.06	67.61	67.16	66.72	66.28	65.84	65.40	64.97
13.50	ELEV	5970.66	5970.66	5970.65	5970.65	5970.65	5970.65	5970.64	5970.64	5970.64	5970.63
14.00	DISCHG	64.55	64.13	63.72	63.31	62.91	62.51	62.12	61.73	61.34	60.95
14.00	ELEV	5970.63	5970.63	5970.62	5970.62	5970.62	5970.62	5970.61	5970.61	5970.61	5970.61
14.50	DISCHG	60.57	60.19	59.81	59.43	59.06	58.69	58.33	57.97	57.62	57.27
14.50	ELEV	5970.60	5970.60	5970.60	5970.60	5970.59	5970.59	5970.59	5970.59	5970.58	5970.58

RUNOFF VOLUME ABOVE BASEFLOW = 0.76 WATERSHED INCHES, 1160.17 CFS-HRS, 95.88 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING - REACH 1 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 57.27 CFS, 21.26 % OF PEAK.

STATION REACH CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.37	268.47	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 0.76 WATERSHED INCHES, 1153.74 CFS-HRS, 95.34 ACRE-FEET; BASEFLOW = 0.00 CFS

STATION RUNOFF CROSS SECTION 1

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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.46	555.13	(RUNOFF)
13.04	25.10	(RUNOFF)

OFF VOLUME ABOVE BASEFLOW = 0.98 WATERSHED INCHES, 779.48 CFS-HRS, 64.42 ACRE-FEET; BASEFLOW = 0.00 CFS

SECTION ADDHYD CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.56	645.49	(NULL)

OFF VOLUME ABOVE BASEFLOW = 0.83 WATERSHED INCHES, 1933.22 CFS-HRS, 159.76 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING - REACH 2 INFLOW HYDROGRAPH VOLUME TRUNCATED ABOVE BASEFLOW AT 78.85 CFS, 12.22 % OF PEAK.

SECTION REACH CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.73	620.73	(NULL)

OFF VOLUME ABOVE BASEFLOW = 0.83 WATERSHED INCHES, 1920.98 CFS-HRS, 158.75 ACRE-FEET; BASEFLOW = 0.00 CFS

SECTION RUNOFF STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.27	252.44	(RUNOFF)
9.98	9.40	(RUNOFF)
12.99	7.19	(RUNOFF)

OFF VOLUME ABOVE BASEFLOW = 1.38 WATERSHED INCHES, 263.32 CFS-HRS, 21.76 ACRE-FEET; BASEFLOW = 0.00 CFS

SECTION DIVERT STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.27	252.44	(DIVERT)
9.98	9.40	(DIVERT)
12.99	7.19	(DIVERT)

OFF VOLUME ABOVE BASEFLOW = 1.38 WATERSHED INCHES, 263.32 CFS-HRS, 21.76 ACRE-FEET; BASEFLOW = 0.00 CFS

OFF VOLUME ABOVE BASEFLOW = 0.00 WATERSHED INCHES, 0.00 CFS-HRS, 0.00 ACRE-FEET; BASEFLOW = 0.00 CFS

SECTION REACH CROSS SECTION 2

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OFF VOLUME ABOVE BASEFLOW = 0.00 WATERSHED INCHES, 0.00 CFS-HRS, 0.00 ACRE-FEET; BASEFLOW = 0.00 CFS

TION RUNOFF CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.20	1013.36	(RUNOFF)
9.98	31.07	(RUNOFF)
12.95	23.67	(RUNOFF)

OFF VOLUME ABOVE BASEFLOW = 1.62 WATERSHED INCHES, 943.03 CFS-HRS, 77.93 ACRE-FEET; BASEFLOW = 0.00 CFS

TION ADDHYD CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.20	1013.36	(NULL)
9.98	31.07	(NULL)
12.95	23.67	(NULL)

OFF VOLUME ABOVE BASEFLOW = 1.22 WATERSHED INCHES, 943.03 CFS-HRS, 77.93 ACRE-FEET; BASEFLOW = 0.00 CFS

TION ADDHYD CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.27	1260.90	(NULL)

OFF VOLUME ABOVE BASEFLOW = 0.93 WATERSHED INCHES, 2864.01 CFS-HRS, 236.68 ACRE-FEET; BASEFLOW = 0.00 CFS

TION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.36	1236.24	(NULL)

OFF VOLUME ABOVE BASEFLOW = 0.92 WATERSHED INCHES, 2855.08 CFS-HRS, 235.94 ACRE-FEET; BASEFLOW = 0.00 CFS

TION RUNOFF CROSS SECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.04	247.70	(RUNOFF)
7.96	11.13	(RUNOFF)
9.98	5.70	(RUNOFF)

OFF VOLUME ABOVE BASEFLOW = 1.29 WATERSHED INCHES, 154.53 CFS-HRS, 12.77 ACRE-FEET; BASEFLOW = 0.00 CFS

EQ 05/23/1990
REV 09/01/83

FISHER'S CANYON BASIN -- FUTURE 10 & 100 YEAR FLOWS
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TION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.10	237.74	(NULL)
8.03	11.14	(NULL)
10.03	5.70	(NULL)

IFF VOLUME ABOVE BASEFLOW = 1.29 WATERSHED INCHES, 154.26 CFS-HRS, 12.75 ACRE-FEET; BASEFLOW = 0.00 CFS

TION RUNOFF CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.99	350.16	(RUNOFF)
6.98	19.53	(RUNOFF)
7.98	13.21	(RUNOFF)
9.98	6.65	(RUNOFF)

IFF VOLUME ABOVE BASEFLOW = 1.79 WATERSHED INCHES, 212.58 CFS-HRS, 17.57 ACRE-FEET; BASEFLOW = 0.00 CFS

TION RUNOFF CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.06	243.20	(RUNOFF)
7.96	11.83	(RUNOFF)
9.98	6.06	(RUNOFF)

IFF VOLUME ABOVE BASEFLOW = 1.29 WATERSHED INCHES, 164.33 CFS-HRS, 13.58 ACRE-FEET; BASEFLOW = 0.00 CFS

TION ADDHYD CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.13	1467.55	(NULL)

OFF VOLUME ABOVE BASEFLOW = 0.98 WATERSHED INCHES, 3386.25 CFS-HRS, 279.84 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING REACH 5 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

TION REACH CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.22	1464.96	(NULL)

OFF VOLUME ABOVE BASEFLOW = 0.98 WATERSHED INCHES, 3379.22 CFS-HRS, 279.26 ACRE-FEET; BASEFLOW = 0.00 CFS

TION RUNOFF CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
5.98	428.25	(RUNOFF)
6.48	37.74	(RUNOFF)
6.98	22.87	(RUNOFF)
7.98	15.52	(RUNOFF)
9.98	7.78	(RUNOFF)

