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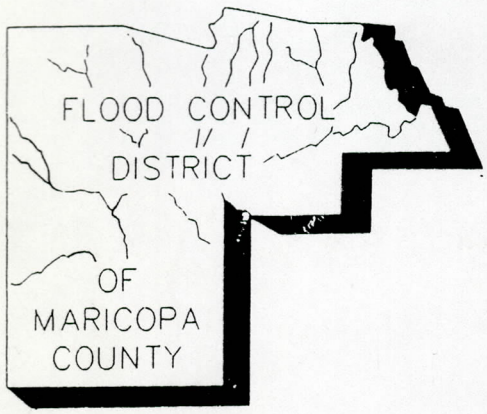
Between Arizona Canal Diversion Channel & Central Arizona Project



HYDROLOGY REPORT

November 9, 1990

COE & VAN LOO
PLANNING • ENGINEERING
LANDSCAPE ARCHITECTURE

SKUNK CREEK

Between the Arizona Canal Diversion Channel and the Central Arizona Project Canal

HYDROLOGY REPORT

FCD 89-72

November 9, 1990

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SKUNK CREEK
BETWEEN ACDC AND THE CAP
HYDROLOGY REPORT

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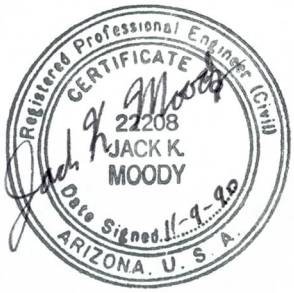

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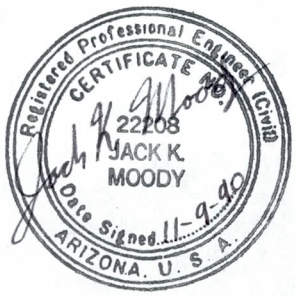

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PREFACE

This report was initially prepared to document the hydrologic computations for the Skunk Creek Flood Insurance Study (FIS). However, the Flood Control District of Maricopa County (FCDMC) determined that the effective FEMA discharges would be used in the hydraulic analyses of Skunk Creek and Scatter Wash (Ref. 2), after completion of this hydrologic study.

The study area evaluated in this report is the watershed for Skunk Creek below Adobe Dam, under existing conditions. The hydrologic computations documented in this report are in accordance with the methodologies documented in FCDMC's Hydrologic Design Manual (Ref. 1).

1.0 SYNOPSIS

Coe and Van Loo Consulting Engineers, Inc. (CVL) has contracted with the Flood Control District of Maricopa County (FCDMC) to perform a Flood Insurance Study (FIS) for a portion of Skunk Creek located in Maricopa County, Arizona. The study reach includes Skunk Creek, from the Arizona Canal Diversion Channel (ACDC) to the Central Arizona Project Canal (CAP). Adobe Dam is a major flood control facility located within the Skunk Creek study reach, that essentially divides the study reach into two separate reaches. The location of Adobe Dam is indicated in the Vicinity Map.

Within the study reach, various improvements have been constructed along Skunk Creek, since the previous Flood Insurance Study (Ref. 2). These improvements are responsible for creating the need for this FIS. However, significant changes have only occurred in the Skunk Creek watershed downstream of Adobe Dam. Therefore, a new hydrologic analysis has only been performed for the Skunk Creek watershed downstream of Adobe Dam. The peak discharges given in the current regulatory FIS (Ref. 2) will be used in the hydraulic analysis for Skunk Creek upstream of Adobe Dam.

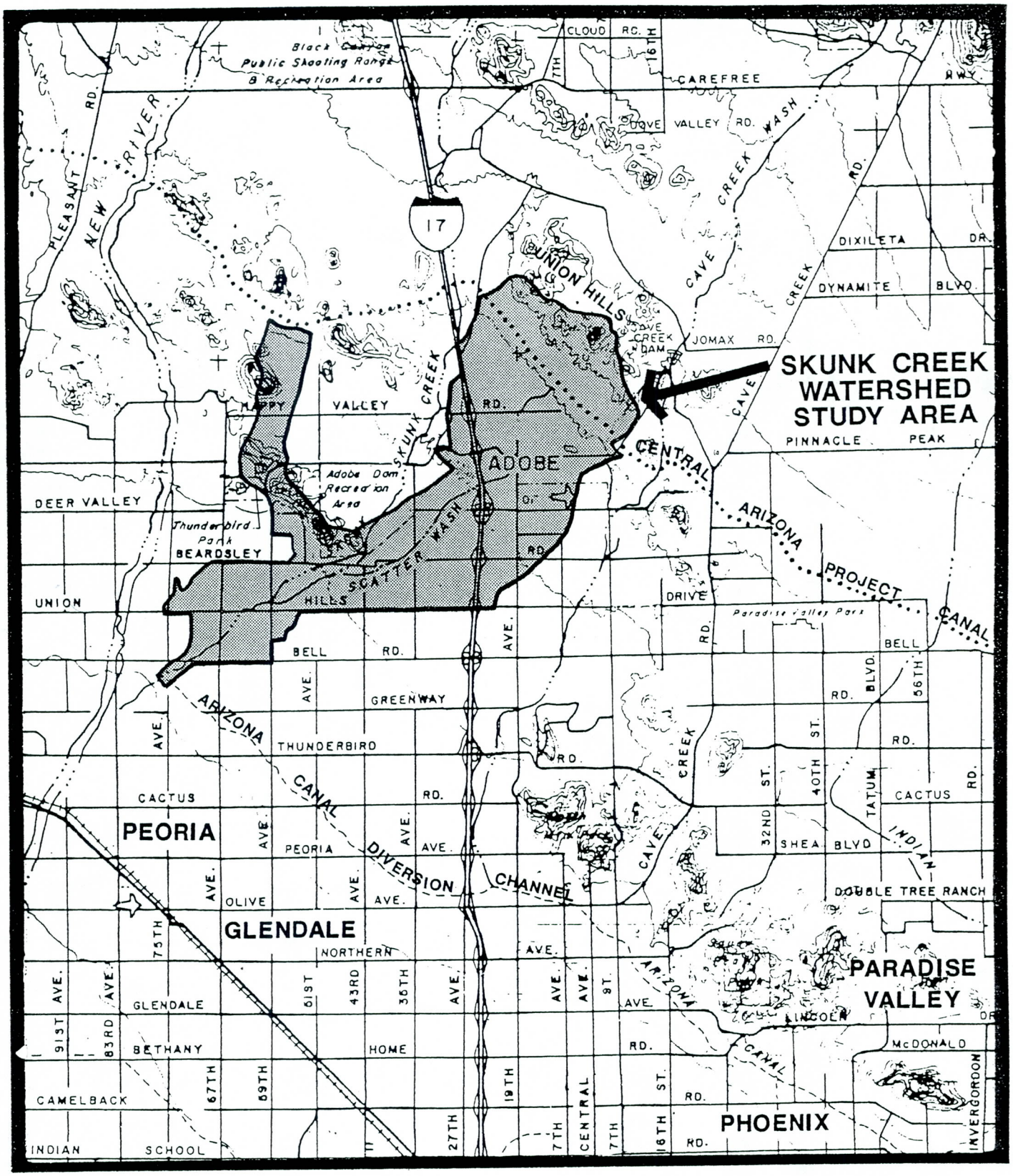
This report presents the hydrologic analysis performed for Skunk Creek downstream of Adobe Dam. The following table summarizes the computed peak discharges corresponding to a 24-hour duration storm at the specified locations along Skunk Creek and Scatter Wash, a major tributary to Skunk Creek. These values are recommended for use in the hydraulic analysis portion of this Flood Insurance Study for Skunk Creek, downstream of Adobe Dam.

TABLE 1

24-Hour Storm Peak Flows

LOCATION	DRAINAGE AREA* (s.m.)	10-Yr. (cfs)	50-Yr. (cfs)	100-Yr. (cfs)
Skunk Creek immediately upstream of Confluence of ACDC	23.8	3,800	6,000	6,700
Skunk Creek at 67th Avenue	21.3	3,800	5,800	6,500
Skunk Creek below 55th Avenue Channel	19.9	3,700	5,800	6,500
Skunk Creek below confluence with Scatter Wash	15.0	2,700	4,300	5,100
Skunk Creek above confluence with Scatter Wash	0.8	1,500	1,900	2,000
Skunk Creek below Adobe Dam	–	1,370	1,650	1,730
Scatter Wash above Confluence with Skunk Creek	19.0	1,300	2,500	3,200

* Contributing drainage area below Adobe Dam.



VICINITY MAP

SKUNK CREEK
Between ACDC and CAP
FLOOD INSURANCE STUDY

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NTS
NORTH

2.0 INTRODUCTION

The current regulatory Flood Insurance Study (FIS) for Skunk Creek was published by the Federal Emergency Management Agency (FEMA) on September 29, 1989. However, the discharges used in the FIS were based on a hydrologic study by the U.S. Army Corps of Engineers (CORPS) published in 1985 (Ref. 14). Since the CORPS study, numerous changes have occurred in the Skunk Creek watershed downstream of Adobe Dam, including general urbanization, construction of significant retention facilities for Arrowhead Ranch, and construction of the CAP canal detention facilities. This report presents the hydrologic analysis for Skunk Creek between the ACDC and Adobe Dam.

3.0 STUDY PARAMETERS

3.1 Study Area

Skunk Creek has a watershed area of approximately 113.4 square miles at the ACDC. Approximately 89.6 square miles of this watershed is tributary to Adobe Dam, with the remaining 23.8 square miles contributing below the dam. For the purposes of this study, the watershed contributing to the dam will only be considered as an outflow from the dam. The major emphasis of this study will be the watershed contributing to Skunk Creek between the ACDC and Adobe Dam. As indicated in the Vicinity Map, the watershed extends from the confluence with the ACDC, south of Bell Road at 75th Avenue, northeast to the Union Hills.

Several sub-watersheds or tributaries contribute stormwater runoff to Skunk Creek. The largest of these tributaries is Scatter Wash, which outlets into Skunk Creek southwest of Beardsley Road and 43rd Avenue. The Scatter Wash watershed extends northeast from the confluence into the Union Hills. The 55th Avenue channel has a long and narrow watershed that extends north through Arrowhead Ranch to the CAP. This channelized flow outlets into Skunk Creek near the 55th Avenue alignment. The 71st Avenue Channel collects runoff from the Arrowhead Ranch Country Club and vicinity, and outlets into Skunk Creek near the 71st Avenue Alignment. Union Hills Drive collects and conveys flow westerly toward Skunk Creek in an inverted crown section and roadside channels. However, a major storm drain system along Union Hills Drive has been evaluated (Ref. 37) and is currently under construction; therefore, the storm drain system has been considered as an existing facility in this study.

The terrain within the watershed is varied with slopes ranging from 0.4 percent in the flatter areas to mountainous areas with slopes in excess of 50 percent. The lower flatter portions of the watershed tend to be highly urbanized, while the upper watershed is largely natural desert and mountains. The soils within the watershed range from a highly permeable sandy loam to relatively impermeable clays and rock outcroppings.

3.2 Mapping

The available mapping utilized in this study was as follows:

1. USGS Quadrangle Maps: Hedgpeth Hills, Arizona and Union Hills, Arizona, 7.5 minute series. The horizontal scale is 1" = 2000'. The contour interval is 20 feet. These maps were photo revised in 1981.

2. City of Phoenix, Arizona, Quarter Section Maps: These maps provide photo and contour coverage of much of the watershed area. The majority of the contour maps are dated from 1971 to 1977, however, the urbanization that has taken place since that time, has made these maps outdated and unusable for the purposed of this study.

3. LandisCor Aerial Photography: These 1" = 1200' scale photos are dated November and December, 1989 and February, 1990. These maps also provide municipality and zoning information. In addition, a 1" = 2000' scale composite photograph was obtained from LandisCor (Plate 2).

4. City of Phoenix Storm Drain Maps: These maps are at a scale of 1" = 200' and provide a schematic location of storm drains in the area.

5. FIS Mapping: Aerial Mapping Company, Inc. prepared 1" = 200' contour mapping of the 100-year flood plain area of Skunk Creek for this study. The 1" = 750' scale photograph contact prints from the April, 1990 flight were also utilized;

3.3 Study Criteria

The following criteria and guidelines were set forth by the FCDMC prior to commencing work on the study:

1. Hydrology calculations will be completed for the 10-, 50-, and 100-year storms;

2. Storm durations of 6- and 24-hours will be evaluated for all three storms, in order to determine which duration storm results in the highest magnitude peak discharges most consistent with the previous FIS;

3. The CORPS HEC-1 computer program will be utilized for hydrograph computations;

4. Sub-basins will be limited to a maximum of two square miles in area;

5. The Clark unit hydrograph methodology will to be utilized;

6. The Green-Ampt Loss method will be utilized for estimation of precipitation losses;

7. The Maricopa County Unit Hydrograph Procedure 1 (MCUHP1) Computer program, as provided by the FCDMC, will be used to compute times of concentration and generate basic HEC-1 input files.

8. Adobe Dam is designed and built to completely detain the 100-year storm runoff volume from the watershed area upstream of the dam. Based on design studies for Adobe Dam, the low level outlet (i.e., the principal spillway) will be assumed to have a capacity of 1730 cfs, when the 100-year volume is detained (Ref. 35 & 36).

9. Rainfall distributions and depth-area relations for the 6-hour storm duration will be based on NOAA (Ref. 4) and CORPS (Ref. 34) data, as documented in the FCDMC's Hydrologic Design Manual (Ref. 1).

10. the SCS Type II rainfall distribution will be used for the 24-hour storm, with the corresponding depth area relations based on the NOAA Technical Memorandum NWS HYDRO-40. (Ref. 4).

4.0 HYDROLOGY

4.1 General

The CORPS HEC-1 computer program was used to model the Skunk Creek Watershed between Adobe Dam and the ACDC. The August 2 1988, version of HEC-1 (as implemented by Dodson and Associates, Inc. in their 1989 version of ProHEC-1) was used in this study. The Clark Unit Graph, the Green-Ampt Loss Rate, and the Normal Depth/Modified Puls Channel Routing options were used in the HEC-1 model for the Skunk Creek Watershed. The assumptions, procedures, and methodologies used to develop the HEC-1 data input sets are discussed in the following sections.

4.2 Parameter Estimation

4.2.1 Drainage Area Boundaries:

The sub-basin boundaries were initially delineated using USGS topographic maps and aerial photographs. Due to the lack of current and more detailed topographic mapping for the watershed, detailed field investigations were performed. The initial delineations were then verified or modified based on the field investigations, including a site visit immediately following a significant rainfall event.

The sub-basins were delineated such that concentration points were provided at meaningful locations, (i.e., roads, confluences, etc). The sub-basin areas were limited to a maximum of two square miles; however, most of the sub-basins have areas much less than that. These sub-basins were then compared with several existing reports for the area. The differences were noted, analyzed, and were discussed with the

FCDMC. Based on these and other discussions with the FCDMC, the sub-basin delineations were finalized as shown in Plate 1.

4.2.2 Rainfall Parameters

Rainfall Distributions:

The rainfall distributions used for the 6-hour storms are based on distributions documented in the FCDMC's Hydrologic design Manual (Ref. 1); whereas, the SCS Type II distribution was used for the 24-hour storm (See Tables 6 & 7 in Section I of the Appendix).

Precipitation Data:

The point precipitation values used in this study were obtained from isopluvial maps for Maricopa County published in the FCDMC's Hydrologic Design Manual (Ref. 1). The point precipitation values used in this study are given in Table 4 in Section I of the Appendix.

Aerial Reduction Factors:

The point precipitation values used in this study were adjusted with aerial reduction factors to account for the natural spatial variability of rainfall. Reduction factors for the 6-hour duration storms were obtained from curves documented in the FCDMC's Hydrologic Design Manual (Ref. 1); whereas, the 24-hour storm reduction factors were obtained from the NOAA Technical Memorandum NWS HYDRO-40 (Ref. 4). These factors are given in Table 5 in Section I of the Appendix.

4.2.3 Physical Parameters

Loss Rate Estimation:

Precipitation loss rates were computed using the Green-Ampt Infiltration Equation option in HEC-1. The Green-Ampt parameters XKSAT (hydraulic conductivity at natural saturation), PSIF (wetting front capillary suction), and DTHETA (volumetric soil moisture deficit at the start of rainfall) were determined for each sub-basin by:

a. Estimating the percentage of each soil textural class within each soil unit from the SCS soil surveys (Ref. 7 and 8). These percentages, along with loss rate parameter tables in the FCDMC's Hydrologic Design Manual , (Ref. 1), were then used to compute an area-weighted set of Green-Ampt parameters for each soil unit.

b. Computing the area of each soil unit within each sub-basin, using maps from the Soil Conservation Service's Soil Survey of Aguila-Carefree Area and the Soil Survey of Maricopa County, Arizona Central Part (Ref.s 7 and 8, Plate 3).

c. Calculating an area-weighted set of Green-Ampt parameters for each sub-basin, given the results from steps 1 and 2.

Given the Green-Ampt parameters based strictly on soil characteristics, the XKSAT and DTHETA parameters were then adjusted to account for vegetative cover and/or land use. To account for the impact of vegetative cover, the XKSAT parameters for each sub-basin were adjusted based on guidelines given in the FCDMC's Hydrologic Design Manual (Ref. 1), aerial photographs, and field observations. The DTHETA parameter is influenced by land use. In sub-basins with no agricultural land use, DTHETA (dry) was used; whereas, in sub-basins with agricultural land use, the DTHETA parameter was calculated as an area-weighted average of DTHETA (dry) for the non-agricultural land use areas and DTHETA (normal) for agricultural land use areas.

The "percent impervious" parameter (RTIMP) specifies the percentage of a sub-basin that is impervious. The "percent impervious" was computed for each sub-basin, as a function of both natural rock features and land use, using the following procedures.

a. The percentage of impervious rock outcrops within each sub-basin was estimated from data provided in the SCS Soil Surveys (Ref.s 7 and 8) for each soil unit (Plate 3). A factor of 0.6 was used to convert the "percentage of impervious rock outcrops" into the "percent impervious" for each sub-basin for responding to natural rock features.

b. To account for continuous impervious areas corresponding to land use, "percent impervious" values were assigned to City of Phoenix zoning classifications (Table a, Section 1 of the Appendix). Given this information, the "percent impervious" corresponding to existing land use was estimated for each sub-basin. The percent of each existing land use type within each subbasin was determined from aerial photographs and zoning maps. Emphasis was placed on using the aerial photos to determine the **existing** land use, as opposed to relying solely on the zoning classifications, for estimating the percent impervious area in each sub-basin. (Plate 2)

c. The total "percent impervious" value for each sub-basin was computed as the sum of the "percents impervious" computed in steps 1 and 2.

The surface retention loss parameter (IA) is a function of land use and/or surface vegetative cover. IA values for each subbasin were calculated using guidelines given in the FCDMC's Hydrologic Design Manual (Ref. 1).

Time of Concentration

Time of concentration flow routes were determined using USGS topographic quadrangles and from street flow patterns estimated from the field investigations. Time of concentration flow routes are shown in Plate 4.

Times of concentration were calculated for each sub-basin using the following empirical equation per FCDMC guidelines.

$$T_c = 11.4L^{0.50}K_b^{0.52}S^{-0.31}i^{-0.38}$$

where:
- Tc = Time of concentration in hours
- L = length of the flow path for Tc in miles
- K_b = representative watershed resistance coefficient
- S = watercourse slope in feet/mile and
- i = the average rainfall excess intensity, during the time Tc, in inches/hour.

Per FCDMC guidelines, the watershed resistance coefficients were estimated using the following equation.

$$K_b = m \log A + b,$$

where:
- A = drainage area in acres
- m&b = parameters dependent on land use and vegetative cover

4.2.4 Routing Parameters

Channel Routing

In this study, the Normal Depth Channel-Modified Puls method was used for all flow routings. Channel geometries, slopes, and Manning's roughness coefficients were estimated from available mapping and from observations made during the field investigations. Channel routing flow paths are indicated in Plate 4. channel routing work sheets are given in Section II of the Appendix.

Reservoir Routing

There are a total of eleven detention basins modeled in the Skunk Creek watershed. Five of these basins are for detention facilities behind the Central Arizona Project canal. The routing parameters used by Greiner, Inc. in their Scatter Wash Drainage and Storm Drain Study (Ref. 20) were verified by CVL and used in this study. Parameters for the detention behind the culverts at Pinnacle Peak Road, at highway I-17, and the detention in the depressed section of Deer Valley Drive under I-17 were also obtained from the Greiner report, verified by CVL, and used in this study.

The detention basin, located northeast of the Union Hills Drive and I-17 intersection collects and directs flows under I-17 via 3-10' x 3' box culverts. The storage capacity of this basin was estimated using aerial photographs and field measurements.

The Arrowhead Ranch detention facilities, located north of Beardsley Road and east of 59th Avenue, involves a series of eight lakes. The HEC-1 reservoir routing parameters for these lakes were obtained from the Arrowhead Ranch Preliminary Storm Drainage Master Plan by Dibble and Associates Consulting Engineers (Ref. 33) and verified by CVL.

The Arrowhead Ranch retention facility, located north of Union Hills Drive and west of 67th Avenue, are actually composed of five separate retention basins. In this study, the five basins are modeled as one large basin with a maximum storage capacity equal to the sum of the (100-year) storage capacities of each individual basin. The retention basin is modeled in HEC-1 as a diversion. The diversion is such that the runoff volume, up to the storage capacity of the retention system, is diverted out off the watershed. Due to the relatively small capacity of the retention system, the peak discharge is not significantly impacted by the retention system.

4.3 Special Considerations

Flow Splits

Flow splits were a major problem to be considered when developing the hydrologic model. The majority of the watershed is relatively flat, with slopes averaging 0.5%. Flow tends to sheet across the sub-basins in a southwesterly direction, concentrating in major streets. Due to this condition, flow splits occur whenever the capacity of a street section is exceeded. Additionally, splits can also occur in relatively flat areas when the capacity of a culvert is not adequate to pass the 100-year flow.

Sub-basin boundaries were selected so that the number of splits that must be accounted for were minimized. The overall effect of most flow splits on the model is minimal, because the split flow will reconverge before the next downstream concentration point. Since this study is not specifically concerned with identifying flows at concentration points other than those along Skunk Creek, our analysis was limited to those flow splits that may have an effect on peak discharges in Skunk Creek or divert flow out of the Skunk Creek watershed.

Using this approach, there are only three general split locations within the model; however, several splits may be modeled at each of the following general locations.

1. Interstate 17 between Pinnacle Peak Road and Deer Valley Drive
2. Union Hills Drive from Interstate 17 to 55th Avenue
3. 59th Avenue and Grovers Avenue

Several splits occur at location 1, due to culvert crossings of Interstate 17 not having adequate capacity. The splits were modeled using rating curves developed using culvert capacity charts and the Weir flow equation. Per the FCDMC direction, the modeling of this area was based on the report Scatter Wash Drainage and Storm Drain Study Conceptual Plan by Griener, Inc. (Ref. 20).

Numerous splits occur along Union Hills Drive (location 2). Union Hills Drive collects water from the north in an inverted crown section or a half street with a swale, and routes the flow to the west. The street section does not have the capacity to convey all of the flow; therefore, flow breaks out to the south at almost every intersection. These splits were modeled at each major intersection based on the estimated capacity of the Union Hills Drive section. The controlling capacity of the Union Hills Drive Section occurs at 55th Avenue. The swale north of the street is constricted by 4-15" culverts at a driveway location. These pipes and the flow over the driveway, limit the surface flow capacity of Union Hills Drive to about 65 cfs. However, the future Union Hills storm drain system will have a capacity of approximately 1,495 cfs at this location (Ref. 37). Therefore, a maximum 1,560 cfs can be directed into Skunk Creek from Union Hills Drive and the future storm drain system. The remainder of the flow breaks out to the south, and out of the Skunk Creek watershed.

The third split area occurs at 59th Avenue and Grovers Avenue. At this location, 59th Avenue carries flow out of the Skunk Creek watershed. However, the capacity of 59th Avenue is limited and flow breaks out west on Grovers Avenue into the Skunk Creek watershed. This split is modeled using the estimated capacity of 59th Avenue based on a field visit and the street section. The calculations for the flow splits at locations 2 and 3 are given in Section III of the Appendix.

Storm Drain Pipes

There are very few storm drain pipes within this watershed. The minor storm drain pipes do not significantly affect the overall watershed, and were therefore ignored. More substantial storm drain pipes in the south east portion of the watershed take flow out of the watershed. However due to the limited capacity of Union Hills Drive, these pipes will not have a significant effect on the overall flows in Skunk Creek; therefore, all storm drain pipes were ignored, except for the future Union Hills storm drain system.

Retention/Detention

At the request of the FCDMC, only major Retention/Detention facilities were modeled. Small on-lot retention basins were ignored.

5.0 RESULTS AND CONCLUSIONS

The HEC-1 hydrologic simulation model was used to compute 100-year discharges for Skunk Creek between the ACDC and Adobe Dam. The 100-year discharges corresponding to both a 6-hour and a 24-hour event were evaluated in this study. The results of the study are summarized in Tables 2 and 3.

The 100-year discharges computed as part of this study are lower than discharges computed in the previous study by the CORPS (Ref. 14). However, a decrease in the 100-year discharges was anticipated, due to the drainage improvements that have been constructed since the previous study. The detention facilities constructed as part of the Central Arizona Project (CAP) canal system are the most significant drainage improvements that have been constructed in the Skunk Creek and Scatter Wash watershed. As indicated in Plate 1, the CAP detention facilities intercept the runoff generated in a significant portion of the watershed. In addition, various golf courses and lake systems have also been constructed since the previous FIS study. Collectively, these drainage improvements have had a significant impact on the Skunk Creek watershed downstream of Adobe Dam.

As indicated in Tables 2 and 3, the computed 100-year, 24-hour discharges along Skunk Creek and Scatter Wash were slightly higher than the computed 100-year, 6-hour discharges. In addition the 100-year, 24-hour discharges are closer to the current regulatory discharges. Therefore, it is recommended that the computed 100-year, 24-hour discharges be used in the floodplain delineation analyses for Skunk Creek downstream of Adobe Dam.

TABLE 2

PEAK DISCHARGES IN SKUNK CREEK (cfs)

LOCATION	HEC-1 I.D.	10-YEAR		50-YEAR		100-YEAR		100-year, 24-hour time to peak (hrs.)
		6 HR.	24 HR.	6 HR.	24 HR.	6 HR.	24 HR.	
Confluence of ACDC	655C	3,300	3,800	5,200	6,000	6,200	6,700	14.1
67th Avenue	585C	3,300	3,800	5,200	5,800	6,100	6,500	14.1
Below 55th Avenue Channel	535C	3,300	3,700	5,200	5,800	6,100	6,500	13.9
Below Confluence with Scatter Wash	360C	2,300	2,700	3,800	4,300	4,700	5,100	13.9
Above Confluence with Scatter Wash	345C	1,500	1,500	1,900	1,900	2,100	2,000	13.1
Below Adobe Dam	320R	1,370	1,370	1,650	1,650	1,730	1,730	NA

TABLE 3

PEAK DISCHARGES IN SCATTER WASH (cfs)

LOCATION	HEC-1 I.D.	10-YEAR		50-YEAR		100-YEAR		100-YEAR, 24-hour time to peak (hrs.)
		6 HR.	24 HR.	6 HR.	24 HR.	6 HR.	24 HR.	
Above Confluence with Skunk Creek	300C	900	1,300	2,000	2,500	2,900	3,200	13.9

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APPENDIX

Section I	Rainfall and Physical Hydrologic Parameters
Section II	Hydrograph Routing Parameters
Section III	Divert Parameters
Section IV	HEC-1 Hydrology Results for a 10-year, 6-hour storm
Section V	HEC-1 Hydrology Results for a 50-year, 6-hour storm
Section VI	HEC-1 Hydrology Results for a 100-year, 6-hour storm
Section VII	HEC-1 Hydrology Results for a 10-year, 24-hour storm
Section VIII	HEC-1 Hydrology Results for a 50-year, 24-hour storm
Section IX	HEC-1 Hydrology Results for a 100-year, 24-hour storm
Section X	Plates

SECTION I

RAINFALL AND PHYSICAL HYDROLOGIC PARAMETERS

TABLE 4

POINT PRECIPITATION VALUES FOR SKUNK CREEK STUDY AREA (inches)

RETURN PERIOD (YEARS)	STORM DURATION (HOURS)	
	6	24
2	1.2	1.4
5	1.7	2.0
10	2.0	2.4
25	2.4	2.9
50	2.8	3.5
100	3.2	3.9

Source: Hydrologic Design Manual for Maricopa County, (Ref. 1)

TABLE 5

AERIAL PRECIPITATION REDUCTION DATA

WATERSHED AREA (SQ. MI.)	STORM DURATION (HOURS)	
	6 (1)	24 (2)
0	1.00	1.00
1	0.99	–
3	–	0.98
5	0.96	–
10	0.94	0.96
20	0.91	0.92
30	0.89	0.90

(1) Hydrologic Design Manual for Maricopa County, (REF. 1)

(2) NOAA Technical Memorandum NWS HYDRO-40, (Ref. 4)

TABLE 6

6-HOUR STORM RAINFALL DISTRIBUTIONS
(Furnished by FCDMC's Maricopa County Unit Hydrograph Procedure 1)
Cumulative Rainfall Table

STORM TIME (HOURS)	WATERSHED AREA (SQ. MI.)				
	≤ 0.5	2.8	16	90	500
0.00	0.000	0.000	0.000	0.000	0.000
0.25	0.008	0.009	0.015	0.021	0.024
0.50	0.016	0.016	0.020	0.035	0.043
0.75	0.025	0.025	0.030	0.051	0.059
1.00	0.033	0.034	0.048	0.071	0.078
1.25	0.041	0.042	0.063	0.087	0.098
1.50	0.050	0.051	0.076	0.105	0.119
1.75	0.058	0.059	0.090	0.125	0.141
2.00	0.066	0.067	0.105	0.143	0.162
2.25	0.074	0.076	0.119	0.160	0.186
2.50	0.087	0.087	0.135	0.179	0.212
2.75	0.099	0.100	0.152	0.201	0.239
3.00	0.118	0.120	0.175	0.232	0.271
3.25	0.138	0.163	0.222	0.281	0.321
3.50	0.216	0.252	0.304	0.364	0.408
3.75	0.377	0.451	0.472	0.500	0.515
4.00	0.834	0.694	0.670	0.658	0.627
4.25	0.911	0.837	0.796	0.773	0.735
4.50	0.931	0.900	0.868	0.841	0.814
4.75	0.950	0.938	0.912	0.888	0.864
5.00	0.962	0.950	0.946	0.927	0.907
5.25	0.972	0.963	0.960	0.945	0.930
5.50	0.983	0.975	0.973	0.964	0.954
5.75	0.991	0.988	0.987	0.982	0.977
6.00	1.000	1.000	1.000	1.000	1.000

TABLE 7

24-HOUR STORM RAINFALL DISTRIBUTION
Standard SCS 24-Hour, Type II Distribution
Cumulative Rainfall Table

STORM TIME (hours)	PRECIPITATION RATIO
0.0	0.000
0.5	0.005
1.0	0.011
1.5	0.016
2.0	0.022
2.5	0.028
3.0	0.035
3.5	0.041
4.0	0.048
4.5	0.056
5.0	0.063
5.5	0.071
6.0	0.080
6.5	0.089
7.0	0.098
7.5	0.109
8.0	0.120
8.5	0.133
9.0	0.147
9.5	0.163
10.0	0.181
10.5	0.204
11.0	0.235
11.5	0.283
12.0	0.663

STORM TIME (hours)	PRECIPITATION RATIO
12.5	0.735
13.0	0.772
13.5	0.799
14.0	0.820
14.5	0.838
15.0	0.854
15.5	0.868
16.0	0.880
16.5	0.891
17.0	0.902
17.5	0.912
18.0	0.921
18.5	0.929
19.0	0.937
19.5	0.945
20.0	0.952
20.5	0.959
21.0	0.965
21.5	0.972
22.0	0.978
22.5	0.984
23.0	0.989
23.5	0.995
24.0	1.000

TABLE 8

AVERAGE GREEN-AMPT PARAMETERS BY SUB-BASIN

SUB-BASIN	AREA (ACRES)	XKSAT (in/hr)	PSIF (in)	DTHETA (DRY)	DTHETA (NORMAL)
5	852.6	0.16	7.6	0.27	0.17
20	882.5	0.17	6.7	0.29	0.19
35	969.2	0.23	5.8	0.31	0.21
40	348.5	0.12	7.9	0.26	0.16
55	376.6	0.29	5.1	0.32	0.22
60	769.1	0.15	7.5	0.27	0.17
90	785.1	0.35	5.3	0.32	0.22
95	619.2	0.15	7.5	0.27	0.17
140	789.2	0.43	4.7	0.33	0.23
145	255.1	0.27	6.2	0.31	0.21
175	191.5	0.19	6.7	0.29	0.19
195	245.1	0.31	11.0	0.31	0.23
235	39.6	0.02	11.0	0.31	0.21
250	705.9	0.26	6.9	0.32	0.22
255	393.7	0.23	6.2	0.33	0.22
280	476.4	0.32	4.9	0.33	0.23
295	225.3	0.33	4.4	0.34	0.24
325	416.3	0.44	3.9	0.34	0.25
340	55.0	0.66	3.2	0.35	0.27
350	168.0	0.25	5.6	0.32	0.22
375	629.8	0.38	5.3	0.33	0.24
380	899.5	0.43	4.6	0.33	0.23
390	511.4	0.34	4.4	0.34	0.24
405	1136.6	0.28	5.2	0.33	0.23
425	1103.0	0.16	7.4	0.30	0.20
440	541.6	0.06	9.3	0.30	0.20
465	871.3	0.10	9.1	0.31	0.21
475	381.3	0.03	10.5	0.31	0.21
490	713.4	0.09	8.3	0.29	0.19

SUB-BASIN	AREA (ACRES)	XKSAT (in/hr)	PSIF (in)	DTHETA (DRY)	DTHETA (NORMAL)
515	304.7	0.28	4.6	0.34	0.24
545	189.7	0.46	4.0	0.34	0.25
560	121.9	0.28	4.4	0.35	0.25
580	584.9	0.33	4.5	0.34	0.24
595	193.0	0.42	4.5	0.34	0.25
600	657.2	0.38	5.5	0.33	0.23
610	441.5	0.18	6.8	0.30	0.19
630	214.9	0.26	5.2	0.32	0.22
650	79.7	0.49	3.7	0.35	0.26

TABLE 9

PERCENT IMPERVIOUS ESTIMATES[1] FOR LAND USE CLASSIFICATIONS

LAND USE CLASSIFICATION	DESCRIPTION	PERCENT IMPERVIOUS
AC	Single Family Residential 35,000 S.F. Lots Minimum	15
RU	Single Family Residential 14,000 S.F. to 24,000 S.F. Lots	20
SFR	Single Family Residential 6,000 S.F. to 10,000 S.F. Lots	25
APT	Multi-Family Residential 1 Unit per 3,000 S.F. minimum density	70
COM	Commercial	85
IND	Industrial	75
AG	Agricultural	0
GC	Golf Course	0
DES	Desert	0
MTN	Mountain	0

(1) percent impervious basin on strictly man-made features.

TABLE 10

SKUNK CREEK BETWEEN ACDC AND CAP
FLOOD INSURANCE STUDY
SUB-BASIN INPUT PARAMETER TABLE

* SUB-BASIN I.D.	* AREA (SQ. MI.)	* FLOW PATH LENGTH (MI.)	* Kb	* SLOPE (FT./MI.)	LAND USE	* IA	* DTHETA	* PSIF	VEGE-TATION COVER (%)	* XKSAT	* RTIMP
5	1.332	1.1	0.09	163	50% MTN, 50% DES	0.20	0.27	7.6	25	0.16	4
20	1.379	1.8	0.04	44	DES	0.35	0.29	6.7	25	0.17	0
35	1.514	2.1	0.04	48	DES	0.35	0.31	5.8	25	0.23	0
40	0.545	1.0	0.11	180	50% MTN, 50% DES	0.20	0.26	7.9	25	0.12	6
55	0.588	1.8	0.04	50	DES	0.35	0.32	5.1	25	0.29	0
60	1.202	1.8	0.10	128	60% MTN, 40% DES	0.21	0.27	7.5	25	0.15	8
90	1.227	2.4	0.04	42	DES	0.35	0.32	5.3	25	0.35	1
95	0.968	1.6	0.10	125	50% MTN, 50% DES	0.20	0.27	7.5	25	0.15	5
140	1.233	2.8	0.04	36	DES	0.35	0.33	4.7	25	0.43	1
145	0.383	1.0	0.11	183	40% MTN, 60% DES	0.19	0.31	6.2	25	0.27	0
175	0.299	1.8	0.03	36	IND	0.07	0.29	6.7	10	0.19	75
195	0.399	1.6	0.03	34	40% COM, 60% IND	0.09	0.31	11.0	13	0.31	80
235	0.062	0.4	0.03	50	20% APT, 80% IND	0.09	0.31	11.0	5	0.02	74
295	0.352	1.4	0.06	29	10% MTN, 70% DES 10% SFR, 10% APT	0.29	0.34	4.4	23	0.33	11

* Information input directly into MCUHP1
+ Area-weighted average of DTHETA (Dry) and DTHETA (Normal)

* SUB-BASIN I.D.	* AREA (SQ. MI.)	* FLOW PATH LENGTH (MI.)	* Kb	* SLOPE (FT./MI.)	LAND USE	* IA	* DTHETA	* PSIF	VEGE-TATION COVER (%)	* XKSAT	* RTIMP
250	1.103	1.5	0.05	27	10% MTN, 50% DES 10% SFR, 20% APT, 10% IND	0.24	0.32	6.9	30	0.26	26
255	0.615	1.8	0.07	28	10% MTN, 80% DES 10% RU	0.32	0.33	6.2	20	0.23	10
280	0.744	1.7	0.03	26	50% DES, 50% SFR	0.23	0.33	4.9	24	0.32	13
325	0.650	1.7	0.06	24	10% MTN, 75% DES 15% SFR	0.30	0.34	3.9	20	0.44	9
340	0.086	0.5	0.04	60	50% DES, 50% SFR	0.23	0.35	3.2	20	0.66	13
350	0.263	0.5	0.12	255	70% MTN, 30% DES	0.28	0.32	5.6	17	0.25	23
375	0.984	1.4	0.04	35	10% IND, 15% APT, 75% DES	0.29	0.33	5.3	24	0.38	18
380	1.405	1.9	0.08	53	35% MTN, 65% DES	0.32	0.33	4.6	18	0.43	8
390	0.799	0.9	0.07	44	5% SFR, 25% MTN, 70% DES	0.31	0.34	4.4	19	0.34	23
405	1.776	3.1	0.07	29	60% MTN, 5% DES 25% SFR, 10% Lake	0.22	0.33	5.2	15	0.28	20
425	1.723	4.5	0.03	33	25% DES, 40% IND 35% SFR	0.16	0.30	7.4	19	0.16	39
440	0.846	1.8	0.03	28	5% APT, 40% DES 5% COM., 50% SFR	0.20	0.30	9.3	17	0.06	20
465	1.361	2.5	0.03	28	20% DES, 5% SFR 10% APT, 65% IND	0.14	0.31	9.1	23	0.10	57

* Information input directly into MCUHP1
+ Area-weighted average of DTHETA (Dry) and DTHETA (Normal)

* SUB-BASIN I.D.	* AREA (SQ. MI.)	* FLOW PATH LENGTH (MI.)	* Kb	* SLOPE (FT./MI.)	LAND USE	* IA	* DTHETA	* PSIF	VEGE-TATION COVER (%)	* XKSAT	* RTIMP
475	0.596	1.4	0.04	36	75% DES, 15% APT 10% IND	0.29	0.31	10.5	19	0.03	18
490	1.115	2.5	0.03	24	50% DES, 25% IND 25% SFR	0.23	0.29	8.3	20	0.09	26
515	0.476	1.8	0.03	22	10% IND, 5% DES 80% SFR, 5% COM	0.12	0.34	4.6	18	0.28	32
545	0.296	0.9	0.05	28	20% IND, 10% AG, 70% DES	0.31	0.33+	4.0	21	0.46	15
560	0.190	0.8	0.03	25	15% DES, 85% SFR	0.15	0.35	4.4	20	0.28	21
580	0.914	1.2	0.03	25	40% DES, 40% SFR 20% IND	0.20	0.34	4.5	16	0.33	25
595	0.302	1.5	0.03	7	40% DES, 60% COM	0.19	0.34	4.5	9	0.42	13
600	1.027	1.7	0.04	25	10% DES, 80% AG 5% IND, 5% COM	0.44	0.25+	5.5	79	0.38	8
610	0.690	1.3	0.03	19	10% AG, 15% GC, 75% SFR	0.21	0.27+	6.8	39	0.18	19
630	0.336	1.2	0.03	23	75% SFR, 25% DES	0.17	0.32	5.2	20	0.26	19
650	0.125	0.6	0.05	25	95% DES, 5% COM	0.34	0.35	3.7	19	0.49	4

* Information input directly into MCUHP1
+ Area-weighted average of DTHETA (Dry) and DTHETA (Normal)

TABLE 11

SUMMARY OF SUB-BASIN DATA AND RESULTS

SUBBASIN I.D.	AREA (S.M.)	100-YR., 24-HR. TIME OF CONCENTRATION (HRS.)	100-YR., 24-HR. PEAK DISCHARGE (CFS)
5	1.332	0.52	1910
20	1.379	0.75	1410
35	1.514	0.87	1280
40	0.545	0.52	740
55	0.588	0.77	420
60	1.202	0.93	1080
90	1.227	1.10	670
95	0.968	0.85	920
140	1.233	1.38	470
145	0.383	0.58	380
175	0.299	0.68	260
195	0.399	0.53	450
235	0.062	0.23	110
250	1.103	1.08	890
255	0.615	1.50	270
280	0.744	0.80	570
295	0.352	1.17	170
325	0.650	1.50	260
340	0.086	0.33	90
350	0.263	0.33	400
375	0.984	0.80	880
380	1.405	1.50	680
390	0.799	0.75	870
405	1.776	1.50	890
425	1.723	1.45	810
440	0.846	0.67	950
465	1.361	0.92	1240

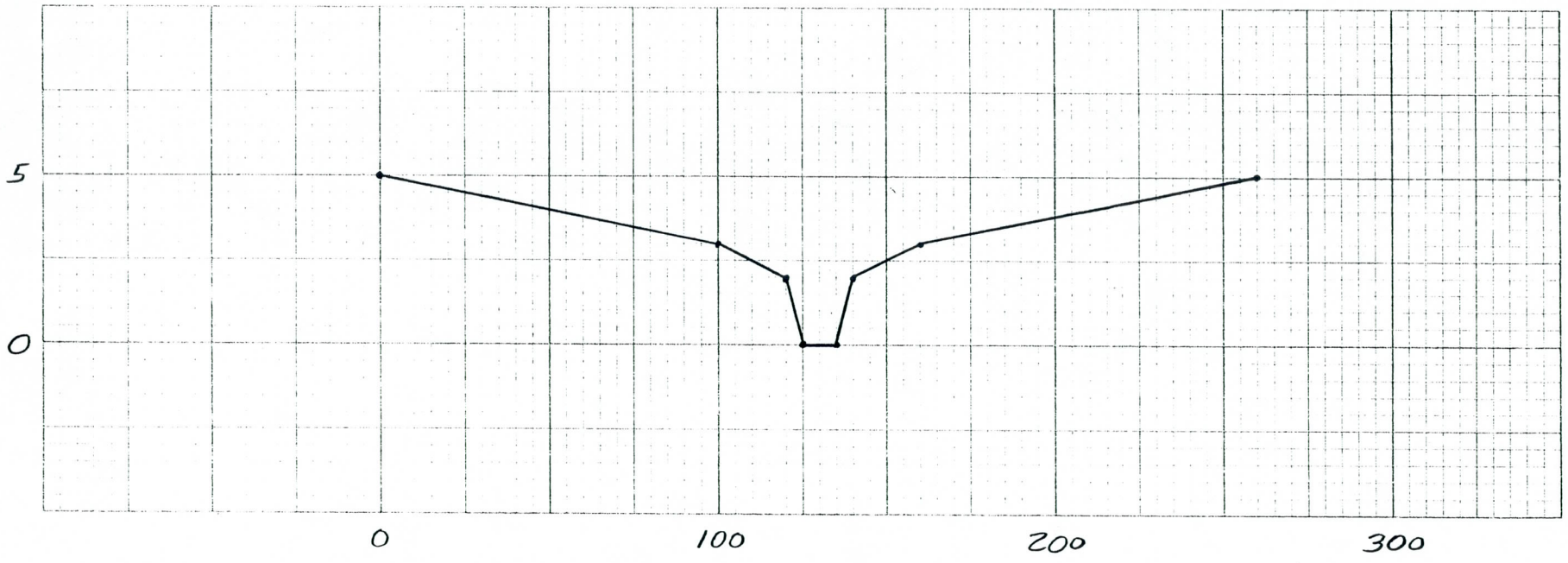
SUBBASIN I.D.	AREA (S.M.)	100-YR., 24-HR. TIME OF CONCENTRATION (HRS.)	100-YR., 24-HR. PEAK DISCHARGE (CFS)
475	0.596	0.60	760
490	1.115	1.20	720
515	0.476	0.92	310
545	0.296	0.70	240
560	0.190	0.45	220
580	0.914	0.62	1050
595	0.302	1.42	110
600	1.027	1.03	680
610	0.690	0.77	680
630	0.336	0.65	300
650	0.125	0.53	100

SECTION II

HYDROGRAPH ROUTING PARAMETERS

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 15



RS	5	Flow	-1					
RC	0.04	0.03	0.04	9000	0.0080			
RX	0	100	120	125	135	140	160	260
RY	5	3	2	0	0	2	3	5

CALCULATED BY: JM 6-25-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

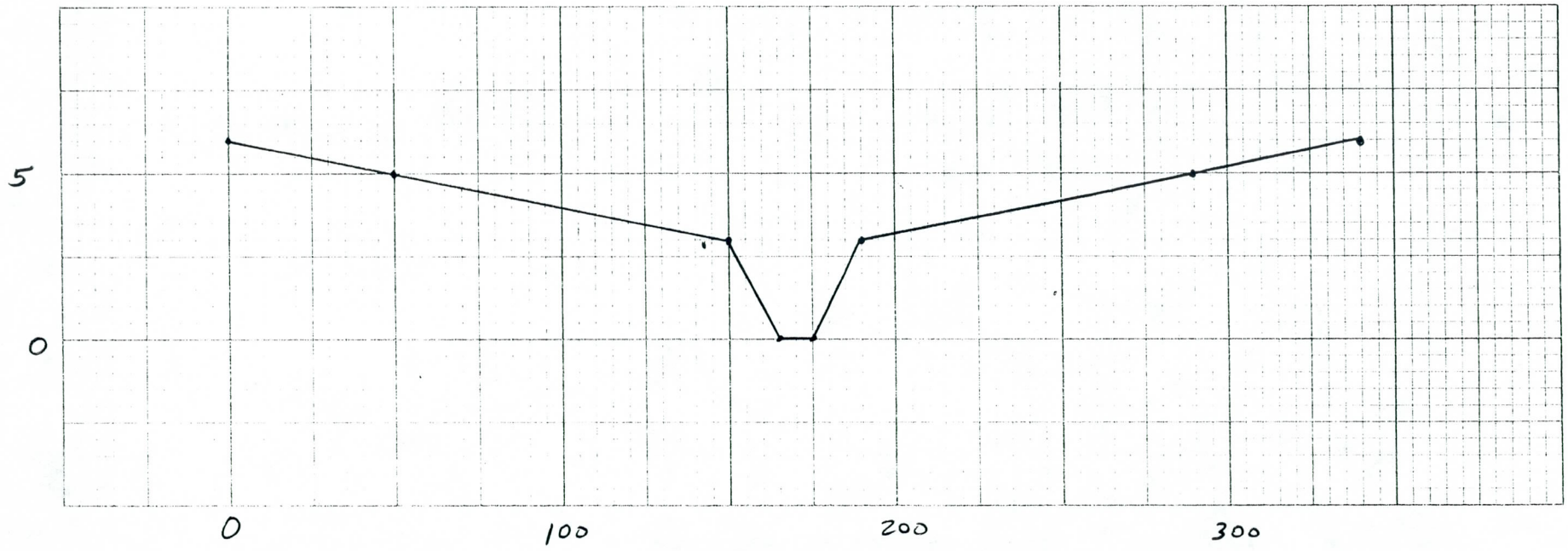
ROUTE IDENTIFICATION NUMBER 30

RS	5	Flow	-1					
RC	0.04	0.03	0.04	4800	0.0056			
RX	0	5	205	215	235	245	445	450
RY	5	3	1	0	0	1	3	5

CALCULATED BY: JM 6-25-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 50

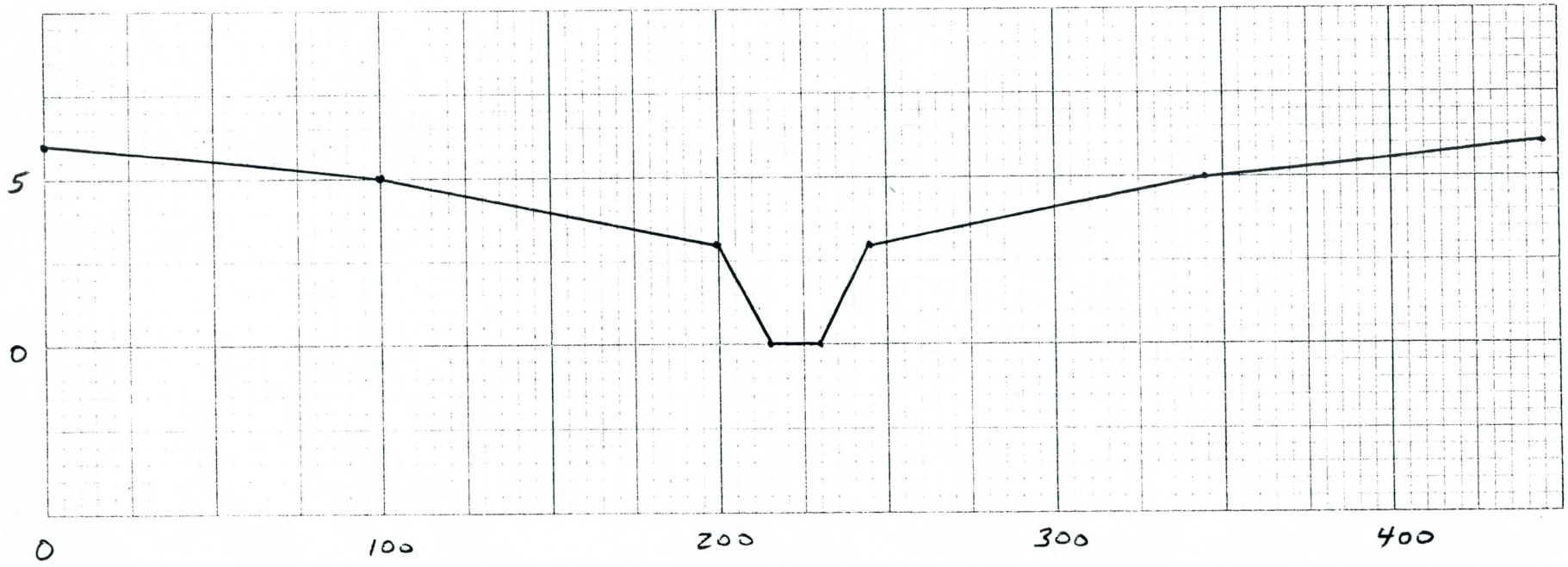


RS	5	Flow	-1					
RC	0.04	0.03	0.04	11000	0.0086			
RX	0	50	150	165	175	190	290	340
RY	6	5	3	0	0	3	5	6

CALCULATED BY: JM 6-25-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 70

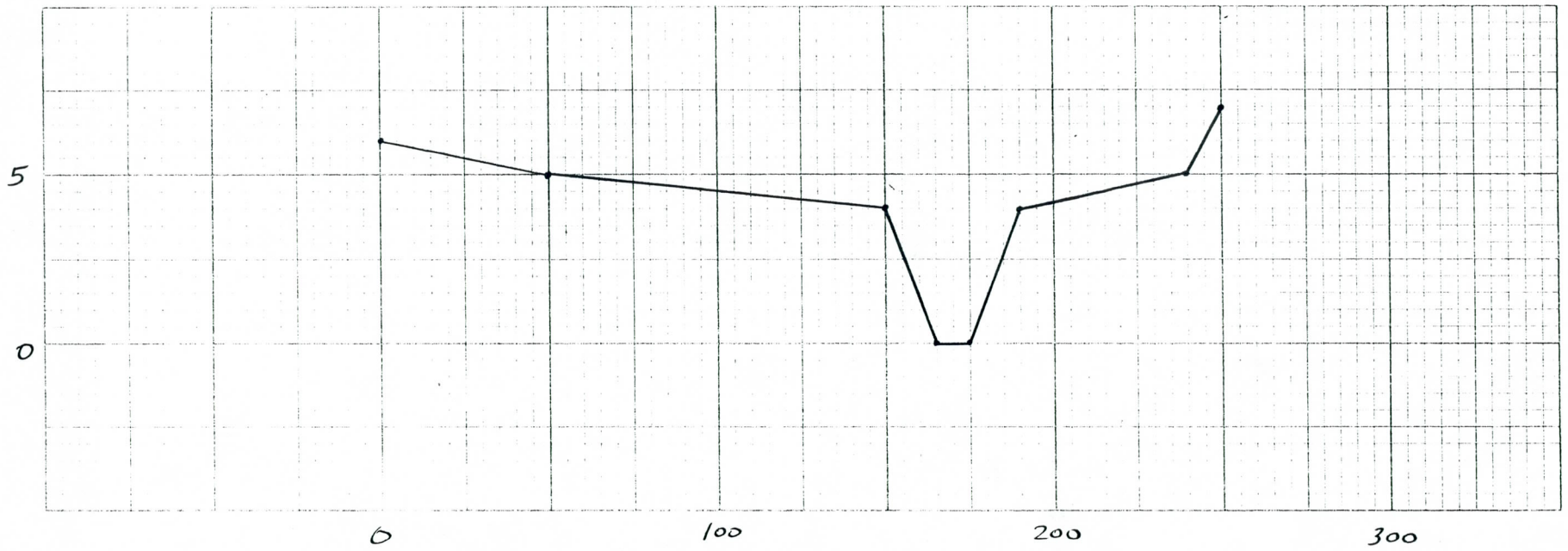


RS	5	Flow	-1					
RC	0.04	0.03	0.04	10000	0.0090			
RX	0	100	200	215	230	245	345	445
RY	6	5	3	0	0	3	5	6

CALCULATED BY: JM 6-25-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 85

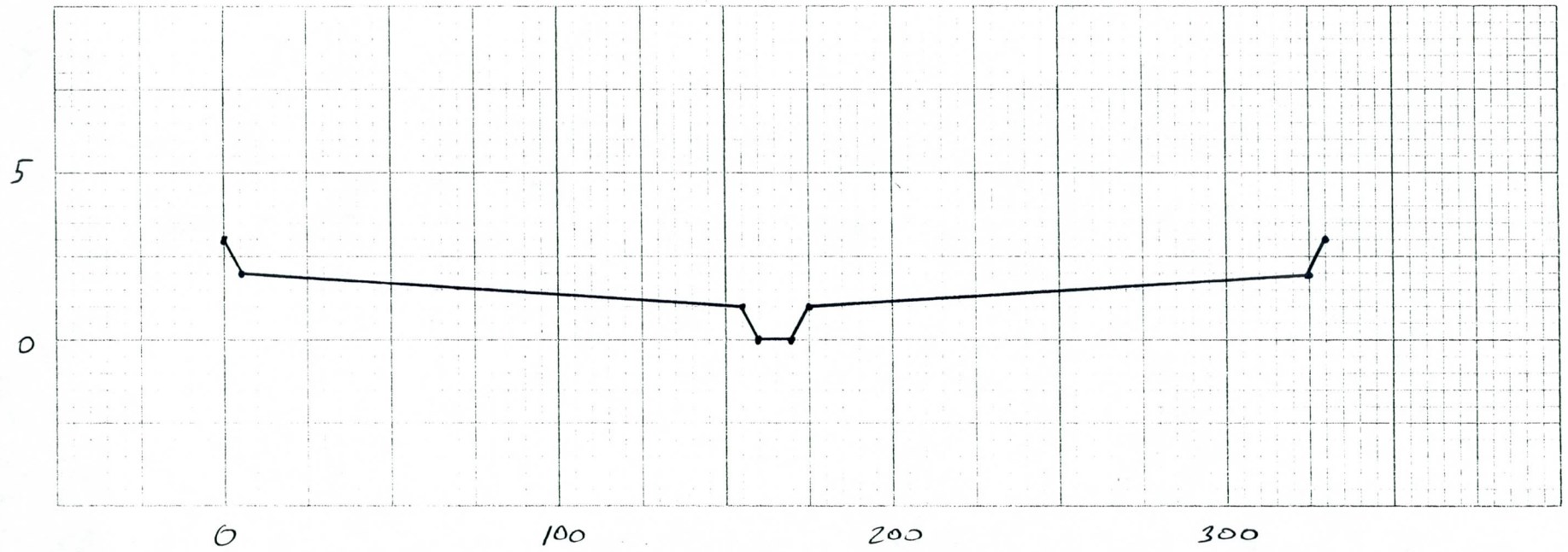


RS	5	Flow	-1					
RC	0.04	0.03	0.04	2000	0.0050			
RX	6	5	4	0	0	4	5	7
RY	0	50	150	165	175	190	240	250

CALCULATED BY: JM 6-25-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 105

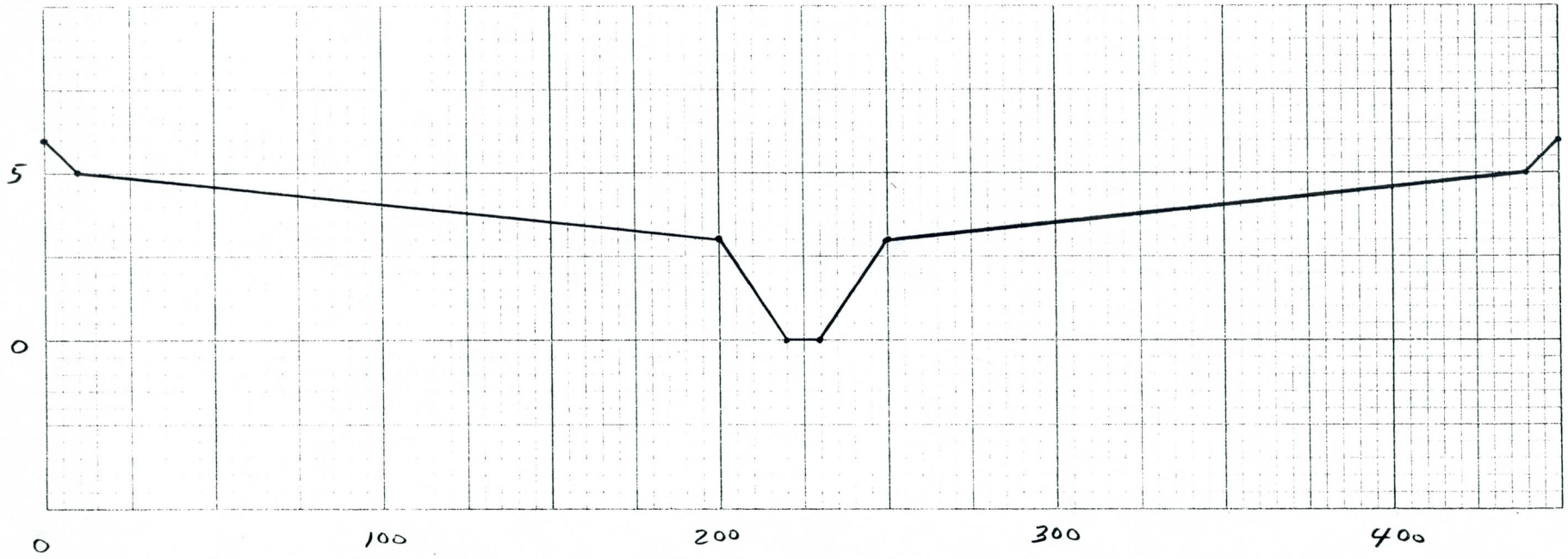


RS	5	Flow	-1					
RC	0.04	0.03	0.04	13000	0.0080			
RX	0	5	155	160	170	175	325	330
RY	3	2	1	0	0	1	2	3

CALCULATED BY: JM 6-26-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 155

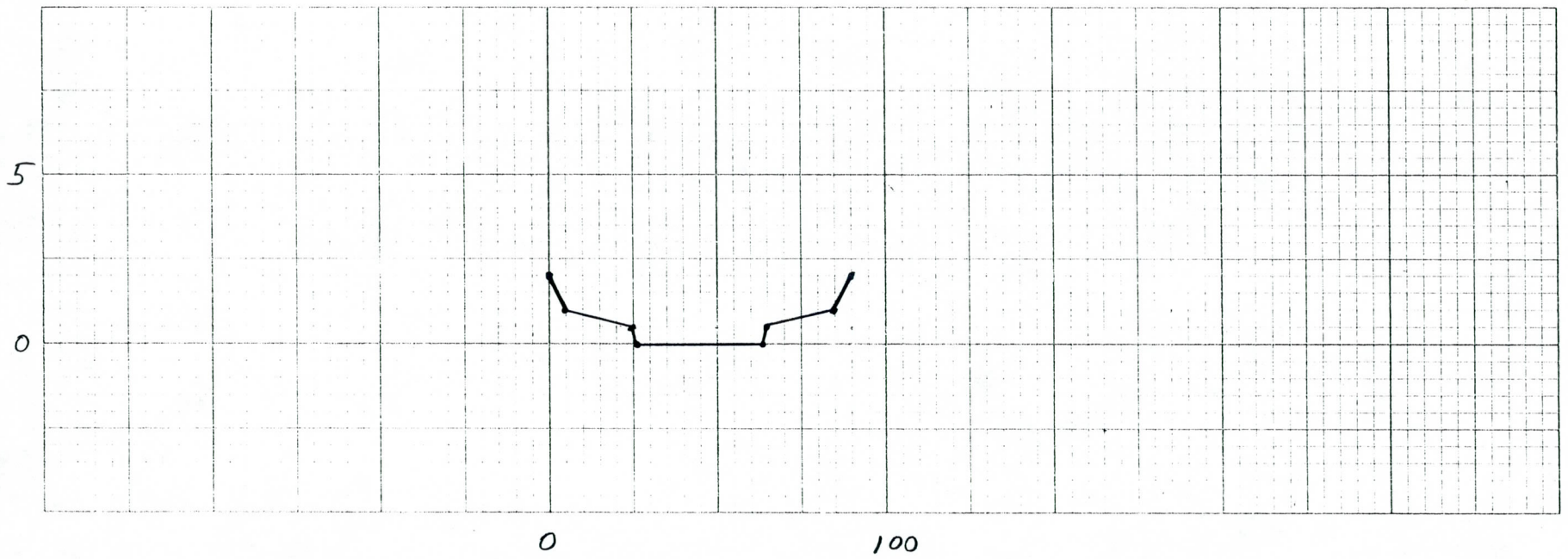


RS	5	Flow	-1					
RC	0.04	0.03	0.04	15000	0.0073			
RX	6	10	200	220	230	250	440	450
RY	6	5	3	0	0	3	5	6

CALCULATED BY: JM 6-26-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 230



RS 5 Flow -1

RC 0.03 0.02 0.03 7000 0.0057

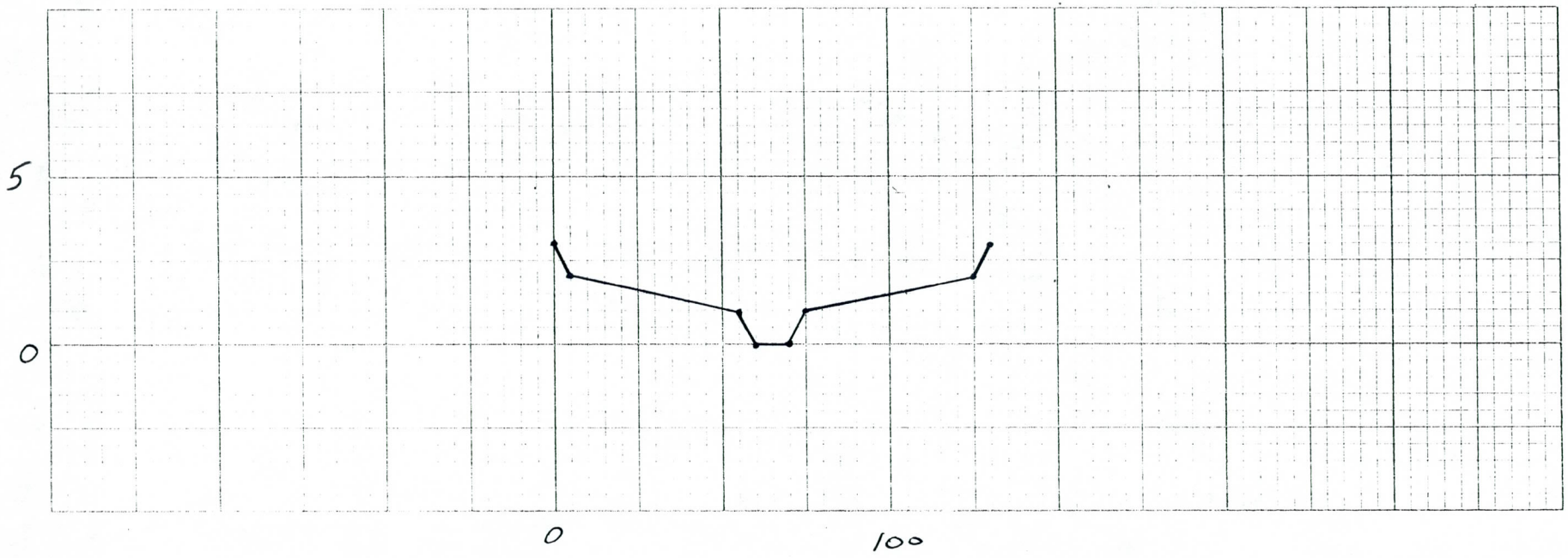
RX 0 5 25 26 64 65 85 90

RY 2 1 0.5 0 0 0.5 1 2

CALCULATED BY: JM 6-26-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 240

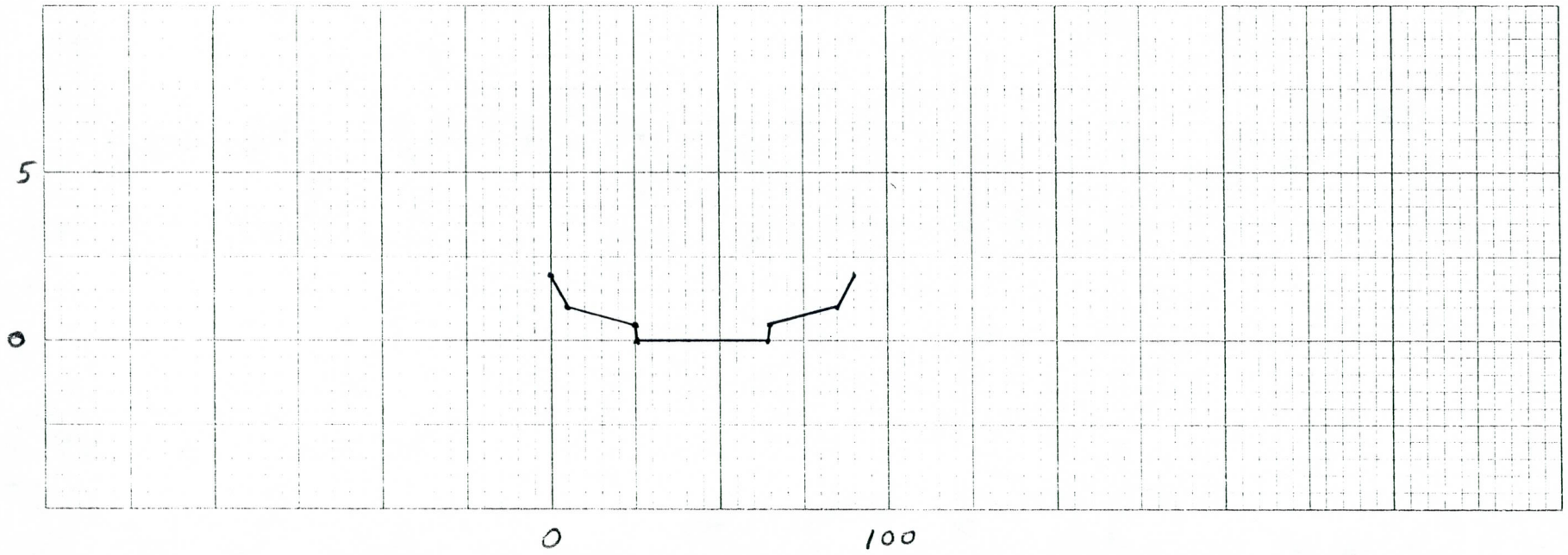


RS	5	Flow	-1					
RC	0.04	0.03	0.04	5500	0.0073			
RX	0	5	55	60	70	75	125	130
RY	3	2	1	0	0	1	2	3

CALCULATED BY: JM 6-26-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 245

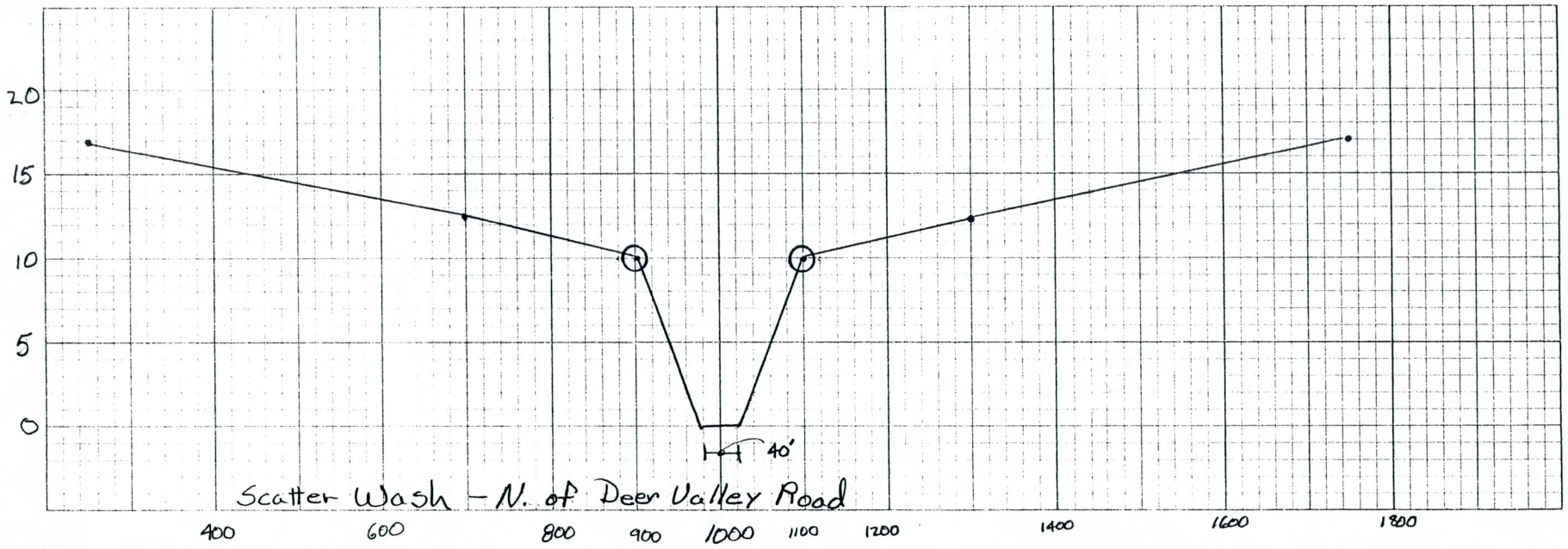


RS	5	Flow	-1					
RC	0.03	0.02	0.03	7500	0.0060			
RX	0	5	25	26	64	65	85	90
RY	2	1	0.5	0	0	0.5	1	2

CALCULATED BY: JM 6-26-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 265

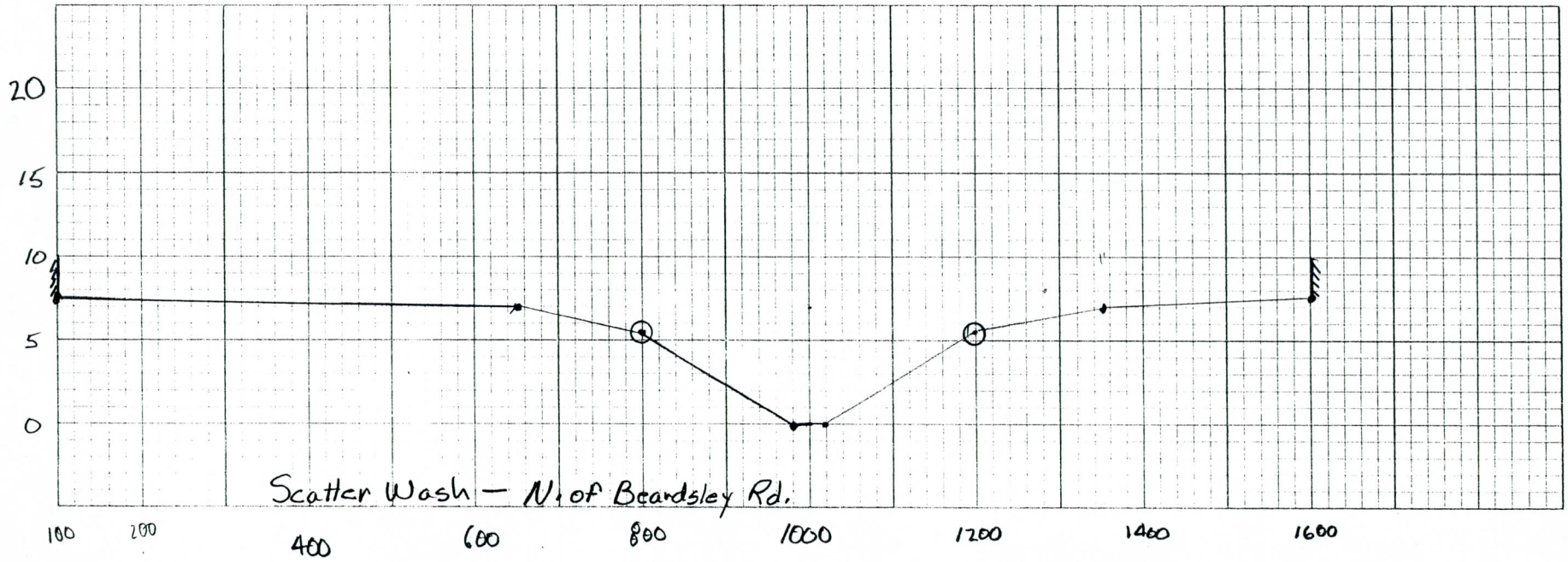


RS	5	Flow	-1					
RC	0.04	0.03	0.04	8,300	0.0048			
RX	250	700	900	980	1020	1100	1300	1750
RY	17.0	12.5	10	0	0	10	12.5	17.0
			LB			RB		

CALCULATED BY: DwD
6-26-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 275

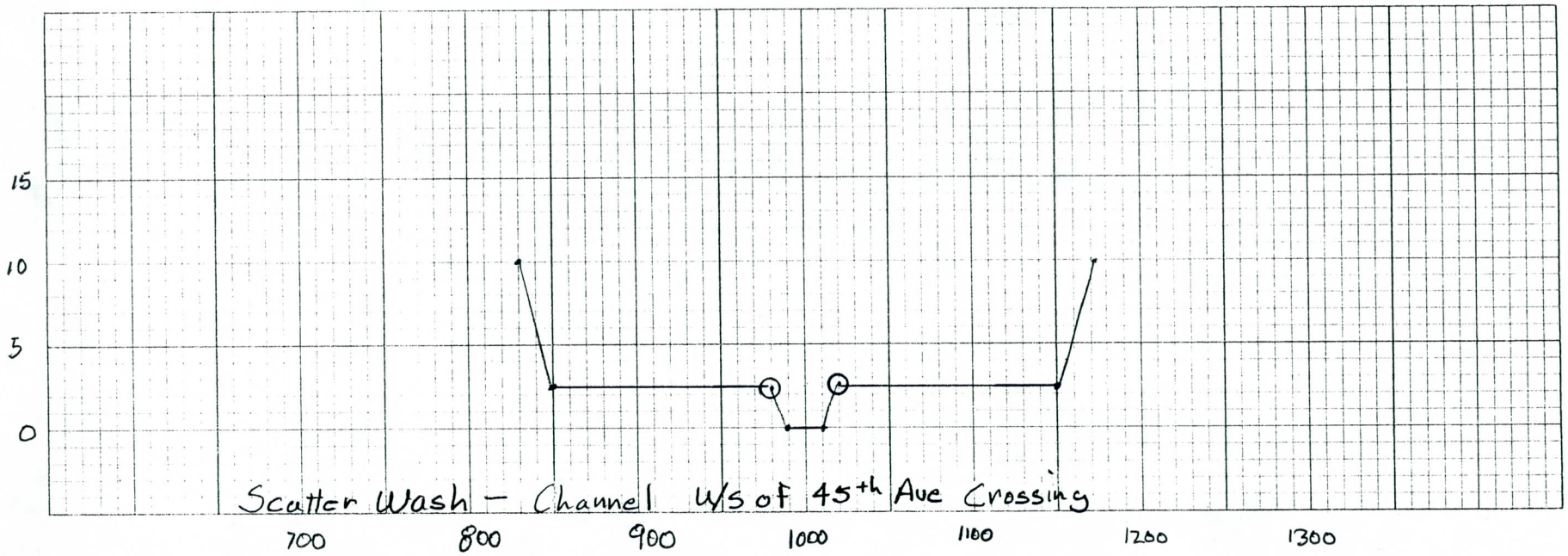


RS	5	FLOW	-1					
RC	0.04	0.03	0.04	4500	0.0056	10		
RX	100	650	800	980	1020	1200	1350	1600
RY	7.5	7	5.5 LB	0	0	5.5 RB	7	7.5

CALCULATED BY: DWD
6-26-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 290

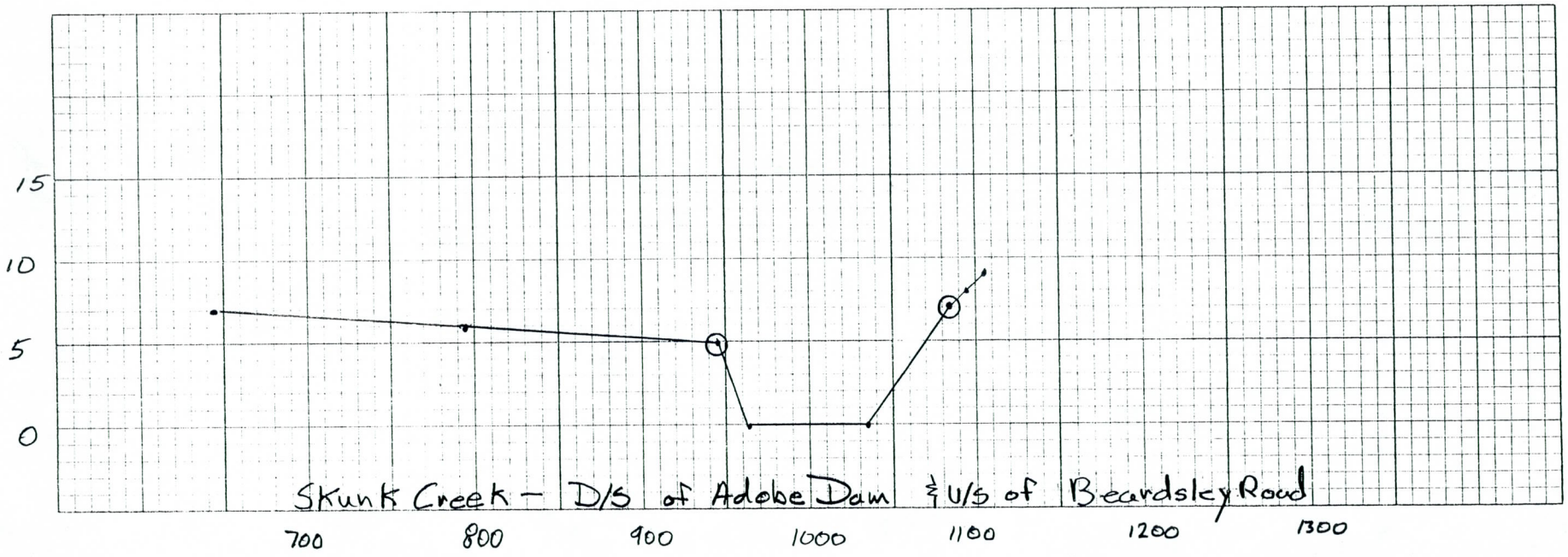


RS	5	Flow	-1					
RC	0.030	0.030	0.030	6200	0.0027			
RX	830	850	980	990	1010	1020	1150	1170
RY	10	2.5	2.5 LB	0	0	2.5 RB	2.5	10

CALCULATED BY: DWD
6-26-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 320

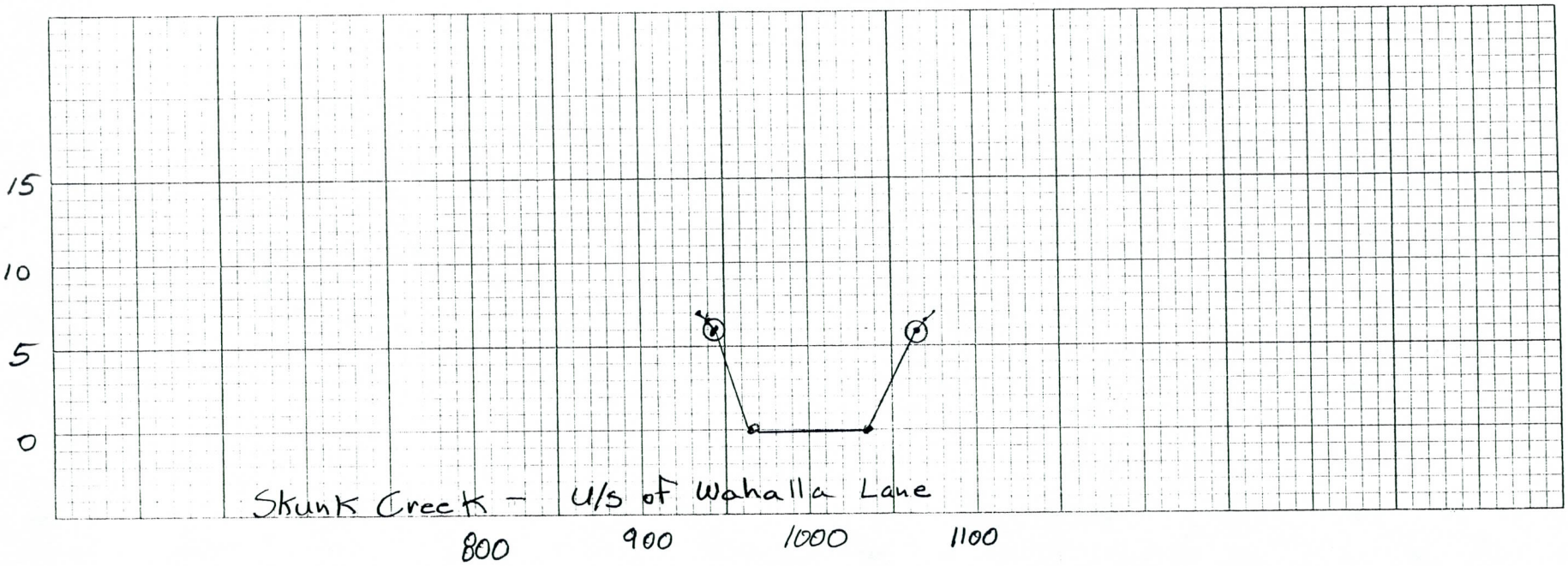


RS	5	FLOW	-1					
RC	0.04	0.03	0.04	3300	0.0028			
RX	645	795	945	965	1035	1085	1095	1105
RY	7	6	5	0	0	7	9	11
			LB			RB		

CALCULATED BY: DWD
6-26-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 335



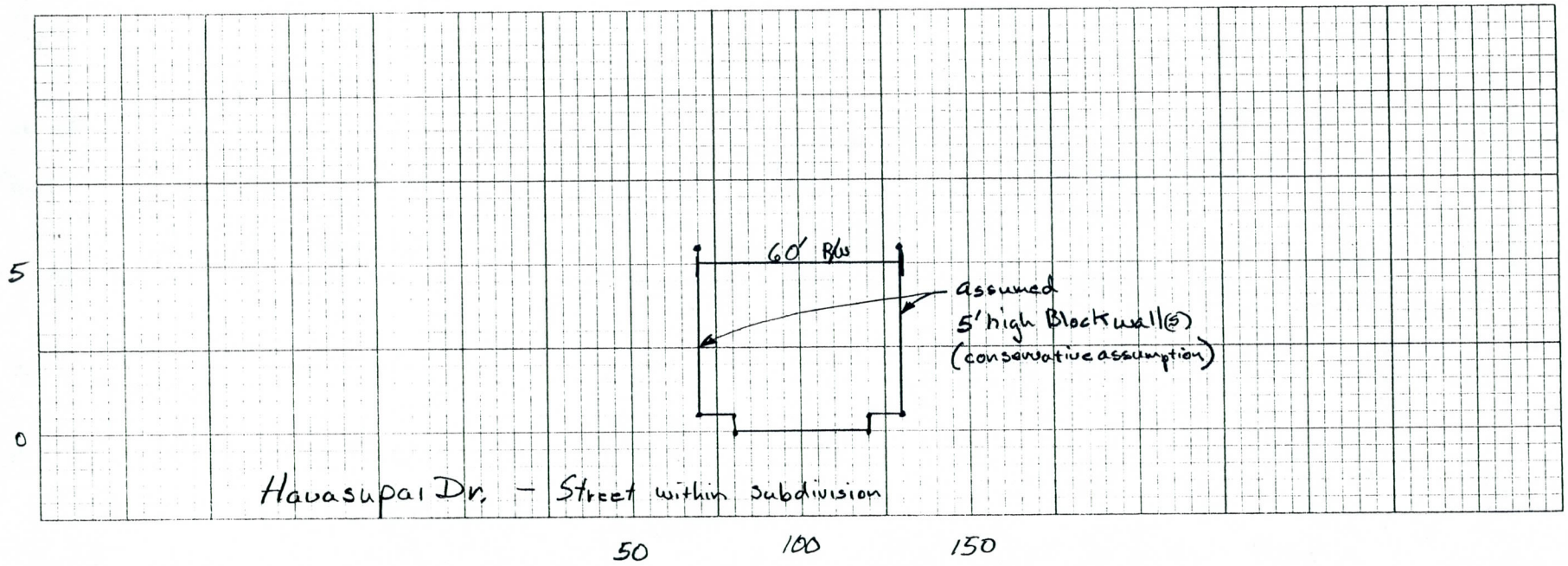
RS	5	Flow	-1					
RC	0.04	0.03	0.04	3050	0.006			
RX	935	940	945	965	1035	1065	1070	1075
RY	7	6.5	6	0	0	6	6.5	7

CALCULATED BY: DWD

6-26-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 355

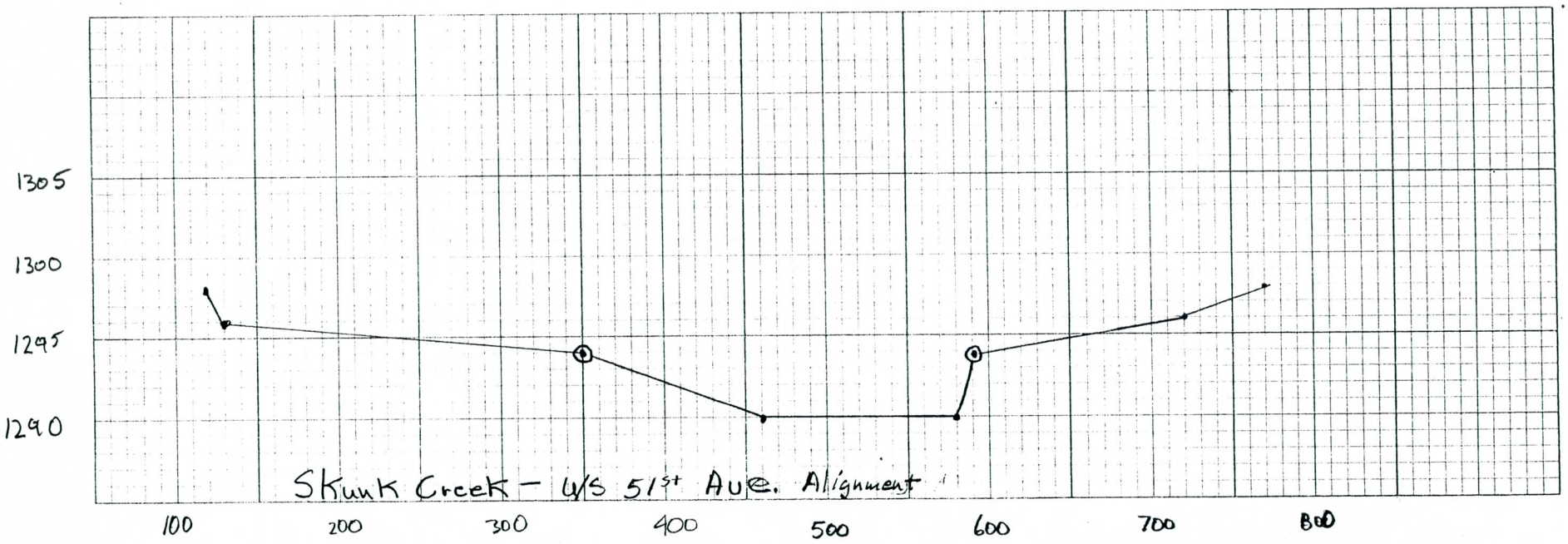


RS	5	FLOW	-1					
RC	0.03	0.02	0.03	2400	0.006			
RX	70	70.1	79.9	80	120	120.1	130	130.1
RY	5.5	0.5	0.5	6	0	0.5	0.5	5.5

CALCULATED BY: DWD
6-27-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 370