NOFF VOLUME ABOVE BASEFLOW = 1.79 WATERSHED INCHES, 247.51 CFS-HRS, 20.45 ACRE-FeET; BASEFLOW = 0.00 CFS

ATION ADDHYD CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
6.07	1534.76	(NULL)
6.14	1514.54	(NULL)

TOFF VOLUME ABOVE BASEFLOW = 1.01 WATERSHED INCHES, 3626.72 CFS-HRS, 299.71 ACRE-FEET; BASEFLOW = 0.00 CFS

ITIVE CONTROL OPERATION ENDCMP COMPUTATIONS COMPLETED FOR PASS 2 RECORD ID

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UTIVE CONTROL OPERATION COMPUT      FROM STRUCTURE 1 TO XSECTION 5                      RECORD ID
STARTING TIME = 0.00  RAIN DEPTH = 3.05  RAIN DURATION= 1.00  RAIN TABLE NO.= 8  ANT. MOIST. COND= 3
ALTERNATE NO.= 2      STORM NO.= 1      MAIN TIME INCREMENT = 0.05 HOURS

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ATION RUNOFF STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.10	2608.23	(RUNOFF)

NOFF VOLUME ABOVE BASEFLOW = 1.86 WATERSHED INCHES, 2832.76 CFS-HRS, 234.10 ACRE-FeET; BASEFLOW = 0.00 CFS

ACTION RESVOR STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.43	436.59	5974.46

[illegible]

XEG 05/23/1990
REV 09/01/83

FISHER'S CANYON BASIN -- FUTURE 10 & 100 YEAR FLOWS
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.50	DISCH6	1.29	3.12	6.48	11.94	20.11	31.43	46.85	78.03	113.67	169.23
.50	ELEV	5970.01	5970.03	5970.07	5970.13	5970.22	5970.35	5970.51	5970.72	5970.96	5971.21
.00	DISCH6	230.99	299.41	365.34	372.61	379.68	386.45	392.82	398.33	403.20	407.68
.00	ELEV	5971.46	5971.74	5972.01	5972.25	5972.49	5972.71	5972.93	5973.11	5973.27	5973.42
.50	DISCH6	411.77	415.47	418.79	421.76	424.38	426.37	428.01	429.44	430.68	431.77
.50	ELEV	5973.56	5973.68	5973.79	5973.89	5973.98	5974.05	5974.12	5974.18	5974.23	5974.27
.00	DISCH6	432.71	433.54	434.27	434.90	435.43	435.87	436.22	436.45	436.57	436.58
.00	ELEV	5974.31	5974.34	5974.37	5974.40	5974.42	5974.44	5974.45	5974.46	5974.46	5974.46
.50	DISCH6	436.47	436.25	435.93	435.51	435.01	434.42	433.78	433.07	432.32	431.53
.50	ELEV	5974.46	5974.45	5974.44	5974.42	5974.40	5974.38	5974.35	5974.32	5974.29	5974.26
.00	DISCH6	430.70	429.85	428.98	428.08	427.17	426.25	425.32	424.23	423.07	421.90
.00	ELEV	5974.23	5974.19	5974.16	5974.12	5974.09	5974.05	5974.01	5973.97	5973.94	5973.90
.50	DISCH6	420.73	419.55	418.37	417.19	416.01	414.83	413.64	412.46	411.29	410.11
.50	ELEV	5973.86	5973.82	5973.78	5973.74	5973.70	5973.66	5973.62	5973.58	5973.54	5973.50
.00	DISCH6	408.94	407.76	406.59	405.43	404.26	403.10	401.94	400.78	399.63	398.48
.00	ELEV	5973.46	5973.43	5973.39	5973.35	5973.31	5973.27	5973.23	5973.19	5973.15	5973.12
.50	DISCH6	397.33	396.19	395.05	393.77	392.49	391.21	389.93	388.66	387.40	386.14
.50	ELEV	5973.08	5973.04	5973.00	5972.96	5972.92	5972.87	5972.83	5972.79	5972.75	5972.70
.00	DISCH6	384.88	383.63	382.38	381.13	379.89	378.65	377.42	376.19	374.96	373.74
.00	ELEV	5972.66	5972.62	5972.58	5972.54	5972.50	5972.46	5972.41	5972.37	5972.33	5972.29
.50	DISCH6	372.53	371.31	370.10	368.90	367.70	366.50	365.30	364.19	363.19	362.19
.50	ELEV	5972.25	5972.21	5972.17	5972.13	5972.09	5972.05	5972.01	5971.97	5971.92	5971.88
.00	DISCH6	325.77	316.02	306.57	297.39	288.49	279.86	271.48	263.35	255.47	247.83
.00	ELEV	5971.84	5971.80	5971.77	5971.73	5971.69	5971.66	5971.63	5971.59	5971.56	5971.53
.50	DISCH6	240.41	233.84	227.48	221.30	215.29	209.44	203.75	198.21	192.82	187.58
.50	ELEV	5971.50	5971.47	5971.45	5971.42	5971.40	5971.37	5971.35	5971.33	5971.30	5971.28
.00	DISCH6	182.49	177.53	172.70	168.01	163.45	159.00	154.68	150.48	146.39	142.41
.00	ELEV	5971.26	5971.24	5971.22	5971.20	5971.18	5971.16	5971.14	5971.13	5971.11	5971.09
.50	DISCH6	138.54	134.78	131.12	127.55	124.09	120.71	118.29	116.16	114.06	112.00
.50	ELEV	5971.08	5971.06	5971.05	5971.03	5971.02	5971.00	5970.99	5970.97	5970.96	5970.95
.00	DISCH6	109.97	107.99	106.04	104.12	102.24	100.39	98.58	96.80	95.05	93.33
.00	ELEV	5970.93	5970.92	5970.91	5970.89	5970.88	5970.87	5970.86	5970.85	5970.83	5970.82
.50	DISCH6	91.65	89.99	88.37	86.77	85.20	83.66	82.15	80.67	79.21	77.78
.50	ELEV	5970.81	5970.80	5970.79	5970.78	5970.77	5970.76	5970.75	5970.74	5970.73	5970.72
.00	DISCH6	76.37	74.99	73.64	72.31	71.00	69.72	68.46	67.22	66.01	64.82
.00	ELEV	5970.71	5970.70	5970.69	5970.68	5970.67	5970.67	5970.66	5970.65	5970.64	5970.63
.50	DISCH6	63.65	62.50	61.37	60.26	59.17	58.10	57.05	56.02	55.01	54.01
.50	ELEV	5970.62	5970.62	5970.61	5970.60	5970.59	5970.59	5970.58	5970.57	5970.57	5970.56
.00	DISCH6	53.04	52.08	51.14	50.22	49.31	48.42	47.54	46.68	45.84	45.01
.00	ELEV	5970.55	5970.55	5970.54	5970.53	5970.53	5970.52	5970.52	5970.51	5970.51	5970.50
.50	DISCH6	44.54	44.09	43.63	43.19	42.74	42.30	41.87	41.44	41.01	40.59
.50	ELEV	5970.50	5970.49	5970.48	5970.48	5970.48	5970.47	5970.47	5970.46	5970.46	5970.45
.00	DISCH6	40.17	39.76	39.35	38.95	38.55	38.15	37.76	37.37	36.99	36.61
.00	ELEV	5970.45	5970.44	5970.44	5970.43	5970.43	5970.42	5970.42	5970.42	5970.41	5970.41
.50	DISCH6	36.23	35.86	35.49	35.12	34.76	34.41	34.05	33.70	33.36	33.01
.50	ELEV	5970.40	5970.40	5970.39	5970.39	5970.39	5970.38	5970.38	5970.37	5970.37	5970.37
.00	DISCH6	32.67	32.34	32.01	31.68	31.35	31.03	30.71	30.39	30.08	29.77
.00	ELEV	5970.36	5970.36	5970.36	5970.35	5970.35	5970.34	5970.34	5970.34	5970.33	5970.33
.50	DISCH6	29.47	29.16	28.86	28.57	28.27	27.98	27.70	27.41	27.13	26.85