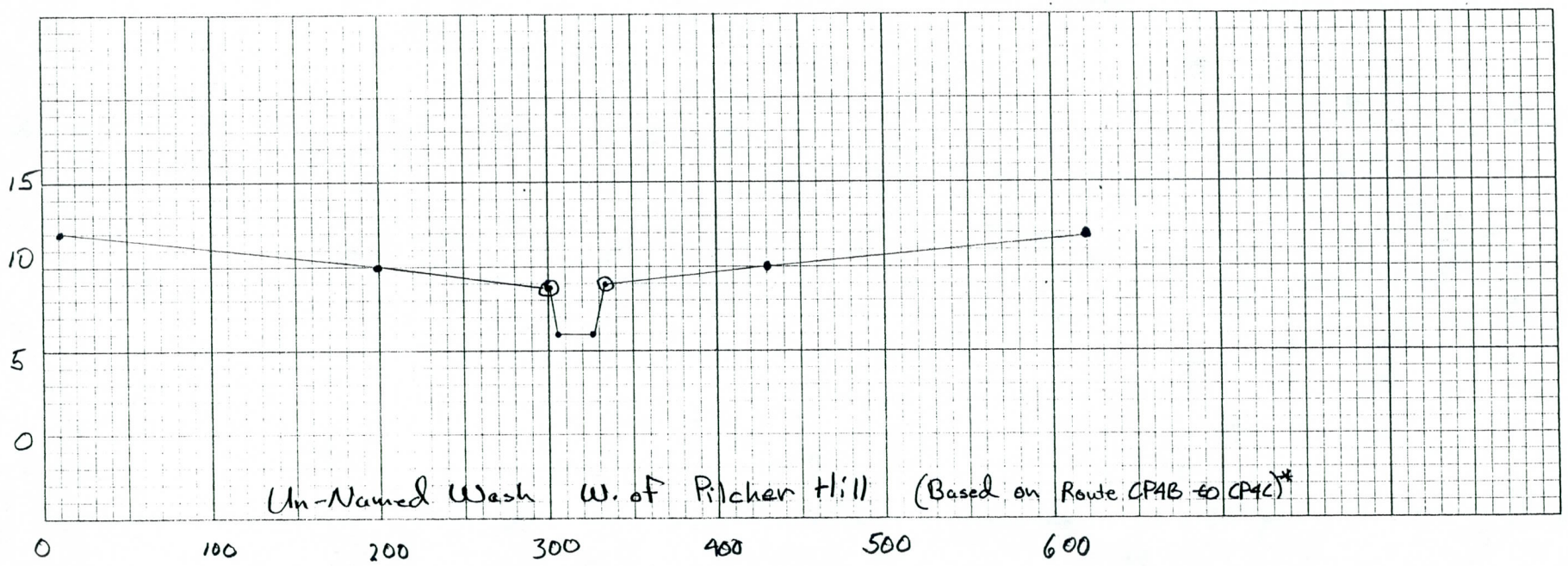


RS	2	FLOW	-1					
RC	0.04	0.03	0.04	6200	0.0047 (an overall slope)			
RX	120	130	350	460	580	590	720	770
RY	1298	1296	1294	1290	1290	1294	1296	1298

CALCULATED BY: DWD
6-27-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 385



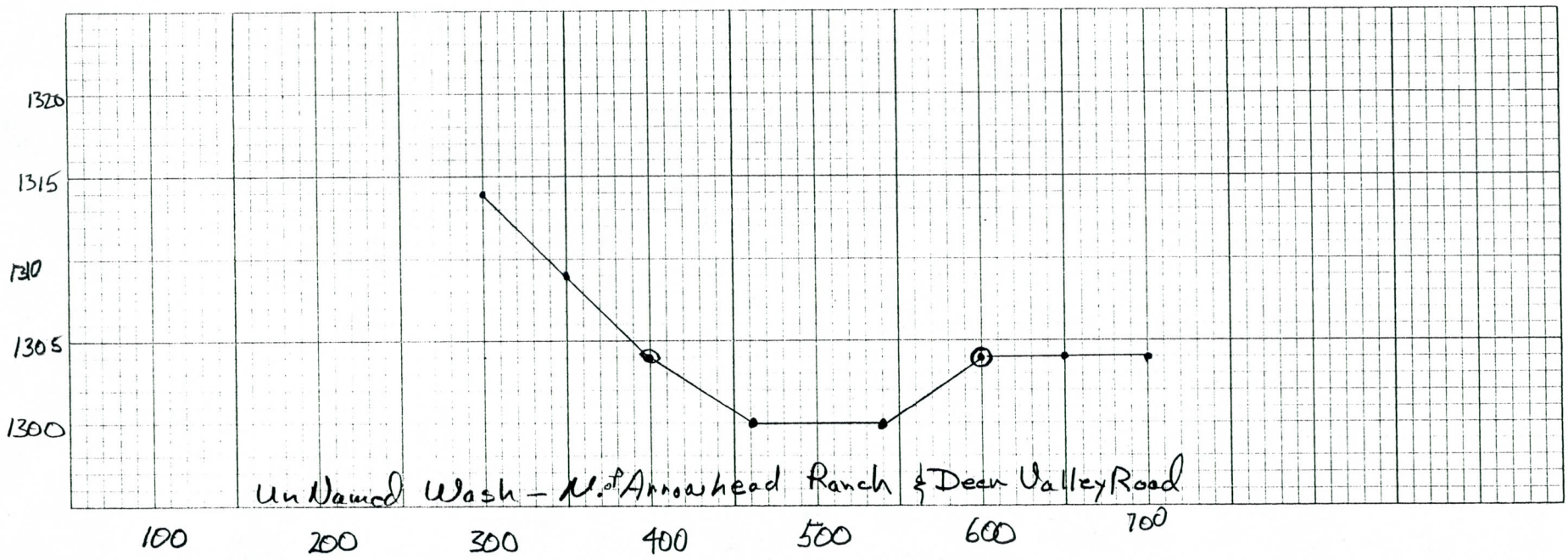
* Concept. Drainage Plan for Little Deer Valley: Prepared for City of Phoenix, Job# 881111-11022 August 24, 1989 (Draft)

RS	5	Flow	-1					
RC	0.04	0.03	0.04	4400	0.01			
RX	10	200	300	306	316	322	420	620
RY	12	10	9	6	6	9	10	12

CALCULATED BY: DWD
9-27-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 400

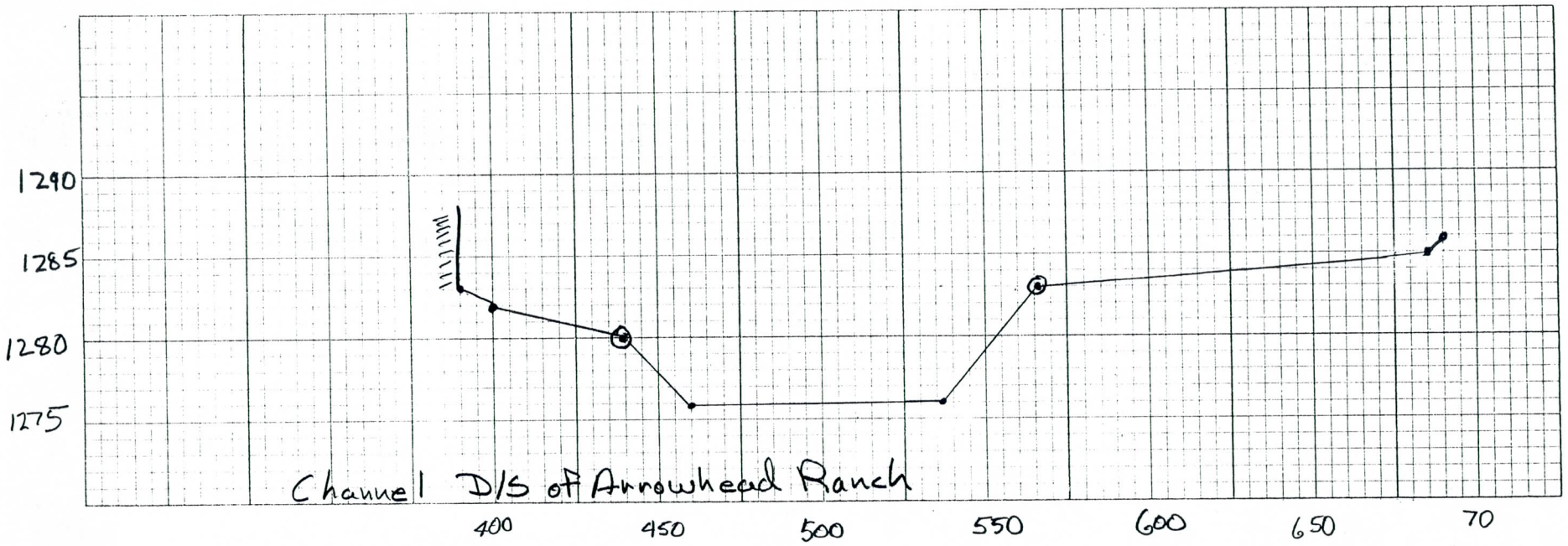


RS	5	Flow	-1					
RC	0.04	0.03	0.04	9600	0.0073			
RX	300	350	400	460	540	600	650	700
RY	1314	1309	1304	1300	1300	1304.	1304.	1304

CALCULATED BY: DWD
6-27-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 420

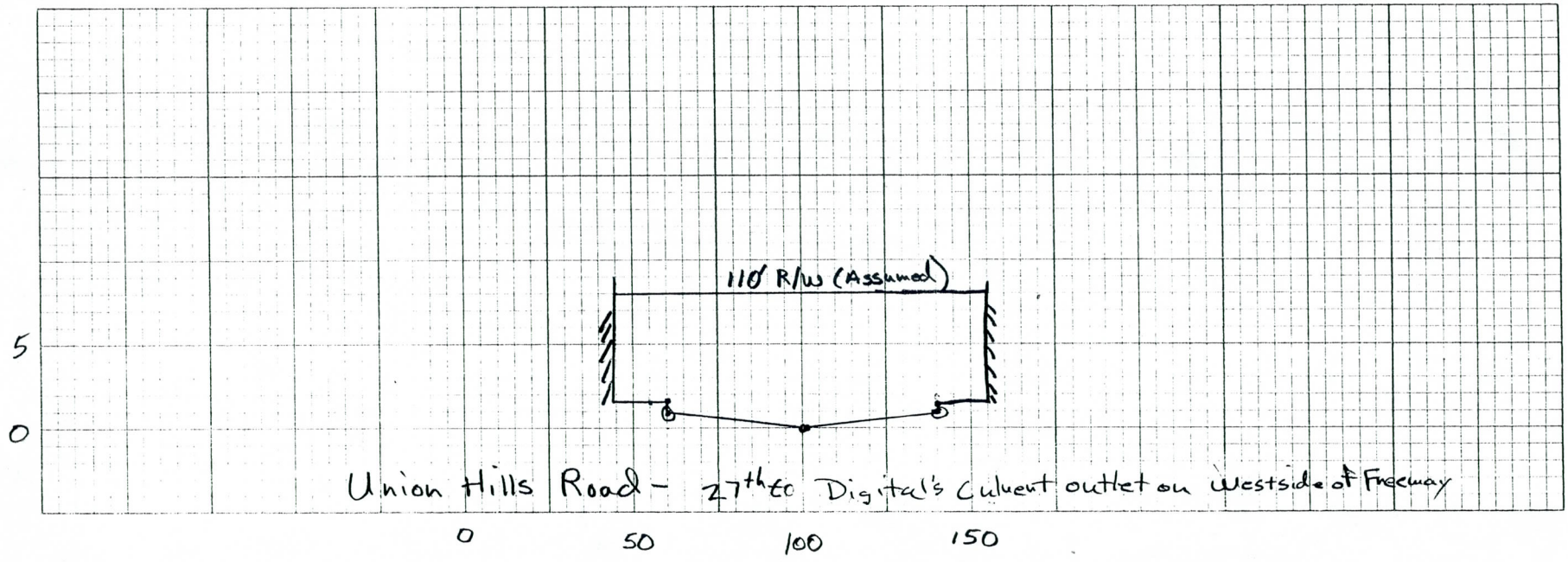


RS	5	FLOW	-1					
RC	0.03	0.03	0.03	4560	0.0025			
RX	390	400	440	460	536	566	686	690
RY	1283	1282	1280	1276	1276	1283	1285	1286

CALCULATED BY: DwD
C-27-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 435

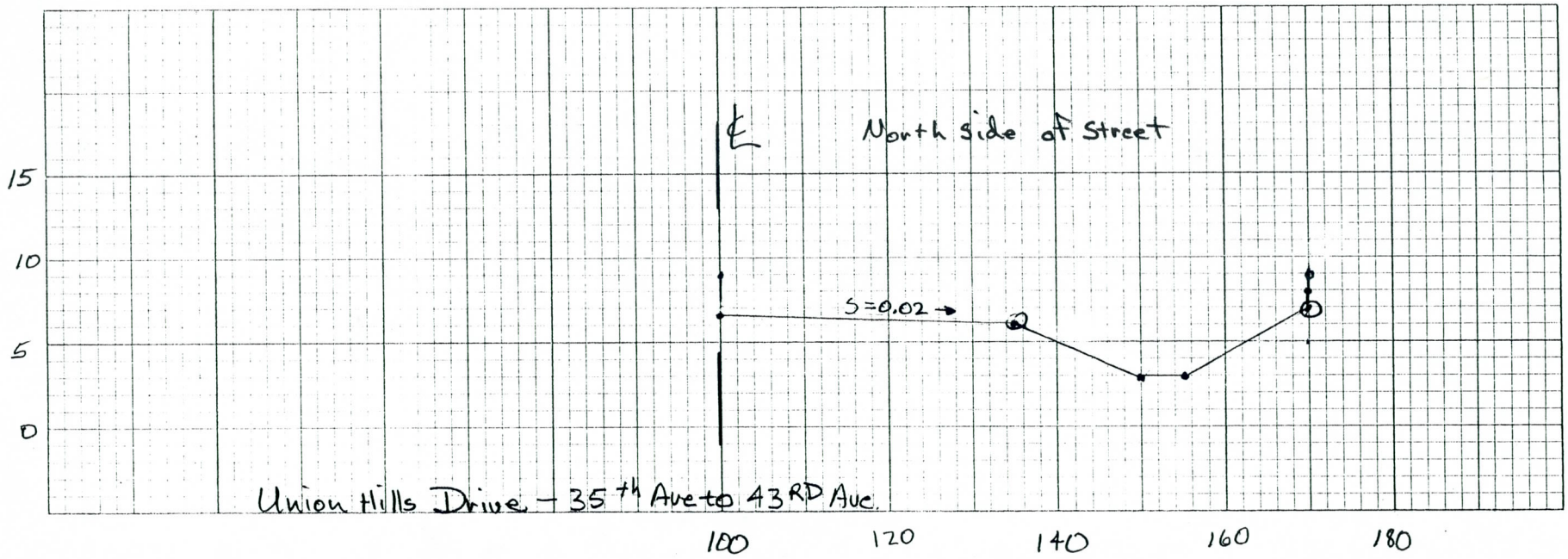


RS	5	FLOW	-1					
RC	0.025	0.02	0.025	6800	0.004	4		
RX	45	59.9	60	100	100.1	140	140.1	155
RY	1.5	1.5	1	0	0	1	1.5	1.5

CALCULATED BY: DWD
6-27-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 460



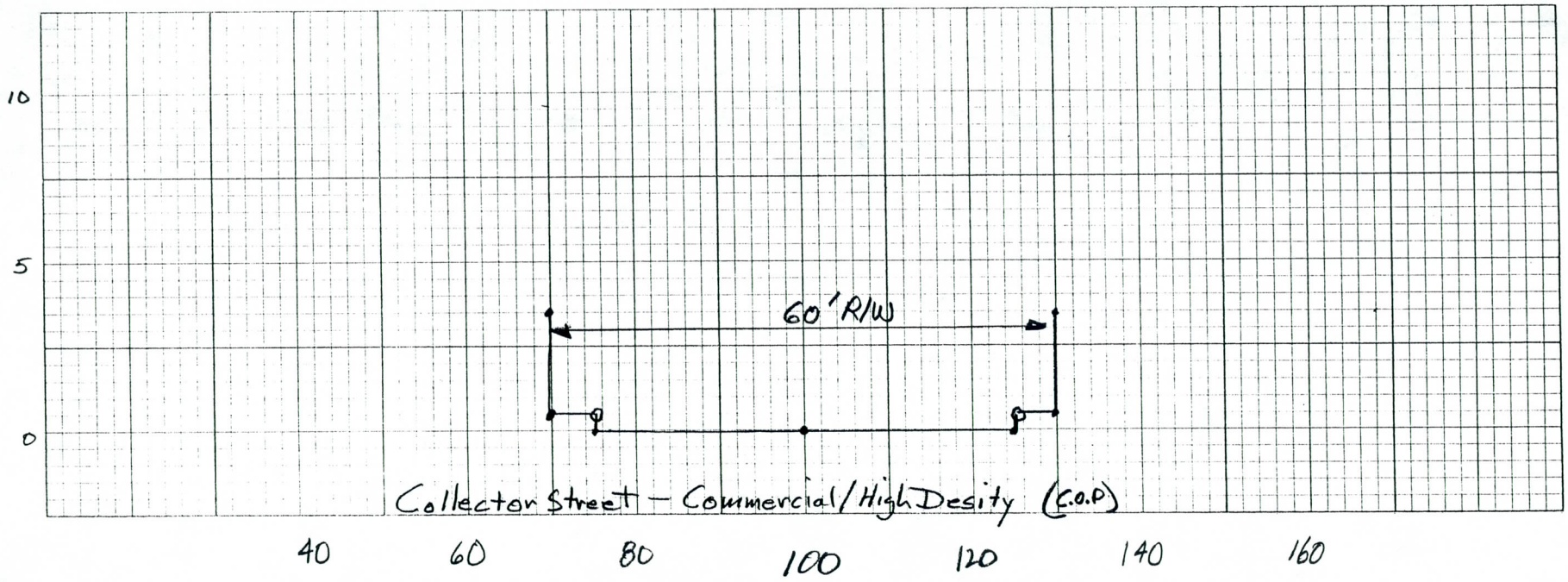
RS	5	Flow	-1					
RC	0.02	0.025	0.03	5280	0.004	10		
RX	999	100	135	150	155	170	170.1	170.2
RY	9	6.7	6	3	3	7	8	9

CALCULATED BY: DwD

6-28-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 470

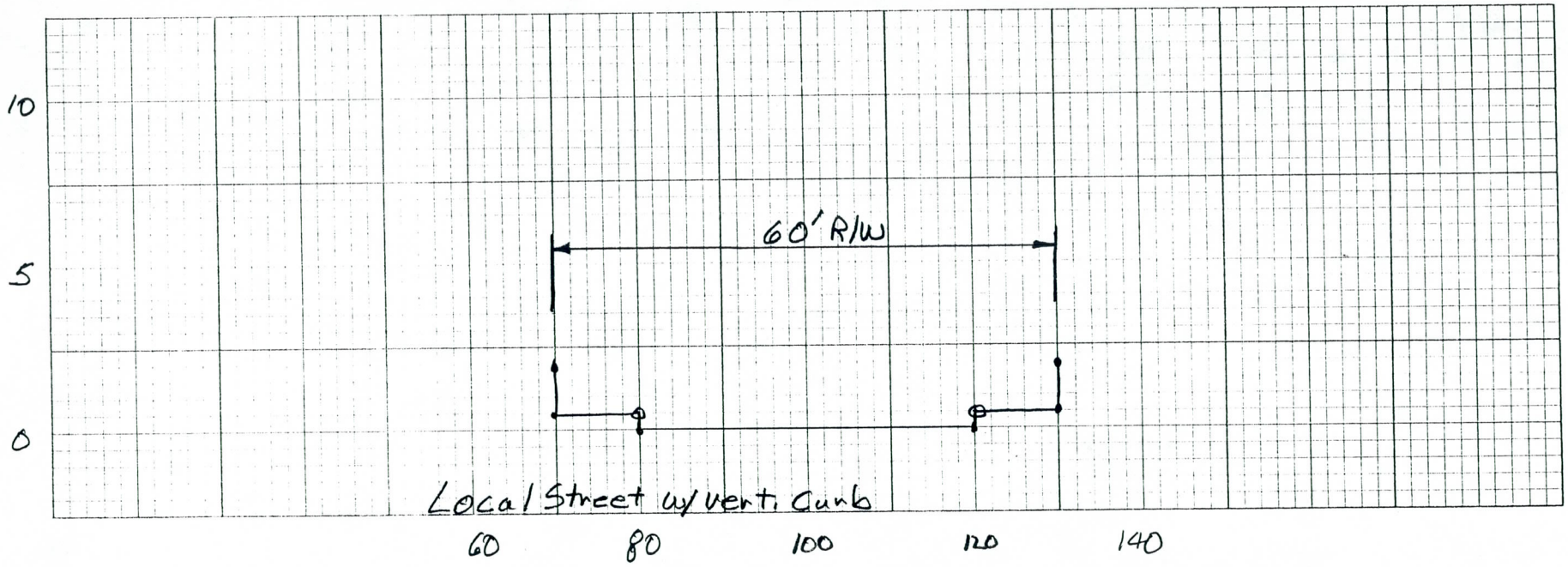


RS	5	Flow	-1					
RC	0.025	0.02	0.025	8200	0.0046			
RX	69.9	70	74.9	75	125	125.1	130	130.1
RY	3.5	0.5	0.5	0	0	0.5	0.5	3.5

CALCULATED BY: DWD

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 485

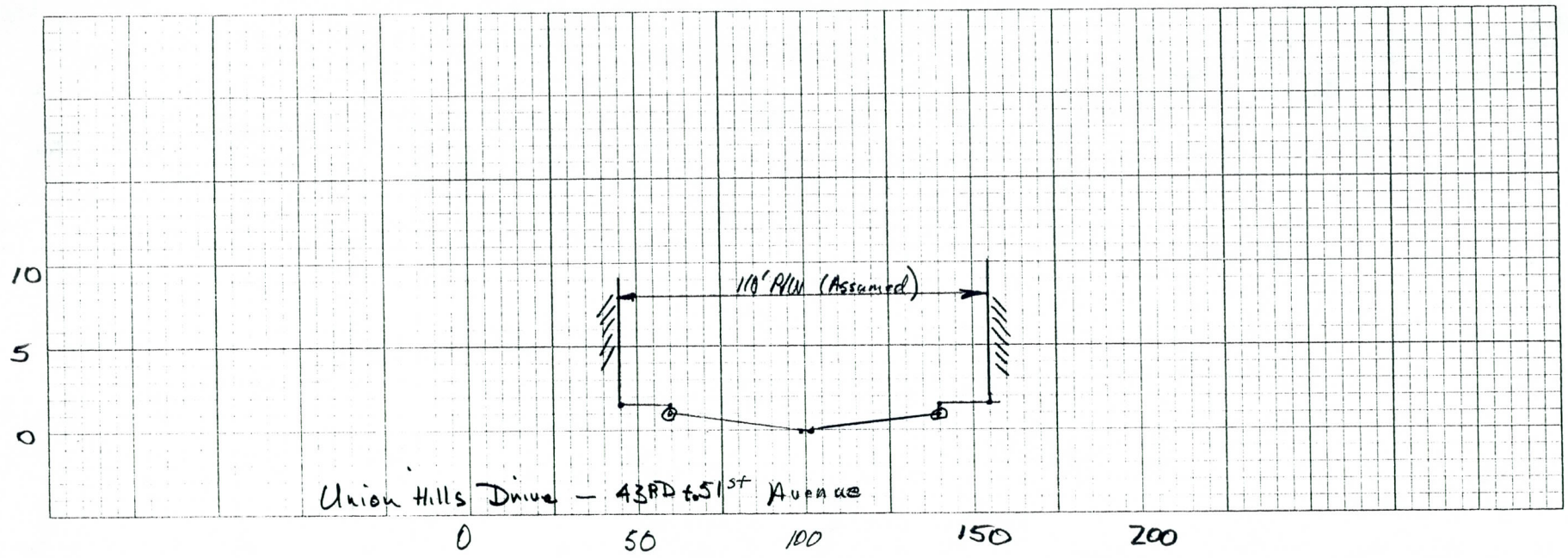


RS	5	FLOW	-1					
RC	0.025	0.02	0.025	10300	0.0038	5		
RX	69.9	70	79.9	80	120	120.1	130	130.1
RY	2	0.5	0.5	0	0	0.5	0.5	2.0

CALCULATED BY: DWD

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 510



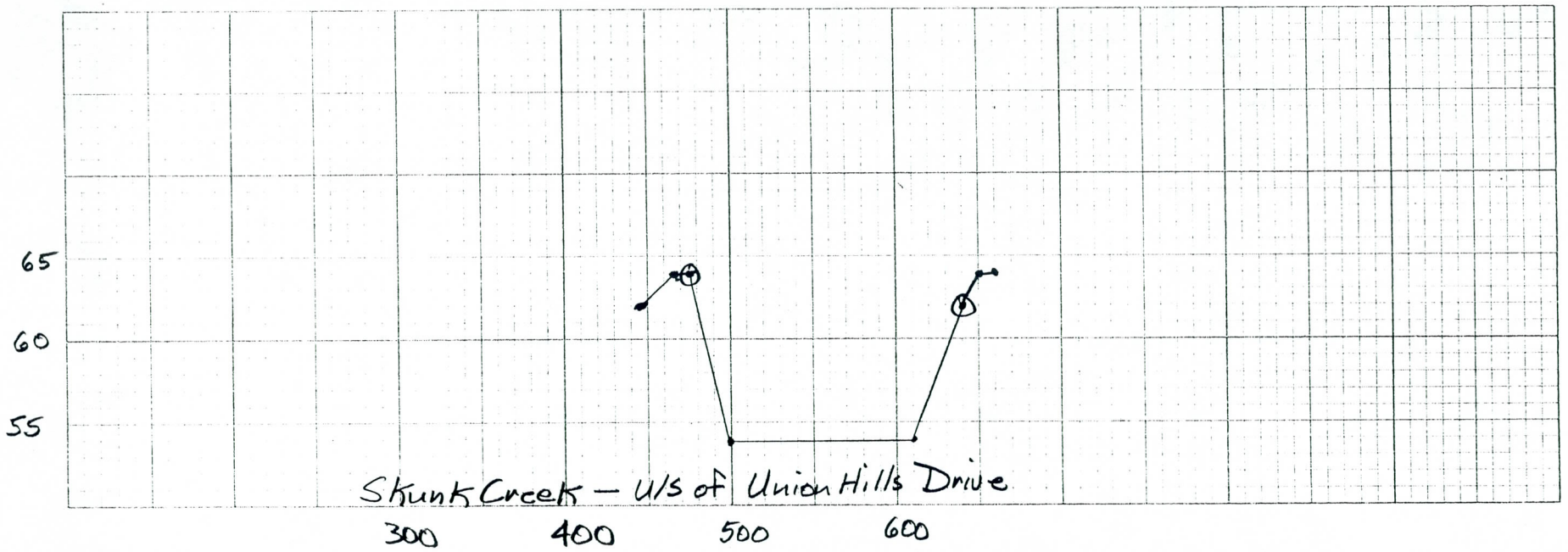
RS	5	FLOW	-1					
RC	0.025	0.02	0.025	7500	0.0042	10		
RX	45	59.9	60	100	100.1	140	140.1	155
RY	1.5	1.5	1	0	6	1	1.5	1.5

CALCULATED BY: DwD

6-28-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 540

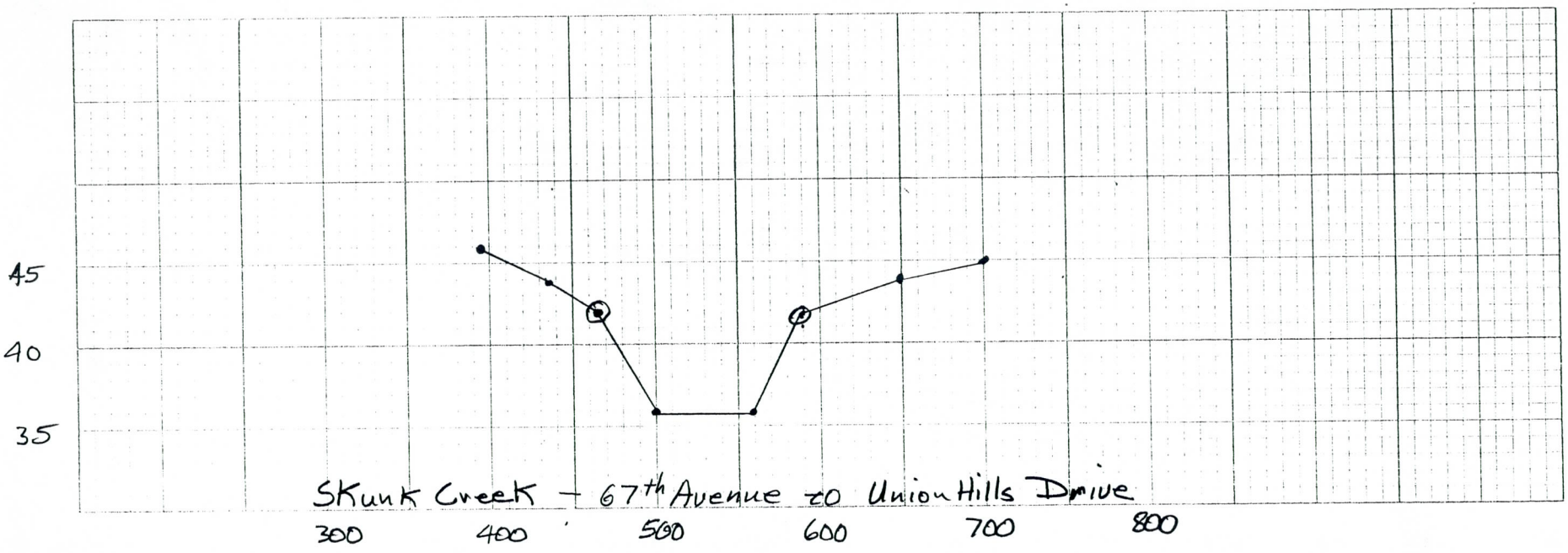


RS	2	FLOW	–1					
RC	0.04	0.03	0.04	3400	0.0056			
RX	445	465	475	500	610	640	650	660
RY	1262	1264	1264	1254	1254	1262	1269	1264

CALCULATED BY: DWD
6-28-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 555

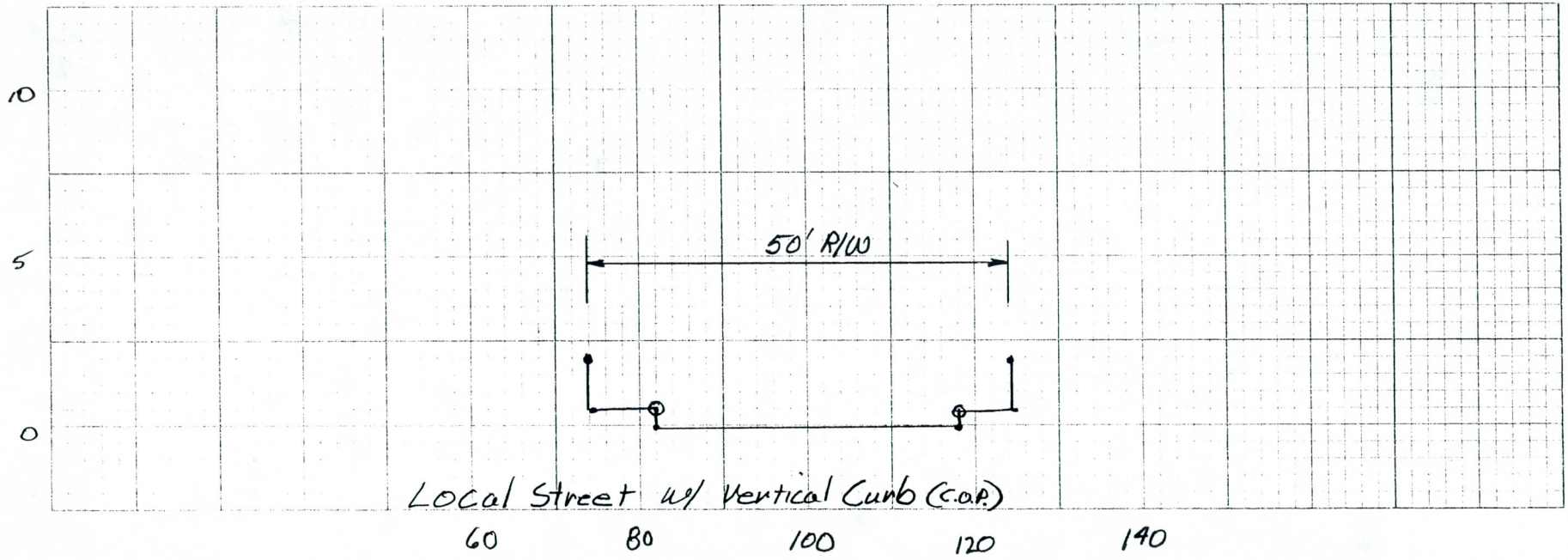


RS	2	FLOW	-1					
RC	0.04	0.03	0.04	5350	0.0039			
RX	395	435	465	500	560	590	650	700
RY	1246	1244	1242	1236	1236	1242	1244	1245

CALCULATED BY: DwD
6-28-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 575

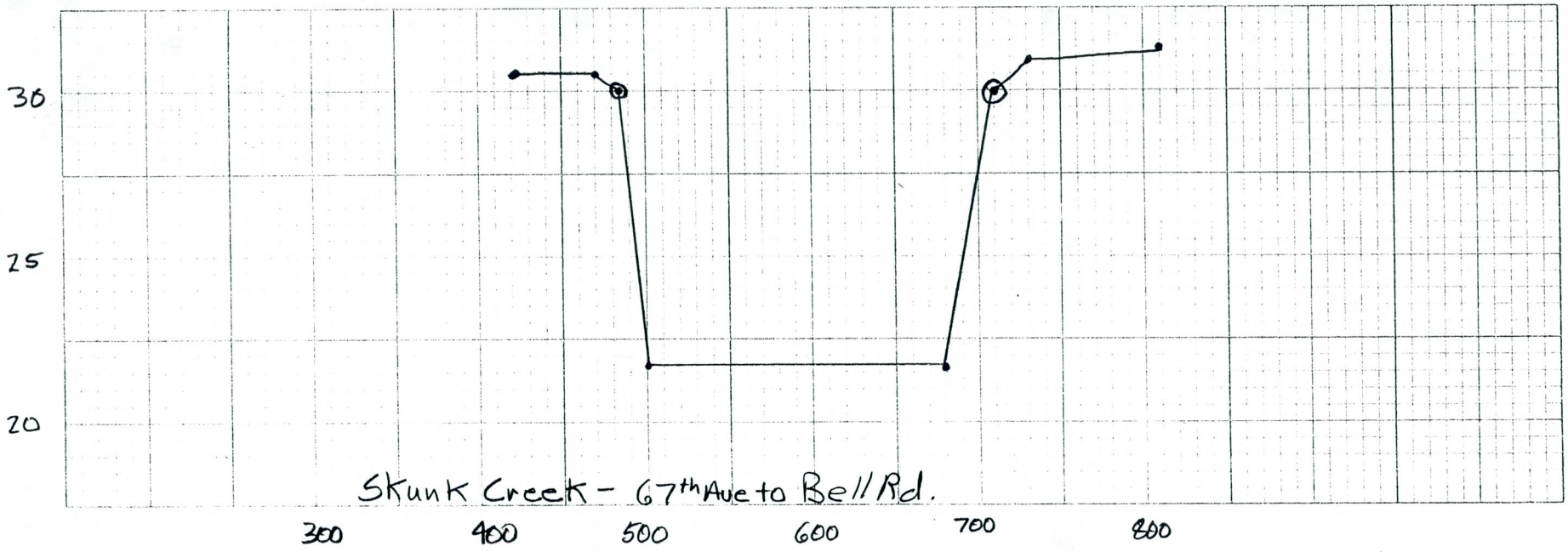


RS	5	FLOW	-1					
RC	0.03	0.02	0.03	6500	0.0044			
RX	74.9	75	81.9	82	118	118.1	125	125.1
RY	2	0.5	0.5	0	0	0.5	0.5	2

CALCULATED BY: DwD
6-28-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 590

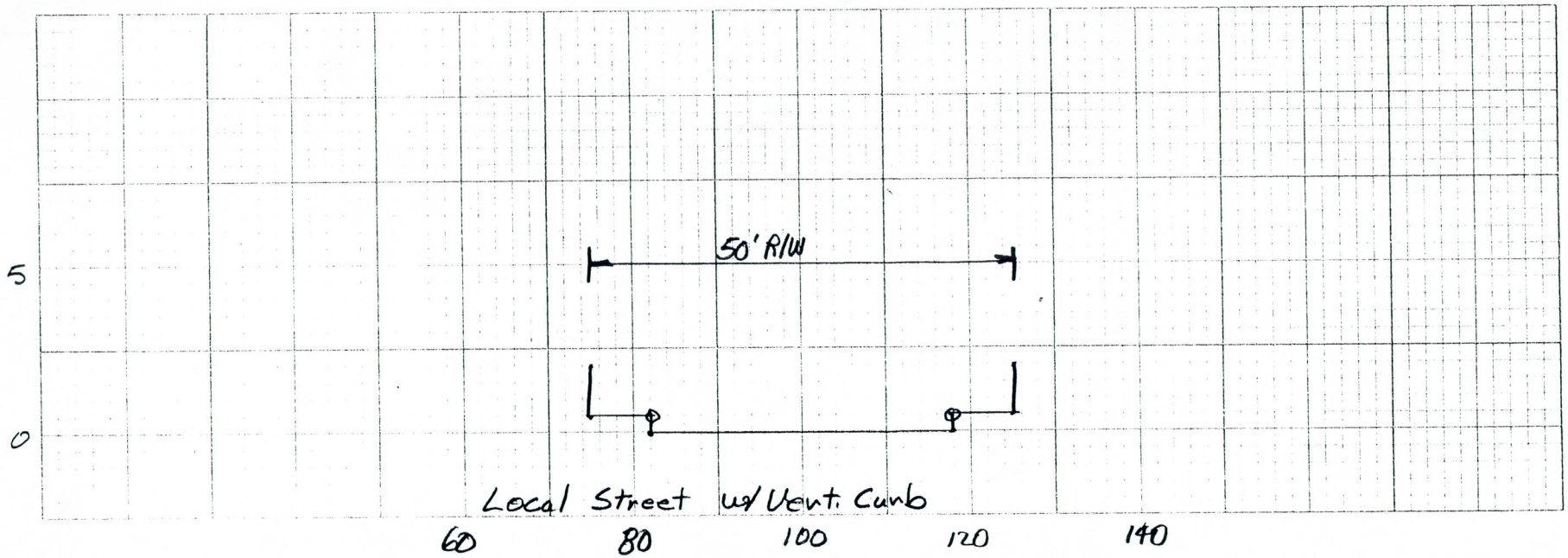


RS	2	FLOW	-1					
RC	0.04	0.03	0.04	4000	0.0075			
RX	370	470	485	500	680	710	730	810
RY	1231	1231	1230	1223.5	1223.5	1230	1232	1232.5

CALCULATED BY: DwD
6-28-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 605

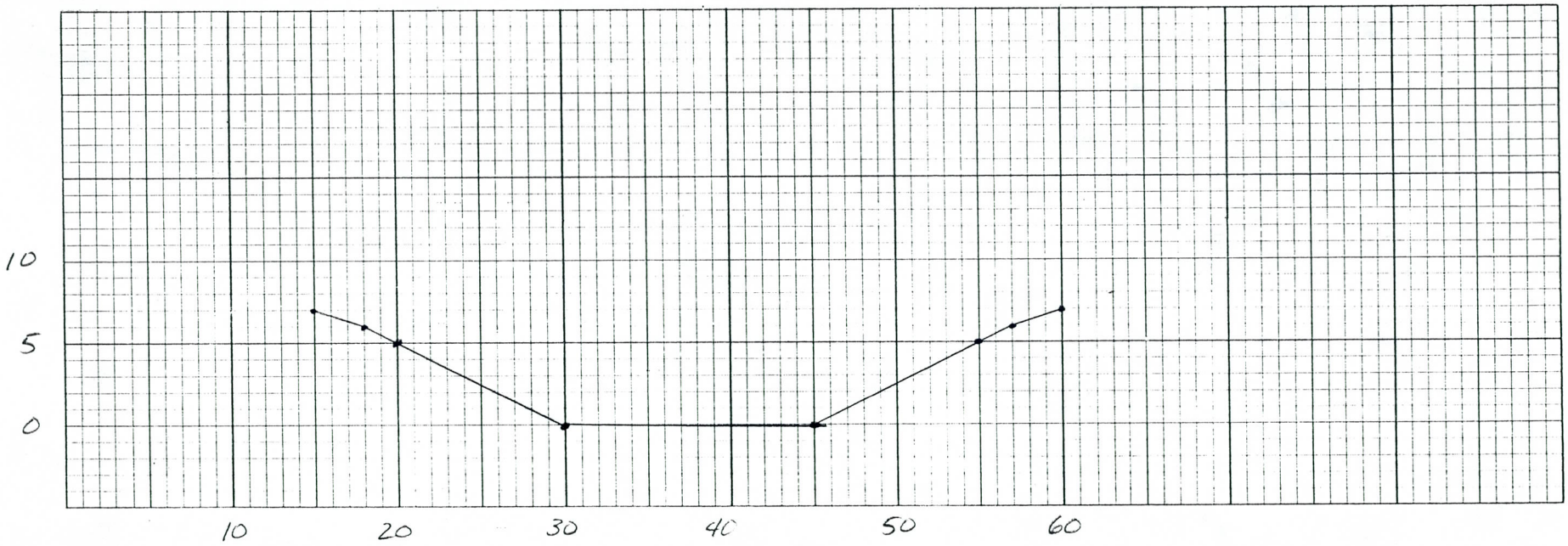


RS	5	FLOW	-1					
RC	0.03	0.02	0.03	2500	0.006			
RX	74.9	75	81.9	82	118	118.1	125	125.1
RY	2	0.5	0.5	0	0	0.5	0.5	2

CALCULATED BY: DWD
6-28-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 625

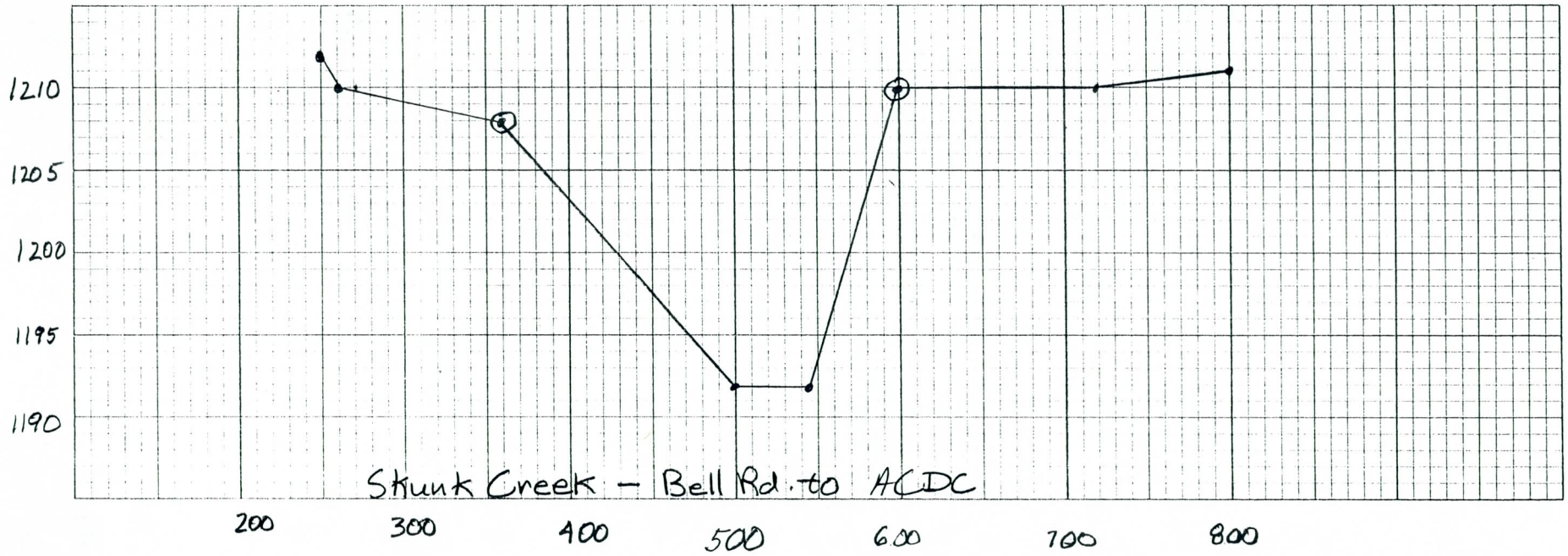


RS	5	Flow	-1					
RC	.03	.03	.03	4500	.0022			
RX	15	18	20	30	45	55	57	60
RY	7	6	5	0	0	5	6	7

CALCULATED BY: AJK

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 645



RS	2	FLOW	-1					
RC	0.04	0.03	0.04	.3500	0.0068			
RX	250	260	360	500	545	600	720	800
RY	1212	1210	1208	1192	1192	1210	1210	1211

CALCULATED BY: DWD
6-28-90

SECTION III

DIVERT PARAMETERS

CVL
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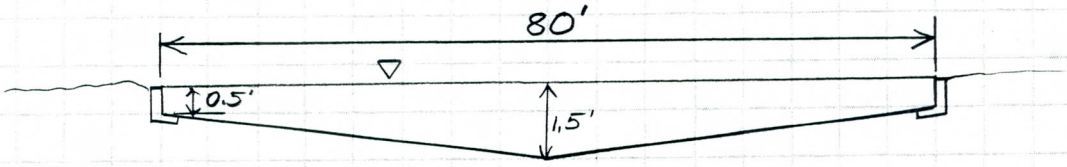
PLANNING • ENGINEERING
LANDSCAPE ARCHITECTURE

Project Skunk Creek FIS
Project No. 1090-05
Sheet No. _____ of _____
Calculated by JM Date 8-15-90
Checked by DWD Date 9-18-90

DIVERT 450

Capacity of Union Hills Drive (27th Ave. to 35th Ave.) Flowing west in inverted crown road section. The remainder of the flow breaks out to the south.



Area (A) = 80 SF
Wetted Perimeter (WP) = 81'
n = 0.02
Slope (S) = 0.0063 ft/ft.

$V = \frac{1.486}{n} R^{2/3} S^{1/2}$ $\qquad R = \frac{A}{WP}$

$Q = VA$

$V = 5.85$ fps

$Q = 468$ cfs

* The capacity of the proposed Union Hills Storm Drain is 891 cfs (Ref 37).

∴ Total Q = 891 + 468 = 1359 cfs
Say 1360 cfs

4550 NORTH 12TH STREET • PHOENIX, ARIZONA 85014 • PHONE (602) 264-6831

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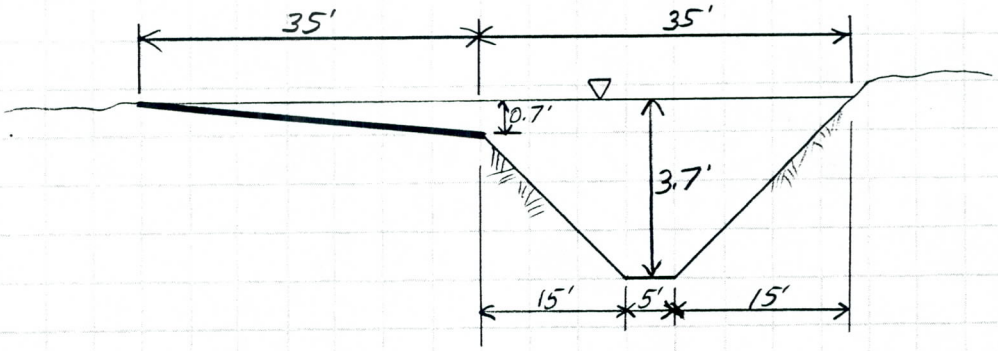
Project SKUNK CREEK FIS
Project No. 1090-05
Sheet No. _____ of _____
Calculated by JM Date 8-15-90
Checked by DWD Date 9-18-90

DIVERT 500

Capacity of Union Hills Drive (35th Ave. to 43rd Ave.) Flowing west in channel and street. The remainder of the flow breaks out to the south.



Area (A) = 91.5 s.f.
Wetted Perimeter (WP) = 70.8'
n = 0.022
Slope (S) = 0.0050

$V = \frac{1.486}{n} R^{2/3} S^{1/2}$ $\qquad R = \frac{A}{WP}$

$Q = VA$

V = 5.67 fps

Q = 519 cfs

* The proposed capacity of the Union Hill Storm Drain is 1282 cfs (Ref 37).

∴ Total Q = 1282 + 519 = 1801 cfs
Say 1800 cfs

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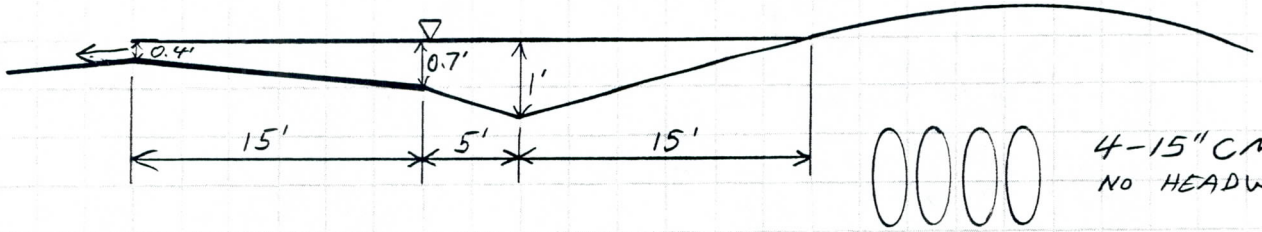
Project SKUNK CREEK F/S
Project No. 1090-05
Sheet No. _____ of _____
Calculated by JM Date 8-15-90
Checked by DWD Date 9-18-90

DIVERT 530

Capacity of Union Hills Drive at approximatly 55th. Ave. Flowing west in street and shoulder. The remainder of the flow breaks out to the south.



4-15" CMP
NO HEADWALL

OVERLAND FLOW

Area (A) = 20.0 S.F.
Wetted Perimeter (WP) = 35.0'
n = 0.029
Slope = 0.0034

V = 2.06 fps

Q = 41 cfs

PIPES

Capacity of pipes (per inlet control) is 6 cfs each.

Total capacity = Overflow + Pipe flow

Total Q = 41 + 4(6) = 65 cfs

* The proposed capacity of the Union Hills Storm Drain at this location is 1493 cfs; (Ref 37)

∴ Total Q = 65 + 1493 = 1558 cfs Say 1560 cfs

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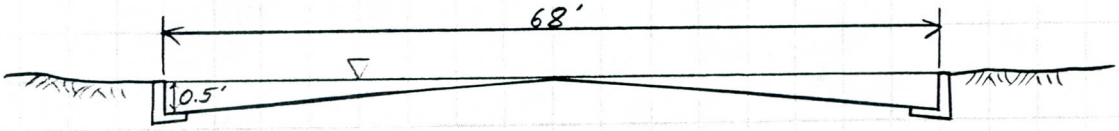
LANDSCAPE ARCHITECTURE

Project SKUNK CREEK FIS
Project No. 1090-05
Sheet No. _____ of _____
Calculated by JM Date 8-15-90
Checked by _____ Date _____

DIVERT 570

Capacity of 59th Ave. at Grovers Ave.
Flowing south in street. The remainder of the flow breaks out to the west



Area (A) = 17.0 s.f.
Wetted Perimeter (WP) = 69'
n = 0.020
Slope = 0.0025

$V = \frac{1.486}{n} R^{2/3} S^{1/2}$ $\quad R = \frac{A}{WP}$

$Q = VA$

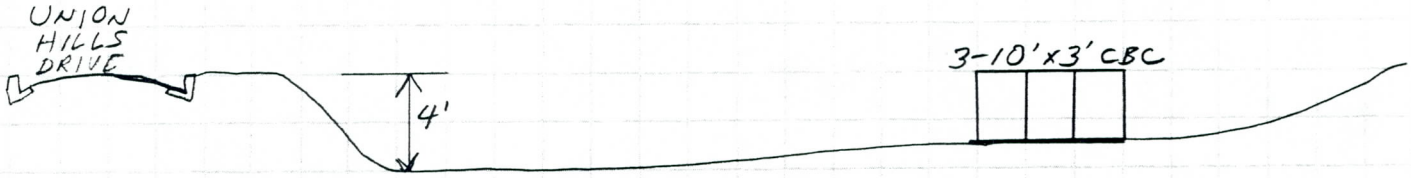
V = 1.46 fps

Q = 25 cfs

COE & VAN LOO
PLANNING • ENGINEERING
LANDSCAPE ARCHITECTURE

Project Skunk Creek FIS
Project No. 1090-05
Sheet No. _____ of _____
Calculated by JM Date 7-25-90
Checked by _____ Date _____

DETENTION BASIN I-17 & UNION HILLS DRIVE (DIGITAC)



DEPTH	SURFACE AREA (AC)	OUTFLOW 3-10'x3' BOX CULVERT*	OUTFLOW WEIR FLOW OVER UNION HILLS DR**	COMBINED
0	0	0	0	0
1	6	0	0	0
2	9	90	0	90
3	12	255	0	255
4	15	450	0	450
5	22	660	1350	2010
6	31	780	3820	4600

* BASED ON INLET CONTROL (HDS #5)

** BASED ON 500' WEIR C = 2.7

NOTE: The data for this detention is estimated from aerial photographs and field visits, and should be considered approximate

SECTION IV

HEC-1 HYDROLOGY RESULTS FOR A 10-YEAR, 6-HOUR STORM

```
*****************************************
*                                       *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *
*    BY THE COE IN FEBRUARY 1981        *
*          REVISED 02 AUG 88            *
*                                       *
*  RUN DATE  11/08/1990  TIME  15:34:02 *
*                                       *
*****************************************
```


```
*****************************************
*                                       *
*     DODSON AND ASSOCIATES, INC.       *
*   HYDROLOGIST AND CIVIL ENGINEERS     *
*       7015 W TIDWELL SUITE 107        *
*          HOUSTON, TEXAS  77092        *
*            (713) 895-8322             *
*                                       *
*****************************************
```


```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

    1     ID   SKUNK CREEK BETWEEN ACDC AND CAP FLOOD INSURANCE STUDY
    2     ID   PREPARED FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC # 89-72)
    3     ID   BY COE & VAN LOO CONSULTING ENGINEERS, INC. (CVL # 1090-050)
    4     ID   NOVEMBER 1990   JKM-DWD-AJR
    5     ID   INPUT FILE NAME:  SK10-6
    6     ID
    7     ID   10-YEAR, 6-HOUR STORM
    8     ID   FCDMC DISTRIBUTION
    9     ID
          *DIAGRAM
   10     IT       3                    300
   11     IO       5
   12     IN      15
   13     JD    2.00    0.01
   14     PC    .000    .008    .016    .025    .033    .041    .050    .058    .066    .074
   15     PC    .087    .099    .118    .138    .216    .377    .834    .911    .931    .950
   16     PC    .962    .972    .983    .991   1.000
   17     JD    1.99    0.50
   18     JD    1.96    2.80
   19     PC    .000    .009    .016    .025    .034    .042    .051    .059    .067    .076
   20     PC    .087    .100    .120    .163    .252    .451    .694    .837    .900    .938
   21     PC    .950    .963    .975    .988   1.000
   22     JD    1.84    16.0
   23     PC    .000    .015    .020    .030    .048    .063    .076    .090    .105    .119
   24     PC    .135    .152    .175    .222    .304    .472    .670    .796    .868    .912
   25     PC    .946    .960    .973    .987   1.000
   26     JD    1.62    90.0
   27     PC    .000    .021    .035    .051    .071    .087    .105    .125    .143    .160
   28     PC    .179    .201    .232    .281    .364    .500    .658    .773    .841    .888
   29     PC    .927    .945    .964    .982   1.000
   30     JD    1.14   500.0
   31     PC    .000    .024    .043    .059    .078    .098    .119    .141    .162    .186
   32     PC    .212    .239    .271    .321    .408    .515    .627    .735    .814    .864
   33     PC    .907    .930    .954    .977   1.000

   34     KK      5S
   35     KM   SUB-BASIN 5
   36     BA   1.332
   37     LG    .200    .270   7.600    .160   4.000
   38     UC    .633    .204
   39     UA       0       3       5       8      12      20      43      75      90      96
   40     UA     100

   41     KK   10RET
   42     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
   43     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
   44     RS       1    STOR      -1
   45     SV       0       4      17      52      96     148     209     279
   46     SE      15      16      17      18      19      20      21      22
   47     SL      15    9.62      .6      .5
   48     SS    21.9      50       3     1.5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  49      KK    15R
  50      KM   ROUTE 10RET TO CP OF 20S ALONG NATURAL CHANNEL
  51      RS     5    FLOW     -1
  52      RC   .04    .03    .04   9000   .0080
  53      RX     0     100    120    125    135    140    160    260
  54      RY     5       3      2      0      0      2      3      5

  55      KK    20S
  56      KM   SUB-BASIN 20
  57      BA   1.379
  58      LG   .350   .290  6.700   .170   .000
  59      UC   .867   .421
  60      UA     0       3      5      8     12     20     43     75     90     96
  61      UA   100

  62      KK    25C
  63      KM   COMBINE 20S AND 15R AT CP OF 20S
  64      HC     2

  65      KK    30R
  66      KM   ROUTE 25C TO CP OF 35S ALONG NATURAL CHANNEL
  67      RS     5    FLOW     -1
  68      RC   .04    .03    .04   4800   .0056
  69      RX     0       5    205    215    235    245    445    450
  70      RY     5       3      1      0      0      1      3      5

  71      KK    35S
  72      KM   SUB-BASIN 35
  73      BA   1.514
  74      LG   .350   .310  5.800   .230   .000
  75      UC  1.017   .539
  76      UA     0       3      5      8     12     20     43     75     90     96
  77      UA   100

  78      KK    40S
  79      KM   SUB-BASIN 40
  80      BA   .545
  81      LG   .200   .260  7.900   .120  6.000
  82      UC   .583   .287
  83      UA     0       3      5      8     12     20     43     75     90     96
  84      UA   100

  85      KK   45RET
  86      KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  87      KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  88      RS     1    STOR     -1
  89      SV     0       2     11     34     62     96    135    180
  90      SE    15      16     17     18     19     20     21     22
  91      SL    15    4.91     .6     .5
  92      SS  21.9      50      3    1.5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  93      KK    50R
  94      KM   ROUTE 45RET TO CP OF 35S ALONG NATURAL CHANNEL
  95      RS     5    FLOW     -1
  96      RC   .04    .03    .04   11000   .0086
  97      RX    0     50     150    165     175     190     290     340
  98      RY    6      5      3      0       0       3       5       6

  99      KK    55S
 100      KM   SUB-BASIN 55
 101      BA   .588
 102      LG   .350   .320  5.100   .290    .000
 103      UC   .950   .757
 104      UA    0      3      5      8      12      20      43      75      90      96
 105      UA   100

 106      KK    60S
 107      KM   SUB-BASIN 60
 108      BA  1.202
 109      LG   .210   .270  7.500   .150   8.000
 110      UC  1.050   .563
 111      UA    0      3      5      8      12      20      43      75      90      96
 112      UA   100

 113      KK   65RET
 114      KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
 115      KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
 116      RS     1    STOR     -1
 117      SV     0      2      7     24      43      67      95     127
 118      SE    15     16     17     18      19      20      21      22
 119      SL    15   9.62     .6     .5
 120      SS  21.9     50      3    1.5

 121      KK    70R
 122      KM   ROUTE 65RET TO CP OF 35S ALONG NATURAL CHANNEL
 123      RS     5    FLOW     -1
 124      RC   .04    .03    .04   10000   .0090
 125      RX    0    100     200    215     230     245     345     445
 126      RY    6      5      3      0       0       3       5       6

 127      KK    75C
 128      KM   COMBINE 30R, 35S, 50R, 55S AND 70R AT CP OF 35S
 129      HC     5

 130      KK   80RET
 131      KM   ROUTE FLOW THROUGH DETENTION BEHIND PINNACLE PEAK ROAD CULVERTS
 132      KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
 133      RS     1    STOR     -1
 134      SV     0    .05     1.2     9.1    35.6      65    94.5     139
 135      SE    11     12      14      16      18      19      20      21
 136      SQ     0     54     254     528     936    2344    5278   10401
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  137     KK    85R
  138     KM   ROUTE 80RET TO CP OF 90S ALONG NATURAL CHANNEL
  139     RS      5    FLOW      -1
  140     RC    .04     .03     .04    2000    .0050
  141     RX      0      50     150     165     175     190     240     250
  142     RY      6       5       4       0       0       4       5       7

  143     KK    90S
  144     KM   SUB-BASIN 90
  145     BA   1.227
  146     LG    .350    .320   5.300    .350   1.000
  147     UC   1.500   1.040
  148     UA      0       3       5       8      12      20      43      75      90      96
  149     UA    100

  150     KK    95S
  151     KM   SUB-BASIN 95
  152     BA    .968
  153     LG    .200    .270   7.500    .150   5.000
  154     UC    .950    .519
  155     UA      0       3       5       8      12      20      43      75      90      96
  156     UA    100

  157     KK  100RET
  158     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  159     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  160     RS      1    STOR      -1
  161     SV      0       2       9      30      55      85     120     160
  162     SE     15      16      17      18      19      20      21      22
  163     SL     15    7.07      .6      .5
  164     SS   21.9      50       3     1.5

  165     KK   105R
  166     KM   ROUTE 100RET TO CP OF 90S ALONG NATURAL CHANNEL
  167     RS      5    FLOW      -1
  168     RC    .04     .03     .04   13000    .0080
  169     RX      0       5     155     160     170     175     325     330
  170     RY      3       2       1       0       0       1       2       3

  171     KK   110C
  172     KM   COMBINE 85R, 90S AND 105R AT CP OF 90S
  173     HC      3

  174     KK  115RET
  175     KM   ROUTE FLOW THROUGH DETENTION BEHIND 2-8X7 RCBC AT I-17
  176     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  177     RS      1    STOR      -1
  178     SV      0    .001    .220    1.16    8.44      17      30      49      67     106
  179     SE    3.8       4       6       8      10      11      12      13    13.7      15
  180     SQ      0       1     176     414     680     880    1091    1593    2678    7306
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  181     KK   120D
  182     KM   DIVERT OVERFLOWS SOUTH TO SINGLE CULVERT AT MH PARK, & WEST ON TO I-17
  183     KM   DQ IS Q THROUGH 2-8X7 CULVERT (MAX 1312 CFS); DI IS TOTAL Q
  184     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  185     DT   125D
  186     DI      1     880    1091    1593    2678    3746
  187     DQ      1     880    1060    1184    1296    1312

  188     KK   130D
  189     KM   SEPARATE OUT WEST OVERFLOWS ONTO THE FRONTAGE ROAD AND MAINLINE I-17
  190     KM   THESE FLOWS HEAD SOUTH AND EVENTUALLY ENTER THE DEER VALLEY INTERCHANGE
  191     KM   REMAINING FLOWS CONTINUE SOUTH TO 6X7 BOX CULVERT ON SCATTER WASH AT I-17
  192     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  193     DT   135D
  194     DI     31     409    1382    2434
  195     DQ      0       0     215     840

  196     KK   140S
  197     KM   SUB-BASIN 140
  198     BA   1.233
  199     LG    .350    .330   4.700    .430   1.000
  200     UC   1.500   1.174
  201     UA      0       3       5       8      12      20      43      75      90      96
  202     UA    100

  203     KK   145S
  204     KM   SUB-BASIN 145
  205     BA    .383
  206     LG    .190    .310   6.200    .270    .000
  207     UC    .717    .442
  208     UA      0       3       5       8      12      20      43      75      90      96
  209     UA    100

  210     KK  150RET
  211     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  212     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  213     RS      1    STOR      -1
  214     SV      0       1       4      14      26      40      56      75
  215     SE     15      16      17      18      19      20      21      22
  216     SL     15    4.19     .16      .5
  217     SS   21.9      50       3     1.5

  218     KK   155R
  219     KM   ROUTE 150RET TO CP OF 140S ALONG NATURAL CHANNEL
  220     RS      5    FLOW      -1
  221     RC    .04     .03     .04   15000   .0073
  222     RX      6      10     200     220     230     250     440     450
  223     RY      0       5       3       0       0       3       5       6
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  224     KK   160C
  225     KM   COMBINE 140S, 130D AND 155R AT CP OF 140S
  226     HC     3

  227     KK   165D
  228     KM   DIVERT FLOW ACROSS I-17 THROUGH 6X7 RCBC (MAX Q = 510 CFS)
  229     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  230     DT   170D
  231     DI     0      1    510    511   1000   2000
  232     DQ     0      1    510    510    510    510

  233     KK   175S
  234     KM   SUB-BASIN 175
  235     BA   .299
  236     LG   .070   .290  6.700   .190 75.000
  237     UC   .783   .899
  238     UA     0      5     16     30     65     77     84     90     94     97
  239     UA   100

  240     KK   180C
  241     KM   COMBINE 165D AND 175S AT CP OF 175S
  242     HC     2

  243     KK   185D
  244     KM   DIVERT FLOW ACROSS I-17 THROUGH 65X40 CMP AT ADOBE DRIVE
  245     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  246     DT   190D
  247     DI     0    115    116   1000   3000
  248     DQ     0    115    115    115    115

  249     KK   195S
  250     KM   SUB-BASIN 195
  251     BA   .399
  252     LG   .090   .310 11.000   .310 80.000
  253     UC   .600   .516
  254     UA     0      5     16     30     65     77     84     90     94     97
  255     UA   100

  256     KK   200C
  257     KM   COMBINE 185D AND 195S AT CP OF 195S
  258     HC     2

  259     KK   205D
  260     KM   DIVERT FLOW ACROSS I-17 THROUGH 6X3 RCBC AT LOUISE DRIVE
  261     KM   DI REPRESENTS TOTAL FLOW, DQ REPRESENTS FLOW THROUGH 6X3 RCBC.
  262     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  263     DT   210D
  264     DI     0      1    156    157   1000   3000
  265     DQ     0      1    156    156    156    156
```

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  266     KK  135RD
  267     KM  RETRIEVE FLOW DIVERTED ALONG I-17 AND FRONTAGE ROAD
  268     DR   135D

  269     KK   215C
  270     KM  COMBINE 135RD AND 205D AT DEER VALLEY/I-17 INTERCHANGE
  271     HC       2

  272     KK  220RET
  273     KM  ROUTE FLOW THROUGH DEPRESSED SECTION TO WEST SIDE OF I-17
  274     KM  SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  275     RS       1    STOR      -1
  276     SV       0       1    15.9    37.7    53.8    61.3    74.1      99   129.5
  277     SE      82      84      90      94      96    96.8      98     100     102
  278     SQ       0       0       0       0       0       1     808    5403   13835

  279     KK   210RD
  280     KM  RETRIEVE FLOW DIVERTED THROUGH CULVERT AT LOUISE DRIVE
  281     DR   210D

  282     KK   225C
  283     KM  COMBINE 220RET AND 210RD AT INTERSECTION OF 27TH AVE & DEER VALLEY ROAD
  284     HC       2

  285     KK   230R
  286     KM  ROUTE 225C TO CP OF 250S ALONG NATURAL CHANNEL
  287     RS       5    FLOW      -1
  288     RC     .03     .02     .03    7000   .0057       5
  289     RX       0       5      25      26      64      65      85      90
  290     RY       2       1      .5       0       0      .5       1       2

  291     KK   235S
  292     KM  SUB-BASIN 235
  293     BA    .062
  294     LG    .090    .310  11.000    .020  74.000
  295     UC    .217    .159
  296     UA       0       5      16      30      65      77      84      90      94      97
  297     UA     100

  298     KK   240R
  299     KM  ROUTE 235S TO CP OF 250S ALONG NATURAL CHANNEL
  300     RS       5    FLOW      -1
  301     RC     .04     .03     .04    5500   .0073
  302     RX       0       5      55      60      70      75     125     130
  303     RY       3       2       1       0       0       1       2       3

  304     KK   190RD
  305     KM  RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT AT ADOBE DRIVE
  306     DR   190D
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  307     KK   245R
  308     KM   ROUTE 190RD TO CP OF 250S ALONG NATURAL CHANNEL
  309     RS      5    FLOW    -1
  310     RC    .03     .02     .03    7500   .0060
  311     RX      0       5      25      26      64      65      85      90
  312     RY      2       1      .5       0       0      .5       1       2

  313     KK   250S
  314     KM   SUB-BASIN 250
  315     BA   1.103
  316     LG   .240    .320   6.900    .260  26.000
  317     UC   1.400    .703
  318     UA      0       3       5       8      12      20      43      75      90      96
  319     UA    100

  320     KK   125RD
  321     KM   RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT NEAR MH PARK SOUTH OF
  322     KM   PINNACLE PEAK ROAD
  323     DR    125D

  324     KK   170RD
  325     KM   RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT NORTH OF WILLIAMS DRIVE
  326     DR    170D

  327     KK   255S
  328     KM   SUB-BASIN 255
  329     BA   .615
  330     LG   .320    .330   6.200    .230  10.000
  331     UC   1.500   1.225
  332     UA      0       3       5       8      12      20      43      75      90      96
  333     UA    100

  334     KK   260C
  335     KM   COMBINE 125RD, 170RD AND 255S AT CP OF 255S
  336     HC      3

  337     KK   265R
  338     KM   ROUTE 260C TO CP OF 250S ALONG SCATTER WASH NORTH OF DEER VALLEY ROAD
  339     RS      5    FLOW      -1
  340     RC    .04     .03     .04    8300   .0048
  341     RX    250     700     900     980    1020    1100    1300    1750
  342     RY     17    12.5      10       0       0      10    12.5      17

  343     KK   270C
  344     KM   COMBINE 240R, 240R, 245R, 265R & 250S @ CP OF 250S
  345     HC      5

  346     KK   275R
  347     KM   ROUTE 270C TO CP OF 280S ALONG SCATTER WASH NORTH OF BEARDSLEY ROAD
  348     RS      5    FLOW      -1
  349     RC    .04     .03     .04    4500   .0056      10
  350     RX    100     650     800     980    1020    1200    1350    1600
  351     RY    7.5       7     5.5       0       0     5.5       7     7.5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  352     KK   280S
  353     KM   SUB-BASIN 280
  354     BA    .744
  355     LG    .230    .330   4.900    .320  13.000
  356     UC   1.050    .707
  357     UA      0       5      16      30      65      77      84      90      94      97
  358     UA    100

  359     KK   285C
  360     KM   COMBINE 275R AND 280S AT CP OF 280S
  361     HC      2

  362     KK   290R
  363     KM   ROUTE 285C TO CP OF 295S ALONG SCATTER WASH CHANNEL U/S OF 45TH AVE CROSSING
  364     RS      5   FLOW      -1
  365     RC    .03     .03     .03    6200   .0027
  366     RX    830     850     980     990    1010    1020    1150    1170
  367     RY     10     2.5     2.5       0       0     2.5     2.5      10

  368     KK   295S
  369     KM   SUB-BASIN 295
  370     BA    .352
  371     LG    .290    .340   4.400    .330  11.000
  372     UC   1.450   1.326
  373     UA      0       3       5       8      12      20      43      75      90      96
  374     UA    100

  375     KK   300C
  376     KM   COMBINE 290R AND 295S AT CP OF 295S
  377     HC      2

  378     KK   310S
  379     KM   ADOBE DAM OUTLET; ASSUMED CONSTANT OUTFLOW OF 1370 CFS FOR 10-YEAR STORM
  380     KM   SOURCE: F.I.S., MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS, FEMA
  381     BA     0.1
  382     IN     120
  383     QI    1370    1370    1370    1370    1370    1370    1370    1370    1370    1370
  384     QI    1370    1370    1370    1370    1370    1370    1370    1370    1370    1370

  385     KK   320R
  386     KM   SKUNK CREEK U/S OF BEARDSLEY ROAD AND D/S OF ADOBE DAM
  387     RS      5   FLOW      -1
  388     RC    .04     .03     .04    3300   .0028
  389     RX    645     795     945     965    1035    1085    1095    1105
  390     RY      7       6       5       0       0       7       9      11

  391     KK   325S
  392     KM   SUB-BASIN 325
  393     BA    .650
  394     LG    .300    .340   3.900    .440   9.000
  395     UC   1.500   1.134
  396     UA      0       3       5       8      12      20      43      75      90      96
  397     UA    100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  398     KK   330C
  399     KM   COMBINE 325S AND 310S (ADOBE DAM OUTLET)
  400     HC     2

  401     KK   335R
  402     KM   ROUTE 330C TO CP OF 340S ALONG SKUNK CREEK U/S OF WAHALLA LANE
  403     RS     5    FLOW     -1
  404     RC   .04     .03     .04    3050    .006
  405     RX   935     940     945     965    1035    1065    1070    1075
  406     RY     7     6.5       6       0       0       6     6.5       7

  407     KK   340S
  408     KM   SUB-BASIN 340
  409     BA   .086
  410     LG   .230    .350   3.200    .660  13.000
  411     UC   .367    .283
  412     UA     0       5      16      30      65      77      84      90      94      97
  413     UA   100

  414     KK   345C
  415     KM   COMBINE 335R AND 340S AT CP OF 340S
  416     HC     2

  417     KK   350S
  418     KM   SUB-BASIN 350
  419     BA   .263
  420     LG   .280    .320   5.600    .250  23.000
  421     UC   .367    .149
  422     UA     0       3       5       8      12      20      43      75      90      96
  423     UA   100

  424     KK   355R
  425     KM   ROUTE 350S TO CONFLUENCE OF SCATTER WASH & SKUNK CREEK, ALONG HAVASUPAI DR.
  426     RS     5    FLOW     -1
  427     RC   .03     .02     .03    2400    .006
  428     RX    70    70.1    79.9      80     120   120.1     130   130.1
  429     RY   5.5      .5      .5       0       0      .5      .5     5.5

  430     KK   360C
  431     KM   COMBINE 300C, 345C AND 355R NEAR CONFLUENCE OF SCATTER WASH AND SKUNK CREEK
  432     HC     3

  433     KK   370R
  434     KM   ROUTE 360C TO CP OF 375S ALONG SKUNK CREEK U/S OF 51ST AVENUE ALIGNMENT
  435     RS     2    FLOW     -1
  436     RC   .04     .03     .04    6200   .0047
  437     RX   120     130     350     460     580     590     720     770
  438     RY  1298    1296    1294    1290    1290    1294    1296    1298
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  439     KK   375S
  440     KM   SUB-BASIN 375
  441     BA    .984
  442     LG    .290    .330   5.300    .380  18.000
  443     UC   1.100    .543
  444     UA      0       3       5       8      12      20      43      75      90      96
  445     UA    100

  446     KK   380S
  447     KM   SUB-BASIN 380
  448     BA   1.405
  449     LG    .320    .330   4.600    .430   8.000
  450     UC   1.500    .799
  451     UA      0       3       5       8      12      20      43      75      90      96
  452     UA    100

  453     KK   385R
  454     KM   ROUTE 380S TO CP OF 390S ALONG UNNAMED WASH WEST OF PILCHER HILL
  455     RS      5    FLOW      -1
  456     RC    .04     .03     .04    4400     .01
  457     RX     10     200     300     306     316     322     420     620
  458     RY     12      10       9       6       6       9      10      12

  459     KK   390S
  460     KM   SUB-BASIN 390
  461     BA    .799
  462     LG    .310    .340   4.400    .340  23.000
  463     UC    .983    .379
  464     UA      0       3       5       8      12      20      43      75      90      96
  465     UA    100

  466     KK   395C
  467     KM   COMBINE 385R AND 390S AT CP OF 390S
  468     HC      2

  469     KK   400R
  470     KM   ROUTE 395S TO CP OF 405S ALONG UNNAMED WASH NORTH OF ARROWHEAD RANCH
  471     RS      5    FLOW      -1
  472     RC    .04     .03     .04    9600   .0073
  473     RX    300     350     400     460     540     600     650     700
  474     RY   1314    1309    1304    1300    1300    1304    1304    1304

  475     KK   405S
  476     KM   SUB-BASIN 405
  477     BA   1.776
  478     LG    .220    .330   5.200    .280  20.000
  479     UC   1.500   1.034
  480     UA      0       3       5       8      12      20      43      75      90      96
  481     UA    100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 482      KK   410C
 483      KM   COMBINE 400R AND 405S AT CP OF 405S
 484      HC      2

 485      KK  411RET
 486      KM   LAKE 1, ARROWHEAD RANCH
 487      KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
 488      KM           DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
 489      RS      1    ELEV  1296.0
 490      SV    0.0     6.4    12.9    19.4    26.0    32.6    39.4    46.2    53.1    60.0
 491      SE 1296.0  1296.5  1297.0  1297.5  1298.0  1298.5  1299.0  1299.5  1300.0  1300.5
 492      SQ      0     126     356     655    1008    1409    1852    2334    2851    3402

 493      KK  412RET
 494      KM   LAKE 2, ARROWHEAD RANCH
 495      KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
 496      KM           DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
 497      RS      1    ELEV  1294.0
 498      SV      0    14.4    29.2    44.1    58.9    74.3    89.6   108.2   126.8   145.4
 499      SE 1294.0  1294.5  1295.0  1295.5  1296.0  1296.5  1297.0  1297.5  1298.0  1298.5
 500      SQ      0     168     475     873    1344    1878    2469    3112    3802    4536

 501      KK  413RET
 502      KM   LAKES 3 AND 7, ARROWHEAD RANCH
 503      KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
 504      KM           DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
 505      RS      1    ELEV  1292.0
 506      SV      0    29.8    61.7    91.6   122.5   154.5   186.3   225.3   264.3   303.1
 507      SE 1292.0  1292.5  1293.0  1293.5  1294.0  1294.5  1295.0  1295.5  1296.0  1296.5
 508      SQ      0      47     132     242     373     522     686     865    1056    1260

 509      KK  415RET
 510      KM   LAKE 8, ARROWHEAD RANCH
 511      KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
 512      KM           DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
 513      RS      1    ELEV  1290.0
 514      SV      0    20.6    42.1    63.5    84.9   107.1   129.4   456.8   184.3   211.8
 515      SE 1290.0  1290.5  1291.0  1291.5  1292.0  1292.5  1293.0  1293.5  1294.0  1294.5
 516      SQ      0      93     264     485     747    1044    1372    1729    2112    2520

 517      KK   420R
 518      KM   ROUTE 415RET TO CP OF 375S (55TH AVENUE CHANNEL)
 519      RS      5    FLOW     -1
 520      RC    .03     .03     .03    4560   .0025
 521      RX    390     400     440     460     536     566     686     690
 522      RY   1283    1282    1280    1276    1276    1283    1285    1286

 523      KK   425S
 524      KM   SUB-BASIN 425
 525      BA   1.723
 526      LG    .160    .300   7.400    .160  39.000
 527      UC   1.500   1.423
 528      UA      0       5      16      30      65      77      84      90      94      97
 529      UA    100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  530     KK  430RET
  531     KM   ROUTE FLOW THROUGH DETENTION BEHIND 3-10X3 RCBC NORTHEAST OF I-17 AND
  532     KM   UNION HILLS DRIVE; DETENTION VOLUME IS BASED ON AERIAL PHOTOGRAPHS AND
  533     KM   FIELD VISITS, AND SHOULD BE CONSIDERED APPROXIMATE. OUTFLOW IS BASED ON
  534     KM   CULVERT INLET CONTROL UP TO 4' DEEP, THEN WEIR FLOW OVER UNION HILLS
  535     KM   DRIVE IS ADDED IN.
  536     RS       1    ELEV       0
  537     SA       0       6       9      12      15      22      31
  538     SE       0       1       2       3       4       5       6
  539     SQ       0     0.1      90     255     450    2010    4600

  540     KK    432D
  541     KM   DIVERT FLOW OVER UNION HILLS DRIVE, EAST OF I-17
  542     KM   DQ REPRESENTS THE BREAKOUT FROM THE DETENTION BASIN OVER UNION HILLS DRIVE
  543     DT    433D
  544     DI       0      81     255     450    2010    4600
  545     DQ       0       0       0       0    1350    3820

  546     KK    435R
  547     KM   ROUTE 432D TO CP OF 440S ALONG UNION HILLS DRIVE (INVERTED CROWN) -
  548     KM   CULVERT OUTLET ON WEST SIDE OF I-17 TO 35TH AVENUE
  549     RS       5    FLOW      -1
  550     RC    .025     .02    .025    6800    .004       4
  551     RX      45    59.9      60     100   100.1     140   140.1     155
  552     RY     1.5     1.5       1       0       0       1     1.5     1.5

  553     KK    440S
  554     KM   SUB-BASIN 440
  555     BA    .846
  556     LG    .200    .300   9.300    .060  20.000
  557     UC    .750    .473
  558     UA       0       5      16      30      65      77      84      90      94      97
  559     UA     100

  560     KK    445C
  561     KM   COMBINE 435R AND 440S AT CP OF 440S
  562     HC       2

  563     KK    450D
  564     KM   SURFACE FLOW CAPACITY OF UNION HILLS DRIVE INVERTED CROWN SECTION IS 470 CFS,
  565     KM   STORM DRAIN CAPACITY IS 890 CFS. TOTAL CAPACITY FLOWING WEST IS 1360 CFS.
  566     KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN I-17 AND 35TH AVENUE
  567     DT    455D
  568     DI       0     500    1000    1360    2000    3000
  569     DQ       0       0       0       0     640    1640

  570     KK    460R
  571     KM   ROUTE 450D TO CP OF 490S ALONG UNION HILLS DRIVE - 35TH TO 43RD AVENUE
  572     RS       5    FLOW      -1
  573     RC     .02    .025     .03    5280    .004      10
  574     RX    99.9     100     135     150     155     170   170.1   170.2
  575     RY       9     6.7       6       3       3       7       8       9
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  576     KK   465S
  577     KM   SUB-BASIN 465
  578     BA   1.361
  579     LG    .140    .310   9.100    .100  57.000
  580     UC   1.050    .682
  581     UA      0       5      16      30      65      77      84      90      94      97
  582     UA    100

  583     KK   470R
  584     KM   ROUTE 465S TO CP OF 475S ALONG COLLECTOR STREET
  585     RS      5    FLOW      -1
  586     RC   .025     .02    .025    8200   .0046
  587     RX   69.9      70    74.9      75     125   125.1     130   130.1
  588     RY    3.5      .5      .5       0       0      .5      .5     3.5

  589     KK   475S
  590     KM   SUB-BASIN 475
  591     BA    .596
  592     LG    .290    .310  10.500    .030  18.000
  593     UC    .667    .415
  594     UA      0       3       5       8      12      20      43      75      90      96
  595     UA    100

  596     KK   480C
  597     KM   COMBINE 470R AND 475S AT CP OF 475S
  598     HC      2

  599     KK   485R
  600     KM   ROUTE 480C TO CP OF 490S ALONG LOCAL STREET WITH VERTICAL CURBS
  601     RS      5    FLOW      -1
  602     RC   .025     .02    .025   10300   .0038       5
  603     RX   69.9      70    79.9      80     120   120.1     130   130.1
  604     RY      2      .5      .5       0       0      .5      .5       2

  605     KK   490S
  606     KM   SUB-BASIN 490
  607     BA   1.115
  608     LG    .230    .290   8.300    .090  26.000
  609     UC   1.500   1.135
  610     UA      0       5      16      30      65      77      84      90      94      97
  611     UA    100

  612     KK   495C
  613     KM   COMBINE 460R, 485R AND 490S AT CP OF 490S
  614     HC      3

  615     KK   500D
  616     KM   SURFACE FLOW CAPACITY OF THE UNION HILLS DRIVE AND CHANNEL IS 520 CFS,
  617     KM   STORM DRAIN CAPACITY IS 1280 CFS. TOTAL CAPACITY FLOWING WEST IS 1800 CFS.
  618     KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 35TH AVENUE AND
  619     KM   43RD AVENUE
  620     DT   505D
  621     DI      0     500    1000    1800    2000    3000    4000
  622     DQ      0       0       0       0     200    1200    2200
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  623     KK   510R
  624     KM   ROUTE 500D TO CP OF 515S ALONG UNION HILLS DRIVE - 43RD TO 51ST AVENUE
  625     RS      5    FLOW      -1
  626     RC   .025     .02    .025    7500   .0042      10
  627     RX     45    59.9      60     100   100.1     140   140.1     155
  628     RY    1.5     1.5       1       0       0       1     1.5     1.5

  629     KK   515S
  630     KM   SUB-BASIN 515
  631     BA   .476
  632     LG   .120    .340   4.600    .280  32.000
  633     UC  1.150   1.056
  634     UA      0       5      16      30      65      77      84      90      94      97
  635     UA    100

  636     KK   520C
  637     KM   COMBINE 510R AND 515S AT CP OF 515S
  638     HC      2

  639     KK   530D
  640     KM   SURFACE FLOW CAPACITY OF UNION HILLS DRIVE AND 4-15" CULVERTS IS 65 CFS,
  641     KM   STORM DRAIN CAPACITY IS 1495 CFS. TOTAL CAPACITY FLOWING WEST IS 1560 CFS.
  642     KM   THE REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 43RD AVENUE AND
  643     KM   55TH AVENUE
  644     DT   525D
  645     DI      0     500    1000    1560    2000    4000
  646     DQ      0       0       0       0     440    2440

  647     KK   535C
  648     KM   COMBINE 370R, 375S, 420R & 530RD @ CP OF 375S
  649     HC      4    19.9

  650     KK   540R
  651     KM   ROUTE 535C TO CP OF 545S ALONG SKUNK CREEK U/S OF UNION HILLS DRIVE
  652     RS      2    FLOW      -1
  653     RC    .04     .03     .04    3400   .0056
  654     RX    445     465     475     500     610     640     650     660
  655     RY   1262    1264    1264    1254    1254    1262    1264    1264

  656     KK   545S
  657     KM   SUB-BASIN 545
  658     BA   .296
  659     LG   .310    .330   4.000    .460  15.000
  660     UC   .867    .591
  661     UA      0       3       5       8      12      20      43      75      90      96
  662     UA    100

  663     KK   550C
  664     KM   COMBINE 540R AND 545S AT CP OF 545S
  665     HC      2
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  666     KK   555R
  667     KM   ROUTE 550C TO CP OF 580S ALONG SKUNK CREEK FROM 67TH AVE. TO UNION HILLS DR.
  668     RS      2    FLOW      -1
  669     RC    .04     .03     .04    5350   .0039
  670     RX    395     435     465     500     560     590     650     700
  671     RY   1246    1244    1242    1236    1236    1242    1244    1245

  672     KK   560S
  673     KM   SUB-BASIN 560
  674     BA   .190
  675     LG   .150    .350   4.400    .280  21.000
  676     UC   .550    .411
  677     UA      0       5      16      30      65      77      84      90      94      97
  678     UA    100

  679     KK   565D
  680     KM   CAPACITY OF 59TH AVENUE IS 25 CFS.
  681     KM   THIS IS DIVERTED OUT OF THE WATERSHED (DQ)
  682     DT   570D
  683     DI      0      25      50     100     500    1000
  684     DQ      0      25      25      25      25      25

  685     KK   575R
  686     KM   ROUTE 565D TO CP OF 580S ALONG LOCAL STREETS WITH VERTICAL CURBS
  687     RS      5    FLOW      -1
  688     RC    .03     .02     .03    6500   .0044
  689     RX   74.9      75    81.9      82     118   118.1     125   125.1
  690     RY      2      .5      .5       0       0      .5      .5       2

  691     KK   580S
  692     KM   SUB-BASIN 580
  693     BA   .914
  694     LG   .200    .340   4.500    .330  25.000
  695     UC   .833    .368
  696     UA      0       5      16      30      65      77      84      90      94      97
  697     UA    100

  698     KK   585C
  699     KM   COMBINE 555R, 575R AND 580S AT CP OF 580S
  700     HC      3

  701     KK   590R
  702     KM   ROUTE 640C TO CP OF 650S ALONG SKUNK CREEK FROM 67TH AVENUE TO BELL ROAD
  703     RS      2    FLOW      -1
  704     RC    .04     .03     .04    4000   .0075
  705     RX    370     470     485     500     680     710     730     810
  706     RY   1231    1231    1230  1223.5  1223.5    1230    1232  1232.5

  707     KK   595S
  708     KM   SUB-BASIN 595
  709     BA   .302
  710     LG   .190    .340   4.500    .420  13.000
  711     UC  1.500   1.588
  712     UA      0       3       5       8      12      20      43      75      90      96
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  713     UA     100

  714     KK    600S
  715     KM    SUB-BASIN 600
  716     BA    1.027
  717     LG     .440    .250   5.500    .380   8.000
  718     UC    1.350    .777
  719     UA       0       3       5       8      12      20      43      75      90      96
  720     UA     100

  721     KK    605R
  722     KM    ROUTE 600S TO CP OF 610S ALONG LOCAL STREETS WITH VERTICAL CURBS
  723     RS       5    FLOW      -1
  724     RC     .03     .02     .03    2500    .006       5
  725     RX    74.9      75    81.9      82     118   118.1     125   125.1
  726     RY       2      .5      .5       0       0      .5      .5       2

  727     KK    610S
  728     KM    SUB-BASIN 610
  729     BA     .690
  730     LG     .210    .270   6.800    .180  19.000
  731     UC     .983    .553
  732     UA       0       5      16      30      65      77      84      90      94      97
  733     UA     100

  734     KK  615RET
  735     KM    ENTIRE VOLUME OF RETENTION (38.6 AF) IS MODELED AS A DIVERT
  736     DT    616D    38.6
  737     DI       0     100     500    1000
  738     DQ       0     100     500    1000

  739     KK    620C
  740     KM    COMBINE 605R AND 615RET AT CP OF 610S
  741     HC       2

  742     KK    625R
  743     KM    ROUTE 620C TO CP OF 630S ALONG CHANNEL BESIDE 71ST AVENUE
  744     RS       5    FLOW      -1
  745     RC     .03     .03     .03    4500   .0022      10
  746     RX      15      18      20      30      45      55      57      60
  747     RY       7       6       5       0       0       5       6       7

  748     KK    630S
  749     KM    SUB-BASIN 630
  750     BA     .336
  751     LG     .170    .320   5.200    .260  19.000
  752     UC     .800    .622
  753     UA       0       5      16      30      65      77      84      90      94      97
  754     UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  755     KK    635C
  756     KM    COMBINE 625R AND 630S AT CP OF 630S
  757     HC       2

  758     KK    640C
  759     KM    COMBINE 540R, 595S AND 635C AT CP OF 595S
  760     HC       3

  761     KK    645R
  762     KM    ROUTE 585C TO CP OF 595S ALONG SKUNK CREEK FROM BELL ROAD TO ACDC
  763     RS       2    FLOW      -1
  764     RC     .04     .03     .04    3500   .0068
  765     RX     250     260     360     500     545     600     720     800
  766     RY    1212    1210    1208    1192    1192    1210    1210    1211

  767     KK    650S
  768     KM    SUB-BASIN 650
  769     BA    .125
  770     LG    .340    .350   3.700    .490   4.000
  771     UC    .650    .499
  772     UA       0       3       5       8      12      20      43      75      90      96
  773     UA     100