DATE 05/23/1990
REV 09/01/83

FISHER'S CANYON BASIN -- FUTURE 10 & 100 YEAR FLOWS
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2.50	ELEV	5970.33	5970.32	5970.32	5970.32	5970.31	5970.31	5970.31	5970.30	5970.30	5970.30
3.00	DISCH6	26.57	26.30	26.03	25.76	25.50	25.24	24.98	24.72	24.47	24.22
4.00	ELEV	5970.30	5970.29	5970.29	5970.29	5970.28	5970.28	5970.28	5970.27	5970.27	5970.27
5.50	DISCH6	23.97	23.72	23.48	23.23	23.00	22.76	22.53	22.29	22.07	21.84
7.50	ELEV	5970.27	5970.26	5970.26	5970.26	5970.26	5970.25	5970.25	5970.25	5970.25	5970.24
10.00	DISCH6	21.61	21.39	21.17	20.95	20.74	20.53	20.31	20.11	19.90	19.69
13.00	ELEV	5970.24	5970.24	5970.24	5970.23	5970.23	5970.23	5970.23	5970.22	5970.22	5970.22
16.50	DISCH6	19.49	19.29	19.09	18.90	18.70	18.51	18.32	18.13	17.95	17.76
21.50	ELEV	5970.22	5970.21	5970.21	5970.21	5970.21	5970.21	5970.20	5970.20	5970.20	5970.20

RUNOFF VOLUME ABOVE BASEFLOW = 1.81 WATERSHED INCHES, 2746.66 CFS-HRS, 226.98 ACRE-FEET; BASEFLOW = 0.00 CFS

RATION REACH CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.53	436.48	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.80 WATERSHED INCHES, 2745.06 CFS-HRS, 226.85 ACRE-FEET; BASEFLOW = 0.00 CFS

RATION RUNOFF CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.20	1286.45	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.91 WATERSHED INCHES, 1521.84 CFS-HRS, 125.77 ACRE-FEET; BASEFLOW = 0.00 CFS

RATION ADDHYD CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.25	1635.93	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.84 WATERSHED INCHES, 4266.90 CFS-HRS, 352.62 ACRE-FEET; BASEFLOW = 0.00 CFS

RATION REACH CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.37	1594.20	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.84 WATERSHED INCHES, 4264.70 CFS-HRS, 352.43 ACRE-FEET; BASEFLOW = 0.00 CFS

RATION RUNOFF STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.96	452.13	(RUNOFF)

LO XEQ 05/23/1990
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FISHER'S CANYON BASIN -- FUTURE 10 & 100 YEAR FLOWS
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RUNOFF VOLUME ABOVE BASEFLOW = 2.26 WATERSHED INCHES, 430.64 CFS-HRS, 35.59 ACRE-FEET; BASEFLOW = 0.00 CFS

ERATION DIVERT STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.80	322.70*	(DIVERT) * FIRST POINT OF FLAT PEAK

RUNOFF VOLUME ABOVE BASEFLOW = 2.26 WATERSHED INCHES, 388.93 CFS-HRS, 32.14 ACRE-FEET; BASEFLOW = 0.00 CFS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.96	129.43	(DIVERT)

RUNOFF VOLUME ABOVE BASEFLOW = 0.22 WATERSHED INCHES, 41.72 CFS-HRS, 3.45 ACRE-FEET; BASEFLOW = 0.00 CFS

ERATION REACH CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.04	123.34	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 0.22 WATERSHED INCHES, 42.07 CFS-HRS, 3.48 ACRE-FEET; BASEFLOW = 0.00 CFS

ERATION RUNOFF CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.88	1641.52	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.44 WATERSHED INCHES, 1415.57 CFS-HRS, 116.98 ACRE-FEET; BASEFLOW = 0.00 CFS

ERATION ADDHYD CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.91	1707.14	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.89 WATERSHED INCHES, 1457.64 CFS-HRS, 120.46 ACRE-FEET; BASEFLOW = 0.00 CFS

ERATION ADDHYD CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.16	2587.62	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.85 WATERSHED INCHES, 5722.34 CFS-HRS, 472.89 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING REACH 4 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

20 XEQ 05/23/1990
REV 09/01/93

FISHER'S CANYON BASIN -- FUTURE 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

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ERATION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.23	2584.47	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.85 WATERSHED INCHES, 5720.79 CFS-HRS, 472.77 ACRE-FEET; BASEFLOW = 0.00 CFS

PERATION RUNOFF CROSS SECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.63	470.19	(RUNOFF)
1.93	42.71	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.17 WATERSHED INCHES, 260.53 CFS-HRS, 21.53 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING REACH 4 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

ERATION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.70	456.09	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 2.17 WATERSHED INCHES, 260.37 CFS-HRS, 21.52 ACRE-FEET; BASEFLOW = 0.00 CFS

ERATION RUNOFF CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.57	640.88	(RUNOFF)
1.98	44.71	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.52 WATERSHED INCHES, 298.88 CFS-HRS, 24.70 ACRE-FEET; BASEFLOW = 0.00 CFS

ERATION RUNOFF CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.68	448.55	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.17 WATERSHED INCHES, 277.24 CFS-HRS, 22.91 ACRE-FEET; BASEFLOW = 0.00 CFS