  774     KK    655C
  775     KM    COMBINE 645R AND 650S AT CP OF 650S
  776     HC       2
  777     ZZ
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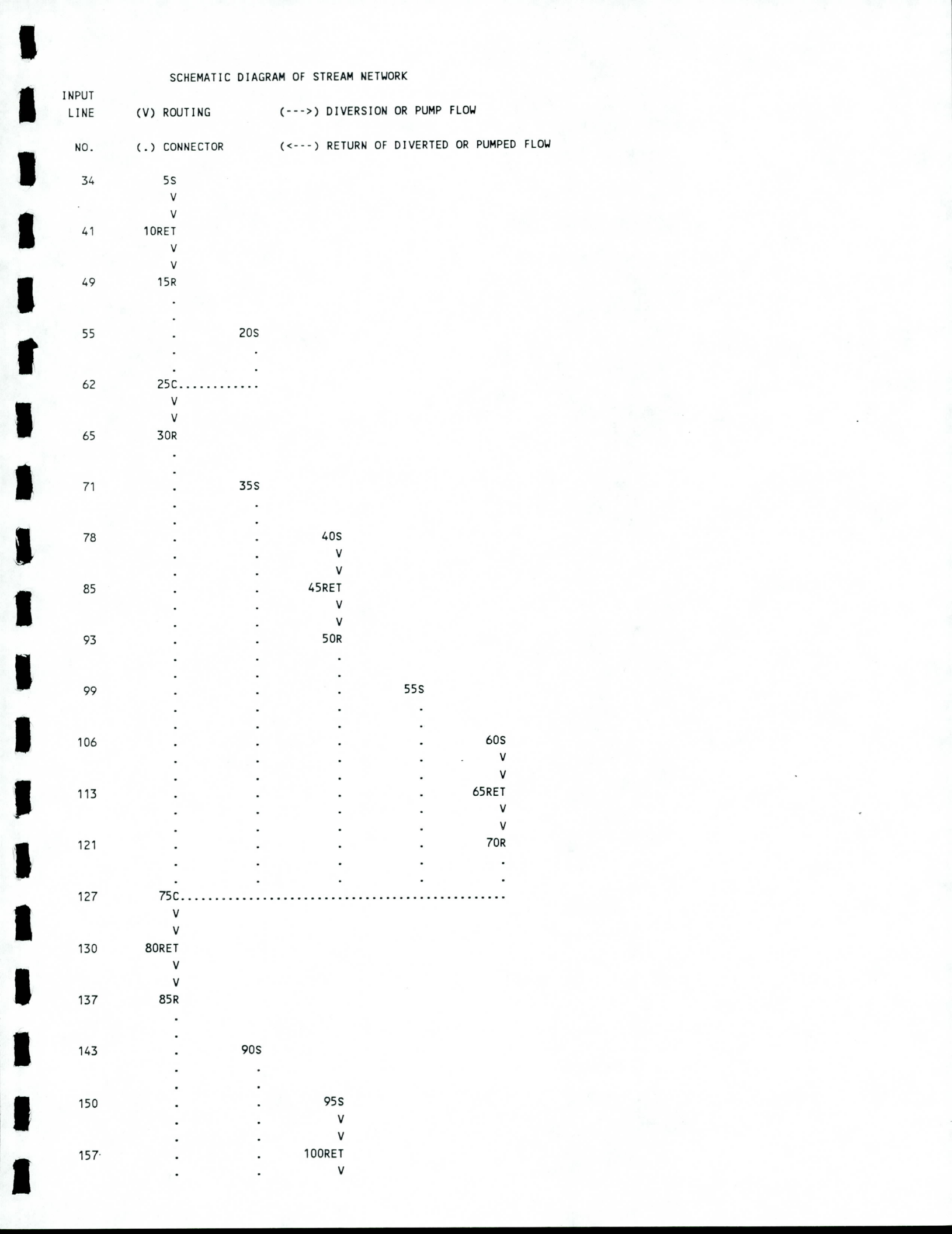
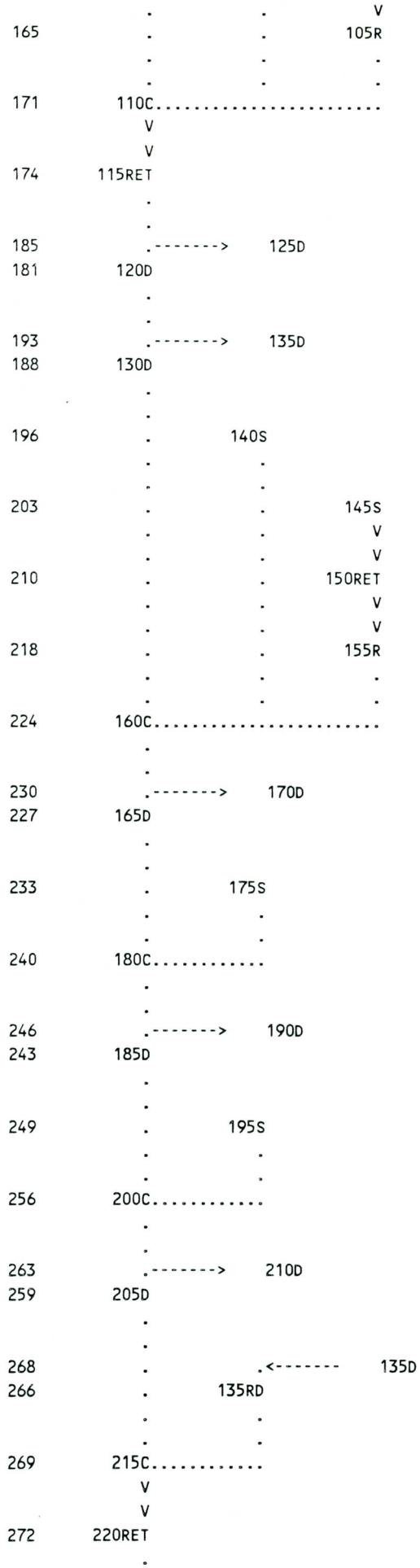
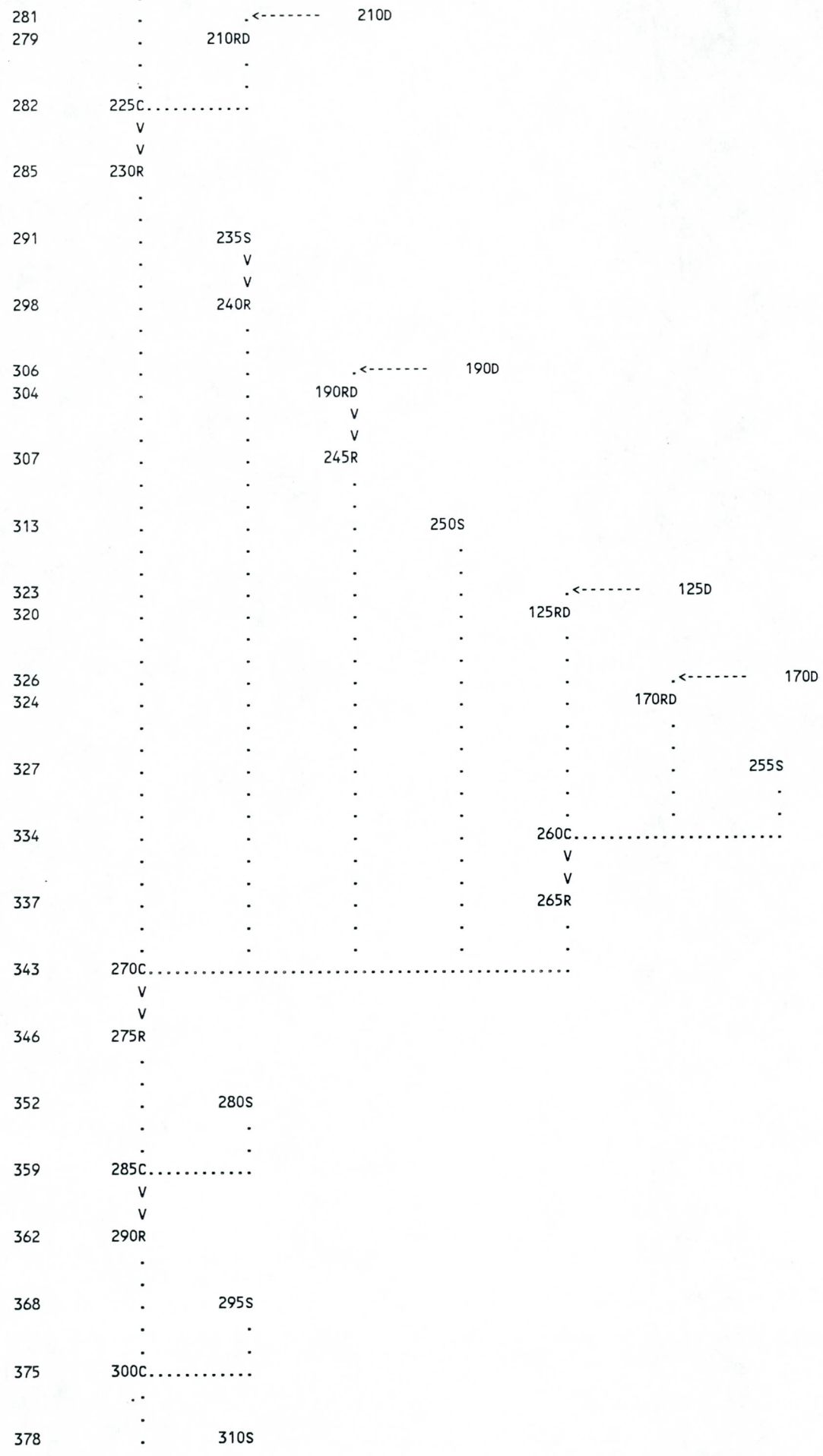
SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

(V) ROUTING (.) CONNECTOR (---->) DIVERSION OR PUMP FLOW (<----) RETURN OF DIVERTED OR PUMPED FLOW




165
105R
171
110C
174
115RET
185
125D
181
120D
193
135D
188
130D
196
140S
203
145S
210
150RET
218
155R
224
160C
230
170D
227
165D
233
175S
240
180C
246
190D
243
185D
249
195S
256
200C
263
210D
259
205D
268
135D
266
135RD
269
215C
272
220RET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210RD
225C
230R
235S
240R
190D
190RD
245R
250S
125D
125RD
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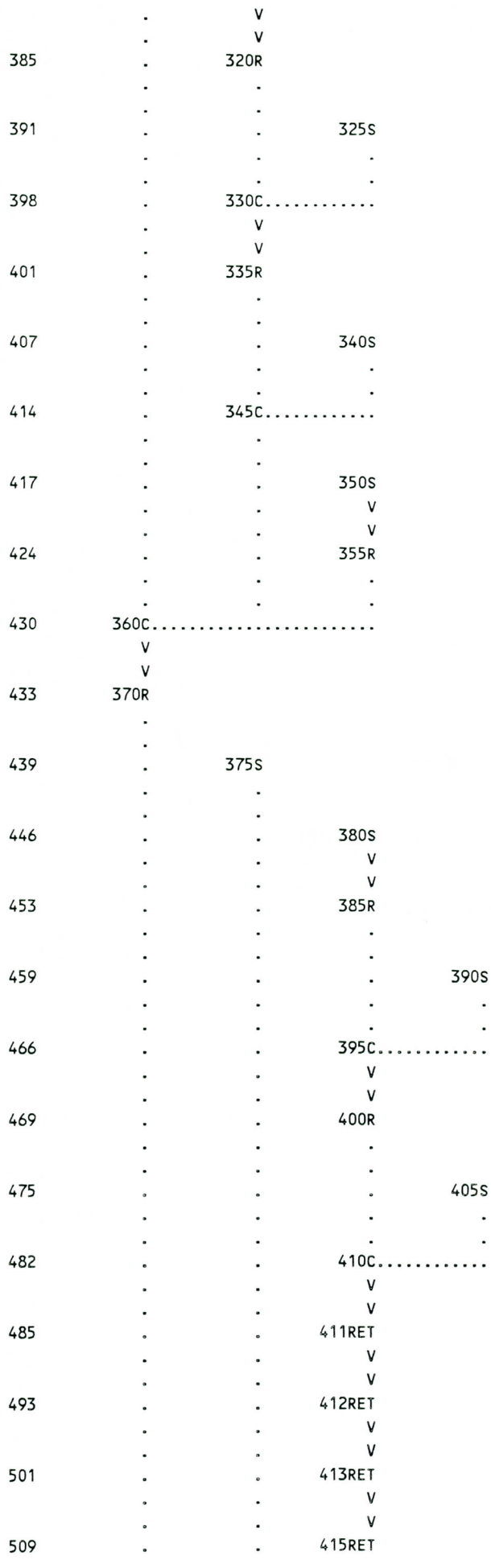
310S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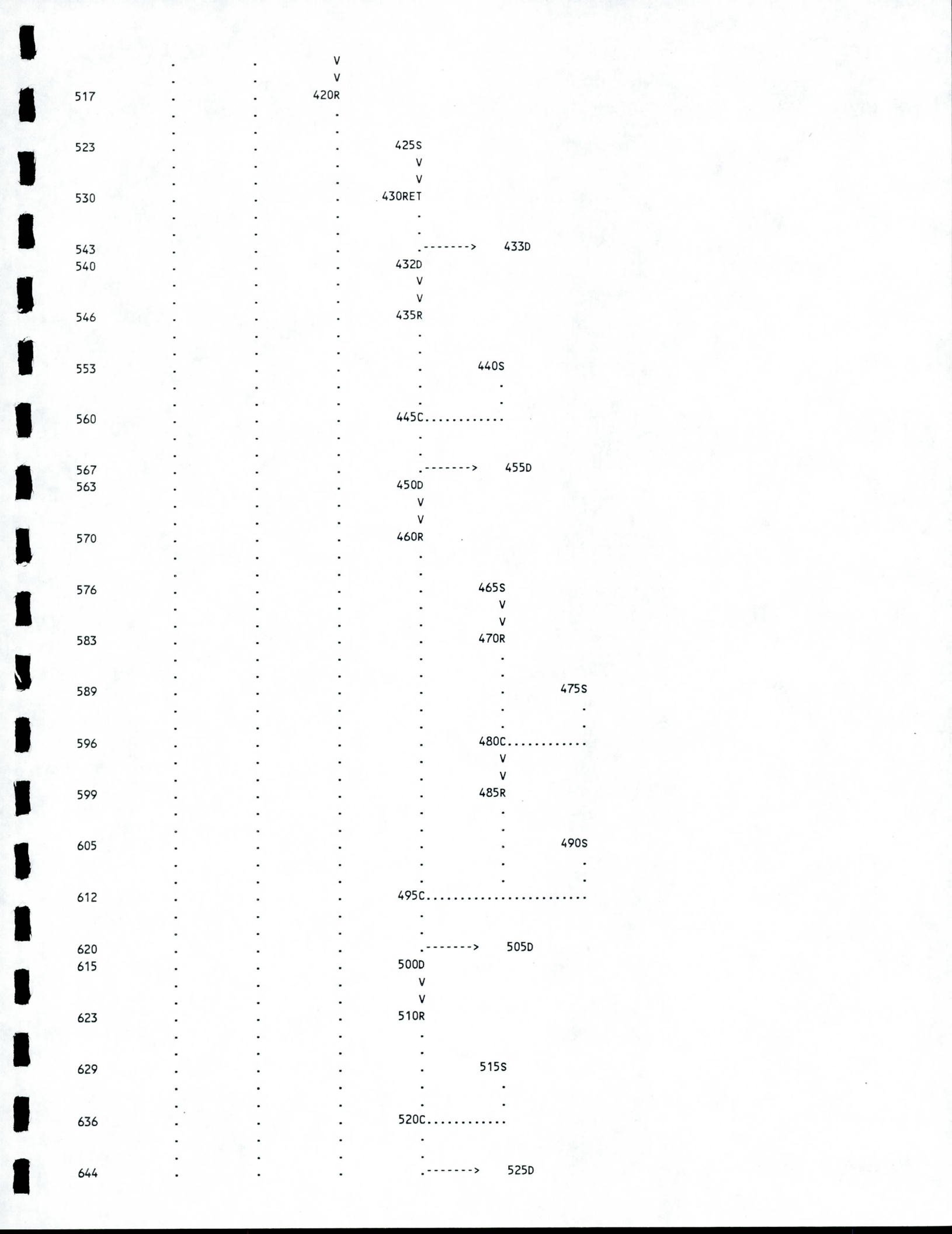
405S
410C
411RET
412RET
413RET
415RET


V
V
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425S
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V
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540 432D
V
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546 435R
553 440S
560 445C.....
567 .-------> 455D
563 450D
V
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570 460R
576 465S
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583 470R
589 475S
596 480C.....
V
V
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612 495C.....
620 .-------> 505D
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623 510R
629 515S
636 520C.....
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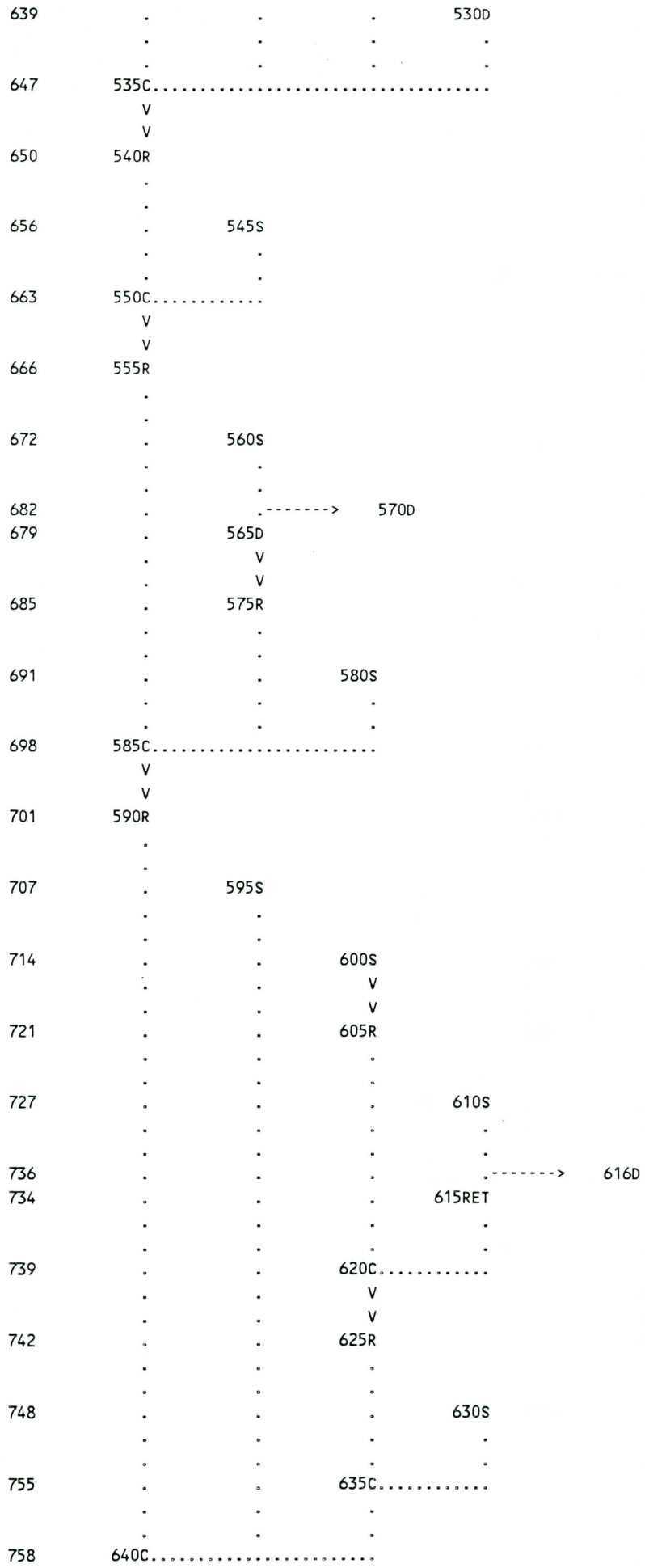
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610S
736
616D
734
615RET
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625R
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630S
755
635C
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640C

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                V
                V
761          645R
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767             .          650S
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                .             .
774          655C.............
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(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*      BY THE COE IN FEBRUARY 1981      *
*           REVISED 02 AUG 88           *
*                                       *
*  RUN DATE  11/08/1990  TIME  15:34:02 *
*                                       *
*****************************************
```


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*****************************************
*                                       *
*     DODSON AND ASSOCIATES, INC.       *
*   HYDROLOGIST AND CIVIL ENGINEE       *
*      7015 W TIDWELL SUITE 107         *
*        HOUSTON, TEXAS  77092          *
*          (713) 895-8322               *
*                                       *
*****************************************
```


SKUNK CREEK BETWEEN ACDC AND CAP FLOOD INSURANCE STUDY
PREPARED FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC # 89-72)
BY COE & VAN LOO CONSULTING ENGINEERS, INC. (CVL # 1090-050)
NOVEMBER 1990 JKM-DWD-AJR
INPUT FILE NAME: SK10-6

10-YEAR, 6-HOUR STORM
FCDMC DISTRIBUTION

11 IO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN	3	MINUTES IN COMPUTATION INTERVAL
IDATE	1 0	STARTING DATE
ITIME	0000	STARTING TIME
NQ	300	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	1 0	ENDING DATE
NDTIME	1457	ENDING TIME
ICENT	19	CENTURY MARK

COMPUTATION INTERVAL .05 HOURS
TOTAL TIME BASE 14.95 HOURS

ENGLISH UNITS

DRAINAGE AREA	SQUARE MILES
PRECIPITATION DEPTH	INCHES
LENGTH, ELEVATION	FEET
FLOW	CUBIC FEET PER SECOND
STORAGE VOLUME	ACRE-FEET
SURFACE AREA	ACRES
TEMPERATURE	DEGREES FAHRENHEIT

13 JD INDEX STORM NO. 1

STRM	2.00	PRECIPITATION DEPTH
TRDA	.01	TRANSPOSITION DRAINAGE AREA

14 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.02	.02	.02	.02	.02
.03	.03	.03	.03	.03	.09	.09	.09	.09	.09
.02	.02	.02	.02	.02	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

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                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00

17 JD       INDEX STORM NO. 2
                STRM        1.99  PRECIPITATION DEPTH
                TRDA         .50  TRANSPOSITION DRAINAGE AREA

 0 PI         PRECIPITATION PATTERN
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .02     .02     .02     .02     .02
                .03     .03     .03     .03     .03     .09     .09     .09     .09     .09
                .02     .02     .02     .02     .02     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00

18 JD       INDEX STORM NO. 3
                STRM        1.96  PRECIPITATION DEPTH
                TRDA        2.80  TRANSPOSITION DRAINAGE AREA

19 PI        PRECIPITATION PATTERN
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .01     .01     .01     .01     .01     .02     .02     .02     .02     .02
                .04     .04     .04     .04     .04     .05     .05     .05     .05     .05
                .03     .03     .03     .03     .03     .01     .01     .01     .01     .01
                .01     .01     .01     .01     .01     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00

22 JD       INDEX STORM NO. 4
                STRM        1.84  PRECIPITATION DEPTH
                TRDA       16.00  TRANSPOSITION DRAINAGE AREA

23 PI        PRECIPITATION PATTERN
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .01     .01     .01     .01     .01     .02     .02     .02     .02     .02
                .03     .03     .03     .03     .03     .04     .04     .04     .04     .04
                .03     .03     .03     .03     .03     .01     .01     .01     .01     .01
                .01     .01     .01     .01     .01     .01     .01     .01     .01     .01
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00

26 JD       INDEX STORM NO. 5
                STRM        1.62  PRECIPITATION DEPTH
                TRDA       90.00  TRANSPOSITION DRAINAGE AREA

27 PI        PRECIPITATION PATTERN
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
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                .00     .00     .00     .00     .00     .01     .01     .01     .01     .01
                .01     .01     .01     .01     .01     .02     .02     .02     .02     .02
                .03     .03     .03     .03     .03     .03     .03     .03     .03     .03
                .02     .02     .02     .02     .02     .01     .01     .01     .01     .01
                .01     .01     .01     .01     .01     .01     .01     .01     .01     .01
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00

30 JD       INDEX STORM NO. 6
              STRM       1.14  PRECIPITATION DEPTH
              TRDA     500.00  TRANSPOSITION DRAINAGE AREA

31 PI       PRECIPITATION PATTERN
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .01     .01     .01     .01     .01
                .01     .01     .01     .01     .01     .01     .01     .01     .01     .01
                .01     .01     .01     .01     .01     .02     .02     .02     .02     .02
                .02     .02     .02     .02     .02     .02     .02     .02     .02     .02
                .02     .02     .02     .02     .02     .02     .02     .02     .02     .02
                .01     .01     .01     .01     .01     .01     .01     .01     .01     .01
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	5S	1021.	4.40	104.	42.	42.	1.33		
ROUTED TO	10RET	77.	5.10	71.	41.	41.	1.33	15.25	5.00
ROUTED TO	15R	76.	5.55	70.	40.	40.	1.33	.41	5.75
HYDROGRAPH AT	20S	608.	4.60	86.	34.	34.	1.38		
2 COMBINED AT	25C	519.	4.70	135.	66.	66.	2.71		
ROUTED TO	30R	460.	5.10	134.	65.	65.	2.71	.29	6.35
HYDROGRAPH AT	35S	467.	4.75	78.	31.	31.	1.51		
HYDROGRAPH AT	40S	524.	4.35	56.	22.	22.	.55		
ROUTED TO	45RET	37.	5.25	35.	22.	22.	.55	15.30	5.00
ROUTED TO	50R	37.	6.10	35.	21.	21.	.55	.26	6.60
HYDROGRAPH AT	55S	193.	4.70	37.	15.	15.	.59		
HYDROGRAPH AT	60S	555.	4.75	104.	42.	42.	1.20		
ROUTED TO	65RET	88.	6.00	80.	42.	42.	1.20	15.48	5.30
ROUTED TO	70R	87.	6.50	79.	42.	42.	1.20	.45	6.05
5 COMBINED AT	75C	719.	5.00	269.	127.	127.	6.56		
ROUTED TO	80RET	573.	5.40	269.	127.	127.	6.56	11.68	6.25
ROUTED TO	85R	573.	5.45	269.	127.	127.	6.56	.93	6.35
HYDROGRAPH AT	90S	188.	5.15	51.	21.	21.	1.23		
HYDROGRAPH AT	95S	495.	4.65	83.	33.	33.	.97		
ROUTED TO	100RET	59.	5.95	55.	33.	33.	.97	15.31	5.30
ROUTED TO	105R	59.	7.05	55.	32.	32.	.97	.37	6.50
3 COMBINED AT	110C	630.	5.45	314.	148.	148.	8.76		
ROUTED TO	115RET	585.	5.75	314.	148.	148.	8.76	4.54	6.40
DIVERSION TO	125D	585.	5.75	314.	148.	148.	8.76		
HYDROGRAPH AT	120D	0.	.05	0.	0.	0.	8.76		
DIVERSION TO	135D	0.	.05	0.	0.	0.	8.76		
HYDROGRAPH AT	130D	0.	.05	0.	0.	0.	8.76		
HYDROGRAPH AT	140S	149.	5.15	44.	18.	18.	1.23		
HYDROGRAPH AT	145S	215.	4.50	27.	11.	11.	.38		

ROUTED TO	150RET	9.	5.90	9.	6.	6.	.38	15.00	.00
ROUTED TO	155R	9.	8.35	9.	5.	5.	.38		
3 COMBINED AT	160C	149.	5.20	51.	25.	25.	10.37		
DIVERSION TO	170D	29.	5.20	13.	7.	7.	10.37		
HYDROGRAPH AT	165D	0.	.05	0.	0.	0.	10.37		
HYDROGRAPH AT	175S	184.	4.40	52.	22.	22.	.30		
2 COMBINED AT	180C	128.	4.55	46.	19.	19.	10.67		
DIVERSION TO	190D	115.	4.35	45.	19.	19.	10.67		
HYDROGRAPH AT	185D	13.	4.55	1.	0.	0.	10.67		
HYDROGRAPH AT	195S	347.	4.25	71.	29.	29.	.40		
2 COMBINED AT	200C	218.	4.40	64.	26.	26.	11.07		
DIVERSION TO	210D	156.	4.05	58.	24.	24.	11.07		
HYDROGRAPH AT	205D	62.	4.40	6.	2.	2.	11.07		
HYDROGRAPH AT	135RD	0.	.05	0.	0.	0.	8.76		
2 COMBINED AT	215C	62.	4.40	6.	2.	2.	11.07		
ROUTED TO	220RET	0.	4.80	0.	0.	0.	11.07	96.00	.00
HYDROGRAPH AT	210RD	156.	4.05	58.	24.	24.	11.07		
2 COMBINED AT	225C	156.	4.75	58.	24.	24.	11.07		
ROUTED TO	230R	156.	4.85	58.	24.	24.	11.07	.57	4.80
HYDROGRAPH AT	235S	113.	4.05	12.	5.	5.	.06		
ROUTED TO	240R	83.	4.40	12.	5.	5.	.06	.54	4.55
HYDROGRAPH AT	190RD	115.	4.35	45.	19.	19.	10.67		
ROUTED TO	245R	114.	4.95	45.	19.	19.	10.67	.42	5.10
HYDROGRAPH AT	250S	401.	5.00	101.	41.	41.	1.10		
HYDROGRAPH AT	125RD	585.	5.75	314.	148.	148.	8.76		
HYDROGRAPH AT	170RD	29.	5.20	13.	7.	7.	10.37		
HYDROGRAPH AT	255S	152.	5.15	48.	20.	20.	.62		
3 COMBINED AT	260C	1280.	5.60	638.	316.	316.	.62		
ROUTED TO	265R	1272.	5.90	634.	310.	310.	.62	.41	7.10
5 COMBINED AT	270C	902.	5.55	456.	223.	223.	12.85		
ROUTED TO	275R	894.	5.80	455.	222.	222.	12.85	1.04	5.35
HYDROGRAPH AT	280S	255.	4.45	59.	24.	24.	.74		
2 COMBINED AT	285C	919.	5.75	473.	232.	232.	13.59		

ROUTED TO	290R	887.	6.25	472.	230.	230.	13.59	2.22	6.00
HYDROGRAPH AT	295S	86.	5.10	28.	12.	12.	.35		
2 COMBINED AT	300C	900.	6.25	480.	234.	234.	13.95		
HYDROGRAPH AT	310S	1370.	.05	1370.	1370.	1370.	.10		
ROUTED TO	320R	1370.	.05	1370.	1370.	1370.	.10	3.13	.00
HYDROGRAPH AT	325S	145.	5.15	43.	18.	18.	.65		
2 COMBINED AT	330C	1508.	5.15	1411.	1387.	1387.	.75		
ROUTED TO	335R	1508.	5.20	1411.	1387.	1387.	.75	2.58	5.45
HYDROGRAPH AT	340S	61.	4.15	6.	3.	3.	.09		
2 COMBINED AT	345C	1507.	5.20	1416.	1389.	1389.	.84		
HYDROGRAPH AT	350S	341.	4.20	27.	11.	11.	.26		
ROUTED TO	355R	326.	4.30	27.	11.	11.	.26	.19	4.50
3 COMBINED AT	360C	2280.	6.25	1863.	1613.	1613.	15.04		
ROUTED TO	370R	2262.	6.50	1863.	1613.	1613.	15.04	1292.15	6.15
HYDROGRAPH AT	375S	364.	4.75	72.	29.	29.	.98		
HYDROGRAPH AT	380S	259.	5.10	65.	27.	27.	1.40		
ROUTED TO	385R	256.	5.25	65.	27.	27.	1.40	6.66	5.50
HYDROGRAPH AT	390S	453.	4.65	73.	29.	29.	.80		
2 COMBINED AT	395C	382.	4.90	110.	45.	45.	2.20		
ROUTED TO	400R	358.	5.40	110.	45.	45.	2.20	1300.23	5.75
HYDROGRAPH AT	405S	442.	5.15	139.	58.	58.	1.78		
2 COMBINED AT	410C	636.	5.30	213.	89.	89.	3.98		
ROUTED TO	411RET	569.	5.65	211.	89.	89.	3.98	1296.49	6.10
ROUTED TO	412RET	439.	6.25	206.	89.	89.	3.98	1294.31	6.95
ROUTED TO	413RET	148.	8.50	122.	63.	63.	3.98	1292.41	9.55
ROUTED TO	415RET	115.	10.80	101.	50.	50.	3.98	1290.17	12.25
ROUTED TO	420R	115.	11.20	100.	46.	46.	3.98	1276.26	13.15
HYDROGRAPH AT	425S	482.	4.85	200.	86.	86.	1.72		
ROUTED TO	430RET	364.	5.65	195.	84.	84.	1.72	2.10	5.90
DIVERSION TO	433D	0.	.05	0.	0.	0.	1.72		
HYDROGRAPH AT	432D	364.	5.65	195.	84.	84.	1.72		
ROUTED TO	435R	362.	5.95	194.	84.	84.	1.72	.94	6.40
HYDROGRAPH AT	440S	593.	4.30	106.	43.	43.	.85		

2 COMBINED AT	445C	508.	4.45	277.	122.	122.	2.57		
DIVERSION TO	455D	0.	.05	0.	0.	0.	2.57		
HYDROGRAPH AT	450D	508.	4.45	277.	122.	122.	2.57		
ROUTED TO	460R	496.	4.65	276.	121.	121.	2.57	5.01	6.40
HYDROGRAPH AT	465S	761.	4.50	209.	86.	86.	1.36		
ROUTED TO	470R	750.	4.75	208.	86.	86.	1.36	.83	5.05
HYDROGRAPH AT	475S	539.	4.45	79.	32.	32.	.60		
2 COMBINED AT	480C	1079.	4.65	280.	115.	115.	1.96		
ROUTED TO	485R	1045.	4.90	279.	115.	115.	1.96	1.10	5.35
HYDROGRAPH AT	490S	374.	4.80	131.	55.	55.	1.12		
3 COMBINED AT	495C	1634.	4.90	625.	269.	269.	5.64		
DIVERSION TO	505D	0.	.05	0.	0.	0.	5.64		
HYDROGRAPH AT	500D	1634.	4.90	625.	269.	269.	5.64		
ROUTED TO	510R	1615.	5.10	624.	268.	268.	5.64	1.52	5.65
HYDROGRAPH AT	515S	177.	4.60	55.	23.	23.	.48		
2 COMBINED AT	520C	1700.	5.10	658.	284.	284.	6.12		
DIVERSION TO	525D	184.	5.05	14.	6.	6.	6.12		
HYDROGRAPH AT	530D	1522.	5.15	643.	278.	278.	6.12		
4 COMBINED AT	535C	3261.	5.30	2453.	1894.	1894.	19.90		
ROUTED TO	540R	3259.	5.35	2453.	1893.	1893.	19.90	1256.62	5.75
HYDROGRAPH AT	545S	134.	4.60	24.	10.	10.	.30		
2 COMBINED AT	550C	3272.	5.35	2457.	1895.	1895.	20.20		
ROUTED TO	555R	3262.	5.50	2456.	1894.	1894.	20.20	1239.90	5.90
HYDROGRAPH AT	560S	137.	4.20	20.	8.	8.	.19		
DIVERSION TO	570D	25.	3.90	9.	4.	4.	.19		
HYDROGRAPH AT	565D	112.	4.20	11.	4.	4.	.19		
ROUTED TO	575R	83.	4.70	11.	4.	4.	.19	.00	4.95
HYDROGRAPH AT	580S	525.	4.30	87.	35.	35.	.91		
3 COMBINED AT	585C	3302.	5.45	2480.	1911.	1911.	21.30		
ROUTED TO	590R	3297.	5.55	2480.	1910.	1910.	21.30	1225.30	6.00
HYDROGRAPH AT	595S	63.	5.15	23.	10.	10.	.30		
HYDROGRAPH AT	600S	241.	5.00	57.	23.	23.	1.03		
ROUTED TO	605R	239.	5.10	57.	23.	23.	1.03	.23	5.45

HYDROGRAPH AT	610S	358.	4.40	71.	29.	29.	.69		
DIVERSION TO	616D	358.	4.40	71.	29.	29.	.69		
HYDROGRAPH AT	615RET	0.	.05	0.	0.	0.	.69		
2 COMBINED AT	620C	239.	5.10	57.	23.	23.	1.72		
ROUTED TO	625R	178.	5.40	47.	19.	19.	1.72	.66	5.90
HYDROGRAPH AT	630S	171.	4.35	34.	14.	14.	.34		
2 COMBINED AT	635C	203.	5.35	70.	29.	29.	2.05		
3 COMBINED AT	640C	3352.	5.55	2497.	1918.	1918.	23.65		
ROUTED TO	645R	3348.	5.65	2497.	1917.	1917.	23.65	1195.80	6.10
HYDROGRAPH AT	650S	56.	4.45	8.	3.	3.	.13		
2 COMBINED AT	655C	3348.	5.65	2497.	1917.	1917.	23.78		

*** NORMAL END OF HEC-1 ***

SECTION V

HEC-1 HYDROLOGY RESULTS FOR A 50-YEAR, 6-HOUR STORM

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*****************************************
*                                       *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *
*    BY THE COE IN FEBRUARY 1981        *
*          REVISED 02 AUG 88            *
*                                       *
*  RUN DATE  11/08/1990  TIME  15:20:55 *
*                                       *
*****************************************
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*****************************************
*                                       *
*     DODSON AND ASSOCIATES, INC.       *
*   HYDROLOGIST AND CIVIL ENGINEERS     *
*      7015 W TIDWELL SUITE 107         *
*        HOUSTON, TEXAS  77092          *
*          (713) 895-8322               *
*                                       *
*****************************************
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX  XXXXX          XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

    1     ID   SKUNK CREEK BETWEEN ACDC AND CAP FLOOD INSURANCE STUDY
    2     ID   PREPARED FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC # 89-72)
    3     ID   BY COE & VAN LOO CONSULTING ENGINEERS, INC. (CVL # 1090-050)
    4     ID   NOVEMBER 1990   JKM-DWD-AJR
    5     ID   INPUT FILE NAME:  SK50-6
    6     ID
    7     ID   50-YEAR, 6-HOUR STORM
    8     ID   FCDMC DISTRIBUTION
    9     ID
          *DIAGRAM
   10     IT       3                   300
   11     IO       5
   12     IN      15
   13     JD    2.80    0.01
   14     PC    .000    .008    .016    .025    .033    .041    .050    .058    .066    .074
   15     PC    .087    .099    .118    .138    .216    .377    .834    .911    .931    .950
   16     PC    .962    .972    .983    .991   1.000
   17     JD    2.78    0.50
   18     JD    2.74    2.80
   19     PC    .000    .009    .016    .025    .034    .042    .051    .059    .067    .076
   20     PC    .087    .100    .120    .163    .252    .451    .694    .837    .900    .938
   21     PC    .950    .963    .975    .988   1.000
   22     JD    2.58    16.0
   23     PC    .000    .015    .020    .030    .048    .063    .076    .090    .105    .119
   24     PC    .135    .152    .175    .222    .304    .472    .670    .796    .868    .912
   25     PC    .946    .960    .973    .987   1.000
   26     JD    2.27    90.0
   27     PC    .000    .021    .035    .051    .071    .087    .105    .125    .143    .160
   28     PC    .179    .201    .232    .281    .364    .500    .658    .773    .841    .888
   29     PC    .927    .945    .964    .982   1.000
   30     JD    1.60   500.0
   31     PC    .000    .024    .043    .059    .078    .098    .119    .141    .162    .186
   32     PC    .212    .239    .271    .321    .408    .515    .627    .735    .814    .864
   33     PC    .907    .930    .954    .977   1.000

   34     KK      5S
   35     KM   SUB-BASIN 5
   36     BA   1.332
   37     LG    .200    .270   7.600    .160   4.000
   38     UC    .500    .157
   39     UA       0       3       5       8      12      20      43      75      90      96
   40     UA     100

   41     KK   10RET
   42     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
   43     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
   44     RS       1    STOR      -1
   45     SV       0       4      17      52      96     148     209     279
   46     SE      15      16      17      18      19      20      21      22
   47     SL      15    9.62      .6      .5
   48     SS    21.9      50       3     1.5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  49      KK    15R
  50      KM   ROUTE 10RET TO CP OF 20S ALONG NATURAL CHANNEL
  51      RS     5    FLOW      -1
  52      RC   .04     .03     .04    9000   .0080
  53      RX     0     100     120     125     135     140     160     260
  54      RY     5       3       2       0       0       2       3       5

  55      KK    20S
  56      KM   SUB-BASIN 20
  57      BA   1.379
  58      LG    .350    .290   6.700    .170    .000
  59      UC    .683    .323
  60      UA       0       3       5       8      12      20      43      75      90      96
  61      UA     100

  62      KK    25C
  63      KM   COMBINE 20S AND 15R AT CP OF 20S
  64      HC       2

  65      KK    30R
  66      KM   ROUTE 25C TO CP OF 35S ALONG NATURAL CHANNEL
  67      RS     5    FLOW      -1
  68      RC   .04     .03     .04    4800   .0056
  69      RX     0       5     205     215     235     245     445     450
  70      RY     5       3       1       0       0       1       3       5

  71      KK    35S
  72      KM   SUB-BASIN 35
  73      BA   1.514
  74      LG    .350    .310   5.800    .230    .000
  75      UC    .767    .394
  76      UA       0       3       5       8      12      20      43      75      90      96
  77      UA     100

  78      KK    40S
  79      KM   SUB-BASIN 40
  80      BA    .545
  81      LG    .200    .260   7.900    .120   6.000
  82      UC    .483    .233
  83      UA       0       3       5       8      12      20      43      75      90      96
  84      UA     100

  85      KK   45RET
  86      KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  87      KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  88      RS     1    STOR      -1
  89      SV     0       2      11      34      62      96     135     180
  90      SE    15      16      17      18      19      20      21      22
  91      SL    15    4.91      .6      .5
  92      SS  21.9      50       3     1.5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  93      KK    50R
  94      KM   ROUTE 45RET TO CP OF 35S ALONG NATURAL CHANNEL
  95      RS     5    FLOW    -1
  96      RC   .04     .03     .04   11000   .0086
  97      RX     0      50     150     165     175     190     290     340
  98      RY     6       5       3       0       0       3       5       6

  99      KK    55S
 100      KM   SUB-BASIN 55
 101      BA   .588
 102      LG   .350    .320   5.100    .290    .000
 103      UC   .683    .525
 104      UA     0       3       5       8      12      20      43      75      90      96
 105      UA   100

 106      KK    60S
 107      KM   SUB-BASIN 60
 108      BA  1.202
 109      LG   .210    .270   7.500    .150   8.000
 110      UC   .817    .426
 111      UA     0       3       5       8      12      20      43      75      90      96
 112      UA   100

 113      KK   65RET
 114      KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
 115      KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
 116      RS     1    STOR      -1
 117      SV     0       2       7      24      43      67      95     127
 118      SE    15      16      17      18      19      20      21      22
 119      SL    15    9.62      .6      .5
 120      SS  21.9      50       3     1.5

 121      KK    70R
 122      KM   ROUTE 65RET TO CP OF 35S ALONG NATURAL CHANNEL
 123      RS     5    FLOW      -1
 124      RC   .04     .03     .04   10000   .0090
 125      RX     0     100     200     215     230     245     345     445
 126      RY     6       5       3       0       0       3       5       6

 127      KK    75C
 128      KM   COMBINE 30R, 35S, 50R, 55S AND 70R AT CP OF 35S
 129      HC     5

 130      KK   80RET
 131      KM   ROUTE FLOW THROUGH DETENTION BEHIND PINNACLE PEAK ROAD CULVERTS
 132      KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
 133      RS     1    STOR      -1
 134      SV     0     .05     1.2     9.1    35.6      65    94.5     139
 135      SE    11      12      14      16      18      19      20      21
 136      SQ     0      54     254     528     936    2344    5278   10401
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  137     KK    85R
  138     KM   ROUTE 80RET TO CP OF 90S ALONG NATURAL CHANNEL
  139     RS     5    FLOW     -1
  140     RC   .04     .03     .04    2000    .0050
  141     RX    0      50     150     165     175     190     240     250
  142     RY    6       5       4       0       0       4       5       7

  143     KK    90S
  144     KM   SUB-BASIN 90
  145     BA   1.227
  146     LG    .350    .320   5.300    .350   1.000
  147     UC   1.033    .688
  148     UA     0       3       5       8      12      20      43      75      90      96
  149     UA   100

  150     KK    95S
  151     KM   SUB-BASIN 95
  152     BA    .968
  153     LG    .200    .270   7.500    .150   5.000
  154     UC    .75     .399
  155     UA     0       3       5       8      12      20      43      75      90      96
  156     UA   100

  157     KK  100RET
  158     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  159     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  160     RS     1    STOR     -1
  161     SV     0       2       9      30      55      85     120     160
  162     SE    15      16      17      18      19      20      21      22
  163     SL    15    7.07      .6      .5
  164     SS  21.9      50       3     1.5

  165     KK   105R
  166     KM   ROUTE 100RET TO CP OF 90S ALONG NATURAL CHANNEL
  167     RS     5    FLOW     -1
  168     RC   .04     .03     .04   13000    .0080
  169     RX    0       5     155     160     170     175     325     330
  170     RY    3       2       1       0       0       1       2       3

  171     KK   110C
  172     KM   COMBINE 85R, 90S AND 105R AT CP OF 90S
  173     HC     3

  174     KK  115RET
  175     KM   ROUTE FLOW THROUGH DETENTION BEHIND 2-8X7 RCBC AT I-17
  176     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  177     RS     1    STOR     -1
  178     SV     0    .001    .220    1.16    8.44      17      30      49      67     106
  179     SE   3.8       4       6       8      10      11      12      13    13.7      15
  180     SQ     0       1     176     414     680     880    1091    1593    2678    7306
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  181     KK   120D
  182     KM   DIVERT OVERFLOWS SOUTH TO SINGLE CULVERT AT MH PARK, & WEST ON TO I-17
  183     KM   DQ IS Q THROUGH 2-8X7 CULVERT (MAX 1312 CFS); DI IS TOTAL Q
  184     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  185     DT    125D
  186     DI       1     880    1091    1593    2678    3746
  187     DQ       1     880    1060    1184    1296    1312

  188     KK   130D
  189     KM   SEPARATE OUT WEST OVERFLOWS ONTO THE FRONTAGE ROAD AND MAINLINE I-17
  190     KM   THESE FLOWS HEAD SOUTH AND EVENTUALLY ENTER THE DEER VALLEY INTERCHANGE
  191     KM   REMAINING FLOWS CONTINUE SOUTH TO 6X7 BOX CULVERT ON SCATTER WASH AT I-17
  192     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  193     DT    135D
  194     DI      31     409    1382    2434
  195     DQ       0       0     215     840

  196     KK   140S
  197     KM   SUB-BASIN 140
  198     BA   1.233
  199     LG    .350    .330   4.700    .430   1.000
  200     UC   1.367   1.058
  201     UA       0       3       5       8      12      20      43      75      90      96
  202     UA     100

  203     KK   145S
  204     KM   SUB-BASIN 145
  205     BA    .383
  206     LG    .190    .310   6.200    .270    .000
  207     UC    .533    .318
  208     UA       0       3       5       8      12      20      43      75      90      96
  209     UA     100

  210     KK  150RET
  211     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  212     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  213     RS       1    STOR      -1
  214     SV       0       1       4      14      26      40      56      75
  215     SE      15      16      17      18      19      20      21      22
  216     SL      15    4.19     .16      .5
  217     SS    21.9      50       3     1.5

  218     KK   155R
  219     KM   ROUTE 150RET TO CP OF 140S ALONG NATURAL CHANNEL
  220     RS       5    FLOW      -1
  221     RC     .04     .03     .04   15000   .0073
  222     RX       6      10     200     220     230     250     440     450
  223     RY       0       5       3       0       0       3       5       6
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  224     KK   160C
  225     KM   COMBINE 140S, 130D AND 155R AT CP OF 140S
  226     HC     3

  227     KK   165D
  228     KM   DIVERT FLOW ACROSS I-17 THROUGH 6X7 RCBC (MAX Q = 510 CFS)
  229     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  230     DT   170D
  231     DI     0      1    510    511   1000   2000
  232     DQ     0      1    510    510    510    510

  233     KK   175S
  234     KM   SUB-BASIN 175
  235     BA   .299
  236     LG   .070   .290  6.700   .190 75.000
  237     UC   .583   .648
  238     UA     0      5     16     30     65     77     84     90     94     97
  239     UA   100

  240     KK   180C
  241     KM   COMBINE 165D AND 175S AT CP OF 175S
  242     HC     2

  243     KK   185D
  244     KM   DIVERT FLOW ACROSS I-17 THROUGH 65X40 CMP AT ADOBE DRIVE
  245     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  246     DT   190D
  247     DI     0    115    116   1000   3000
  248     DQ     0    115    115    115    115

  249     KK   195S
  250     KM   SUB-BASIN 195
  251     BA   .399
  252     LG   .090   .310 11.000   .310 80.000
  253     UC   .500   .422
  254     UA     0      5     16     30     65     77     84     90     94     97
  255     UA   100

  256     KK   200C
  257     KM   COMBINE 185D AND 195S AT CP OF 195S
  258     HC     2

  259     KK   205D
  260     KM   DIVERT FLOW ACROSS I-17 THROUGH 6X3 RCBC AT LOUISE DRIVE
  261     KM   DI REPRESENTS TOTAL FLOW, DQ REPRESENTS FLOW THROUGH 6X3 RCBC.
  262     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  263     DT   210D
  264     DI     0      1    156    157   1000   3000
  265     DQ     0      1    156    156    156    156
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  266     KK   135RD
  267     KM   RETRIEVE FLOW DIVERTED ALONG I-17 AND FRONTAGE ROAD
  268     DR    135D

  269     KK    215C
  270     KM   COMBINE 135RD AND 205D AT DEER VALLEY/I-17 INTERCHANGE
  271     HC       2

  272     KK  220RET
  273     KM   ROUTE FLOW THROUGH DEPRESSED SECTION TO WEST SIDE OF I-17
  274     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  275     RS       1    STOR      -1
  276     SV       0       1    15.9    37.7    53.8    61.3    74.1      99   129.5
  277     SE      82      84      90      94      96    96.8      98     100     102
  278     SQ       0       0       0       0       0       1     808    5403   13835

  279     KK   210RD
  280     KM   RETRIEVE FLOW DIVERTED THROUGH CULVERT AT LOUISE DRIVE
  281     DR    210D

  282     KK    225C
  283     KM   COMBINE 220RET AND 210RD AT INTERSECTION OF 27TH AVE & DEER VALLEY ROAD
  284     HC       2

  285     KK    230R
  286     KM   ROUTE 225C TO CP OF 250S ALONG NATURAL CHANNEL
  287     RS       5    FLOW      -1
  288     RC     .03     .02     .03    7000   .0057       5
  289     RX       0       5      25      26      64      65      85      90
  290     RY       2       1      .5       0       0      .5       1       2

  291     KK    235S
  292     KM   SUB-BASIN 235
  293     BA    .062
  294     LG    .090    .310  11.000    .020  74.000
  295     UC    .183    .132
  296     UA       0       5      16      30      65      77      84      90      94      97
  297     UA     100

  298     KK    240R
  299     KM   ROUTE 235S TO CP OF 250S ALONG NATURAL CHANNEL
  300     RS       5    FLOW      -1
  301     RC     .04     .03     .04    5500   .0073
  302     RX       0       5      55      60      70      75     125     130
  303     RY       3       2       1       0       0       1       2       3

  304     KK   190RD
  305     KM   RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT AT ADOBE DRIVE
  306     DR    190D
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  307     KK   245R
  308     KM   ROUTE 190RD TO CP OF 250S ALONG NATURAL CHANNEL
  309     RS      5   FLOW     -1
  310     RC    .03    .02    .03   7500   .0060
  311     RX      0      5     25     26     64     65     85     90
  312     RY      2      1     .5      0      0     .5      1      2

  313     KK   250S
  314     KM   SUB-BASIN 250
  315     BA   1.103
  316     LG   .240   .320  6.900   .260 26.000
  317     UC   .933   .448
  318     UA      0      3      5      8     12     20     43     75     90     96
  319     UA    100

  320     KK   125RD
  321     KM   RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT NEAR MH PARK SOUTH OF
  322     KM   PINNACLE PEAK ROAD
  323     DR    125D

  324     KK   170RD
  325     KM   RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT NORTH OF WILLIAMS DRIVE
  326     DR    170D

  327     KK   255S
  328     KM   SUB-BASIN 255
  329     BA   .615
  330     LG   .320   .330  6.200   .230 10.000
  331     UC  1.400  1.135
  332     UA      0      3      5      8     12     20     43     75     90     96
  333     UA    100

  334     KK   260C
  335     KM   COMBINE 125RD, 170RD AND 255S AT CP OF 255S
  336     HC      3

  337     KK   265R
  338     KM   ROUTE 260C TO CP OF 250S ALONG SCATTER WASH NORTH OF DEER VALLEY ROAD
  339     RS      5   FLOW     -1
  340     RC    .04    .03    .04   8300   .0048
  341     RX    250    700    900    980   1020   1100   1300   1750
  342     RY     17   12.5     10      0      0     10   12.5     17

  343     KK   270C
  344     KM   COMBINE 240R, 240R, 245R, 265R & 250S @ CP OF 250S
  345     HC      5

  346     KK   275R
  347     KM   ROUTE 270C TO CP OF 280S ALONG SCATTER WASH NORTH OF BEARDSLEY ROAD
  348     RS      5   FLOW     -1
  349     RC    .04    .03    .04   4500   .0056     10
  350     RX    100    650    800    980   1020   1200   1350   1600
  351     RY    7.5      7    5.5      0      0    5.5      7    7.5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  352     KK   280S
  353     KM   SUB-BASIN 280
  354     BA    .744
  355     LG    .230    .330   4.900    .320  13.000
  356     UC    .717    .463
  357     UA       0       5      16      30      65      77      84      90      94      97
  358     UA     100

  359     KK   285C
  360     KM   COMBINE 275R AND 280S AT CP OF 280S
  361     HC       2

  362     KK   290R
  363     KM   ROUTE 285C TO CP OF 295S ALONG SCATTER WASH CHANNEL U/S OF 45TH AVE CROSSING
  364     RS       5    FLOW      -1
  365     RC     .03     .03     .03    6200   .0027
  366     RX     830     850     980     990    1010    1020    1150    1170
  367     RY      10     2.5     2.5       0       0     2.5     2.5      10

  368     KK   295S
  369     KM   SUB-BASIN 295
  370     BA    .352
  371     LG    .290    .340   4.400    .330  11.000
  372     UC   1.100    .976
  373     UA       0       3       5       8      12      20      43      75      90      96
  374     UA     100

  375     KK   300C
  376     KM   COMBINE 290R AND 295S AT CP OF 295S
  377     HC       2

  378     KK   310S
  379     KM   ADOBE DAM OUTLET; ASSUMED CONSTANT OUTFLOW OF 1650 CFS FOR 50-YEAR STORM
  380     KM   SOURCE: F.I.S., MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS, FEMA
  381     BA     0.1
  382     IN     120
  383     QI    1650    1650    1650    1650    1650    1650    1650    1650    1650    1650
  384     QI    1650    1650    1650    1650    1650    1650    1650    1650    1650    1650

  385     KK   320R
  386     KM   SKUNK CREEK U/S OF BEARDSLEY ROAD AND D/S OF ADOBE DAM
  387     RS       5    FLOW      -1
  388     RC     .04     .03     .04    3300   .0028
  389     RX     645     795     945     965    1035    1085    1095    1105
  390     RY       7       6       5       0       0       7       9      11

  391     KK   325S
  392     KM   SUB-BASIN 325
  393     BA    .650
  394     LG    .300    .340   3.900    .440   9.000
  395     UC   1.500   1.134
  396     UA       0       3       5       8      12      20      43      75      90      96
  397     UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  398     KK   330C
  399     KM   COMBINE 325S AND 310S (ADOBE DAM OUTLET)
  400     HC     2

  401     KK   335R
  402     KM   ROUTE 330C TO CP OF 340S ALONG SKUNK CREEK U/S OF WAHALLA LANE
  403     RS     5    FLOW     -1
  404     RC   .04     .03     .04    3050    .006
  405     RX   935     940     945     965    1035    1065    1070    1075
  406     RY     7     6.5       6       0       0       6     6.5       7

  407     KK   340S
  408     KM   SUB-BASIN 340
  409     BA   .086
  410     LG   .230    .350   3.200    .660  13.000
  411     UC   .267    .198
  412     UA     0       5      16      30      65      77      84      90      94      97
  413     UA   100

  414     KK   345C
  415     KM   COMBINE 335R AND 340S AT CP OF 340S
  416     HC     2

  417     KK   350S
  418     KM   SUB-BASIN 350
  419     BA   .263
  420     LG   .280    .320   5.600    .250  23.000
  421     UC   .300    .120
  422     UA     0       3       5       8      12      20      43      75      90      96
  423     UA   100

  424     KK   355R
  425     KM   ROUTE 350S TO CONFLUENCE OF SCATTER WASH & SKUNK CREEK, ALONG HAVASUPAI DR.
  426     RS     5    FLOW     -1
  427     RC   .03     .02     .03    2400    .006
  428     RX    70    70.1    79.9      80     120   120.1     130   130.1
  429     RY   5.5      .5      .5       0       0      .5      .5     5.5

  430     KK   360C
  431     KM   COMBINE 300C, 345C AND 355R NEAR CONFLUENCE OF SCATTER WASH AND SKUNK CREEK
  432     HC     3

  433     KK   370R
  434     KM   ROUTE 360C TO CP OF 375S ALONG SKUNK CREEK U/S OF 51ST AVENUE ALIGNMENT
  435     RS     2    FLOW     -1
  436     RC   .04     .03     .04    6200   .0047
  437     RX   120     130     350     460     580     590     720     770
  438     RY  1298    1296    1294    1290    1290    1294    1296    1298
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  439     KK   375S
  440     KM   SUB-BASIN 375
  441     BA    .984
  442     LG    .290    .330   5.300    .380  18.000
  443     UC    .783    .373
  444     UA       0       3       5       8      12      20      43      75      90      96
  445     UA     100

  446     KK   380S
  447     KM   SUB-BASIN 380
  448     BA   1.405
  449     LG    .320    .330   4.600    .430   8.000
  450     UC   1.450    .769
  451     UA       0       3       5       8      12      20      43      75      90      96
  452     UA     100

  453     KK   385R
  454     KM   ROUTE 380S TO CP OF 390S ALONG UNNAMED WASH WEST OF PILCHER HILL
  455     RS       5    FLOW      -1
  456     RC     .04     .03     .04    4400     .01
  457     RX      10     200     300     306     316     322     420     620
  458     RY      12      10       9       6       6       9      10      12

  459     KK   390S
  460     KM   SUB-BASIN 390
  461     BA    .799
  462     LG    .310    .340   4.400    .340  23.000
  463     UC    .683    .253
  464     UA       0       3       5       8      12      20      43      75      90      96
  465     UA     100

  466     KK   395C
  467     KM   COMBINE 385R AND 390S AT CP OF 390S
  468     HC       2

  469     KK   400R
  470     KM   ROUTE 395S TO CP OF 405S ALONG UNNAMED WASH NORTH OF ARROWHEAD RANCH
  471     RS       5    FLOW      -1
  472     RC     .04     .03     .04    9600   .0073
  473     RX     300     350     400     460     540     600     650     700
  474     RY    1314    1309    1304    1300    1300    1304    1304    1304

  475     KK   405S
  476     KM   SUB-BASIN 405
  477     BA   1.776
  478     LG    .220    .330   5.200    .280  20.000
  479     UC   1.500   1.034
  480     UA       0       3       5       8      12      20      43      75      90      96
  481     UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  482     KK    410C
  483     KM   COMBINE 400R AND 405S AT CP OF 405S
  484     HC       2

  485     KK  411RET
  486     KM   LAKE 1, ARROWHEAD RANCH
  487     KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
  488     KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  489     RS       1    ELEV  1296.0
  490     SV     0.0     6.4    12.9    19.4    26.0    32.6    39.4    46.2    53.1    60.0
  491     SE  1296.0  1296.5  1297.0  1297.5  1298.0  1298.5  1299.0  1299.5  1300.0  1300.5
  492     SQ       0     126     356     655    1008    1409    1852    2334    2851    3402

  493     KK  412RET
  494     KM   LAKE 2, ARROWHEAD RANCH
  495     KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
  496     KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  497     RS       1    ELEV  1294.0
  498     SV       0    14.4    29.2    44.1    58.9    74.3    89.6   108.2   126.8   145.4
  499     SE  1294.0  1294.5  1295.0  1295.5  1296.0  1296.5  1297.0  1297.5  1298.0  1298.5
  500     SQ       0     168     475     873    1344    1878    2469    3112    3802    4536

  501     KK  413RET
  502     KM   LAKES 3 AND 7, ARROWHEAD RANCH
  503     KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
  504     KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  505     RS       1    ELEV  1292.0
  506     SV       0    29.8    61.7    91.6   122.5   154.5   186.3   225.3   264.3   303.1
  507     SE  1292.0  1292.5  1293.0  1293.5  1294.0  1294.5  1295.0  1295.5  1296.0  1296.5
  508     SQ       0      47     132     242     373     522     686     865    1056    1260

  509     KK  415RET
  510     KM   LAKE 8, ARROWHEAD RANCH
  511     KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
  512     KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  513     RS       1    ELEV  1290.0
  514     SV       0    20.6    42.1    63.5    84.9   107.1   129.4   456.8   184.3   211.8
  515     SE  1290.0  1290.5  1291.0  1291.5  1292.0  1292.5  1293.0  1293.5  1294.0  1294.5
  516     SQ       0      93     264     485     747    1044    1372    1729    2112    2520

  517     KK    420R
  518     KM   ROUTE 415RET TO CP OF 375S (55TH AVENUE CHANNEL)
  519     RS       5    FLOW      -1
  520     RC     .03     .03     .03    4560   .0025
  521     RX     390     400     440     460     536     566     686     690
  522     RY    1283    1282    1280    1276    1276    1283    1285    1286

  523     KK    425S
  524     KM   SUB-BASIN 425
  525     BA   1.723
  526     LG    .160    .300   7.400    .160  39.000
  527     UC   1.250   1.158
  528     UA       0       5      16      30      65      77      84      90      94      97
  529     UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

530       KK  430RET
531       KM   ROUTE FLOW THROUGH DETENTION BEHIND 3-10X3 RCBC NORTHEAST OF I-17 AND
532       KM   UNION HILLS DRIVE; DETENTION VOLUME IS BASED ON AERIAL PHOTOGRAPHS AND
533       KM   FIELD VISITS, AND SHOULD BE CONSIDERED APPROXIMATE. OUTFLOW IS BASED ON
534       KM   CULVERT INLET CONTROL UP TO 4' DEEP, THEN WEIR FLOW OVER UNION HILLS
535       KM   DRIVE IS ADDED IN.
536       RS       1    ELEV       0
537       SA       0       6       9      12      15      22      31
538       SE       0       1       2       3       4       5       6
539       SQ       0     0.1      90     255     450    2010    4600

540       KK    432D
541       KM   DIVERT FLOW OVER UNION HILLS DRIVE, EAST OF I-17
542       KM   DQ REPRESENTS THE BREAKOUT FROM THE DETENTION BASIN OVER UNION HILLS DRIVE
543       DT    433D
544       DI       0      81     255     450    2010    4600
545       DQ       0       0       0       0    1350    3820

546       KK    435R
547       KM   ROUTE 432D TO CP OF 440S ALONG UNION HILLS DRIVE (INVERTED CROWN) -
548       KM   CULVERT OUTLET ON WEST SIDE OF I-17 TO 35TH AVENUE
549       RS       5    FLOW      -1
550       RC    .025     .02    .025    6800    .004       4
551       RX      45    59.9      60     100   100.1     140   140.1     155
552       RY     1.5     1.5       1       0       0       1     1.5     1.5

553       KK    440S
554       KM   SUB-BASIN 440
555       BA    .846
556       LG    .200    .300   9.300    .060  20.000
557       UC    .617    .381
558       UA       0       5      16      30      65      77      84      90      94      97
559       UA     100

560       KK    445C
561       KM   COMBINE 435R AND 440S AT CP OF 440S
562       HC       2

563       KK    450D
564       KM   SURFACE FLOW CAPACITY OF UNION HILLS DRIVE INVERTED CROWN SECTION IS 470 CFS,
565       KM   STORM DRAIN CAPACITY IS 890 CFS. TOTAL CAPACITY FLOWING WEST IS 1360 CFS.
566       KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN I-17 AND 35TH AVENUE
567       DT    455D
568       DI       0     500    1000    1360    2000    3000
569       DQ       0       0       0       0     640    1640

570       KK    460R
571       KM   ROUTE 450D TO CP OF 490S ALONG UNION HILLS DRIVE - 35TH TO 43RD AVENUE
572       RS       5    FLOW      -1
573       RC     .02    .025     .03    5280    .004      10
574       RX    99.9     100     135     150     155     170   170.1   170.2
575       RY       9     6.7       6       3       3       7       8       9
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  576     KK   465S
  577     KM   SUB-BASIN 465
  578     BA   1.361
  579     LG    .140    .310   9.100    .100  57.000
  580     UC    .817    .516
  581     UA       0       5      16      30      65      77      84      90      94      97
  582     UA     100

  583     KK   470R
  584     KM   ROUTE 465S TO CP OF 475S ALONG COLLECTOR STREET
  585     RS       5    FLOW      -1
  586     RC    .025     .02    .025    8200   .0046
  587     RX    69.9      70    74.9      75     125   125.1     130   130.1
  588     RY     3.5      .5      .5       0       0      .5      .5     3.5

  589     KK   475S
  590     KM   SUB-BASIN 475
  591     BA    .596
  592     LG    .290    .310  10.500    .030  18.000
  593     UC    .550    .335
  594     UA       0       3       5       8      12      20      43      75      90      96
  595     UA     100

  596     KK   480C
  597     KM   COMBINE 470R AND 475S AT CP OF 475S
  598     HC       2

  599     KK   485R
  600     KM   ROUTE 480C TO CP OF 490S ALONG LOCAL STREET WITH VERTICAL CURBS
  601     RS       5    FLOW      -1
  602     RC    .025     .02    .025   10300   .0038       5
  603     RX    69.9      70    79.9      80     120   120.1     130   130.1
  604     RY       2      .5      .5       0       0      .5      .5       2

  605     KK   490S
  606     KM   SUB-BASIN 490
  607     BA   1.115
  608     LG    .230    .290   8.300    .090  26.000
  609     UC   1.150    .845
  610     UA       0       5      16      30      65      77      84      90      94      97
  611     UA     100

  612     KK   495C
  613     KM   COMBINE 460R, 485R AND 490S AT CP OF 490S
  614     HC       3

  615     KK   500D
  616     KM   SURFACE FLOW CAPACITY OF THE UNION HILLS DRIVE AND CHANNEL IS 520 CFS,
  617     KM   STORM DRAIN CAPACITY IS 1280 CFS. TOTAL CAPACITY FLOWING WEST IS 1800 CFS.
  618     KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 35TH AVENUE AND
  619     KM   43RD AVENUE
  620     DT    505D
  621     DI       0     500    1000    1800    2000    3000    4000
  622     DQ       0       0       0       0     200    1200    2200
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

623       KK   510R
624       KM   ROUTE 500D TO CP OF 515S ALONG UNION HILLS DRIVE - 43RD TO 51ST AVENUE
625       RS     5    FLOW     -1
626       RC  .025    .02   .025   7500  .0042     10
627       RX   45    59.9     60    100  100.1    140  140.1    155
628       RY  1.5     1.5      1      0      0      1    1.5    1.5

629       KK   515S
630       KM   SUB-BASIN 515
631       BA   .476
632       LG   .120    .340  4.600   .280 32.000
633       UC   .867    .771
634       UA     0       5     16     30     65     77     84     90     94     97
635       UA   100

636       KK   520C
637       KM   COMBINE 510R AND 515S AT CP OF 515S
638       HC     2

639       KK   530D
640       KM   SURFACE FLOW CAPACITY OF UNION HILLS DRIVE AND 4-15" CULVERTS IS 65 CFS,
641       KM   STORM DRAIN CAPACITY IS 1495 CFS. TOTAL CAPACITY FLOWING WEST IS 1560 CFS.
642       KM   THE REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 43RD AVENUE AND
643       KM   55TH AVENUE
644       DT   525D
645       DI     0     500    1000    1560    2000    4000
646       DQ     0       0       0       0     440    2440

647       KK   535C
648       KM   COMBINE 370R, 375S, 420R & 530RD @ CP OF 375S
649       HC     4    19.9

650       KK   540R
651       KM   ROUTE 535C TO CP OF 545S ALONG SKUNK CREEK U/S OF UNION HILLS DRIVE
652       RS     2    FLOW     -1
653       RC   .04     .03    .04   3400  .0056
654       RX   445     465    475    500    610    640    650    660
655       RY  1262    1264   1264   1254   1254   1262   1264   1264

656       KK   545S
657       KM   SUB-BASIN 545
658       BA   .296
659       LG   .310    .330  4.000   .460 15.000
660       UC   .633    .410
661       UA     0       3       5       8      12      20      43      75      90      96
662       UA   100

663       KK   550C
664       KM   COMBINE 540R AND 545S AT CP OF 545S
665       HC     2
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  666     KK   555R
  667     KM   ROUTE 550C TO CP OF 580S ALONG SKUNK CREEK FROM 67TH AVE. TO UNION HILLS DR.
  668     RS     2    FLOW     -1
  669     RC   .04     .03     .04    5350   .0039
  670     RX   395     435     465     500     560     590     650     700
  671     RY  1246    1244    1242    1236    1236    1242    1244    1245

  672     KK   560S
  673     KM   SUB-BASIN 560
  674     BA   .190
  675     LG   .150    .350   4.400    .280  21.000
  676     UC   .433    .315
  677     UA     0       5      16      30      65      77      84      90      94      97
  678     UA   100

  679     KK   565D
  680     KM   CAPACITY OF 59TH AVENUE IS 25 CFS.
  681     KM   THIS IS DIVERTED OUT OF THE WATERSHED (DQ)
  682     DT   570D
  683     DI     0      25      50     100     500    1000
  684     DQ     0      25      25      25      25      25

  685     KK   575R
  686     KM   ROUTE 565D TO CP OF 580S ALONG LOCAL STREETS WITH VERTICAL CURBS
  687     RS     5    FLOW     -1
  688     RC   .03     .02     .03    6500   .0044
  689     RX  74.9      75    81.9      82     118   118.1     125   125.1
  690     RY     2      .5      .5       0       0      .5      .5       2

  691     KK   580S
  692     KM   SUB-BASIN 580
  693     BA   .914
  694     LG   .200    .340   4.500    .330  25.000
  695     UC   .250    .097
  696     UA     0       5      16      30      65      77      84      90      94      97
  697     UA   100

  698     KK   585C
  699     KM   COMBINE 555R, 575R AND 580S AT CP OF 580S
  700     HC     3

  701     KK   590R
  702     KM   ROUTE 640C TO CP OF 650S ALONG SKUNK CREEK FROM 67TH AVENUE TO BELL ROAD
  703     RS     2    FLOW     -1
  704     RC   .04     .03     .04    4000   .0075
  705     RX   370     470     485     500     680     710     730     810
  706     RY  1231    1231    1230  1223.5  1223.5    1230    1232  1232.5

  707     KK   595S
  708     KM   SUB-BASIN 595
  709     BA   .302
  710     LG   .190    .340   4.500    .420  13.000
  711     UC  1.300   1.355
  712     UA     0       3       5       8      12      20      43      75      90      96
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  713     UA     100

  714     KK    600S
  715     KM    SUB-BASIN 600
  716     BA    1.027
  717     LG     .440     .250    5.500     .380    8.000
  718     UC     .883     .485
  719     UA        0        3        5        8       12       20       43       75       90       96
  720     UA      100

  721     KK    605R
  722     KM    ROUTE 600S TO CP OF 610S ALONG LOCAL STREETS WITH VERTICAL CURBS
  723     RS        5     FLOW       -1
  724     RC      .03      .02      .03     2500     .006        5
  725     RX     74.9       75     81.9       82      118    118.1      125    125.1
  726     RY        2       .5       .5        0        0       .5       .5        2

  727     KK    610S
  728     KM    SUB-BASIN 610
  729     BA     .690
  730     LG     .210     .270    6.800     .180   19.000
  731     UC     .700     .380
  732     UA        0        5       16       30       65       77       84       90       94       97
  733     UA      100

  734     KK  615RET
  735     KM    ENTIRE VOLUME OF RETENTION (38.6 AF) IS MODELED AS A DIVERT
  736     DT    616D    38.6
  737     DI        0      100      500     1000
  738     DQ        0      100      500     1000

  739     KK    620C
  740     KM    COMBINE 605R AND 615RET AT CP OF 610S
  741     HC        2

  742     KK    625R
  743     KM    ROUTE 620C TO CP OF 630S ALONG CHANNEL BESIDE 71ST AVENUE
  744     RS        5     FLOW       -1
  745     RC      .03      .03      .03     4500    .0022       10
  746     RX       15       18       20       30       45       55       57       60
  747     RY        7        6        5        0        0        5        6        7

  748     KK    630S
  749     KM    SUB-BASIN 630
  750     BA     .336
  751     LG     .170     .320    5.200     .260   19.000
  752     UC     .600     .452
  753     UA        0        5       16       30       65       77       84       90       94       97
  754     UA      100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  755     KK   635C
  756     KM   COMBINE 625R AND 630S AT CP OF 630S
  757     HC     2

  758     KK   640C
  759     KM   COMBINE 540R, 595S AND 635C AT CP OF 595S
  760     HC     3

  761     KK   645R
  762     KM   ROUTE 585C TO CP OF 595S ALONG SKUNK CREEK FROM BELL ROAD TO ACDC
  763     RS     2    FLOW     -1
  764     RC   .04     .03     .04    3500   .0068
  765     RX   250     260     360     500     545     600     720     800
  766     RY  1212    1210    1208    1192    1192    1210    1210    1211

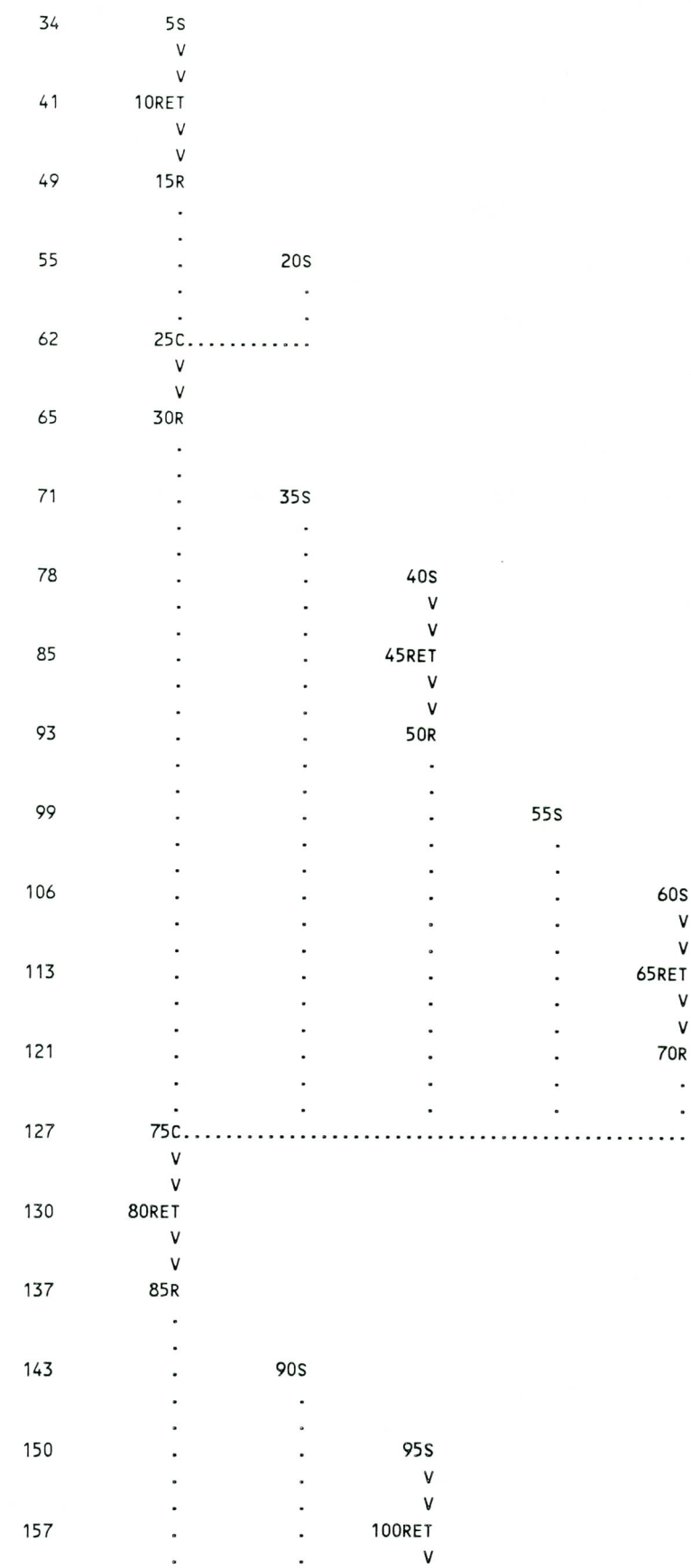
  767     KK   650S
  768     KM   SUB-BASIN 650
  769     BA   .125
  770     LG   .340    .350   3.700    .490   4.000
  771     UC   .500    .373
  772     UA     0       3       5       8      12      20      43      75      90      96
  773     UA   100

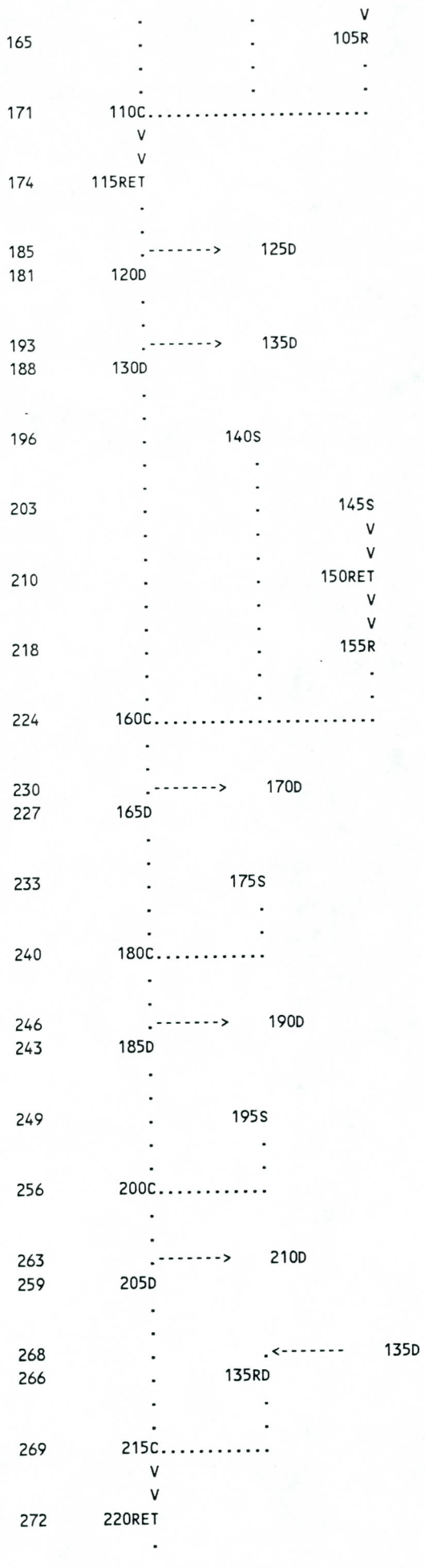
  774     KK   655C
  775     KM   COMBINE 645R AND 650S AT CP OF 650S
  776     HC     2
  777     ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

(V) ROUTING
(.) CONNECTOR
(---->) DIVERSION OR PUMP FLOW
(<----) RETURN OF DIVERTED OR PUMPED FLOW

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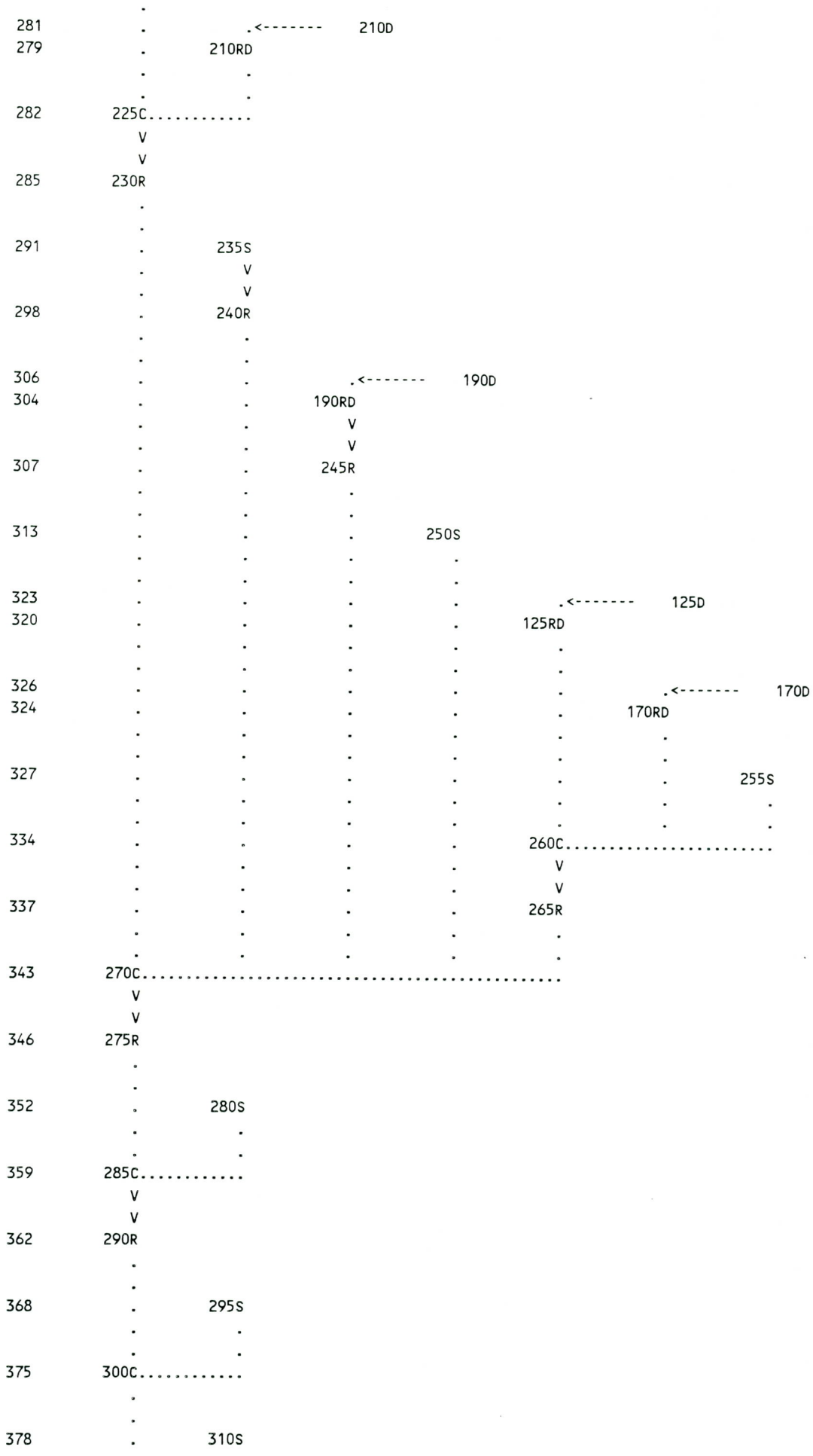
171 110C
174 115RET
185 125D
181 120D
193 135D
188 130D
196 140S
203 145S
210 150RET
218 155R
224 160C
230 170D
227 165D
233 175S
240 180C
246 190D
243 185D
249 195S
256 200C
263 210D
259 205D
268 135D
266 135RD
269 215C
272 220RET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279
210D
210RD
282
225C
285
230R
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235S
298
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190D
304
190RD
307
245R
313
250S
323
125D
320
125RD
326
170D
324
170RD
327
255S
334
260C
337
265R
343
270C
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362
290R
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295S
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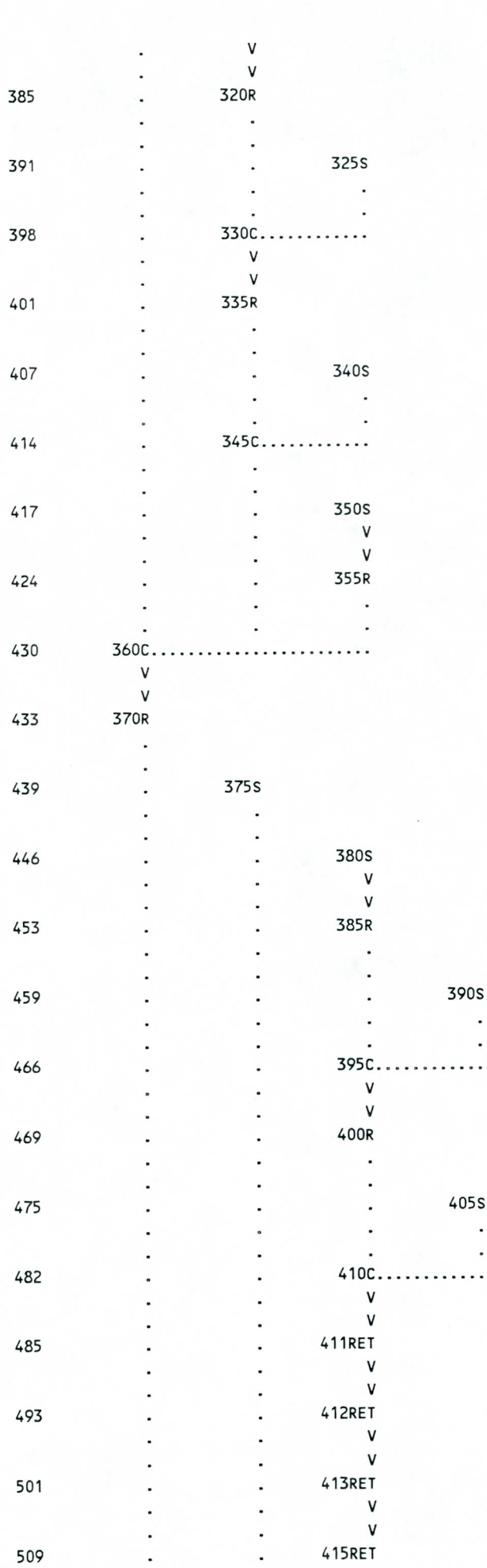
300C
378
310S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325S
398
330C
401
335R
407
340S
414
345C
417
350S
424
355R
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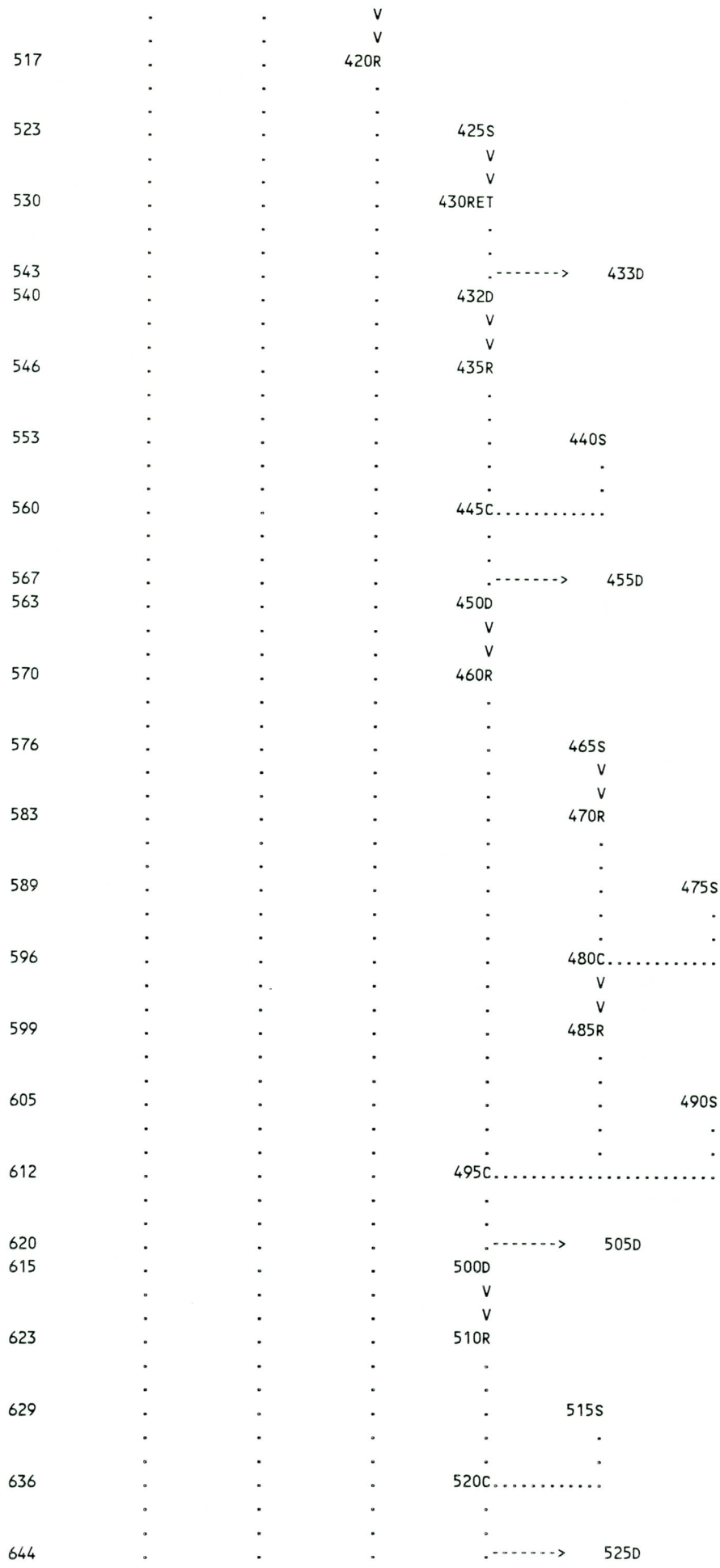
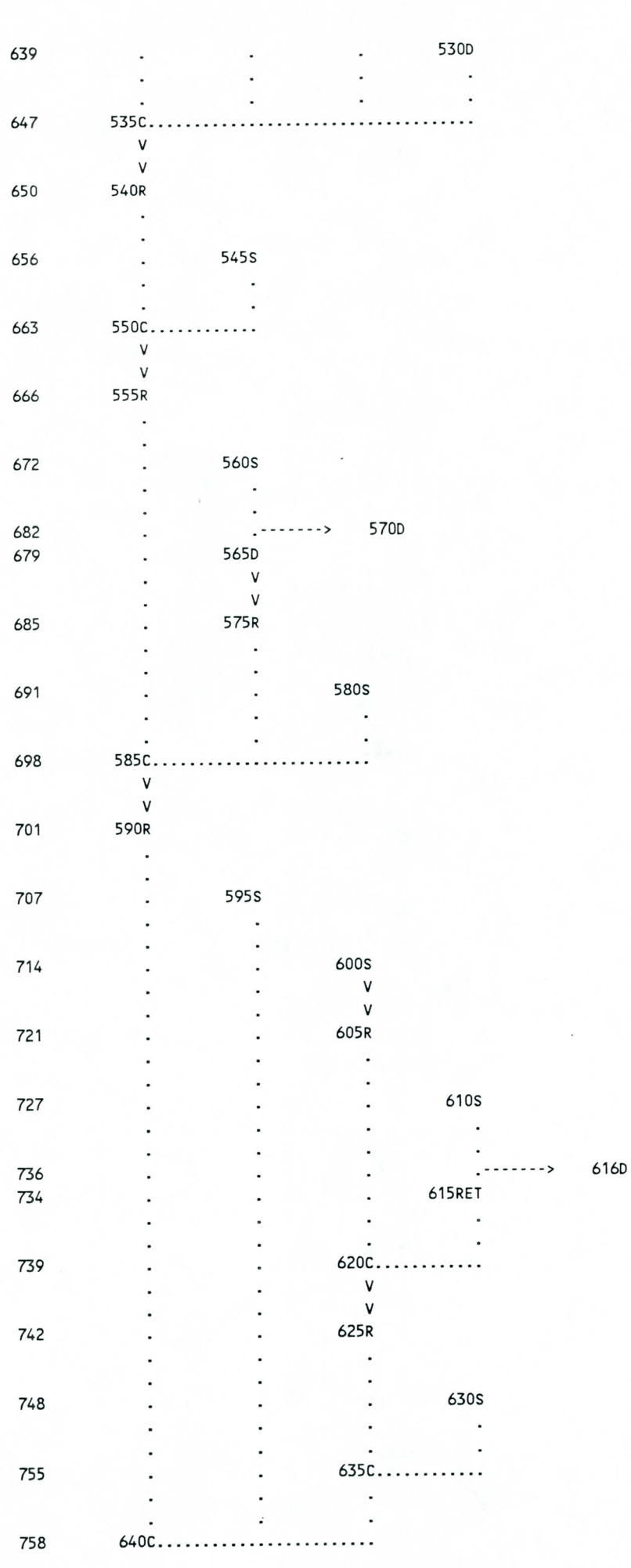
360C
433
370R
439
375S
446
380S
453
385R
459
390S
466
395C
469
400R
475
405S
482
410C
485
411RET
493
412RET
501
413RET
509
415RET


420R
425S
430RET
433D
432D
435R
440S
445C
455D
450D
460R
465S
470R
475S
480C
485R
490S
495C
505D
500D
510R
515S
520C
525D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550C
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555R
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560S
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570D
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685
575R
691
580S
698
585C
701
590R
707
595S
714
600S
721
605R
727
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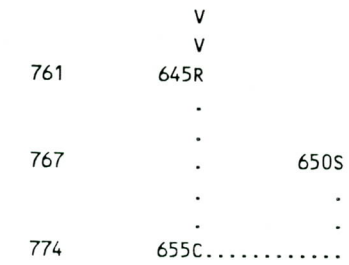
616D
734
615RET
739
620C
742
625R
748
630S
755
635C
758
640C



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*      BY THE COE IN FEBRUARY 1981      *
*           REVISED 02 AUG 88           *
*                                       *
*  RUN DATE  11/08/1990  TIME  15:20:55 *
*                                       *
*****************************************
```


```
*************************************
*                                   *
*     DODSON AND ASSOCIATES, INC.   *
*   HYDROLOGIST AND CIVIL ENGINEERS *
*      7015 W TIDWELL SUITE 107     *
*        HOUSTON, TEXAS  77092      *
*          (713) 895-8322           *
*                                   *
*************************************
```


SKUNK CREEK BETWEEN ACDC AND CAP FLOOD INSURANCE STUDY
PREPARED FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC # 89-72)
BY COE & VAN LOO CONSULTING ENGINEERS, INC. (CVL # 1090-050)
NOVEMBER 1990 JKM-DWD-AJR
INPUT FILE NAME: SK50-6

50-YEAR, 6-HOUR STORM
FCDMC DISTRIBUTION

11 IO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN		3	MINUTES IN COMPUTATION INTERVAL
IDATE	1	0	STARTING DATE
ITIME		0000	STARTING TIME
NQ		300	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	1	0	ENDING DATE
NDTIME		1457	ENDING TIME
ICENT		19	CENTURY MARK

COMPUTATION INTERVAL .05 HOURS
TOTAL TIME BASE 14.95 HOURS

ENGLISH UNITS

DRAINAGE AREA	SQUARE MILES
PRECIPITATION DEPTH	INCHES
LENGTH, ELEVATION	FEET
FLOW	CUBIC FEET PER SECOND
STORAGE VOLUME	ACRE-FEET
SURFACE AREA	ACRES
TEMPERATURE	DEGREES FAHRENHEIT

13 JD INDEX STORM NO. 1

STRM	2.80	PRECIPITATION DEPTH
TRDA	.01	TRANSPOSITION DRAINAGE AREA

14 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.02	.02	.02	.02	.02
.03	.03	.03	.03	.03	.09	.09	.09	.09	.09
.02	.02	.02	.02	.02	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

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        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00

17 JD   INDEX STORM NO. 2
          STRM      2.78  PRECIPITATION DEPTH
          TRDA       .50  TRANSPOSITION DRAINAGE AREA

 0 PI     PRECIPITATION PATTERN
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .02     .02     .02     .02     .02
        .03     .03     .03     .03     .03     .09     .09     .09     .09     .09
        .02     .02     .02     .02     .02     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00

18 JD   INDEX STORM NO. 3
          STRM      2.74  PRECIPITATION DEPTH
          TRDA      2.80  TRANSPOSITION DRAINAGE AREA

19 PI     PRECIPITATION PATTERN
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .01     .01     .01     .01     .01     .02     .02     .02     .02     .02
        .04     .04     .04     .04     .04     .05     .05     .05     .05     .05
        .03     .03     .03     .03     .03     .01     .01     .01     .01     .01
        .01     .01     .01     .01     .01     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00

22 JD   INDEX STORM NO. 4
          STRM      2.58  PRECIPITATION DEPTH
          TRDA     16.00  TRANSPOSITION DRAINAGE AREA

23 PI     PRECIPITATION PATTERN
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .01     .01     .01     .01     .01     .02     .02     .02     .02     .02
        .03     .03     .03     .03     .03     .04     .04     .04     .04     .04
        .03     .03     .03     .03     .03     .01     .01     .01     .01     .01
        .01     .01     .01     .01     .01     .01     .01     .01     .01     .01
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00

26 JD   INDEX STORM NO. 5
          STRM      2.27  PRECIPITATION DEPTH
          TRDA     90.00  TRANSPOSITION DRAINAGE AREA

27 PI     PRECIPITATION PATTERN
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
        .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
```

.00	.00	.00	.00	.00	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.02	.02
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.02	.02	.02	.02	.02	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

30 JD INDEX STORM NO. 6

STRM	1.60	PRECIPITATION DEPTH
TRDA	500.00	TRANSPOSITION DRAINAGE AREA

31 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	5S	1963.	4.30	193.	77.	77.	1.33		
ROUTED TO	10RET	90.	5.00	85.	60.	60.	1.33	16.01	4.85
ROUTED TO	15R	90.	5.45	85.	57.	57.	1.33	.94	5.35
HYDROGRAPH AT	20S	1379.	4.45	177.	71.	71.	1.38		
2 COMBINED AT	25C	1172.	4.45	239.	121.	121.	2.71		
ROUTED TO	30R	1061.	4.85	237.	119.	119.	2.71	.70	5.60
HYDROGRAPH AT	35S	1207.	4.50	172.	69.	69.	1.51		
HYDROGRAPH AT	40S	946.	4.30	93.	37.	37.	.55		
ROUTED TO	45RET	43.	5.15	41.	29.	29.	.55	16.22	5.05
ROUTED TO	50R	42.	6.05	40.	27.	27.	.55	.65	6.00
HYDROGRAPH AT	55S	489.	4.45	71.	28.	28.	.59		
HYDROGRAPH AT	60S	1164.	4.55	186.	75.	75.	1.20		
ROUTED TO	65RET	106.	5.80	99.	67.	67.	1.20	16.40	5.30
ROUTED TO	70R	106.	6.30	99.	64.	64.	1.20	.78	5.90
5 COMBINED AT	75C	1930.	4.75	511.	265.	265.	6.56		
ROUTED TO	80RET	1517.	5.05	510.	265.	265.	6.56	12.71	5.80
ROUTED TO	85R	1505.	5.15	510.	264.	264.	6.56	1.81	5.90
HYDROGRAPH AT	90S	603.	4.75	119.	48.	48.	1.23		
HYDROGRAPH AT	95S	1024.	4.50	149.	60.	60.	.97		
ROUTED TO	100RET	70.	5.75	67.	46.	46.	.97	16.16	5.25
ROUTED TO	105R	69.	7.20	66.	42.	42.	.97	.79	6.30
3 COMBINED AT	110C	1725.	5.15	619.	324.	324.	8.76		
ROUTED TO	115RET	1386.	5.45	619.	324.	324.	8.76	5.82	6.00
DIVERSION TO	125D	1123.	5.50	585.	310.	310.	8.76		
HYDROGRAPH AT	120D	264.	5.45	34.	14.	14.	8.76		
DIVERSION TO	135D	16.	5.40	1.	0.	0.	8.76		
HYDROGRAPH AT	130D	249.	5.45	34.	14.	14.	8.76		
HYDROGRAPH AT	140S	395.	5.05	108.	44.	44.	1.23		
HYDROGRAPH AT	145S	486.	4.35	50.	20.	20.	.38		

ROUTED TO	150RET	10.	5.60	10.	7.	7.	.38	15.00	.00
ROUTED TO	155R	10.	8.05	10.	6.	6.	.38		
3 COMBINED AT	160C	469.	5.40	108.	47.	47.	10.37		
DIVERSION TO	170D	304.	5.50	86.	38.	38.	10.37		
HYDROGRAPH AT	165D	81.	5.35	6.	2.	2.	10.37		
HYDROGRAPH AT	175S	339.	4.25	77.	31.	31.	.30		
2 COMBINED AT	180C	225.	4.40	74.	31.	31.	10.67		
DIVERSION TO	190D	115.	3.90	54.	23.	23.	10.67		
HYDROGRAPH AT	185D	110.	4.40	20.	8.	8.	10.67		
HYDROGRAPH AT	195S	575.	4.20	102.	41.	41.	.40		
2 COMBINED AT	200C	441.	4.30	111.	45.	45.	11.07		
DIVERSION TO	210D	156.	3.80	70.	29.	29.	11.07		
HYDROGRAPH AT	205D	285.	4.30	40.	16.	16.	11.07		
HYDROGRAPH AT	135RD	16.	5.40	1.	0.	0.	8.76		
2 COMBINED AT	215C	285.	4.30	41.	16.	16.	11.07		
ROUTED TO	220RET	196.	4.65	26.	11.	11.	11.07	96.00	.00
HYDROGRAPH AT	210RD	156.	3.80	70.	29.	29.	11.07		
2 COMBINED AT	225C	352.	4.65	96.	40.	40.	11.07		
ROUTED TO	230R	330.	4.95	96.	40.	40.	11.07	.71	4.75
HYDROGRAPH AT	235S	169.	4.05	17.	7.	7.	.06		
ROUTED TO	240R	118.	4.40	17.	7.	7.	.06	.68	4.45
HYDROGRAPH AT	190RD	115.	3.90	54.	23.	23.	10.67		
ROUTED TO	245R	115.	5.15	54.	23.	23.	10.67	.55	4.90
HYDROGRAPH AT	250S	962.	4.65	173.	70.	70.	1.10		
HYDROGRAPH AT	125RD	1123.	5.50	585.	310.	310.	8.76		
HYDROGRAPH AT	170RD	304.	5.50	86.	38.	38.	10.37		
HYDROGRAPH AT	255S	290.	5.05	86.	35.	35.	.62		
3 COMBINED AT	260C	2068.	5.20	934.	466.	466.	.62		
ROUTED TO	265R	2052.	5.45	929.	456.	456.	.62	1.05	6.45
5 COMBINED AT	270C	1987.	5.35	931.	471.	471.	12.85		
ROUTED TO	275R	1981.	5.55	930.	465.	465.	12.85	1.28	5.05
HYDROGRAPH AT	280S	642.	4.30	104.	42.	42.	.74		
2 COMBINED AT	285C	2021.	5.50	980.	490.	490.	13.59		

ROUTED TO	290R	2005.	5.80	976.	483.	483.	13.59	2.66	5.65
HYDROGRAPH AT	295S	195.	4.80	49.	20.	20.	.35		
2 COMBINED AT	300C	2047.	5.75	1000.	494.	494.	13.95		
HYDROGRAPH AT	310S	1650.	.05	1650.	1650.	1650.	.10		
ROUTED TO	320R	1650.	.05	1650.	1650.	1650.	.10	3.49	.00
HYDROGRAPH AT	325S	263.	5.15	78.	32.	32.	.65		
2 COMBINED AT	330C	1906.	5.15	1727.	1681.	1681.	.75		
ROUTED TO	335R	1906.	5.20	1727.	1681.	1681.	.75	2.87	5.45
HYDROGRAPH AT	340S	135.	4.10	11.	4.	4.	.09		
2 COMBINED AT	345C	1905.	5.20	1736.	1685.	1685.	.84		
HYDROGRAPH AT	350S	595.	4.15	45.	18.	18.	.26		
ROUTED TO	355R	583.	4.20	45.	18.	18.	.26	.27	4.45
3 COMBINED AT	360C	3777.	5.75	2704.	2171.	2171.	15.04		
ROUTED TO	370R	3755.	5.95	2702.	2168.	2168.	15.04	1292.44	5.85
HYDROGRAPH AT	375S	878.	4.50	130.	52.	52.	.98		
HYDROGRAPH AT	380S	588.	5.05	143.	58.	58.	1.40		
ROUTED TO	385R	569.	5.35	143.	58.	58.	1.40	6.81	5.45
HYDROGRAPH AT	390S	1005.	4.45	123.	49.	49.	.80		
2 COMBINED AT	395C	829.	4.45	239.	98.	98.	2.20		
ROUTED TO	400R	724.	4.95	238.	98.	98.	2.20	1300.32	5.45
HYDROGRAPH AT	405S	812.	5.15	251.	104.	104.	1.78		
2 COMBINED AT	410C	1357.	5.15	446.	184.	184.	3.98		
ROUTED TO	411RET	1274.	5.40	444.	184.	184.	3.98	1296.63	5.80
ROUTED TO	412RET	1068.	5.90	436.	184.	184.	3.98	1294.44	6.60
ROUTED TO	413RET	393.	7.75	297.	149.	149.	3.98	1292.57	9.30
ROUTED TO	415RET	316.	9.35	259.	128.	128.	3.98	1290.25	11.65
ROUTED TO	420R	316.	9.65	258.	123.	123.	3.98	1276.37	12.65
HYDROGRAPH AT	425S	907.	4.75	324.	136.	136.	1.72		
ROUTED TO	430RET	828.	5.05	318.	134.	134.	1.72	2.53	5.60
DIVERSION TO	433D	327.	5.05	45.	18.	18.	1.72		
HYDROGRAPH AT	432D	501.	5.05	273.	116.	116.	1.72		
ROUTED TO	435R	497.	5.40	273.	116.	116.	1.72	1.13	5.95
HYDROGRAPH AT	440S	1066.	4.25	169.	68.	68.	.85		

2 COMBINED AT	445C	901.	4.35	422.	181.	181.	2.57		
DIVERSION TO	455D	0.	.05	0.	0.	0.	2.57		
HYDROGRAPH AT	450D	901.	4.35	422.	181.	181.	2.57		
ROUTED TO	460R	894.	4.50	421.	181.	181.	2.57	5.83	4.80
HYDROGRAPH AT	465S	1370.	4.35	314.	128.	128.	1.36		
ROUTED TO	470R	1350.	4.55	314.	128.	128.	1.36	1.17	4.85
HYDROGRAPH AT	475S	935.	4.35	124.	50.	50.	.60		
2 COMBINED AT	480C	1924.	4.50	430.	175.	175.	1.96		
ROUTED TO	485R	1879.	4.70	428.	175.	175.	1.96	1.61	5.05
HYDROGRAPH AT	490S	756.	4.60	214.	87.	87.	1.12		
3 COMBINED AT	495C	3047.	4.70	994.	420.	420.	5.64		
DIVERSION TO	505D	1247.	4.70	156.	63.	63.	5.64		
HYDROGRAPH AT	500D	1800.	4.40	838.	358.	358.	5.64		
ROUTED TO	510R	1800.	4.95	837.	357.	357.	5.64	2.07	5.25
HYDROGRAPH AT	515S	368.	4.40	89.	36.	36.	.48		
2 COMBINED AT	520C	2043.	4.65	904.	387.	387.	6.12		
DIVERSION TO	525D	483.	4.65	90.	36.	36.	6.12		
HYDROGRAPH AT	530D	1560.	4.45	814.	351.	351.	6.12		
4 COMBINED AT	535C	5188.	5.85	3574.	2607.	2607.	19.90		
ROUTED TO	540R	5182.	5.90	3574.	2605.	2605.	19.90	1257.21	5.40
HYDROGRAPH AT	545S	305.	4.40	41.	16.	16.	.30		
2 COMBINED AT	550C	5184.	5.90	3587.	2611.	2611.	20.20		
ROUTED TO	555R	5167.	6.00	3586.	2608.	2608.	20.20	1240.72	5.55
HYDROGRAPH AT	560S	272.	4.15	33.	13.	13.	.19		
DIVERSION TO	570D	25.	3.70	9.	4.	4.	.19		
HYDROGRAPH AT	565D	247.	4.15	23.	9.	9.	.19		
ROUTED TO	575R	201.	4.50	23.	9.	9.	.19	.00	5.25
HYDROGRAPH AT	580S	1819.	4.05	147.	59.	59.	.91		
3 COMBINED AT	585C	5161.	6.00	3641.	2646.	2646.	21.30		
ROUTED TO	590R	5152.	6.05	3639.	2643.	2643.	21.30	1225.71	5.65
HYDROGRAPH AT	595S	124.	5.00	40.	17.	17.	.30		
HYDROGRAPH AT	600S	714.	4.60	115.	46.	46.	1.03		
ROUTED TO	605R	710.	4.65	115.	46.	46.	1.03	.31	4.90

HYDROGRAPH AT	610S	786.	4.25	120.	48.	48.	.69		
DIVERSION TO	616D	786.	4.25	78.	31.	31.	.69		
HYDROGRAPH AT	615RET	456.	4.60	43.	17.	17.	.69		
2 COMBINED AT	620C	977.	4.75	141.	57.	57.	1.72		
ROUTED TO	625R	876.	4.95	140.	57.	57.	1.72	.88	5.35
HYDROGRAPH AT	630S	367.	4.25	57.	23.	23.	.34		
2 COMBINED AT	635C	958.	4.95	185.	75.	75.	2.05		
3 COMBINED AT	640C	5240.	6.00	3724.	2677.	2677.	23.65		
ROUTED TO	645R	5235.	6.10	3723.	2675.	2675.	23.65	1196.57	5.70
HYDROGRAPH AT	650S	130.	4.35	14.	6.	6.	.13		
2 COMBINED AT	655C	5232.	6.05	3726.	2676.	2676.	23.78		

*** NORMAL END OF HEC-1 ***

SECTION VI

HEC-1 HYDROLOGY RESULTS FOR A 100-YEAR, 6-HOUR STORM

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*****************************************
*                                       *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *
*    BY THE COE IN FEBRUARY 1981        *
*          REVISED 02 AUG 88            *
*                                       *
*  RUN DATE  11/08/1990  TIME  13:39:10 *
*                                       *
*****************************************
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*****************************************
*                                       *
*     DODSON AND ASSOCIATES, INC.       *
*   HYDROLOGIST AND CIVIL ENGINEERS     *
*       7015 W TIDWELL SUITE 107        *
*          HOUSTON, TEXAS  77092        *
*            (713) 895-8322             *
*                                       *
*****************************************
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
x     x  xxxxxxx   xxxxx          xxx
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

    1     ID   SKUNK CREEK BETWEEN ACDC AND CAP FLOOD INSURANCE STUDY
    2     ID   PREPARED FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC # 89-72)
    3     ID   BY COE & VAN LOO CONSULTING ENGINEERS, INC. (CVL # 1090-050)
    4     ID   NOVEMBER 1990   JKM-DWD-AJR
    5     ID   INPUT FILE NAME:  SK100-6
    6     ID
    7     ID   100-YEAR, 6-HOUR STORM
    8     ID   FCDMC DISTRIBUTION
    9     ID
          *DIAGRAM
   10     IT       3                    300
   11     IO       5
   12     IN      15
   13     JD    3.20    0.01
   14     PC    .000    .008    .016    .025    .033    .041    .050    .058    .066    .074
   15     PC    .087    .099    .118    .138    .216    .377    .834    .911    .931    .950
   16     PC    .962    .972    .983    .991   1.000
   17     JD    3.18    0.50
   18     JD    3.14    2.80
   19     PC    .000    .009    .016    .025    .034    .042    .051    .059    .067    .076
   20     PC    .087    .100    .120    .163    .252    .451    .694    .837    .900    .938
   21     PC    .950    .963    .975    .988   1.000
   22     JD    2.95    16.0
   23     PC    .000    .015    .020    .030    .048    .063    .076    .090    .105    .119
   24     PC    .135    .152    .175    .222    .304    .472    .670    .796    .868    .912
   25     PC    .946    .960    .973    .987   1.000
   26     JD    2.59    90.0
   27     PC    .000    .021    .035    .051    .071    .087    .105    .125    .143    .160
   28     PC    .179    .201    .232    .281    .364    .500    .658    .773    .841    .888
   29     PC    .927    .945    .964    .982   1.000
   30     JD    1.82   500.0
   31     PC    .000    .024    .043    .059    .078    .098    .119    .141    .162    .186
   32     PC    .212    .239    .271    .321    .408    .515    .627    .735    .814    .864
   33     PC    .907    .930    .954    .977   1.000

   34     KK      5S
   35     KM   SUB-BASIN 5
   36     BA   1.332
   37     LG    .200    .270   7.600    .160   4.000
   38     UC    .467    .146
   39     UA       0       3       5       8      12      20      43      75      90      96
   40     UA     100

   41     KK   10RET
   42     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
   43     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
   44     RS       1    STOR      -1
   45     SV       0       4      17      52      96     148     209     279
   46     SE      15      16      17      18      19      20      21      22
   47     SL      15    9.62      .6      .5
   48     SS    21.9      50       3     1.5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  49      KK    15R
  50      KM   ROUTE 10RET TO CP OF 20S ALONG NATURAL CHANNEL
  51      RS     5    FLOW      -1
  52      RC   .04     .03     .04    9000   .0080
  53      RX     0     100     120     125     135     140     160     260
  54      RY     5       3       2       0       0       2       3       5

  55      KK    20S
  56      KM   SUB-BASIN 20
  57      BA   1.379
  58      LG   .350    .290   6.700    .170    .000
  59      UC   .633    .297
  60      UA     0       3       5       8      12      20      43      75      90      96
  61      UA   100

  62      KK    25C
  63      KM   COMBINE 20S AND 15R AT CP OF 20S
  64      HC     2

  65      KK    30R
  66      KM   ROUTE 25C TO CP OF 35S ALONG NATURAL CHANNEL
  67      RS     5    FLOW      -1
  68      RC   .04     .03     .04    4800   .0056
  69      RX     0       5     205     215     235     245     445     450
  70      RY     5       3       1       0       0       1       3       5

  71      KK    35S
  72      KM   SUB-BASIN 35
  73      BA   1.514
  74      LG   .350    .310   5.800    .230    .000
  75      UC   .700    .356
  76      UA     0       3       5       8      12      20      43      75      90      96
  77      UA   100

  78      KK    40S
  79      KM   SUB-BASIN 40
  80      BA   .545
  81      LG   .200    .260   7.900    .120   6.000
  82      UC   .433    .207
  83      UA     0       3       5       8      12      20      43      75      90      96
  84      UA   100

  85      KK   45RET
  86      KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  87      KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  88      RS     1    STOR      -1
  89      SV     0       2      11      34      62      96     135     180
  90      SE    15      16      17      18      19      20      21      22
  91      SL    15    4.91      .6      .5
  92      SS  21.9      50       3     1.5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  93      KK    50R
  94      KM   ROUTE 45RET TO CP OF 35S ALONG NATURAL CHANNEL
  95      RS     5    FLOW     -1
  96      RC   .04    .03    .04   11000   .0086
  97      RX     0     50    150     165     175     190     290     340
  98      RY     6      5      3       0       0       3       5       6

  99      KK    55S
 100      KM   SUB-BASIN 55
 101      BA   .588
 102      LG   .350   .320  5.100   .290   .000
 103      UC   .600   .455
 104      UA     0      3      5       8      12      20      43      75      90      96
 105      UA   100

 106      KK    60S
 107      KM   SUB-BASIN 60
 108      BA  1.202
 109      LG   .210   .270  7.500   .150  8.000
 110      UC   .750   .387
 111      UA     0      3      5       8      12      20      43      75      90      96
 112      UA   100

 113      KK   65RET
 114      KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
 115      KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
 116      RS     1    STOR     -1
 117      SV     0      2      7      24      43      67      95     127
 118      SE    15     16     17      18      19      20      21      22
 119      SL    15   9.62     .6      .5
 120      SS  21.9     50      3     1.5

 121      KK    70R
 122      KM   ROUTE 65RET TO CP OF 35S ALONG NATURAL CHANNEL
 123      RS     5    FLOW     -1
 124      RC   .04    .03    .04   10000   .0090
 125      RX     0    100    200     215     230     245     345     445
 126      RY     6      5      3       0       0       3       5       6

 127      KK    75C
 128      KM   COMBINE 30R, 35S, 50R, 55S AND 70R AT CP OF 35S
 129      HC     5

 130      KK   80RET
 131      KM   ROUTE FLOW THROUGH DETENTION BEHIND PINNACLE PEAK ROAD CULVERTS
 132      KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
 133      RS     1    STOR     -1
 134      SV     0    .05    1.2     9.1    35.6      65    94.5     139
 135      SE    11     12     14      16      18      19      20      21
 136      SQ     0     54    254     528     936    2344    5278   10401
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  137     KK    85R
  138     KM   ROUTE 80RET TO CP OF 90S ALONG NATURAL CHANNEL
  139     RS       5    FLOW      -1
  140     RC     .04     .03     .04     2000    .0050
  141     RX       0      50     150      165     175     190     240     250
  142     RY       6       5       4        0       0       4       5       7

  143     KK    90S
  144     KM   SUB-BASIN 90
  145     BA   1.227
  146     LG    .350    .320   5.300    .350   1.000
  147     UC    .867    .566
  148     UA       0       3       5        8      12      20      43      75      90      96
  149     UA     100

  150     KK    95S
  151     KM   SUB-BASIN 95
  152     BA    .968
  153     LG    .200    .270   7.500    .150   5.000
  154     UC    .700    .369
  155     UA       0       3       5        8      12      20      43      75      90      96
  156     UA     100

  157     KK  100RET
  158     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  159     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  160     RS       1    STOR      -1
  161     SV       0       2       9       30      55      85     120     160
  162     SE      15      16      17       18      19      20      21      22
  163     SL      15    7.07      .6       .5
  164     SS    21.9      50       3      1.5

  165     KK   105R
  166     KM   ROUTE 100RET TO CP OF 90S ALONG NATURAL CHANNEL
  167     RS       5    FLOW      -1
  168     RC     .04     .03     .04    13000    .0080
  169     RX       0       5     155      160     170     175     325     330
  170     RY       3       2       1        0       0       1       2       3

  171     KK   110C
  172     KM   COMBINE 85R, 90S AND 105R AT CP OF 90S
  173     HC       3

  174     KK  115RET
  175     KM   ROUTE FLOW THROUGH DETENTION BEHIND 2-8X7 RCBC AT I-17
  176     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  177     RS       1    STOR      -1
  178     SV       0    .001    .220     1.16    8.44      17      30      49      67     106
  179     SE     3.8       4       6        8      10      11      12      13    13.7      15
  180     SQ       0       1     176      414     680     880    1091    1593    2678    7306
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  181     KK   120D
  182     KM   DIVERT OVERFLOWS SOUTH TO SINGLE CULVERT AT MH PARK, & WEST ON TO I-17
  183     KM   DQ IS Q THROUGH 2-8X7 CULVERT (MAX 1312 CFS); DI IS TOTAL Q
  184     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  185     DT   125D
  186     DI      1     880    1091    1593    2678    3746
  187     DQ      1     880    1060    1184    1296    1312

  188     KK   130D
  189     KM   SEPARATE OUT WEST OVERFLOWS ONTO THE FRONTAGE ROAD AND MAINLINE I-17
  190     KM   THESE FLOWS HEAD SOUTH AND EVENTUALLY ENTER THE DEER VALLEY INTERCHANGE
  191     KM   REMAINING FLOWS CONTINUE SOUTH TO 6X7 BOX CULVERT ON SCATTER WASH AT I-17
  192     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  193     DT   135D
  194     DI     31     409    1382    2434
  195     DQ      0       0     215     840

  196     KK   140S
  197     KM   SUB-BASIN 140
  198     BA   1.233
  199     LG    .350    .330   4.700    .430   1.000
  200     UC   1.167    .888
  201     UA      0       3       5       8      12      20      43      75      90      96
  202     UA    100

  203     KK   145S
  204     KM   SUB-BASIN 145
  205     BA    .383
  206     LG    .190    .310   6.200    .270    .000
  207     UC    .483    .285
  208     UA      0       3       5       8      12      20      43      75      90      96
  209     UA    100

  210     KK  150RET
  211     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  212     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  213     RS      1    STOR      -1
  214     SV      0       1       4      14      26      40      56      75
  215     SE     15      16      17      18      19      20      21      22
  216     SL     15    4.19     .16      .5
  217     SS   21.9      50       3     1.5

  218     KK   155R
  219     KM   ROUTE 150RET TO CP OF 140S ALONG NATURAL CHANNEL
  220     RS      5    FLOW      -1
  221     RC    .04     .03     .04   15000   .0073
  222     RX      6      10     200     220     230     250     440     450
  223     RY      0       5       3       0       0       3       5       6
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  224     KK   160C
  225     KM   COMBINE 140S, 130D AND 155R AT CP OF 140S
  226     HC     3

  227     KK   165D
  228     KM   DIVERT FLOW ACROSS I-17 THROUGH 6X7 RCBC (MAX Q = 510 CFS)
  229     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  230     DT   170D
  231     DI     0      1     510     511    1000    2000
  232     DQ     0      1     510     510     510     510

  233     KK   175S
  234     KM   SUB-BASIN 175
  235     BA   .299
  236     LG   .070   .290  6.700   .190  75.000
  237     UC   .533   .586
  238     UA     0      5     16      30      65      77      84      90      94      97
  239     UA   100

  240     KK   180C
  241     KM   COMBINE 165D AND 175S AT CP OF 175S
  242     HC     2

  243     KK   185D
  244     KM   DIVERT FLOW ACROSS I-17 THROUGH 65X40 CMP AT ADOBE DRIVE
  245     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  246     DT   190D
  247     DI     0    115     116    1000    3000
  248     DQ     0    115     115     115     115

  249     KK   195S
  250     KM   SUB-BASIN 195
  251     BA   .399
  252     LG   .090   .310 11.000   .310  80.000
  253     UC   .467   .390
  254     UA     0      5     16      30      65      77      84      90      94      97
  255     UA   100

  256     KK   200C
  257     KM   COMBINE 185D AND 195S AT CP OF 195S
  258     HC     2

  259     KK   205D
  260     KM   DIVERT FLOW ACROSS I-17 THROUGH 6X3 RCBC AT LOUISE DRIVE
  261     KM   DI REPRESENTS TOTAL FLOW, DQ REPRESENTS FLOW THROUGH 6X3 RCBC.
  262     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  263     DT   210D
  264     DI     0      1     156     157    1000    3000
  265     DQ     0      1     156     156     156     156
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  266     KK   135RD
  267     KM   RETRIEVE FLOW DIVERTED ALONG I-17 AND FRONTAGE ROAD
  268     DR    135D

  269     KK    215C
  270     KM   COMBINE 135RD AND 205D AT DEER VALLEY/I-17 INTERCHANGE
  271     HC       2

  272     KK  220RET
  273     KM   ROUTE FLOW THROUGH DEPRESSED SECTION TO WEST SIDE OF I-17
  274     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  275     RS       1    STOR      -1
  276     SV       0       1    15.9    37.7    53.8    61.3    74.1      99   129.5
  277     SE      82      84      90      94      96    96.8      98     100     102
  278     SQ       0       0       0       0       0       1     808    5403   13835

  279     KK   210RD
  280     KM   RETRIEVE FLOW DIVERTED THROUGH CULVERT AT LOUISE DRIVE
  281     DR    210D

  282     KK    225C
  283     KM   COMBINE 220RET AND 210RD AT INTERSECTION OF 27TH AVE & DEER VALLEY ROAD
  284     HC       2

  285     KK    230R
  286     KM   ROUTE 225C TO CP OF 250S ALONG NATURAL CHANNEL
  287     RS       5    FLOW      -1
  288     RC     .03     .02     .03    7000   .0057       5
  289     RX       0       5      25      26      64      65      85      90
  290     RY       2       1      .5       0       0      .5       1       2

  291     KK    235S
  292     KM   SUB-BASIN 235
  293     BA    .062
  294     LG    .090    .310  11.000    .020  74.000
  295     UC    .183    .132
  296     UA       0       5      16      30      65      77      84      90      94      97
  297     UA     100

  298     KK    240R
  299     KM   ROUTE 235S TO CP OF 250S ALONG NATURAL CHANNEL
  300     RS       5    FLOW      -1
  301     RC     .04     .03     .04    5500   .0073
  302     RX       0       5      55      60      70      75     125     130
  303     RY       3       2       1       0       0       1       2       3

  304     KK   190RD
  305     KM   RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT AT ADOBE DRIVE
  306     DR    190D
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  307     KK   245R
  308     KM   ROUTE 190RD TO CP OF 250S ALONG NATURAL CHANNEL
  309     RS      5    FLOW      -1
  310     RC    .03     .02     .03    7500    .0060
  311     RX      0       5      25      26      64      65      85      90
  312     RY      2       1      .5       0       0      .5       1       2

  313     KK   250S
  314     KM   SUB-BASIN 250
  315     BA   1.103
  316     LG    .240    .320   6.900    .260  26.000
  317     UC    .833    .395
  318     UA      0       3       5       8      12      20      43      75      90      96
  319     UA    100

  320     KK   125RD
  321     KM   RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT NEAR MH PARK SOUTH OF
  322     KM   PINNACLE PEAK ROAD
  323     DR    125D

  324     KK   170RD
  325     KM   RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT NORTH OF WILLIAMS DRIVE
  326     DR    170D

  327     KK   255S
  328     KM   SUB-BASIN 255
  329     BA    .615
  330     LG    .320    .330   6.200    .230  10.000
  331     UC   1.233    .986
  332     UA      0       3       5       8      12      20      43      75      90      96
  333     UA    100

  334     KK   260C
  335     KM   COMBINE 125RD, 170RD AND 255S AT CP OF 255S
  336     HC      3

  337     KK   265R
  338     KM   ROUTE 260C TO CP OF 250S ALONG SCATTER WASH NORTH OF DEER VALLEY ROAD
  339     RS      5    FLOW      -1
  340     RC    .04     .03     .04    8300    .0048
  341     RX    250     700     900     980    1020    1100    1300    1750
  342     RY     17    12.5      10       0       0      10    12.5      17

  343     KK   270C
  344     KM   COMBINE 240R, 240R, 245R, 265R & 250S @ CP OF 250S
  345     HC      5

  346     KK   275R
  347     KM   ROUTE 270C TO CP OF 280S ALONG SCATTER WASH NORTH OF BEARDSLEY ROAD
  348     RS      5    FLOW      -1
  349     RC    .04     .03     .04    4500    .0056      10
  350     RX    100     650     800     980    1020    1200    1350    1600
  351     RY    7.5       7     5.5       0       0     5.5       7     7.5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  352     KK   280S
  353     KM   SUB-BASIN 280
  354     BA    .744
  355     LG    .230    .330   4.900    .320  13.000
  356     UC    .650    .415
  357     UA       0       5      16      30      65      77      84      90      94      97
  358     UA     100

  359     KK   285C
  360     KM   COMBINE 275R AND 280S AT CP OF 280S
  361     HC       2

  362     KK   290R
  363     KM   ROUTE 285C TO CP OF 295S ALONG SCATTER WASH CHANNEL U/S OF 45TH AVE CROSSING
  364     RS       5    FLOW      -1
  365     RC     .03     .03     .03    6200   .0027
  366     RX     830     850     980     990    1010    1020    1150    1170
  367     RY      10     2.5     2.5       0       0     2.5     2.5      10

  368     KK   295S
  369     KM   SUB-BASIN 295
  370     BA    .352
  371     LG    .290    .340   4.400    .330  11.000
  372     UC    .933    .813
  373     UA       0       3       5       8      12      20      43      75      90      96
  374     UA     100

  375     KK   300C
  376     KM   COMBINE 290R AND 295S AT CP OF 295S
  377     HC       2

  378     KK   310S
  379     KM   ADOBE DAM OUTLET; ASSUMED CONSTANT OUTFLOW OF 1730 CFS FOR 100-YEAR STORM
  380     KM   SOURCE: F.I.S., MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS, FEMA
  381     BA     0.1
  382     IN     120
  383     QI    1730    1730    1730    1730    1730    1730    1730    1730    1730    1730
  384     QI    1730    1730    1730    1730    1730    1730    1730    1730    1730    1730

  385     KK   320R
  386     KM   SKUNK CREEK U/S OF BEARDSLEY ROAD AND D/S OF ADOBE DAM
  387     RS       5    FLOW      -1
  388     RC     .04     .03     .04    3300   .0028
  389     RX     645     795     945     965    1035    1085    1095    1105
  390     RY       7       6       5       0       0       7       9      11

  391     KK   325S
  392     KM   SUB-BASIN 325
  393     BA    .650
  394     LG    .300    .340   3.900    .440   9.000
  395     UC   1.300    .968
  396     UA       0       3       5       8      12      20      43      75      90      96
  397     UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  398     KK   330C
  399     KM   COMBINE 325S AND 310S (ADOBE DAM OUTLET)
  400     HC     2

  401     KK   335R
  402     KM   ROUTE 330C TO CP OF 340S ALONG SKUNK CREEK U/S OF WAHALLA LANE
  403     RS     5   FLOW     -1
  404     RC   .04    .03    .04   3050   .006
  405     RX   935    940    945    965   1035   1065   1070   1075
  406     RY     7    6.5      6      0      0      6    6.5      7

  407     KK   340S
  408     KM   SUB-BASIN 340
  409     BA   .086
  410     LG   .230   .350  3.200   .660 13.000
  411     UC   .250   .185
  412     UA     0      5     16     30     65     77     84     90     94     97
  413     UA   100

  414     KK   345C
  415     KM   COMBINE 335R AND 340S AT CP OF 340S
  416     HC     2

  417     KK   350S
  418     KM   SUB-BASIN 350
  419     BA   .263
  420     LG   .280   .320  5.600   .250 23.000
  421     UC   .283   .112
  422     UA     0      3      5      8     12     20     43     75     90     96
  423     UA   100

  424     KK   355R
  425     KM   ROUTE 350S TO CONFLUENCE OF SCATTER WASH & SKUNK CREEK, ALONG HAVASUPAI DR.
  426     RS     5   FLOW     -1
  427     RC   .03    .02    .03   2400   .006
  428     RX    70   70.1   79.9     80    120  120.1    130  130.1
  429     RY   5.5     .5     .5      0      0     .5     .5    5.5

  430     KK   360C
  431     KM   COMBINE 300C, 345C AND 355R NEAR CONFLUENCE OF SCATTER WASH AND SKUNK CREEK
  432     HC     3

  433     KK   370R
  434     KM   ROUTE 360C TO CP OF 375S ALONG SKUNK CREEK U/S OF 51ST AVENUE ALIGNMENT
  435     RS     2   FLOW     -1
  436     RC   .04    .03    .04   6200  .0047
  437     RX   120    130    350    460    580    590    720    770
  438     RY  1298   1296   1294   1290   1290   1294   1296   1298
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 439      KK   375S
 440      KM   SUB-BASIN 375
 441      BA    .984
 442      LG    .290    .330   5.300    .380  18.000
 443      UC    .650    .303
 444      UA       0       3       5       8      12      20      43      75      90      96
 445      UA     100

 446      KK   380S
 447      KM   SUB-BASIN 380
 448      BA   1.405
 449      LG    .320    .330   4.600    .430   8.000
 450      UC   1.250    .653
 451      UA       0       3       5       8      12      20      43      75      90      96
 452      UA     100

 453      KK   385R
 454      KM   ROUTE 380S TO CP OF 390S ALONG UNNAMED WASH WEST OF PILCHER HILL
 455      RS       5    FLOW      -1
 456      RC     .04     .03     .04    4400     .01
 457      RX      10     200     300     306     316     322     420     620
 458      RY      12      10       9       6       6       9      10      12

 459      KK   390S
 460      KM   SUB-BASIN 390
 461      BA    .799
 462      LG    .310    .340   4.400    .340  23.000
 463      UC    .600    .219
 464      UA       0       3       5       8      12      20      43      75      90      96
 465      UA     100

 466      KK   395C
 467      KM   COMBINE 385R AND 390S AT CP OF 390S
 468      HC       2

 469      KK   400R
 470      KM   ROUTE 395S TO CP OF 405S ALONG UNNAMED WASH NORTH OF ARROWHEAD RANCH
 471      RS       5    FLOW      -1
 472      RC     .04     .03     .04    9600   .0073
 473      RX     300     350     400     460     540     600     650     700
 474      RY    1314    1309    1304    1300    1300    1304    1304    1304

 475      KK   405S
 476      KM   SUB-BASIN 405
 477      BA   1.776
 478      LG    .220    .330   5.200    .280  20.000
 479      UC   1.500   1.034
 480      UA       0       3       5       8      12      20      43      75      90      96
 481      UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  482     KK   410C
  483     KM   COMBINE 400R AND 405S AT CP OF 405S
  484     HC     2

  485     KK  411RET
  486     KM   LAKE 1, ARROWHEAD RANCH
  487     KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
  488     KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  489     RS     1    ELEV  1296.0
  490     SV   0.0    6.4   12.9   19.4   26.0   32.6   39.4   46.2   53.1   60.0
  491     SE 1296.0 1296.5 1297.0 1297.5 1298.0 1298.5 1299.0 1299.5 1300.0 1300.5
  492     SQ     0    126    356    655   1008   1409   1852   2334   2851   3402

  493     KK  412RET
  494     KM   LAKE 2, ARROWHEAD RANCH
  495     KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
  496     KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  497     RS     1    ELEV  1294.0
  498     SV     0   14.4   29.2   44.1   58.9   74.3   89.6  108.2  126.8  145.4
  499     SE 1294.0 1294.5 1295.0 1295.5 1296.0 1296.5 1297.0 1297.5 1298.0 1298.5
  500     SQ     0    168    475    873   1344   1878   2469   3112   3802   4536

  501     KK  413RET
  502     KM   LAKES 3 AND 7, ARROWHEAD RANCH
  503     KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
  504     KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  505     RS     1    ELEV  1292.0
  506     SV     0   29.8   61.7   91.6  122.5  154.5  186.3  225.3  264.3  303.1
  507     SE 1292.0 1292.5 1293.0 1293.5 1294.0 1294.5 1295.0 1295.5 1296.0 1296.5
  508     SQ     0     47    132    242    373    522    686    865   1056   1260

  509     KK  415RET
  510     KM   LAKE 8, ARROWHEAD RANCH
  511     KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
  512     KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  513     RS     1    ELEV  1290.0
  514     SV     0   20.6   42.1   63.5   84.9  107.1  129.4  456.8  184.3  211.8
  515     SE 1290.0 1290.5 1291.0 1291.5 1292.0 1292.5 1293.0 1293.5 1294.0 1294.5
  516     SQ     0     93    264    485    747   1044   1372   1729   2112   2520

  517     KK   420R
  518     KM   ROUTE 415RET TO CP OF 375S (55TH AVENUE CHANNEL)
  519     RS     5    FLOW     -1
  520     RC   .03    .03    .03   4560  .0025
  521     RX   390    400    440    460    536    566    686    690
  522     RY  1283   1282   1280   1276   1276   1283   1285   1286

  523     KK   425S
  524     KM   SUB-BASIN 425
  525     BA  1.723
  526     LG   .160   .300  7.400   .160 39.000
  527     UC  1.117  1.022
  528     UA     0      5     16     30     65     77     84     90     94     97
  529     UA   100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

530       KK  430RET
531       KM   ROUTE FLOW THROUGH DETENTION BEHIND 3-10X3 RCBC NORTHEAST OF I-17 AND
532       KM   UNION HILLS DRIVE; DETENTION VOLUME IS BASED ON AERIAL PHOTOGRAPHS AND
533       KM   FIELD VISITS, AND SHOULD BE CONSIDERED APPROXIMATE. OUTFLOW IS BASED ON
534       KM   CULVERT INLET CONTROL UP TO 4' DEEP, THEN WEIR FLOW OVER UNION HILLS
535       KM   DRIVE IS ADDED IN.
536       RS       1    ELEV       0
537       SA       0       6       9      12      15      22      31
538       SE       0       1       2       3       4       5       6
539       SQ       0     0.1      90     255     450    2010    4600

540       KK    432D
541       KM   DIVERT FLOW OVER UNION HILLS DRIVE, EAST OF I-17
542       KM   DQ REPRESENTS THE BREAKOUT FROM THE DETENTION BASIN OVER UNION HILLS DRIVE
543       DT    433D
544       DI       0      81     255     450    2010    4600
545       DQ       0       0       0       0    1350    3820

546       KK    435R
547       KM   ROUTE 432D TO CP OF 440S ALONG UNION HILLS DRIVE (INVERTED CROWN) -
548       KM   CULVERT OUTLET ON WEST SIDE OF I-17 TO 35TH AVENUE
549       RS       5    FLOW      -1
550       RC    .025     .02    .025    6800    .004       4
551       RX      45    59.9      60     100   100.1     140   140.1     155
552       RY     1.5     1.5       1       0       0       1     1.5     1.5

553       KK    440S
554       KM   SUB-BASIN 440
555       BA    .846
556       LG    .200    .300   9.300    .060  20.000
557       UC    .583    .358
558       UA       0       5      16      30      65      77      84      90      94      97
559       UA     100

560       KK    445C
561       KM   COMBINE 435R AND 440S AT CP OF 440S
562       HC       2

563       KK    450D
564       KM   SURFACE FLOW CAPACITY OF UNION HILLS DRIVE INVERTED CROWN SECTION IS 470 CFS,
565       KM   STORM DRAIN CAPACITY IS 890 CFS. TOTAL CAPACITY FLOWING WEST IS 1360 CFS.
566       KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN I-17 AND 35TH AVENUE
567       DT    455D
568       DI       0     500    1000    1360    2000    3000
569       DQ       0       0       0       0     640    1640

570       KK    460R
571       KM   ROUTE 450D TO CP OF 490S ALONG UNION HILLS DRIVE - 35TH TO 43RD AVENUE
572       RS       5    FLOW      -1
573       RC     .02    .025     .03    5280    .004      10
574       RX    99.9     100     135     150     155     170   170.1   170.2
575       RY       9     6.7       6       3       3       7       8       9
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  576     KK   465S
  577     KM   SUB-BASIN 465
  578     BA   1.361
  579     LG    .140    .310   9.100    .100  57.000
  580     UC    .767    .481
  581     UA       0       5      16      30      65      77      84      90      94      97
  582     UA     100

  583     KK   470R
  584     KM   ROUTE 465S TO CP OF 475S ALONG COLLECTOR STREET
  585     RS       5    FLOW      -1
  586     RC    .025     .02    .025    8200   .0046
  587     RX    69.9      70    74.9      75     125   125.1     130   130.1
  588     RY     3.5      .5      .5       0       0      .5      .5     3.5

  589     KK   475S
  590     KM   SUB-BASIN 475
  591     BA    .596
  592     LG    .290    .310  10.500    .030  18.000
  593     UC    .517    .313
  594     UA       0       3       5       8      12      20      43      75      90      96
  595     UA     100

  596     KK   480C
  597     KM   COMBINE 470R AND 475S AT CP OF 475S
  598     HC       2

  599     KK   485R
  600     KM   ROUTE 480C TO CP OF 490S ALONG LOCAL STREET WITH VERTICAL CURBS
  601     RS       5    FLOW      -1
  602     RC    .025     .02    .025   10300   .0038       5
  603     RX    69.9      70    79.9      80     120   120.1     130   130.1
  604     RY       2      .5      .5       0       0      .5      .5       2

  605     KK   490S
  606     KM   SUB-BASIN 490
  607     BA   1.115
  608     LG    .230    .290   8.300    .090  26.000
  609     UC    .967    .697
  610     UA       0       5      16      30      65      77      84      90      94      97
  611     UA     100

  612     KK   495C
  613     KM   COMBINE 460R, 485R AND 490S AT CP OF 490S
  614     HC       3

  615     KK   500D
  616     KM   SURFACE FLOW CAPACITY OF THE UNION HILLS DRIVE AND CHANNEL IS 520 CFS,
  617     KM   STORM DRAIN CAPACITY IS 1280 CFS. TOTAL CAPACITY FLOWING WEST IS 1800 CFS.
  618     KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 35TH AVENUE AND
  619     KM   43RD AVENUE
  620     DT   505D
  621     DI       0     500    1000    1800    2000    3000    4000
  622     DQ       0       0       0       0     200    1200    2200
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  623     KK   510R
  624     KM   ROUTE 500D TO CP OF 515S ALONG UNION HILLS DRIVE - 43RD TO 51ST AVENUE
  625     RS     5    FLOW     -1
  626     RC  .025    .02   .025   7500  .0042     10
  627     RX    45   59.9     60    100  100.1    140  140.1    155
  628     RY   1.5    1.5      1      0      0      1    1.5    1.5

  629     KK   515S
  630     KM   SUB-BASIN 515
  631     BA   .476
  632     LG   .120   .340  4.600   .280 32.000
  633     UC   .733   .641
  634     UA     0      5     16     30     65     77     84     90     94     97
  635     UA   100

  636     KK   520C
  637     KM   COMBINE 510R AND 515S AT CP OF 515S
  638     HC     2

  639     KK   530D
  640     KM   SURFACE FLOW CAPACITY OF UNION HILLS DRIVE AND 4-15" CULVERTS IS 65 CFS,
  641     KM   STORM DRAIN CAPACITY IS 1495 CFS. TOTAL CAPACITY FLOWING WEST IS 1560 CFS.
  642     KM   THE REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 43RD AVENUE AND
  643     KM   55TH AVENUE
  644     DT   525D
  645     DI     0   500  1000  1560  2000  4000
  646     DQ     0     0     0     0   440  2440

  647     KK   535C
  648     KM   COMBINE 370R, 375S, 420R & 530RD @ CP OF 375S
  649     HC     4  19.9

  650     KK   540R
  651     KM   ROUTE 535C TO CP OF 545S ALONG SKUNK CREEK U/S OF UNION HILLS DRIVE
  652     RS     2    FLOW     -1
  653     RC   .04    .03    .04  3400 .0056
  654     RX   445    465    475   500   610   640   650   660
  655     RY  1262   1264   1264  1254  1254  1262  1264  1264

  656     KK   545S
  657     KM   SUB-BASIN 545
  658     BA   .296
  659     LG   .310   .330  4.000   .460 15.000
  660     UC   .567   .362
  661     UA     0      3      5      8     12     20     43     75     90     96
  662     UA   100

  663     KK   550C
  664     KM   COMBINE 540R AND 545S AT CP OF 545S
  665     HC     2
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  666     KK   555R
  667     KM   ROUTE 550C TO CP OF 580S ALONG SKUNK CREEK FROM 67TH AVE. TO UNION HILLS DR.
  668     RS     2   FLOW     -1
  669     RC   .04    .03    .04   5350   .0039
  670     RX   395    435    465    500    560    590    650    700
  671     RY  1246   1244   1242   1236   1236   1242   1244   1245

  672     KK   560S
  673     KM   SUB-BASIN 560
  674     BA   .190
  675     LG   .150   .350  4.400   .280 21.000
  676     UC   .383   .275
  677     UA     0      5     16     30     65     77     84     90     94     97
  678     UA   100

  679     KK   565D
  680     KM   CAPACITY OF 59TH AVENUE IS 25 CFS.
  681     KM   THIS IS DIVERTED OUT OF THE WATERSHED (DQ)
  682     DT   570D
  683     DI     0     25     50    100    500   1000
  684     DQ     0     25     25     25     25     25

  685     KK   575R
  686     KM   ROUTE 565D TO CP OF 580S ALONG LOCAL STREETS WITH VERTICAL CURBS
  687     RS     5   FLOW     -1
  688     RC   .03    .02    .03   6500   .0044
  689     RX  74.9     75   81.9     82    118  118.1    125  125.1
  690     RY     2     .5     .5      0      0     .5     .5      2

  691     KK   580S
  692     KM   SUB-BASIN 580
  693     BA   .914
  694     LG   .200   .340  4.500   .330 25.000
  695     UC   .517   .217
  696     UA     0      5     16     30     65     77     84     90     94     97
  697     UA   100

  698     KK   585C
  699     KM   COMBINE 555R, 575R AND 580S AT CP OF 580S
  700     HC     3

  701     KK   590R
  702     KM   ROUTE 640C TO CP OF 650S ALONG SKUNK CREEK FROM 67TH AVENUE TO BELL ROAD
  703     RS     2   FLOW     -1
  704     RC   .04    .03    .04   4000   .0075
  705     RX   370    470    485    500    680    710    730    810
  706     RY  1231   1231   1230 1223.5 1223.5   1230   1232 1232.5

  707     KK   595S
  708     KM   SUB-BASIN 595
  709     BA   .302
  710     LG   .190   .340  4.500   .420 13.000
  711     UC 1.117  1.145
  712     UA     0      3      5      8     12     20     43     75     90     96
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  713     UA     100

  714     KK    600S
  715     KM    SUB-BASIN 600
  716     BA    1.027
  717     LG     .440     .250   5.500     .380   8.000
  718     UC     .800     .435
  719     UA        0        3       5        8      12      20      43      75      90      96
  720     UA      100

  721     KK    605R
  722     KM    ROUTE 600S TO CP OF 610S ALONG LOCAL STREETS WITH VERTICAL CURBS
  723     RS        5    FLOW      -1
  724     RC      .03      .02     .03    2500     .006       5
  725     RX     74.9       75    81.9      82      118   118.1     125   125.1
  726     RY        2       .5      .5       0        0      .5      .5       2

  727     KK    610S
  728     KM    SUB-BASIN 610
  729     BA     .690
  730     LG     .210     .270   6.800     .180  19.000
  731     UC     .617     .330
  732     UA        0        5      16       30      65      77      84      90      94      97
  733     UA      100

  734     KK  615RET
  735     KM    ENTIRE VOLUME OF RETENTION (38.6 AF) IS MODELED AS A DIVERT
  736     DT     616D    38.6
  737     DI        0      100     500     1000
  738     DQ        0      100     500     1000

  739     KK    620C
  740     KM    COMBINE 605R AND 615RET AT CP OF 610S
  741     HC        2

  742     KK    625R
  743     KM    ROUTE 620C TO CP OF 630S ALONG CHANNEL BESIDE 71ST AVENUE
  744     RS        5    FLOW      -1
  745     RC      .03      .03     .03    4500    .0022      10
  746     RX       15       18      20      30       45      55      57      60
  747     RY        7        6       5       0        0       5       6       7

  748     KK    630S
  749     KM    SUB-BASIN 630
  750     BA     .336
  751     LG     .170     .320   5.200     .260  19.000
  752     UC     .533     .397
  753     UA        0        5      16       30      65      77      84      90      94      97
  754     UA      100
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  755     KK   635C
  756     KM   COMBINE 625R AND 630S AT CP OF 630S
  757     HC     2

  758     KK   640C
  759     KM   COMBINE 540R, 595S AND 635C AT CP OF 595S
  760     HC     3

  761     KK   645R
  762     KM   ROUTE 585C TO CP OF 595S ALONG SKUNK CREEK FROM BELL ROAD TO ACDC
  763     RS     2    FLOW     -1
  764     RC   .04     .03     .04    3500   .0068
  765     RX   250     260     360     500     545     600     720     800
  766     RY  1212    1210    1208    1192    1192    1210    1210    1211

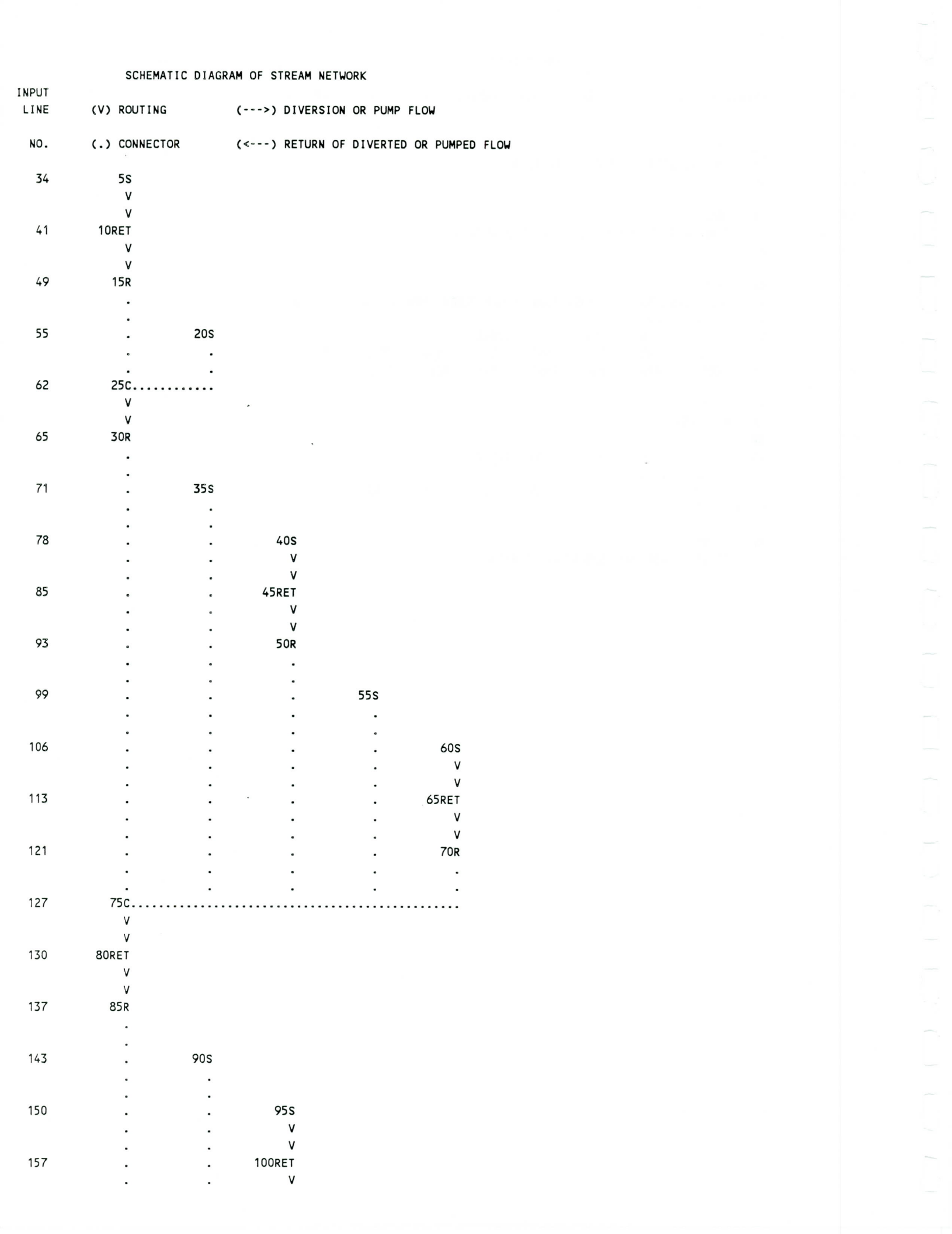
  767     KK   650S
  768     KM   SUB-BASIN 650
  769     BA   .125
  770     LG   .340    .350   3.700    .490   4.000
  771     UC   .450    .332
  772     UA     0       3       5       8      12      20      43      75      90      96
  773     UA   100

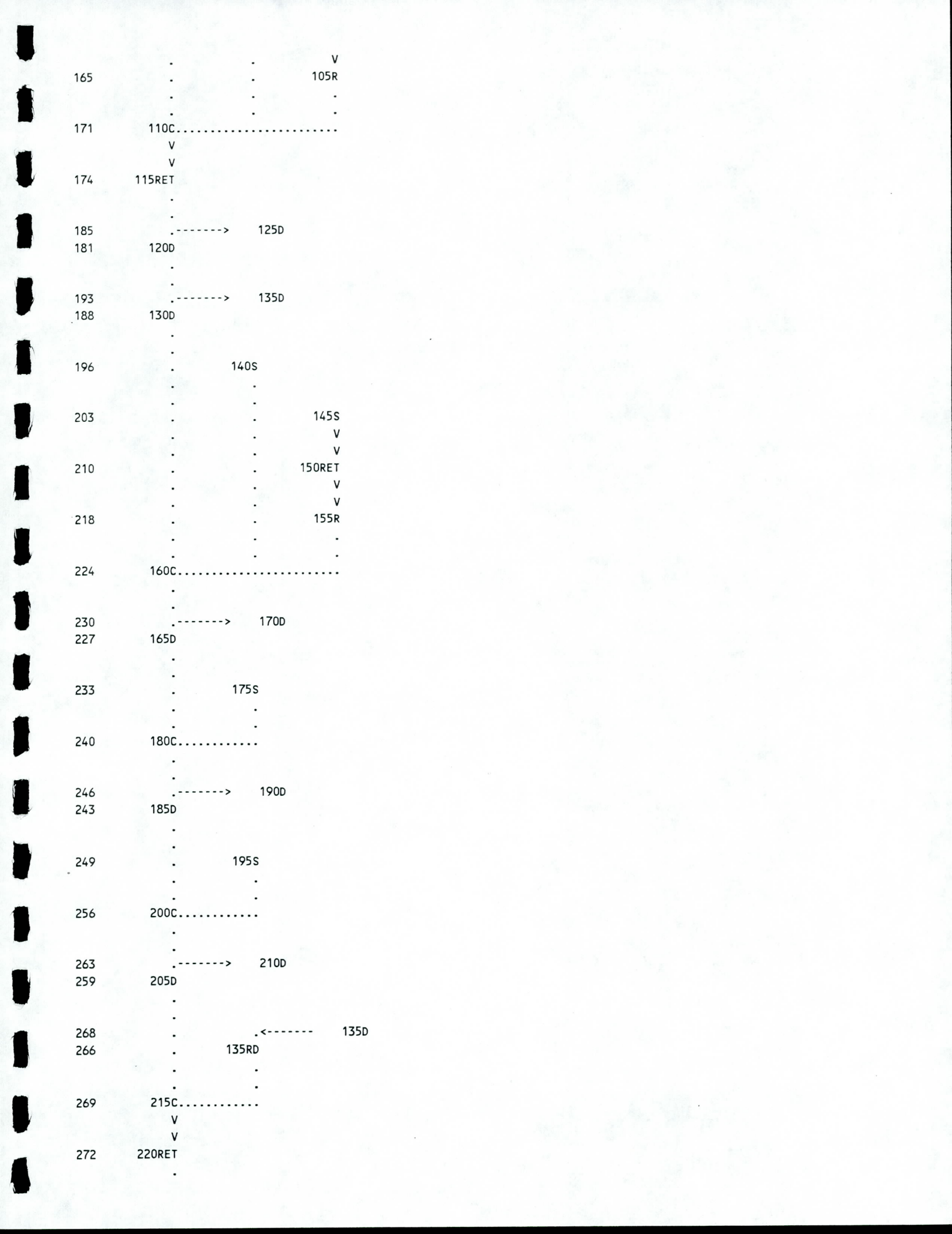
  774     KK   655C
  775     KM   COMBINE 645R AND 650S AT CP OF 650S
  776     HC     2
  777     ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

(V) ROUTING
(.) CONNECTOR
(---->) DIVERSION OR PUMP FLOW
(<----) RETURN OF DIVERTED OR PUMPED FLOW

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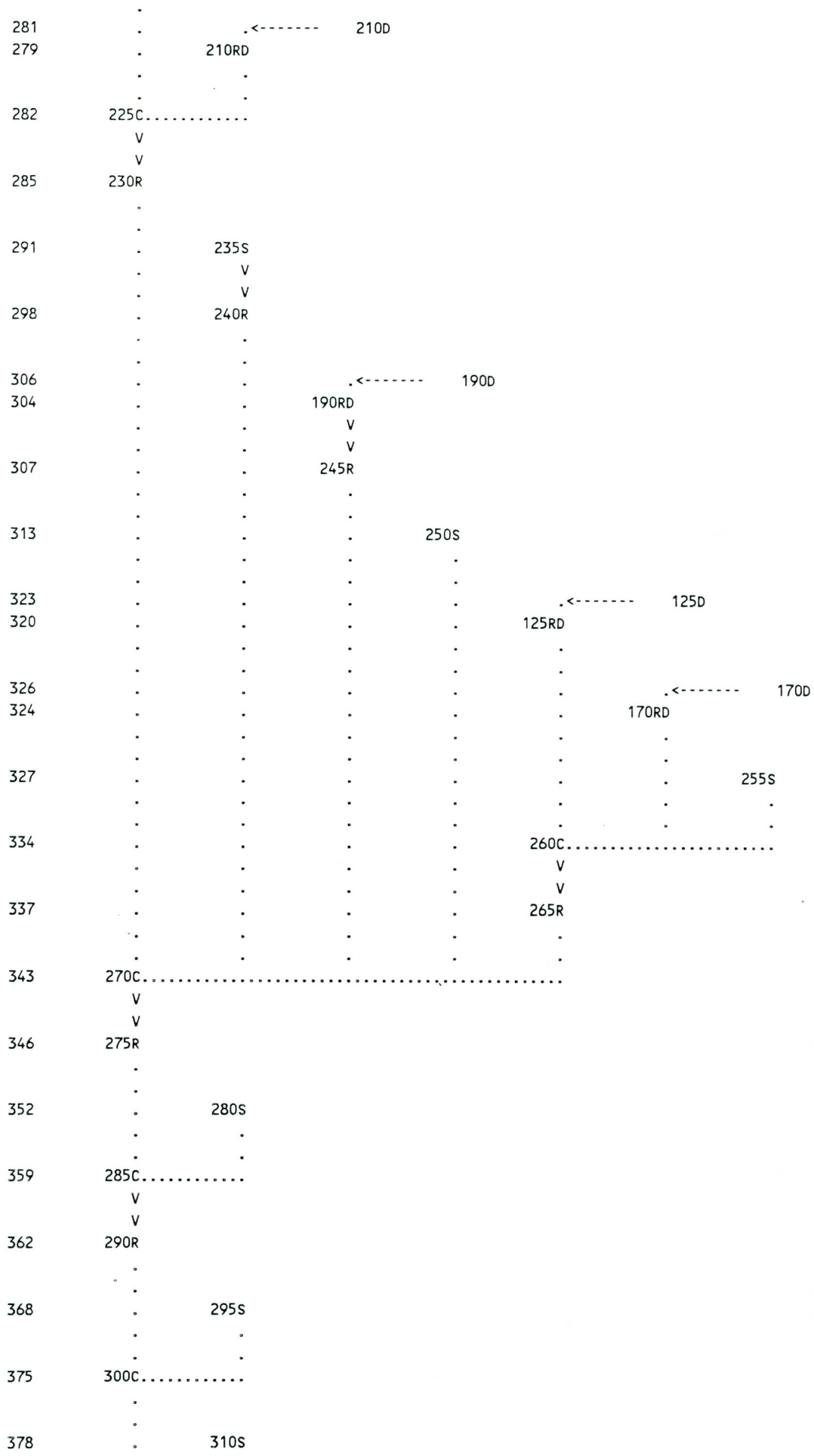
171 110C
174 115RET
185 125D
181 120D
193 135D
188 130D
196 140S
203 145S
210 150RET
218 155R
224 160C
230 170D
227 165D
233 175S
240 180C
246 190D
243 185D
249 195S
256 200C
263 210D
259 205D
268 135D
266 135RD
269 215C
272 220RET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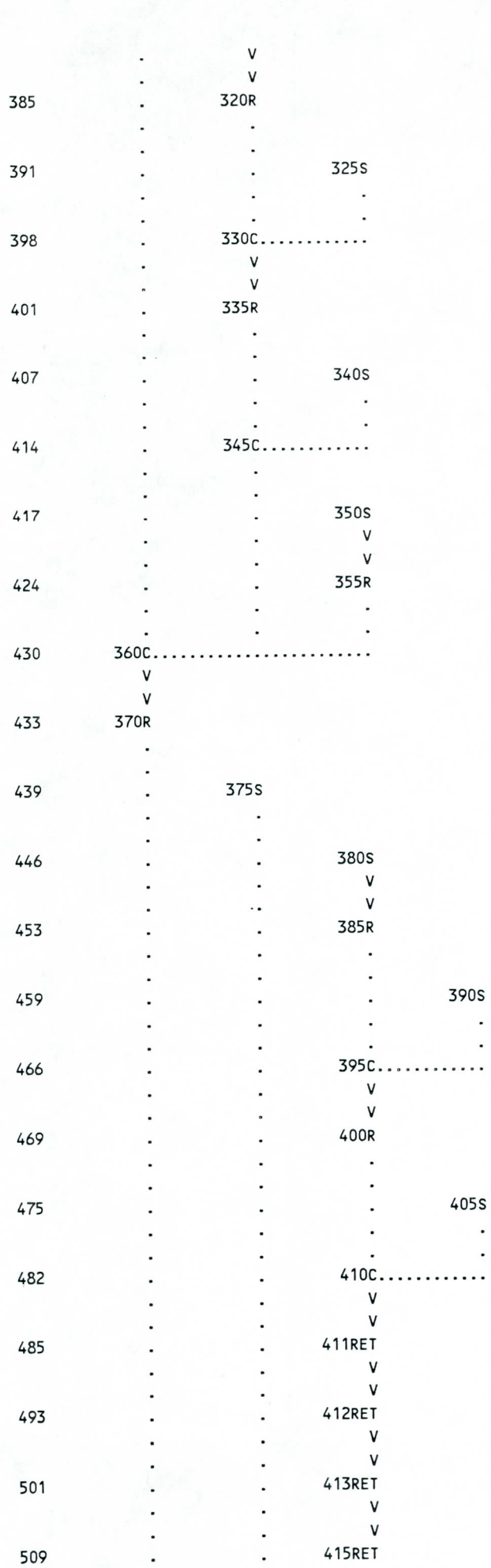
279 210RD
282 225C
285 230R
291 235S
298 240R
306 .<------- 190D
304 190RD
307 245R
313 250S
323 .<------- 125D
320 125RD
326 .<------- 170D
324 170RD
327 255S
334 260C
337 265R
343 270C
346 275R
352 280S
359 285C
362 290R
368 295S
375 300C
378 310S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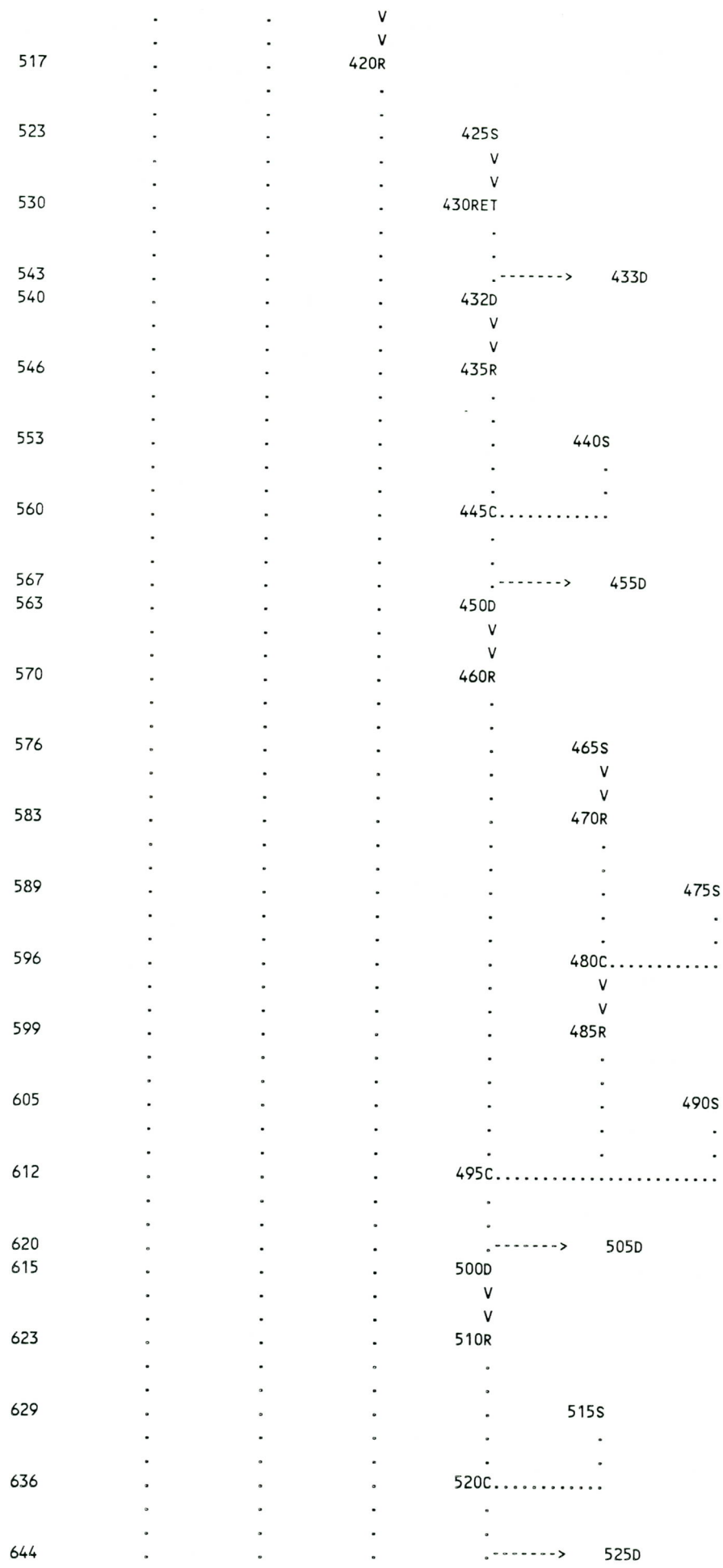
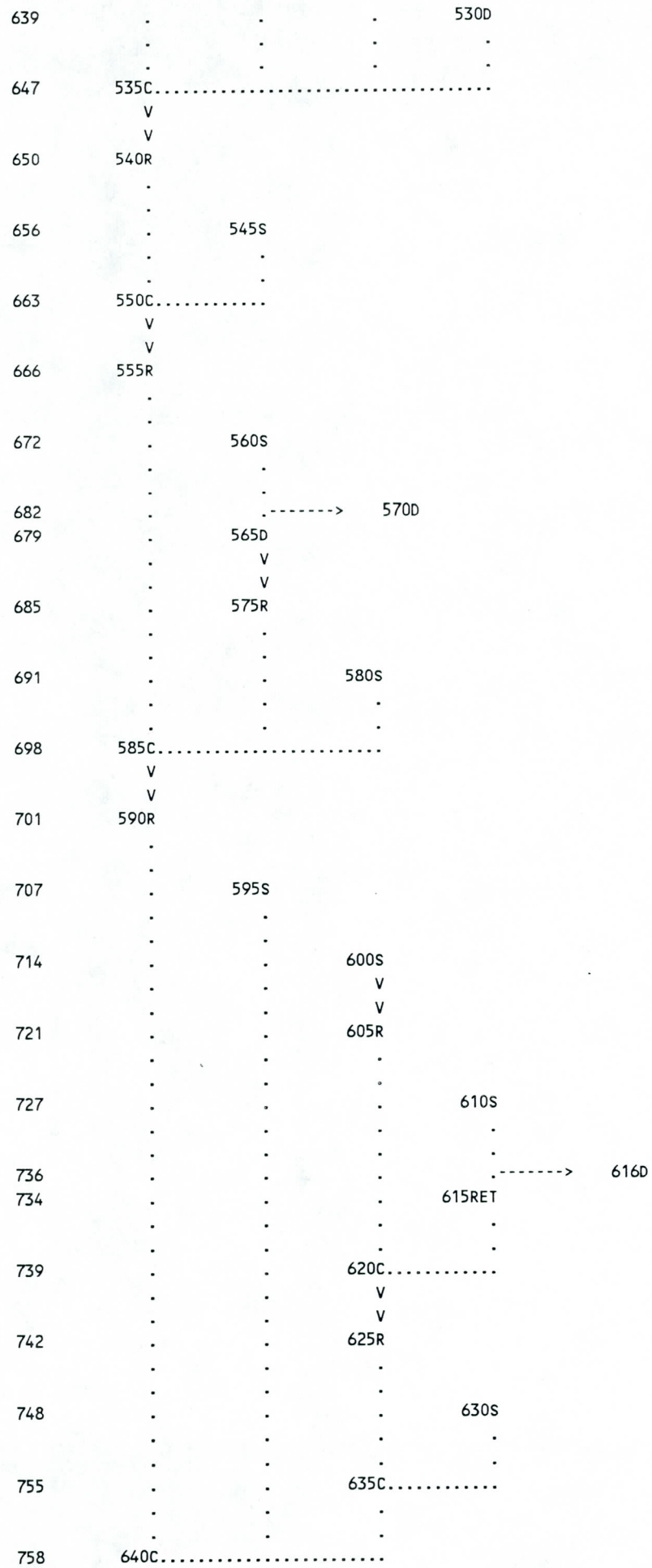
325S
330C
335R
340S
345C
350S
355R
360C
370R
375S
380S
385R
390S
395C
400R
405S
410C
411RET
412RET
413RET
415RET


V
V
517 420R
523 425S
V
V
530 430RET
543 .-------> 433D
540 432D
V
V
546 435R
553 440S
560 445C.....
567 .-------> 455D
563 450D
V
V
570 460R
576 465S
V
V
583 470R
589 475S
596 480C.....
V
V
599 485R
605 490S
612 495C.....
620 .-------> 505D
615 500D
V
V
623 510R
629 515S
636 520C.....
644 .-------> 525D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540R
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545S
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685
575R
691
580S
698
585C
701
590R
707
595S
714
600S
721
605R
727
610S
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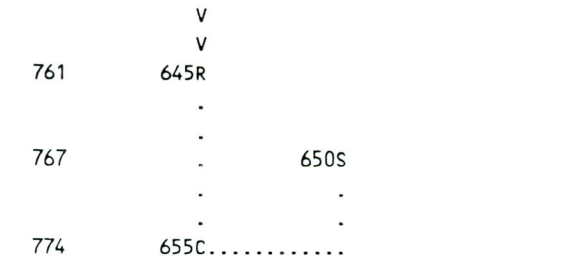
616D
734
615RET
739
620C
742
625R
748
630S
755
635C
758
640C



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*      BY THE COE IN FEBRUARY 1981      *
*           REVISED 02 AUG 88           *
*                                       *
*  RUN DATE  11/08/1990  TIME  13:39:10 *
*                                       *
*****************************************
```