ERATION ADDHYD CROSS SECTION 4

R20 XEQ 05/23/1990
REV 09/01/83

FISHER'S CANYON BASIN -- FUTURE 10 & 100 YEAR FLOWS
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	3022.19	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.90 WATERSHED INCHES, 6557.27 CFS-HRS, 541.89 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING REACH 5 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PERATION REACH CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.16	3021.20	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.90 WATERSHED INCHES, 6556.47 CFS-HRS, 541.83 ACRE-FEET; BASEFLOW = 0.00 CFS

PERATION RUNOFF CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.54	818.08	(RUNOFF)
1.98	53.08	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 2.51 WATERSHED INCHES, 346.70 CFS-HRS, 28.65 ACRE-FEET; BASEFLOW = 0.00 CFS

PERATION ADDHYD CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	3166.82	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.92 WATERSHED INCHES, 6903.17 CFS-HRS, 570.48 ACRE-FEET; BASEFLOW = 0.00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP

COMPUTATIONS COMPLETED FOR PASS 3

RECORD ID

EXECUTIVE CONTROL OPERATION COMPUT

FROM STRUCTURE 1 TO XSECTION 5

RECORD ID

STARTING TIME = 0.00 RAIN DEPTH = 2.06 RAIN DURATION= 1.00 RAIN TABLE NO.= 9 ANT. MOIST. COND= 3
ALTERNATE NO.= 2 STORM NO.= 2 MAIN TIME INCREMENT = 0.05 HOURS

PERATION RUNOFF STRUCTURE 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.03	1111.87	(RUNOFF)

TR20 XEQ 05/23/1990
REV 09/01/83

FISHER'S CANYON BASIN -- FUTURE 10 & 100 YEAR FLOWS
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RUNOFF VOLUME ABOVE BASEFLOW = 1.01 WATERSHED INCHES, 1541.75 CFS-HRS, 127.41 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RESVOR STRUCTURE 1

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
2.40 373.46 5972.28

TIME(HRS)	FIRST HYDROGRAPH POINT = 0.00 HOURS					TIME INCREMENT = 0.05 HOURS				DRAINAGE AREA = 2.36 SQ.MI.	
0.00	DISCHG	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.21	0.67
0.00	ELEV	5970.00	5970.00	5970.00	5970.00	5970.00	5970.00	5970.00	5970.00	5970.00	5970.01
0.50	DISCHG	1.65	3.39	6.17	10.25	15.78	22.75	30.98	40.23	54.18	72.50
0.50	ELEV	5970.02	5970.04	5970.07	5970.11	5970.18	5970.25	5970.34	5970.45	5970.56	5970.68
1.00	DISCHG	91.06	109.46	131.08	156.73	180.70	202.98	223.70	243.34	263.26	281.88
1.00	ELEV	5970.81	5970.93	5971.05	5971.15	5971.25	5971.35	5971.43	5971.51	5971.59	5971.67
1.50	DISCHG	299.27	315.44	330.38	344.11	356.63	365.32	366.44	367.46	368.40	369.27
1.50	ELEV	5971.74	5971.80	5971.86	5971.92	5971.97	5972.01	5972.05	5972.08	5972.11	5972.14
2.00	DISCHG	370.06	370.77	371.42	372.00	372.50	372.91	373.21	373.39	373.46	373.39
2.00	ELEV	5972.17	5972.19	5972.21	5972.23	5972.25	5972.26	5972.27	5972.28	5972.28	5972.28
2.50	DISCHG	373.19	372.87	372.43	371.89	371.25	370.52	369.72	368.86	367.95	367.00
2.50	ELEV	5972.27	5972.26	5972.25	5972.23	5972.21	5972.18	5972.16	5972.13	5972.10	5972.07
3.00	DISCHG	366.02	365.00	355.49	346.02	336.67	327.44	318.35	309.43	300.68	292.11
3.00	ELEV	5972.03	5972.00	5971.96	5971.92	5971.89	5971.85	5971.81	5971.78	5971.74	5971.71
3.50	DISCHG	283.73	275.54	267.55	259.75	252.16	244.76	237.78	231.41	225.20	219.14
3.50	ELEV	5971.67	5971.64	5971.61	5971.58	5971.55	5971.52	5971.49	5971.46	5971.44	5971.41
4.00	DISCHG	213.23	207.48	201.87	196.41	191.09	185.91	180.87	175.96	171.18	166.53
4.00	ELEV	5971.39	5971.36	5971.34	5971.32	5971.30	5971.27	5971.25	5971.23	5971.21	5971.19
4.50	DISCHG	162.01	157.60	153.32	149.15	145.10	141.16	137.32	133.59	129.96	126.43
4.50	ELEV	5971.17	5971.16	5971.14	5971.12	5971.10	5971.09	5971.07	5971.06	5971.04	5971.03
5.00	DISCHG	122.99	119.77	117.60	115.48	113.39	111.35	109.33	107.36	105.42	103.51
5.00	ELEV	5971.01	5971.00	5970.98	5970.97	5970.96	5970.94	5970.93	5970.92	5970.90	5970.89
5.50	DISCHG	101.64	99.81	98.00	96.23	94.50	92.79	91.11	89.47	87.85	86.26
5.50	ELEV	5970.88	5970.87	5970.85	5970.84	5970.83	5970.82	5970.81	5970.80	5970.79	5970.77
6.00	DISCHG	84.70	83.17	81.67	80.20	78.75	77.32	75.93	74.56	73.21	71.89
6.00	ELEV	5970.76	5970.75	5970.74	5970.73	5970.73	5970.72	5970.71	5970.70	5970.69	5970.68
6.50	DISCHG	70.59	69.31	68.06	66.83	65.62	64.44	63.27	62.13	61.01	59.91
6.50	ELEV	5970.67	5970.66	5970.65	5970.65	5970.64	5970.63	5970.62	5970.61	5970.61	5970.60
7.00	DISCHG	58.82	57.76	56.72	55.69	54.69	53.70	52.73	51.78	50.84	49.92
7.00	ELEV	5970.59	5970.58	5970.58	5970.57	5970.56	5970.56	5970.55	5970.55	5970.54	5970.53
7.50	DISCHG	49.02	48.14	47.27	46.41	45.57	44.86	44.40	43.94	43.49	43.04
7.50	ELEV	5970.53	5970.52	5970.52	5970.51	5970.50	5970.50	5970.49	5970.49	5970.48	5970.48
8.00	DISCHG	42.60	42.16	41.73	41.30	40.88	40.45	40.04	39.63	39.22	38.82
8.00	ELEV	5970.47	5970.47	5970.46	5970.46	5970.45	5970.45	5970.44	5970.44	5970.44	5970.43
8.50	DISCHG	38.42	38.02	37.63	37.25	36.86	36.48	36.11	35.74	35.37	35.01
8.50	ELEV	5970.43	5970.42	5970.42	5970.41	5970.41	5970.41	5970.40	5970.40	5970.39	5970.39
9.00	DISCHG	34.65	34.29	33.94	33.59	33.25	32.90	32.57	32.23	31.90	31.57
9.00	ELEV	5970.38	5970.38	5970.38	5970.37	5970.37	5970.37	5970.36	5970.36	5970.35	5970.35
9.50	DISCHG	31.25	30.93	30.61	30.29	29.98	29.67	29.37	29.07	28.77	28.47