```
*************************************
*                                   *
*     DODSON AND ASSOCIATES, INC.   *
*   HYDROLOGIST AND CIVIL ENGINEERS *
*      7015 W TIDWELL SUITE 107     *
*        HOUSTON, TEXAS  77092      *
*          (713) 895-8322           *
*                                   *
*************************************
```


SKUNK CREEK BETWEEN ACDC AND CAP FLOOD INSURANCE STUDY
PREPARED FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC # 89-72)
BY COE & VAN LOO CONSULTING ENGINEERS, INC. (CVL # 1090-050)
NOVEMBER 1990 JKM-DWD-AJR
INPUT FILE NAME: SK100-6

100-YEAR, 6-HOUR STORM
FCDMC DISTRIBUTION

11 IO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN		3	MINUTES IN COMPUTATION INTERVAL
IDATE	1	0	STARTING DATE
ITIME		0000	STARTING TIME
NQ		300	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	1	0	ENDING DATE
NDTIME		1457	ENDING TIME
ICENT		19	CENTURY MARK

COMPUTATION INTERVAL .05 HOURS
TOTAL TIME BASE 14.95 HOURS

ENGLISH UNITS

DRAINAGE AREA	SQUARE MILES
PRECIPITATION DEPTH	INCHES
LENGTH, ELEVATION	FEET
FLOW	CUBIC FEET PER SECOND
STORAGE VOLUME	ACRE-FEET
SURFACE AREA	ACRES
TEMPERATURE	DEGREES FAHRENHEIT

13 JD INDEX STORM NO. 1

STRM	3.20	PRECIPITATION DEPTH
TRDA	.01	TRANSPOSITION DRAINAGE AREA

14 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.02	.02	.02	.02	.02
.03	.03	.03	.03	.03	.09	.09	.09	.09	.09
.02	.02	.02	.02	.02	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

.00 .00 .00 .00 .00 .00 .00 .00 .00 .00

17 JD INDEX STORM NO. 2
STRM 3.18 PRECIPITATION DEPTH
TRDA .50 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.02	.02	.02	.02	.02
.03	.03	.03	.03	.03	.09	.09	.09	.09	.09
.02	.02	.02	.02	.02	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

18 JD INDEX STORM NO. 3
STRM 3.14 PRECIPITATION DEPTH
TRDA 2.80 TRANSPOSITION DRAINAGE AREA

19 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.01	.01	.01	.01	.01	.02	.02	.02	.02	.02
.04	.04	.04	.04	.04	.05	.05	.05	.05	.05
.03	.03	.03	.03	.03	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

22 JD INDEX STORM NO. 4
STRM 2.95 PRECIPITATION DEPTH
TRDA 16.00 TRANSPOSITION DRAINAGE AREA

23 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.01	.01	.01	.01	.01	.02	.02	.02	.02	.02
.03	.03	.03	.03	.03	.04	.04	.04	.04	.04
.03	.03	.03	.03	.03	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

26 JD INDEX STORM NO. 5
STRM 2.59 PRECIPITATION DEPTH
TRDA 90.00 TRANSPOSITION DRAINAGE AREA

27 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

.00	.00	.00	.00	.00	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.02	.02
.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
.02	.02	.02	.02	.02	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

30 JD INDEX STORM NO. 6

STRM	1.82	PRECIPITATION DEPTH
TRDA	500.00	TRANSPOSITION DRAINAGE AREA

31 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.02	.02	.02	.02	.02	.02	.02	.02	.02	.02
.01	.01	.01	.01	.01	.01	.01	.01	.01	.01
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	5S	2405.	4.25	240.	96.	96.	1.33		
ROUTED TO	10RET	95.	5.00	91.	65.	65.	1.33	16.51	4.95
ROUTED TO	15R	95.	5.45	91.	62.	62.	1.33	1.08	5.45
HYDROGRAPH AT	20S	1785.	4.40	225.	90.	90.	1.38		
2 COMBINED AT	25C	1517.	4.40	291.	145.	145.	2.71		
ROUTED TO	30R	1379.	4.80	290.	143.	143.	2.71	1.19	5.10
HYDROGRAPH AT	35S	1627.	4.45	224.	90.	90.	1.51		
HYDROGRAPH AT	40S	1193.	4.25	113.	45.	45.	.55		
ROUTED TO	45RET	45.	5.05	43.	31.	31.	.55	16.58	5.05
ROUTED TO	50R	44.	5.95	43.	28.	28.	.55	.69	5.90
HYDROGRAPH AT	55S	688.	4.40	91.	37.	37.	.59		
HYDROGRAPH AT	60S	1496.	4.50	230.	92.	92.	1.20		
ROUTED TO	65RET	113.	5.75	107.	74.	74.	1.20	17.15	5.40
ROUTED TO	70R	113.	6.25	107.	70.	70.	1.20	.90	6.05
5 COMBINED AT	75C	2610.	4.65	635.	324.	324.	6.56		
ROUTED TO	80RET	2185.	4.90	634.	324.	324.	6.56	13.73	5.20
ROUTED TO	85R	2165.	5.00	634.	322.	322.	6.56	2.44	5.30
HYDROGRAPH AT	90S	918.	4.60	158.	63.	63.	1.23		
HYDROGRAPH AT	95S	1298.	4.45	184.	74.	74.	.97		
ROUTED TO	100RET	74.	5.70	71.	50.	50.	.97	16.83	5.40
ROUTED TO	105R	73.	7.50	71.	46.	46.	.97	.90	6.30
3 COMBINED AT	110C	2527.	4.95	779.	400.	400.	8.76		
ROUTED TO	115RET	2092.	5.30	779.	400.	400.	8.76	6.71	5.40
DIVERSION TO	125D	1236.	5.30	658.	352.	352.	8.76		
HYDROGRAPH AT	120D	857.	5.30	121.	48.	48.	8.76		
DIVERSION TO	135D	99.	5.30	9.	4.	4.	8.76		
HYDROGRAPH AT	130D	758.	5.30	111.	45.	45.	8.76		
HYDROGRAPH AT	140S	610.	4.90	146.	59.	59.	1.23		
HYDROGRAPH AT	145S	642.	4.30	63.	25.	25.	.38		

ROUTED TO	150RET	11.	5.55	11.	8.	8.	.38	15.09	5.15
ROUTED TO	155R	11.	8.00	11.	6.	6.	.38	.01	8.00
3 COMBINED AT	160C	996.	5.25	201.	84.	84.	10.37		
DIVERSION TO	170D	510.	5.00	151.	64.	64.	10.37		
HYDROGRAPH AT	165D	486.	5.25	50.	20.	20.	10.37		
HYDROGRAPH AT	175S	421.	4.25	89.	36.	36.	.30		
2 COMBINED AT	180C	599.	5.25	128.	52.	52.	10.67		
DIVERSION TO	190D	115.	3.80	59.	24.	24.	10.67		
HYDROGRAPH AT	185D	484.	5.25	69.	28.	28.	10.67		
HYDROGRAPH AT	195S	697.	4.20	118.	48.	48.	.40		
2 COMBINED AT	200C	592.	5.25	173.	70.	70.	11.07		
DIVERSION TO	210D	156.	3.70	78.	32.	32.	11.07		
HYDROGRAPH AT	205D	436.	5.25	95.	38.	38.	11.07		
HYDROGRAPH AT	135RD	99.	5.30	9.	4.	4.	8.76		
2 COMBINED AT	215C	509.	5.25	102.	41.	41.	11.07		
ROUTED TO	220RET	451.	5.30	87.	35.	35.	11.07	96.00	.00
HYDROGRAPH AT	210RD	156.	3.70	78.	32.	32.	11.07		
2 COMBINED AT	225C	607.	5.30	165.	67.	67.	11.07		
ROUTED TO	230R	570.	5.45	164.	67.	67.	11.07	.77	4.70
HYDROGRAPH AT	235S	193.	4.05	20.	8.	8.	.06		
ROUTED TO	240R	134.	4.40	20.	8.	8.	.06	.74	4.45
HYDROGRAPH AT	190RD	115.	3.80	59.	24.	24.	10.67		
ROUTED TO	245R	115.	5.15	58.	24.	24.	10.67	.62	4.85
HYDROGRAPH AT	250S	1280.	4.55	213.	86.	86.	1.10		
HYDROGRAPH AT	125RD	1236.	5.30	658.	352.	352.	8.76		
HYDROGRAPH AT	170RD	510.	5.00	151.	64.	64.	10.37		
HYDROGRAPH AT	255S	408.	4.90	108.	44.	44.	.62		
3 COMBINED AT	260C	2225.	4.95	1007.	505.	505.	.62		
ROUTED TO	265R	2204.	5.25	1002.	495.	495.	.62	1.36	5.85
5 COMBINED AT	270C	2806.	5.35	1195.	590.	590.	12.85		
ROUTED TO	275R	2797.	5.50	1193.	583.	583.	12.85	1.46	5.85
HYDROGRAPH AT	280S	861.	4.25	130.	53.	53.	.74		
2 COMBINED AT	285C	2828.	5.45	1263.	616.	616.	13.59		

ROUTED TO	290R	2809.	5.70	1259.	608.	608.	13.59	2.77	6.40
HYDROGRAPH AT	295S	284.	4.65	62.	25.	25.	.35		
2 COMBINED AT	300C	2859.	5.70	1291.	622.	622.	13.95		
HYDROGRAPH AT	310S	1730.	.05	1730.	1730.	1730.	.10		
ROUTED TO	320R	1730.	.05	1730.	1730.	1730.	.10	3.58	.00
HYDROGRAPH AT	325S	381.	4.95	100.	41.	41.	.65		
2 COMBINED AT	330C	2102.	4.95	1828.	1770.	1770.	.75		
ROUTED TO	335R	2101.	5.05	1828.	1770.	1770.	.75	2.96	5.25
HYDROGRAPH AT	340S	173.	4.05	13.	5.	5.	.09		
2 COMBINED AT	345C	2100.	5.05	1839.	1775.	1775.	.84		
HYDROGRAPH AT	350S	714.	4.15	54.	22.	22.	.26		
ROUTED TO	355R	702.	4.20	54.	22.	22.	.26	.32	4.50
3 COMBINED AT	360C	4691.	5.65	3100.	2390.	2390.	15.04		
ROUTED TO	370R	4667.	5.80	3098.	2387.	2387.	15.04	1292.55	6.50
HYDROGRAPH AT	375S	1251.	4.40	162.	65.	65.	.98		
HYDROGRAPH AT	380S	874.	4.90	187.	76.	76.	1.40		
ROUTED TO	385R	831.	5.20	187.	76.	76.	1.40	6.91	5.25
HYDROGRAPH AT	390S	1336.	4.35	151.	61.	61.	.80		
2 COMBINED AT	395C	1142.	4.40	311.	127.	127.	2.20		
ROUTED TO	400R	1053.	4.85	311.	127.	127.	2.20	1300.37	5.40
HYDROGRAPH AT	405S	1006.	5.15	312.	129.	129.	1.78		
2 COMBINED AT	410C	1773.	5.05	575.	237.	237.	3.98		
ROUTED TO	411RET	1689.	5.35	572.	237.	237.	3.98	1296.71	5.75
ROUTED TO	412RET	1463.	5.80	564.	236.	236.	3.98	1294.52	6.50
ROUTED TO	413RET	555.	7.40	402.	197.	197.	3.98	1292.64	9.10
ROUTED TO	415RET	448.	8.90	355.	176.	176.	3.98	1290.30	11.50
ROUTED TO	420R	447.	9.15	354.	170.	170.	3.98	1276.44	12.35
HYDROGRAPH AT	425S	1193.	4.65	390.	162.	162.	1.72		
ROUTED TO	430RET	1119.	4.90	384.	161.	161.	1.72	2.90	5.50
DIVERSION TO	433D	579.	4.90	93.	37.	37.	1.72		
HYDROGRAPH AT	432D	540.	4.90	291.	123.	123.	1.72		
ROUTED TO	435R	536.	5.20	290.	123.	123.	1.72	1.26	5.80
HYDROGRAPH AT	440S	1299.	4.25	201.	81.	81.	.85		

2 COMBINED AT	445C	1122.	4.45	473.	201.	201.	2.57		
DIVERSION TO	455D	6.	4.25	0.	0.	0.	2.57		
HYDROGRAPH AT	450D	1122.	4.45	473.	201.	201.	2.57		
ROUTED TO	460R	1118.	4.55	473.	201.	201.	2.57	6.16	4.80
HYDROGRAPH AT	465S	1672.	4.35	369.	150.	150.	1.36		
ROUTED TO	470R	1648.	4.50	368.	150.	150.	1.36	1.33	4.80
HYDROGRAPH AT	475S	1126.	4.30	147.	59.	59.	.60		
2 COMBINED AT	480C	2348.	4.45	508.	206.	206.	1.96		
ROUTED TO	485R	2297.	4.65	506.	206.	206.	1.96	1.83	5.00
HYDROGRAPH AT	490S	1040.	4.50	257.	105.	105.	1.12		
3 COMBINED AT	495C	3857.	4.65	1161.	488.	488.	5.64		
DIVERSION TO	505D	2057.	4.65	285.	114.	114.	5.64		
HYDROGRAPH AT	500D	1800.	4.25	876.	374.	374.	5.64		
ROUTED TO	510R	1800.	4.80	875.	374.	374.	5.64	2.33	5.10
HYDROGRAPH AT	515S	510.	4.30	106.	43.	43.	.48		
2 COMBINED AT	520C	2139.	4.50	959.	410.	410.	6.12		
DIVERSION TO	525D	579.	4.50	113.	45.	45.	6.12		
HYDROGRAPH AT	530D	1560.	4.30	846.	365.	365.	6.12		
4 COMBINED AT	535C	6082.	5.80	4070.	2889.	2889.	19.90		
ROUTED TO	540R	6079.	5.85	4070.	2887.	2887.	19.90	1257.47	5.30
HYDROGRAPH AT	545S	410.	4.35	50.	20.	20.	.30		
2 COMBINED AT	550C	6080.	5.85	4090.	2896.	2896.	20.20		
ROUTED TO	555R	6067.	5.95	4088.	2892.	2892.	20.20	1241.06	5.40
HYDROGRAPH AT	560S	354.	4.15	39.	16.	16.	.19		
DIVERSION TO	570D	25.	3.65	10.	4.	4.	.19		
HYDROGRAPH AT	565D	329.	4.15	30.	12.	12.	.19		
ROUTED TO	575R	278.	4.40	30.	12.	12.	.19	.00	5.70
HYDROGRAPH AT	580S	1500.	4.15	179.	72.	72.	.91		
3 COMBINED AT	585C	6067.	5.95	4183.	2943.	2943.	21.30		
ROUTED TO	590R	6056.	6.05	4179.	2938.	2938.	21.30	1225.91	5.50
HYDROGRAPH AT	595S	178.	4.85	50.	21.	21.	.30		
HYDROGRAPH AT	600S	987.	4.55	149.	60.	60.	1.03		
ROUTED TO	605R	983.	4.60	149.	60.	60.	1.03	.34	4.85

HYDROGRAPH AT	610S	1035.	4.25	145.	58.	58.	.69		
DIVERSION TO	616D	1035.	4.25	78.	31.	31.	.69		
HYDROGRAPH AT	615RET	757.	4.40	68.	27.	27.	.69		
2 COMBINED AT	620C	1485.	4.50	199.	80.	80.	1.72		
ROUTED TO	625R	1421.	4.70	199.	80.	80.	1.72	.98	5.25
HYDROGRAPH AT	630S	485.	4.20	69.	28.	28.	.34		
2 COMBINED AT	635C	1577.	4.70	255.	103.	103.	2.05		
3 COMBINED AT	640C	6167.	5.95	4317.	2996.	2996.	23.65		
ROUTED TO	645R	6164.	6.00	4316.	2993.	2993.	23.65	1196.91	5.55
HYDROGRAPH AT	650S	176.	4.30	18.	7.	7.	.13		
2 COMBINED AT	655C	6162.	6.00	4321.	2996.	2996.	23.78		

*** NORMAL END OF HEC-1 ***

SECTION VII

HEC-1 HYDROLOGY RESULTS FOR A 10-YEAR, 24-HOUR STORM

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*****************************************
*                                       *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *
*    BY THE COE IN FEBRUARY 1981        *
*          REVISED 02 AUG 88            *
*                                       *
*  RUN DATE  11/08/1990  TIME  15:27:04 *
*                                       *
*****************************************
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*****************************************
*                                       *
*     DODSON AND ASSOCIATES, INC.       *
*   HYDROLOGIST AND CIVIL ENGINEERS     *
*      7015 W TIDWELL SUITE 107         *
*        HOUSTON, TEXAS  77092          *
*          (713) 895-8322               *
*                                       *
*****************************************
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

    1     ID   SKUNK CREEK BETWEEN ACDC AND CAP FLOOD INSURANCE STUDY
    2     ID   PREPARED FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC # 89-72)
    3     ID   BY COE & VAN LOO CONSULTING ENGINEERS, INC. (CVL # 1090-050)
    4     ID   NOVEMBER 1990   JKM-DWD-AJR
    5     ID   INPUT FILE NAME:  SK10-24
    6     ID
    7     ID   10-YEAR, 24-HOUR STORM
    8     ID   SCS TYPE II DISTRIBUTION
    9     ID
          *DIAGRAM
   10     IT       4                   300
   11     IO       5
   12     IN      30
   13     JD    2.40    0.01
   14     PC    .000    .005    .011    .016    .022    .028    .035    .041    .048    .056
   15     PC    .063    .071    .080    .089    .098    .109    .120    .133    .147    .163
   16     PC    .181    .204    .235    .283    .663    .735    .772    .799    .820    .838
   17     PC    .854    .868    .880    .891    .902    .912    .921    .929    .937    .945
   18     PC    .952    .959    .965    .972    .978    .984    .989    .995   1.000
   19     JD    2.35     3.0
   20     JD    2.30    10.0
   21     JD    2.21    20.0
   22     JD    2.16    30.0

   23     KK      5S
   24     KM   SUB-BASIN 5
   25     BA   1.332
   26     LG    .200    .270   7.600    .160   4.000
   27     UC    .767    .253
   28     UA       0       3       5       8      12      20      43      75      90      96
   29     UA     100

   30     KK   10RET
   31     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
   32     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
   33     RS       1    STOR      -1
   34     SV       0       4      17      52      96     148     209     279
   35     SE      15      16      17      18      19      20      21      22
   36     SL      15    9.62      .6      .5
   37     SS    21.9      50       3     1.5

   38     KK     15R
   39     KM   ROUTE 10RET TO CP OF 20S ALONG NATURAL CHANNEL
   40     RS       5    FLOW      -1
   41     RC     .04     .03     .04    9000   .0080
   42     RX       0     100     120     125     135     140     160     260
   43     RY       5       3       2       0       0       2       3       5

   44     KK     20S
   45     KM   SUB-BASIN 20
   46     BA   1.379
   47     LG    .350    .290   6.700    .170    .000
   48     UC    .383    .170
   49     UA       0       3       5       8      12      20      43      75      90      96
   50     UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  51      KK    25C
  52      KM   COMBINE 20S AND 15R AT CP OF 20S
  53      HC     2

  54      KK    30R
  55      KM   ROUTE 25C TO CP OF 35S ALONG NATURAL CHANNEL
  56      RS     5   FLOW     -1
  57      RC   .04    .03    .04   4800   .0056
  58      RX     0     5    205    215    235    245    445    450
  59      RY     5     3      1      0      0      1      3      5

  60      KK    35S
  61      KM   SUB-BASIN 35
  62      BA   1.514
  63      LG   .350   .310  5.800   .230   .000
  64      UC  1.267   .687
  65      UA     0     3      5      8     12     20     43     75     90     96
  66      UA   100

  67      KK    40S
  68      KM   SUB-BASIN 40
  69      BA   .545
  70      LG   .200   .260  7.900   .120  6.000
  71      UC   .767   .389
  72      UA     0     3      5      8     12     20     43     75     90     96
  73      UA   100

  74      KK   45RET
  75      KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  76      KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  77      RS     1   STOR     -1
  78      SV     0     2     11     34     62     96    135    180
  79      SE    15    16     17     18     19     20     21     22
  80      SL    15  4.91     .6     .5
  81      SS  21.9    50      3    1.5

  82      KK    50R
  83      KM   ROUTE 45RET TO CP OF 35S ALONG NATURAL CHANNEL
  84      RS     5   FLOW     -1
  85      RC   .04    .03    .04  11000   .0086
  86      RX     0    50    150    165    175    190    290    340
  87      RY     6     5      3      0      0      3      5      6

  88      KK    55S
  89      KM   SUB-BASIN 55
  90      BA   .588
  91      LG   .350   .320  5.100   .290   .000
  92      UC  1.150   .936
  93      UA     0     3      5      8     12     20     43     75     90     96
  94      UA   100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  95      KK    60S
  96      KM    SUB-BASIN 60
  97      BA    1.202
  98      LG     .210    .270   7.500    .150   8.000
  99      UC    1.400    .775
 100      UA        0       3       5       8      12      20      43      75      90      96
 101      UA      100

 102      KK    65RET
 103      KM    ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
 104      KM    SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
 105      RS        1    STOR      -1
 106      SV        0       2       7      24      43      67      95     127
 107      SE       15      16      17      18      19      20      21      22
 108      SL       15    9.62      .6      .5
 109      SS     21.9      50       3     1.5

 110      KK     70R
 111      KM    ROUTE 65RET TO CP OF 35S ALONG NATURAL CHANNEL
 112      RS        5    FLOW      -1
 113      RC      .04     .03     .04   10000   .0090
 114      RX        0     100     200     215     230     245     345     445
 115      RY        6       5       3       0       0       3       5       6

 116      KK     75C
 117      KM    COMBINE 30R, 35S, 50R, 55S AND 70R AT CP OF 35S
 118      HC        5

 119      KK    80RET
 120      KM    ROUTE FLOW THROUGH DETENTION BEHIND PINNACLE PEAK ROAD CULVERTS
 121      KM    SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
 122      RS        1    STOR      -1
 123      SV        0      .05     1.2     9.1    35.6      65    94.5     139
 124      SE       11      12      14      16      18      19      20      21
 125      SQ        0      54     254     528     936    2344    5278   10401

 126      KK     85R
 127      KM    ROUTE 80RET TO CP OF 90S ALONG NATURAL CHANNEL
 128      RS        5    FLOW      -1
 129      RC      .04     .03     .04    2000   .0050
 130      RX        0      50     150     165     175     190     240     250
 131      RY        6       5       4       0       0       4       5       7

 132      KK     90S
 133      KM    SUB-BASIN 90
 134      BA    1.227
 135      LG     .350    .320   5.300    .350   1.000
 136      UC    1.500   1.040
 137      UA        0       3       5       8      12      20      43      75      90      96
 138      UA      100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  139     KK    95S
  140     KM   SUB-BASIN 95
  141     BA    .968
  142     LG    .200    .270   7.500    .150   5.000
  143     UC   1.283    .724
  144     UA      0       3       5       8      12      20      43      75      90      96
  145     UA    100

  146     KK  100RET
  147     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  148     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  149     RS      1    STOR      -1
  150     SV      0       2       9      30      55      85     120     160
  151     SE     15      16      17      18      19      20      21      22
  152     SL     15    7.07      .6      .5
  153     SS   21.9      50       3     1.5

  154     KK    105R
  155     KM   ROUTE 100RET TO CP OF 90S ALONG NATURAL CHANNEL
  156     RS      5    FLOW      -1
  157     RC    .04     .03     .04   13000   .0080
  158     RX      0       5     155     160     170     175     325     330
  159     RY      3       2       1       0       0       1       2       3

  160     KK    110C
  161     KM   COMBINE 85R, 90S AND 105R AT CP OF 90S
  162     HC      3

  163     KK  115RET
  164     KM   ROUTE FLOW THROUGH DETENTION BEHIND 2-8X7 RCBC AT I-17
  165     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  166     RS      1    STOR      -1
  167     SV      0    .001    .220    1.16    8.44      17      30      49      67     106
  168     SE    3.8       4       6       8      10      11      12      13    13.7      15
  169     SQ      0       1     176     414     680     880    1091    1593    2678    7306

  170     KK    120D
  171     KM   DIVERT OVERFLOWS SOUTH TO SINGLE CULVERT AT MH PARK, & WEST ON TO I-17
  172     KM   DQ IS Q THROUGH 2-8X7 CULVERT (MAX 1312 CFS); DI IS TOTAL Q
  173     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  174     DT    125D
  175     DI      1     880    1091    1593    2678    3746
  176     DQ      1     880    1060    1184    1296    1312

  177     KK    130D
  178     KM   SEPARATE OUT WEST OVERFLOWS ONTO THE FRONTAGE ROAD AND MAINLINE I-17
  179     KM   THESE FLOWS HEAD SOUTH AND EVENTUALLY ENTER THE DEER VALLEY INTERCHANGE
  180     KM   REMAINING FLOWS CONTINUE SOUTH TO 6X7 BOX CULVERT ON SCATTER WASH AT I-17
  181     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  182     DT    135D
  183     DI     31     409    1382    2434
  184     DQ      0       0     215     840
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  185     KK   140S
  186     KM   SUB-BASIN 140
  187     BA   1.233
  188     LG    .350    .330   4.700    .430   1.000
  189     UC   1.500   1.174
  190     UA      0       3       5       8      12      20      43      75      90      96
  191     UA    100

  192     KK   145S
  193     KM   SUB-BASIN 145
  194     BA    .383
  195     LG    .190    .310   6.200    .270    .000
  196     UC    .883    .557
  197     UA      0       3       5       8      12      20      43      75      90      96
  198     UA    100

  199     KK  150RET
  200     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  201     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  202     RS      1    STOR      -1
  203     SV      0       1       4      14      26      40      56      75
  204     SE     15      16      17      18      19      20      21      22
  205     SL     15    4.19     .16      .5
  206     SS   21.9      50       3     1.5

  207     KK   155R
  208     KM   ROUTE 150RET TO CP OF 140S ALONG NATURAL CHANNEL
  209     RS      5    FLOW      -1
  210     RC    .04     .03     .04   15000   .0073
  211     RX      6      10     200     220     230     250     440     450
  212     RY      0       5       3       0       0       3       5       6

  213     KK   160C
  214     KM   COMBINE 140S, 130D AND 155R AT CP OF 140S
  215     HC      3

  216     KK   165D
  217     KM   DIVERT FLOW ACROSS I-17 THROUGH 6X7 RCBC (MAX Q = 510 CFS)
  218     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  219     DT   170D
  220     DI      0       1     510     511    1000    2000
  221     DQ      0       1     510     510     510     510

  222     KK   175S
  223     KM   SUB-BASIN 175
  224     BA    .299
  225     LG    .070    .290   6.700    .190  75.000
  226     UC    .983   1.157
  227     UA      0       5      16      30      65      77      84      90      94      97
  228     UA    100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  229     KK   180C
  230     KM   COMBINE 165D AND 175S AT CP OF 175S
  231     HC     2

  232     KK   185D
  233     KM   DIVERT FLOW ACROSS I-17 THROUGH 65X40 CMP AT ADOBE DRIVE
  234     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  235     DT   190D
  236     DI     0     115     116    1000    3000
  237     DQ     0     115     115     115     115

  238     KK   195S
  239     KM   SUB-BASIN 195
  240     BA   .399
  241     LG   .090    .310  11.000    .310  80.000
  242     UC   .717    .629
  243     UA     0       5      16      30      65      77      84      90      94      97
  244     UA   100

  245     KK   200C
  246     KM   COMBINE 185D AND 195S AT CP OF 195S
  247     HC     2

  248     KK   205D
  249     KM   DIVERT FLOW ACROSS I-17 THROUGH 6X3 RCBC AT LOUISE DRIVE
  250     KM   DI REPRESENTS TOTAL FLOW, DQ REPRESENTS FLOW THROUGH 6X3 RCBC.
  251     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  252     DT   210D
  253     DI     0       1     156     157    1000    3000
  254     DQ     0       1     156     156     156     156

  255     KK   135RD
  256     KM   RETRIEVE FLOW DIVERTED ALONG I-17 AND FRONTAGE ROAD
  257     DR   135D

  258     KK   215C
  259     KM   COMBINE 135RD AND 205D AT DEER VALLEY/1-17 INTERCHANGE
  260     HC     2

  261     KK  220RET
  262     KM   ROUTE FLOW THROUGH DEPRESSED SECTION TO WEST SIDE OF I-17
  263     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  264     RS     1    STOR      -1
  265     SV     0       1    15.9    37.7    53.8    61.3    74.1      99   129.5
  266     SE    82      84      90      94      96    96.8      98     100     102
  267     SQ     0       0       0       0       0       1     808    5403   13835

  268     KK   210RD
  269     KM   RETRIEVE FLOW DIVERTED THROUGH CULVERT AT LOUISE DRIVE
  270     DR   210D
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  271     KK   225C
  272     KM   COMBINE 220RET AND 210RD AT INTERSECTION OF 27TH AVE & DEER VALLEY ROAD
  273     HC     2

  274     KK   230R
  275     KM   ROUTE 225C TO CP OF 250S ALONG NATURAL CHANNEL
  276     RS     5    FLOW     -1
  277     RC   .03    .02    .03   7000   .0057     5
  278     RX     0      5     25     26     64     65     85     90
  279     RY     2      1     .5      0      0     .5      1      2

  280     KK   235S
  281     KM   SUB-BASIN 235
  282     BA   .062
  283     LG   .090   .310 11.000   .020 74.000
  284     UC   .283   .214
  285     UA     0      5     16     30     65     77     84     90     94     97
  286     UA   100

  287     KK   240R
  288     KM   ROUTE 235S TO CP OF 250S ALONG NATURAL CHANNEL
  289     RS     5    FLOW     -1
  290     RC   .04    .03    .04   5500   .0073
  291     RX     0      5     55     60     70     75    125    130
  292     RY     3      2      1      0      0      1      2      3

  293     KK   190RD
  294     KM   RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT AT ADOBE DRIVE
  295     DR   190D

  296     KK   245R
  297     KM   ROUTE 190RD TO CP OF 250S ALONG NATURAL CHANNEL
  298     RS     5    FLOW     -1
  299     RC   .03    .02    .03   7500   .0060
  300     RX     0      5     25     26     64     65     85     90
  301     RY     2      1     .5      0      0     .5      1      2

  302     KK   250S
  303     KM   SUB-BASIN 250
  304     BA   1.103
  305     LG   .240   .320  6.900   .260 26.000
  306     UC  1.500   .759
  307     UA     0      3      5      8     12     20     43     75     90     96
  308     UA   100

  309     KK   125RD
  310     KM   RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT NEAR MH PARK SOUTH OF
  311     KM   PINNACLE PEAK ROAD
  312     DR   125D
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  313     KK  170RD
  314     KM  RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT NORTH OF WILLIAMS DRIVE
  315     DR   170D

  316     KK   255S
  317     KM  SUB-BASIN 255
  318     BA   .615
  319     LG   .320   .330   6.200   .230  10.000
  320     UC  1.500  1.225
  321     UA     0     3      5      8     12     20     43     75     90     96
  322     UA   100

  323     KK   260C
  324     KM  COMBINE 125RD, 170RD AND 255S AT CP OF 255S
  325     HC     3

  326     KK   265R
  327     KM  ROUTE 260C TO CP OF 250S ALONG SCATTER WASH NORTH OF DEER VALLEY ROAD
  328     RS     5   FLOW     -1
  329     RC   .04    .03    .04   8300  .0048
  330     RX   250    700    900    980   1020   1100   1300   1750
  331     RY    17   12.5     10      0      0     10   12.5     17

  332     KK   270C
  333     KM  COMBINE 240R, 240R, 245R, 265R & 250S @ CP OF 250S
  334     HC     5

  335     KK   275R
  336     KM  ROUTE 270C TO CP OF 280S ALONG SCATTER WASH NORTH OF BEARDSLEY ROAD
  337     RS     5   FLOW     -1
  338     RC   .04    .03    .04   4500  .0056     10
  339     RX   100    650    800    980   1020   1200   1350   1600
  340     RY   7.5      7    5.5      0      0    5.5      7    7.5

  341     KK   280S
  342     KM  SUB-BASIN 280
  343     BA   .744
  344     LG   .230   .330   4.900   .320  13.000
  345     UC  1.233   .845
  346     UA     0     5      16     30     65     77     84     90     94     97
  347     UA   100

  348     KK   285C
  349     KM  COMBINE 275R AND 280S AT CP OF 280S
  350     HC     2

  351     KK   290R
  352     KM  ROUTE 285C TO CP OF 295S ALONG SCATTER WASH CHANNEL U/S OF 45TH AVE CROSSING
  353     RS     5   FLOW     -1
  354     RC   .03    .03    .03   6200  .0027
  355     RX   830    850    980    990   1010   1020   1150   1170
  356     RY    10    2.5    2.5      0      0    2.5    2.5     10
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  357     KK   295S
  358     KM   SUB-BASIN 295
  359     BA    .352
  360     LG    .290    .340   4.400    .330  11.000
  361     UC   1.500   1.377
  362     UA      0       3       5       8      12      20      43      75      90      96
  363     UA    100

  364     KK   300C
  365     KM   COMBINE 290R AND 295S AT CP OF 295S
  366     HC      2

  367     KK   310S
  368     KM   ADOBE DAM OUTLET; ASSUMED CONSTANT OUTFLOW OF 1370 CFS FOR 10-YEAR STORM
  369     KM   SOURCE: F.I.S., MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS, FEMA
  370     BA    0.1
  371     IN    120
  372     QI   1370    1370    1370    1370    1370    1370    1370    1370    1370    1370
  373     QI   1370    1370    1370    1370    1370    1370    1370    1370    1370    1370

  374     KK   320R
  375     KM   SKUNK CREEK U/S OF BEARDSLEY ROAD AND D/S OF ADOBE DAM
  376     RS      5    FLOW      -1
  377     RC    .04     .03     .04    3300   .0028
  378     RX    645     795     945     965    1035    1085    1095    1105
  379     RY      7       6       5       0       0       7       9      11

  380     KK   325S
  381     KM   SUB-BASIN 325
  382     BA    .650
  383     LG    .300    .340   3.900    .440   9.000
  384     UC   1.500   1.134
  385     UA      0       3       5       8      12      20      43      75      90      96
  386     UA    100

  387     KK   330C
  388     KM   COMBINE 325S AND 310S (ADOBE DAM OUTLET)
  389     HC      2

  390     KK   335R
  391     KM   ROUTE 330C TO CP OF 340S ALONG SKUNK CREEK U/S OF WAHALLA LANE
  392     RS      5    FLOW      -1
  393     RC    .04     .03     .04    3050   .006
  394     RX    935     940     945     965    1035    1065    1070    1075
  395     RY      7     6.5       6       0       0       6     6.5       7

  396     KK   340S
  397     KM   SUB-BASIN 340
  398     BA    .086
  399     LG    .230    .350   3.200    .660  13.000
  400     UC    .550    .443
  401     UA      0       5      16      30      65      77      84      90      94      97
  402     UA    100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  403     KK   345C
  404     KM   COMBINE 335R AND 340S AT CP OF 340S
  405     HC     2

  406     KK   350S
  407     KM   SUB-BASIN 350
  408     BA   .263
  409     LG   .280   .320  5.600   .250  23.000
  410     UC   .450   .188
  411     UA     0     3     5     8     12    20    43    75    90    96
  412     UA   100

  413     KK   355R
  414     KM   ROUTE 350S TO CONFLUENCE OF SCATTER WASH & SKUNK CREEK, ALONG HAVASUPAI DR.
  415     RS     5   FLOW    -1
  416     RC   .03    .02    .03  2400   .006
  417     RX    70   70.1   79.9    80    120  120.1   130  130.1
  418     RY   5.5    .5     .5     0      0    .5     .5   5.5

  419     KK   360C
  420     KM   COMBINE 300C, 345C AND 355R NEAR CONFLUENCE OF SCATTER WASH AND SKUNK CREEK
  421     HC     3

  422     KK   370R
  423     KM   ROUTE 360C TO CP OF 375S ALONG SKUNK CREEK U/S OF 51ST AVENUE ALIGNMENT
  424     RS     2   FLOW    -1
  425     RC   .04    .03    .04  6200  .0047
  426     RX   120    130    350   460   580   590   720   770
  427     RY  1298   1296   1294  1290  1290  1294  1296  1298

  428     KK   375S
  429     KM   SUB-BASIN 375
  430     BA   .984
  431     LG   .290   .330  5.300   .380  18.000
  432     UC  1.500   .767
  433     UA     0     3     5     8     12    20    43    75    90    96
  434     UA   100

  435     KK   380S
  436     KM   SUB-BASIN 380
  437     BA  1.405
  438     LG   .320   .330  4.600   .430  8.000
  439     UC  1.500   .799
  440     UA     0     3     5     8     12    20    43    75    90    96
  441     UA   100

  442     KK   385R
  443     KM   ROUTE 380S TO CP OF 390S ALONG UNNAMED WASH WEST OF PILCHER HILL
  444     RS     5   FLOW    -1
  445     RC   .04    .03    .04  4400   .01
  446     RX    10    200    300   306   316   322   420   620
  447     RY    12     10      9     6     6     9    10    12
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

448       KK   390S
449       KM   SUB-BASIN 390
450       BA    .799
451       LG    .310    .340   4.400    .340  23.000
452       UC   1.150    .451
453       UA       0       3       5       8      12      20      43      75      90      96
454       UA     100

455       KK   395C
456       KM   COMBINE 385R AND 390S AT CP OF 390S
457       HC       2

458       KK   400R
459       KM   ROUTE 395S TO CP OF 405S ALONG UNNAMED WASH NORTH OF ARROWHEAD RANCH
460       RS       5    FLOW      -1
461       RC     .04     .03     .04    9600   .0073
462       RX     300     350     400     460     540     600     650     700
463       RY    1314    1309    1304    1300    1300    1304    1304    1304

464       KK   405S
465       KM   SUB-BASIN 405
466       BA   1.776
467       LG    .220    .330   5.200    .280  20.000
468       UC   1.000    .659
469       UA       0       3       5       8      12      20      43      75      90      96
470       UA     100

471       KK   410C
472       KM   COMBINE 400R AND 405S AT CP OF 405S
473       HC       2

474       KK  411RET
475       KM   LAKE 1, ARROWHEAD RANCH
476       KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
477       KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
478       RS       1    ELEV  1296.0
479       SV     0.0     6.4    12.9    19.4    26.0    32.6    39.4    46.2    53.1    60.0
480       SE  1296.0  1296.5  1297.0  1297.5  1298.0  1298.5  1299.0  1299.5  1300.0  1300.5
481       SQ       0     126     356     655    1008    1409    1852    2334    2851    3402

482       KK  412RET
483       KM   LAKE 2, ARROWHEAD RANCH
484       KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
485       KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
486       RS       1    ELEV  1294.0
487       SV       0    14.4    29.2    44.1    58.9    74.3    89.6   108.2   126.8   145.4
488       SE  1294.0  1294.5  1295.0  1295.5  1296.0  1296.5  1297.0  1297.5  1298.0  1298.5
489       SQ       0     168     475     873    1344    1878    2469    3112    3802    4536
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  490     KK  413RET
  491     KM   LAKES 3 AND 7, ARROWHEAD RANCH
  492     KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
  493     KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  494     RS       1    ELEV  1292.0
  495     SV       0    29.8    61.7    91.6   122.5   154.5   186.3   225.3   264.3   303.1
  496     SE  1292.0  1292.5  1293.0  1293.5  1294.0  1294.5  1295.0  1295.5  1296.0  1296.5
  497     SQ       0      47     132     242     373     522     686     865    1056    1260

  498     KK  415RET
  499     KM   LAKE 8, ARROWHEAD RANCH
  500     KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
  501     KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  502     RS       1    ELEV  1290.0
  503     SV       0    20.6    42.1    63.5    84.9   107.1   129.4   456.8   184.3   211.8
  504     SE  1290.0  1290.5  1291.0  1291.5  1292.0  1292.5  1293.0  1293.5  1294.0  1294.5
  505     SQ       0      93     264     485     747    1044    1372    1729    2112    2520

  506     KK   420R
  507     KM   ROUTE 415RET TO CP OF 375S (55TH AVENUE CHANNEL)
  508     RS       5    FLOW      -1
  509     RC     .03     .03     .03    4560   .0025
  510     RX     390     400     440     460     536     566     686     690
  511     RY    1283    1282    1280    1276    1276    1283    1285    1286

  512     KK   425S
  513     KM   SUB-BASIN 425
  514     BA   1.723
  515     LG    .160    .300   7.400    .160  39.000
  516     UC   1.500   1.418
  517     UA       0       5      16      30      65      77      84      90      94      97
  518     UA     100

  519     KK  430RET
  520     KM   ROUTE FLOW THROUGH DETENTION BEHIND 3-10X3 RCBC NORTHEAST OF I-17 AND
  521     KM   UNION HILLS DRIVE; DETENTION VOLUME IS BASED ON AERIAL PHOTOGRAPHS
  522     KM   AND FIELD VISITS, AND SHOULD BE CONSIDERED APPROXIMATE.  OUTFLOW IS
  523     KM   BASED ON CULVERT INLET CONTROL UP TO 4' DEEP, THEN WEIR FLOW OVER UNION
  524     KM   HILLS DRIVE IS ADDED IN.
  525     RS       1    ELEV      0
  526     SA       0       6       9      12      15      22      31
  527     SE       0       1       2       3       4       5       6
  528     SQ       0     0.1      90     255     450    2010    4600

  529     KK   432D
  530     KM   DIVERT FLOW OVER UNION HILLS DRIVE, EAST OF I-17
  531     KM   DQ REPRESENTS THE BREAKOUT FROM THE DETENTION BASIN OVER UNION HILLS DRIVE.
  532     DT   433D
  533     DI       0      81     255     450    2010    4600
  534     DQ       0       0       0       0    1350    3820
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  535     KK   435R
  536     KM   ROUTE 432D TO CP OF 440S ALONG UNION HILLS DRIVE (INVERTED CROWN) -
  537     KM   CULVERT OUTLET ON WEST SIDE OF I-17 TO 35TH AVENUE
  538     RS      5    FLOW      -1
  539     RC   .025     .02    .025    6800    .004       4
  540     RX     45    59.9      60     100   100.1     140   140.1     155
  541     RY    1.5     1.5       1       0       0       1     1.5     1.5

  542     KK   440S
  543     KM   SUB-BASIN 440
  544     BA    .846
  545     LG    .200    .300   9.300    .060  20.000
  546     UC    .933    .603
  547     UA       0       5      16      30      65      77      84      90      94      97
  548     UA     100

  549     KK   445C
  550     KM   COMBINE 435R AND 440S AT CP OF 440S
  551     HC       2

  552     KK   450D
  553     KM   SURFACE FLOW CAPACITY OF UNION HILLS DRIVE INVERTED CROWN SECTION IS 470 CFS,
  554     KM   STORM DRAIN CAPACITY IS 890 CFS. TOTAL CAPACITY FLOWING WEST IS 1360 CFS.
  555     KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN I-17 AND 35TH AVENUE
  556     DT    455D
  557     DI       0     500    1000    1360    2000    3000
  558     DQ       0       0       0       0     640    1640

  559     KK   460R
  560     KM   ROUTE 450D TO CP OF 490S ALONG UNION HILLS DRIVE - 35TH TO 43RD AVENUE
  561     RS      5    FLOW      -1
  562     RC    .02    .025     .03    5280    .004      10
  563     RX   99.9     100     135     150     155     170   170.1   170.2
  564     RY      9     6.7       6       3       3       7       8       9

  565     KK   465S
  566     KM   SUB-BASIN 465
  567     BA   1.361
  568     LG    .140    .310   9.100    .100  57.000
  569     UC   1.400    .939
  570     UA       0       5      16      30      65      77      84      90      94      97
  571     UA     100

  572     KK   470R
  573     KM   ROUTE 465S TO CP OF 475S ALONG COLLECTOR STREET
  574     RS      5    FLOW      -1
  575     RC   .025     .02    .025    8200   .0046
  576     RX   69.9      70    74.9      75     125   125.1     130   130.1
  577     RY    3.5      .5      .5       0       0      .5      .5     3.5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  578     KK   475S
  579     KM   SUB-BASIN 475
  580     BA    .596
  581     LG    .290    .310  10.500    .030  18.000
  582     UC    .800    .508
  583     UA       0       3       5       8      12      20      43      75      90      96
  584     UA     100

  585     KK   480C
  586     KM   COMBINE 470R AND 475S AT CP OF 475S
  587     HC       2

  588     KK   485R
  589     KM   ROUTE 480C TO CP OF 490S ALONG LOCAL STREET WITH VERTICAL CURBS
  590     RS       5    FLOW      -1
  591     RC    .025     .02    .025   10300   .0038       5
  592     RX    69.9      70    79.9      80     120   120.1     130   130.1
  593     RY       2      .5      .5       0       0      .5      .5       2

  594     KK   490S
  595     KM   SUB-BASIN 490
  596     BA   1.115
  597     LG    .230    .290   8.300    .090  26.000
  598     UC   1.500   1.135
  599     UA       0       5      16      30      65      77      84      90      94      97
  600     UA     100

  601     KK   495C
  602     KM   COMBINE 460R, 485R AND 490S AT CP OF 490S
  603     HC       3

  604     KK   500D
  605     KM   SURFACE FLOW CAPACITY OF THE UNION HILLS DRIVE AND CHANNEL IS 520 CFS,
  606     KM   STORM DRAIN CAPACITY IS 1280 CFS. TOTAL CAPACITY FLOWING WEST IS 1800 CFS.
  607     KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 35TH AVENUE
  608     KM   AND 43RD AVENUE
  609     DT   505D
  610     DI       0     500    1000    1800    2000    3000    4000
  611     DQ       0       0       0       0     200    1200    2200

  612     KK   510R
  613     KM   ROUTE 500D TO CP OF 515S ALONG UNION HILLS DRIVE - 43RD TO 51ST AVENUE
  614     RS       5    FLOW      -1
  615     RC    .025     .02    .025    7500   .0042      10
  616     RX      45    59.9      60     100   100.1     140   140.1     155
  617     RY     1.5     1.5       1       0       0       1     1.5     1.5

  618     KK   515S
  619     KM   SUB-BASIN 515
  620     BA    .476
  621     LG    .120    .340   4.600    .280  32.000
  622     UC   1.417   1.331
  623     UA       0       5      16      30      65      77      84      90      94      97
  624     UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  625     KK   520C
  626     KM   COMBINE 510R AND 515S AT CP OF 515S
  627     HC     2

  628     KK   530D
  629     KM   SURFACE FLOW CAPACITY OF UNION HILLS DRIVE AND 4-15" CULVERTS IS 65 CFS,
  630     KM   STORM DRAIN CAPACITY IS 1495 CFS. TOTAL CAPACITY FLOWING WEST IS 1560 CFS.
  631     KM   THE REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 43RD AVENUE
  632     KM   AND 55TH AVENUE
  633     DT   525D
  634     DI     0    500   1000   1560   2000   4000
  635     DQ     0      0      0      0    440   2440

  636     KK   535C
  637     KM   COMBINE 370R, 375S, 420R & 530RD @ CP OF 375S
  638     HC     4   19.9

  639     KK   540R
  640     KM   ROUTE 535C TO CP OF 545S ALONG SKUNK CREEK U/S OF UNION HILLS DRIVE
  641     RS     2   FLOW     -1
  642     RC   .04    .03    .04   3400  .0056
  643     RX   445    465    475    500    610    640    650    660
  644     RY  1262   1264   1264   1254   1254   1262   1264   1264

  645     KK   545S
  646     KM   SUB-BASIN 545
  647     BA   .296
  648     LG   .310   .330  4.000   .460 15.000
  649     UC  1.050   .719
  650     UA     0      3      5      8     12     20     43     75     90     96
  651     UA   100

  652     KK   550C
  653     KM   COMBINE 540R AND 545S AT CP OF 545S
  654     HC     2

  655     KK   555R
  656     KM   ROUTE 550C TO CP OF 580S ALONG SKUNK CREEK FROM 67TH AVE. TO UNION HILLS DR.
  657     RS     2   FLOW     -1
  658     RC   .04    .03    .04   5350  .0039
  659     RX   395    435    465    500    560    590    650    700
  660     RY  1246   1244   1242   1236   1236   1242   1244   1245

  661     KK   560S
  662     KM   SUB-BASIN 560
  663     BA   .190
  664     LG   .150   .350  4.400   .280 21.000
  665     UC   .700   .537
  666     UA     0      5     16     30     65     77     84     90     94     97
  667     UA   100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  668     KK   565D
  669     KM   CAPACITY OF 59TH AVENUE IS 25 CFS.
  670     KM   THIS IS DIVERTED OUT OF THE WATERSHED (DQ).
  671     DT   570D
  672     DI      0      25      50     100     500    1000
  673     DQ      0      25      25      25      25      25

  674     KK   575R
  675     KM   ROUTE 565D TO CP OF 580S ALONG LOCAL STREETS WITH VERTICAL CURBS
  676     RS      5    FLOW      -1
  677     RC    .03     .02     .03    6500   .0044
  678     RX   74.9      75    81.9      82     118   118.1     125   125.1
  679     RY      2      .5      .5       0       0      .5      .5       2

  680     KK   580S
  681     KM   SUB-BASIN 580
  682     BA   .914
  683     LG   .200    .340   4.500    .330  25.000
  684     UC   .950    .426
  685     UA      0       5      16      30      65      77      84      90      94      97
  686     UA    100

  687     KK   585C
  688     KM   COMBINE 555R, 575R AND 580S AT CP OF 580S
  689     HC      3

  690     KK   590R
  691     KM   ROUTE 640C TO CP OF 650S ALONG SKUNK CREEK FROM 67TH AVENUE TO BELL ROAD
  692     RS      2    FLOW      -1
  693     RC    .04     .03     .04    4000   .0075
  694     RX    370     470     485     500     680     710     730     810
  695     RY   1231    1231    1230  1223.5  1223.5    1230    1232  1232.5

  696     KK   595S
  697     KM   SUB-BASIN 595
  698     BA   .302
  699     LG   .190    .340   4.500    .420  13.000
  700     UC  1.500   1.588
  701     UA      0       3       5       8      12      20      43      75      90      96
  702     UA    100

  703     KK   600S
  704     KM   SUB-BASIN 600
  705     BA  1.027
  706     LG   .440    .250   5.500    .380   8.000
  707     UC  1.500    .874
  708     UA      0       3       5       8      12      20      43      75      90      96
  709     UA    100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  710     KK   605R
  711     KM   ROUTE 600S TO CP OF 610S ALONG LOCAL STREETS WITH VERTICAL CURBS
  712     RS     5    FLOW     -1
  713     RC   .03    .02    .03   2500   .006     5
  714     RX  74.9     75   81.9     82    118   118.1     125   125.1
  715     RY     2     .5     .5      0      0      .5      .5       2

  716     KK   610S
  717     KM   SUB-BASIN 610
  718     BA   .690
  719     LG   .210   .270  6.800   .180 19.000
  720     UC 1.183   .680
  721     UA     0      5     16      30      65      77      84      90      94      97
  722     UA   100

  723     KK 615RET
  724     KM   ENTIRE VOLUME OF RETENTION (38.6 AF) IS MODELED AS A DIVERT
  725     DT   616D   38.6
  726     DI     0    100    500   1000
  727     DQ     0    100    500   1000

  728     KK   620C
  729     KM   COMBINE 605R AND 615RET AT CP OF 610S
  730     HC     2

  731     KK   625R
  732     KM   ROUTE 620C TO CP OF 630S ALONG CHANNEL BESIDE 71ST AVENUE
  733     RS     5    FLOW     -1
  734     RC   .03    .03    .03   4500  .0022     10
  735     RX    15     18     20     30     45     55     57     60
  736     RY     7      6      5      0      0      5      6      7

  737     KK   630S
  738     KM   SUB-BASIN 630
  739     BA   .336
  740     LG   .170   .320  5.200   .260 19.000
  741     UC 1.000   .797
  742     UA     0      5     16      30      65      77      84      90      94      97
  743     UA   100

  744     KK   635C
  745     KM   COMBINE 625R AND 630S AT CP OF 630S
  746     HC     2

  747     KK   640C
  748     KM   COMBINE 540R, 595S AND 635C AT CP OF 595S
  749     HC     3

  750     KK   645R
  751     KM   ROUTE 585C TO CP OF 595S ALONG SKUNK CREEK FROM BELL ROAD TO ACDC
  752     RS     2    FLOW     -1
  753     RC   .04    .03    .04   3500  .0068
  754     RX   250    260    360    500    545    600    720    800
  755     RY  1212   1210   1208   1192   1192   1210   1210   1211
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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  756         KK   650S
  757         KM   SUB-BASIN 650
  758         BA    .125
  759         LG    .340    .350   3.700    .490   4.000
  760         UC    .800    .628
  761         UA       0       3       5       8      12      20      43      75      90      96
  762         UA     100

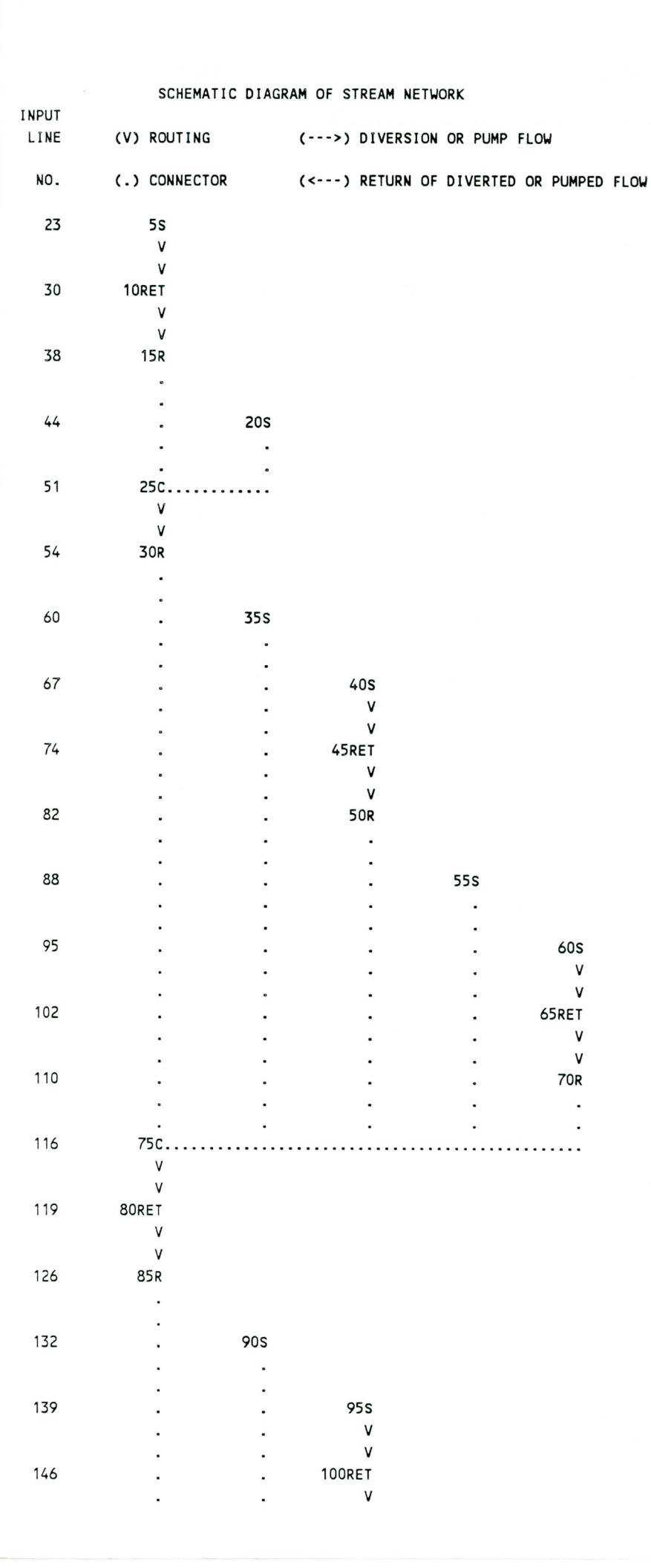
  763         KK   655C
  764         KM   COMBINE 645R AND 650S AT CP OF 650S
  765         HC       2
  766         ZZ
```

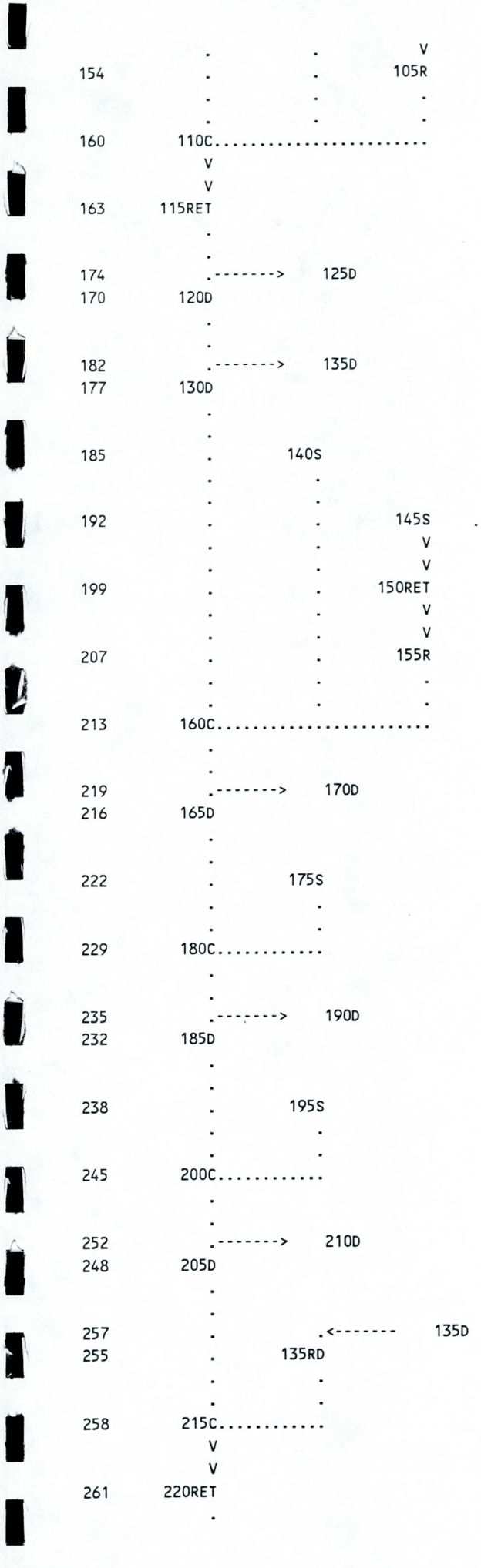
SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

(V) ROUTING (---->) DIVERSION OR PUMP FLOW

(.) CONNECTOR (<----) RETURN OF DIVERTED OR PUMPED FLOW

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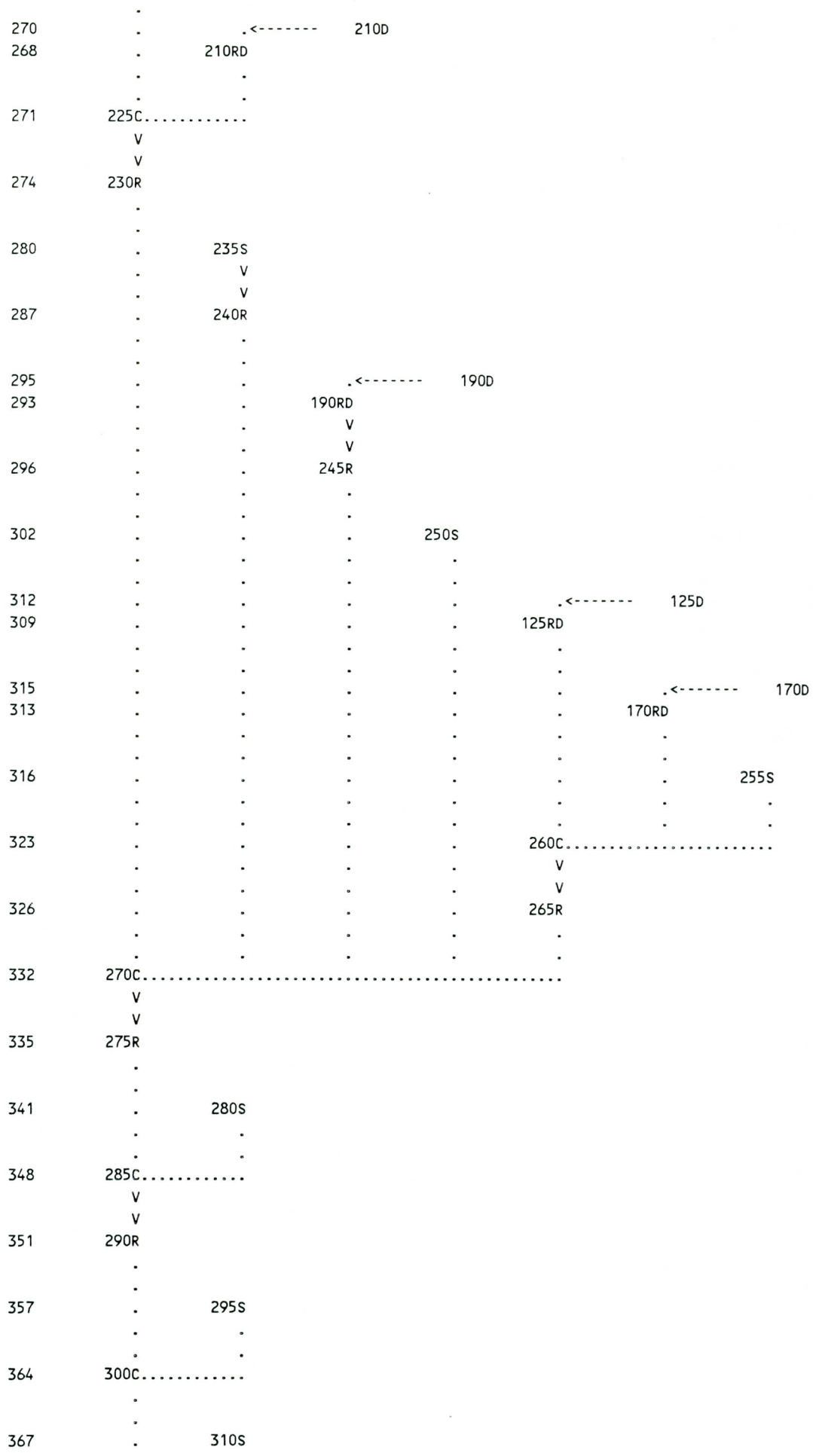
160 110C
163 115RET
174 125D
170 120D
182 135D
177 130D
185 140S
192 145S
199 150RET
207 155R
213 160C
219 170D
216 165D
222 175S
229 180C
235 190D
232 185D
238 195S
245 200C
252 210D
248 205D
257 135D
255 135RD
258 215C
261 220RET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210D
268
210RD
271
225C
274
230R
280
235S
287
240R
295
190D
293
190RD
296
245R
302
250S
312
125D
309
125RD
315
170D
313
170RD
316
255S
323
260C
326
265R
332
270C
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351
290R
357
295S
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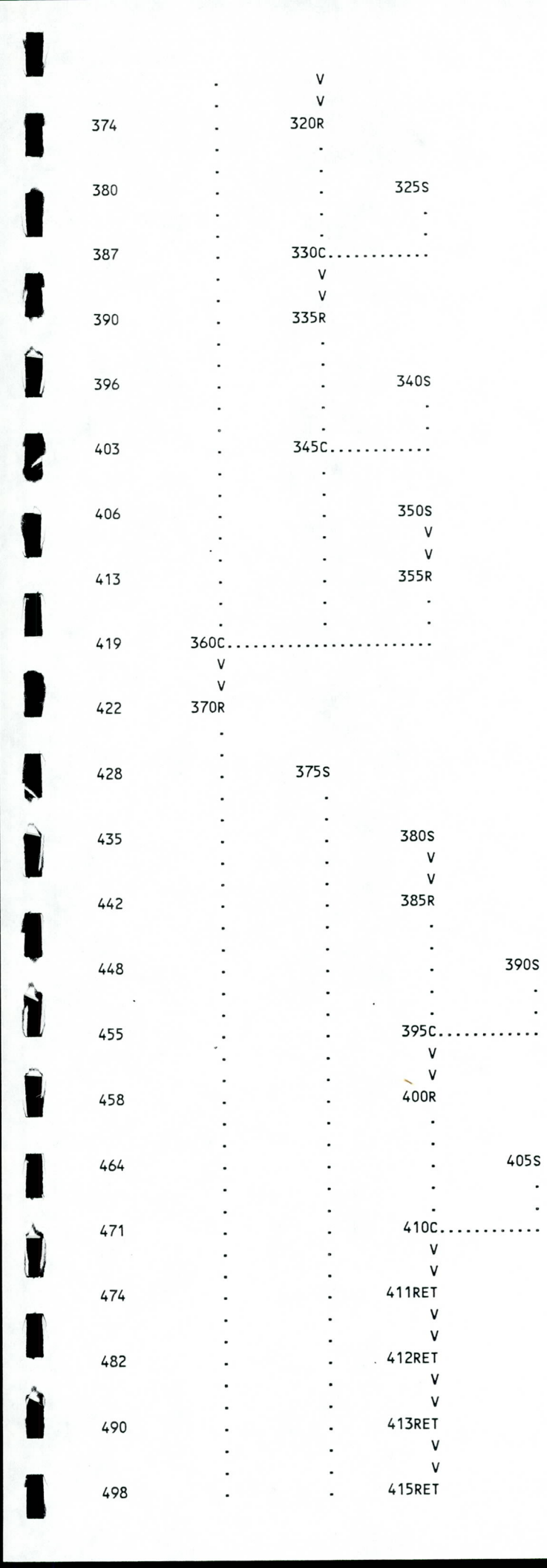
300C
367
310S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335R
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350S
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380S
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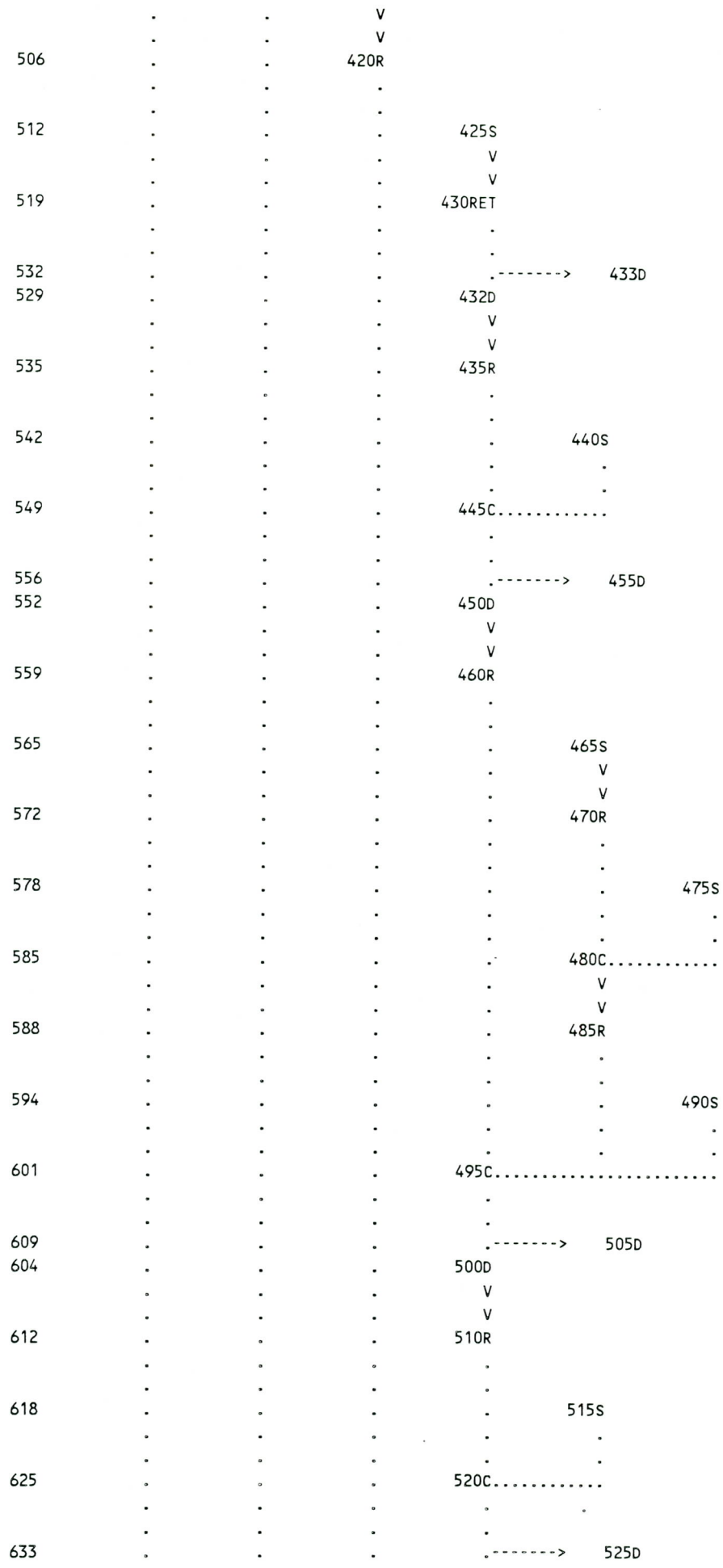
400R
405S
410C
411RET
412RET
413RET
415RET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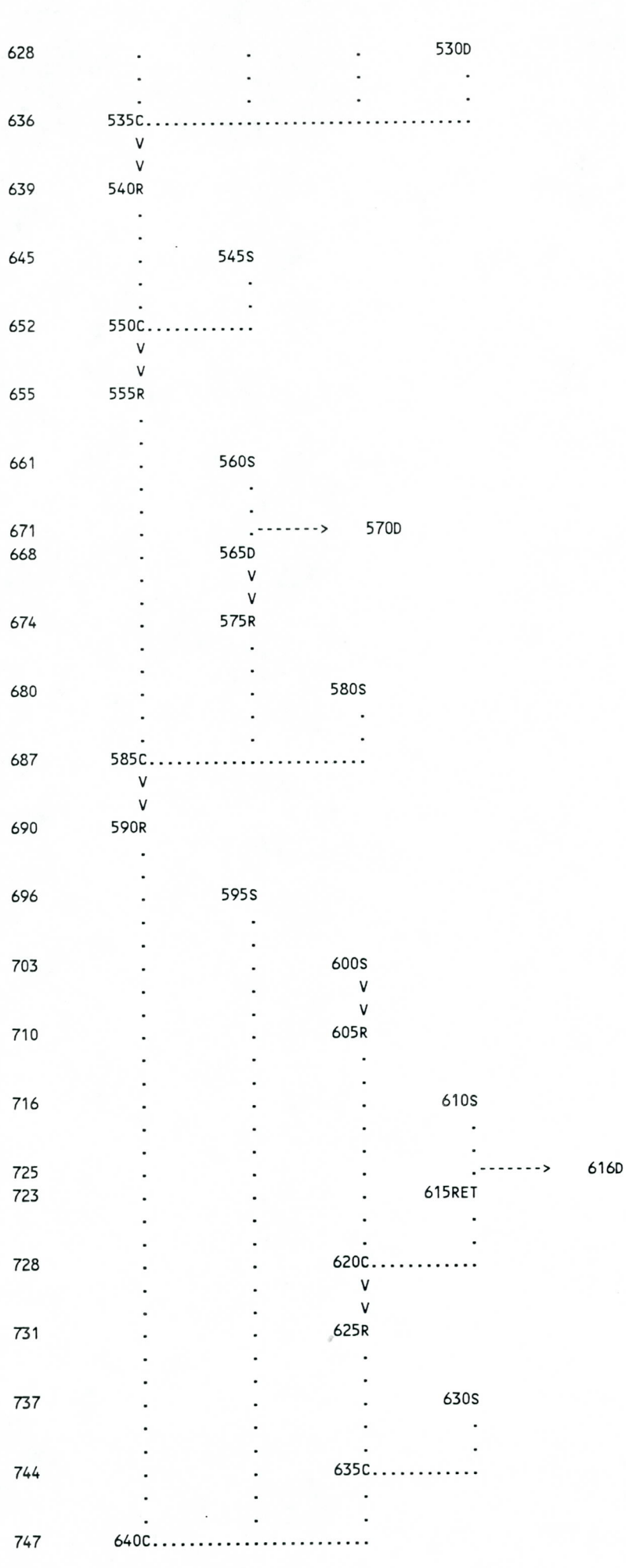
433D
432D
435R
440S
445C
455D
450D
460R
465S
470R
475S
480C
485R
490S
495C
505D
500D
510R
515S
520C
525D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565D
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575R
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600S
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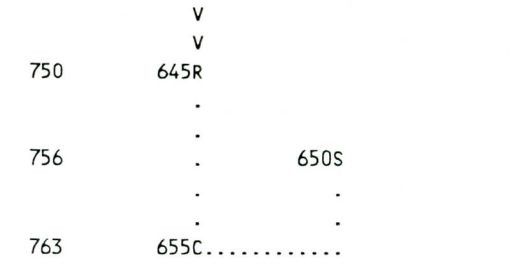
640C



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*      BY THE COE IN FEBRUARY 1981      *
*           REVISED 02 AUG 88           *
*                                       *
*  RUN DATE  11/08/1990  TIME  15:27:04 *
*                                       *
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*************************************
*                                   *
*     DODSON AND ASSOCIATES, INC.   *
*   HYDROLOGIST AND CIVIL ENGINEERS *
*      7015 W TIDWELL SUITE 107     *
*         HOUSTON, TEXAS  77092     *
*           (713) 895-8322          *
*                                   *
*************************************
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SKUNK CREEK BETWEEN ACDC AND CAP FLOOD INSURANCE STUDY
PREPARED FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC # 89-72)
BY COE & VAN LOO CONSULTING ENGINEERS, INC. (CVL # 1090-050)
NOVEMBER 1990 JKM-DWD-AJR
INPUT FILE NAME: SK10-24

10-YEAR, 24-HOUR STORM
SCS TYPE II DISTRIBUTION

11 IO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN		4	MINUTES IN COMPUTATION INTERVAL
IDATE	1	0	STARTING DATE
ITIME		0000	STARTING TIME
NQ		300	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	1	0	ENDING DATE
NDTIME		1956	ENDING TIME
ICENT		19	CENTURY MARK

COMPUTATION INTERVAL .07 HOURS
TOTAL TIME BASE 19.93 HOURS

ENGLISH UNITS

DRAINAGE AREA	SQUARE MILES
PRECIPITATION DEPTH	INCHES
LENGTH, ELEVATION	FEET
FLOW	CUBIC FEET PER SECOND
STORAGE VOLUME	ACRE-FEET
SURFACE AREA	ACRES
TEMPERATURE	DEGREES FAHRENHEIT

13 JD INDEX STORM NO. 1

STRM	2.40	PRECIPITATION DEPTH
TRDA	.01	TRANSPOSITION DRAINAGE AREA

14 PI PRECIPITATION PATTERN

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19 JD INDEX STORM NO. 2
STRM 2.35 PRECIPITATION DEPTH
TRDA 3.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN
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20 JD INDEX STORM NO. 3
STRM 2.30 PRECIPITATION DEPTH
TRDA 10.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN
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21 JD INDEX STORM NO. 4

STRM 2.21 PRECIPITATION DEPTH

TRDA 20.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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22 JD INDEX STORM NO. 5

STRM 2.16 PRECIPITATION DEPTH

TRDA 30.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

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WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	5S	763.	12.40	92.	29.	29.	1.33		
ROUTED TO	10RET	74.	13.20	68.	26.	26.	1.33	17.38	13.13
ROUTED TO	15R	74.	13.67	68.	25.	25.	1.33	1.24	13.60
HYDROGRAPH AT	20S	889.	12.20	79.	24.	24.	1.38		
2 COMBINED AT	25C	888.	12.20	138.	49.	49.	2.71		
ROUTED TO	30R	699.	12.53	136.	47.	47.	2.71	2.01	12.53
HYDROGRAPH AT	35S	364.	12.87	74.	22.	22.	1.51		
HYDROGRAPH AT	40S	298.	12.47	43.	14.	14.	.55		
ROUTED TO	45RET	35.	13.47	32.	13.	13.	.55	17.11	13.40
ROUTED TO	50R	35.	14.27	32.	11.	11.	.55	.75	14.27
HYDROGRAPH AT	55S	106.	12.80	25.	8.	8.	.59		
HYDROGRAPH AT	60S	373.	12.93	91.	29.	29.	1.20		
ROUTED TO	65RET	82.	14.33	75.	28.	28.	1.20	17.84	14.27
ROUTED TO	70R	82.	14.87	75.	27.	27.	1.20	.98	14.73
5 COMBINED AT	75C	984.	12.60	320.	112.	112.	6.56		
ROUTED TO	80RET	690.	13.00	319.	112.	112.	6.56	16.38	13.00
ROUTED TO	85R	689.	13.07	319.	111.	111.	6.56	3.90	13.07
HYDROGRAPH AT	90S	154.	13.07	43.	13.	13.	1.23		
HYDROGRAPH AT	95S	314.	12.87	70.	22.	22.	.97		
ROUTED TO	100RET	55.	14.33	52.	20.	20.	.97	17.44	14.20
ROUTED TO	105R	55.	15.33	52.	18.	18.	.97	.98	15.27
3 COMBINED AT	110C	840.	13.13	398.	140.	140.	8.76		
ROUTED TO	115RET	755.	13.53	398.	140.	140.	8.76	9.94	13.47
DIVERSION TO	125D	755.	13.53	398.	140.	140.	8.76		
HYDROGRAPH AT	120D	0.	.07	0.	0.	0.	8.76		
DIVERSION TO	135D	0.	.07	0.	0.	0.	8.76		
HYDROGRAPH AT	130D	0.	.07	0.	0.	0.	8.76		
HYDROGRAPH AT	140S	113.	13.07	34.	11.	11.	1.23		
HYDROGRAPH AT	145S	111.	12.60	18.	6.	6.	.38		

ROUTED TO	150RET	8.	14.07	8.	3.	3.	.38	17.17	14.00
ROUTED TO	155R	8.	16.53	7.	2.	2.	.38	.33	16.67
3 COMBINED AT	160C	113.	13.07	39.	13.	13.	10.37		
DIVERSION TO	170D	100.	13.13	35.	11.	11.	10.37		
HYDROGRAPH AT	165D	0.	.07	0.	0.	0.	10.37		
HYDROGRAPH AT	175S	113.	12.53	46.	18.	18.	.30		
2 COMBINED AT	180C	109.	12.53	44.	17.	17.	10.67		
DIVERSION TO	190D	109.	12.53	44.	17.	17.	10.67		
HYDROGRAPH AT	185D	0.	.07	0.	0.	0.	10.67		
HYDROGRAPH AT	195S	212.	12.27	62.	25.	25.	.40		
2 COMBINED AT	200C	203.	12.27	60.	24.	24.	11.07		
DIVERSION TO	210D	156.	12.13	56.	23.	23.	11.07		
HYDROGRAPH AT	205D	47.	12.27	3.	1.	1.	11.07		
HYDROGRAPH AT	135RD	0.	.07	0.	0.	0.	8.76		
2 COMBINED AT	215C	47.	12.27	3.	1.	1.	11.07		
ROUTED TO	220RET	0.	12.73	0.	0.	0.	11.07	96.10	12.67
HYDROGRAPH AT	210RD	156.	12.13	56.	23.	23.	11.07		
2 COMBINED AT	225C	156.	12.67	57.	23.	23.	11.07		
ROUTED TO	230R	156.	12.80	56.	22.	22.	11.07	.80	12.80
HYDROGRAPH AT	235S	65.	12.07	11.	4.	4.	.06		
ROUTED TO	240R	56.	12.33	11.	4.	4.	.06	.97	12.33
HYDROGRAPH AT	190RD	109.	12.53	44.	17.	17.	10.67		
ROUTED TO	245R	105.	12.93	44.	17.	17.	10.67	.61	12.93
HYDROGRAPH AT	250S	307.	13.00	89.	32.	32.	1.10		
HYDROGRAPH AT	125RD	755.	13.53	398.	140.	140.	8.76		
HYDROGRAPH AT	170RD	100.	13.13	35.	11.	11.	10.37		
HYDROGRAPH AT	255S	110.	13.07	37.	12.	12.	.62		
3 COMBINED AT	260C	984.	13.40	492.	171.	171.	.62		
ROUTED TO	265R	976.	13.67	488.	165.	165.	.62	2.51	13.67
5 COMBINED AT	270C	1280.	13.40	617.	224.	224.	12.85		
ROUTED TO	275R	1274.	13.60	616.	220.	220.	12.85	2.22	13.60
HYDROGRAPH AT	280S	161.	12.53	47.	16.	16.	.74		
2 COMBINED AT	285C	1331.	13.60	646.	233.	233.	13.59		

ROUTED TO	290R	1305.	14.00	643.	227.	227.	13.59	3.43	14.00
HYDROGRAPH AT	295S	55.	13.07	20.	7.	7.	.35		
2 COMBINED AT	300C	1332.	14.00	658.	233.	233.	13.95		
HYDROGRAPH AT	310S	1370.	.07	1370.	1370.	1370.	.10		
ROUTED TO	320R	1370.	.07	1370.	1370.	1370.	.10	3.13	.00
HYDROGRAPH AT	325S	92.	13.07	30.	10.	10.	.65		
2 COMBINED AT	330C	1462.	13.07	1400.	1380.	1380.	.75		
ROUTED TO	335R	1462.	13.13	1400.	1380.	1380.	.75	2.64	13.20
HYDROGRAPH AT	340S	20.	12.20	4.	1.	1.	.09		
2 COMBINED AT	345C	1466.	13.13	1403.	1381.	1381.	.84		
HYDROGRAPH AT	350S	173.	12.20	22.	8.	8.	.26		
ROUTED TO	355R	168.	12.33	22.	8.	8.	.26	.71	12.33
3 COMBINED AT	360C	2745.	13.93	2055.	1618.	1618.	15.04		
ROUTED TO	370R	2721.	14.20	2054.	1615.	1615.	15.04	1292.78	14.20
HYDROGRAPH AT	375S	204.	13.00	58.	21.	21.	.98		
HYDROGRAPH AT	380S	216.	13.07	58.	19.	19.	1.40		
ROUTED TO	385R	214.	13.20	57.	19.	19.	1.40	7.82	13.20
HYDROGRAPH AT	390S	288.	12.73	60.	21.	21.	.80		
2 COMBINED AT	395C	408.	13.00	116.	40.	40.	2.20		
ROUTED TO	400R	377.	13.47	116.	40.	40.	2.20	1300.83	13.53
HYDROGRAPH AT	405S	580.	12.67	134.	47.	47.	1.78		
2 COMBINED AT	410C	644.	13.27	246.	86.	86.	3.98		
ROUTED TO	411RET	610.	13.47	244.	85.	85.	3.98	1297.20	13.47
ROUTED TO	412RET	508.	13.93	239.	83.	83.	3.98	1294.88	13.93
ROUTED TO	413RET	185.	15.93	151.	51.	51.	3.98	1293.05	16.27
ROUTED TO	415RET	149.	18.13	109.	35.	35.	3.98	1290.57	18.67
ROUTED TO	420R	148.	18.53	98.	31.	31.	3.98	1276.71	19.07
HYDROGRAPH AT	425S	416.	12.73	186.	69.	69.	1.72		
ROUTED TO	430RET	319.	13.60	182.	66.	66.	1.72	3.14	13.60
DIVERSION TO	433D	0.	.07	0.	0.	0.	1.72		
HYDROGRAPH AT	432D	319.	13.60	182.	66.	66.	1.72		
ROUTED TO	435R	317.	13.87	181.	65.	65.	1.72	1.33	13.87
HYDROGRAPH AT	440S	396.	12.33	90.	30.	30.	.85		

2 COMBINED AT	445C	437.	12.40	264.	95.	95.	2.57		
DIVERSION TO	455D	0.	.07	0.	0.	0.	2.57		
HYDROGRAPH AT	450D	437.	12.40	264.	95.	95.	2.57		
ROUTED TO	460R	426.	12.67	263.	94.	94.	2.57	6.31	12.60
HYDROGRAPH AT	465S	500.	12.60	186.	70.	70.	1.36		
ROUTED TO	470R	492.	12.87	185.	69.	69.	1.36	1.35	12.87
HYDROGRAPH AT	475S	351.	12.53	68.	22.	22.	.60		
2 COMBINED AT	480C	759.	12.67	252.	91.	91.	1.96		
ROUTED TO	485R	734.	13.00	252.	89.	89.	1.96	1.90	13.07
HYDROGRAPH AT	490S	308.	12.67	115.	40.	40.	1.12		
3 COMBINED AT	495C	1396.	13.00	617.	220.	220.	5.64		
DIVERSION TO	505D	0.	.07	0.	0.	0.	5.64		
HYDROGRAPH AT	500D	1396.	13.00	617.	220.	220.	5.64		
ROUTED TO	510R	1384.	13.20	616.	216.	216.	5.64	2.40	13.20
HYDROGRAPH AT	515S	106.	12.67	45.	17.	17.	.48		
2 COMBINED AT	520C	1473.	13.20	657.	232.	232.	6.12		
DIVERSION TO	525D	0.	.07	0.	0.	0.	6.12		
HYDROGRAPH AT	530D	1473.	13.20	657.	232.	232.	6.12		
4 COMBINED AT	535C	3747.	14.00	2738.	1869.	1869.	19.90		
ROUTED TO	540R	3744.	14.07	2738.	1867.	1867.	19.90	1257.64	14.07
HYDROGRAPH AT	545S	65.	12.73	16.	6.	6.	.30		
2 COMBINED AT	550C	3754.	14.07	2747.	1871.	1871.	20.20		
ROUTED TO	555R	3741.	14.20	2746.	1866.	1866.	20.20	1241.29	14.20
HYDROGRAPH AT	560S	77.	12.27	16.	5.	5.	.19		
DIVERSION TO	570D	25.	11.87	10.	4.	4.	.19		
HYDROGRAPH AT	565D	52.	12.27	6.	2.	2.	.19		
ROUTED TO	575R	38.	12.80	6.	2.	2.	.19	.31	12.87
HYDROGRAPH AT	580S	361.	12.33	74.	27.	27.	.91		
3 COMBINED AT	585C	3755.	14.20	2781.	1889.	1889.	21.30		
ROUTED TO	590R	3751.	14.27	2780.	1886.	1886.	21.30	1226.01	14.27
HYDROGRAPH AT	595S	39.	13.13	16.	6.	6.	.30		
HYDROGRAPH AT	600S	164.	13.07	45.	15.	15.	1.03		
ROUTED TO	605R	163.	13.13	45.	15.	15.	1.03	.70	13.20

HYDROGRAPH AT	610S	234.	12.47	60.	20.	20.	.69		
DIVERSION TO	616D	234.	12.47	60.	20.	20.	.69		
HYDROGRAPH AT	615RET	0.	.07	0.	0.	0.	.69		
2 COMBINED AT	620C	163.	13.13	45.	15.	15.	1.72		
ROUTED TO	625R	156.	13.47	45.	15.	15.	1.72	1.92	13.53
HYDROGRAPH AT	630S	98.	12.40	27.	9.	9.	.34		
2 COMBINED AT	635C	198.	13.40	71.	24.	24.	2.05		
3 COMBINED AT	640C	3829.	14.27	2831.	1905.	1905.	23.65		
ROUTED TO	645R	3825.	14.33	2830.	1903.	1903.	23.65	1197.14	14.33
HYDROGRAPH AT	650S	22.	12.53	4.	1.	1.	.13		
2 COMBINED AT	655C	3825.	14.33	2832.	1904.	1904.	23.78		

*** NORMAL END OF HEC-1 ***

SECTION VIII

HEC-1 HYDROLOGY RESULTS FOR A 50-YEAR, 24-HOUR STORM

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*****************************************
*                                       *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *
*    BY THE COE IN FEBRUARY 1981        *
*          REVISED 02 AUG 88            *
*                                       *
*  RUN DATE  11/08/1990  TIME  15:11:52 *
*                                       *
*****************************************
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*****************************************
*                                       *
*     DODSON AND ASSOCIATES, INC.       *
*   HYDROLOGIST AND CIVIL ENGINEERS     *
*       7015 W TIDWELL SUITE 107        *
*         HOUSTON, TEXAS  77092         *
*           (713) 895-8322              *
*                                       *
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

    1     ID   SKUNK CREEK BETWEEN ACDC AND CAP FLOOD INSURANCE STUDY
    2     ID   PREPARED FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC # 89-72)
    3     ID   BY COE & VAN LOO CONSULTING ENGINEERS, INC. (CVL # 1090-050)
    4     ID   NOVEMBER 1990   JKM-DWD-AJR
    5     ID   INPUT FILE NAME:  SK50-24
    6     ID
    7     ID   50-YEAR, 24-HOUR STORM
    8     ID   SCS TYPE II DISTRIBUTION
    9     ID
          *DIAGRAM
   10     IT       4                   300
   11     IO       5
   12     IN      30
   13     JD    3.50    0.01
   14     PC    .000    .005    .011    .016    .022    .028    .035    .041    .048    .056
   15     PC    .063    .071    .080    .089    .098    .109    .120    .133    .147    .163
   16     PC    .181    .204    .235    .283    .663    .735    .772    .799    .820    .838
   17     PC    .854    .868    .880    .891    .902    .912    .921    .929    .937    .945
   18     PC    .952    .959    .965    .972    .978    .984    .989    .995   1.000
   19     JD    3.43     3.0
   20     JD    3.36    10.0
   21     JD    3.22    20.0
   22     JD    3.15    30.0

   23     KK      5S
   24     KM   SUB-BASIN 5
   25     BA   1.332
   26     LG    .200    .270   7.600    .160   4.000
   27     UC    .583    .186
   28     UA       0       3       5       8      12      20      43      75      90      96
   29     UA     100

   30     KK   10RET
   31     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
   32     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
   33     RS       1    STOR      -1
   34     SV       0       4      17      52      96     148     209     279
   35     SE      15      16      17      18      19      20      21      22
   36     SL      15    9.62      .6      .5
   37     SS    21.9      50       3     1.5

   38     KK     15R
   39     KM   ROUTE 10RET TO CP OF 20S ALONG NATURAL CHANNEL
   40     RS       5    FLOW      -1
   41     RC     .04     .03     .04    9000   .0080
   42     RX       0     100     120     125     135     140     160     260
   43     RY       5       3       2       0       0       2       3       5

   44     KK     20S
   45     KM   SUB-BASIN 20
   46     BA   1.379
   47     LG    .350    .290   6.700    .170    .000
   48     UC    .850    .412
   49     UA       0       3       5       8      12      20      43      75      90      96
   50     UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  51      KK    25C
  52      KM    COMBINE 20S AND 15R AT CP OF 20S
  53      HC     2

  54      KK    30R
  55      KM    ROUTE 25C TO CP OF 35S ALONG NATURAL CHANNEL
  56      RS     5    FLOW     -1
  57      RC   .04    .03    .04   4800   .0056
  58      RX    0      5     205    215    235    245    445    450
  59      RY    5      3      1      0      0      1      3      5

  60      KK    35S
  61      KM    SUB-BASIN 35
  62      BA   1.514
  63      LG   .350   .310  5.800   .230   .000
  64      UC   .933   .490
  65      UA    0      3      5      8     12     20     43     75     90     96
  66      UA   100

  67      KK    40S
  68      KM    SUB-BASIN 40
  69      BA   .545
  70      LG   .200   .260  7.900   .120  6.000
  71      UC   .567   .278
  72      UA    0      3      5      8     12     20     43     75     90     96
  73      UA   100

  74      KK    45RET
  75      KM    ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  76      KM    SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  77      RS     1    STOR     -1
  78      SV     0      2     11     34     62     96    135    180
  79      SE    15     16     17     18     19     20     21     22
  80      SL    15   4.91     .6     .5
  81      SS  21.9     50      3    1.5

  82      KK    50R
  83      KM    ROUTE 45RET TO CP OF 35S ALONG NATURAL CHANNEL
  84      RS     5    FLOW     -1
  85      RC   .04    .03    .04  11000   .0086
  86      RX    0     50    150    165    175    190    290    340
  87      RY    6      5      3      0      0      3      5      6

  88      KK    55S
  89      KM    SUB-BASIN 55
  90      BA   .588
  91      LG   .350   .320  5.100   .290   .000
  92      UC   .833   .655
  93      UA    0      3      5      8     12     20     43     75     90     96
  94      UA   100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  95      KK    60S
  96      KM   SUB-BASIN 60
  97      BA   1.202
  98      LG    .210    .270   7.500    .150   8.000
  99      UC   1.033    .553
 100      UA      0       3       5       8      12      20      43      75      90      96
 101      UA    100

 102      KK   65RET
 103      KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
 104      KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
 105      RS       1    STOR      -1
 106      SV       0       2       7      24      43      67      95     127
 107      SE      15      16      17      18      19      20      21      22
 108      SL      15    9.62      .6      .5
 109      SS    21.9      50       3     1.5

 110      KK    70R
 111      KM   ROUTE 65RET TO CP OF 35S ALONG NATURAL CHANNEL
 112      RS       5    FLOW      -1
 113      RC     .04     .03     .04   10000   .0090
 114      RX       0     100     200     215     230     245     345     445
 115      RY       6       5       3       0       0       3       5       6

 116      KK    75C
 117      KM   COMBINE 30R, 35S, 50R, 55S AND 70R AT CP OF 35S
 118      HC       5

 119      KK   80RET
 120      KM   ROUTE FLOW THROUGH DETENTION BEHIND PINNACLE PEAK ROAD CULVERTS
 121      KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
 122      RS       1    STOR      -1
 123      SV       0      .05     1.2     9.1    35.6      65    94.5     139
 124      SE      11      12      14      16      18      19      20      21
 125      SQ       0      54     254     528     936    2344    5278   10401

 126      KK    85R
 127      KM   ROUTE 80RET TO CP OF 90S ALONG NATURAL CHANNEL
 128      RS       5    FLOW      -1
 129      RC     .04     .03     .04    2000   .0050
 130      RX       0      50     150     165     175     190     240     250
 131      RY       6       5       4       0       0       4       5       7

 132      KK    90S
 133      KM   SUB-BASIN 90
 134      BA   1.227
 135      LG    .350    .320   5.300    .350   1.000
 136      UC   1.200    .812
 137      UA      0       3       5       8      12      20      43      75      90      96
 138      UA    100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  139     KK    95S
  140     KM   SUB-BASIN 95
  141     BA    .968
  142     LG    .200    .270   7.500    .150   5.000
  143     UC    .950    .519
  144     UA       0       3       5       8      12      20      43      75      90      96
  145     UA     100

  146     KK  100RET
  147     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  148     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  149     RS       1    STOR      -1
  150     SV       0       2       9      30      55      85     120     160
  151     SE      15      16      17      18      19      20      21      22
  152     SL      15    7.07      .6      .5
  153     ss    21.9      50       3     1.5

  154     KK    105R
  155     KM   ROUTE 100RET TO CP OF 90S ALONG NATURAL CHANNEL
  156     RS       5    FLOW      -1
  157     RC     .04     .03     .04   13000   .0080
  158     RX       0       5     155     160     170     175     325     330
  159     RY       3       2       1       0       0       1       2       3

  160     KK    110C
  161     KM   COMBINE 85R, 90S AND 105R AT CP OF 90S
  162     HC       3

  163     KK  115RET
  164     KM   ROUTE FLOW THROUGH DETENTION BEHIND 2-8X7 RCBC AT I-17
  165     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  166     RS       1    STOR      -1
  167     SV       0    .001    .220    1.16    8.44      17      30      49      67     106
  168     SE     3.8       4       6       8      10      11      12      13    13.7      15
  169     SQ       0       1     176     414     680     880    1091    1593    2678    7306

  170     KK    120D
  171     KM   DIVERT OVERFLOWS SOUTH TO SINGLE CULVERT AT MH PARK, & WEST ON TO I-17
  172     KM   DQ IS Q THROUGH 2-8X7 CULVERT (MAX 1312 CFS); DI IS TOTAL Q
  173     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  174     DT    125D
  175     DI       1     880    1091    1593    2678    3746
  176     DQ       1     880    1060    1184    1296    1312

  177     KK    130D
  178     KM   SEPARATE OUT WEST OVERFLOWS ONTO THE FRONTAGE ROAD AND MAINLINE I-17
  179     KM   THESE FLOWS HEAD SOUTH AND EVENTUALLY ENTER THE DEER VALLEY INTERCHANGE
  180     KM   REMAINING FLOWS CONTINUE SOUTH TO 6X7 BOX CULVERT ON SCATTER WASH AT I-17
  181     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  182     DT    135D
  183     DI      31     409    1382    2434
  184     DQ       0       0     215     840
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  185     KK   140S
  186     KM   SUB-BASIN 140
  187     BA   1.233
  188     LG    .350    .330   4.700    .430   1.000
  189     UC   1.500   1.174
  190     UA       0       3       5       8      12      20      43      75      90      96
  191     UA     100

  192     KK   145S
  193     KM   SUB-BASIN 145
  194     BA    .383
  195     LG    .190    .310   6.200    .270    .000
  196     UC    .633    .385
  197     UA       0       3       5       8      12      20      43      75      90      96
  198     UA     100

  199     KK  150RET
  200     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  201     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  202     RS       1    STOR      -1
  203     SV       0       1       4      14      26      40      56      75
  204     SE      15      16      17      18      19      20      21      22
  205     SL      15    4.19     .16      .5
  206     SS    21.9      50       3     1.5

  207     KK   155R
  208     KM   ROUTE 150RET TO CP OF 140S ALONG NATURAL CHANNEL
  209     RS       5    FLOW      -1
  210     RC     .04     .03     .04   15000   .0073
  211     RX       6      10     200     220     230     250     440     450
  212     RY       0       5       3       0       0       3       5       6

  213     KK   160C
  214     KM   COMBINE 140S, 130D AND 155R AT CP OF 140S
  215     HC       3

  216     KK   165D
  217     KM   DIVERT FLOW ACROSS I-17 THROUGH 6X7 RCBC (MAX Q = 510 CFS)
  218     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  219     DT   170D
  220     DI       0       1     510     511    1000    2000
  221     DQ       0       1     510     510     510     510

  222     KK   175S
  223     KM   SUB-BASIN 175
  224     BA    .299
  225     LG    .070    .290   6.700    .190  75.000
  226     UC    .750    .856
  227     UA       0       5      16      30      65      77      84      90      94      97
  228     UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  229     KK   180C
  230     KM   COMBINE 165D AND 175S AT CP OF 175S
  231     HC     2

  232     KK   185D
  233     KM   DIVERT FLOW ACROSS I-17 THROUGH 65X40 CMP AT ADOBE DRIVE
  234     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  235     DT   190D
  236     DI     0     115     116    1000    3000
  237     DQ     0     115     115     115     115

  238     KK   195S
  239     KM   SUB-BASIN 195
  240     BA   .399
  241     LG   .090    .310  11.000    .310  80.000
  242     UC   .567    .484
  243     UA     0       5      16      30      65      77      84      90      94      97
  244     UA   100

  245     KK   200C
  246     KM   COMBINE 185D AND 195S AT CP OF 195S
  247     HC     2

  248     KK   205D
  249     KM   DIVERT FLOW ACROSS I-17 THROUGH 6X3 RCBC AT LOUISE DRIVE
  250     KM   DI REPRESENTS TOTAL FLOW, DQ REPRESENTS FLOW THROUGH 6X3 RCBC.
  251     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  252     DT   210D
  253     DI     0       1     156     157    1000    3000
  254     DQ     0       1     156     156     156     156

  255     KK   135RD
  256     KM   RETRIEVE FLOW DIVERTED ALONG I-17 AND FRONTAGE ROAD
  257     DR   135D

  258     KK   215C
  259     KM   COMBINE 135RD AND 205D AT DEER VALLEY/I-17 INTERCHANGE
  260     HC     2

  261     KK  220RET
  262     KM   ROUTE FLOW THROUGH DEPRESSED SECTION TO WEST SIDE OF I-17
  263     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  264     RS     1    STOR      -1
  265     SV     0       1    15.9    37.7    53.8    61.3    74.1      99   129.5
  266     SE    82      84      90      94      96    96.8      98     100     102
  267     SQ     0       0       0       0       0       1     808    5403   13835

  268     KK   210RD
  269     KM   RETRIEVE FLOW DIVERTED THROUGH CULVERT AT LOUISE DRIVE
  270     DR   210D
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  271     KK   225C
  272     KM   COMBINE 220RET AND 210RD AT INTERSECTION OF 27TH AVE & DEER VALLEY ROAD
  273     HC     2

  274     KK   230R
  275     KM   ROUTE 225C TO CP OF 250S ALONG NATURAL CHANNEL
  276     RS     5    FLOW      -1
  277     RC   .03     .02     .03    7000   .0057       5
  278     RX     0       5      25      26      64      65      85      90
  279     RY     2       1      .5       0       0      .5       1       2

  280     KK   235S
  281     KM   SUB-BASIN 235
  282     BA   .062
  283     LG   .090    .310  11.000    .020  74.000
  284     UC   .233    .172
  285     UA     0       5      16      30      65      77      84      90      94      97
  286     UA   100

  287     KK   240R
  288     KM   ROUTE 235S TO CP OF 250S ALONG NATURAL CHANNEL
  289     RS     5    FLOW      -1
  290     RC   .04     .03     .04    5500   .0073
  291     RX     0       5      55      60      70      75     125     130
  292     RY     3       2       1       0       0       1       2       3

  293     KK   190RD
  294     KM   RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT AT ADOBE DRIVE
  295     DR   190D

  296     KK   245R
  297     KM   ROUTE 190RD TO CP OF 250S ALONG NATURAL CHANNEL
  298     RS     5    FLOW      -1
  299     RC   .03     .02     .03    7500   .0060
  300     RX     0       5      25      26      64      65      85      90
  301     RY     2       1      .5       0       0      .5       1       2

  302     KK   250S
  303     KM   SUB-BASIN 250
  304     BA   1.103
  305     LG   .240    .320   6.900    .260  26.000
  306     UC  1.183    .583
  307     UA     0       3       5       8      12      20      43      75      90      96
  308     UA   100

  309     KK   125RD
  310     KM   RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT NEAR MH PARK SOUTH OF
  311     KM   PINNACLE PEAK ROAD
  312     DR   125D
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  313     KK  170RD
  314     KM  RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT NORTH OF WILLIAMS DRIVE
  315     DR   170D