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9.50	ELEV	5970.35	5970.34	5970.34	5970.34	5970.33	5970.33	5970.33	5970.32	5970.32	5970.32
10.00	DISCHG	28.18	27.89	27.60	27.32	27.04	26.76	26.49	26.21	25.94	25.68
10.00	ELEV	5970.31	5970.31	5970.31	5970.30	5970.30	5970.30	5970.29	5970.29	5970.29	5970.29
10.50	DISCHG	25.41	25.15	24.89	24.64	24.39	24.13	23.89	23.64	23.40	23.16
10.50	ELEV	5970.28	5970.28	5970.28	5970.27	5970.27	5970.27	5970.27	5970.26	5970.26	5970.26
11.00	DISCHG	22.92	22.68	22.45	22.22	21.99	21.77	21.54	21.32	21.10	20.88
11.00	ELEV	5970.25	5970.25	5970.25	5970.25	5970.24	5970.24	5970.24	5970.24	5970.23	5970.23
11.50	DISCHG	20.67	20.46	20.25	20.04	19.83	19.63	19.43	19.23	19.03	18.84
11.50	ELEV	5970.23	5970.23	5970.23	5970.22	5970.22	5970.22	5970.22	5970.21	5970.21	5970.21
12.00	DISCHG	18.64	18.45	18.26	18.07	17.89	17.70	17.52	17.34	17.16	16.99
12.00	ELEV	5970.21	5970.21	5970.20	5970.20	5970.20	5970.20	5970.19	5970.19	5970.19	5970.19
12.50	DISCHG	16.81	16.64	16.47	16.30	16.13	15.97	15.80	15.64	15.48	15.32
12.50	ELEV	5970.19	5970.19	5970.18	5970.18	5970.18	5970.18	5970.18	5970.17	5970.17	5970.17
13.00	DISCHG	15.16	15.01	14.85	14.70	14.55	14.40	14.25	14.10	13.96	13.82
13.00	ELEV	5970.17	5970.17	5970.17	5970.16	5970.16	5970.16	5970.16	5970.16	5970.16	5970.15
13.50	DISCHG	13.67	13.53	13.39	13.26	13.12	12.99	12.85	12.72	12.59	12.46
13.50	ELEV	5970.15	5970.15	5970.15	5970.15	5970.15	5970.14	5970.14	5970.14	5970.14	5970.14
14.00	DISCHG	12.33	12.20	12.08	11.96	11.83	11.71	11.59	11.47	11.35	11.24
14.00	ELEV	5970.14	5970.14	5970.13	5970.13	5970.13	5970.13	5970.13	5970.13	5970.13	5970.12
14.50	DISCHG	11.12	11.01	10.89	10.78	10.67	10.56	10.45	10.35	10.24	10.13
14.50	ELEV	5970.12	5970.12	5970.12	5970.12	5970.12	5970.12	5970.12	5970.11	5970.11	5970.11

RUNOFF VOLUME ABOVE BASEFLOW = 0.98 WATERSHED INCHES, 1492.76 CFS-HRS, 123.36 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
2.50	373.32	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 0.98 WATERSHED INCHES, 1491.62 CFS-HRS, 123.27 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.14	561.15	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.05 WATERSHED INCHES, 837.40 CFS-HRS, 69.20 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.73	752.99	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.00 WATERSHED INCHES, 2329.02 CFS-HRS, 192.47 ACRE-FEET; BASEFLOW = 0.00 CFS

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OPERATION REACH CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.85	748.30	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.00 WATERSHED INCHES, 2327.48 CFS-HRS, 192.34 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.87	222.21	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.34 WATERSHED INCHES, 254.20 CFS-HRS, 21.01 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION DIVERT STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.87	222.21	(DIVERT)

RUNOFF VOLUME ABOVE BASEFLOW = 1.34 WATERSHED INCHES, 254.20 CFS-HRS, 21.01 ACRE-FEET; BASEFLOW = 0.00 CFS

RUNOFF VOLUME ABOVE BASEFLOW = 0.00 WATERSHED INCHES, 0.00 CFS-HRS, 0.00 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 2

RUNOFF VOLUME ABOVE BASEFLOW = 0.00 WATERSHED INCHES, 0.00 CFS-HRS, 0.00 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.78	859.88	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.49 WATERSHED INCHES, 863.05 CFS-HRS, 71.32 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.78	859.88	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.12 WATERSHED INCHES, 863.05 CFS-HRS, 71.32 ACRE-FEET; BASEFLOW = 0.00 CFS

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OPERATION ADDHYD CROSS SECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.91	1112.74	(NULL)
1.33	1104.15	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.03 WATERSHED INCHES, 3190.53 CFS-HRS, 263.67 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.04	1098.92	(NULL)
1.41	1102.95	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.03 WATERSHED INCHES, 3189.51 CFS-HRS, 263.58 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.55	241.28	(RUNOFF)
1.23	69.90	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.26 WATERSHED INCHES, 151.18 CFS-HRS, 12.49 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION REACH CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.62	225.09	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.26 WATERSHED INCHES, 151.21 CFS-HRS, 12.50 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.49	372.37	(RUNOFF)
1.23	76.50	(RUNOFF)
1.69	47.13	(RUNOFF)
1.83	45.27	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.56 WATERSHED INCHES, 184.94 CFS-HRS, 15.28 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 4

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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.59	227.24	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.26 WATERSHED INCHES, 160.91 CFS-HRS, 13.30 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.96	1344.09	(NULL)
1.25	1318.64	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.07 WATERSHED INCHES, 3686.58 CFS-HRS, 304.66 ACRE-FEET; BASEFLOW = 0.00 CFS

*** WARNING REACH 5 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

OPERATION REACH CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	1342.22	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.07 WATERSHED INCHES, 3685.71 CFS-HRS, 304.59 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION RUNOFF CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
0.45	504.16	(RUNOFF)
1.22	88.88	(RUNOFF)
1.68	55.27	(RUNOFF)
1.84	53.00	(RUNOFF)

RUNOFF VOLUME ABOVE BASEFLOW = 1.56 WATERSHED INCHES, 215.55 CFS-HRS, 17.81 ACRE-FEET; BASEFLOW = 0.00 CFS

OPERATION ADDHYD CROSS SECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	1430.43	(NULL)