  316     KK   255S
  317     KM  SUB-BASIN 255
  318     BA   .615
  319     LG   .320   .330  6.200   .230  10.000
  320     UC  1.500  1.225
  321     UA     0     3     5     8     12    20    43    75    90    96
  322     UA   100

  323     KK   260C
  324     KM  COMBINE 125RD, 170RD AND 255S AT CP OF 255S
  325     HC     3

  326     KK   265R
  327     KM  ROUTE 260C TO CP OF 250S ALONG SCATTER WASH NORTH OF DEER VALLEY ROAD
  328     RS     5   FLOW    -1
  329     RC   .04    .03    .04   8300  .0048
  330     RX   250    700    900    980  1020  1100  1300  1750
  331     RY    17   12.5     10      0     0    10  12.5    17

  332     KK   270C
  333     KM  COMBINE 240R, 240R, 245R, 265R & 250S @ CP OF 250S
  334     HC     5

  335     KK   275R
  336     KM  ROUTE 270C TO CP OF 280S ALONG SCATTER WASH NORTH OF BEARDSLEY ROAD
  337     RS     5   FLOW    -1
  338     RC   .04    .03    .04   4500  .0056    10
  339     RX   100    650    800    980  1020  1200  1350  1600
  340     RY   7.5      7    5.5      0     0   5.5     7   7.5

  341     KK   280S
  342     KM  SUB-BASIN 280
  343     BA   .744
  344     LG   .230   .330  4.900   .320  13.000
  345     UC   .883   .583
  346     UA     0     5    16    30    65    77    84    90    94    97
  347     UA   100

  348     KK   285C
  349     KM  COMBINE 275R AND 280S AT CP OF 280S
  350     HC     2

  351     KK   290R
  352     KM  ROUTE 285C TO CP OF 295S ALONG SCATTER WASH CHANNEL U/S OF 45TH AVE CROSSING
  353     RS     5   FLOW    -1
  354     RC   .03    .03    .03   6200  .0027
  355     RX   830    850    980    990  1010  1020  1150  1170
  356     RY    10    2.5    2.5      0     0   2.5   2.5    10
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  357     KK   295S
  358     KM   SUB-BASIN 295
  359     BA   .352
  360     LG   .290   .340  4.400   .330 11.000
  361     UC  1.283  1.158
  362     UA     0     3     5     8    12    20    43    75    90    96
  363     UA   100

  364     KK   300C
  365     KM   COMBINE 290R AND 295S AT CP OF 295S
  366     HC     2

  367     KK   310S
  368     KM   ADOBE DAM OUTLET; ASSUMED CONSTANT OUTFLOW OF 1650 CFS FOR 50-YEAR STORM
  369     KM   SOURCE: F.I.S., MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS, FEMA
  370     BA   0.1
  371     IN   120
  372     QI  1650  1650  1650  1650  1650  1650  1650  1650  1650  1650
  373     QI  1650  1650  1650  1650  1650  1650  1650  1650  1650  1650

  374     KK   320R
  375     KM   SKUNK CREEK U/S OF BEARDSLEY ROAD AND D/S OF ADOBE DAM
  376     RS     5   FLOW    -1
  377     RC   .04   .03   .04  3300  .0028
  378     RX   645   795   945   965  1035  1085  1095  1105
  379     RY     7     6     5     0     0     7     9    11

  380     KK   325S
  381     KM   SUB-BASIN 325
  382     BA   .650
  383     LG   .300   .340  3.900   .440 9.000
  384     UC  1.500  1.134
  385     UA     0     3     5     8    12    20    43    75    90    96
  386     UA   100

  387     KK   330C
  388     KM   COMBINE 325S AND 310S (ADOBE DAM OUTLET)
  389     HC     2

  390     KK   335R
  391     KM   ROUTE 330C TO CP OF 340S ALONG SKUNK CREEK U/S OF WAHALLA LANE
  392     RS     5   FLOW    -1
  393     RC   .04   .03   .04  3050  .006
  394     RX   935   940   945   965  1035  1065  1070  1075
  395     RY     7   6.5     6     0     0     6   6.5     7

  396     KK   340S
  397     KM   SUB-BASIN 340
  398     BA   .086
  399     LG   .230   .350  3.200   .660 13.000
  400     UC   .350   .268
  401     UA     0     5    16    30    65    77    84    90    94    97
  402     UA   100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  403     KK   345C
  404     KM   COMBINE 335R AND 340S AT CP OF 340S
  405     HC     2

  406     KK   350S
  407     KM   SUB-BASIN 350
  408     BA   .263
  409     LG   .280   .320  5.600   .250  23.000
  410     UC   .350   .142
  411     UA     0     3     5     8     12    20    43    75    90    96
  412     UA   100

  413     KK   355R
  414     KM   ROUTE 350S TO CONFLUENCE OF SCATTER WASH & SKUNK CREEK, ALONG HAVASUPAI DR.
  415     RS     5   FLOW    -1
  416     RC   .03    .02    .03  2400   .006
  417     RX   70    70.1   79.9   80    120  120.1   130  130.1
  418     RY  5.5     .5     .5    0     0     .5    .5    5.5

  419     KK   360C
  420     KM   COMBINE 300C, 345C AND 355R NEAR CONFLUENCE OF SCATTER WASH AND SKUNK CREEK
  421     HC     3

  422     KK   370R
  423     KM   ROUTE 360C TO CP OF 375S ALONG SKUNK CREEK U/S OF 51ST AVENUE ALIGNMENT
  424     RS     2   FLOW    -1
  425     RC   .04    .03    .04  6200  .0047
  426     RX   120    130    350   460   580   590   720   770
  427     RY  1298   1296   1294  1290  1290  1294  1296  1298

  428     KK   375S
  429     KM   SUB-BASIN 375
  430     BA   .984
  431     LG   .290   .330  5.300   .380  18.000
  432     UC  1.000   .489
  433     UA     0     3     5     8     12    20    43    75    90    96
  434     UA   100

  435     KK   380S
  436     KM   SUB-BASIN 380
  437     BA  1.405
  438     LG   .320   .330  4.600   .430  8.000
  439     UC  1.500   .799
  440     UA     0     3     5     8     12    20    43    75    90    96
  441     UA   100

  442     KK   385R
  443     KM   ROUTE 380S TO CP OF 390S ALONG UNNAMED WASH WEST OF PILCHER HILL
  444     RS     5   FLOW    -1
  445     RC   .04    .03    .04  4400   .01
  446     RX   10    200    300   306   316   322   420   620
  447     RY   12     10      9     6     6     9    10    12
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

448       KK   390S
449       KM   SUB-BASIN 390
450       BA    .799
451       LG    .310    .340   4.400    .340  23.000
452       UC    .817    .309
453       UA       0       3       5       8      12      20      43      75      90      96
454       UA     100

455       KK   395C
456       KM   COMBINE 385R AND 390S AT CP OF 390S
457       HC       2

458       KK   400R
459       KM   ROUTE 395S TO CP OF 405S ALONG UNNAMED WASH NORTH OF ARROWHEAD RANCH
460       RS       5    FLOW      -1
461       RC     .04     .03     .04    9600   .0073
462       RX     300     350     400     460     540     600     650     700
463       RY    1314    1309    1304    1300    1300    1304    1304    1304

464       KK   405S
465       KM   SUB-BASIN 405
466       BA   1.776
467       LG    .220    .330   5.200    .280  20.000
468       UC   1.500   1.034
469       UA       0       3       5       8      12      20      43      75      90      96
470       UA     100

471       KK   410C
472       KM   COMBINE 400R AND 405S AT CP OF 405S
473       HC       2

474       KK  411RET
475       KM   LAKE 1, ARROWHEAD RANCH
476       KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
477       KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
478       RS       1    ELEV  1296.0
479       SV     0.0     6.4    12.9    19.4    26.0    32.6    39.4    46.2    53.1    60.0
480       SE  1296.0  1296.5  1297.0  1297.5  1298.0  1298.5  1299.0  1299.5  1300.0  1300.5
481       SQ       0     126     356     655    1008    1409    1852    2334    2851    3402

482       KK  412RET
483       KM   LAKE 2, ARROWHEAD RANCH
484       KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
485       KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
486       RS       1    ELEV  1294.0
487       SV       0    14.4    29.2    44.1    58.9    74.3    89.6   108.2   126.8   145.4
488       SE  1294.0  1294.5  1295.0  1295.5  1296.0  1296.5  1297.0  1297.5  1298.0  1298.5
489       SQ       0     168     475     873    1344    1878    2469    3112    3802    4536
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  490     KK  413RET
  491     KM   LAKES 3 AND 7, ARROWHEAD RANCH
  492     KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
  493     KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  494     RS       1    ELEV  1292.0
  495     SV       0    29.8    61.7    91.6   122.5   154.5   186.3   225.3   264.3   303.1
  496     SE  1292.0  1292.5  1293.0  1293.5  1294.0  1294.5  1295.0  1295.5  1296.0  1296.5
  497     SQ       0      47     132     242     373     522     686     865    1056    1260

  498     KK  415RET
  499     KM   LAKE 8, ARROWHEAD RANCH
  500     KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
  501     KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  502     RS       1    ELEV  1290.0
  503     SV       0    20.6    42.1    63.5    84.9   107.1   129.4   456.8   184.3   211.8
  504     SE  1290.0  1290.5  1291.0  1291.5  1292.0  1292.5  1293.0  1293.5  1294.0  1294.5
  505     SQ       0      93     264     485     747    1044    1372    1729    2112    2520

  506     KK   420R
  507     KM   ROUTE 415RET TO CP OF 375S (55TH AVENUE CHANNEL)
  508     RS       5    FLOW      -1
  509     RC     .03     .03     .03    4560   .0025
  510     RX     390     400     440     460     536     566     686     690
  511     RY    1283    1282    1280    1276    1276    1283    1285    1286

  512     KK   425S
  513     KM   SUB-BASIN 425
  514     BA   1.723
  515     LG    .160    .300   7.400    .160  39.000
  516     UC   1.500   1.418
  517     UA       0       5      16      30      65      77      84      90      94      97
  518     UA     100

  519     KK  430RET
  520     KM   ROUTE FLOW THROUGH DETENTION BEHIND 3-10X3 RCBC NORTHEAST OF I-17 AND
  521     KM   UNION HILLS DRIVE; DETENTION VOLUME IS BASED ON AERIAL PHOTOGRAPHS
  522     KM   AND FIELD VISITS, AND SHOULD BE CONSIDERED APPROXIMATE.  OUTFLOW IS
  523     KM   BASED ON CULVERT INLET CONTROL UP TO 4' DEEP, THEN WEIR FLOW OVER UNION
  524     KM   HILLS DRIVE IS ADDED IN.
  525     RS       1    ELEV       0
  526     SA       0       6       9      12      15      22      31
  527     SE       0       1       2       3       4       5       6
  528     SQ       0     0.1      90     255     450    2010    4600

  529     KK   432D
  530     KM   DIVERT FLOW OVER UNION HILLS DRIVE, EAST OF I-17
  531     KM   DQ REPRESENTS THE BREAKOUT FROM THE DETENTION BASIN OVER UNION HILLS DRIVE.
  532     DT   433D
  533     DI       0      81     255     450    2010    4600
  534     DQ       0       0       0       0    1350    3820
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  535     KK   435R
  536     KM   ROUTE 432D TO CP OF 440S ALONG UNION HILLS DRIVE (INVERTED CROWN) -
  537     KM   CULVERT OUTLET ON WEST SIDE OF I-17 TO 35TH AVENUE
  538     RS      5    FLOW      -1
  539     RC   .025     .02    .025    6800    .004       4
  540     RX     45    59.9      60     100   100.1     140   140.1     155
  541     RY    1.5     1.5       1       0       0       1     1.5     1.5

  542     KK   440S
  543     KM   SUB-BASIN 440
  544     BA   .846
  545     LG   .200    .300   9.300    .060  20.000
  546     UC   .717    .450
  547     UA      0       5      16      30      65      77      84      90      94      97
  548     UA    100

  549     KK   445C
  550     KM   COMBINE 435R AND 440S AT CP OF 440S
  551     HC      2

  552     KK   450D
  553     KM   SURFACE FLOW CAPACITY OF UNION HILLS DRIVE INVERTED CROWN SECTION IS 470 CFS,
  554     KM   STORM DRAIN CAPACITY IS 890 CFS. TOTAL CAPACITY FLOWING WEST IS 1360 CFS.
  555     KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN I-17 AND 35TH AVENUE
  556     DT   455D
  557     DI      0     500    1000    1360    2000    3000
  558     DQ      0       0       0       0     640    1640

  559     KK   460R
  560     KM   ROUTE 450D TO CP OF 490S ALONG UNION HILLS DRIVE - 35TH TO 43RD AVENUE
  561     RS      5    FLOW      -1
  562     RC    .02    .025     .03    5280    .004      10
  563     RX   99.9     100     135     150     155     170   170.1   170.2
  564     RY      9     6.7       6       3       3       7       8       9

  565     KK   465S
  566     KM   SUB-BASIN 465
  567     BA   1.361
  568     LG    .140    .310   9.100    .100  57.000
  569     UC   1.000    .646
  570     UA      0       5      16      30      65      77      84      90      94      97
  571     UA    100

  572     KK   470R
  573     KM   ROUTE 465S TO CP OF 475S ALONG COLLECTOR STREET
  574     RS      5    FLOW      -1
  575     RC   .025     .02    .025    8200   .0046
  576     RX   69.9      70    74.9      75     125   125.1     130   130.1
  577     RY    3.5      .5      .5       0       0      .5      .5     3.5
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  578     KK   475S
  579     KM   SUB-BASIN 475
  580     BA    .596
  581     LG    .290    .310  10.500    .030  18.000
  582     UC    .633    .392
  583     UA       0       3       5       8      12      20      43      75      90      96
  584     UA     100

  585     KK   480C
  586     KM   COMBINE 470R AND 475S AT CP OF 475S
  587     HC       2

  588     KK   485R
  589     KM   ROUTE 480C TO CP OF 490S ALONG LOCAL STREET WITH VERTICAL CURBS
  590     RS       5    FLOW      -1
  591     RC    .025     .02    .025   10300   .0038       5
  592     RX    69.9      70    79.9      80     120   120.1     130   130.1
  593     RY       2      .5      .5       0       0      .5      .5       2

  594     KK   490S
  595     KM   SUB-BASIN 490
  596     BA   1.115
  597     LG    .230    .290   8.300    .090  26.000
  598     UC   1.500   1.135
  599     UA       0       5      16      30      65      77      84      90      94      97
  600     UA     100

  601     KK   495C
  602     KM   COMBINE 460R, 485R AND 490S AT CP OF 490S
  603     HC       3

  604     KK   500D
  605     KM   SURFACE FLOW CAPACITY OF THE UNION HILLS DRIVE AND CHANNEL IS 520 CFS,
  606     KM   STORM DRAIN CAPACITY IS 1280 CFS. TOTAL CAPACITY FLOWING WEST IS 1800 CFS.
  607     KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 35TH AVENUE
  608     KM   AND 43RD AVENUE
  609     DT    505D
  610     DI       0     500    1000    1800    2000    3000    4000
  611     DQ       0       0       0       0     200    1200    2200

  612     KK   510R
  613     KM   ROUTE 500D TO CP OF 515S ALONG UNION HILLS DRIVE - 43RD TO 51ST AVENUE
  614     RS       5    FLOW      -1
  615     RC    .025     .02    .025    7500   .0042      10
  616     RX      45    59.9      60     100   100.1     140   140.1     155
  617     RY     1.5     1.5       1       0       0       1     1.5     1.5

  618     KK   515S
  619     KM   SUB-BASIN 515
  620     BA    .476
  621     LG    .120    .340   4.600    .280  32.000
  622     UC   1.000    .904
  623     UA       0       5      16      30      65      77      84      90      94      97
  624     UA     100
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  625     KK   520C
  626     KM   COMBINE 510R AND 515S AT CP OF 515S
  627     HC      2

  628     KK   530D
  629     KM   SURFACE FLOW CAPACITY OF UNION HILLS DRIVE AND 4-15" CULVERTS IS 65 CFS,
  630     KM   STORM DRAIN CAPACITY IS 1495 CFS. TOTAL CAPACITY FLOWING WEST IS 1560 CFS.
  631     KM   THE REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 43RD AVENUE
  632     KM   AND 55TH AVENUE
  633     DT   525D
  634     DI      0     500    1000    1560    2000    4000
  635     DQ      0       0       0       0     440    2440

  636     KK   535C
  637     KM   COMBINE 370R, 375S, 420R & 530RD @ CP OF 375S
  638     HC      4   19.9

  639     KK   540R
  640     KM   ROUTE 535C TO CP OF 545S ALONG SKUNK CREEK U/S OF UNION HILLS DRIVE
  641     RS      2    FLOW      -1
  642     RC    .04     .03     .04    3400   .0056
  643     RX    445     465     475     500     610     640     650     660
  644     RY   1262    1264    1264    1254    1254    1262    1264    1264

  645     KK   545S
  646     KM   SUB-BASIN 545
  647     BA   .296
  648     LG   .310    .330   4.000    .460  15.000
  649     UC   .767    .507
  650     UA      0       3       5       8      12      20      43      75      90      96
  651     UA    100

  652     KK   550C
  653     KM   COMBINE 540R AND 545S AT CP OF 545S
  654     HC      2

  655     KK   555R
  656     KM   ROUTE 550C TO CP OF 580S ALONG SKUNK CREEK FROM 67TH AVE. TO UNION HILLS DR.
  657     RS      2    FLOW      -1
  658     RC    .04     .03     .04    5350   .0039
  659     RX    395     435     465     500     560     590     650     700
  660     RY   1246    1244    1242    1236    1236    1242    1244    1245

  661     KK   560S
  662     KM   SUB-BASIN 560
  663     BA   .190
  664     LG   .150    .350   4.400    .280  21.000
  665     UC   .500    .370
  666     UA      0       5      16      30      65      77      84      90      94      97
  667     UA    100
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

668       KK   565D
669       KM   CAPACITY OF 59TH AVENUE IS 25 CFS.
670       KM   THIS IS DIVERTED OUT OF THE WATERSHED (DQ).
671       DT   570D
672       DI      0      25      50     100     500    1000
673       DQ      0      25      25      25      25      25

674       KK   575R
675       KM   ROUTE 565D TO CP OF 580S ALONG LOCAL STREETS WITH VERTICAL CURBS
676       RS      5    FLOW      -1
677       RC    .03     .02     .03    6500   .0044
678       RX   74.9      75    81.9      82     118   118.1     125   125.1
679       RY      2      .5      .5       0       0      .5      .5       2

680       KK   580S
681       KM   SUB-BASIN 580
682       BA   .914
683       LG   .200    .340   4.500    .330  25.000
684       UC   .683    .295
685       UA      0       5      16      30      65      77      84      90      94      97
686       UA    100

687       KK   585C
688       KM   COMBINE 555R, 575R AND 580S AT CP OF 580S
689       HC      3

690       KK   590R
691       KM   ROUTE 640C TO CP OF 650S ALONG SKUNK CREEK FROM 67TH AVENUE TO BELL ROAD
692       RS      2    FLOW      -1
693       RC    .04     .03     .04    4000   .0075
694       RX    370     470     485     500     680     710     730     810
695       RY   1231    1231    1230  1223.5  1223.5    1230    1232  1232.5

696       KK   595S
697       KM   SUB-BASIN 595
698       BA   .302
699       LG   .190    .340   4.500    .420  13.000
700       UC 1.500   1.588
701       UA      0       3       5       8      12      20      43      75      90      96
702       UA    100

703       KK   600S
704       KM   SUB-BASIN 600
705       BA 1.027
706       LG   .440    .250   5.500    .380   8.000
707       UC 1.117    .630
708       UA      0       3       5       8      12      20      43      75      90      96
709       UA    100
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  710     KK   605R
  711     KM   ROUTE 600S TO CP OF 610S ALONG LOCAL STREETS WITH VERTICAL CURBS
  712     RS      5    FLOW      -1
  713     RC    .03     .02     .03    2500    .006       5
  714     RX   74.9      75    81.9      82     118   118.1     125   125.1
  715     RY      2      .5      .5       0       0      .5      .5       2

  716     KK   610S
  717     KM   SUB-BASIN 610
  718     BA    .690
  719     LG    .210    .270   6.800    .180  19.000
  720     UC    .833    .461
  721     UA       0       5      16      30      65      77      84      90      94      97
  722     UA     100

  723     KK  615RET
  724     KM   ENTIRE VOLUME OF RETENTION (38.6 AF) IS MODELED AS A DIVERT
  725     DT   616D    38.6
  726     DI       0     100     500    1000
  727     DQ       0     100     500    1000

  728     KK   620C
  729     KM   COMBINE 605R AND 615RET AT CP OF 610S
  730     HC       2

  731     KK   625R
  732     KM   ROUTE 620C TO CP OF 630S ALONG CHANNEL BESIDE 71ST AVENUE
  733     RS       5    FLOW      -1
  734     RC     .03     .03     .03    4500   .0022      10
  735     RX      15      18      20      30      45      55      57      60
  736     RY       7       6       5       0       0       5       6       7

  737     KK   630S
  738     KM   SUB-BASIN 630
  739     BA    .336
  740     LG    .170    .320   5.200    .260  19.000
  741     UC    .717    .551
  742     UA       0       5      16      30      65      77      84      90      94      97
  743     UA     100

  744     KK   635C
  745     KM   COMBINE 625R AND 630S AT CP OF 630S
  746     HC       2

  747     KK   640C
  748     KM   COMBINE 540R, 595S AND 635C AT CP OF 595S
  749     HC       3

  750     KK   645R
  751     KM   ROUTE 585C TO CP OF 595S ALONG SKUNK CREEK FROM BELL ROAD TO ACDC
  752     RS       2    FLOW      -1
  753     RC     .04     .03     .04    3500   .0068
  754     RX     250     260     360     500     545     600     720     800
  755     RY    1212    1210    1208    1192    1192    1210    1210    1211
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

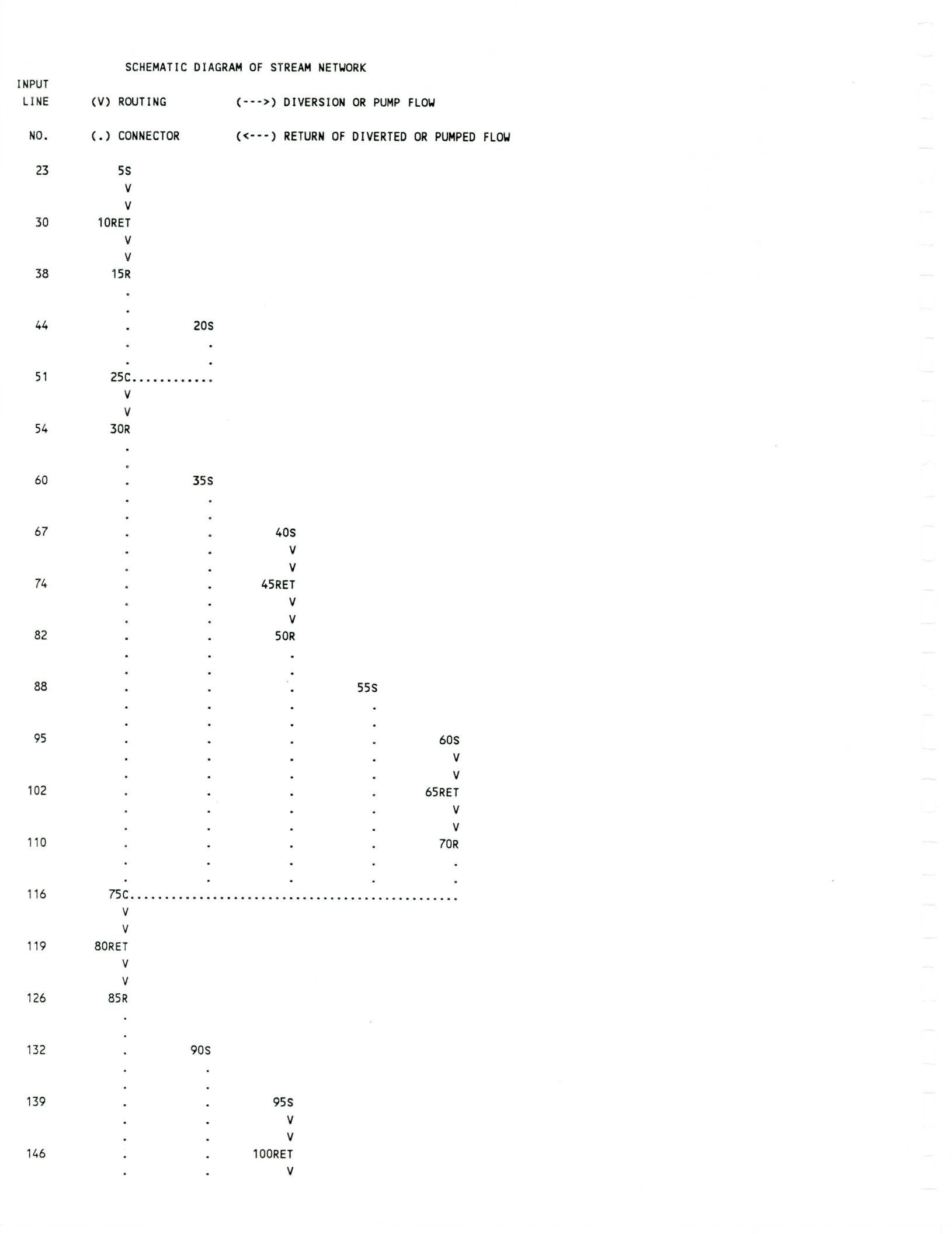
  756     KK    650S
  757     KM   SUB-BASIN 650
  758     BA    .125
  759     LG    .340    .350   3.700    .490   4.000
  760     UC    .583    .442
  761     UA       0       3       5       8      12      20      43      75      90      96
  762     UA     100

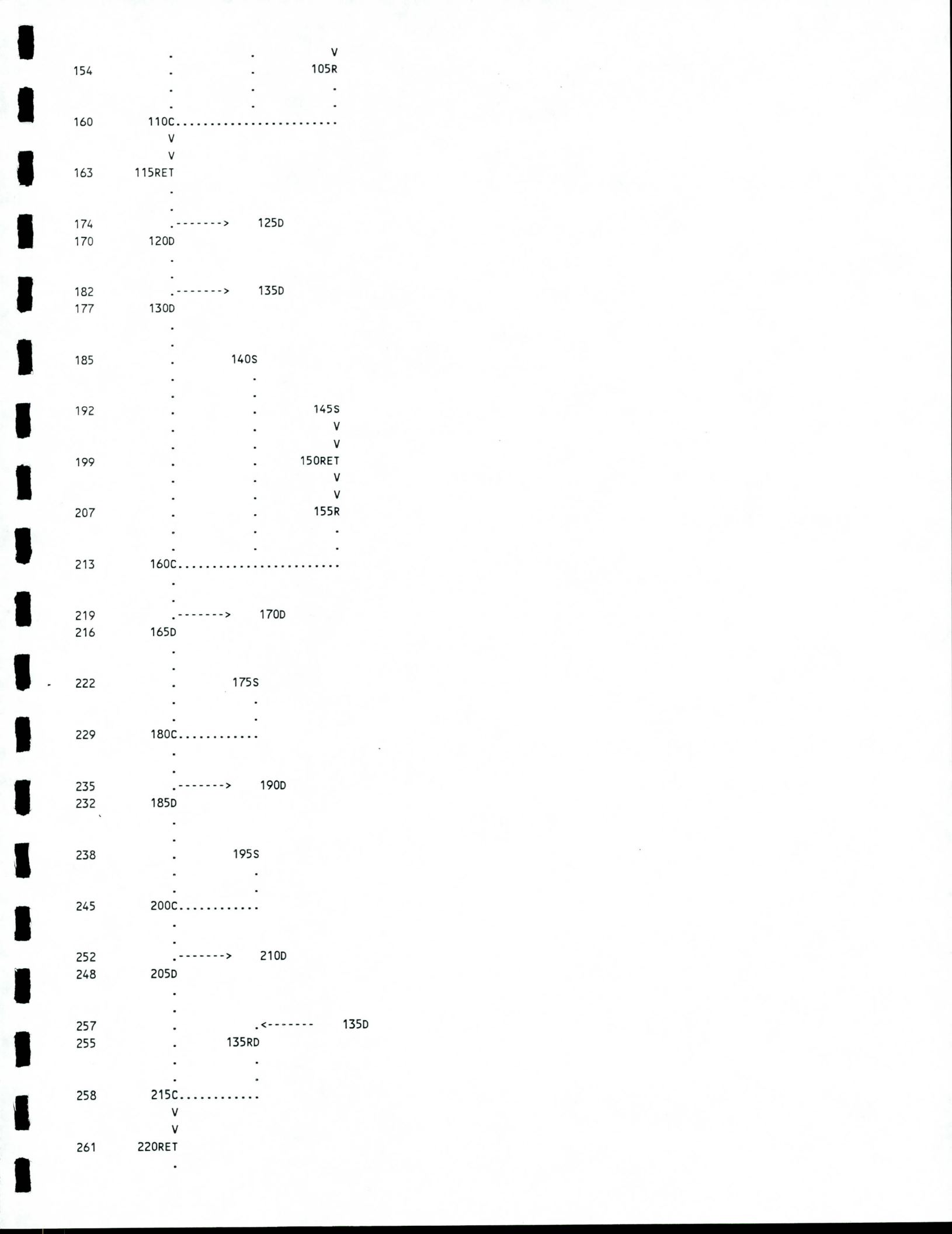
  763     KK    655C
  764     KM   COMBINE 645R AND 650S AT CP OF 650S
  765     HC       2
  766     ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

(V) ROUTING
(.) CONNECTOR
(---->) DIVERSION OR PUMP FLOW
(<----) RETURN OF DIVERTED OR PUMPED FLOW

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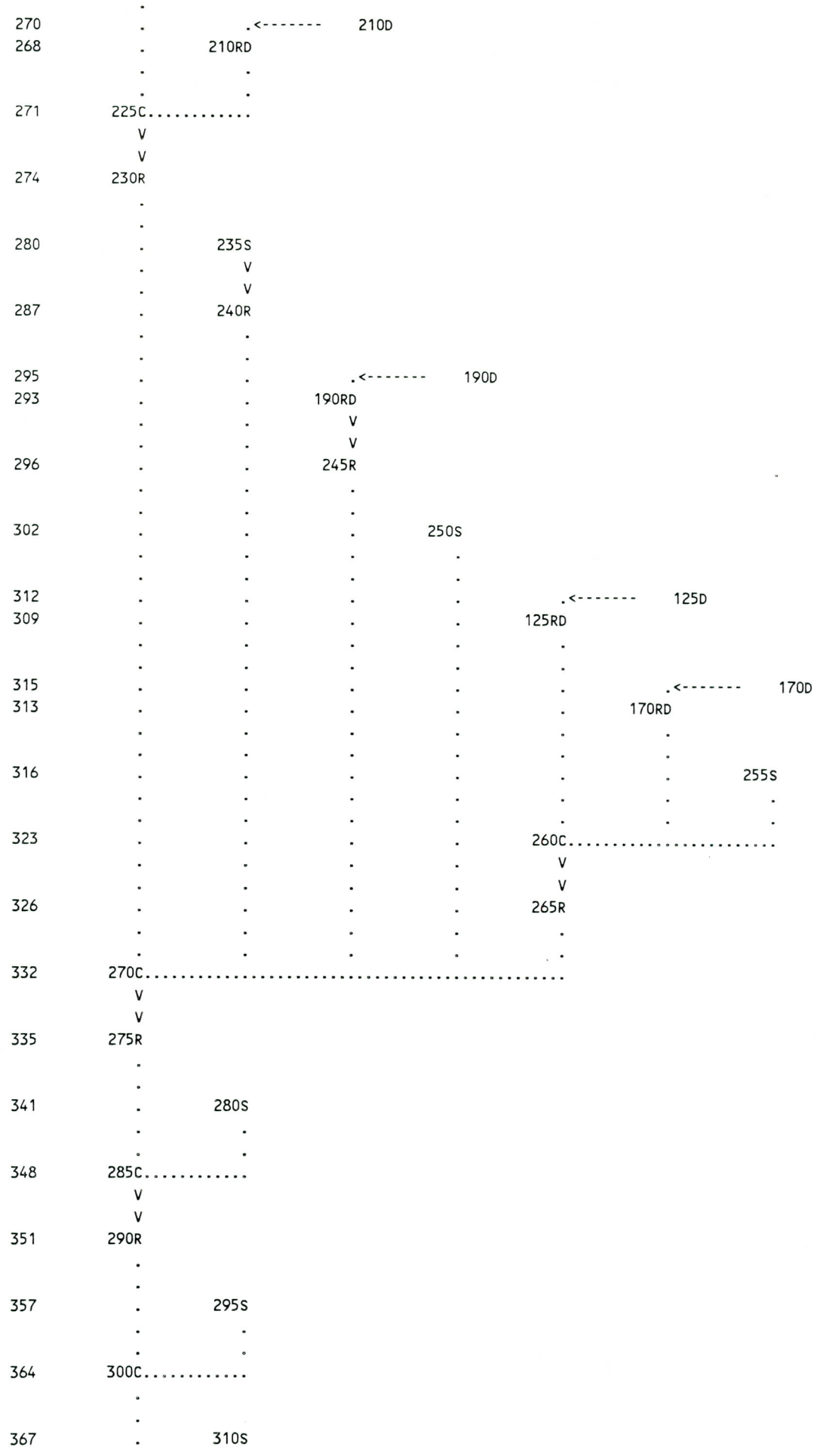
163 115RET
174 125D
170 120D
182 135D
177 130D
185 140S
192 145S
199 150RET
207 155R
213 160C
219 170D
216 165D
222 175S
229 180C
235 190D
232 185D
238 195S
245 200C
252 210D
248 205D
257 135D
255 135RD
258 215C
261 220RET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240R
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293
190RD
296
245R
302
250S
312
125D
309
125RD
315
170D
313
170RD
316
255S
323
260C
326
265R
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367
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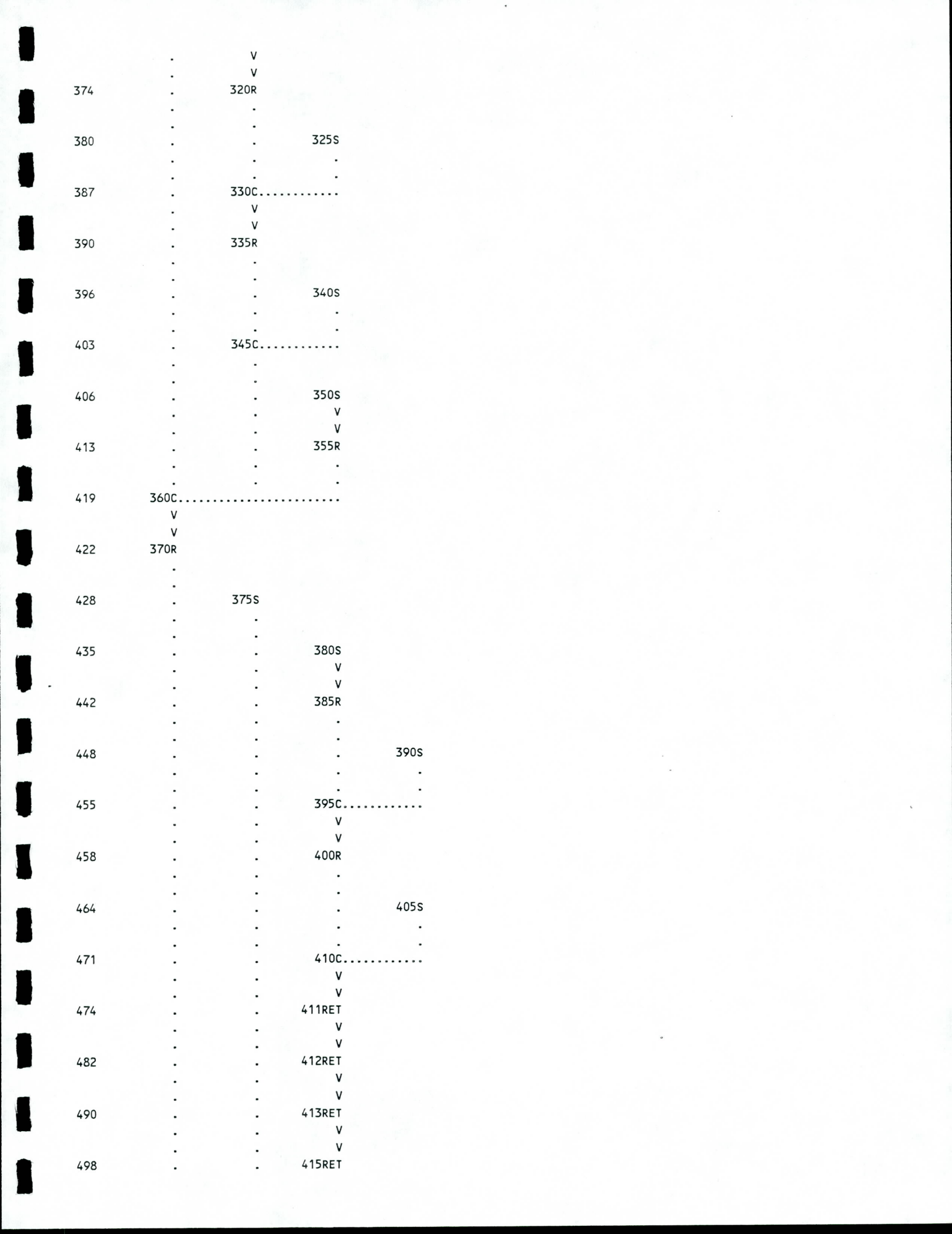
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406 350S
413 355R
419 360C
422 370R
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448 390S
455 395C
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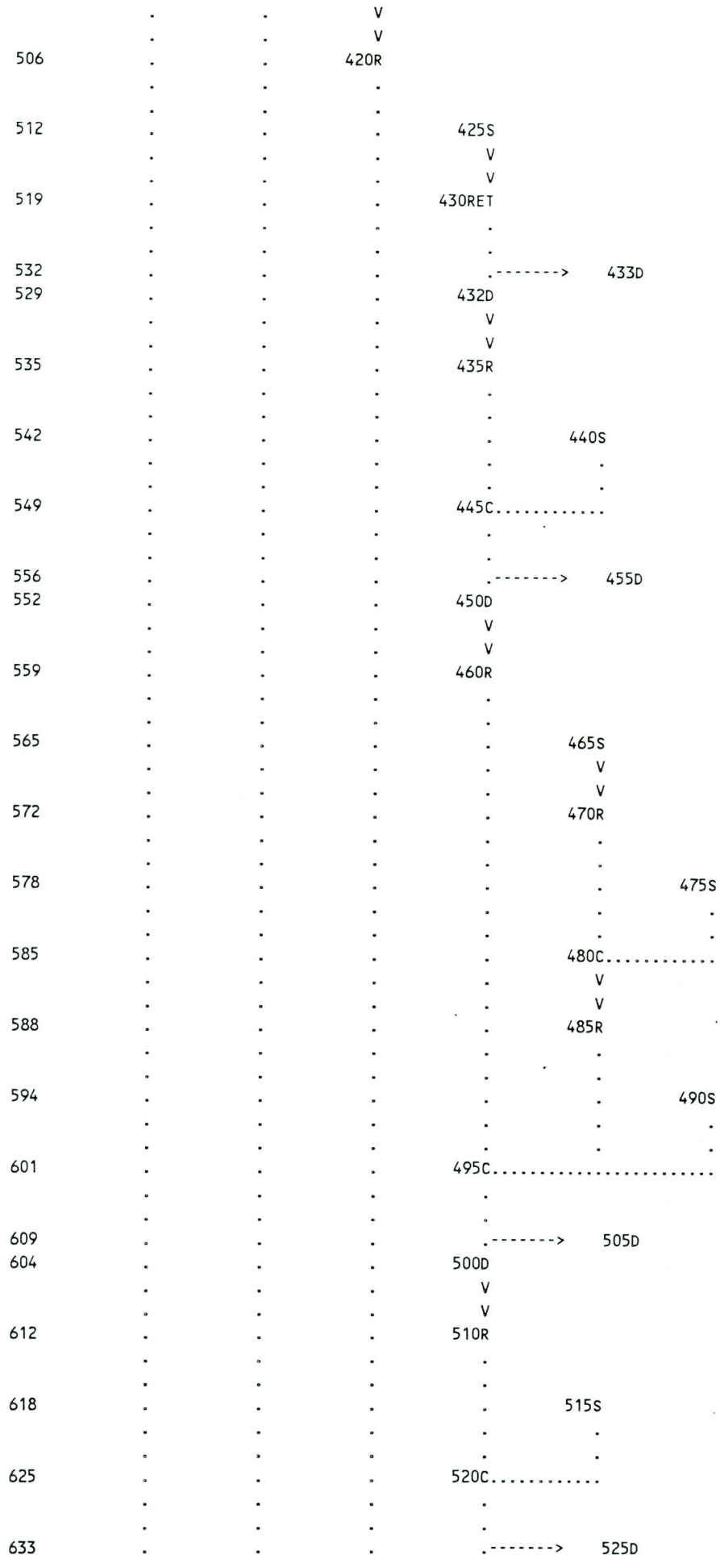
464 405S
471 410C
474 411RET
482 412RET
490 413RET
498 415RET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460R
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465S
572
470R
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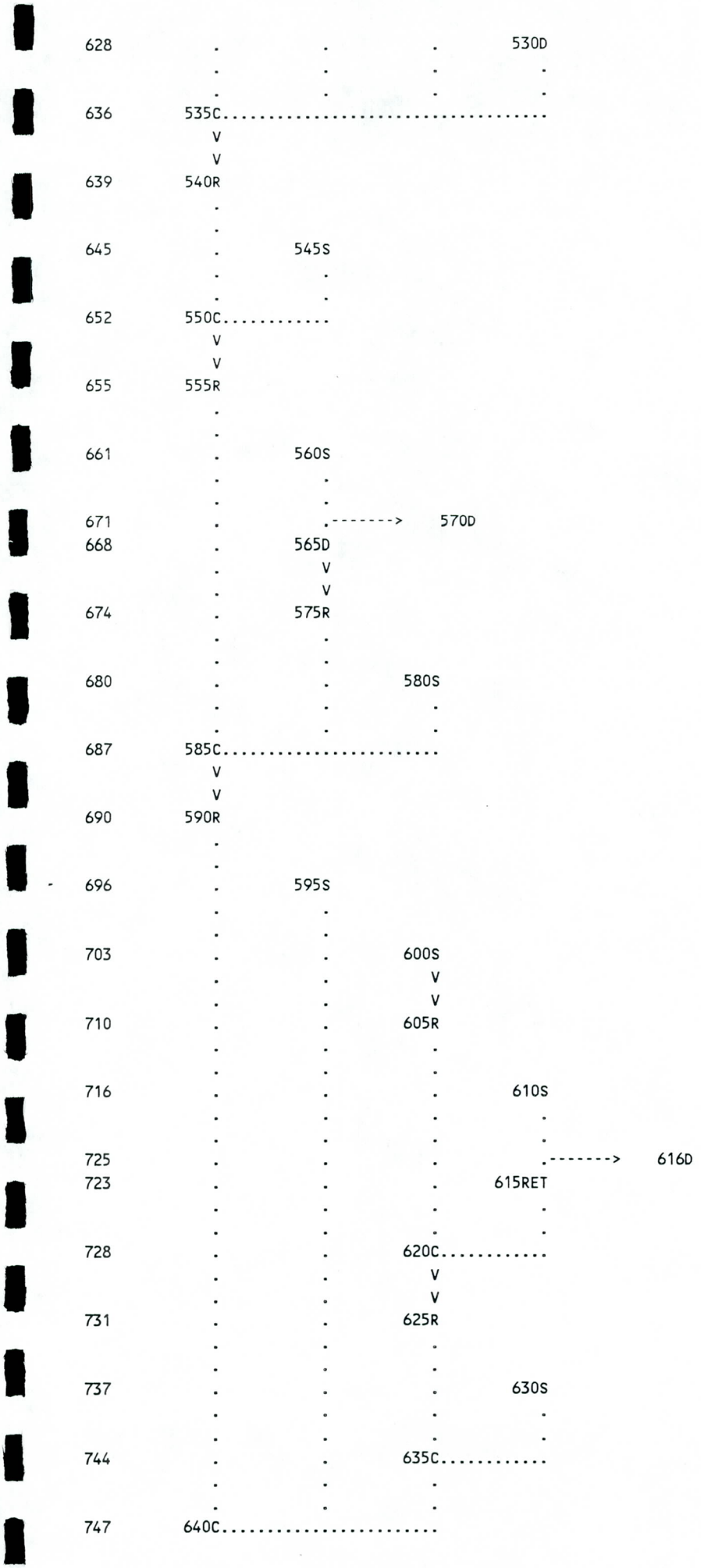
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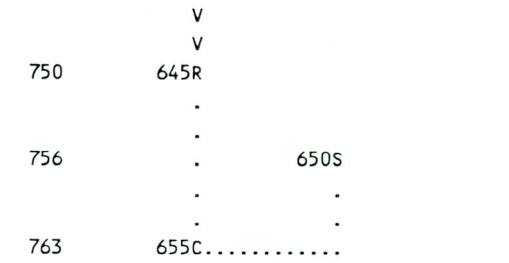

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*      BY THE COE IN FEBRUARY 1981      *
*            REVISED 02 AUG 88          *
*                                       *
*  RUN DATE  11/08/1990  TIME  15:11:52 *
*                                       *
*****************************************
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*****************************************
*                                       *
*     DODSON AND ASSOCIATES, INC.       *
*   HYDROLOGIST AND CIVIL ENGINEERS     *
*      7015 W TIDWELL SUITE 107         *
*        HOUSTON, TEXAS  77092          *
*           (713) 895-8322              *
*                                       *
*****************************************
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SKUNK CREEK BETWEEN ACDC AND CAP FLOOD INSURANCE STUDY
PREPARED FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC # 89-72)
BY COE & VAN LOO CONSULTING ENGINEERS, INC. (CVL # 1090-050)
NOVEMBER 1990 JKM-DWD-AJR
INPUT FILE NAME: SK50-24

50-YEAR, 24-HOUR STORM
SCS TYPE II DISTRIBUTION

11 IO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA

NMIN	4	MINUTES IN COMPUTATION INTERVAL
IDATE 1	0	STARTING DATE
ITIME	0000	STARTING TIME
NQ	300	NUMBER OF HYDROGRAPH ORDINATES
NDDATE 1	0	ENDING DATE
NDTIME	1956	ENDING TIME
ICENT	19	CENTURY MARK

COMPUTATION INTERVAL .07 HOURS
TOTAL TIME BASE 19.93 HOURS

ENGLISH UNITS

DRAINAGE AREA	SQUARE MILES
PRECIPITATION DEPTH	INCHES
LENGTH, ELEVATION	FEET
FLOW	CUBIC FEET PER SECOND
STORAGE VOLUME	ACRE-FEET
SURFACE AREA	ACRES
TEMPERATURE	DEGREES FAHRENHEIT

13 JD INDEX STORM NO. 1

STRM	3.50	PRECIPITATION DEPTH
TRDA	.01	TRANSPOSITION DRAINAGE AREA

14 PI PRECIPITATION PATTERN

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19 JD INDEX STORM NO. 2
STRM 3.43 PRECIPITATION DEPTH
TRDA 3.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN
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20 JD INDEX STORM NO. 3
STRM 3.36 PRECIPITATION DEPTH
TRDA 10.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN
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21 JD INDEX STORM NO. 4

STRM 3.22 PRECIPITATION DEPTH

TRDA 20.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.01	.01	.01	.01	.01
.01	.01	.03	.05	.05	.05	.05	.05	.05	.05
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22 JD INDEX STORM NO. 5

STRM 3.15 PRECIPITATION DEPTH

TRDA 30.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

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.00	.00	.00	.00	.00	.01	.01	.01	.01	.01
.01	.01	.03	.05	.05	.05	.05	.05	.05	.05
.01	.01	.01	.01	.01	.01	.01	.01	.00	.00
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	5S	1585.	12.27	173.	53.	53.	1.33		
ROUTED TO	10RET	87.	13.00	82.	34.	34.	1.33	18.29	13.00
ROUTED TO	15R	87.	13.47	82.	32.	32.	1.33	1.36	13.40
HYDROGRAPH AT	20S	1104.	12.53	162.	49.	49.	1.38		
2 COMBINED AT	25C	1158.	12.53	236.	80.	80.	2.71		
ROUTED TO	30R	1022.	12.87	234.	78.	78.	2.71	2.33	12.87
HYDROGRAPH AT	35S	1017.	12.60	162.	49.	49.	1.51		
HYDROGRAPH AT	40S	612.	12.33	79.	25.	25.	.55		
ROUTED TO	45RET	41.	13.27	39.	16.	16.	.55	17.76	13.27
ROUTED TO	50R	40.	14.13	38.	14.	14.	.55	.80	14.07
HYDROGRAPH AT	55S	326.	12.53	60.	18.	18.	.59		
HYDROGRAPH AT	60S	867.	12.67	166.	53.	53.	1.20		
ROUTED TO	65RET	101.	14.07	95.	38.	38.	1.20	19.37	14.00
ROUTED TO	70R	101.	14.60	95.	36.	36.	1.20	1.09	14.53
5 COMBINED AT	75C	2108.	12.73	558.	191.	191.	6.56		
ROUTED TO	80RET	1693.	13.00	558.	191.	191.	6.56	18.38	13.07
ROUTED TO	85R	1688.	13.13	558.	190.	190.	6.56	5.22	13.13
HYDROGRAPH AT	90S	505.	12.80	115.	35.	35.	1.23		
HYDROGRAPH AT	95S	729.	12.60	130.	40.	40.	.97		
ROUTED TO	100RET	67.	14.07	63.	25.	25.	.97	18.53	14.00
ROUTED TO	105R	66.	15.13	63.	23.	23.	.97	1.06	15.07
3 COMBINED AT	110C	2097.	13.07	716.	244.	244.	8.76		
ROUTED TO	115RET	1688.	13.47	716.	244.	244.	8.76	12.70	13.53
DIVERSION TO	125D	1194.	13.47	645.	223.	223.	8.76		
HYDROGRAPH AT	120D	494.	13.47	70.	21.	21.	8.76		
DIVERSION TO	135D	19.	13.47	1.	0.	0.	8.76		
HYDROGRAPH AT	130D	475.	13.47	69.	21.	21.	8.76		
HYDROGRAPH AT	140S	348.	13.07	105.	32.	32.	1.23		
HYDROGRAPH AT	145S	301.	12.40	40.	12.	12.	.38		

ROUTED TO	150RET	10.	13.73	10.	4.	4.	.38	18.12	13.73
ROUTED TO	155R	10.	16.07	9.	3.	3.	.38	.36	16.20
3 COMBINED AT	160C	729.	13.47	172.	53.	53.	10.37		
DIVERSION TO	170D	510.	13.27	155.	48.	48.	10.37		
HYDROGRAPH AT	165D	219.	13.47	17.	5.	5.	10.37		
HYDROGRAPH AT	175S	213.	12.33	70.	27.	27.	.30		
2 COMBINED AT	180C	309.	13.40	84.	31.	31.	10.67		
DIVERSION TO	190D	115.	12.00	59.	24.	24.	10.67		
HYDROGRAPH AT	185D	194.	13.40	25.	8.	8.	10.67		
HYDROGRAPH AT	195S	387.	12.20	94.	37.	37.	.40		
2 COMBINED AT	200C	452.	12.27	115.	43.	43.	11.07		
DIVERSION TO	210D	156.	11.87	75.	31.	31.	11.07		
HYDROGRAPH AT	205D	296.	12.27	40.	12.	12.	11.07		
HYDROGRAPH AT	135RD	19.	13.47	1.	0.	0.	8.76		
2 COMBINED AT	215C	296.	12.27	41.	12.	12.	11.07		
ROUTED TO	220RET	173.	12.60	26.	8.	8.	11.07	97.00	12.60
HYDROGRAPH AT	210RD	156.	11.87	75.	31.	31.	11.07		
2 COMBINED AT	225C	329.	12.60	101.	39.	39.	11.07		
ROUTED TO	230R	308.	12.93	100.	38.	38.	11.07	1.07	13.00
HYDROGRAPH AT	235S	100.	12.00	16.	6.	6.	.06		
ROUTED TO	240R	85.	12.33	16.	6.	6.	.06	1.18	12.33
HYDROGRAPH AT	190RD	115.	12.00	59.	24.	24.	10.67		
ROUTED TO	245R	115.	13.20	59.	23.	23.	10.67	.67	13.13
HYDROGRAPH AT	250S	701.	12.73	160.	56.	56.	1.10		
HYDROGRAPH AT	125RD	1194.	13.47	645.	223.	223.	8.76		
HYDROGRAPH AT	170RD	510.	13.27	155.	48.	48.	10.37		
HYDROGRAPH AT	255S	225.	13.07	74.	24.	24.	.62		
3 COMBINED AT	260C	1914.	13.33	892.	301.	301.	.62		
ROUTED TO	265R	1904.	13.60	888.	293.	293.	.62	3.82	13.67
5 COMBINED AT	270C	2454.	13.47	1141.	400.	400.	12.85		
ROUTED TO	275R	2445.	13.67	1140.	395.	395.	12.85	3.00	13.67
HYDROGRAPH AT	280S	444.	12.33	92.	30.	30.	.74		
2 COMBINED AT	285C	2509.	13.60	1205.	421.	421.	13.59		

ROUTED TO	290R	2487.	13.93	1200.	412.	412.	13.59	4.10	13.93
HYDROGRAPH AT	295S	133.	12.93	42.	14.	14.	.35		
2 COMBINED AT	300C	2544.	13.87	1233.	424.	424.	13.95		
HYDROGRAPH AT	310S	1650.	.07	1650.	1650.	1650.	.10		
ROUTED TO	320R	1650.	.07	1650.	1650.	1650.	.10	3.49	.00
HYDROGRAPH AT	325S	217.	13.07	68.	22.	22.	.65		
2 COMBINED AT	330C	1867.	13.07	1718.	1672.	1672.	.75		
ROUTED TO	335R	1867.	13.13	1718.	1672.	1672.	.75	3.03	13.13
HYDROGRAPH AT	340S	70.	12.07	9.	3.	3.	.09		
2 COMBINED AT	345C	1870.	13.13	1726.	1675.	1675.	.84		
HYDROGRAPH AT	350S	343.	12.13	38.	13.	13.	.26		
ROUTED TO	355R	340.	12.20	38.	13.	13.	.26	1.09	12.20
3 COMBINED AT	360C	4308.	13.87	2962.	2106.	2106.	15.04		
ROUTED TO	370R	4285.	14.07	2960.	2103.	2103.	15.04	1293.57	14.07
HYDROGRAPH AT	375S	622.	12.60	120.	41.	41.	.98		
HYDROGRAPH AT	380S	554.	13.00	141.	45.	45.	1.40		
ROUTED TO	385R	535.	13.27	141.	45.	45.	1.40	9.20	13.27
HYDROGRAPH AT	390S	711.	12.47	111.	38.	38.	.80		
2 COMBINED AT	395C	821.	12.53	250.	83.	83.	2.20		
ROUTED TO	400R	750.	13.00	249.	83.	83.	2.20	1301.35	13.13
HYDROGRAPH AT	405S	768.	13.07	243.	83.	83.	1.78		
2 COMBINED AT	410C	1503.	13.07	487.	164.	164.	3.98		
ROUTED TO	411RET	1387.	13.33	485.	163.	163.	3.98	1298.26	13.33
ROUTED TO	412RET	1161.	13.87	477.	160.	160.	3.98	1295.64	13.87
ROUTED TO	413RET	444.	15.60	340.	111.	111.	3.98	1294.01	15.73
ROUTED TO	415RET	366.	17.20	273.	86.	86.	3.98	1291.10	17.40
ROUTED TO	420R	366.	17.47	256.	80.	80.	3.98	1277.30	17.67
HYDROGRAPH AT	425S	683.	12.73	302.	110.	110.	1.72		
ROUTED TO	430RET	604.	13.33	296.	107.	107.	1.72	4.03	13.47
DIVERSION TO	433D	133.	13.33	13.	4.	4.	1.72		
HYDROGRAPH AT	432D	471.	13.33	282.	103.	103.	1.72		
ROUTED TO	435R	468.	13.67	282.	101.	101.	1.72	1.61	13.80
HYDROGRAPH AT	440S	792.	12.27	151.	50.	50.	.85		

2 COMBINED AT	445C	846.	12.27	421.	150.	150.	2.57		
DIVERSION TO	455D	0.	.07	0.	0.	0.	2.57		
HYDROGRAPH AT	450D	846.	12.27	421.	150.	150.	2.57		
ROUTED TO	460R	826.	12.40	420.	149.	149.	2.57	7.10	12.47
HYDROGRAPH AT	465S	1027.	12.40	291.	108.	108.	1.36		
ROUTED TO	470R	1009.	12.60	290.	107.	107.	1.36	2.07	12.60
HYDROGRAPH AT	475S	647.	12.40	117.	38.	38.	.60		
2 COMBINED AT	480C	1564.	12.47	406.	145.	145.	1.96		
ROUTED TO	485R	1516.	12.73	405.	142.	142.	1.96	2.90	12.73
HYDROGRAPH AT	490S	513.	12.73	193.	66.	66.	1.12		
3 COMBINED AT	495C	2712.	12.67	1002.	353.	353.	5.64		
DIVERSION TO	505D	912.	12.67	101.	30.	30.	5.64		
HYDROGRAPH AT	500D	1800.	12.40	901.	322.	322.	5.64		
ROUTED TO	510R	1800.	12.73	900.	318.	318.	5.64	2.84	12.80
HYDROGRAPH AT	515S	251.	12.40	77.	27.	27.	.48		
2 COMBINED AT	520C	2025.	12.67	971.	345.	345.	6.12		
DIVERSION TO	525D	465.	12.67	84.	25.	25.	6.12		
HYDROGRAPH AT	530D	1560.	12.53	887.	319.	319.	6.12		
4 COMBINED AT	535C	5827.	13.87	4024.	2507.	2507.	19.90		
ROUTED TO	540R	5814.	13.93	4023.	2503.	2503.	19.90	1258.73	13.93
HYDROGRAPH AT	545S	189.	12.47	34.	12.	12.	.30		
2 COMBINED AT	550C	5827.	13.93	4047.	2513.	2513.	20.20		
ROUTED TO	555R	5801.	14.07	4044.	2507.	2507.	20.20	1242.58	14.00
HYDROGRAPH AT	560S	178.	12.13	27.	9.	9.	.19		
DIVERSION TO	570D	25.	11.73	11.	4.	4.	.19		
HYDROGRAPH AT	565D	153.	12.13	17.	5.	5.	.19		
ROUTED TO	575R	126.	12.53	17.	5.	5.	.19	.72	12.53
HYDROGRAPH AT	580S	857.	12.20	132.	46.	46.	.91		
3 COMBINED AT	585C	5815.	14.00	4129.	2550.	2550.	21.30		
ROUTED TO	590R	5807.	14.13	4128.	2546.	2546.	21.30	1226.78	14.07
HYDROGRAPH AT	595S	85.	13.13	33.	11.	11.	.30		
HYDROGRAPH AT	600S	527.	12.73	108.	35.	35.	1.03		
ROUTED TO	605R	525.	12.80	108.	35.	35.	1.03	1.47	12.80

HYDROGRAPH AT	610S	548.	12.27	104.	35.	35.	.69		
DIVERSION TO	616D	548.	12.27	74.	23.	23.	.69		
HYDROGRAPH AT	615RET	305.	12.80	37.	11.	11.	.69		
2 COMBINED AT	620C	827.	12.80	143.	46.	46.	1.72		
ROUTED TO	625R	766.	13.00	143.	46.	46.	1.72	4.38	13.20
HYDROGRAPH AT	630S	240.	12.27	47.	16.	16.	.34		
2 COMBINED AT	635C	858.	13.00	188.	61.	61.	2.05		
3 COMBINED AT	640C	6016.	14.07	4291.	2601.	2601.	23.65		
ROUTED TO	645R	6010.	14.13	4290.	2598.	2598.	23.65	1198.48	14.13
HYDROGRAPH AT	650S	79.	12.33	12.	4.	4.	.13		
2 COMBINED AT	655C	6011.	14.13	4298.	2601.	2601.	23.78		

*** NORMAL END OF HEC-1 ***

SECTION IX

HEC-1 HYDROLOGY RESULTS FOR A 100-YEAR, 24-HOUR STORM

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*****************************************
*                                       *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *
*     BY THE COE IN FEBRUARY 1981       *
*           REVISED 02 AUG 88           *
*                                       *
*  RUN DATE  11/09/1990  TIME  11:13:50 *
*                                       *
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*****************************************
*                                       *
*     DODSON AND ASSOCIATES, INC.       *
*   HYDROLOGIST AND CIVIL ENGINEERS     *
*       7015 W TIDWELL SUITE 107        *
*         HOUSTON, TEXAS  77092         *
*           (713) 895-8322              *
*                                       *
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

    1     ID   SKUNK CREEK BETWEEN ACDC AND CAP FLOOD INSURANCE STUDY
    2     ID   PREPARED FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC # 89-72)
    3     ID   BY COE & VAN LOO CONSULTING ENGINEERS, INC. (CVL # 1090-05)
    4     ID   NOVEMBER 1990   JKM-DWD-AJR
    5     ID   INPUT FILE NAME:  SK100-24
    6     ID
    7     ID   100-YEAR, 24-HOUR STORM
    8     ID   SCS TYPE II DISTRIBUTION
    9     ID
          *DIAGRAM
   10     IT       4                   300
   11     IO       3
   12     IN      30
   13     JD   3.900    0.01
   14     PC    .000    .005    .011    .016    .022    .028    .035    .041    .048    .056
   15     PC    .063    .071    .080    .089    .098    .109    .120    .133    .147    .163
   16     PC    .181    .204    .235    .283    .663    .735    .772    .799    .820    .838
   17     PC    .854    .868    .880    .891    .902    .912    .921    .929    .937    .945
   18     PC    .952    .959    .965    .972    .978    .984    .989    .995   1.000
   19     JD   3.82     3.0
   20     JD   3.74    10.0
   21     JD   3.59    20.0
   22     JD   3.51    30.0

   23     KK     5S
   24     KM   SUB-BASIN 5
   25     BA   1.332
   26     LG    .200    .270   7.600    .160   4.000
   27     UC    .517    .163
   28     UA       0       3       5       8      12      20      43      75      90      96
   29     UA     100

   30     KK   10RET
   31     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
   32     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
   33     RS       1    STOR      -1
   34     SV       0       4      17      52      96     148     209     279
   35     SE      15      16      17      18      19      20      21      22
   36     SL      15    9.62      .6      .5
   37     SS    21.9      50       3     1.5

   38     KK    15R
   39     KM   ROUTE 10RET TO CP OF 20S ALONG NATURAL CHANNEL
   40     RS       5    FLOW      -1
   41     RC     .04     .03     .04    9000   .0080
   42     RX       0     100     120     125     135     140     160     260
   43     RY       5       3       2       0       0       2       3       5

   44     KK    20S
   45     KM   SUB-BASIN 20
   46     BA   1.379
   47     LG    .350    .290   6.700    .170    .000
   48     UC    .750    .358
   49     UA       0       3       5       8      12      20      43      75      90      96
   50     UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  51      KK    25C
  52      KM   COMBINE 20S AND 15R AT CP OF 20S
  53      HC      2

  54      KK    30R
  55      KM   ROUTE 25C TO CP OF 35S ALONG NATURAL CHANNEL
  56      RS      5    FLOW      -1
  57      RC    .04     .03     .04    4800    .0056
  58      RX      0       5     205     215     235     245     445     450
  59      RY      5       3       1       0       0       1       3       5

  60      KK    35S
  61      KM   SUB-BASIN 35
  62      BA   1.514
  63      LG    .350    .310   5.800    .230    .000
  64      UC    .867    .451
  65      UA      0       3       5       8      12      20      43      75      90      96
  66      UA    100

  67      KK    40S
  68      KM   SUB-BASIN 40
  69      BA    .545
  70      LG    .200    .260   7.900    .120   6.000
  71      UC    .517    .251
  72      UA      0       3       5       8      12      20      43      75      90      96
  73      UA    100

  74      KK   45RET
  75      KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  76      KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  77      RS      1    STOR      -1
  78      SV      0       2      11      34      62      96     135     180
  79      SE     15      16      17      18      19      20      21      22
  80      SL     15    4.91      .6      .5
  81      SS   21.9      50       3     1.5

  82      KK    50R
  83      KM   ROUTE 45RET TO CP OF 35S ALONG NATURAL CHANNEL
  84      RS      5    FLOW      -1
  85      RC    .04     .03     .04   11000    .0086
  86      RX      0      50     150     165     175     190     290     340
  87      RY      6       5       3       0       0       3       5       6

  88      KK    55S
  89      KM   SUB-BASIN 55
  90      BA    .588
  91      LG    .350    .320   5.100    .290    .000
  92      UC    .767    .597
  93      UA      0       3       5       8      12      20      43      75      90      96
  94      UA    100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  95      KK    60S
  96      KM   SUB-BASIN 60
  97      BA   1.202
  98      LG    .210    .270   7.500    .150   8.000
  99      UC    .933    .494
 100      UA       0       3       5       8      12      20      43      75      90      96
 101      UA     100

 102      KK   65RET
 103      KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
 104      KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
 105      RS       1    STOR      -1
 106      SV       0       2       7      24      43      67      95     127
 107      SE      15      16      17      18      19      20      21      22
 108      SL      15    9.62      .6      .5
 109      SS    21.9      50       3     1.5

 110      KK    70R
 111      KM   ROUTE 65RET TO CP OF 35S ALONG NATURAL CHANNEL
 112      RS       5    FLOW      -1
 113      RC     .04     .03     .04   10000   .0090
 114      RX       0     100     200     215     230     245     345     445
 115      RY       6       5       3       0       0       3       5       6

 116      KK    75C
 117      KM   COMBINE 30R, 35S, 50R, 55S AND 70R AT CP OF 35S
 118      HC       5

 119      KK   80RET
 120      KM   ROUTE FLOW THROUGH DETENTION BEHIND PINNACLE PEAK ROAD CULVERTS
 121      KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
 122      RS       1    STOR      -1
 123      SV       0     .05     1.2     9.1    35.6      65    94.5     139
 124      SE      11      12      14      16      18      19      20      21
 125      SQ       0      54     254     528     936    2344    5278   10401

 126      KK    85R
 127      KM   ROUTE 80RET TO CP OF 90S ALONG NATURAL CHANNEL
 128      RS       5    FLOW      -1
 129      RC     .04     .03     .04    2000   .0050
 130      RX       0      50     150     165     175     190     240     250
 131      RY       6       5       4       0       0       4       5       7

 132      KK    90S
 133      KM   SUB-BASIN 90
 134      BA   1.227
 135      LG    .350    .320   5.300    .350   1.000
 136      UC   1.100    .737
 137      UA       0       3       5       8      12      20      43      75      90      96
 138      UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  139     KK    95S
  140     KM   SUB-BASIN 95
  141     BA    .968
  142     LG    .200    .270   7.500    .150   5.000
  143     UC    .850    .458
  144     UA       0       3       5       8      12      20      43      75      90      96
  145     UA     100

  146     KK  100RET
  147     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  148     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  149     RS       1    STOR      -1
  150     SV       0       2       9      30      55      85     120     160
  151     SE      15      16      17      18      19      20      21      22
  152     SL      15    7.07      .6      .5
  153     SS    21.9      50       3     1.5

  154     KK    105R
  155     KM   ROUTE 100RET TO CP OF 90S ALONG NATURAL CHANNEL
  156     RS       5    FLOW      -1
  157     RC     .04     .03     .04   13000   .0080
  158     RX       0       5     155     160     170     175     325     330
  159     RY       3       2       1       0       0       1       2       3

  160     KK    110C
  161     KM   COMBINE 85R, 90S AND 105R AT CP OF 90S
  162     HC       3

  163     KK  115RET
  164     KM   ROUTE FLOW THROUGH DETENTION BEHIND 2-8X7 RCBC AT I-17
  165     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  166     RS       1    STOR      -1
  167     SV       0    .001    .220    1.16    8.44      17      30      49      67     106
  168     SE     3.8       4       6       8      10      11      12      13    13.7      15
  169     SQ       0       1     176     414     680     880    1091    1593    2678    7306

  170     KK    120D
  171     KM   DIVERT OVERFLOWS SOUTH TO SINGLE CULVERT AT MH PARK, & WEST ON TO I-17
  172     KM   DQ IS Q THROUGH 2-8X7 CULVERT (MAX 1312 CFS); DI IS TOTAL Q
  173     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  174     DT    125D
  175     DI       1     880    1091    1593    2678    3746
  176     DQ       1     880    1060    1184    1296    1312

  177     KK    130D
  178     KM   SEPARATE OUT WEST OVERFLOWS ONTO THE FRONTAGE ROAD AND MAINLINE I-17
  179     KM   THESE FLOWS HEAD SOUTH AND EVENTUALLY ENTER THE DEER VALLEY INTERCHANGE
  180     KM   REMAINING FLOWS CONTINUE SOUTH TO 6X7 BOX CULVERT ON SCATTER WASH AT I-17
  181     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  182     DT    135D
  183     DI      31     409    1382    2434
  184     DQ       0       0     215     840
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  185     KK   140S
  186     KM   SUB-BASIN 140
  187     BA   1.233
  188     LG    .350    .330   4.700    .430   1.000
  189     UC   1.383   1.073
  190     UA      0       3       5       8      12      20      43      75      90      96
  191     UA    100

  192     KK   145S
  193     KM   SUB-BASIN 145
  194     BA    .383
  195     LG    .190    .310   6.200    .270    .000
  196     UC    .583    .352
  197     UA      0       3       5       8      12      20      43      75      90      96
  198     UA    100

  199     KK  150RET
  200     KM   ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
  201     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  202     RS      1    STOR      -1
  203     SV      0       1       4      14      26      40      56      75
  204     SE     15      16      17      18      19      20      21      22
  205     SL     15    4.19     .16      .5
  206     SS   21.9      50       3     1.5

  207     KK   155R
  208     KM   ROUTE 150RET TO CP OF 140S ALONG NATURAL CHANNEL
  209     RS      5    FLOW      -1
  210     RC    .04     .03     .04   15000   .0073
  211     RX      6      10     200     220     230     250     440     450
  212     RY      0       5       3       0       0       3       5       6

  213     KK   160C
  214     KM   COMBINE 140S, 130D AND 155R AT CP OF 140S
  215     HC      3

  216     KK   165D
  217     KM   DIVERT FLOW ACROSS I-17 THROUGH 6X7 RCBC (MAX Q = 510 CFS)
  218     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  219     DT   170D
  220     DI      0       1     510     511    1000    2000
  221     DQ      0       1     510     510     510     510

  222     KK   175S
  223     KM   SUB-BASIN 175
  224     BA    .299
  225     LG    .070    .290   6.700    .190  75.000
  226     UC    .683    .772
  227     UA      0       5      16      30      65      77      84      90      94      97
  228     UA    100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  229     KK   180C
  230     KM   COMBINE 165D AND 175S AT CP OF 175S
  231     HC     2

  232     KK   185D
  233     KM   DIVERT FLOW ACROSS I-17 THROUGH 65X40 CMP AT ADOBE DRIVE
  234     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  235     DT   190D
  236     DI     0     115     116    1000    3000
  237     DQ     0     115     115     115     115

  238     KK   195S
  239     KM   SUB-BASIN 195
  240     BA   .399
  241     LG   .090    .310  11.000    .310  80.000
  242     UC   .533    .453
  243     UA     0       5      16      30      65      77      84      90      94      97
  244     UA   100

  245     KK   200C
  246     KM   COMBINE 185D AND 195S AT CP OF 195S
  247     HC     2

  248     KK   205D
  249     KM   DIVERT FLOW ACROSS I-17 THROUGH 6X3 RCBC AT LOUISE DRIVE
  250     KM   DI REPRESENTS TOTAL FLOW, DQ REPRESENTS FLOW THROUGH 6X3 RCBC.
  251     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  252     DT   210D
  253     DI     0       1     156     157    1000    3000
  254     DQ     0       1     156     156     156     156

  255     KK   135RD
  256     KM   RETRIEVE FLOW DIVERTED ALONG I-17 AND FRONTAGE ROAD
  257     DR   135D

  258     KK   215C
  259     KM   COMBINE 135RD AND 205D AT DEER VALLEY/I-17 INTERCHANGE
  260     HC     2

  261     KK  220RET
  262     KM   ROUTE FLOW THROUGH DEPRESSED SECTION TO WEST SIDE OF I-17
  263     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  264     RS     1    STOR      -1
  265     SV     0       1    15.9    37.7    53.8    61.3    74.1      99   129.5
  266     SE    82      84      90      94      96    96.8      98     100     102
  267     SQ     0       0       0       0       0       1     808    5403   13835

  268     KK   210RD
  269     KM   RETRIEVE FLOW DIVERTED THROUGH CULVERT AT LOUISE DRIVE
  270     DR   210D
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  271     KK   225C
  272     KM   COMBINE 220RET AND 210RD AT INTERSECTION OF 27TH AVE & DEER VALLEY ROAD
  273     HC     2

  274     KK   230R
  275     KM   ROUTE 225C TO CP OF 250S ALONG NATURAL CHANNEL
  276     RS     5    FLOW     -1
  277     RC   .03     .02     .03    7000   .0057      5
  278     RX     0       5      25      26      64      65      85      90
  279     RY     2       1      .5       0       0      .5       1       2

  280     KK   235S
  281     KM   SUB-BASIN 235
  282     BA   .062
  283     LG   .090    .310  11.000    .020  74.000
  284     UC   .233    .172
  285     UA     0       5      16      30      65      77      84      90      94      97
  286     UA   100

  287     KK   240R
  288     KM   ROUTE 235S TO CP OF 250S ALONG NATURAL CHANNEL
  289     RS     5    FLOW     -1
  290     RC   .04     .03     .04    5500   .0073
  291     RX     0       5      55      60      70      75     125     130
  292     RY     3       2       1       0       0       1       2       3

  293     KK   190RD
  294     KM   RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT AT ADOBE DRIVE
  295     DR   190D

  296     KK   245R
  297     KM   ROUTE 190RD TO CP OF 250S ALONG NATURAL CHANNEL
  298     RS     5    FLOW     -1
  299     RC   .03     .02     .03    7500   .0060
  300     RX     0       5      25      26      64      65      85      90
  301     RY     2       1      .5       0       0      .5       1       2

  302     KK   250S
  303     KM   SUB-BASIN 250
  304     BA   1.103
  305     LG   .240    .320   6.900    .260  26.000
  306     UC  1.083    .529
  307     UA     0       3       5       8      12      20      43      75      90      96
  308     UA   100

  309     KK   125RD
  310     KM   RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT NEAR MH PARK SOUTH OF
  311     KM   PINNACLE PEAK ROAD
  312     DR   125D
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  313     KK   170RD
  314     KM   RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT NORTH OF WILLIAMS DRIVE
  315     DR    170D

  316     KK    255S
  317     KM   SUB-BASIN 255
  318     BA    .615
  319     LG    .320    .330   6.200    .230  10.000
  320     UC   1.500   1.225
  321     UA      0       3       5       8      12      20      43      75      90      96
  322     UA    100

  323     KK    260C
  324     KM   COMBINE 125RD, 170RD AND 255S AT CP OF 255S
  325     HC      3

  326     KK    265R
  327     KM   ROUTE 260C TO CP OF 250S ALONG SCATTER WASH NORTH OF DEER VALLEY ROAD
  328     RS      5    FLOW      -1
  329     RC    .04     .03     .04    8300   .0048
  330     RX    250     700     900     980    1020    1100    1300    1750
  331     RY     17    12.5      10       0       0      10    12.5      17

  332     KK    270C
  333     KM   COMBINE 240R, 240R, 245R, 265R & 250S @ CP OF 250S
  334     HC      5

  335     KK    275R
  336     KM   ROUTE 270C TO CP OF 280S ALONG SCATTER WASH NORTH OF BEARDSLEY ROAD
  337     RS      5    FLOW      -1
  338     RC    .04     .03     .04    4500   .0056      10
  339     RX    100     650     800     980    1020    1200    1350    1600
  340     RY    7.5       7     5.5       0       0     5.5       7     7.5

  341     KK    280S
  342     KM   SUB-BASIN 280
  343     BA    .744
  344     LG    .230    .330   4.900    .320  13.000
  345     UC    .800    .523
  346     UA      0       5      16      30      65      77      84      90      94      97
  347     UA    100

  348     KK    285C
  349     KM   COMBINE 275R AND 280S AT CP OF 280S
  350     HC      2

  351     KK    290R
  352     KM   ROUTE 285C TO CP OF 295S ALONG SCATTER WASH CHANNEL U/S OF 45TH AVE CROSSING
  353     RS      5    FLOW      -1
  354     RC    .03     .03     .03    6200   .0027
  355     RX    830     850     980     990    1010    1020    1150    1170
  356     RY     10     2.5     2.5       0       0     2.5     2.5      10
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  357     KK   295S
  358     KM   SUB-BASIN 295
  359     BA    .352
  360     LG    .290    .340   4.400    .330  11.000
  361     UC   1.167   1.042
  362     UA      0       3       5       8      12      20      43      75      90      96
  363     UA    100

  364     KK   300C
  365     KM   COMBINE 290R AND 295S AT CP OF 295S
  366     HC      2

  367     KK   310S
  368     KM   ADOBE DAM OUTLET; ASSUMED CONSTANT OUTFLOW OF 1730 CFS FOR 100-YEAR STORM
  369     KM   SOURCE: F.I.S., MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS, FEMA
  370     BA    0.1
  371     IN    120
  372     QI   1730    1730    1730    1730    1730    1730    1730    1730    1730    1730
  373     QI   1730    1730    1730    1730    1730    1730    1730    1730    1730    1730

  374     KK   320R
  375     KM   SKUNK CREEK U/S OF BEARDSLEY ROAD AND D/S OF ADOBE DAM
  376     RS      5    FLOW      -1
  377     RC    .04     .03     .04    3300   .0028
  378     RX    645     795     945     965    1035    1085    1095    1105
  379     RY      7       6       5       0       0       7       9      11

  380     KK   325S
  381     KM   SUB-BASIN 325
  382     BA    .650
  383     LG    .300    .340   3.900    .440   9.000
  384     UC   1.500   1.134
  385     UA      0       3       5       8      12      20      43      75      90      96
  386     UA    100

  387     KK   330C
  388     KM   COMBINE 325S AND 310S (ADOBE DAM OUTLET)
  389     HC      2

  390     KK   335R
  391     KM   ROUTE 330C TO CP OF 340S ALONG SKUNK CREEK U/S OF WAHALLA LANE
  392     RS      5    FLOW      -1
  393     RC    .04     .03     .04    3050    .006
  394     RX    935     940     945     965    1035    1065    1070    1075
  395     RY      7     6.5       6       0       0       6     6.5       7

  396     KK   340S
  397     KM   SUB-BASIN 340
  398     BA    .086
  399     LG    .230    .350   3.200    .660  13.000
  400     UC    .333    .254
  401     UA      0       5      16      30      65      77      84      90      94      97
  402     UA    100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  403     KK   345C
  404     KM   COMBINE 335R AND 340S AT CP OF 340S
  405     HC     2

  406     KK   350S
  407     KM   SUB-BASIN 350
  408     BA   .263
  409     LG   .280   .320  5.600   .250 23.000
  410     UC   .333   .134
  411     UA     0     3     5     8    12    20    43    75    90    96
  412     UA   100

  413     KK   355R
  414     KM   ROUTE 350S TO CONFLUENCE OF SCATTER WASH & SKUNK CREEK, ALONG HAVASUPAI DR.
  415     RS     5   FLOW    -1
  416     RC   .03    .02    .03  2400   .006
  417     RX    70   70.1   79.9    80   120  120.1   130  130.1
  418     RY   5.5    .5     .5     0     0    .5    .5    5.5

  419     KK   360C
  420     KM   COMBINE 300C, 345C AND 355R NEAR CONFLUENCE OF SCATTER WASH AND SKUNK CREEK
  421     HC     3

  422     KK   370R
  423     KM   ROUTE 360C TO CP OF 375S ALONG SKUNK CREEK U/S OF 51ST AVENUE ALIGNMENT
  424     RS     2   FLOW    -1
  425     RC   .04    .03    .04  6200  .0047
  426     RX   120    130    350   460   580   590   720   770
  427     RY  1298   1296   1294  1290  1290  1294  1296  1298

  428     KK   375S
  429     KM   SUB-BASIN 375
  430     BA   .984
  431     LG   .290   .330  5.300   .380 18.000
  432     UC   .800   .382
  433     UA     0     3     5     8    12    20    43    75    90    96
  434     UA   100

  435     KK   380S
  436     KM   SUB-BASIN 380
  437     BA  1.405
  438     LG   .320   .330  4.600   .430  8.000
  439     UC  1.483   .789
  440     UA     0     3     5     8    12    20    43    75    90    96
  441     UA   100

  442     KK   385R
  443     KM   ROUTE 380S TO CP OF 390S ALONG UNNAMED WASH WEST OF PILCHER HILL
  444     RS     5   FLOW    -1
  445     RC   .04    .03    .04  4400   .01
  446     RX   10     200    300   306   316   322   420   620
  447     RY   12     10     9     6     6     9     10    12
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

448       KK   390S
449       KM   SUB-BASIN 390
450       BA    .799
451       LG    .310    .340   4.400    .340  23.000
452       UC    .750    .281
453       UA       0       3       5       8      12      20      43      75      90      96
454       UA     100

455       KK   395C
456       KM   COMBINE 385R AND 390S AT CP OF 390S
457       HC       2

458       KK   400R
459       KM   ROUTE 395S TO CP OF 405S ALONG UNNAMED WASH NORTH OF ARROWHEAD RANCH
460       RS       5    FLOW      -1
461       RC     .04     .03     .04    9600   .0073
462       RX     300     350     400     460     540     600     650     700
463       RY    1314    1309    1304    1300    1300    1304    1304    1304

464       KK   405S
465       KM   SUB-BASIN 405
466       BA   1.776
467       LG    .220    .330   5.200    .280  20.000
468       UC   1.500   1.034
469       UA       0       3       5       8      12      20      43      75      90      96
470       UA     100

471       KK   410C
472       KM   COMBINE 400R AND 405S AT CP OF 405S
473       HC       2

474       KK  411RET
475       KM   LAKE 1, ARROWHEAD RANCH
476       KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
477       KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
478       RS       1    ELEV  1296.0
479       SV     0.0     6.4    12.9    19.4    26.0    32.6    39.4    46.2    53.1    60.0
480       SE  1296.0  1296.5  1297.0  1297.5  1298.0  1298.5  1299.0  1299.5  1300.0  1300.5
481       SQ       0     126     356     655    1008    1409    1852    2334    2851    3402

482       KK  412RET
483       KM   LAKE 2, ARROWHEAD RANCH
484       KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
485       KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
486       RS       1    ELEV  1294.0
487       SV       0    14.4    29.2    44.1    58.9    74.3    89.6   108.2   126.8   145.4
488       SE  1294.0  1294.5  1295.0  1295.5  1296.0  1296.5  1297.0  1297.5  1298.0  1298.5
489       SQ       0     168     475     873    1344    1878    2469    3112    3802    4536
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  490     KK  413RET
  491     KM   LAKES 3 AND 7, ARROWHEAD RANCH
  492     KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
  493     KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  494     RS       1    ELEV  1292.0
  495     SV       0    29.8    61.7    91.6   122.5   154.5   186.3   225.3   264.3   303.1
  496     SE  1292.0  1292.5  1293.0  1293.5  1294.0  1294.5  1295.0  1295.5  1296.0  1296.5
  497     SQ       0      47     132     242     373     522     686     865    1056    1260

  498     KK  415RET
  499     KM   LAKE 8, ARROWHEAD RANCH
  500     KM   SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
  501     KM            DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  502     RS       1    ELEV  1290.0
  503     SV       0    20.6    42.1    63.5    84.9   107.1   129.4   456.8   184.3   211.8
  504     SE  1290.0  1290.5  1291.0  1291.5  1292.0  1292.5  1293.0  1293.5  1294.0  1294.5
  505     SQ       0      93     264     485     747    1044    1372    1729    2112    2520

  506     KK    420R
  507     KM   ROUTE 415RET TO CP OF 375S (55TH AVENUE CHANNEL)
  508     RS       5    FLOW      -1
  509     RC     .03     .03     .03    4560   .0025
  510     RX     390     400     440     460     536     566     686     690
  511     RY    1283    1282    1280    1276    1276    1283    1285    1286

  512     KK    425S
  513     KM   SUB-BASIN 425
  514     BA   1.723
  515     LG    .160    .300   7.400    .160  39.000
  516     UC   1.450   1.365
  517     UA       0       5      16      30      65      77      84      90      94      97
  518     UA     100

  519     KK  430RET
  520     KM   ROUTE FLOW THROUGH DETENTION BEHIND 3-10X3 RCBC NORTHEAST OF I-17 AND
  521     KM   UNION HILLS DRIVE; DETENTION VOLUME IS BASED ON AERIAL PHOTOGRAPHS
  522     KM   AND FIELD VISITS, AND SHOULD BE CONSIDERED APPROXIMATE.  OUTFLOW IS
  523     KM   BASED ON CULVERT INLET CONTROL UP TO 4' DEEP, THEN WEIR FLOW OVER UNION
  524     KM   HILLS DRIVE IS ADDED IN.
  525     RS       1    ELEV       0
  526     SA       0       6       9      12      15      22      31
  527     SE       0       1       2       3       4       5       6
  528     SQ       0     0.1      90     255     450    2010    4600

  529     KK    432D
  530     KM   DIVERT FLOW OVER UNION HILLS DRIVE, EAST OF I-17
  531     KM   DQ REPRESENTS THE BREAKOUT FROM THE DETENTION BASIN OVER UNION HILLS DRIVE.
  532     DT    433D
  533     DI       0      81     255     450    2010    4600
  534     DQ       0       0       0       0    1350    3820
```

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  535     KK   435R
  536     KM   ROUTE 432D TO CP OF 440S ALONG UNION HILLS DRIVE (INVERTED CROWN) -
  537     KM   CULVERT OUTLET ON WEST SIDE OF I-17 TO 35TH AVENUE
  538     RS      5   FLOW     -1
  539     RC   .025    .02   .025   6800   .004      4
  540     RX     45   59.9     60    100  100.1    140  140.1    155
  541     RY    1.5    1.5      1      0      0      1    1.5    1.5

  542     KK   440S
  543     KM   SUB-BASIN 440
  544     BA   .846
  545     LG   .200   .300  9.300   .060 20.000
  546     UC   .667   .415
  547     UA      0      5     16     30     65     77     84     90     94     97
  548     UA    100

  549     KK   445C
  550     KM   COMBINE 435R AND 440S AT CP OF 440S
  551     HC      2

  552     KK   450D
  553     KM   SURFACE FLOW CAPACITY OF UNION HILLS DRIVE INVERTED CROWN SECTION IS 470 CFS,
  554     KM   STORM DRAIN CAPACITY IS 890 CFS, TOTAL CAPACITY FLOWING WEST IS 1360 CFS
  555     KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN I-17 AND 35TH AVENUE
  556     DT   455D
  557     DI      0    500   1000   1360   2000   3000
  558     DQ      0      0      0      0    640   1640

  559     KK   460R
  560     KM   ROUTE 450D TO CP OF 490S ALONG UNION HILLS DRIVE - 35TH TO 43RD AVENUE
  561     RS      5   FLOW     -1
  562     RC    .02   .025    .03   5280   .004     10
  563     RX   99.9    100    135    150    155    170  170.1  170.2
  564     RY      9    6.7      6      3      3      7      8      9

  565     KK   465S
  566     KM   SUB-BASIN 465
  567     BA   1.361
  568     LG   .140   .310  9.100   .100 57.000
  569     UC   .917   .587
  570     UA      0      5     16     30     65     77     84     90     94     97
  571     UA    100

  572     KK   470R
  573     KM   ROUTE 465S TO CP OF 475S ALONG COLLECTOR STREET
  574     RS      5   FLOW     -1
  575     RC   .025    .02   .025   8200  .0046
  576     RX   69.9     70   74.9     75    125  125.1    130  130.1
  577     RY    3.5     .5     .5      0      0     .5     .5    3.5
```

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  578     KK   475S
  579     KM   SUB-BASIN 475
  580     BA    .596
  581     LG    .290    .310  10.500    .030  18.000
  582     UC    .600    .369
  583     UA       0       3       5       8      12      20      43      75      90      96
  584     UA     100

  585     KK   480C
  586     KM   COMBINE 470R AND 475S AT CP OF 475S
  587     HC       2

  588     KK   485R
  589     KM   ROUTE 480C TO CP OF 490S ALONG LOCAL STREET WITH VERTICAL CURBS
  590     RS       5    FLOW      -1
  591     RC    .025     .02    .025   10300   .0038       5
  592     RX    69.9      70    79.9      80     120   120.1     130   130.1
  593     RY       2      .5      .5       0       0      .5      .5       2

  594     KK   490S
  595     KM   SUB-BASIN 490
  596     BA   1.115
  597     LG    .230    .290   8.300    .090  26.000
  598     UC   1.200    .886
  599     UA       0       5      16      30      65      77      84      90      94      97
  600     UA     100

  601     KK   495C
  602     KM   COMBINE 460R, 485R AND 490S AT CP OF 490S
  603     HC       3

  604     KK   500D
  605     KM   SURFACE FLOW CAPACITY OF THE UNION HILLS DRIVE AND CHANNEL IS 520 CFS,
  606     KM   STORM DRAIN CAPACITY IS 1280 CFS. TOTAL CAPACITY FLOWING WEST IS 1800 CFS.
  607     KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 35TH AVENUE
  608     KM   AND 43RD AVENUE
  609     DT    505D
  610     DI       0     500    1000    1800    2000    3000    4000
  611     DQ       0       0       0       0     200    1200    2200

  612     KK   510R
  613     KM   ROUTE 500D TO CP OF 515S ALONG UNION HILLS DRIVE - 43RD TO 51ST AVENUE
  614     RS       5    FLOW      -1
  615     RC    .025     .02    .025    7500   .0042      10
  616     RX      45    59.9      60     100   100.1     140   140.1     155
  617     RY     1.5     1.5       1       0       0       1     1.5     1.5

  618     KK   515S
  619     KM   SUB-BASIN 515
  620     BA    .476
  621     LG    .120    .340   4.600    .280  32.000
  622     UC    .917    .821
  623     UA       0       5      16      30      65      77      84      90      94      97
  624     UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  625     KK   520C
  626     KM   COMBINE 510R AND 515S AT CP OF 515S
  627     HC      2