RUNOFF VOLUME ABOVE BASEFLOW = 1.09 WATERSHED INCHES, 3901.26 CFS-HRS, 322.40 ACRE-FEET; BASEFLOW = 0.00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP COMPUTATIONS COMPLETED FOR PASS 4

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EXECUTIVE CONTROL OPERATION ENDJOB

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SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION			RUNOFF AMOUNT (IN)	PEAK DISCHARGE				
						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)		ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)	
ALTERNATE 1 STORM 1														
STRUCTURE	1	RUNOFF	2.36	7	2	0.05	0.0	4.50	24.00	1.78	---	6.35	2262.15	959.8
STRUCTURE	1	RESVOR	2.36	7	2	0.05	0.0	4.50	24.00	1.54	5973.26	7.38	402.78	170.9
XSECTION	1	REACH	2.36	7	2	0.05	0.0	4.50	24.00	1.53	---	7.48	402.69	170.8
XSECTION	1	RUNOFF	1.23	7	2	0.05	0.0	4.50	24.00	1.85	---	6.43	1109.75	899.3
XSECTION	1	ADDHYD	3.59	7	2	0.05	0.0	4.50	24.00	1.64	---	6.51	1401.53	390.3
XSECTION	2	REACH	3.59	7	2	0.05	0.0	4.50	24.00	1.63	---	6.63	1349.10	375.7
STRUCTURE	2	RUNOFF	0.29	7	2	0.05	0.0	4.50	24.00	2.39	---	6.25	448.06	1518.9
STRUCTURE	2	DIVERT	0.00	7	2	0.05	0.0	4.50	24.00	2.39	---	6.10*	322.70*****	
XSECTION	2	DIVERT	0.29	7	2	0.05	0.0	4.50	24.00	0.18	---	6.25	125.36	425.0
XSECTION	2	REACH	0.29	7	2	0.05	0.0	4.50	24.00	0.18	---	6.33	117.51	398.3
XSECTION	2	RUNOFF	0.90	7	2	0.05	0.0	4.50	24.00	2.69	---	6.18	1702.38	1891.5
XSECTION	2	ADDHYD	1.19	7	2	0.05	0.0	4.50	24.00	2.07	---	6.20	1764.57	1476.6
XSECTION	2	ADDHYD	4.79	7	2	0.05	0.0	4.50	24.00	1.74	---	6.30	2445.47	511.0
XSECTION	4	REACH	4.79	7	2	0.05	0.0	4.50	24.00	1.74	---	6.38	2421.03	505.9
XSECTION	3	RUNOFF	0.19	7	2	0.05	0.0	4.50	24.00	2.27	---	6.03	428.56	2304.1
XSECTION	4	REACH	0.19	7	2	0.05	0.0	4.50	24.00	2.26	---	6.09	419.91	2257.6
XSECTION	4	ADDHYD	4.97	7	2	0.05	0.0	4.50	24.00	1.76	---	6.35	2517.86	506.4
XSECTION	4	RUNOFF	0.18	7	2	0.05	0.0	4.50	24.00	2.89	---	5.99	546.55	2970.4
XSECTION	4	RUNOFF	0.20	7	2	0.05	0.0	4.50	24.00	2.26	---	6.05	426.56	2154.4
XSECTION	4	ADDHYD	0.38	7	2	0.05	0.0	4.50	24.00	2.57	---	6.01	951.87	2491.8
XSECTION	4	ADDHYD	5.35	7	2	0.05	0.0	4.50	24.00	1.82	---	6.16	2706.20	505.5
XSECTION	5	REACH	5.35	7	2	0.05	0.0	4.50	24.00	1.81	---	6.24	2705.77	505.4
XSECTION	5	RUNOFF	0.21	7	2	0.05	0.0	4.50	24.00	2.89	---	5.98	662.12	3094.0
XSECTION	5	ADDHYD	5.57	7	2	0.05	0.0	4.50	24.00	1.85	---	6.07	2826.33	507.6
ALTERNATE 1 STORM 2														
STRUCTURE	1	RUNOFF	2.36	7	2	0.05	0.0	3.20	24.00	0.93	---	6.37	1112.56	472.0
STRUCTURE	1	RESVOR	2.36	7	2	0.05	0.0	3.20	24.00	0.76	5971.62	7.25	269.41	114.3
XSECTION	1	REACH	2.36	7	2	0.05	0.0	3.20	24.00	0.76	---	7.37	268.47	113.9
XSECTION	1	RUNOFF	1.23	7	2	0.05	0.0	3.20	24.00	0.98	---	6.46	555.13	449.9
XSECTION	1	ADDHYD	3.59	7	2	0.05	0.0	3.20	24.00	0.83	---	6.56	645.49	179.8
XSECTION	2	REACH	3.59	7	2	0.05	0.0	3.20	24.00	0.83	---	6.73	620.73	172.9
STRUCTURE	2	RUNOFF	0.29	7	2	0.05	0.0	3.20	24.00	1.38	---	6.27	252.44	855.7