  628     KK   530D
  629     KM   SURFACE FLOW CAPACITY OF UNION HILLS DRIVE AND 4-15" CULVERTS IS 65 CFS,
  630     KM   STORM DRAIN CAPACITY IS 1495 CFS, TOTAL CAPACITY FLOWING WEST IS 1560 CFS.
  631     KM   THE REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 43RD AVENUE
  632     KM   AND 55TH AVENUE
  633     DT   525D
  634     DI      0     500    1000    1560    2000    4000
  635     DQ      0       0       0       0     440    2440

  636     KK   535C
  637     KM   COMBINE 370R, 375S, 420R & 530RD @ CP OF 375S
  638     HC      4   19.9

  639     KK   540R
  640     KM   ROUTE 535C TO CP OF 545S ALONG SKUNK CREEK U/S OF UNION HILLS DRIVE
  641     RS      2    FLOW      -1
  642     RC    .04     .03     .04    3400   .0056
  643     RX    445     465     475     500     610     640     650     660
  644     RY   1262    1264    1264    1254    1254    1262    1264    1264

  645     KK   545S
  646     KM   SUB-BASIN 545
  647     BA    .296
  648     LG    .310    .330   4.000    .460  15.000
  649     UC    .700    .458
  650     UA      0       3       5       8      12      20      43      75      90      96
  651     UA    100

  652     KK   550C
  653     KM   COMBINE 540R AND 545S AT CP OF 545S
  654     HC      2

  655     KK   555R
  656     KM   ROUTE 550C TO CP OF 580S ALONG SKUNK CREEK FROM 67TH AVE. TO UNION HILLS DR.
  657     RS      2    FLOW      -1
  658     RC    .04     .03     .04    5350   .0039
  659     RX    395     435     465     500     560     590     650     700
  660     RY   1246    1244    1242    1236    1236    1242    1244    1245

  661     KK   560S
  662     KM   SUB-BASIN 560
  663     BA    .190
  664     LG    .150    .350   4.400    .280  21.000
  665     UC    .450    .329
  666     UA      0       5      16      30      65      77      84      90      94      97
  667     UA    100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  668     KK   565D
  669     KM   CAPACITY OF 59TH AVENUE IS 25 CFS.
  670     KM   THIS IS DIVERTED OUT OF THE WATERSHED (DQ).
  671     DT   570D
  672     DI      0      25      50     100     500    1000
  673     DQ      0      25      25      25      25      25

  674     KK   575R
  675     KM   ROUTE 565D TO CP OF 580S ALONG LOCAL STREETS WITH VERTICAL CURBS
  676     RS      5    FLOW      -1
  677     RC    .03     .02     .03    6500   .0044
  678     RX   74.9      75    81.9      82     118   118.1     125   125.1
  679     RY      2      .5      .5       0       0      .5      .5       2

  680     KK   580S
  681     KM   SUB-BASIN 580
  682     BA   .914
  683     LG   .200    .340   4.500    .330  25.000
  684     UC   .617    .263
  685     UA      0       5      16      30      65      77      84      90      94      97
  686     UA    100

  687     KK   585C
  688     KM   COMBINE 555R, 575R AND 580S AT CP OF 580S
  689     HC      3

  690     KK   590R
  691     KM   ROUTE 640C TO CP OF 650S ALONG SKUNK CREEK FROM 67TH AVENUE TO BELL ROAD
  692     RS      2    FLOW      -1
  693     RC    .04     .03     .04    4000   .0075
  694     RX    370     470     485     500     680     710     730     810
  695     RY   1231    1231    1230  1223.5  1223.5    1230    1232  1232.5

  696     KK   595S
  697     KM   SUB-BASIN 595
  698     BA   .302
  699     LG   .190    .340   4.500    .420  13.000
  700     UC  1.417   1.491
  701     UA      0       3       5       8      12      20      43      75      90      96
  702     UA    100

  703     KK   600S
  704     KM   SUB-BASIN 600
  705     BA  1.027
  706     LG   .440    .250   5.500    .380   8.000
  707     UC  1.033    .578
  708     UA      0       3       5       8      12      20      43      75      90      96
  709     UA    100
```

```
LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  710     KK   605R
  711     KM   ROUTE 600S TO CP OF 610S ALONG LOCAL STREETS WITH VERTICAL CURBS
  712     RS      5    FLOW      -1
  713     RC    .03     .02     .03    2500    .006       5
  714     RX   74.9      75    81.9      82     118   118.1     125   125.1
  715     RY      2      .5      .5       0       0      .5      .5       2

  716     KK   610S
  717     KM   SUB-BASIN 610
  718     BA   .690
  719     LG   .210    .270   6.800    .180  19.000
  720     UC   .767    .420
  721     UA      0       5      16      30      65      77      84      90      94      97
  722     UA    100

  723     KK  615RET
  724     KM   ENTIRE VOLUME OF RETENTION (38.6 AF) IS MODELED AS A DIVERT
  725     DT   616D    38.6
  726     DI      0     100     500    1000
  727     DQ      0     100     500    1000

  728     KK   620C
  729     KM   COMBINE 605R AND 615RET AT CP OF 610S
  730     HC      2

  731     KK   625R
  732     KM   ROUTE 620C TO CP OF 630S ALONG CHANNEL BESIDE 71ST AVENUE
  733     RS      5    FLOW      -1
  734     RC    .03     .03     .03    4500   .0022      10
  735     RX     15      18      20      30      45      55      57      60
  736     RY      7       6       5       0       0       5       6       7

  737     KK   630S
  738     KM   SUB-BASIN 630
  739     BA   .336
  740     LG   .170    .320   5.200    .260  19.000
  741     UC   .650    .494
  742     UA      0       5      16      30      65      77      84      90      94      97
  743     UA    100

  744     KK   635C
  745     KM   COMBINE 625R AND 630S AT CP OF 630S
  746     HC      2

  747     KK   640C
  748     KM   COMBINE 540R, 595S AND 635C AT CP OF 595S
  749     HC      3

  750     KK   645R
  751     KM   ROUTE 585C TO CP OF 595S ALONG SKUNK CREEK FROM BELL ROAD TO ACDC
  752     RS      2    FLOW      -1
  753     RC    .04     .03     .04    3500   .0068
  754     RX    250     260     360     500     545     600     720     800
  755     RY   1212    1210    1208    1192    1192    1210    1210    1211
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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

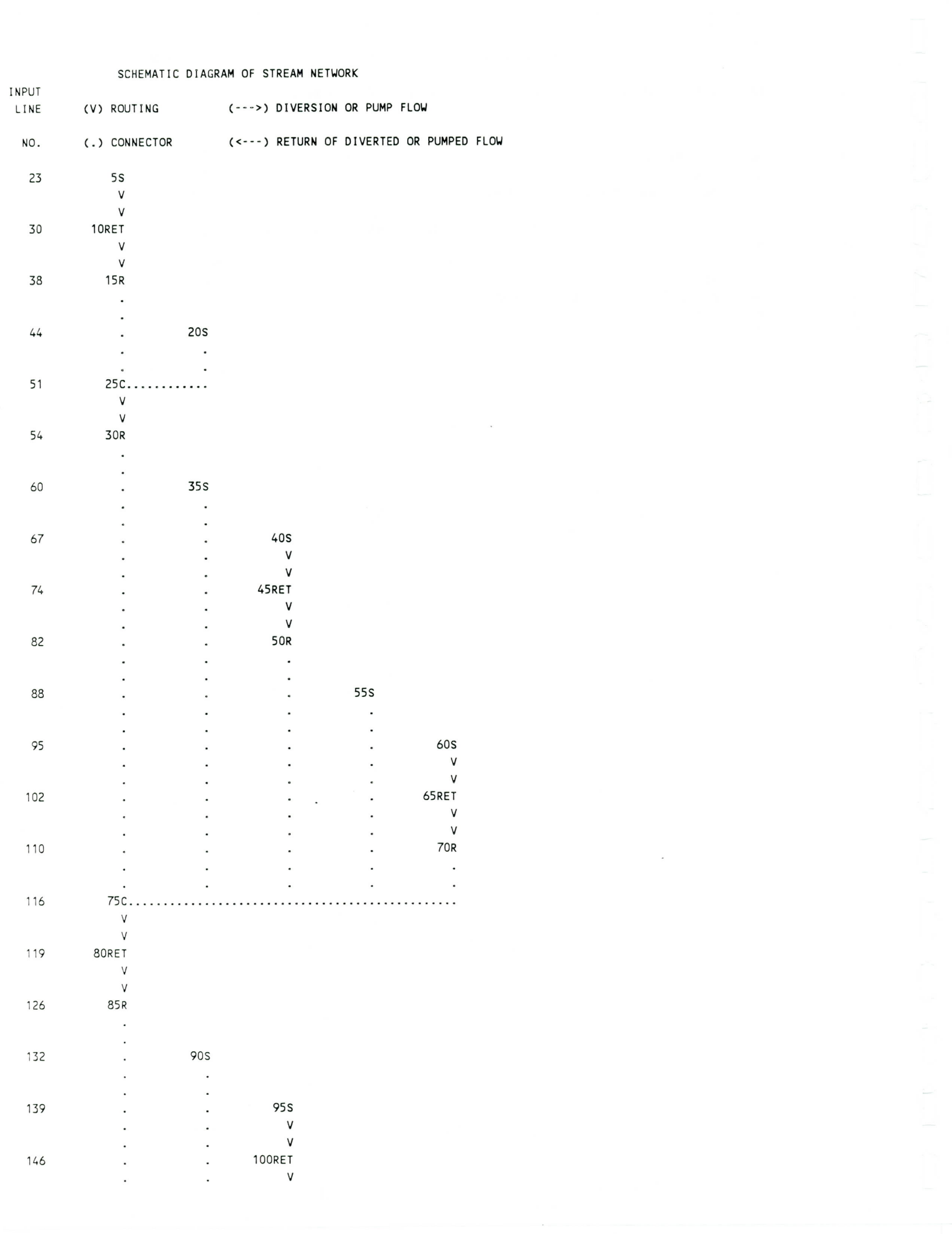
  756         KK    650S
  757         KM   SUB-BASIN 650
  758         BA    .125
  759         LG    .340    .350   3.700    .490   4.000
  760         UC    .533    .400
  761         UA       0       3       5       8      12      20      43      75      90      96
  762         UA     100

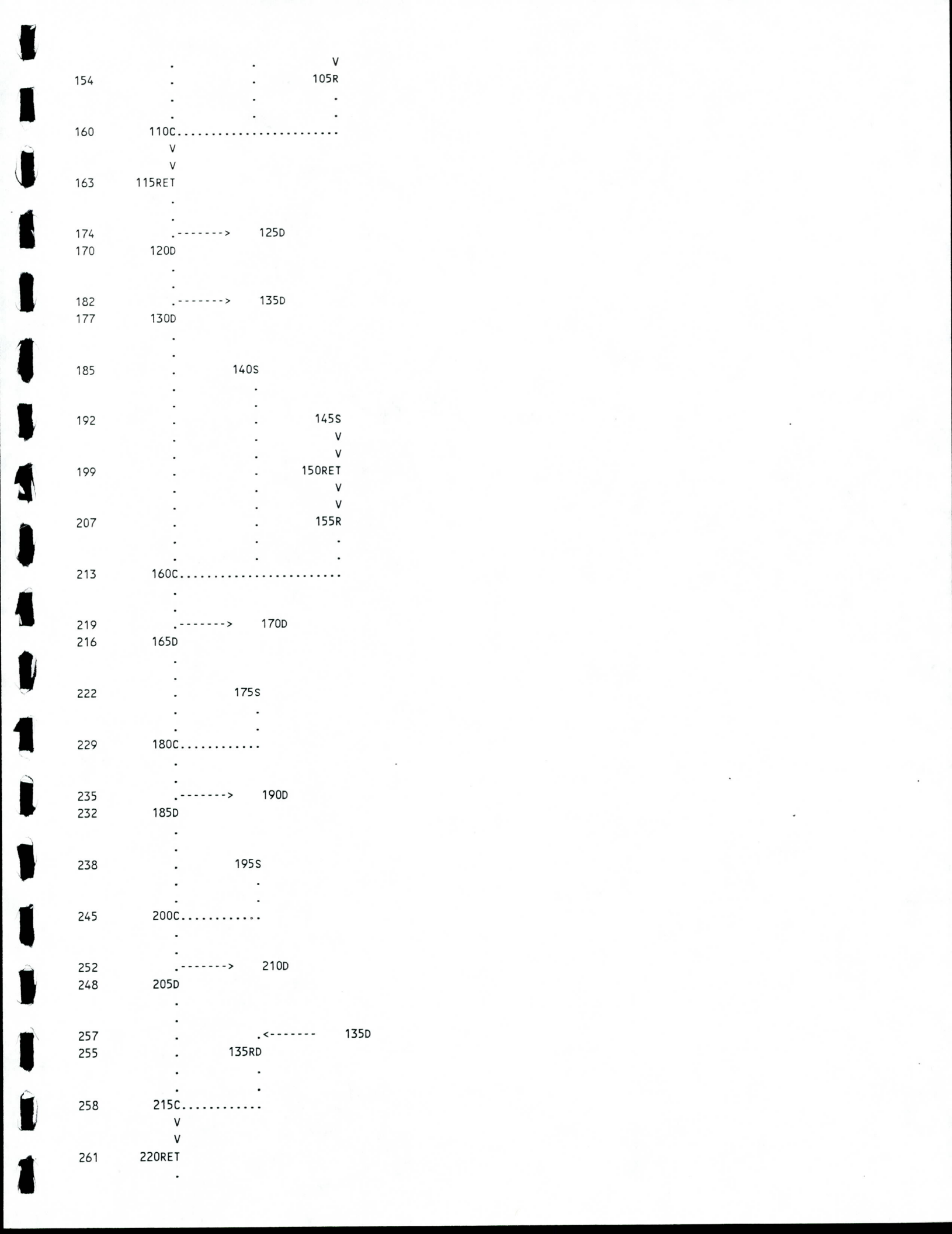
  763         KK    655C
  764         KM   COMBINE 645R AND 650S AT CP OF 650S
  765         HC       2
  766         ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

(V) ROUTING
(.) CONNECTOR
(---->) DIVERSION OR PUMP FLOW
(<----) RETURN OF DIVERTED OR PUMPED FLOW

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115RET
125D
120D
135D
130D
140S
145S
150RET
155R
160C
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165D
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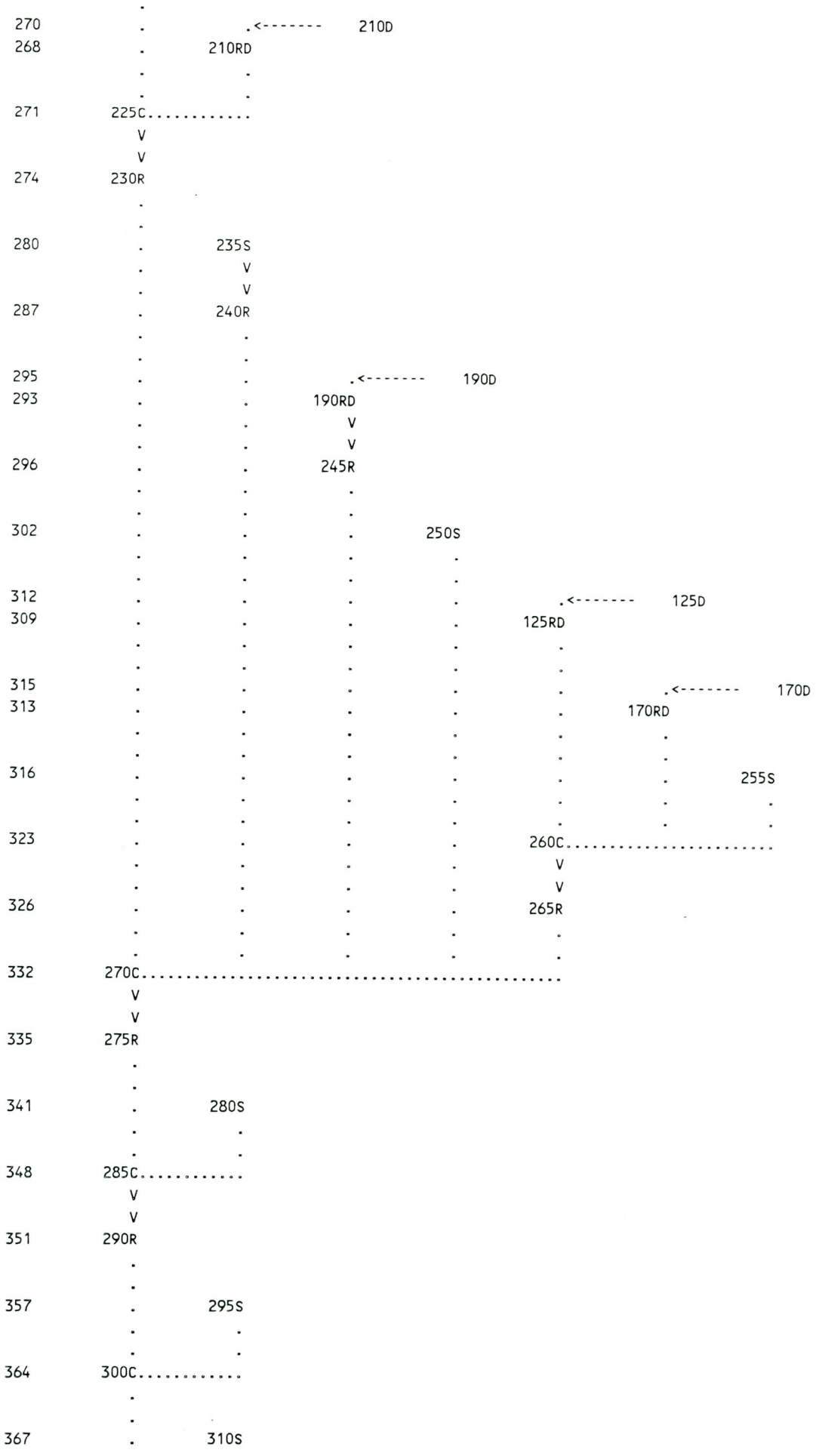
190D
185D
195S
200C
210D
205D
135D
135RD
215C
220RET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302
250S
312
125D
309
125RD
315
170D
313
170RD
316
255S
323
260C
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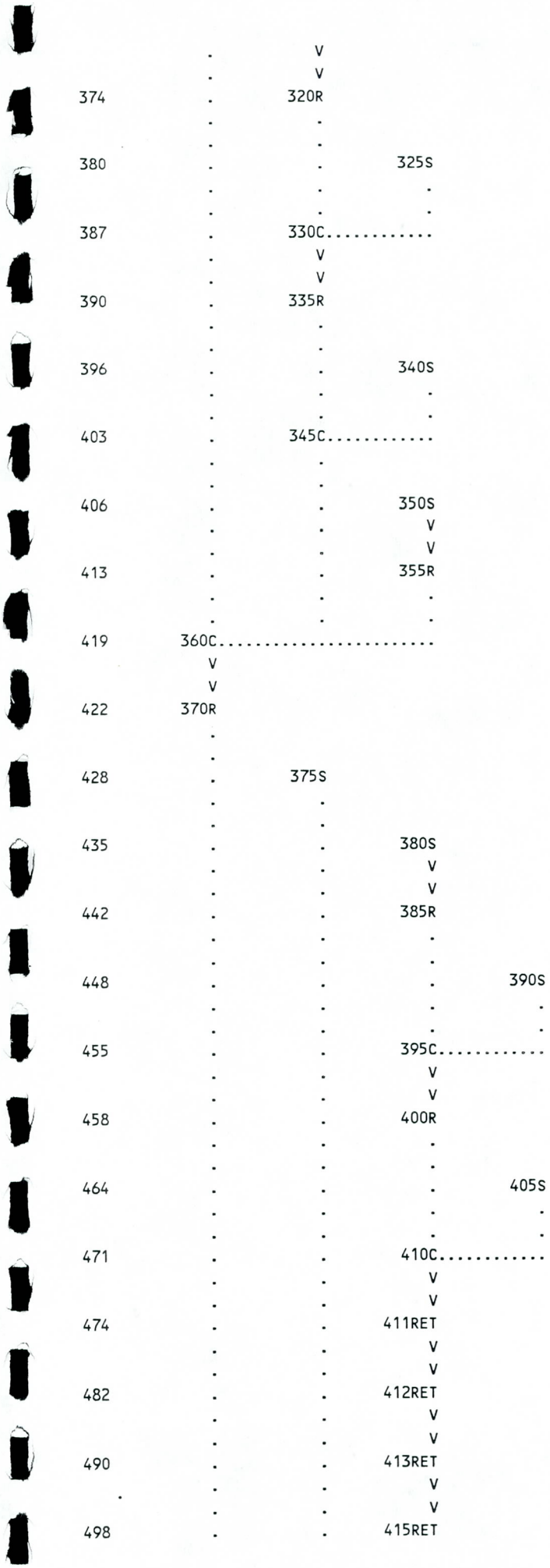
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471 410C
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482 412RET
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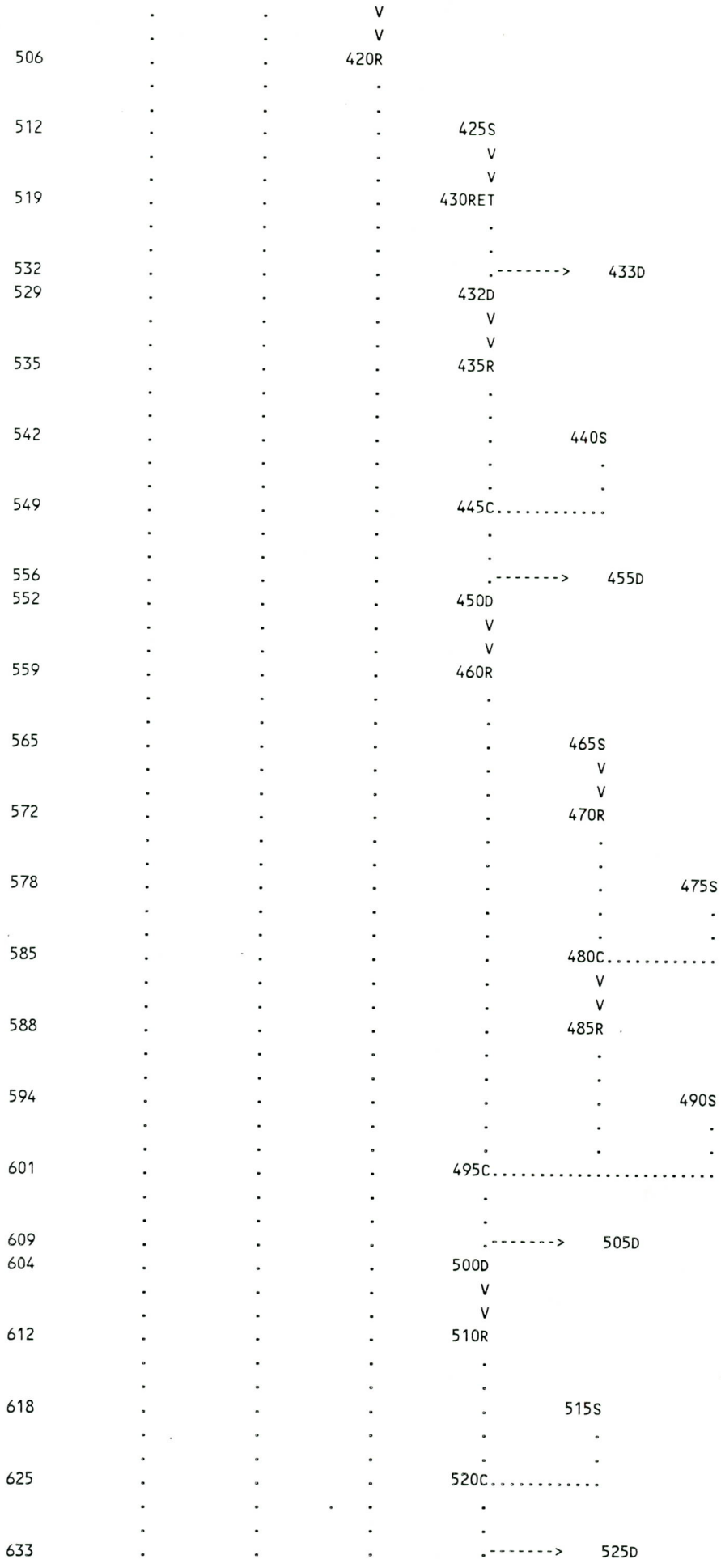
498 415RET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450D
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460R
565
465S
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470R
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475S
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480C
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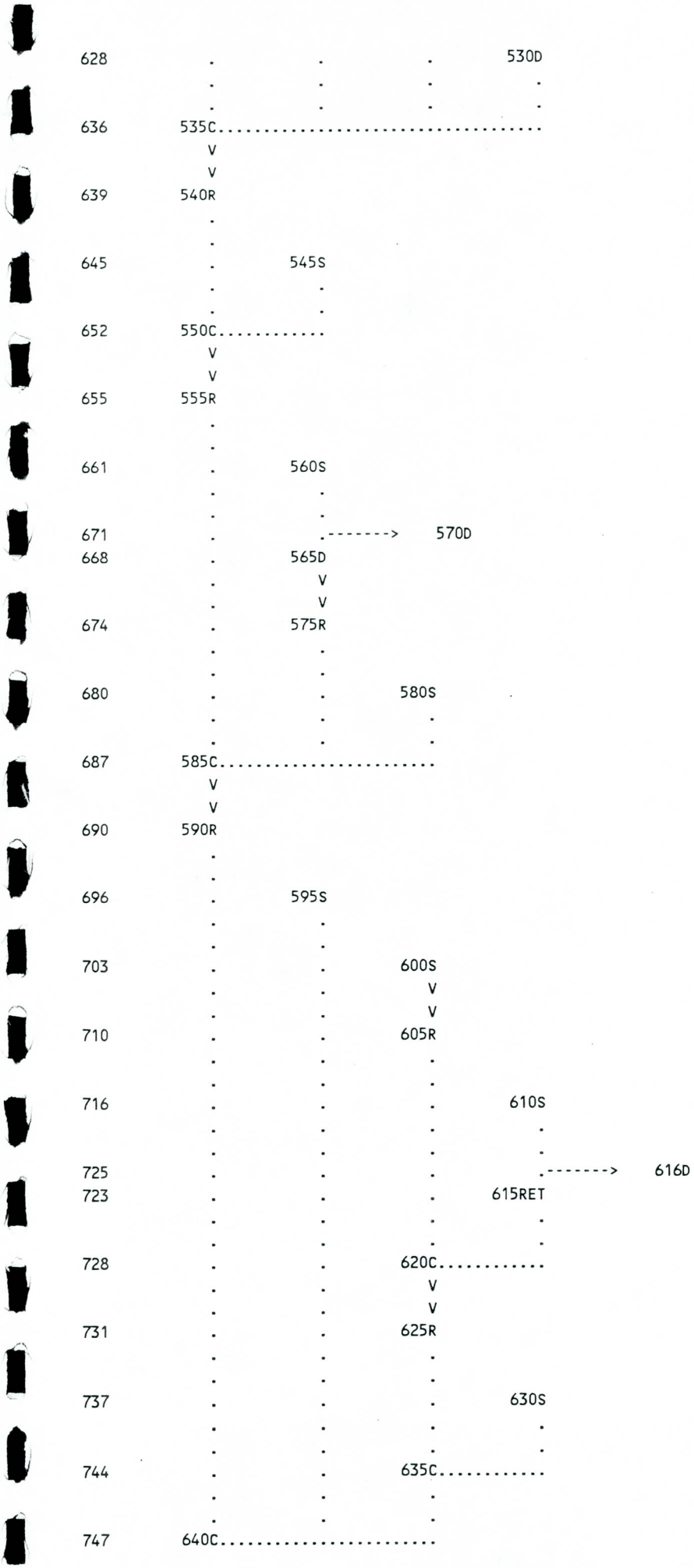
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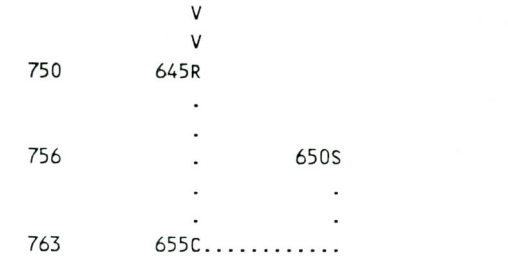

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*      BY THE COE IN FEBRUARY 1981      *
*           REVISED 02 AUG 88           *
*                                       *
*  RUN DATE  11/09/1990  TIME  11:13:50 *
*                                       *
*****************************************
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*****************************************
*                                       *
*     DODSON AND ASSOCIATES, INC.       *
*   HYDROLOGIST AND CIVIL ENGINEERS     *
*      7015 W TIDWELL SUITE 107         *
*        HOUSTON, TEXAS  77092          *
*          (713) 895-8322               *
*                                       *
*****************************************
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SKUNK CREEK BETWEEN ACDC AND CAP FLOOD INSURANCE STUDY
PREPARED FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC # 89-72)
BY COE & VAN LOO CONSULTING ENGINEERS, INC. (CVL # 1090-05)
NOVEMBER 1990 JKM-DWD-AJR
INPUT FILE NAME: SK100-24

100-YEAR, 24-HOUR STORM
SCS TYPE II DISTRIBUTION

11 IO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

12 IN TIME DATA FOR INPUT TIME SERIES

JXMIN	30	TIME INTERVAL IN MINUTES
JXDATE	1 0	STARTING DATE
JXTIME	0	STARTING TIME

IT HYDROGRAPH TIME DATA

NMIN	4	MINUTES IN COMPUTATION INTERVAL
IDATE	1 0	STARTING DATE
ITIME	0000	STARTING TIME
NQ	300	NUMBER OF HYDROGRAPH ORDINATES
NDDATE	1 0	ENDING DATE
NDTIME	1956	ENDING TIME
ICENT	19	CENTURY MARK

COMPUTATION INTERVAL .07 HOURS
TOTAL TIME BASE 19.93 HOURS

ENGLISH UNITS

DRAINAGE AREA	SQUARE MILES
PRECIPITATION DEPTH	INCHES
LENGTH, ELEVATION	FEET
FLOW	CUBIC FEET PER SECOND
STORAGE VOLUME	ACRE-FEET
SURFACE AREA	ACRES
TEMPERATURE	DEGREES FAHRENHEIT

13 JD INDEX STORM NO. 1

STRM	3.90	PRECIPITATION DEPTH
TRDA	.01	TRANSPOSITION DRAINAGE AREA

14 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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19 JD INDEX STORM NO. 2
STRM 3.82 PRECIPITATION DEPTH
TRDA 3.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN
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20 JD INDEX STORM NO. 3
STRM 3.74 PRECIPITATION DEPTH
TRDA 10.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

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21 JD INDEX STORM NO. 4

STRM 3.59 PRECIPITATION DEPTH

TRDA 20.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

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22 JD INDEX STORM NO. 5

STRM	3.51	PRECIPITATION DEPTH
TRDA	30.00	TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

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SUB-BASIN 5

SUBBASIN RUNOFF DATA

25 BA SUBBASIN CHARACTERISTICS

TAREA	1.33	SUBBASIN AREA

26 LG GREEN AND AMPT LOSS RATE

STRTL	.20	STARTING LOSS
DTH	.27	MOISTURE DEFICIT
PSIF	7.60	WETTING FRONT SUCTION
XKSAT	.16	HYDRAULIC CONDUCTIVITY
RTIMP	4.00	PERCENT IMPERVIOUS AREA

27 UC CLARK UNITGRAPH

TC	.52	TIME OF CONCENTRATION
R	.16	STORAGE COEFFICIENT

28 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 3.0 5.0 8.0 12.0 20.0 43.0 75.0 90.0 96.0
100.0

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UNIT HYDROGRAPH PARAMETERS
CLARK TC= .52 HR, R= .16 HR
SNYDER TP= .41 HR, CP= 1.11

UNIT HYDROGRAPH
18 END-OF-PERIOD ORDINATES

78.	199.	304.	571.	1381.	2278.	2354.	1860.	1314.	868.
573.	378.	250.	165.	109.	72.	48.	31.		

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HYDROGRAPH AT STATION 5S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.39, TOTAL EXCESS = 1.51

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1950.	12.20	(CFS)	209.	65.	65.	65.
		(INCHES)	1.461	1.500	1.500	1.500
		(AC-FT)	104.	107.	107.	107.

CUMULATIVE AREA = 1.33 SQ MI

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HYDROGRAPH AT STATION 5S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.36, TOTAL EXCESS = 1.46

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1898.	12.20	(CFS)	203.	63.	63.	63.
		(INCHES)	1.417	1.455	1.455	1.455
		(AC-FT)	101.	103.	103.	103.

CUMULATIVE AREA = 1.33 SQ MI

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HYDROGRAPH AT STATION 5S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.32, TOTAL EXCESS = 1.42

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1846.	12.20	(CFS)	197.	61.	61.	61.
		(INCHES)	1.372	1.409	1.409	1.409
		(AC-FT)	97.	100.	100.	100.

CUMULATIVE AREA = 1.33 SQ MI

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HYDROGRAPH AT STATION 5S
TRANSPOSITION AREA 20.0 SQ MI

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   TOTAL RAINFALL =    3.59, TOTAL LOSS =    2.26, TOTAL EXCESS =    1.33

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                 6-HR        24-HR       72-HR     19.93-HR
   1749.      12.20      (CFS)      185.          57.         57.          57.
                       (INCHES)    1.288        1.324       1.324        1.324
                        (AC-FT)      92.          94.         94.          94.

                    CUMULATIVE AREA =    1.33 SQ MI


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

                     HYDROGRAPH AT STATION        5S
                    TRANSPOSITION AREA     30.0 SQ MI

   TOTAL RAINFALL =    3.51, TOTAL LOSS =    2.22, TOTAL EXCESS =    1.29

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                 6-HR        24-HR       72-HR     19.93-HR
   1696.      12.20      (CFS)      178.          55.         55.          55.
                       (INCHES)    1.244        1.279       1.279        1.279
                        (AC-FT)      88.          91.         91.          91.

                    CUMULATIVE AREA =    1.33 SQ MI

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


                    INTERPOLATED HYDROGRAPH AT        5S

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                 6-HR        24-HR       72-HR     19.93-HR
   1906.      12.20      (CFS)      204.          63.         63.          63.
                       (INCHES)    1.423        1.461       1.461        1.461
                        (AC-FT)     101.         104.        104.         104.

                    CUMULATIVE AREA =    1.33 SQ MI


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          *            *
  30 KK   *    10RET   *
          *            *
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                       ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
                       SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.

             HYDROGRAPH ROUTING DATA

  33 RS        STORAGE ROUTING
                    NSTPS          1  NUMBER OF SUBREACHES
                     ITYP       STOR  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
                        X        .00 WORKING R AND D COEFFICIENT

  34 SV          STORAGE        .0      4.0      17.0      52.0      96.0     148.0     209.0     279.0

  35 SE        ELEVATION     15.00    16.00     17.00     18.00     19.00     20.00     21.00     22.00
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36 SL LOW-LEVEL OUTLET

ELEVL	15.00	ELEVATION AT CENTER OF OUTLET
CAREA	9.62	CROSS-SECTIONAL AREA
COQL	.60	COEFFICIENT
EXPL	.50	EXPONENT OF HEAD

37 SS SPILLWAY

CREL	21.90	SPILLWAY CREST ELEVATION
SPWID	50.00	SPILLWAY WIDTH
COQW	3.00	WEIR COEFFICIENT
EXPW	1.50	EXPONENT OF HEAD

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COMPUTED OUTFLOW-ELEVATION DATA

OUTFLOW	.00	59.88	63.93	68.58	73.95	80.24	87.70	96.68	107.72	121.60
ELEVATION	15.00	16.67	16.91	17.19	17.55	18.00	18.59	19.36	20.41	21.90
OUTFLOW	121.68	121.80	122.00	122.30	122.72	123.27	123.98	124.86	125.93	127.22
ELEVATION	21.90	21.91	21.91	21.92	21.93	21.94	21.95	21.97	21.98	22.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	4.00	12.75	15.80	17.00	23.82	36.33	52.00	77.92	96.00
OUTFLOW	.00	46.29	59.88	63.93	65.47	68.58	73.95	80.18	87.70	92.58
ELEVATION	15.00	16.00	16.67	16.91	17.00	17.19	17.55	18.00	18.59	19.00
STORAGE	114.83	148.00	173.30	209.00	272.00	273.05	274.21	274.95	275.80	276.76
OUTFLOW	96.68	103.51	107.72	113.39	121.60	122.00	122.72	123.27	123.98	124.86
ELEVATION	19.36	20.00	20.41	21.00	21.90	21.91	21.93	21.94	21.95	21.97
STORAGE	277.83	279.00								
OUTFLOW	125.93	127.22								
ELEVATION	21.98	22.00								

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HYDROGRAPH AT STATION 10RET
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
92.	13.00	(CFS)	87.	36.	36.	36.
		(INCHES)	.609	.835	.835	.835
		(AC-FT)	43.	59.	59.	59.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
93.	13.00	77.	28.	28.	28.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.93	13.00	18.56	16.40	16.40	16.40

CUMULATIVE AREA = 1.33 SQ MI

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HYDROGRAPH AT STATION 10RET
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW TIME MAXIMUM AVERAGE FLOW

(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
91.	13.00	(CFS)	86.	36.	36.	36.
		(INCHES)	.603	.826	.826	.826
		(AC-FT)	43.	59.	59.	59.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
90.	13.00	74.	27.	27.	27.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
18.86	13.00	18.50	16.38	16.38	16.38

CUMULATIVE AREA = 1.33 SQ MI

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HYDROGRAPH AT STATION 10RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
90.	13.00	(CFS)	86.	35.	35.	35.
		(INCHES)	.598	.818	.818	.818
		(AC-FT)	42.	58.	58.	58.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
87.	13.00	71.	26.	26.	26.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
18.79	13.00	18.43	16.35	16.35	16.35

CUMULATIVE AREA = 1.33 SQ MI

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HYDROGRAPH AT STATION 10RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
89.	12.93	(CFS)	84.	35.	35.	35.
		(INCHES)	.587	.801	.801	.801
		(AC-FT)	42.	57.	57.	57.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
81.	12.93	66.	24.	24.	24.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
18.67	12.93	18.31	16.30	16.30	16.30

CUMULATIVE AREA = 1.33 SQ MI

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HYDROGRAPH AT STATION 10RET
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW TIME MAXIMUM AVERAGE FLOW

(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
88.	12.93	(CFS)	83.	34.	34.	34.
		(INCHES)	.581	.792	.792	.792
		(AC-FT)	41.	56.	56.	56.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
78.	12.93	63.	23.	23.	23.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
18.60	12.93	18.24	16.27	16.27	16.27

CUMULATIVE AREA = 1.33 SQ MI

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INTERPOLATED HYDROGRAPH AT 10RET

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
91.	13.00	(CFS)	87.	36.	36.	36.
		(INCHES)	.604	.828	.828	.828
		(AC-FT)	43.	59.	59.	59.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
78.	12.93	63.	23.	23.	23.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
18.60	12.93	18.24	16.27	16.27	16.27

CUMULATIVE AREA = 1.33 SQ MI

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 38 KK    *      15R   *
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ROUTE 10RET TO CP OF 20S ALONG NATURAL CHANNEL

HYDROGRAPH ROUTING DATA

40 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

41 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	9000.	REACH LENGTH
SEL	.0080	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---			+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
43 RY	ELEVATION	5.00	3.00	2.00	.00	.00	2.00	3.00	5.00
42 RX	DISTANCE	.00	100.00	120.00	125.00	135.00	140.00	160.00	260.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.58	1.23	1.95	2.75	3.61	4.55	5.56	6.68	8.28
OUTFLOW	.00	4.89	15.86	31.94	52.94	78.89	109.87	146.03	190.77	248.48
ELEVATION	.00	.26	.53	.79	1.05	1.32	1.58	1.84	2.11	2.37
STORAGE	10.46	13.20	16.68	21.51	27.78	35.48	44.61	55.17	67.16	80.58
OUTFLOW	318.18	402.54	499.19	620.13	774.46	967.31	1203.77	1488.69	1826.69	2222.19
ELEVATION	2.63	2.89	3.16	3.42	3.68	3.95	4.21	4.47	4.74	5.00

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HYDROGRAPH AT STATION 15R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
92.	13.47	(CFS)	87.	34.	34.	34.
		(INCHES)	.608	.784	.784	.784
		(AC-FT)	43.	56.	56.	56.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	13.40	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.42	13.47	1.39	.59	.59	.59

CUMULATIVE AREA = 1.33 SQ MI

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HYDROGRAPH AT STATION 15R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
91.	13.40	(CFS)	86.	33.	33.	33.
		(INCHES)	.602	.776	.776	.776
		(AC-FT)	43.	55.	55.	55.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	13.40	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.42	13.40	1.38	.59	.59	.59

CUMULATIVE AREA = 1.33 SQ MI

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HYDROGRAPH AT STATION 15R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
90.	13.40	(CFS)	85.	33.	33.	33.
		(INCHES)	.597	.768	.768	.768
		(AC-FT)	42.	55.	55.	55.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.	13.27		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.41	13.40		1.37	.58	.58	.58

CUMULATIVE AREA = 1.33 SQ MI

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HYDROGRAPH AT STATION 15R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
88.	13.40	(CFS)	84.	32.	32.	32.
		(INCHES)	.586	.752	.752	.752
		(AC-FT)	42.	53.	53.	53.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.	13.27		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.40	13.40		1.36	.57	.57	.57

CUMULATIVE AREA = 1.33 SQ MI

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HYDROGRAPH AT STATION 15R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
88.	13.40	(CFS)	83.	32.	32.	32.
		(INCHES)	.580	.744	.744	.744
		(AC-FT)	41.	53.	53.	53.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.	13.27		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.39	13.40		1.35	.57	.57	.57

CUMULATIVE AREA = 1.33 SQ MI

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INTERPOLATED HYDROGRAPH AT 15R

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
91.	13.40	(CFS)	86.	34.	34.	34.
		(INCHES)	.603	.777	.777	.777
		(AC-FT)	43.	55.	55.	55.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE		
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1.	13.27	1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE		
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1.39	13.40	1.35	.57	.57	.57

CUMULATIVE AREA = 1.33 SQ MI

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          *            *
44 KK     *      20S   *
          *            *
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SUB-BASIN 20

SUBBASIN RUNOFF DATA

46 BA SUBBASIN CHARACTERISTICS
TAREA 1.38 SUBBASIN AREA

47 LG GREEN AND AMPT LOSS RATE
STRTL .35 STARTING LOSS
DTH .29 MOISTURE DEFICIT
PSIF 6.70 WETTING FRONT SUCTION
XKSAT .17 HYDRAULIC CONDUCTIVITY
RTIMP .00 PERCENT IMPERVIOUS AREA

48 UC CLARK UNITGRAPH
TC .75 TIME OF CONCENTRATION
R .36 STORAGE COEFFICIENT

49 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
100.0									

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UNIT HYDROGRAPH PARAMETERS
CLARK TC= .75 HR, R= .36 HR
SNYDER TP= .61 HR, CP= .94

UNIT HYDROGRAPH
36 END-OF-PERIOD ORDINATES

30.	77.	113.	158.	229.	388.	715.	1150.	1408.	1380.
1249.	1089.	914.	758.	629.	522.	433.	359.	298.	247.
205.	170.	141.	117.	97.	81.	67.	55.	46.	38.
32.	26.	22.	18.	15.	12.				

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HYDROGRAPH AT STATION 20S

TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.54, TOTAL EXCESS = 1.36

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1444.	12.47	(CFS)	201.	60.	60.	60.
		(INCHES)	1.353	1.353	1.353	1.353
		(AC-FT)	100.	100.	100.	100.

CUMULATIVE AREA = 1.38 SQ MI

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HYDROGRAPH AT STATION 20S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.51, TOTAL EXCESS = 1.31

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1402.	12.47	(CFS)	194.	58.	58.	58.
		(INCHES)	1.308	1.308	1.308	1.308
		(AC-FT)	96.	96.	96.	96.

CUMULATIVE AREA = 1.38 SQ MI

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HYDROGRAPH AT STATION 20S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.47, TOTAL EXCESS = 1.27

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1360.	12.47	(CFS)	187.	56.	56.	56.
		(INCHES)	1.263	1.263	1.263	1.263
		(AC-FT)	93.	93.	93.	93.

CUMULATIVE AREA = 1.38 SQ MI

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HYDROGRAPH AT STATION 20S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.41, TOTAL EXCESS = 1.18

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1281.	12.47	(CFS)	175.	53.	53.	53.
		(INCHES)	1.179	1.179	1.179	1.179
		(AC-FT)	87.	87.	87.	87.

CUMULATIVE AREA = 1.38 SQ MI

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HYDROGRAPH AT STATION 20S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.37, TOTAL EXCESS = 1.14

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1238.	12.47	(CFS)	168.	51.	51.	51.
		(INCHES)	1.134	1.134	1.134	1.134
		(AC-FT)	83.	83.	83.	83.

CUMULATIVE AREA = 1.38 SQ MI

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INTERPOLATED HYDROGRAPH AT 20S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1408.	12.47	(CFS)	195.	59.	59.	59.
		(INCHES)	1.314	1.314	1.314	1.314
		(AC-FT)	97.	97.	97.	97.

CUMULATIVE AREA = 1.38 SQ MI

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          *            *
51 KK     *      25C   *
          *            *
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COMBINE 20S AND 15R AT CP OF 20S

53 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 25C

TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1504.	12.47	(CFS)	279.	94.	94.	94.
		(INCHES)	.957	1.074	1.074	1.074
		(AC-FT)	138.	155.	155.	155.

CUMULATIVE AREA = 2.71 SQ MI

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HYDROGRAPH AT STATION 25C

TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1461.	12.47	(CFS)	272.	92.	92.	92.
		(INCHES)	.932	1.047	1.047	1.047
		(AC-FT)	135.	151.	151.	151.

CUMULATIVE AREA = 2.71 SQ MI

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HYDROGRAPH AT STATION 25C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1419.	12.47	(CFS)	264.	90.	90.	90.
		(INCHES)	.907	1.020	1.020	1.020
		(AC-FT)	131.	147.	147.	147.

CUMULATIVE AREA = 2.71 SQ MI

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HYDROGRAPH AT STATION 25C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1338.	12.47	(CFS)	251.	85.	85.	85.
		(INCHES)	.859	.969	.969	.969
		(AC-FT)	124.	140.	140.	140.

CUMULATIVE AREA = 2.71 SQ MI

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HYDROGRAPH AT STATION 25C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1295.	12.47	(CFS)	243.	83.	83.	83.
		(INCHES)	.834	.942	.942	.942
		(AC-FT)	121.	136.	136.	136.

CUMULATIVE AREA = 2.71 SQ MI

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INTERPOLATED HYDROGRAPH AT 25C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1462.	12.47	(CFS)	272.	92.	92.	92.
		(INCHES)	.932	1.047	1.047	1.047
		(AC-FT)	135.	151.	151.	151.

CUMULATIVE AREA = 2.71 SQ MI

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54 KK     *      30R  *
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ROUTE 25C TO CP OF 35S ALONG NATURAL CHANNEL

HYDROGRAPH ROUTING DATA

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56 RS          STORAGE ROUTING
                    NSTPS           5  NUMBER OF SUBREACHES
                     ITYP        FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC       -1.00  INITIAL CONDITION
                        X         .00 WORKING R AND D COEFFICIENT

57 RC          NORMAL DEPTH CHANNEL ROUTING
                      ANL        .040  LEFT OVERBANK N-VALUE
                     ANCH        .030  MAIN CHANNEL N-VALUE
                      ANR        .040  RIGHT OVERBANK N-VALUE
                    RLNTH       4800.  REACH LENGTH
                      SEL        .0056  ENERGY SLOPE
                    ELMAX           .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION
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CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
59 RY	ELEVATION	5.00	3.00	1.00	.00	.00	1.00	3.00	5.00
58 RX	DISTANCE	.00	5.00	205.00	215.00	235.00	245.00	445.00	450.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.66	1.47	2.43	3.57	5.80	9.55	14.83	21.64	29.97
OUTFLOW	.00	8.44	28.36	59.13	102.95	173.17	279.31	433.24	645.07	923.92
ELEVATION	.00	.26	.53	.79	1.05	1.32	1.58	1.84	2.11	2.37
STORAGE	39.83	51.22	63.86	76.66	89.50	102.38	115.29	128.25	141.24	154.27
OUTFLOW	1278.23	1715.98	2301.16	3013.63	3809.91	4685.74	5637.65	6662.74	7758.54	8922.93
ELEVATION	2.63	2.89	3.16	3.42	3.68	3.95	4.21	4.47	4.74	5.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 4686. TO 8923.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 30R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1328.	12.80	(CFS)	278.	92.	92.	92.
		(INCHES)	.953	1.053	1.053	1.053
		(AC-FT)	138.	152.	152.	152.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
8.	12.80	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.66	12.80	1.32	.52	.52	.52

CUMULATIVE AREA = 2.71 SQ MI

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HYDROGRAPH AT STATION 30R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1288.	12.80	(CFS)	271.	90.	90.	90.
		(INCHES)	.928	1.026	1.026	1.026
		(AC-FT)	134.	148.	148.	148.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
8.	12.80	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.64	12.80	1.31	.51	.51	.51

CUMULATIVE AREA = 2.71 SQ MI

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HYDROGRAPH AT STATION 30R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1249.	12.80	(CFS)	263.	88.	88.	88.
		(INCHES)	.902	1.000	1.000	1.000
		(AC-FT)	130.	145.	145.	145.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
8.	12.80	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.61	12.80	1.30	.51	.51	.51

CUMULATIVE AREA = 2.71 SQ MI

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HYDROGRAPH AT STATION 30R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1175.	12.80	(CFS)	249.	83.	83.	83.
		(INCHES)	.855	.950	.950	.950
		(AC-FT)	124.	137.	137.	137.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
7.	12.80	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.55	12.80	1.28	.50	.50	.50

CUMULATIVE AREA = 2.71 SQ MI

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HYDROGRAPH AT STATION 30R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1135.	12.80	(CFS)	242.	81.	81.	81.
		(INCHES)	.830	.923	.923	.923
		(AC-FT)	120.	133.	133.	133.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
7.	12.80	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.53	12.80	1.26	.49	.49	.49

CUMULATIVE AREA = 2.71 SQ MI

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INTERPOLATED HYDROGRAPH AT 30R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1289.	12.80	(CFS)	271.	90.	90.	90.
		(INCHES)	.928	1.027	1.027	1.027
		(AC-FT)	134.	148.	148.	148.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
7.	12.80	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.53	12.80	1.26	.49	.49	.49

CUMULATIVE AREA = 2.71 SQ MI

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60 KK     *       35S  *
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SUB-BASIN 35

SUBBASIN RUNOFF DATA

62 BA	SUBBASIN CHARACTERISTICS		
	TAREA	1.51	SUBBASIN AREA
63 LG	GREEN AND AMPT LOSS RATE		
	STRTL	.35	STARTING LOSS
	DTH	.31	MOISTURE DEFICIT
	PSIF	5.80	WETTING FRONT SUCTION
	XKSAT	.23	HYDRAULIC CONDUCTIVITY

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                    RTIMP         .00  PERCENT IMPERVIOUS AREA

64 UC          CLARK UNITGRAPH
                    TC          .87  TIME OF CONCENTRATION
                    R           .45  STORAGE COEFFICIENT

65 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                  .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                100.0

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                                                UNIT HYDROGRAPH PARAMETERS
                                          CLARK   TC=   .87 HR,       R=   .45 HR
                                          SNYDER  TP=   .70 HR,       CP=   .89

                                                UNIT HYDROGRAPH
                                          44 END-OF-PERIOD ORDINATES
                    23.       61.       89.      120.      158.      223.      368.      630.      983.     1226.
                  1262.     1205.     1112.      990.      854.      736.      635.      548.      472.      407.
                   351.      303.      261.      225.      194.      168.      144.      125.      107.       93.
                    80.       69.       59.       51.       44.       38.       33.       28.       24.       21.
                    18.       16.       14.       12.

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

                        HYDROGRAPH AT STATION      35S
                       TRANSPOSITION AREA       .0 SQ MI

    TOTAL RAINFALL =    3.90, TOTAL LOSS =    2.66, TOTAL EXCESS =    1.24

PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR       72-HR      19.93-HR
  1311.      12.53        (CFS)        201.         60.         60.          60.
                          (INCHES)    1.232       1.232       1.232        1.232
                          (AC-FT)       99.         99.         99.          99.

                        CUMULATIVE AREA =    1.51 SQ MI


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

                        HYDROGRAPH AT STATION      35S
                       TRANSPOSITION AREA      3.0 SQ MI

    TOTAL RAINFALL =    3.82, TOTAL LOSS =    2.63, TOTAL EXCESS =    1.19

PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR       72-HR      19.93-HR
  1270.      12.53        (CFS)        193.         58.         58.          58.
                          (INCHES)    1.188       1.188       1.188        1.188
                          (AC-FT)       96.         96.         96.          96.

                        CUMULATIVE AREA =    1.51 SQ MI


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

                        HYDROGRAPH AT STATION      35S
                       TRANSPOSITION AREA     10.0 SQ MI

    TOTAL RAINFALL =    3.74, TOTAL LOSS =    2.59, TOTAL EXCESS =    1.15

PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR       72-HR      19.93-HR
  1230.      12.53        (CFS)        186.         56.         56.          56.
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(INCHES)	1.145	1.145	1.145	1.145
(AC-FT)	92.	92.	92.	92.

CUMULATIVE AREA = 1.51 SQ MI

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HYDROGRAPH AT STATION 35S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.51, TOTAL EXCESS = 1.08

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1155.	12.53	(CFS)	174.	52.	52.	52.
		(INCHES)	1.070	1.070	1.070	1.070
		(AC-FT)	86.	86.	86.	86.

CUMULATIVE AREA = 1.51 SQ MI

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

HYDROGRAPH AT STATION 35S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.47, TOTAL EXCESS = 1.04

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1115.	12.53	(CFS)	168.	51.	51.	51.
		(INCHES)	1.032	1.032	1.032	1.032
		(AC-FT)	83.	83.	83.	83.

CUMULATIVE AREA = 1.51 SQ MI

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

INTERPOLATED HYDROGRAPH AT 35S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1275.	12.53	(CFS)	194.	58.	58.	58.
		(INCHES)	1.193	1.193	1.193	1.193
		(AC-FT)	96.	96.	96.	96.

CUMULATIVE AREA = 1.51 SQ MI

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          *            *
67 KK     *     40S    *
          *            *
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SUB-BASIN 40

SUBBASIN RUNOFF DATA

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69 BA          SUBBASIN CHARACTERISTICS
                    TAREA         .55  SUBBASIN AREA

70 LG          GREEN AND AMPT LOSS RATE
                   STRTL         .20  STARTING LOSS
                     DTH         .26  MOISTURE DEFICIT
                    PSIF        7.90  WETTING FRONT SUCTION
                   XKSAT         .12  HYDRAULIC CONDUCTIVITY
                   RTIMP        6.00  PERCENT IMPERVIOUS AREA

71 UC          CLARK UNITGRAPH
                      TC         .52  TIME OF CONCENTRATION
                       R         .25  STORAGE COEFFICIENT

72 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                     .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                  100.0

                                                  ***

                                                        UNIT HYDROGRAPH PARAMETERS
                                                  CLARK   TC=   .52 HR,       R=   .25 HR
                                                 SNYDER   TP=   .43 HR,      CP=   .94

                                                              UNIT HYDROGRAPH
                                                        25 END-OF-PERIOD ORDINATES
                    22.       59.       94.      176.      418.      706.      781.      684.      548.      419.
                   321.      246.      188.      144.      110.       84.       65.       49.       38.       29.
                    22.       17.       13.       10.        8.

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

                          HYDROGRAPH AT STATION      40S
                        TRANSPOSITION AREA       .0 SQ MI

    TOTAL RAINFALL =    3.90, TOTAL LOSS =    2.24, TOTAL EXCESS =    1.66

PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR       72-HR     19.93-HR
   751.      12.27       (CFS)          93.         29.         29.         29.
                         (INCHES)    1.593       1.651       1.651       1.651
                         (AC-FT)        46.         48.         48.         48.

                          CUMULATIVE AREA =     .55 SQ MI


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

                          HYDROGRAPH AT STATION      40S
                        TRANSPOSITION AREA      3.0 SQ MI

    TOTAL RAINFALL =    3.82, TOTAL LOSS =    2.21, TOTAL EXCESS =    1.61

PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR       72-HR     19.93-HR
   732.      12.27       (CFS)          91.         28.         28.         28.
                         (INCHES)    1.547       1.604       1.604       1.604
                         (AC-FT)        45.         47.         47.         47.

                          CUMULATIVE AREA =     .55 SQ MI


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

                          HYDROGRAPH AT STATION      40S
                        TRANSPOSITION AREA     10.0 SQ MI
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TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.17, TOTAL EXCESS = 1.57

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
713.	12.27	(CFS)	88.	27.	27.	27.
		(INCHES)	1.503	1.558	1.558	1.558
		(AC-FT)	44.	45.	45.	45.

CUMULATIVE AREA = .55 SQ MI

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HYDROGRAPH AT STATION 40S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.11, TOTAL EXCESS = 1.48

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
677.	12.27	(CFS)	83.	26.	26.	26.
		(INCHES)	1.420	1.473	1.473	1.473
		(AC-FT)	41.	43.	43.	43.

CUMULATIVE AREA = .55 SQ MI

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

HYDROGRAPH AT STATION 40S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.07, TOTAL EXCESS = 1.44

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
658.	12.27	(CFS)	81.	25.	25.	25.
		(INCHES)	1.375	1.427	1.427	1.427
		(AC-FT)	40.	41.	41.	41.

CUMULATIVE AREA = .55 SQ MI

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

INTERPOLATED HYDROGRAPH AT 40S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
737.	12.27	(CFS)	91.	29.	29.	29.
		(INCHES)	1.561	1.618	1.618	1.618
		(AC-FT)	45.	47.	47.	47.

CUMULATIVE AREA = .55 SQ MI

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          *            *
74 KK     *    45RET   *
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                ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
                SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.

          HYDROGRAPH ROUTING DATA

77 RS          STORAGE ROUTING
                    NSTPS          1  NUMBER OF SUBREACHES
                     ITYP       STOR  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
                        X        .00 WORKING R AND D COEFFICIENT

78 SV          STORAGE          .0      2.0      11.0      34.0      62.0      96.0     135.0     180.0

79 SE          ELEVATION     15.00    16.00    17.00     18.00     19.00     20.00     21.00     22.00

80 SL          LOW-LEVEL OUTLET
                    ELEVL      15.00  ELEVATION AT CENTER OF OUTLET
                    CAREA       4.91  CROSS-SECTIONAL AREA
                     COQL        .60  COEFFICIENT
                     EXPL        .50  EXPONENT OF HEAD

81 SS          SPILLWAY
                    CREL      21.90  SPILLWAY CREST ELEVATION
                   SPWID      50.00  SPILLWAY WIDTH
                    COQW       3.00  WEIR COEFFICIENT
                    EXPW       1.50  EXPONENT OF HEAD

                                                ***

                                  COMPUTED OUTFLOW-ELEVATION DATA

          OUTFLOW       .00    26.05    28.09    30.47    33.30    36.70    40.88    46.12    52.92    62.06
        ELEVATION     15.00    16.22    16.41    16.66    16.99    17.41    17.99    18.81    20.02    21.90

          OUTFLOW     62.09    62.17    62.31    62.55    62.90    63.40    64.06    64.90    65.96    67.25
        ELEVATION     21.90    21.91    21.91    21.92    21.93    21.94    21.95    21.97    21.98    22.00

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE       .00     2.00     3.94     5.72     7.97    10.87    11.00    20.49    33.84    56.71
          OUTFLOW       .00    23.63    26.05    28.09    30.47    33.30    33.41    36.70    40.88    46.12
        ELEVATION     15.00    16.00    16.22    16.41    16.66    16.99    17.00    17.41    17.99    18.81

          STORAGE     62.00    96.00    96.65   135.00   175.50   176.03   176.77   177.26   177.83   178.47
          OUTFLOW     47.25    52.83    52.92    57.87    62.06    62.31    62.90    63.40    64.06    64.90
        ELEVATION     19.00    20.00    20.02    21.00    21.90    21.91    21.93    21.94    21.95    21.97

          STORAGE    179.20   180.00
          OUTFLOW     65.96    67.25
        ELEVATION     21.98    22.00

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

                    HYDROGRAPH AT STATION    45RET
                    TRANSPOSITION AREA        .0 SQ MI

PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR        72-HR     19.93-HR
    42.      13.27          (CFS)       41.          17.          17.          17.
                            (INCHES)   .691         .957         .957         .957
                            (AC-FT)     20.          28.          28.          28.

PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
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(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
40.	13.27		33.	12.	12.	12.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.22	13.27		17.95	16.17	16.17	16.17

CUMULATIVE AREA = .55 SQ MI

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HYDROGRAPH AT STATION 45RET
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
42.	13.27	(CFS)	40.	17.	17.	17.
		(INCHES)	.686	.949	.949	.949
		(AC-FT)	20.	28.	28.	28.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
39.	13.27		32.	12.	12.	12.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.17	13.27		17.90	16.15	16.15	16.15

CUMULATIVE AREA = .55 SQ MI

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HYDROGRAPH AT STATION 45RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
42.	13.20	(CFS)	40.	17.	17.	17.
		(INCHES)	.680	.940	.940	.940
		(AC-FT)	20.	27.	27.	27.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
38.	13.20		31.	11.	11.	11.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.13	13.20		17.86	16.13	16.13	16.13

CUMULATIVE AREA = .55 SQ MI

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HYDROGRAPH AT STATION 45RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
41.	13.20	(CFS)	39.	16.	16.	16.
		(INCHES)	.670	.924	.924	.924
		(AC-FT)	19.	27.	27.	27.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			

(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
35.	13.20		29.	10.	10.	10.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.05	13.20		17.77	16.10	16.10	16.10

CUMULATIVE AREA = .55 SQ MI

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HYDROGRAPH AT STATION 45RET
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
41.	13.20	(CFS)	39.	16.	16.	16.
		(INCHES)	.664	.914	.914	.914
		(AC-FT)	19.	27.	27.	27.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
34.	13.20		28.	10.	10.	10.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.01	13.20		17.72	16.08	16.08	16.08

CUMULATIVE AREA = .55 SQ MI

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INTERPOLATED HYDROGRAPH AT 45RET

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
42.	13.27	(CFS)	40.	17.	17.	17.
		(INCHES)	.688	.951	.951	.951
		(AC-FT)	20.	28.	28.	28.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
34.	13.20		28.	10.	10.	10.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.01	13.20		17.72	16.08	16.08	16.08

CUMULATIVE AREA = .55 SQ MI

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          *            *
82 KK     *      50R   *
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ROUTE 45RET TO CP OF 35S ALONG NATURAL CHANNEL

HYDROGRAPH ROUTING DATA

84 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

85 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	11000.	REACH LENGTH
SEL	.0086	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
87 RY	ELEVATION	6.00	5.00	3.00	.00	.00	3.00	5.00	6.00
86 RX	DISTANCE	.00	50.00	150.00	165.00	175.00	190.00	290.00	340.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.92	2.10	3.53	5.20	7.14	9.32	11.75	14.44	17.38
OUTFLOW	.00	7.15	24.29	51.18	88.53	137.20	198.08	272.07	360.05	462.88
ELEVATION	.00	.32	.63	.95	1.26	1.58	1.89	2.21	2.53	2.84
STORAGE	20.85	26.56	34.78	45.53	58.79	74.57	92.87	113.69	137.02	162.88
OUTFLOW	595.95	771.92	992.16	1268.05	1609.46	2025.35	2524.04	3113.40	3800.89	4593.68
ELEVATION	3.16	3.47	3.79	4.11	4.42	4.74	5.05	5.37	5.68	6.00

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HYDROGRAPH AT STATION 50R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
42.	14.07	(CFS)	40.	15.	15.	15.
		(INCHES)	.689	.862	.862	.862
		(AC-FT)	20.	25.	25.	25.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	13.93	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.84	14.07	.82	.33	.33	.33

CUMULATIVE AREA = .55 SQ MI

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HYDROGRAPH AT STATION 50R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
42.	14.07	(CFS)	40.	15.	15.	15.
		(INCHES)	.683	.854	.854	.854
		(AC-FT)	20.	25.	25.	25.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	13.93		1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.84	14.07		.82	.33	.33	.33

CUMULATIVE AREA = .55 SQ MI

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HYDROGRAPH AT STATION 50R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
42.	14.07	(CFS)	40.	15.	15.	15.
		(INCHES)	.677	.846	.846	.846
		(AC-FT)	20.	25.	25.	25.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	13.93		1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.83	14.07		.81	.33	.33	.33

CUMULATIVE AREA = .55 SQ MI

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HYDROGRAPH AT STATION 50R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
41.	14.07	(CFS)	39.	15.	15.	15.
		(INCHES)	.667	.831	.831	.831
		(AC-FT)	19.	24.	24.	24.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	13.93		1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.83	14.07		.81	.32	.32	.32

CUMULATIVE AREA = .55 SQ MI

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HYDROGRAPH AT STATION 50R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
41.	14.07	(CFS)	39.	15.	15.	15.
		(INCHES)	.661	.822	.822	.822
		(AC-FT)	19.	24.	24.	24.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.	13.93		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
.83	14.07		.80	.32	.32	.32

CUMULATIVE AREA = .55 SQ MI

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INTERPOLATED HYDROGRAPH AT 50R

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
42.	14.07	(CFS)	40.	15.	15.	15.
		(INCHES)	.685	.856	.856	.856
		(AC-FT)	20.	25.	25.	25.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.	13.93		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
.83	14.07		.80	.32	.32	.32

CUMULATIVE AREA = .55 SQ MI

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          *            *
88 KK     *       55S  *
          *            *
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SUB-BASIN 55

SUBBASIN RUNOFF DATA

90 BA SUBBASIN CHARACTERISTICS

TAREA	.59	SUBBASIN AREA

91 LG GREEN AND AMPT LOSS RATE

STRTL	.35	STARTING LOSS
DTH	.32	MOISTURE DEFICIT
PSIF	5.10	WETTING FRONT SUCTION
XKSAT	.29	HYDRAULIC CONDUCTIVITY
RTIMP	.00	PERCENT IMPERVIOUS AREA

92 UC CLARK UNITGRAPH

TC	.77	TIME OF CONCENTRATION
R	.60	STORAGE COEFFICIENT

93 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
100.0									

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= .77 HR, R= .60 HR

SNYDER TP= .66 HR, CP= .72

UNIT HYDROGRAPH

55 END-OF-PERIOD ORDINATES

8.	20.	31.	44.	63.	102.	184.	311.	403.	423.
411.	385.	350.	313.	280.	250.	224.	200.	179.	160.
143.	128.	114.	102.	91.	82.	73.	65.	58.	52.
47.	42.	37.	33.	30.	27.	24.	21.	19.	17.
15.	14.	12.	11.	10.	9.	8.	7.	6.	6.
5.	4.	4.	4.	3.					

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HYDROGRAPH AT STATION 55S

TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.74, TOTAL EXCESS = 1.16

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
426.	12.47	(CFS)	73.	22.	22.	22.
		(INCHES)	1.158	1.158	1.158	1.158
		(AC-FT)	36.	36.	36.	36.

CUMULATIVE AREA = .59 SQ MI

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HYDROGRAPH AT STATION 55S

TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.69, TOTAL EXCESS = 1.13

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
413.	12.47	(CFS)	71.	21.	21.	21.
		(INCHES)	1.120	1.120	1.120	1.120
		(AC-FT)	35.	35.	35.	35.

CUMULATIVE AREA = .59 SQ MI

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HYDROGRAPH AT STATION 55S

TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.65, TOTAL EXCESS = 1.09

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
399.	12.47	(CFS)	68.	21.	21.	21.
		(INCHES)	1.083	1.083	1.083	1.083
		(AC-FT)	34.	34.	34.	34.

CUMULATIVE AREA = .59 SQ MI

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HYDROGRAPH AT STATION 55S

TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.57, TOTAL EXCESS = 1.02

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
373.	12.47	(CFS)	64.	19.	19.	19.
		(INCHES)	1.011	1.011	1.011	1.011
		(AC-FT)	32.	32.	32.	32.

CUMULATIVE AREA = .59 SQ MI

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HYDROGRAPH AT STATION 55S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.53, TOTAL EXCESS = .98

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
359.	12.47	(CFS)	62.	19.	19.	19.
		(INCHES)	.973	.973	.973	.973
		(AC-FT)	31.	31.	31.	31.

CUMULATIVE AREA = .59 SQ MI

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INTERPOLATED HYDROGRAPH AT 55S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
416.	12.47	(CFS)	72.	22.	22.	22.
		(INCHES)	1.131	1.131	1.131	1.131
		(AC-FT)	35.	35.	35.	35.

CUMULATIVE AREA = .59 SQ MI

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          *            *
95 KK     *       60S  *
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SUB-BASIN 60

SUBBASIN RUNOFF DATA

97 BA SUBBASIN CHARACTERISTICS

TAREA	1.20	SUBBASIN AREA

98 LG GREEN AND AMPT LOSS RATE

STRTL	.21	STARTING LOSS
DTH	.27	MOISTURE DEFICIT
PSIF	7.50	WETTING FRONT SUCTION
XKSAT	.15	HYDRAULIC CONDUCTIVITY
RTIMP	8.00	PERCENT IMPERVIOUS AREA

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99 UC          CLARK UNITGRAPH
                     TC         .93  TIME OF CONCENTRATION
                      R         .49  STORAGE COEFFICIENT

100 UA         ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                    .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                 100.0
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UNIT HYDROGRAPH PARAMETERS

CLARK TC= .93 HR, R= .49 HR
SNYDER TP= .75 HR, CP= .88

UNIT HYDROGRAPH
49 END-OF-PERIOD ORDINATES

16.	42.	61.	81.	106.	142.	196.	334.	562.	791.
919.	923.	874.	812.	730.	638.	557.	487.	425.	371.
325.	284.	248.	216.	189.	165.	144.	126.	110.	96.
84.	73.	64.	56.	49.	43.	37.	33.	28.	25.
22.	19.	17.	14.	13.	11.	10.	8.	7.	

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HYDROGRAPH AT STATION 60S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.27, TOTAL EXCESS = 1.63

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1109.	12.60	(CFS)	200.	63.	63.	63.
		(INCHES)	1.545	1.620	1.620	1.620
		(AC-FT)	99.	104.	104.	104.

CUMULATIVE AREA = 1.20 SQ MI

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HYDROGRAPH AT STATION 60S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.23, TOTAL EXCESS = 1.59

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1079.	12.60	(CFS)	194.	61.	61.	61.
		(INCHES)	1.500	1.574	1.574	1.574
		(AC-FT)	96.	101.	101.	101.

CUMULATIVE AREA = 1.20 SQ MI

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HYDROGRAPH AT STATION 60S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.20, TOTAL EXCESS = 1.54

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1050.	12.60	(CFS)	188.	59.	59.	59.
		(INCHES)	1.456	1.528	1.528	1.528

		(AC-FT)	93.	98.	98.	98.

CUMULATIVE AREA = 1.20 SQ MI

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HYDROGRAPH AT STATION 60S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.14, TOTAL EXCESS = 1.45

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
994.	12.60	(CFS)	177.	56.	56.	56.
		(INCHES)	1.371	1.440	1.440	1.440
		(AC-FT)	88.	92.	92.	92.

CUMULATIVE AREA = 1.20 SQ MI

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HYDROGRAPH AT STATION 60S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.11, TOTAL EXCESS = 1.40

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
964.	12.60	(CFS)	171.	54.	54.	54.
		(INCHES)	1.325	1.393	1.393	1.393
		(AC-FT)	85.	89.	89.	89.

CUMULATIVE AREA = 1.20 SQ MI

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INTERPOLATED HYDROGRAPH AT 60S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1084.	12.60	(CFS)	195.	62.	62.	62.
		(INCHES)	1.508	1.582	1.582	1.582
		(AC-FT)	97.	101.	101.	101.

CUMULATIVE AREA = 1.20 SQ MI

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          *            *
102 KK    *    65RET   *
          *            *
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ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
SOURCE: SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.

HYDROGRAPH ROUTING DATA

105 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	STOR	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

106 SV	STORAGE	.0	2.0	7.0	24.0	43.0	67.0	95.0	127.0
107 SE	ELEVATION	15.00	16.00	17.00	18.00	19.00	20.00	21.00	22.00

108 SL LOW-LEVEL OUTLET

ELEVL	15.00	ELEVATION AT CENTER OF OUTLET
CAREA	9.62	CROSS-SECTIONAL AREA
COQL	.60	COEFFICIENT
EXPL	.50	EXPONENT OF HEAD

109 SS SPILLWAY

CREL	21.90	SPILLWAY CREST ELEVATION
SPWID	50.00	SPILLWAY WIDTH
COQW	3.00	WEIR COEFFICIENT
EXPW	1.50	EXPONENT OF HEAD

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COMPUTED OUTFLOW-ELEVATION DATA

OUTFLOW	.00	59.88	63.93	68.58	73.95	80.24	87.70	96.68	107.72	121.60
ELEVATION	15.00	16.67	16.91	17.19	17.55	18.00	18.59	19.36	20.41	21.90
OUTFLOW	121.68	121.80	122.00	122.30	122.72	123.27	123.98	124.86	125.93	127.22
ELEVATION	21.90	21.91	21.91	21.92	21.93	21.94	21.95	21.97	21.98	22.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	2.00	5.37	6.54	7.00	10.31	16.39	24.00	35.19	43.00
OUTFLOW	.00	46.29	59.88	63.93	65.47	68.58	73.95	80.18	87.70	92.58
ELEVATION	15.00	16.00	16.67	16.91	17.00	17.19	17.55	18.00	18.59	19.00
STORAGE	51.69	67.00	78.61	95.00	123.80	124.28	124.81	125.15	125.54	125.98
OUTFLOW	96.68	103.51	107.72	113.39	121.60	122.00	122.72	123.27	123.98	124.86
ELEVATION	19.36	20.00	20.41	21.00	21.90	21.91	21.93	21.94	21.95	21.97
STORAGE	126.46	127.00								
OUTFLOW	125.93	127.22								
ELEVATION	21.98	22.00								

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HYDROGRAPH AT STATION 65RET
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
107.	14.00	(CFS)	102.	42.	42.	42.
		(INCHES)	.785	1.067	1.067	1.067
		(AC-FT)	50.	68.	68.	68.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
77.	14.00	63.	22.	22.	22.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
20.36	14.00	19.82	16.84	16.84	16.84

CUMULATIVE AREA = 1.20 SQ MI

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HYDROGRAPH AT STATION 65RET
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
106.	14.00	(CFS)	101.	41.	41.	41.
		(INCHES)	.778	1.055	1.055	1.055
		(AC-FT)	50.	68.	68.	68.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
75.	14.00	61.	21.	21.	21.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
20.27	14.00	19.73	16.80	16.80	16.80

CUMULATIVE AREA = 1.20 SQ MI

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HYDROGRAPH AT STATION 65RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
105.	14.00	(CFS)	99.	41.	41.	41.
		(INCHES)	.769	1.043	1.043	1.043
		(AC-FT)	49.	67.	67.	67.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
72.	14.00	58.	20.	20.	20.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
20.18	14.00	19.63	16.76	16.76	16.76

CUMULATIVE AREA = 1.20 SQ MI

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HYDROGRAPH AT STATION 65RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
104.	13.93	(CFS)	97.	40.	40.	40.
		(INCHES)	.753	1.018	1.018	1.018
		(AC-FT)	48.	65.	65.	65.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
67.	13.93	54.	19.	19.	19.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
20.00	13.93	19.44	16.68	16.68	16.68

CUMULATIVE AREA = 1.20 SQ MI

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HYDROGRAPH AT STATION 65RET
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
102.	13.93	(CFS)	96.	39.	39.	39.
		(INCHES)	.744	1.005	1.005	1.005
		(AC-FT)	48.	64.	64.	64.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE		
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
65.	13.93	51.	18.	18.	18.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE		
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
19.90	13.93	19.33	16.64	16.64	16.64

CUMULATIVE AREA = 1.20 SQ MI

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INTERPOLATED HYDROGRAPH AT 65RET

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
106.	14.00	(CFS)	101.	41.	41.	41.
		(INCHES)	.779	1.057	1.057	1.057
		(AC-FT)	50.	68.	68.	68.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE		
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
65.	13.93	51.	18.	18.	18.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE		
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
19.90	13.93	19.33	16.64	16.64	16.64

CUMULATIVE AREA = 1.20 SQ MI

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110 KK        *     70R    *
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ROUTE 65RET TO CP OF 35S ALONG NATURAL CHANNEL

HYDROGRAPH ROUTING DATA

112 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

113 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	10000.	REACH LENGTH
SEL	.0090	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
115 RY	ELEVATION	6.00	5.00	3.00	.00	.00	3.00	5.00	6.00
114 RX	DISTANCE	.00	100.00	200.00	215.00	230.00	245.00	345.00	445.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	1.20	2.63	4.29	6.18	8.30	10.65	13.22	16.03	19.06
OUTFLOW	.00	10.74	35.61	73.25	123.95	188.29	267.02	360.92	470.79	597.43
ELEVATION	.00	.32	.63	.95	1.26	1.58	1.89	2.21	2.53	2.84
STORAGE	22.58	28.13	35.97	46.10	58.52	73.23	90.26	111.07	136.47	166.44
OUTFLOW	758.20	966.16	1221.07	1534.54	1916.63	2376.47	2910.69	3501.93	4234.83	5123.08
ELEVATION	3.16	3.47	3.79	4.11	4.42	4.74	5.05	5.37	5.68	6.00

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HYDROGRAPH AT STATION 70R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
107.	14.47	(CFS)	101.	39.	39.	39.
		(INCHES)	.784	.991	.991	.991
		(AC-FT)	50.	64.	64.	64.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	14.40	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.16	14.47	1.12	.47	.47	.47

CUMULATIVE AREA = 1.20 SQ MI

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HYDROGRAPH AT STATION 70R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
106.	14.47	(CFS)	100.	38.	38.	38.
		(INCHES)	.776	.980	.980	.980
		(AC-FT)	50.	63.	63.	63.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	14.33	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR

1.15	14.47	1.12	.47	.47	.47

CUMULATIVE AREA = 1.20 SQ MI

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HYDROGRAPH AT STATION 70R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
105.	14.47	(CFS)	99.	38.	38.	38.
		(INCHES)	.768	.968	.968	.968
		(AC-FT)	49.	62.	62.	62.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	14.33	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.15	14.47	1.11	.47	.47	.47

CUMULATIVE AREA = 1.20 SQ MI

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HYDROGRAPH AT STATION 70R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
103.	14.47	(CFS)	97.	37.	37.	37.
		(INCHES)	.752	.945	.945	.945
		(AC-FT)	48.	61.	61.	61.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	14.33	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.14	14.47	1.10	.46	.46	.46

CUMULATIVE AREA = 1.20 SQ MI

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HYDROGRAPH AT STATION 70R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
102.	14.40	(CFS)	96.	36.	36.	36.
		(INCHES)	.743	.933	.933	.933
		(AC-FT)	48.	60.	60.	60.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	14.33	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR

1.13	14.40		1.09	.45	.45	.45

CUMULATIVE AREA = 1.20 SQ MI

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INTERPOLATED HYDROGRAPH AT 70R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
106.	14.47	(CFS)	101.	38.	38.	38.
		(INCHES)	.777	.981	.981	.981
		(AC-FT)	50.	63.	63.	63.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	14.33	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.13	14.40	1.09	.45	.45	.45

CUMULATIVE AREA = 1.20 SQ MI

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          *            *
116 KK    *      75C   *
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COMBINE 30R, 35S, 50R, 55S AND 70R AT CP OF 35S

118 HC HYDROGRAPH COMBINATION
ICOMP 5 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 75C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2850.	12.67	(CFS)	673.	229.	229.	229.
		(INCHES)	.953	1.076	1.076	1.076
		(AC-FT)	333.	377.	377.	377.

CUMULATIVE AREA = 6.56 SQ MI

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HYDROGRAPH AT STATION 75C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2759.	12.67	(CFS)	654.	223.	223.	223.

(INCHES)	.928	1.049	1.049	1.049
(AC-FT)	325.	367.	367.	367.

CUMULATIVE AREA = 6.56 SQ MI

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HYDROGRAPH AT STATION 75C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2670.	12.67	(CFS)	637.	217.	217.	217.
		(INCHES)	.902	1.022	1.022	1.022
		(AC-FT)	316.	358.	358.	358.

CUMULATIVE AREA = 6.56 SQ MI

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HYDROGRAPH AT STATION 75C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2504.	12.67	(CFS)	604.	206.	206.	206.
		(INCHES)	.856	.972	.972	.972
		(AC-FT)	299.	340.	340.	340.

CUMULATIVE AREA = 6.56 SQ MI

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HYDROGRAPH AT STATION 75C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2416.	12.67	(CFS)	587.	201.	201.	201.
		(INCHES)	.831	.946	.946	.946
		(AC-FT)	291.	331.	331.	331.

CUMULATIVE AREA = 6.56 SQ MI

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INTERPOLATED HYDROGRAPH AT 75C

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2701.	12.67	(CFS)	643.	219.	219.	219.
		(INCHES)	.911	1.032	1.032	1.032
		(AC-FT)	319.	361.	361.	361.

CUMULATIVE AREA = 6.56 SQ MI

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          *            *
119 KK    *     80RET  *
          *            *
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                    ROUTE FLOW THROUGH DETENTION BEHIND PINNACLE PEAK ROAD CULVERTS
                    SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.

               HYDROGRAPH ROUTING DATA

122 RS           STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

123 SV             STORAGE         .0        .1       1.2       9.1      35.6      65.0      94.5     139.0

124 SE             ELEVATION     11.00     12.00     14.00     16.00     18.00     19.00     20.00     21.00

125 SQ             DISCHARGE        0.       54.      254.      528.      936.     2344.     5278.    10401.

                                                                  ***

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO       54.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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

                       HYDROGRAPH AT STATION    80RET
                      TRANSPOSITION AREA       .0 SQ MI

 PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR        24-HR        72-HR      19.93-HR
    2311.     12.93       (CFS)       672.         228.         228.         228.
                          (INCHES)    .952        1.074        1.074        1.074
                          (AC-FT)     333.         376.         376.         376.

PEAK STORAGE   TIME                            MAXIMUM AVERAGE STORAGE
  (AC-FT)      (HR)                  6-HR        24-HR        72-HR      19.93-HR
      64.     12.93                   17.           5.           5.           5.

 PEAK STAGE    TIME                            MAXIMUM AVERAGE STAGE
   (FEET)      (HR)                  6-HR        24-HR        72-HR      19.93-HR
    18.98     12.93                 15.60        12.72        12.72        12.72

                       CUMULATIVE AREA =    6.56 SQ MI

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

                       HYDROGRAPH AT STATION    80RET
                      TRANSPOSITION AREA      3.0 SQ MI

 PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR        24-HR        72-HR      19.93-HR
    2231.     12.93       (CFS)       654.         222.         222.         222.
                          (INCHES)    .927        1.047        1.047        1.047
                          (AC-FT)     324.         366.         366.         366.

PEAK STORAGE   TIME                            MAXIMUM AVERAGE STORAGE
  (AC-FT)      (HR)                  6-HR        24-HR        72-HR      19.93-HR
      63.     12.93                   16.           5.           5.           5.
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PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.92	12.93		15.56	12.70	12.70	12.70

CUMULATIVE AREA = 6.56 SQ MI

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HYDROGRAPH AT STATION 80RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2152.	12.93	(CFS)	636.	217.	217.	217.
		(INCHES)	.902	1.020	1.020	1.020
		(AC-FT)	315.	357.	357.	357.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
61.	12.93	16.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.86	12.93	15.51	12.69	12.69	12.69

CUMULATIVE AREA = 6.56 SQ MI

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HYDROGRAPH AT STATION 80RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2006.	12.93	(CFS)	603.	206.	206.	206.
		(INCHES)	.855	.970	.970	.970
		(AC-FT)	299.	339.	339.	339.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
58.	12.93	15.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.76	12.93	15.43	12.66	12.66	12.66

CUMULATIVE AREA = 6.56 SQ MI

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HYDROGRAPH AT STATION 80RET
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1925.	12.93	(CFS)	586.	200.	200.	200.
		(INCHES)	.831	.943	.943	.943
		(AC-FT)	291.	330.	330.	330.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
56.	12.93	14.	4.	4.	4.

PEAK STAGE	TIME			MAXIMUM AVERAGE STAGE		
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.70	12.93		15.39	12.64	12.64	12.64

CUMULATIVE AREA = 6.56 SQ MI

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INTERPOLATED HYDROGRAPH AT 80RET

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2180.	12.93	(CFS)	642.	219.	219.	219.
		(INCHES)	.911	1.029	1.029	1.029
		(AC-FT)	319.	360.	360.	360.

PEAK STORAGE	TIME			MAXIMUM AVERAGE STORAGE		
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
56.	12.93		14.	4.	4.	4.

PEAK STAGE	TIME			MAXIMUM AVERAGE STAGE		
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.70	12.93		15.39	12.64	12.64	12.64

CUMULATIVE AREA = 6.56 SQ MI

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126 KK    *     85R    *
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ROUTE 80RET TO CP OF 90S ALONG NATURAL CHANNEL

HYDROGRAPH ROUTING DATA

128 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

129 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	2000.	REACH LENGTH
SEL	.0050	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL	-------	+ --- RIGHT OVERBANK ---		
131 RY	ELEVATION	6.00	5.00	4.00	.00	.00	4.00	5.00	7.00
130 RX	DISTANCE	.00	50.00	150.00	165.00	175.00	190.00	240.00	250.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.19	.43	.72	1.05	1.43	1.86	2.33	2.85	3.42
OUTFLOW	.00	6.98	23.45	48.94	83.92	129.07	185.12	252.78	332.80	425.89
ELEVATION	.00	.37	.74	1.11	1.47	1.84	2.21	2.58	2.95	3.32
STORAGE	4.03	4.70	5.98	8.19	11.28	14.81	18.69	22.83	27.01	31.22
OUTFLOW	532.76	658.36	836.57	1070.86	1390.67	1805.25	2302.96	2915.27	3622.70	4408.66
ELEVATION	3.68	4.05	4.42	4.79	5.16	5.53	5.89	6.26	6.63	7.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 23. TO 4409.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 85R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2305.	13.00	(CFS)	672.	227.	227.	227.
		(INCHES)	.952	1.068	1.068	1.068
		(AC-FT)	333.	374.	374.	374.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
4.	13.00	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
5.90	13.00	3.53	1.46	1.46	1.46

CUMULATIVE AREA = 6.56 SQ MI

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HYDROGRAPH AT STATION 85R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2223.	13.00	(CFS)	654.	221.	221.	221.
		(INCHES)	.927	1.041	1.041	1.041
		(AC-FT)	324.	364.	364.	364.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
4.	13.00	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
5.84	13.00	3.50	1.45	1.45	1.45

CUMULATIVE AREA = 6.56 SQ MI

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HYDROGRAPH AT STATION 85R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2143.	13.00	(CFS)	636.	215.	215.	215.
		(INCHES)	.901	1.014	1.014	1.014

		(AC-FT)	315.	355.	355.	355.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	13.00	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
5.78	13.00	3.47	1.43	1.43	1.43

CUMULATIVE AREA = 6.56 SQ MI

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HYDROGRAPH AT STATION 85R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1995.	13.00	(CFS)	603.	205.	205.	205.
		(INCHES)	.855	.964	.964	.964
		(AC-FT)	299.	337.	337.	337.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	13.00	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
5.67	13.00	3.42	1.41	1.41	1.41

CUMULATIVE AREA = 6.56 SQ MI

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HYDROGRAPH AT STATION 85R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1913.	13.00	(CFS)	586.	199.	199.	199.
		(INCHES)	.831	.938	.938	.938
		(AC-FT)	291.	328.	328.	328.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	13.00	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
5.61	13.00	3.39	1.39	1.39	1.39

CUMULATIVE AREA = 6.56 SQ MI

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INTERPOLATED HYDROGRAPH AT 85R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2171.	13.00	(CFS)	642.	217.	217.	217.
		(INCHES)	.910	1.023	1.023	1.023

	(AC-FT)	318.	358.	358.	358.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.	13.00	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
5.61	13.00	3.39	1.39	1.39	1.39

CUMULATIVE AREA = 6.56 SQ MI

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132 KK    *       90S  *
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SUB-BASIN 90

SUBBASIN RUNOFF DATA

134 BA SUBBASIN CHARACTERISTICS

TAREA	1.23	SUBBASIN AREA

135 LG GREEN AND AMPT LOSS RATE

STRTL	.35	STARTING LOSS
DTH	.32	MOISTURE DEFICIT
PSIF	5.30	WETTING FRONT SUCTION
XKSAT	.35	HYDRAULIC CONDUCTIVITY
RTIMP	1.00	PERCENT IMPERVIOUS AREA

136 UC CLARK UNITGRAPH

TC	1.10	TIME OF CONCENTRATION
R	.74	STORAGE COEFFICIENT

137 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
100.0									

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= 1.10 HR, R= .74 HR

SNYDER TP= .92 HR, CP= .77

UNIT HYDROGRAPH

69 END-OF-PERIOD ORDINATES

9.	26.	38.	50.	63.	80.	103.	136.	209.	326.
472.	606.	676.	689.	671.	643.	606.	560.	512.	467.
427.	390.	356.	325.	297.	272.	248.	227.	207.	189.
173.	158.	144.	132.	120.	110.	100.	92.	84.	76.
70.	64.	58.	53.	49.	44.	41.	37.	34.	31.
28.	26.	24.	22.	20.	18.	16.	15.	14.	13.
11.	10.	10.	9.	8.	7.	7.	6.	6.	

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HYDROGRAPH AT STATION 90S

TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.79, TOTAL EXCESS = 1.11

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
686.	12.73	(CFS)	144.	44.	44.	44.
		(INCHES)	1.092	1.101	1.101	1.101
		(AC-FT)	71.	72.	72.	72.

CUMULATIVE AREA = 1.23 SQ MI

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HYDROGRAPH AT STATION 90S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.75, TOTAL EXCESS = 1.07

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
662.	12.73	(CFS)	139.	42.	42.	42.
		(INCHES)	1.053	1.062	1.062	1.062
		(AC-FT)	69.	70.	70.	70.

CUMULATIVE AREA = 1.23 SQ MI

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HYDROGRAPH AT STATION 90S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.71, TOTAL EXCESS = 1.03

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
638.	12.73	(CFS)	134.	41.	41.	41.
		(INCHES)	1.015	1.023	1.023	1.023
		(AC-FT)	66.	67.	67.	67.

CUMULATIVE AREA = 1.23 SQ MI

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HYDROGRAPH AT STATION 90S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.63, TOTAL EXCESS = .96

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
593.	12.73	(CFS)	124.	38.	38.	38.
		(INCHES)	.941	.950	.950	.950
		(AC-FT)	62.	62.	62.	62.

CUMULATIVE AREA = 1.23 SQ MI

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HYDROGRAPH AT STATION 90S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.59, TOTAL EXCESS = .92

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
568.	12.73	(CFS)	119.	36.	36.	36.
		(INCHES)	.902	.910	.910	.910
		(AC-FT)	59.	60.	60.	60.