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION			RUNOFF AMOUNT (IN)	PEAK DISCHARGE				
						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)		ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)	
ALTERNATE 1 STORM 2														
STRUCTURE 2	DIVERT	0.00	7	2	0.05	0.0	3.20	24.00	1.38	---	6.27	252.44	*****	
XSECTION 2	DIVERT	0.29	7	2	0.05	0.0	3.20	24.00	0.00	---	0.00	0.00		0.0
XSECTION 2	REACH	0.29	7	2	0.05	0.0	3.20	24.00	0.00	---	0.00	0.00		0.0
XSECTION 2	RUNOFF	0.90	7	2	0.05	0.0	3.20	24.00	1.62	---	6.20	1013.36		1126.0
XSECTION 2	ADDHYD	1.19	7	2	0.05	0.0	3.20	24.00	1.22	---	6.20	1013.36		848.0
XSECTION 2	ADDHYD	4.79	7	2	0.05	0.0	3.20	24.00	0.93	---	6.27	1260.90		263.5
XSECTION 4	REACH	4.79	7	2	0.05	0.0	3.20	24.00	0.92	---	6.36	1236.24		258.3
XSECTION 3	RUNOFF	0.19	7	2	0.05	0.0	3.20	24.00	1.29	---	6.04	247.70		1331.7
XSECTION 4	REACH	0.19	7	2	0.05	0.0	3.20	24.00	1.29	---	6.10	237.74		1278.2
XSECTION 4	ADDHYD	4.97	7	2	0.05	0.0	3.20	24.00	0.94	---	6.32	1307.39		263.0
XSECTION 4	RUNOFF	0.18	7	2	0.05	0.0	3.20	24.00	1.79	---	5.99	350.16		1903.0
XSECTION 4	RUNOFF	0.20	7	2	0.05	0.0	3.20	24.00	1.29	---	6.06	243.20		1228.3
XSECTION 4	ADDHYD	0.38	7	2	0.05	0.0	3.20	24.00	1.53	---	6.02	577.64		1512.2
XSECTION 4	ADDHYD	5.35	7	2	0.05	0.0	3.20	24.00	0.98	---	6.13	1467.55		274.1
XSECTION 5	REACH	5.35	7	2	0.05	0.0	3.20	24.00	0.98	---	6.22	1464.96		273.6
XSECTION 5	RUNOFF	0.21	7	2	0.05	0.0	3.20	24.00	1.79	---	5.98	428.25		2001.2
XSECTION 5	ADDHYD	5.57	7	2	0.05	0.0	3.20	24.00	1.01	---	6.07	1534.76		275.6
ALTERNATE 2 STORM 1														
STRUCTURE 1	RUNOFF	2.36	8	3	0.05	0.0	3.05	2.00	1.86	---	1.10	2608.23		1106.6
STRUCTURE 1	RESVOR	2.36	8	3	0.05	0.0	3.05	2.00	1.81	5974.46	2.43	436.59		185.2
XSECTION 1	REACH	2.36	8	3	0.05	0.0	3.05	2.00	1.80	---	2.53	436.48		185.2
XSECTION 1	RUNOFF	1.23	8	3	0.05	0.0	3.05	2.00	1.91	---	1.20	1286.45		1042.5
XSECTION 1	ADDHYD	3.59	8	3	0.05	0.0	3.05	2.00	1.84	---	1.25	1635.93		455.6
XSECTION 2	REACH	3.59	8	3	0.05	0.0	3.05	2.00	1.84	---	1.37	1594.20		443.9
STRUCTURE 2	RUNOFF	0.29	8	3	0.05	0.0	3.05	2.00	2.26	---	0.96	452.13		1532.7
STRUCTURE 2	DIVERT	0.00	8	3	0.05	0.0	3.05	2.00	2.26	---	0.80*	322.70	*****	
XSECTION 2	DIVERT	0.29	8	3	0.05	0.0	3.05	2.00	0.22	---	0.96	129.43		438.8
XSECTION 2	REACH	0.29	8	3	0.05	0.0	3.05	2.00	0.22	---	1.04	123.34		418.1
XSECTION 2	RUNOFF	0.90	8	3	0.05	0.0	3.05	2.00	2.44	---	0.88	1641.52		1823.9
XSECTION 2	ADDHYD	1.19	8	3	0.05	0.0	3.05	2.00	1.89	---	0.91	1707.14		1428.6
XSECTION 2	ADDHYD	4.79	8	3	0.05	0.0	3.05	2.00	1.85	---	1.16	2587.62		540.7
XSECTION 4	REACH	4.79	8	3	0.05	0.0	3.05	2.00	1.85	---	1.23	2584.47		540.0
XSECTION 3	RUNOFF	0.19	8	3	0.05	0.0	3.05	2.00	2.17	---	0.63	470.19		2527.9
XSECTION 4	REACH	0.19	8	3	0.05	0.0	3.05	2.00	2.17	---	0.70	456.09		2452.1
XSECTION 4	ADDHYD	4.97	8	3	0.05	0.0	3.05	2.00	1.86	---	1.19	2724.08		547.9
XSECTION 4	RUNOFF	0.18	8	3	0.05	0.0	3.05	2.00	2.52	---	0.57	640.98		3483.0

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION			RUNOFF AMOUNT (IN)	PEAK DISCHARGE				
						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)		ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)	
ALTERNATE 2 STORM 1														
XSECTION	4	RUNOFF	0.20	8	3	0.05	0.0	3.05	2.00	2.17	---	0.68	448.55	2265.4
XSECTION	4	ADDHYD	0.38	8	3	0.05	0.0	3.05	2.00	2.34	---	0.61	1001.91	2622.8
XSECTION	4	ADDHYD	5.35	8	3	0.05	0.0	3.05	2.00	1.90	---	1.11	3022.19	564.5
XSECTION	5	REACH	5.35	8	3	0.05	0.0	3.05	2.00	1.90	---	1.16	3021.20	564.3
XSECTION	5	RUNOFF	0.21	8	3	0.05	0.0	3.05	2.00	2.51	---	0.54	818.08	3822.8
XSECTION	5	ADDHYD	5.57	8	3	0.05	0.0	3.05	2.00	1.92	---	1.11	3166.82	568.8
ALTERNATE 2 STORM 2														
STRUCTURE	1	RUNOFF	2.36	9	3	0.05	0.0	2.06	2.00	1.01	---	1.03	1111.87	471.7
STRUCTURE	1	RESVOR	2.36	9	3	0.05	0.0	2.06	2.00	0.98	5972.28	2.40	373.46	158.4
XSECTION	1	REACH	2.36	9	3	0.05	0.0	2.06	2.00	0.98	---	2.50	373.32	158.4
XSECTION	1	RUNOFF	1.23	9	3	0.05	0.0	2.06	2.00	1.05	---	1.14	561.15	454.7
XSECTION	1	ADDHYD	3.59	9	3	0.05	0.0	2.06	2.00	1.00	---	1.73	752.99	209.7
XSECTION	2	REACH	3.59	9	3	0.05	0.0	2.06	2.00	1.00	---	1.85	748.30	208.4
STRUCTURE	2	RUNOFF	0.29	9	3	0.05	0.0	2.06	2.00	1.34	---	0.87	222.21	753.3
STRUCTURE	2	DIVERT	0.00	9	3	0.05	0.0	2.06	2.00	1.34	---	0.87	222.21	*****
XSECTION	2	DIVERT	0.29	9	3	0.05	0.0	2.06	2.00	0.00	---	0.00	0.00	0.0
XSECTION	2	REACH	0.29	9	3	0.05	0.0	2.06	2.00	0.00	---	0.00	0.00	0.0
XSECTION	2	RUNOFF	0.90	9	3	0.05	0.0	2.06	2.00	1.49	---	0.78	859.88	955.4
XSECTION	2	ADDHYD	1.19	9	3	0.05	0.0	2.06	2.00	1.12	---	0.78	859.88	719.6
XSECTION	2	ADDHYD	4.79	9	3	0.05	0.0	2.06	2.00	1.03	---	0.91	1112.74	232.5
XSECTION	4	REACH	4.79	9	3	0.05	0.0	2.06	2.00	1.03	---	1.41	1102.95	230.5
XSECTION	3	RUNOFF	0.19	9	3	0.05	0.0	2.06	2.00	1.26	---	0.55	241.28	1297.2
XSECTION	4	REACH	0.19	9	3	0.05	0.0	2.06	2.00	1.26	---	0.62	225.09	1210.1
XSECTION	4	ADDHYD	4.97	9	3	0.05	0.0	2.06	2.00	1.04	---	1.00	1178.92	237.1
XSECTION	4	RUNOFF	0.18	9	3	0.05	0.0	2.06	2.00	1.56	---	0.49	372.37	2023.7
XSECTION	4	RUNOFF	0.20	9	3	0.05	0.0	2.06	2.00	1.26	---	0.59	227.24	1147.7
XSECTION	4	ADDHYD	0.38	9	3	0.05	0.0	2.06	2.00	1.40	---	0.52	549.40	1438.2
XSECTION	4	ADDHYD	5.35	9	3	0.05	0.0	2.06	2.00	1.07	---	0.96	1344.09	251.0
XSECTION	5	REACH	5.35	9	3	0.05	0.0	2.06	2.00	1.07	---	1.02	1342.22	250.7
XSECTION	5	RUNOFF	0.21	9	3	0.05	0.0	2.06	2.00	1.56	---	0.45	504.16	2355.9
XSECTION	5	ADDHYD	5.57	9	3	0.05	0.0	2.06	2.00	1.09	---	1.02	1430.43	256.9

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FISHER'S CANYON BASIN -- FUTURE 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

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SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS
(A STAR(*) AFTER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTSIDE ACCEPTABLE LIMITS, SEE PREVIOUS WARNINGS)

HYDROGRAPH INFORMATION									ROUTING PARAMETERS						PEAK		
XSEC REACH	INFLOW		OUTFLOW		OUTFLOW+		BASE-	VOLUME	MAIN	ITER-	Q AND A		PEAK	S/Q	ATT-	TRAVEL TIME	
ID LENGTH	PEAK	TIME	PEAK	TIME	PEAK	TIME	FLOW	ABOVE	TIME	ATION	EQUATION	LENGTH	RATIO	@PEAK	KIN	STOR-	KINE-
(FT)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(HR)	(CFS)	(IN)	(HR)	#	COEFF	POWER	FACTOR	D/I	(K)	COEFF	AGE
											(X)	(M)	(K*)	(Q*)	(SEC)	(C)	(HR)
ALTERNATE	1	STORM	1														
1	2500	403	7.4	403	7.5	1400	6.5	0	1.54*	0.05	1	0.760	1.50	0.003	1.000	271	0.50
2	4700	1400	6.5	1348	6.7	---	---	0	1.64	0.05	1	0.400	1.60	0.010	0.963	344	0.41
2	2200	125	6.2	116	6.3	1764	6.2	0	0.18	0.05	1	0.940	1.67	0.166	0.926	197	0.63
4	3500	2445	6.3	2415	6.4	---	---	0	1.74	0.05	1	0.600	1.57	0.005	0.988	182	0.66
4	1600	423	6.1	419	6.1	2518	6.3	0	2.27	0.05	1	0.600	1.57	0.030	0.989	157	0.73?
5	2100	2706	6.2	2706	6.2	2804	6.1	0	1.82	0.05	1	0.600	1.57	0.002	1.000	105	0.92?
ALTERNATE	1	STORM	2														
1	2500	269	7.2	268	7.3	645	6.6	0	0.76*	0.05	1	0.760	1.50	0.005	0.996	310	0.45
2	4700	645	6.6	620	6.7	---	---	0	0.83*	0.05	1	0.400	1.60	0.014	0.961	460	0.33
2	2200	0	0.0	0	0.0	1013	6.2	0	0.00	0.05	0	0.000	0.00	0.000	0.000	0	0.00
4	3500	1259	6.2	1235	6.3	---	---	0	0.93	0.05	1	0.600	1.57	0.008	0.981	231	0.56
4	1600	246	6.1	238	6.1	1306	6.3	0	1.29	0.05	1	0.600	1.57	0.042	0.965	191	0.64
5	2100	1467	6.2	1464	6.2	1525	6.1	0	0.98	0.05	1	0.600	1.57	0.003	0.998	131	0.81?
ALTERNATE	2	STORM	1														
1	2500	437	2.5	436	2.5	1636	1.2	0	1.81	0.05	1	0.760	1.50	0.002	1.000	264	0.51
2	4700	1636	1.2	1592	1.4	---	---	0	1.84	0.05	1	0.400	1.60	0.010	0.973	325	0.43
2	2200	129	0.9	123	1.1	1707	0.9	0	0.22	0.05	1	0.940	1.67	0.119	0.955	195	0.63
4	3500	2587	1.1	2583	1.2	---	---	0	1.85	0.05	1	0.600	1.57	0.005	0.998	178	0.67?
4	1600	467	0.7	456	0.7	2723	1.2	0	2.17	0.05	1	0.600	1.57	0.035	0.977	152	0.75?
5	2100	3022	1.1	3020	1.1	3165	1.1	0	1.90	0.05	1	0.600	1.57	0.002	1.000	101	0.94?
ALTERNATE	2	STORM	2														
1	2500	373	2.4	373	2.5	753	1.7	0	0.98	0.05	1	0.760	1.50	0.005	1.000	278	0.49
2	4700	753	1.7	748	1.9	---	---	0	1.00	0.05	1	0.400	1.60	0.012	0.994	434	0.34
2	2200	0	0.0	0	0.0	858	0.8	0	0.00	0.05	0	0.000	0.00	0.000	0.000	0	0.00
4	3500	1113	0.9	1103	1.4	---	---	0	1.03	0.05	1	0.600	1.57	0.006	0.991	242	0.54
4	1600	241	0.6	221	0.6	1179	1.0	0	1.26	0.05	1	0.600	1.57	0.043	0.916	193	0.64
5	2100	1344	0.9	1341	1.0	1429	1.0	0	1.07	0.05	1	0.600	1.57	0.002	0.998	135	0.80?

TR20 XEQ 05/23/1990
REV 09/01/83

FISHER'S CANYON BASIN -- FUTURE 10 & 100 YEAR FLOWS
ALT#1: 24H/AMCII ALT#2: 2H/AMCIII STORM1: 100Y STORM2: 10Y

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SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2
STRUCTURE 2	0.00		
ALTERNATE 1		322.70	252.44
ALTERNATE 2		322.70	222.21
STRUCTURE 1	2.36		
ALTERNATE 1		402.78	269.41
ALTERNATE 2		436.59	373.46
XSECTION 1	3.59		
ALTERNATE 1		1401.53	645.49
ALTERNATE 2		1635.93	752.99
XSECTION 2	4.79		
ALTERNATE 1		2445.47	1260.90
ALTERNATE 2		2587.62	1112.74
XSECTION 3	0.19		
ALTERNATE 1		428.56	247.70
ALTERNATE 2		470.19	241.28
XSECTION 4	5.35		
ALTERNATE 1		2706.20	1467.55
ALTERNATE 2		3022.19	1344.09
XSECTION 5	5.57		
ALTERNATE 1		2826.33	1534.76
ALTERNATE 2		3166.82	1430.43