CUMULATIVE AREA = 1.23 SQ MI

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INTERPOLATED HYDROGRAPH AT 90S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
666.	12.73	(CFS)	140.	42.	42.	42.
		(INCHES)	1.059	1.068	1.068	1.068
		(AC-FT)	69.	70.	70.	70.

CUMULATIVE AREA = 1.23 SQ MI

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          *             *
139 KK    *      95S    *
          *             *
          ***************
                      SUB-BASIN 95

             SUBBASIN RUNOFF DATA

141 BA         SUBBASIN CHARACTERISTICS
                     TAREA          .97  SUBBASIN AREA

142 LG         GREEN AND AMPT LOSS RATE
                     STRTL          .20  STARTING LOSS
                       DTH          .27  MOISTURE DEFICIT
                      PSIF         7.50  WETTING FRONT SUCTION
                     XKSAT          .15  HYDRAULIC CONDUCTIVITY
                     RTIMP         5.00  PERCENT IMPERVIOUS AREA

143 UC         CLARK UNITGRAPH
                        TC          .85  TIME OF CONCENTRATION
                         R          .46  STORAGE COEFFICIENT

144 UA         ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                     .0      3.0      5.0      8.0     12.0     20.0     43.0     75.0     90.0     96.0
                  100.0
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UNIT HYDROGRAPH PARAMETERS

CLARK TC= .85 HR, R= .46 HR

SNYDER TP= .69 HR, CP= .86

UNIT HYDROGRAPH

45 END-OF-PERIOD ORDINATES

15.	39.	57.	78.	103.	147.	251.	434.	659.	798.
803.	758.	694.	615.	532.	460.	397.	343.	297.	256.
222.	192.	166.	143.	124.	107.	92.	80.	69.	60.

52. 45. 39. 33. 29. 25. 22. 19. 16. 14.
12. 10. 9. 8. 7.

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HYDROGRAPH AT STATION 95S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.34, TOTAL EXCESS = 1.56

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
936.	12.53	(CFS)	157.	49.	49.	49.
		(INCHES)	1.504	1.551	1.551	1.551
		(AC-FT)	78.	80.	80.	80.

CUMULATIVE AREA = .97 SQ MI

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HYDROGRAPH AT STATION 95S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.30, TOTAL EXCESS = 1.52

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
911.	12.53	(CFS)	152.	47.	47.	47.
		(INCHES)	1.459	1.506	1.506	1.506
		(AC-FT)	75.	78.	78.	78.

CUMULATIVE AREA = .97 SQ MI

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HYDROGRAPH AT STATION 95S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.27, TOTAL EXCESS = 1.47

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
886.	12.53	(CFS)	147.	46.	46.	46.
		(INCHES)	1.415	1.460	1.460	1.460
		(AC-FT)	73.	75.	75.	75.

CUMULATIVE AREA = .97 SQ MI

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HYDROGRAPH AT STATION 95S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.21, TOTAL EXCESS = 1.38

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
839.	12.53	(CFS)	139.	43.	43.	43.
		(INCHES)	1.331	1.375	1.375	1.375
		(AC-FT)	69.	71.	71.	71.

CUMULATIVE AREA = .97 SQ MI

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HYDROGRAPH AT STATION 95S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.17, TOTAL EXCESS = 1.34

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
813.	12.53	(CFS)	134.	42.	42.	42.
		(INCHES)	1.286	1.329	1.329	1.329
		(AC-FT)	66.	69.	69.	69.

CUMULATIVE AREA = .97 SQ MI

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INTERPOLATED HYDROGRAPH AT 95S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
916.	12.53	(CFS)	153.	47.	47.	47.
		(INCHES)	1.468	1.515	1.515	1.515
		(AC-FT)	76.	78.	78.	78.

CUMULATIVE AREA = .97 SQ MI

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          *            *
146 KK    *    100RET  *
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ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
SOURCE: SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.

HYDROGRAPH ROUTING DATA

149 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	STOR	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

150 SV	STORAGE	.0	2.0	9.0	30.0	55.0	85.0	120.0	160.0
151 SE	ELEVATION	15.00	16.00	17.00	18.00	19.00	20.00	21.00	22.00

152 SL LOW-LEVEL OUTLET

ELEVL	15.00	ELEVATION AT CENTER OF OUTLET
CAREA	7.07	CROSS-SECTIONAL AREA
COQL	.60	COEFFICIENT
EXPL	.50	EXPONENT OF HEAD

153 SS SPILLWAY

CREL	21.90	SPILLWAY CREST ELEVATION
SPWID	50.00	SPILLWAY WIDTH
COQW	3.00	WEIR COEFFICIENT

EXPW 1.50 EXPONENT OF HEAD

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COMPUTED OUTFLOW-ELEVATION DATA

OUTFLOW	.00	40.91	43.89	47.33	51.35	56.13	61.88	68.95	77.84	89.37
ELEVATION	15.00	16.45	16.66	16.94	17.28	17.72	18.31	19.11	20.24	21.90
OUTFLOW	89.42	89.51	89.68	89.94	90.33	90.85	91.53	92.40	93.46	94.75
ELEVATION	21.90	21.91	21.91	21.92	21.93	21.94	21.95	21.97	21.98	22.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	2.00	5.12	6.65	8.55	9.00	14.85	24.16	30.00	37.71
OUTFLOW	.00	34.02	40.91	43.89	47.33	48.11	51.35	56.13	58.93	61.88
ELEVATION	15.00	16.00	16.45	16.66	16.94	17.00	17.28	17.72	18.00	18.31
STORAGE	55.00	58.22	85.00	93.23	120.00	156.00	156.53	157.19	157.62	158.12
OUTFLOW	68.04	68.95	76.07	77.84	83.33	89.37	89.68	90.33	90.85	91.53
ELEVATION	19.00	19.11	20.00	20.24	21.00	21.90	21.91	21.93	21.94	21.95
STORAGE	158.68	159.31	160.00							
OUTFLOW	92.40	93.46	94.75							
ELEVATION	21.97	21.98	22.00							

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HYDROGRAPH AT STATION 100RET
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
70.	13.93	(CFS)	67.	27.	27.	27.
		(INCHES)	.648	.874	.874	.874
		(AC-FT)	33.	45.	45.	45.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
64.	13.93	54.	19.	19.	19.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
19.30	13.93	18.95	16.51	16.51	16.51

CUMULATIVE AREA = .97 SQ MI

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HYDROGRAPH AT STATION 100RET
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
70.	13.93	(CFS)	67.	27.	27.	27.
		(INCHES)	.642	.865	.865	.865
		(AC-FT)	33.	45.	45.	45.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
62.	13.93	52.	19.	19.	19.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR

19.23	13.93		18.87	16.49	16.49	16.49

CUMULATIVE AREA = .97 SQ MI

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HYDROGRAPH AT STATION 100RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
69.	13.93	(CFS)	66.	27.	27.	27.
		(INCHES)	.636	.856	.856	.856
		(AC-FT)	33.	44.	44.	44.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
60.	13.93	50.	18.	18.	18.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
19.16	13.93	18.80	16.46	16.46	16.46

CUMULATIVE AREA = .97 SQ MI

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HYDROGRAPH AT STATION 100RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
68.	13.87	(CFS)	65.	26.	26.	26.
		(INCHES)	.624	.838	.838	.838
		(AC-FT)	32.	43.	43.	43.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
56.	13.87	46.	16.	16.	16.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
19.02	13.87	18.65	16.40	16.40	16.40

CUMULATIVE AREA = .97 SQ MI

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HYDROGRAPH AT STATION 100RET
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
68.	13.87	(CFS)	64.	26.	26.	26.
		(INCHES)	.617	.828	.828	.828
		(AC-FT)	32.	43.	43.	43.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
54.	13.87	44.	16.	16.	16.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR

18.95	13.87		18.57	16.37	16.37	16.37

CUMULATIVE AREA = .97 SQ MI

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INTERPOLATED HYDROGRAPH AT 100RET

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
70.	13.93	(CFS)	67.	27.	27.	27.
		(INCHES)	.643	.866	.866	.866
		(AC-FT)	33.	45.	45.	45.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
54.	13.87		44.	16.	16.	16.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.95	13.87		18.57	16.37	16.37	16.37

CUMULATIVE AREA = .97 SQ MI

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154 KK   *     105R   *
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ROUTE 100RET TO CP OF 90S ALONG NATURAL CHANNEL

HYDROGRAPH ROUTING DATA

156 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

157 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	13000.	REACH LENGTH
SEL	.0080	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK --- +		------ MAIN CHANNEL -------		+ --- RIGHT OVERBANK ---			
159 RY	ELEVATION	3.00	2.00	1.00	.00	.00	1.00	2.00	3.00
158 RX	DISTANCE	.00	5.00	155.00	160.00	170.00	175.00	325.00	330.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.51	1.09	1.75	2.48	3.29	4.17	5.60	9.15	14.93
OUTFLOW	.00	2.11	6.90	14.01	23.43	35.18	49.36	68.80	99.16	146.19

ELEVATION	.00	.16	.32	.47	.63	.79	.95	1.11	1.26	1.42
STORAGE	22.94	33.18	45.65	60.24	75.38	90.60	105.89	121.25	136.69	152.20
OUTFLOW	215.09	310.40	436.30	607.25	834.84	1095.37	1386.88	1707.85	2057.04	2433.44
ELEVATION	1.58	1.74	1.89	2.05	2.21	2.37	2.53	2.68	2.84	3.00

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HYDROGRAPH AT STATION 105R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
70.	15.53	(CFS)	67.	24.	24.	24.
		(INCHES)	.645	.775	.775	.775
		(AC-FT)	33.	40.	40.	40.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	15.53	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.11	15.53	1.09	.45	.45	.45

CUMULATIVE AREA = .97 SQ MI

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HYDROGRAPH AT STATION 105R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
69.	15.47	(CFS)	67.	24.	24.	24.
		(INCHES)	.639	.767	.767	.767
		(AC-FT)	33.	40.	40.	40.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	15.27	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.11	15.47	1.09	.45	.45	.45

CUMULATIVE AREA = .97 SQ MI

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HYDROGRAPH AT STATION 105R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
69.	15.27	(CFS)	66.	24.	24.	24.
		(INCHES)	.633	.759	.759	.759
		(AC-FT)	33.	39.	39.	39.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	15.07	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.11	15.27		1.08	.45	.45	.45

CUMULATIVE AREA = .97 SQ MI

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HYDROGRAPH AT STATION 105R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
68.	15.00	(CFS)	65.	23.	23.	23.
		(INCHES)	.620	.744	.744	.744
		(AC-FT)	32.	38.	38.	38.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	14.93	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.10	15.00	1.07	.44	.44	.44

CUMULATIVE AREA = .97 SQ MI

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HYDROGRAPH AT STATION 105R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
67.	15.00	(CFS)	64.	23.	23.	23.
		(INCHES)	.614	.735	.735	.735
		(AC-FT)	32.	38.	38.	38.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	15.00	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.09	15.00	1.07	.44	.44	.44

CUMULATIVE AREA = .97 SQ MI

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INTERPOLATED HYDROGRAPH AT 105R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
70.	15.47	(CFS)	67.	24.	24.	24.
		(INCHES)	.640	.769	.769	.769
		(AC-FT)	33.	40.	40.	40.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	15.00	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.09	15.00		1.07	.44	.44	.44

CUMULATIVE AREA = .97 SQ MI

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160 KK    *     110C   *
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COMBINE 85R, 90S AND 105R AT CP OF 90S

162 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 110C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2900.	12.93	(CFS)	871.	295.	295.	295.
		(INCHES)	.925	1.040	1.040	1.040
		(AC-FT)	432.	486.	486.	486.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 110C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2798.	13.00	(CFS)	848.	287.	287.	287.
		(INCHES)	.900	1.014	1.014	1.014
		(AC-FT)	420.	473.	473.	473.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 110C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2698.	13.00	(CFS)	824.	280.	280.	280.
		(INCHES)	.876	.987	.987	.987
		(AC-FT)	409.	461.	461.	461.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 110C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2513.	13.00	(CFS)	781.	266.	266.	266.
		(INCHES)	.830	.938	.938	.938
		(AC-FT)	387.	438.	438.	438.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 110C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2411.	13.00	(CFS)	758.	258.	258.	258.
		(INCHES)	.805	.912	.912	.912
		(AC-FT)	376.	426.	426.	426.

CUMULATIVE AREA = 8.76 SQ MI

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INTERPOLATED HYDROGRAPH AT 110C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2709.	13.00	(CFS)	827.	281.	281.	281.
		(INCHES)	.878	.990	.990	.990
		(AC-FT)	410.	462.	462.	462.

CUMULATIVE AREA = 8.76 SQ MI

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163 KK    *   115RET   *
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ROUTE FLOW THROUGH DETENTION BEHIND 2-8X7 RCBC AT I-17
SOURCE: SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.

HYDROGRAPH ROUTING DATA

166 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	STOR	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

167 SV	STORAGE	.0	.0	.2	1.2	8.4	17.0	30.0	49.0	67.0	106.0

168 SE	ELEVATION	3.80	4.00	6.00	8.00	10.00	11.00	12.00	13.00	13.70	15.00
169 SQ	DISCHARGE	0.	1.	176.	414.	680.	880.	1091.	1593.	2678.	7306.

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*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 0. TO 176.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 115RET
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2501.	13.27	(CFS)	871.	294.	294.	294.
		(INCHES)	.925	1.039	1.039	1.039
		(AC-FT)	432.	485.	485.	485.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
64.	13.27	19.	6.	6.	6.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
13.59	13.27	9.75	6.05	6.05	6.05

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 115RET
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2400.	13.27	(CFS)	848.	287.	287.	287.
		(INCHES)	.900	1.012	1.012	1.012
		(AC-FT)	420.	473.	473.	473.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
62.	13.27	18.	6.	6.	6.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
13.52	13.27	9.70	6.02	6.02	6.02

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 115RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2297.	13.27	(CFS)	824.	279.	279.	279.
		(INCHES)	.875	.986	.986	.986
		(AC-FT)	409.	460.	460.	460.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
61.	13.27		18.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
13.45	13.27		9.64	6.00	6.00	6.00

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 115RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2099.	13.27	(CFS)	781.	265.	265.	265.
		(INCHES)	.829	.937	.937	.937
		(AC-FT)	387.	437.	437.	437.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
57.	13.27		17.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
13.33	13.27		9.53	5.96	5.96	5.96

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 115RET
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1998.	13.33	(CFS)	758.	258.	258.	258.
		(INCHES)	.805	.910	.910	.910
		(AC-FT)	376.	425.	425.	425.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
56.	13.33		16.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
13.26	13.33		9.46	5.94	5.94	5.94

CUMULATIVE AREA = 8.76 SQ MI

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INTERPOLATED HYDROGRAPH AT 115RET

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2309.	13.27	(CFS)	827.	280.	280.	280.
		(INCHES)	.878	.989	.989	.989
		(AC-FT)	410.	462.	462.	462.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
56.	13.33	16.	5.	5.	5.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
13.26	13.33	9.46	5.94	5.94	5.94

CUMULATIVE AREA = 8.76 SQ MI

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170 KK    *     120D   *
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DIVERT OVERFLOWS SOUTH TO SINGLE CULVERT AT MH PARK, & WEST ON TO I-17
DQ IS Q THROUGH 2-8X7 CULVERT (MAX 1312 CFS); DI IS TOTAL Q
SOURCE: SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.

DT DIVERSION
ISTAD 125D DIVERSION HYDROGRAPH IDENTIFICATION

DI	INFLOW	1.00	880.00	1091.00	1593.00	2678.00	3746.00
DQ	DIVERTED FLOW	1.00	880.00	1060.00	1184.00	1296.00	1312.00

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DIVERSION HYDROGRAPH 125D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1278.	13.27	(CFS)	697.	242.	242.	242.
		(INCHES)	.740	.854	.854	.854
		(AC-FT)	345.	399.	399.	399.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 120D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1223.	13.27	(CFS)	174.	52.	52.	52.
		(INCHES)	.185	.185	.185	.185
		(AC-FT)	86.	86.	86.	86.

CUMULATIVE AREA = 8.76 SQ MI

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DIVERSION HYDROGRAPH 125D

TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1267.	13.27	(CFS)	689.	239.	239.	239.
		(INCHES)	.731	.844	.844	.844
		(AC-FT)	341.	394.	394.	394.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 120D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1133.	13.27	(CFS)	159.	48.	48.	48.
		(INCHES)	.169	.169	.169	.169
		(AC-FT)	79.	79.	79.	79.

CUMULATIVE AREA = 8.76 SQ MI

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DIVERSION HYDROGRAPH 125D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1257.	13.27	(CFS)	680.	236.	236.	236.
		(INCHES)	.723	.833	.833	.833
		(AC-FT)	337.	389.	389.	389.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 120D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1041.	13.27	(CFS)	144.	43.	43.	43.
		(INCHES)	.153	.153	.153	.153
		(AC-FT)	71.	71.	71.	71.

CUMULATIVE AREA = 8.76 SQ MI

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DIVERSION HYDROGRAPH 125D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1236.	13.27	(CFS)	664.	230.	230.	230.
		(INCHES)	.706	.813	.813	.813
		(AC-FT)	329.	380.	380.	380.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 120D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
863.	13.27	(CFS)	117.	35.	35.	35.
		(INCHES)	.124	.124	.124	.124
		(AC-FT)	58.	58.	58.	58.

CUMULATIVE AREA = 8.76 SQ MI

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DIVERSION HYDROGRAPH 125D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1226.	13.33	(CFS)	655.	227.	227.	227.
		(INCHES)	.696	.802	.802	.802
		(AC-FT)	325.	374.	374.	374.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 120D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
772.	13.33	(CFS)	103.	31.	31.	31.
		(INCHES)	.109	.109	.109	.109
		(AC-FT)	51.	51.	51.	51.

CUMULATIVE AREA = 8.76 SQ MI

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INTERPOLATED DIVERSION HYDROGRAPH AT 125D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1258.	13.27	(CFS)	681.	236.	236.	236.
		(INCHES)	.724	.834	.834	.834
		(AC-FT)	338.	390.	390.	390.

CUMULATIVE AREA = 8.76 SQ MI

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INTERPOLATED HYDROGRAPH AT 120D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1051.	13.27	(CFS)	145.	44.	44.	44.
		(INCHES)	.154	.154	.154	.154

(AC-FT)	72.	72.	72.	72.	

CUMULATIVE AREA = 8.76 SQ MI

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          *            *
177 KK    *     130D   *
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SEPARATE OUT WEST OVERFLOWS ONTO THE FRONTAGE ROAD AND MAINLINE I-17
THESE FLOWS HEAD SOUTH AND EVENTUALLY ENTER THE DEER VALLEY INTERCHANGE
REMAINING FLOWS CONTINUE SOUTH TO 6X7 BOX CULVERT ON SCATTER WASH AT I-17
SOURCE: SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.

DT DIVERSION
ISTAD 135D DIVERSION HYDROGRAPH IDENTIFICATION

DI	INFLOW	31.00	409.00	1382.00	2434.00
DQ	DIVERTED FLOW	.00	.00	215.00	840.00

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DIVERSION HYDROGRAPH 135D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
180.	13.27	(CFS)	18.	5.	5.	5.
		(INCHES)	.019	.019	.019	.019
		(AC-FT)	9.	9.	9.	9.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 130D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1043.	13.27	(CFS)	157.	47.	47.	47.
		(INCHES)	.166	.166	.166	.166
		(AC-FT)	78.	78.	78.	78.

CUMULATIVE AREA = 8.76 SQ MI

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DIVERSION HYDROGRAPH 135D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
160.	13.27	(CFS)	15.	4.	4.	4.
		(INCHES)	.016	.016	.016	.016

	(AC-FT)	7.	7.	7.	7.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 130D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
973.	13.27	(CFS)	144.	43.	43.	43.
		(INCHES)	.153	.153	.153	.153
		(AC-FT)	71.	71.	71.	71.

CUMULATIVE AREA = 8.76 SQ MI

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DIVERSION HYDROGRAPH 135D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
140.	13.27	(CFS)	12.	4.	4.	4.
		(INCHES)	.013	.013	.013	.013
		(AC-FT)	6.	6.	6.	6.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 130D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
901.	13.27	(CFS)	132.	40.	40.	40.
		(INCHES)	.140	.140	.140	.140
		(AC-FT)	65.	65.	65.	65.

CUMULATIVE AREA = 8.76 SQ MI

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DIVERSION HYDROGRAPH 135D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
100.	13.27	(CFS)	8.	2.	2.	2.
		(INCHES)	.008	.008	.008	.008
		(AC-FT)	4.	4.	4.	4.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 130D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
763.	13.27	(CFS)	109.	33.	33.	33.
		(INCHES)	.116	.116	.116	.116
		(AC-FT)	54.	54.	54.	54.

CUMULATIVE AREA = 8.76 SQ MI

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DIVERSION HYDROGRAPH 135D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
80.	13.33	(CFS)	5.	2.	2.	2.
		(INCHES)	.006	.006	.006	.006
		(AC-FT)	3.	3.	3.	3.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 130D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
692.	13.33	(CFS)	97.	29.	29.	29.
		(INCHES)	.103	.103	.103	.103
		(AC-FT)	48.	48.	48.	48.

CUMULATIVE AREA = 8.76 SQ MI

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INTERPOLATED DIVERSION HYDROGRAPH AT 135D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
142.	13.27	(CFS)	12.	4.	4.	4.
		(INCHES)	.013	.013	.013	.013
		(AC-FT)	6.	6.	6.	6.

CUMULATIVE AREA = 8.76 SQ MI

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INTERPOLATED HYDROGRAPH AT 130D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
909.	13.27	(CFS)	133.	40.	40.	40.
		(INCHES)	.141	.141	.141	.141
		(AC-FT)	66.	66.	66.	66.

CUMULATIVE AREA = 8.76 SQ MI

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          *            *
185 KK    *      140S  *
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                    SUB-BASIN 140

               SUBBASIN RUNOFF DATA

187 BA            SUBBASIN CHARACTERISTICS
                       TAREA        1.23  SUBBASIN AREA

188 LG            GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .33  MOISTURE DEFICIT
                       PSIF        4.70  WETTING FRONT SUCTION
                      XKSAT         .43  HYDRAULIC CONDUCTIVITY
                      RTIMP        1.00  PERCENT IMPERVIOUS AREA

189 UC            CLARK UNITGRAPH
                         TC        1.38  TIME OF CONCENTRATION
                          R        1.07  STORAGE COEFFICIENT

190 UA            ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                     100.0
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UNIT HYDROGRAPH PARAMETERS

CLARK TC= 1.38 HR, R= 1.07 HR

SNYDER TP= 1.17 HR, CP= .71

UNIT HYDROGRAPH

99 END-OF-PERIOD ORDINATES

5.	15.	23.	29.	36.	44.	53.	63.	78.	99.
137.	199.	275.	363.	438.	479.	495.	496.	485.	472.
456.	434.	408.	383.	360.	338.	318.	299.	281.	264.
248.	233.	219.	206.	193.	182.	171.	160.	151.	142.
133.	125.	118.	111.	104.	98.	92.	86.	81.	76.
72.	67.	63.	59.	56.	52.	49.	46.	44.	41.
38.	36.	34.	32.	30.	28.	26.	25.	23.	22.
21.	19.	18.	17.	16.	15.	14.	13.	13.	12.
11.	10.	10.	9.	9.	8.	8.	7.	7.	6.
6.	6.	5.	5.	5.	4.	4.	4.	4.	

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HYDROGRAPH AT STATION 140S

TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.86, TOTAL EXCESS = 1.04

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
482.	12.93	(CFS)	135.	41.	41.	41.
		(INCHES)	1.018	1.032	1.032	1.032
		(AC-FT)	67.	68.	68.	68.

CUMULATIVE AREA = 1.23 SQ MI

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HYDROGRAPH AT STATION 140S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.82, TOTAL EXCESS = 1.00

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
463.	12.93	(CFS)	130.	40.	40.	40.
		(INCHES)	.979	.993	.993	.993
		(AC-FT)	64.	65.	65.	65.

CUMULATIVE AREA = 1.23 SQ MI

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HYDROGRAPH AT STATION 140S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.78, TOTAL EXCESS = .96

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
445.	12.93	(CFS)	125.	38.	38.	38.
		(INCHES)	.940	.954	.954	.954
		(AC-FT)	62.	63.	63.	63.

CUMULATIVE AREA = 1.23 SQ MI

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HYDROGRAPH AT STATION 140S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.71, TOTAL EXCESS = .88

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
410.	12.93	(CFS)	115.	35.	35.	35.
		(INCHES)	.867	.880	.880	.880
		(AC-FT)	57.	58.	58.	58.

CUMULATIVE AREA = 1.23 SQ MI

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HYDROGRAPH AT STATION 140S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.67, TOTAL EXCESS = .84

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
392.	12.93	(CFS)	110.	34.	34.	34.
		(INCHES)	.827	.840	.840	.840
		(AC-FT)	54.	55.	55.	55.

CUMULATIVE AREA = 1.23 SQ MI

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INTERPOLATED HYDROGRAPH AT 140S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
466.	12.93	(CFS)	131.	40.	40.	40.
		(INCHES)	.985	.999	.999	.999
		(AC-FT)	65.	66.	66.	66.

CUMULATIVE AREA = 1.23 SQ MI

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192 KK    *      145S  *
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SUB-BASIN 145

SUBBASIN RUNOFF DATA

194 BA SUBBASIN CHARACTERISTICS

TAREA	.38	SUBBASIN AREA

195 LG GREEN AND AMPT LOSS RATE

STRTL	.19	STARTING LOSS
DTH	.31	MOISTURE DEFICIT
PSIF	6.20	WETTING FRONT SUCTION
XKSAT	.27	HYDRAULIC CONDUCTIVITY
RTIMP	.00	PERCENT IMPERVIOUS AREA

196 UC CLARK UNITGRAPH

TC	.58	TIME OF CONCENTRATION
R	.35	STORAGE COEFFICIENT

197 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 3.0 5.0 8.0 12.0 20.0 43.0 75.0 90.0 96.0
100.0

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= .58 HR, R= .35 HR
SNYDER TP= .48 HR, CP= .82

UNIT HYDROGRAPH
34 END-OF-PERIOD ORDINATES

11.	28.	43.	70.	144.	292.	413.	425.	384.	328.
271.	224.	186.	154.	127.	105.	87.	72.	59.	49.
41.	34.	28.	23.	19.	16.	13.	11.	9.	7.
6.	5.	4.	3.						

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HYDROGRAPH AT STATION 145S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.71, TOTAL EXCESS = 1.19

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR

387.	12.33	(CFS)	49.	15.	15.	15.
		(INCHES)	1.181	1.181	1.181	1.181
		(AC-FT)	24.	24.	24.	24.

CUMULATIVE AREA = .38 SQ MI

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HYDROGRAPH AT STATION 145S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.67, TOTAL EXCESS = 1.15

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
376.	12.33	(CFS)	47.	14.	14.	14.
		(INCHES)	1.144	1.144	1.144	1.144
		(AC-FT)	23.	23.	23.	23.

CUMULATIVE AREA = .38 SQ MI

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HYDROGRAPH AT STATION 145S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.63, TOTAL EXCESS = 1.11

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
364.	12.33	(CFS)	46.	14.	14.	14.
		(INCHES)	1.107	1.107	1.107	1.107
		(AC-FT)	23.	23.	23.	23.

CUMULATIVE AREA = .38 SQ MI

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HYDROGRAPH AT STATION 145S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.55, TOTAL EXCESS = 1.04

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
342.	12.33	(CFS)	43.	13.	13.	13.
		(INCHES)	1.038	1.038	1.038	1.038
		(AC-FT)	21.	21.	21.	21.

CUMULATIVE AREA = .38 SQ MI

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HYDROGRAPH AT STATION 145S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.51, TOTAL EXCESS = 1.00

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
330.	12.33	(CFS)	41.	12.	12.	12.
		(INCHES)	1.000	1.000	1.000	1.000

(AC-FT)	20.	20.	20.	20.

CUMULATIVE AREA = .38 SQ MI

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INTERPOLATED HYDROGRAPH AT 145S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
380.	12.33	(CFS)	48.	14.	14.	14.
		(INCHES)	1.157	1.157	1.157	1.157
		(AC-FT)	24.	24.	24.	24.

CUMULATIVE AREA = .38 SQ MI

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199 KK

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* 150RET *
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ROUTE FLOW THROUGH DETENTION BEHIND CAP STRUCTURE
SOURCE: SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.

HYDROGRAPH ROUTING DATA

202 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	STOR	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

203 SV	STORAGE	.0	1.0	4.0	14.0	26.0	40.0	56.0	75.0
204 SE	ELEVATION	15.00	16.00	17.00	18.00	19.00	20.00	21.00	22.00

205 SL LOW-LEVEL OUTLET

ELEVL	15.00	ELEVATION AT CENTER OF OUTLET
CAREA	4.19	CROSS-SECTIONAL AREA
COQL	.16	COEFFICIENT
EXPL	.50	EXPONENT OF HEAD

206 SS SPILLWAY

CREL	21.90	SPILLWAY CREST ELEVATION
SPWID	50.00	SPILLWAY WIDTH
COQW	3.00	WEIR COEFFICIENT
EXPW	1.50	EXPONENT OF HEAD

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COMPUTED OUTFLOW-ELEVATION DATA

OUTFLOW	.00	5.71	6.17	6.71	7.35	8.13	9.10	10.32	11.93	14.12
ELEVATION	15.00	16.13	16.32	16.56	16.87	17.29	17.86	18.68	19.92	21.90
OUTFLOW	14.13	14.17	14.27	14.46	14.77	15.22	15.83	16.64	17.68	18.97
ELEVATION	21.90	21.90	21.91	21.92	21.93	21.94	21.95	21.96	21.98	22.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	1.00	1.38	1.95	2.67	3.61	4.00	6.87	12.62	14.00
OUTFLOW	.00	5.38	5.71	6.17	6.71	7.35	7.60	8.13	9.10	9.31
ELEVATION	15.00	16.00	16.13	16.32	16.56	16.87	17.00	17.29	17.86	18.00
STORAGE	22.21	26.00	38.88	40.00	56.00	73.10	73.42	73.80	74.04	74.32
OUTFLOW	10.32	10.75	11.93	12.02	13.17	14.12	14.46	15.22	15.83	16.64
ELEVATION	18.68	19.00	19.92	20.00	21.00	21.90	21.92	21.94	21.95	21.96
STORAGE	74.64	75.00								
OUTFLOW	17.68	18.97								
ELEVATION	21.98	22.00								

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HYDROGRAPH AT STATION 150RET
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
10.	13.67	(CFS)	10.	4.	4.	4.
		(INCHES)	.246	.323	.323	.323
		(AC-FT)	5.	7.	7.	7.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
23.	13.67	21.	8.	8.	8.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.71	13.67	18.56	16.38	16.38	16.38

CUMULATIVE AREA = .38 SQ MI

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HYDROGRAPH AT STATION 150RET
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
10.	13.67	(CFS)	10.	4.	4.	4.
		(INCHES)	.244	.320	.320	.320
		(AC-FT)	5.	7.	7.	7.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
22.	13.67	20.	7.	7.	7.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.65	13.67	18.50	16.36	16.36	16.36

CUMULATIVE AREA = .38 SQ MI

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HYDROGRAPH AT STATION 150RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR

10.	13.60	(CFS)	10.	4.	4.	4.
		(INCHES)	.242	.317	.317	.317
		(AC-FT)	5.	6.	6.	6.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
21.	13.67		19.	7.	7.	7.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.59	13.67		18.44	16.33	16.33	16.33

CUMULATIVE AREA = .38 SQ MI

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HYDROGRAPH AT STATION 150RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
10.	13.60	(CFS)	10.	4.	4.	4.
		(INCHES)	.238	.312	.312	.312
		(AC-FT)	5.	6.	6.	6.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
20.	13.67		18.	7.	7.	7.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.47	13.67		18.33	16.29	16.29	16.29

CUMULATIVE AREA = .38 SQ MI

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HYDROGRAPH AT STATION 150RET
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
10.	13.60	(CFS)	10.	4.	4.	4.
		(INCHES)	.236	.309	.309	.309
		(AC-FT)	5.	6.	6.	6.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
19.	13.67		17.	6.	6.	6.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.41	13.67		18.27	16.26	16.26	16.26

CUMULATIVE AREA = .38 SQ MI

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INTERPOLATED HYDROGRAPH AT 150RET

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR

10.	13.67	(CFS)	10.	4.	4.	4.
		(INCHES)	.245	.321	.321	.321
		(AC-FT)	5.	7.	7.	7.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
19.	13.67	17.	6.	6.	6.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.41	13.67	18.27	16.26	16.26	16.26

CUMULATIVE AREA = .38 SQ MI

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207 KK    *      155R  *
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ROUTE 150RET TO CP OF 140S ALONG NATURAL CHANNEL

HYDROGRAPH ROUTING DATA

209 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

210 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	15000.	REACH LENGTH
SEL	.0073	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---			+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
212 RY	ELEVATION	.00	5.00	3.00	.00	.00	3.00	5.00	6.00
211 RX	DISTANCE	6.00	10.00	200.00	220.00	230.00	250.00	440.00	450.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	1.33	3.15	5.45	8.23	11.50	15.26	19.50	24.23	29.44
OUTFLOW	.00	6.77	23.67	51.17	90.45	142.78	209.43	291.62	390.52	507.31
ELEVATION	.00	.32	.63	.95	1.26	1.58	1.89	2.21	2.53	2.84
STORAGE	35.90	48.15	66.95	92.31	124.21	162.67	207.59	255.02	302.78	350.90
OUTFLOW	653.90	864.92	1145.96	1516.59	1994.34	2595.19	3354.50	4360.51	5501.90	6771.08
ELEVATION	3.16	3.47	3.79	4.11	4.42	4.74	5.05	5.37	5.68	6.00

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HYDROGRAPH AT STATION 155R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
10.	16.00	(CFS)	10.	3.	3.	3.
		(INCHES)	.233	.242	.242	.242
		(AC-FT)	5.	5.	5.	5.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
0.	15.67	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.38	16.07	.37	.12	.12	.12

CUMULATIVE AREA = .38 SQ MI

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HYDROGRAPH AT STATION 155R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
10.	16.00	(CFS)	9.	3.	3.	3.
		(INCHES)	.230	.239	.239	.239
		(AC-FT)	5.	5.	5.	5.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
0.	15.67	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.38	16.07	.36	.11	.11	.11

CUMULATIVE AREA = .38 SQ MI

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HYDROGRAPH AT STATION 155R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
10.	16.00	(CFS)	9.	3.	3.	3.
		(INCHES)	.228	.237	.237	.237
		(AC-FT)	5.	5.	5.	5.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
0.	16.00	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.38	16.07	.36	.11	.11	.11

CUMULATIVE AREA = .38 SQ MI

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HYDROGRAPH AT STATION 155R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
10.	16.00	(CFS)	9.	3.	3.	3.
		(INCHES)	.224	.233	.233	.233
		(AC-FT)	5.	5.	5.	5.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
0.	15.93	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.37	16.07	.36	.11	.11	.11

CUMULATIVE AREA = .38 SQ MI

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HYDROGRAPH AT STATION 155R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
10.	16.00	(CFS)	9.	3.	3.	3.
		(INCHES)	.222	.230	.230	.230
		(AC-FT)	5.	5.	5.	5.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
0.	15.87	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.37	16.07	.36	.11	.11	.11

CUMULATIVE AREA = .38 SQ MI

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INTERPOLATED HYDROGRAPH AT 155R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
10.	16.00	(CFS)	10.	3.	3.	3.
		(INCHES)	.231	.240	.240	.240
		(AC-FT)	5.	5.	5.	5.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
0.	15.87	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.37	16.07	.36	.11	.11	.11

CUMULATIVE AREA = .38 SQ MI

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213 KK    *      160C  *
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COMBINE 140S, 130D AND 155R AT CP OF 140S

215 HC HYDROGRAPH COMBINATION

ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 160C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1471.	13.20	(CFS)	298.	91.	91.	91.
		(INCHES)	.267	.272	.272	.272
		(AC-FT)	148.	151.	151.	151.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 160C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1380.	13.20	(CFS)	280.	86.	86.	86.
		(INCHES)	.251	.256	.256	.256
		(AC-FT)	139.	142.	142.	142.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 160C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1285.	13.20	(CFS)	263.	81.	81.	81.
		(INCHES)	.235	.240	.240	.240
		(AC-FT)	130.	133.	133.	133.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 160C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1118.	13.27	(CFS)	230.	71.	71.	71.
		(INCHES)	.206	.211	.211	.211
		(AC-FT)	114.	117.	117.	117.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 160C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1024.	13.27	(CFS)	213.	66.	66.	66.
		(INCHES)	.191	.195	.195	.195
		(AC-FT)	106.	108.	108.	108.

CUMULATIVE AREA = 10.37 SQ MI

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INTERPOLATED HYDROGRAPH AT 160C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1277.	13.27	(CFS)	261.	80.	80.	80.
		(INCHES)	.234	.239	.239	.239
		(AC-FT)	129.	132.	132.	132.

CUMULATIVE AREA = 10.37 SQ MI

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216 KK * 165D *
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DIVERT FLOW ACROSS I-17 THROUGH 6X7 RCBC (MAX Q = 510 CFS)
SOURCE: SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.

DT	DIVERSION ISTAD	170D DIVERSION HYDROGRAPH IDENTIFICATION					
DI	INFLOW	.00	1.00	510.00	511.00	1000.00	2000.00
DQ	DIVERTED FLOW	.00	1.00	510.00	510.00	510.00	510.00

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DIVERSION HYDROGRAPH 170D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
510.	12.80	(CFS)	187.	58.	58.	58.
		(INCHES)	.167	.172	.172	.172
		(AC-FT)	93.	95.	95.	95.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 165D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
961.	13.20	(CFS)	112.	34.	34.	34.
		(INCHES)	.100	.100	.100	.100
		(AC-FT)	55.	55.	55.	55.

CUMULATIVE AREA = 10.37 SQ MI

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DIVERSION HYDROGRAPH 170D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
510.	12.80	(CFS)	183.	57.	57.	57.
		(INCHES)	.164	.169	.169	.169
		(AC-FT)	91.	93.	93.	93.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 165D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
870.	13.20	(CFS)	97.	29.	29.	29.
		(INCHES)	.087	.087	.087	.087
		(AC-FT)	48.	48.	48.	48.

CUMULATIVE AREA = 10.37 SQ MI

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DIVERSION HYDROGRAPH 170D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
510.	12.87	(CFS)	179.	55.	55.	55.
		(INCHES)	.160	.165	.165	.165
		(AC-FT)	89.	91.	91.	91.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 165D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
775.	13.20	(CFS)	84.	25.	25.	25.
		(INCHES)	.075	.075	.075	.075
		(AC-FT)	42.	42.	42.	42.

CUMULATIVE AREA = 10.37 SQ MI

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DIVERSION HYDROGRAPH 170D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
510.	12.87	(CFS)	170.	53.	53.	53.
		(INCHES)	.153	.157	.157	.157
		(AC-FT)	85.	87.	87.	87.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 165D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
608.	13.27	(CFS)	60.	18.	18.	18.
		(INCHES)	.053	.053	.053	.053
		(AC-FT)	30.	30.	30.	30.

CUMULATIVE AREA = 10.37 SQ MI

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DIVERSION HYDROGRAPH 170D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
510.	12.93	(CFS)	165.	51.	51.	51.
		(INCHES)	.148	.153	.153	.153
		(AC-FT)	82.	85.	85.	85.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 165D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
514.	13.27	(CFS)	48.	14.	14.	14.
		(INCHES)	.043	.043	.043	.043
		(AC-FT)	24.	24.	24.	24.

CUMULATIVE AREA = 10.37 SQ MI

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INTERPOLATED DIVERSION HYDROGRAPH AT 170D

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW

(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
510.	12.87	(CFS)	178.	55.	55.	55.
		(INCHES)	.160	.164	.164	.164
		(AC-FT)	88.	91.	91.	91.

CUMULATIVE AREA = 10.37 SQ MI

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INTERPOLATED HYDROGRAPH AT 165D

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
767.	13.27	(CFS)	83.	25.	25.	25.
		(INCHES)	.074	.074	.074	.074
		(AC-FT)	41.	41.	41.	41.

CUMULATIVE AREA = 10.37 SQ MI

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222 KK   *      175S   *
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SUB-BASIN 175

SUBBASIN RUNOFF DATA

224 BA SUBBASIN CHARACTERISTICS

TAREA	.30	SUBBASIN AREA

225 LG GREEN AND AMPT LOSS RATE

STRTL	.07	STARTING LOSS
DTH	.29	MOISTURE DEFICIT
PSIF	6.70	WETTING FRONT SUCTION
XKSAT	.19	HYDRAULIC CONDUCTIVITY
RTIMP	75.00	PERCENT IMPERVIOUS AREA

226 UC CLARK UNITGRAPH

TC	.68	TIME OF CONCENTRATION
R	.77	STORAGE COEFFICIENT

227 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
100.0									

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= .68 HR, R= .77 HR

SNYDER TP= .45 HR, CP= .38

UNIT HYDROGRAPH

66 END-OF-PERIOD ORDINATES

6.	24.	51.	102.	149.	162.	165.	164.	159.	153.
145.	134.	123.	112.	103.	95.	87.	80.	73.	67.
61.	56.	52.	47.	43.	40.	37.	34.	31.	28.
26.	24.	22.	20.	18.	17.	15.	14.	13.	12.

11.	10.	9.	8.	8.	7.	6.	6.	5.	5.
5.	4.	4.	4.	3.	3.	3.	3.	2.	2.
2.	2.	2.	1.	1.	1.				

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HYDROGRAPH AT STATION 175S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = .63, TOTAL EXCESS = 3.27

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
261.	12.27	(CFS)	80.	31.	31.	31.
		(INCHES)	2.490	3.205	3.205	3.205
		(AC-FT)	40.	51.	51.	51.

CUMULATIVE AREA = .30 SQ MI

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HYDROGRAPH AT STATION 175S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = .62, TOTAL EXCESS = 3.20

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
255.	12.27	(CFS)	78.	30.	30.	30.
		(INCHES)	2.435	3.136	3.136	3.136
		(AC-FT)	39.	50.	50.	50.

CUMULATIVE AREA = .30 SQ MI

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HYDROGRAPH AT STATION 175S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = .61, TOTAL EXCESS = 3.13

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
249.	12.27	(CFS)	77.	30.	30.	30.
		(INCHES)	2.381	3.066	3.066	3.066
		(AC-FT)	38.	49.	49.	49.

CUMULATIVE AREA = .30 SQ MI

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HYDROGRAPH AT STATION 175S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = .60, TOTAL EXCESS = 2.99

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
239.	12.27	(CFS)	73.	28.	28.	28.
		(INCHES)	2.278	2.936	2.936	2.936
		(AC-FT)	36.	47.	47.	47.

CUMULATIVE AREA = .30 SQ MI

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HYDROGRAPH AT STATION 175S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = .59, TOTAL EXCESS = 2.92

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
233.	12.27	(CFS)	71.	28.	28.	28.
		(INCHES)	2.223	2.866	2.866	2.866
		(AC-FT)	35.	46.	46.	46.

CUMULATIVE AREA = .30 SQ MI

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INTERPOLATED HYDROGRAPH AT 175S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
257.	12.27	(CFS)	79.	31.	31.	31.
		(INCHES)	2.458	3.164	3.164	3.164
		(AC-FT)	39.	50.	50.	50.

CUMULATIVE AREA = .30 SQ MI

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229 KK    *     180C   *
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COMBINE 165D AND 175S AT CP OF 175S

231 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 180C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1095.	13.20	(CFS)	192.	65.	65.	65.
		(INCHES)	.167	.187	.187	.187
		(AC-FT)	95.	106.	106.	106.

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 180C

TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1001.	13.20	(CFS)	176.	60.	60.	60.
		(INCHES)	.153	.173	.173	.173
		(AC-FT)	87.	98.	98.	98.

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 180C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
903.	13.20	(CFS)	160.	55.	55.	55.
		(INCHES)	.140	.159	.159	.159
		(AC-FT)	80.	91.	91.	91.

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 180C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
723.	13.27	(CFS)	133.	46.	46.	46.
		(INCHES)	.116	.134	.134	.134
		(AC-FT)	66.	76.	76.	76.

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 180C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
627.	13.27	(CFS)	119.	42.	42.	42.
		(INCHES)	.104	.122	.122	.122
		(AC-FT)	59.	69.	69.	69.

CUMULATIVE AREA = 10.67 SQ MI

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INTERPOLATED HYDROGRAPH AT 180C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
886.	13.20	(CFS)	158.	54.	54.	54.
		(INCHES)	.138	.157	.157	.157
		(AC-FT)	78.	89.	89.	89.

CUMULATIVE AREA = 10.67 SQ MI

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232 KK    *      185D  *
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DIVERT FLOW ACROSS I-17 THROUGH 65X40 CMP AT ADOBE DRIVE
SOURCE: SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.

DT	DIVERSION ISTAD	190D	DIVERSION HYDROGRAPH IDENTIFICATION			
DI	INFLOW	.00	115.00	116.00	1000.00	3000.00
DQ	DIVERTED FLOW	.00	115.00	115.00	115.00	115.00

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DIVERSION HYDROGRAPH 190D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	11.87	(CFS)	63.	26.	26.	26.
		(INCHES)	.055	.075	.075	.075
		(AC-FT)	31.	43.	43.	43.

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 185D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
980.	13.20	(CFS)	129.	39.	39.	39.
		(INCHES)	.112	.112	.112	.112
		(AC-FT)	64.	64.	64.	64.

CUMULATIVE AREA = 10.67 SQ MI

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DIVERSION HYDROGRAPH 190D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	11.87	(CFS)	62.	26.	26.	26.
		(INCHES)	.054	.074	.074	.074
		(AC-FT)	31.	42.	42.	42.

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 185D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
886.	13.20	(CFS)	113.	34.	34.	34.
		(INCHES)	.099	.099	.099	.099
		(AC-FT)	56.	56.	56.	56.

CUMULATIVE AREA = 10.67 SQ MI

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DIVERSION HYDROGRAPH 190D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	11.93	(CFS)	62.	25.	25.	25.
		(INCHES)	.054	.073	.073	.073
		(AC-FT)	31.	42.	42.	42.

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 185D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
788.	13.20	(CFS)	99.	30.	30.	30.
		(INCHES)	.086	.086	.086	.086
		(AC-FT)	49.	49.	49.	49.

CUMULATIVE AREA = 10.67 SQ MI

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DIVERSION HYDROGRAPH 190D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	11.93	(CFS)	60.	25.	25.	25.
		(INCHES)	.053	.071	.071	.071
		(AC-FT)	30.	40.	40.	40.

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 185D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
608.	13.27	(CFS)	73.	22.	22.	22.
		(INCHES)	.063	.063	.063	.063
		(AC-FT)	36.	36.	36.	36.

CUMULATIVE AREA = 10.67 SQ MI

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DIVERSION HYDROGRAPH 190D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	11.93	(CFS)	59.	24.	24.	24.
		(INCHES)	.052	.070	.070	.070
		(AC-FT)	29.	40.	40.	40.

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 185D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
512.	13.27	(CFS)	60.	18.	18.	18.
		(INCHES)	.052	.052	.052	.052
		(AC-FT)	30.	30.	30.	30.

CUMULATIVE AREA = 10.67 SQ MI

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INTERPOLATED DIVERSION HYDROGRAPH AT 190D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	11.93	(CFS)	62.	25.	25.	25.
		(INCHES)	.054	.073	.073	.073
		(AC-FT)	31.	41.	41.	41.

CUMULATIVE AREA = 10.67 SQ MI

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INTERPOLATED HYDROGRAPH AT 185D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
771.	13.20	(CFS)	96.	29.	29.	29.
		(INCHES)	.084	.084	.084	.084
		(AC-FT)	48.	48.	48.	48.

CUMULATIVE AREA = 10.67 SQ MI

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238 KK      *      195S  *
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                        SUB-BASIN 195

                SUBBASIN RUNOFF DATA

240 BA            SUBBASIN CHARACTERISTICS
                        TAREA         .40  SUBBASIN AREA

241 LG            GREEN AND AMPT LOSS RATE
                        STRTL         .09  STARTING LOSS
                          DTH         .31  MOISTURE DEFICIT
                         PSIF       11.00  WETTING FRONT SUCTION
                        XKSAT         .31  HYDRAULIC CONDUCTIVITY
                        RTIMP       80.00  PERCENT IMPERVIOUS AREA

242 UC            CLARK UNITGRAPH
                          TC         .53  TIME OF CONCENTRATION
                           R         .45  STORAGE COEFFICIENT

243 UA            ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                         .0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                      100.0

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                                                UNIT HYDROGRAPH PARAMETERS
                                             CLARK   TC=   .53 HR,       R=   .45 HR
                                            SNYDER   TP=   .32 HR,      CP=   .44

                                                    UNIT HYDROGRAPH
                                                40 END-OF-PERIOD ORDINATES
                    21.       79.      196.      312.      347.      339.      321.      298.      267.      231.
                   199.      172.      148.      128.      110.       95.       82.       71.       61.       53.
                    46.       39.       34.       29.       25.       22.       19.       16.       14.       12.
                    10.        9.        8.        7.        6.        5.        4.        4.        3.        3.

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                      HYDROGRAPH AT STATION     195S
                     TRANSPOSITION AREA       .0 SQ MI

   TOTAL RAINFALL =    3.90, TOTAL LOSS =     .58, TOTAL EXCESS =    3.32

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     19.93-HR
   461.     12.20       (CFS)       107.         42.         42.         42.
                        (INCHES)    2.499       3.271       3.271       3.271
                        (AC-FT)      53.         70.         70.         70.

                      CUMULATIVE AREA =     .40 SQ MI


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                      HYDROGRAPH AT STATION     195S
                     TRANSPOSITION AREA      3.0 SQ MI

   TOTAL RAINFALL =    3.82, TOTAL LOSS =     .57, TOTAL EXCESS =    3.25

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     19.93-HR
   450.     12.20       (CFS)       105.         41.         41.         41.
                        (INCHES)    2.444       3.200       3.200       3.200
                        (AC-FT)      52.         68.         68.         68.
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CUMULATIVE AREA = .40 SQ MI

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HYDROGRAPH AT STATION 195S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = .57, TOTAL EXCESS = 3.17

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
440.	12.20	(CFS)	103.	40.	40.	40.
		(INCHES)	2.389	3.129	3.129	3.129
		(AC-FT)	51.	67.	67.	67.

CUMULATIVE AREA = .40 SQ MI

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HYDROGRAPH AT STATION 195S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = .55, TOTAL EXCESS = 3.04

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
420.	12.20	(CFS)	98.	39.	39.	39.
		(INCHES)	2.286	2.996	2.996	2.996
		(AC-FT)	49.	64.	64.	64.

CUMULATIVE AREA = .40 SQ MI

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HYDROGRAPH AT STATION 195S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = .54, TOTAL EXCESS = 2.97

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
410.	12.20	(CFS)	96.	38.	38.	38.
		(INCHES)	2.231	2.925	2.925	2.925
		(AC-FT)	47.	62.	62.	62.

CUMULATIVE AREA = .40 SQ MI

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INTERPOLATED HYDROGRAPH AT 195S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
454.	12.20	(CFS)	106.	42.	42.	42.
		(INCHES)	2.464	3.225	3.225	3.225
		(AC-FT)	52.	69.	69.	69.

CUMULATIVE AREA = .40 SQ MI

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          *            *
245 KK    *      200C  *
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COMBINE 185D AND 195S AT CP OF 195S

247 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 200C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1108.	13.20	(CFS)	236.	81.	81.	81.
		(INCHES)	.198	.226	.226	.226
		(AC-FT)	117.	133.	133.	133.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 200C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1011.	13.20	(CFS)	218.	75.	75.	75.
		(INCHES)	.183	.210	.210	.210
		(AC-FT)	108.	124.	124.	124.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 200C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
911.	13.20	(CFS)	201.	70.	70.	70.
		(INCHES)	.169	.196	.196	.196
		(AC-FT)	100.	116.	116.	116.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 200C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR

717.	13.20	(CFS)	171.	61.	61.	61.
		(INCHES)	.143	.169	.169	.169
		(AC-FT)	85.	100.	100.	100.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 200C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
617.	13.27	(CFS)	155.	56.	56.	56.
		(INCHES)	.130	.156	.156	.156
		(AC-FT)	77.	92.	92.	92.

CUMULATIVE AREA = 11.07 SQ MI

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INTERPOLATED HYDROGRAPH AT 200C

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
882.	13.20	(CFS)	197.	69.	69.	69.
		(INCHES)	.165	.192	.192	.192
		(AC-FT)	98.	113.	113.	113.

CUMULATIVE AREA = 11.07 SQ MI

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248 KK

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* *
* 205D *
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DIVERT FLOW ACROSS I-17 THROUGH 6X3 RCBC AT LOUISE DRIVE
DI REPRESENTS TOTAL FLOW, DQ REPRESENTS FLOW THROUGH 6X3 RCBC.
SOURCE: SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.

DT	DIVERSION ISTAD	210D	DIVERSION HYDROGRAPH IDENTIFICATION				
DI	INFLOW	.00	1.00	156.00	157.00	1000.00	3000.00
DQ	DIVERTED FLOW	.00	1.00	156.00	156.00	156.00	156.00

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DIVERSION HYDROGRAPH 210D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
156.	11.80	(CFS)	82.	35.	35.	35.

	(INCHES)	.069	.097	.097	.097
	(AC-FT)	41.	57.	57.	57.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 205D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
952.	13.20	(CFS)	153.	46.	46.	46.
		(INCHES)	.129	.129	.129	.129
		(AC-FT)	76.	76.	76.	76.

CUMULATIVE AREA = 11.07 SQ MI

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DIVERSION HYDROGRAPH 210D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
156.	11.80	(CFS)	81.	34.	34.	34.
		(INCHES)	.068	.095	.095	.095
		(AC-FT)	40.	56.	56.	56.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 205D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
855.	13.20	(CFS)	137.	41.	41.	41.
		(INCHES)	.115	.115	.115	.115
		(AC-FT)	68.	68.	68.	68.

CUMULATIVE AREA = 11.07 SQ MI

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DIVERSION HYDROGRAPH 210D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
156.	11.80	(CFS)	80.	34.	34.	34.
		(INCHES)	.067	.094	.094	.094
		(AC-FT)	40.	55.	55.	55.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 205D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
755.	13.20	(CFS)	121.	36.	36.	36.
		(INCHES)	.102	.102	.102	.102
		(AC-FT)	60.	60.	60.	60.

CUMULATIVE AREA = 11.07 SQ MI

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DIVERSION HYDROGRAPH 210D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
156.	11.80	(CFS)	78.	33.	33.	33.
		(INCHES)	.066	.091	.091	.091
		(AC-FT)	39.	54.	54.	54.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 205D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
561.	13.20	(CFS)	93.	28.	28.	28.
		(INCHES)	.078	.078	.078	.078
		(AC-FT)	46.	46.	46.	46.

CUMULATIVE AREA = 11.07 SQ MI

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DIVERSION HYDROGRAPH 210D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
156.	11.80	(CFS)	77.	32.	32.	32.
		(INCHES)	.065	.090	.090	.090
		(AC-FT)	38.	53.	53.	53.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 205D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
461.	13.27	(CFS)	79.	24.	24.	24.
		(INCHES)	.066	.066	.066	.066
		(AC-FT)	39.	39.	39.	39.

CUMULATIVE AREA = 11.07 SQ MI

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INTERPOLATED DIVERSION HYDROGRAPH AT 210D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
156.	11.80	(CFS)	80.	34.	34.	34.
		(INCHES)	.067	.094	.094	.094
		(AC-FT)	40.	55.	55.	55.

CUMULATIVE AREA = 11.07 SQ MI

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INTERPOLATED HYDROGRAPH AT 205D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
726.	13.20	(CFS)	117.	35.	35.	35.
		(INCHES)	.098	.098	.098	.098
		(AC-FT)	58.	58.	58.	58.

CUMULATIVE AREA = 11.07 SQ MI

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          *            *
255 KK    *    135RD   *
          *            *
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RETRIEVE FLOW DIVERTED ALONG I-17 AND FRONTAGE ROAD

257 DR RETRIEVE DIVERSION HYDROGRAPH

ISTAD 135D DIVERSION HYDROGRAPH IDENTIFICATION

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HYDROGRAPH AT STATION 135RD

TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
180.	13.27	(CFS)	18.	5.	5.	5.
		(INCHES)	.015	.015	.015	.015
		(AC-FT)	9.	9.	9.	9.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 135RD

TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR

160.	13.27	(CFS)	15.	4.	4.	4.
		(INCHES)	.012	.012	.012	.012
		(AC-FT)	7.	7.	7.	7.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 135RD
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
140.	13.27	(CFS)	12.	4.	4.	4.
		(INCHES)	.010	.010	.010	.010
		(AC-FT)	6.	6.	6.	6.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 135RD
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
100.	13.27	(CFS)	8.	2.	2.	2.
		(INCHES)	.006	.006	.006	.006
		(AC-FT)	4.	4.	4.	4.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 135RD
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
80.	13.33	(CFS)	5.	2.	2.	2.
		(INCHES)	.005	.005	.005	.005
		(AC-FT)	3.	3.	3.	3.

CUMULATIVE AREA = 8.76 SQ MI

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INTERPOLATED HYDROGRAPH AT 135RD

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
142.	13.27	(CFS)	12.	4.	4.	4.
		(INCHES)	.013	.013	.013	.013
		(AC-FT)	6.	6.	6.	6.

CUMULATIVE AREA = 8.76 SQ MI

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          *            *
258 KK    *      215C  *
          *            *
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                        COMBINE 135RD AND 205D AT DEER VALLEY/1-17 INTERCHANGE

260 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

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                       HYDROGRAPH AT STATION     215C
                      TRANSPOSITION AREA       .0 SQ MI

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR        24-HR        72-HR     19.93-HR
   1130.     13.20       (CFS)      171.          51.          51.          51.
                        (INCHES)     .144         .144         .144         .144
                         (AC-FT)      85.          85.          85.          85.

                       CUMULATIVE AREA =   11.07 SQ MI


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

                       HYDROGRAPH AT STATION     215C
                      TRANSPOSITION AREA      3.0 SQ MI

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR        24-HR        72-HR     19.93-HR
   1011.     13.20       (CFS)      152.          46.          46.          46.
                        (INCHES)     .128         .128         .128         .128
                         (AC-FT)      75.          75.          75.          75.

                       CUMULATIVE AREA =   11.07 SQ MI


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

                       HYDROGRAPH AT STATION     215C
                      TRANSPOSITION AREA     10.0 SQ MI

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR        24-HR        72-HR     19.93-HR
    889.     13.20       (CFS)      133.          40.          40.          40.
                        (INCHES)     .112         .112         .112         .112
                         (AC-FT)      66.          66.          66.          66.

                       CUMULATIVE AREA =   11.07 SQ MI


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

                       HYDROGRAPH AT STATION     215C
                      TRANSPOSITION AREA     20.0 SQ MI

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR        24-HR        72-HR     19.93-HR
    660.     13.27       (CFS)      100.          30.          30.          30.
                        (INCHES)     .084         .084         .084         .084
                         (AC-FT)      50.          50.          50.          50.
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CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 215C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
539.	13.27	(CFS)	84.	25.	25.	25.
		(INCHES)	.071	.071	.071	.071
		(AC-FT)	42.	42.	42.	42.

CUMULATIVE AREA = 11.07 SQ MI

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INTERPOLATED HYDROGRAPH AT 215C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
854.	13.20	(CFS)	129.	39.	39.	39.
		(INCHES)	.108	.108	.108	.108
		(AC-FT)	64.	64.	64.	64.

CUMULATIVE AREA = 11.07 SQ MI

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          *            *
261 KK    *   220RET   *
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ROUTE FLOW THROUGH DEPRESSED SECTION TO WEST SIDE OF I-17
SOURCE: SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.

HYDROGRAPH ROUTING DATA

264 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	STOR	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

265 SV	STORAGE	.0	1.0	15.9	37.7	53.8	61.3	74.1	99.0	129.5
266 SE	ELEVATION	82.00	84.00	90.00	94.00	96.00	96.80	98.00	100.00	102.00
267 SQ	DISCHARGE	0.	0.	0.	0.	0.	1.	808.	5403.	13835.

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HYDROGRAPH AT STATION 220RET
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
786.	13.47	(CFS)	80.	24.	24.	24.
		(INCHES)	.067	.067	.067	.067
		(AC-FT)	40.	40.	40.	40.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
74.	13.47	62.	33.	33.	33.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
97.97	13.47	96.90	92.55	92.55	92.55

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 220RET
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
904.	13.33	(CFS)	137.	41.	41.	41.
		(INCHES)	.115	.116	.116	.116
		(AC-FT)	68.	68.	68.	68.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
75.	13.33	63.	57.	57.	57.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
98.04	13.33	96.99	96.37	96.37	96.37

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 220RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
751.	13.40	(CFS)	119.	36.	36.	36.
		(INCHES)	.100	.100	.100	.100
		(AC-FT)	59.	59.	59.	59.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
73.	13.40	63.	57.	57.	57.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
97.92	13.40	96.97	96.36	96.36	96.36

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 220RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
547.	13.40	(CFS)	86.	26.	26.	26.
		(INCHES)	.072	.072	.072	.072
		(AC-FT)	43.	43.	43.	43.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
70.	13.40	63.	57.	57.	57.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
97.61	13.40	96.92	96.35	96.35	96.35

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 220RET
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
436.	13.40	(CFS)	69.	21.	21.	21.
		(INCHES)	.058	.059	.059	.059
		(AC-FT)	34.	35.	35.	35.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
68.	13.40	62.	57.	57.	57.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
97.45	13.40	96.89	96.34	96.34	96.34

CUMULATIVE AREA = 11.07 SQ MI

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INTERPOLATED HYDROGRAPH AT 220RET

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
721.	13.40	(CFS)	114.	34.	34.	34.
		(INCHES)	.096	.096	.096	.096
		(AC-FT)	56.	57.	57.	57.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
68.	13.40	62.	57.	57.	57.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
97.45	13.40	96.89	96.34	96.34	96.34

CUMULATIVE AREA = 11.07 SQ MI

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          *            *
268 KK    *     210RD  *
          *            *
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                    RETRIEVE FLOW DIVERTED THROUGH CULVERT AT LOUISE DRIVE

270 DR          RETRIEVE DIVERSION HYDROGRAPH
                      ISTAD        210D  DIVERSION HYDROGRAPH IDENTIFICATION

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                       HYDROGRAPH AT STATION    210RD
                      TRANSPOSITION AREA       .0 SQ MI

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR        24-HR        72-HR     19.93-HR
    156.     11.80       (CFS)        82.          35.          35.          35.
                        (INCHES)      .069         .097         .097         .097
                         (AC-FT)       41.          57.          57.          57.

                       CUMULATIVE AREA =   11.07 SQ MI


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                       HYDROGRAPH AT STATION    210RD
                      TRANSPOSITION AREA      3.0 SQ MI

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR        24-HR        72-HR     19.93-HR
    156.     11.80       (CFS)        81.          34.          34.          34.
                        (INCHES)      .068         .095         .095         .095
                         (AC-FT)       40.          56.          56.          56.

                       CUMULATIVE AREA =   11.07 SQ MI


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                       HYDROGRAPH AT STATION    210RD
                      TRANSPOSITION AREA     10.0 SQ MI

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR        24-HR        72-HR     19.93-HR
    156.     11.80       (CFS)        80.          34.          34.          34.
                        (INCHES)      .067         .094         .094         .094
                         (AC-FT)       40.          55.          55.          55.

                       CUMULATIVE AREA =   11.07 SQ MI


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                       HYDROGRAPH AT STATION    210RD
                      TRANSPOSITION AREA     20.0 SQ MI

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                   6-HR        24-HR        72-HR     19.93-HR
    156.     11.80       (CFS)        78.          33.          33.          33.
                        (INCHES)      .066         .091         .091         .091
                         (AC-FT)       39.          54.          54.          54.

                       CUMULATIVE AREA =   11.07 SQ MI
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HYDROGRAPH AT STATION 210RD
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
156.	11.80	(CFS)	77.	32.	32.	32.
		(INCHES)	.065	.090	.090	.090
		(AC-FT)	38.	53.	53.	53.

CUMULATIVE AREA = 11.07 SQ MI

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INTERPOLATED HYDROGRAPH AT 210RD

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
156.	11.80	(CFS)	80.	34.	34.	34.
		(INCHES)	.067	.094	.094	.094
		(AC-FT)	40.	55.	55.	55.

CUMULATIVE AREA = 11.07 SQ MI

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271 KK * 225C *
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COMBINE 220RET AND 210RD AT INTERSECTION OF 27TH AVE & DEER VALLEY ROAD

273 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 225C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
942.	13.47	(CFS)	162.	59.	59.	59.
		(INCHES)	.136	.164	.164	.164
		(AC-FT)	80.	97.	97.	97.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 225C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1060.	13.33	(CFS)	218.	76.	76.	76.
		(INCHES)	.183	.211	.211	.211
		(AC-FT)	108.	125.	125.	125.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 225C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
907.	13.40	(CFS)	199.	70.	70.	70.
		(INCHES)	.167	.194	.194	.194
		(AC-FT)	98.	115.	115.	115.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 225C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
703.	13.40	(CFS)	163.	59.	59.	59.
		(INCHES)	.137	.163	.163	.163
		(AC-FT)	81.	96.	96.	96.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 225C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
592.	13.40	(CFS)	146.	53.	53.	53.
		(INCHES)	.122	.148	.148	.148
		(AC-FT)	72.	87.	87.	87.

CUMULATIVE AREA = 11.07 SQ MI

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INTERPOLATED HYDROGRAPH AT 225C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
877.	13.40	(CFS)	193.	68.	68.	68.
		(INCHES)	.162	.190	.190	.190
		(AC-FT)	96.	112.	112.	112.

CUMULATIVE AREA = 11.07 SQ MI

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274 KK    *      230R  *
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ROUTE 225C TO CP OF 250S ALONG NATURAL CHANNEL

HYDROGRAPH ROUTING DATA

276 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

277 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.030	LEFT OVERBANK N-VALUE
ANCH	.020	MAIN CHANNEL N-VALUE
ANR	.030	RIGHT OVERBANK N-VALUE
RLNTH	7000.	REACH LENGTH
SEL	.0057	ENERGY SLOPE
ELMAX	5.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+	------ MAIN CHANNEL -------		+	--- RIGHT OVERBANK ---	
279 RY	ELEVATION	2.00	1.00	.50	.00	.00	.50	1.00	2.00
278 RX	DISTANCE	.00	5.00	25.00	26.00	64.00	65.00	85.00	90.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	1.63	3.31	5.53	8.63	12.09	15.67	19.35	23.14	26.94
OUTFLOW	.00	23.16	73.87	150.63	259.61	405.65	582.14	787.11	1022.54	1289.48
ELEVATION	.00	.26	.53	.79	1.05	1.32	1.58	1.84	2.11	2.37
STORAGE	30.75	34.55	38.36	42.17	45.97	49.78	53.58	57.39	61.20	65.00
OUTFLOW	1582.06	1899.15	2239.79	2603.17	2988.59	3395.42	3823.10	4271.13	4739.04	5226.42
ELEVATION	2.63	2.89	3.16	3.42	3.68	3.95	4.21	4.47	4.74	5.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 1289. TO 5226.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 230R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
893.	13.73	(CFS)	162.	58.	58.	58.
		(INCHES)	.136	.163	.163	.163
		(AC-FT)	80.	96.	96.	96.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
4.	13.73	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR

1.96	13.73		.67	.31	.31	.31

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 230R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
998.	13.60	(CFS)	218.	75.	75.	75.
		(INCHES)	.183	.209	.209	.209
		(AC-FT)	108.	124.	124.	124.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
5.	13.60	1.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
2.08	13.60	.77	.34	.34	.34

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 230R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
879.	13.60	(CFS)	198.	69.	69.	69.
		(INCHES)	.167	.192	.192	.192
		(AC-FT)	98.	114.	114.	114.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
4.	13.60	1.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1.94	13.60	.74	.33	.33	.33

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 230R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
669.	13.67	(CFS)	163.	58.	58.	58.
		(INCHES)	.137	.162	.162	.162
		(AC-FT)	81.	96.	96.	96.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.	13.60	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR

1.69	13.67		.68	.30	.30	.30

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 230R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
559.	13.67	(CFS)	146.	53.	53.	53.
		(INCHES)	.122	.147	.147	.147
		(AC-FT)	72.	86.	86.	86.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	13.67	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.54	13.67	.65	.29	.29	.29

CUMULATIVE AREA = 11.07 SQ MI

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

INTERPOLATED HYDROGRAPH AT 230R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
848.	13.60	(CFS)	193.	67.	67.	67.
		(INCHES)	.162	.188	.188	.188
		(AC-FT)	96.	111.	111.	111.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	13.67	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.54	13.67	.65	.29	.29	.29

CUMULATIVE AREA = 11.07 SQ MI

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          *             *
280 KK    *      235S   *
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SUB-BASIN 235

SUBBASIN RUNOFF DATA

282 BA SUBBASIN CHARACTERISTICS

TAREA .06 SUBBASIN AREA

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283 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .09  STARTING LOSS
                       DTH         .31  MOISTURE DEFICIT
                      PSIF       11.00  WETTING FRONT SUCTION
                     XKSAT         .02  HYDRAULIC CONDUCTIVITY
                     RTIMP       74.00  PERCENT IMPERVIOUS AREA

284 UC          CLARK UNITGRAPH
                        TC         .23  TIME OF CONCENTRATION
                         R         .17  STORAGE COEFFICIENT

285 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                   100.0

                                                    ***

                                                UNIT HYDROGRAPH PARAMETERS
                                             CLARK   TC=   .23 HR,       R=   .17 HR
                                            SNYDER   TP=   .17 HR,      CP=   .58

                                                UNIT HYDROGRAPH
                                            16 END-OF-PERIOD ORDINATES
                27.       98.      132.      107.       76.       52.       35.       24.       16.       11.
                 7.        5.        3.        2.        2.        1.

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

                       HYDROGRAPH AT STATION     235S
                      TRANSPOSITION AREA       .0 SQ MI

   TOTAL RAINFALL =    3.90, TOTAL LOSS =     .41, TOTAL EXCESS =    3.49

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     19.93-HR
    113.     12.00       (CFS)       18.          7.          7.          7.
                        (INCHES)    2.728       3.469       3.469       3.469
                        (AC-FT)       9.         11.         11.         11.

                       CUMULATIVE AREA =     .06 SQ MI


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

                       HYDROGRAPH AT STATION     235S
                      TRANSPOSITION AREA      3.0 SQ MI

   TOTAL RAINFALL =    3.82, TOTAL LOSS =     .41, TOTAL EXCESS =    3.41

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     19.93-HR
    110.     12.00       (CFS)       18.          7.          7.          7.
                        (INCHES)    2.667       3.391       3.391       3.391
                        (AC-FT)       9.         11.         11.         11.

                       CUMULATIVE AREA =     .06 SQ MI


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

                       HYDROGRAPH AT STATION     235S
                      TRANSPOSITION AREA     10.0 SQ MI

   TOTAL RAINFALL =    3.74, TOTAL LOSS =     .40, TOTAL EXCESS =    3.34

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
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(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
108.	12.00	(CFS)	17.	7.	7.	7.
		(INCHES)	2.607	3.315	3.315	3.315
		(AC-FT)	9.	11.	11.	11.

CUMULATIVE AREA = .06 SQ MI

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HYDROGRAPH AT STATION 235S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = .40, TOTAL EXCESS = 3.19

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
103.	12.00	(CFS)	17.	6.	6.	6.
		(INCHES)	2.494	3.171	3.171	3.171
		(AC-FT)	8.	10.	10.	10.

CUMULATIVE AREA = .06 SQ MI

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HYDROGRAPH AT STATION 235S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = .39, TOTAL EXCESS = 3.12

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
101.	12.00	(CFS)	16.	6.	6.	6.
		(INCHES)	2.434	3.094	3.094	3.094
		(AC-FT)	8.	10.	10.	10.

CUMULATIVE AREA = .06 SQ MI

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INTERPOLATED HYDROGRAPH AT 235S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
112.	12.00	(CFS)	18.	7.	7.	7.
		(INCHES)	2.708	3.444	3.444	3.444
		(AC-FT)	9.	11.	11.	11.

CUMULATIVE AREA = .06 SQ MI

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287 KK    *     240R   *
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ROUTE 235S TO CP OF 250S ALONG NATURAL CHANNEL

HYDROGRAPH ROUTING DATA

289 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

290 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	5500.	REACH LENGTH
SEL	.0073	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---	+	------ MAIN CHANNEL -------	+	--- RIGHT OVERBANK ---		
292 RY	ELEVATION	3.00	2.00	1.00	.00	.00	1.00	2.00	3.00
291 RX	DISTANCE	.00	5.00	55.00	60.00	70.00	75.00	125.00	130.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.22	.46	.74	1.05	1.39	1.76	2.23	3.00	4.08
OUTFLOW	.00	2.01	6.59	13.39	22.38	33.61	47.15	65.22	89.02	119.68
ELEVATION	.00	.16	.32	.47	.63	.79	.95	1.11	1.26	1.42
STORAGE	5.47	7.18	9.21	11.53	13.95	16.40	18.88	21.39	23.94	26.52
OUTFLOW	158.78	207.71	267.73	343.18	437.37	543.26	660.29	788.03	926.13	1074.33
ELEVATION	1.58	1.74	1.89	2.05	2.21	2.37	2.53	2.68	2.84	3.00

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HYDROGRAPH AT STATION 240R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
94.	12.33	(CFS)	18.	7.	7.	7.
		(INCHES)	2.726	3.407	3.407	3.407
		(AC-FT)	9.	11.	11.	11.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.33	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.29	12.33	.47	.24	.24	.24

CUMULATIVE AREA = .06 SQ MI

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HYDROGRAPH AT STATION 240R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
92.	12.33	(CFS)	18.	7.	7.	7.
		(INCHES)	2.665	3.331	3.331	3.331
		(AC-FT)	9.	11.	11.	11.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.33		0.	0.	0.	0.
PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.28	12.33		.46	.23	.23	.23

CUMULATIVE AREA = .06 SQ MI

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HYDROGRAPH AT STATION 240R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
90.	12.33	(CFS)	17.	7.	7.	7.
		(INCHES)	2.605	3.255	3.255	3.255
		(AC-FT)	9.	11.	11.	11.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.33		0.	0.	0.	0.
PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.27	12.33		.45	.23	.23	.23

CUMULATIVE AREA = .06 SQ MI

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HYDROGRAPH AT STATION 240R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
87.	12.33	(CFS)	17.	6.	6.	6.
		(INCHES)	2.492	3.114	3.114	3.114
		(AC-FT)	8.	10.	10.	10.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.33		0.	0.	0.	0.
PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.25	12.33		.44	.22	.22	.22

CUMULATIVE AREA = .06 SQ MI

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HYDROGRAPH AT STATION 240R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
85.	12.33	(CFS)	16.	6.	6.	6.
		(INCHES)	2.432	3.038	3.038	3.038
		(AC-FT)	8.	10.	10.	10.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.	12.33		0.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.24	12.33		.44	.22	.22	.22

CUMULATIVE AREA = .06 SQ MI

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INTERPOLATED HYDROGRAPH AT 240R

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
93.	12.33	(CFS)	18.	7.	7.	7.
		(INCHES)	2.706	3.382	3.382	3.382
		(AC-FT)	9.	11.	11.	11.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.	12.33		0.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.24	12.33		.44	.22	.22	.22

CUMULATIVE AREA = .06 SQ MI

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293 KK    *    190RD   *
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RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT AT ADOBE DRIVE

295 DR RETRIEVE DIVERSION HYDROGRAPH

ISTAD 190D DIVERSION HYDROGRAPH IDENTIFICATION

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HYDROGRAPH AT STATION 190RD

TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
115.	11.87	(CFS)	63.	26.	26.	26.
		(INCHES)	9.473	12.920	12.920	12.920
		(AC-FT)	31.	43.	43.	43.

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 190RD
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	11.87	(CFS)	62.	26.	26.	26.
		(INCHES)	9.362	12.738	12.738	12.738
		(AC-FT)	31.	42.	42.	42.

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 190RD
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	11.93	(CFS)	62.	25.	25.	25.
		(INCHES)	9.257	12.562	12.562	12.562
		(AC-FT)	31.	42.	42.	42.

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 190RD
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	11.93	(CFS)	60.	25.	25.	25.
		(INCHES)	9.040	12.213	12.213	12.213
		(AC-FT)	30.	40.	40.	40.

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 190RD
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	11.93	(CFS)	59.	24.	24.	24.
		(INCHES)	8.911	12.014	12.014	12.014
		(AC-FT)	29.	40.	40.	40.

CUMULATIVE AREA = 10.67 SQ MI

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INTERPOLATED HYDROGRAPH AT 190RD

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	11.93	(CFS)	62.	25.	25.	25.
		(INCHES)	.054	.073	.073	.073
		(AC-FT)	31.	41.	41.	41.

CUMULATIVE AREA = 10.67 SQ MI

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296 KK    *      245R  *
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ROUTE 190RD TO CP OF 250S ALONG NATURAL CHANNEL

HYDROGRAPH ROUTING DATA

298 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

299 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.030	LEFT OVERBANK N-VALUE
ANCH	.020	MAIN CHANNEL N-VALUE
ANR	.030	RIGHT OVERBANK N-VALUE
RLNTH	7500.	REACH LENGTH
SEL	.0060	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
301 RY	ELEVATION	2.00	1.00	.50	.00	.00	.50	1.00	2.00
300 RX	DISTANCE	.00	5.00	25.00	26.00	64.00	65.00	85.00	90.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.69	1.39	2.10	2.82	3.54	4.38	5.37	6.52	7.82
OUTFLOW	.00	5.15	16.37	32.21	52.09	75.79	103.83	136.41	173.96	216.86
ELEVATION	.00	.11	.21	.32	.42	.53	.63	.74	.84	.95
STORAGE	9.25	10.72	12.21	13.71	15.24	16.79	18.35	19.93	21.54	23.16
OUTFLOW	266.35	322.35	383.63	449.98	521.23	597.26	677.95	763.23	853.01	947.23
ELEVATION	1.05	1.16	1.26	1.37	1.47	1.58	1.68	1.79	1.89	2.00

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HYDROGRAPH AT STATION 245R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	13.40	(CFS)	63.	25.	25.	25.
		(INCHES)	.055	.073	.073	.073
		(AC-FT)	31.	42.	42.	42.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.87	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR

.67	13.67		.44	.23	.23	.23

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 245R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
115.	13.40	(CFS)	62.	25.	25.	25.
		(INCHES)	.054	.072	.072	.072
		(AC-FT)	31.	41.	41.	41.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.	12.87		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
.67	13.67		.44	.22	.22	.22

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 245R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
115.	13.33	(CFS)	62.	25.	25.	25.
		(INCHES)	.054	.071	.071	.071
		(AC-FT)	31.	41.	41.	41.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.	12.87		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
.67	13.67		.44	.22	.22	.22

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 245R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
115.	13.33	(CFS)	60.	24.	24.	24.
		(INCHES)	.052	.069	.069	.069
		(AC-FT)	30.	39.	39.	39.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.	12.87		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR

.67	13.67		.43	.22	.22	.22

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 245R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	13.33	(CFS)	59.	24.	24.	24.
		(INCHES)	.052	.068	.068	.068
		(AC-FT)	29.	39.	39.	39.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.87	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.67	13.67	.43	.21	.21	.21

CUMULATIVE AREA = 10.67 SQ MI

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INTERPOLATED HYDROGRAPH AT 245R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	13.33	(CFS)	62.	25.	25.	25.
		(INCHES)	.054	.071	.071	.071
		(AC-FT)	31.	40.	40.	40.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.87	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.67	13.67	.43	.21	.21	.21

CUMULATIVE AREA = 10.67 SQ MI

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302 KK * 250S *
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SUB-BASIN 250

SUBBASIN RUNOFF DATA

304 BA SUBBASIN CHARACTERISTICS
TAREA 1.10 SUBBASIN AREA

305 LG GREEN AND AMPT LOSS RATE

STRTL	.24	STARTING LOSS
DTH	.32	MOISTURE DEFICIT
PSIF	6.90	WETTING FRONT SUCTION
XKSAT	.26	HYDRAULIC CONDUCTIVITY
RTIMP	26.00	PERCENT IMPERVIOUS AREA

306 UC CLARK UNITGRAPH

TC	1.08	TIME OF CONCENTRATION
R	.53	STORAGE COEFFICIENT

307 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 3.0 5.0 8.0 12.0 20.0 43.0 75.0 90.0 96.0
100.0

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= 1.08 HR, R= .53 HR
SNYDER TP= .88 HR, CP= .94

UNIT HYDROGRAPH
53 END-OF-PERIOD ORDINATES

12.	32.	46.	59.	75.	94.	122.	162.	256.	407.
582.	721.	777.	766.	719.	670.	610.	541.	477.	421.
371.	327.	288.	254.	224.	197.	174.	153.	135.	119.
105.	93.	82.	72.	63.	56.	49.	43.	38.	34.
30.	26.	23.	20.	18.	16.	14.	12.	11.	10.
8.	7.	7.							

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HYDROGRAPH AT STATION 250S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.03, TOTAL EXCESS = 1.87

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
899.	12.67	(CFS)	190.	66.	66.	66.
		(INCHES)	1.600	1.843	1.843	1.843
		(AC-FT)	94.	108.	108.	108.

CUMULATIVE AREA = 1.10 SQ MI

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HYDROGRAPH AT STATION 250S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.00, TOTAL EXCESS = 1.82

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
874.	12.67	(CFS)	185.	64.	64.	64.
		(INCHES)	1.557	1.795	1.795	1.795
		(AC-FT)	92.	106.	106.	106.

CUMULATIVE AREA = 1.10 SQ MI

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HYDROGRAPH AT STATION 250S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 1.97, TOTAL EXCESS = 1.77

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
849.	12.67	(CFS)	180.	62.	62.	62.
		(INCHES)	1.514	1.747	1.747	1.747
		(AC-FT)	89.	103.	103.	103.

CUMULATIVE AREA = 1.10 SQ MI

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HYDROGRAPH AT STATION 250S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 1.91, TOTAL EXCESS = 1.68

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
801.	12.67	(CFS)	170.	59.	59.	59.
		(INCHES)	1.432	1.656	1.656	1.656
		(AC-FT)	84.	97.	97.	97.

CUMULATIVE AREA = 1.10 SQ MI

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HYDROGRAPH AT STATION 250S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 1.88, TOTAL EXCESS = 1.63

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
775.	12.67	(CFS)	165.	57.	57.	57.
		(INCHES)	1.389	1.607	1.607	1.607
		(AC-FT)	82.	95.	95.	95.

CUMULATIVE AREA = 1.10 SQ MI

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INTERPOLATED HYDROGRAPH AT 250S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
878.	12.67	(CFS)	186.	64.	64.	64.
		(INCHES)	1.564	1.803	1.803	1.803
		(AC-FT)	92.	106.	106.	106.

CUMULATIVE AREA = 1.10 SQ MI

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309 KK * 125RD *

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                RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT NEAR MH PARK SOUTH OF
                PINNACLE PEAK ROAD

312 DR          RETRIEVE DIVERSION HYDROGRAPH
                ISTAD       125D  DIVERSION HYDROGRAPH IDENTIFICATION

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                HYDROGRAPH AT STATION    125RD
                TRANSPOSITION AREA       .0 SQ MI

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                6-HR      24-HR      72-HR     19.93-HR
  1278.      13.27     (CFS)     697.       242.       242.       242.
                       (INCHES)  5.873      6.777      6.777      6.777
                       (AC-FT)   345.       399.       399.       399.

                CUMULATIVE AREA =    8.76 SQ MI

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

                HYDROGRAPH AT STATION    125RD
                TRANSPOSITION AREA       3.0 SQ MI

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                6-HR      24-HR      72-HR     19.93-HR
  1267.      13.27     (CFS)     689.       239.       239.       239.
                       (INCHES)  5.805      6.696      6.696      6.696
                       (AC-FT)   341.       394.       394.       394.

                CUMULATIVE AREA =    8.76 SQ MI

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                HYDROGRAPH AT STATION    125RD
                TRANSPOSITION AREA       10.0 SQ MI

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                6-HR      24-HR      72-HR     19.93-HR
  1257.      13.27     (CFS)     680.       236.       236.       236.
                       (INCHES)  5.736      6.614      6.614      6.614
                       (AC-FT)   337.       389.       389.       389.

                CUMULATIVE AREA =    8.76 SQ MI

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                HYDROGRAPH AT STATION    125RD
                TRANSPOSITION AREA       20.0 SQ MI

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                6-HR      24-HR      72-HR     19.93-HR
  1236.      13.27     (CFS)     664.       230.       230.       230.
                       (INCHES)  5.600      6.452      6.452      6.452
                       (AC-FT)   329.       380.       380.       380.

                CUMULATIVE AREA =    8.76 SQ MI
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HYDROGRAPH AT STATION 125RD
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1226.	13.33	(CFS)	655.	227.	227.	227.
		(INCHES)	5.524	6.362	6.362	6.362
		(AC-FT)	325.	374.	374.	374.

CUMULATIVE AREA = 8.76 SQ MI

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INTERPOLATED HYDROGRAPH AT 125RD

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1258.	13.27	(CFS)	681.	236.	236.	236.
		(INCHES)	.724	.834	.834	.834
		(AC-FT)	338.	390.	390.	390.

CUMULATIVE AREA = 8.76 SQ MI

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313 KK    *    170RD   *
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RETRIEVE FLOW DIVERTED THROUGH I-17 CULVERT NORTH OF WILLIAMS DRIVE

315 DR RETRIEVE DIVERSION HYDROGRAPH
ISTAD 170D DIVERSION HYDROGRAPH IDENTIFICATION

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HYDROGRAPH AT STATION 170RD
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
510.	12.80	(CFS)	187.	58.	58.	58.
		(INCHES)	.198	.204	.204	.204
		(AC-FT)	93.	95.	95.	95.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 170RD
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR

510.	12.80	(CFS)	183.	57.	57.	57.
		(INCHES)	.194	.200	.200	.200
		(AC-FT)	91.	93.	93.	93.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 170RD
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
510.	12.87	(CFS)	179.	55.	55.	55.
		(INCHES)	.190	.195	.195	.195
		(AC-FT)	89.	91.	91.	91.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 170RD
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
510.	12.87	(CFS)	170.	53.	53.	53.
		(INCHES)	.181	.186	.186	.186
		(AC-FT)	85.	87.	87.	87.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 170RD
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
510.	12.93	(CFS)	165.	51.	51.	51.
		(INCHES)	.176	.181	.181	.181
		(AC-FT)	82.	85.	85.	85.

CUMULATIVE AREA = 10.37 SQ MI

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INTERPOLATED HYDROGRAPH AT 170RD

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
510.	12.87	(CFS)	178.	55.	55.	55.
		(INCHES)	.160	.164	.164	.164
		(AC-FT)	88.	91.	91.	91.

CUMULATIVE AREA = 10.37 SQ MI

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          *            *
316 KK    *      255S  *
          *            *
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                        SUB-BASIN 255

                   SUBBASIN RUNOFF DATA

318 BA               SUBBASIN CHARACTERISTICS
                           TAREA         .62  SUBBASIN AREA

319 LG               GREEN AND AMPT LOSS RATE
                           STRTL         .32  STARTING LOSS
                             DTH         .33  MOISTURE DEFICIT
                            PSIF        6.20  WETTING FRONT SUCTION
                           XKSAT         .23  HYDRAULIC CONDUCTIVITY
                           RTIMP       10.00  PERCENT IMPERVIOUS AREA

320 UC               CLARK UNITGRAPH
                             TC        1.50  TIME OF CONCENTRATION
                              R        1.23  STORAGE COEFFICIENT

321 UA               ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                           .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                        100.0

                                                      ***

                                                 UNIT HYDROGRAPH PARAMETERS
                                               CLARK   TC=  1.50 HR,       R=  1.23 HR
                                              SNYDER   TP=  1.27 HR,      CP=   .69

                                                      UNIT HYDROGRAPH
                                                 112 END-OF-PERIOD ORDINATES
                     2.        6.       10.       12.       15.       18.       21.       25.       29.       36.
                    45.       62.       88.      119.      155.      188.      208.      218.      221.      218.
                   214.      209.      202.      192.      182.      173.      163.      155.      147.      139.
                   131.      124.      118.      112.      106.      100.       95.       90.       85.       81.
                    76.       72.       68.       65.       61.       58.       55.       52.       49.       47.
                    44.       42.       40.       38.       36.       34.       32.       30.       29.       27.
                    26.       24.       23.       22.       21.       20.       19.       18.       17.       16.
                    15.       14.       13.       13.       12.       11.       11.       10.       10.        9.
                     9.        8.        8.        7.        7.        7.        6.        6.        6.        5.
                     5.        5.        4.        4.        4.        4.        4.        3.        3.        3.
                     3.        3.        3.        2.        2.        2.        2.        2.        2.        2.
                     2.        2.

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

                            HYDROGRAPH AT STATION     255S
                           TRANSPOSITION AREA       .0 SQ MI

          TOTAL RAINFALL =    3.90, TOTAL LOSS =    2.42, TOTAL EXCESS =    1.48

          PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
            (CFS)       (HR)                    6-HR       24-HR       72-HR     19.93-HR
             271.      13.07        (CFS)        89.         29.         29.         29.
                                   (INCHES)    1.347       1.454       1.454       1.454
                                   (AC-FT)       44.         48.         48.         48.

                            CUMULATIVE AREA =     .62 SQ MI
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HYDROGRAPH AT STATION 255S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.39, TOTAL EXCESS = 1.43

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
263.	13.07	(CFS)	86.	28.	28.	28.
		(INCHES)	1.304	1.409	1.409	1.409
		(AC-FT)	43.	46.	46.	46.

CUMULATIVE AREA = .62 SQ MI

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HYDROGRAPH AT STATION 255S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.35, TOTAL EXCESS = 1.39

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
255.	13.07	(CFS)	84.	27.	27.	27.
		(INCHES)	1.263	1.366	1.366	1.366
		(AC-FT)	41.	45.	45.	45.

CUMULATIVE AREA = .62 SQ MI

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HYDROGRAPH AT STATION 255S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.28, TOTAL EXCESS = 1.31

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
240.	13.07	(CFS)	79.	26.	26.	26.
		(INCHES)	1.189	1.288	1.288	1.288
		(AC-FT)	39.	42.	42.	42.

CUMULATIVE AREA = .62 SQ MI

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HYDROGRAPH AT STATION 255S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.25, TOTAL EXCESS = 1.26

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
231.	13.07	(CFS)	76.	25.	25.	25.
		(INCHES)	1.150	1.246	1.246	1.246
		(AC-FT)	38.	41.	41.	41.

CUMULATIVE AREA = .62 SQ MI

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INTERPOLATED HYDROGRAPH AT 255S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
265.	13.07	(CFS)	87.	28.	28.	28.
		(INCHES)	1.316	1.422	1.422	1.422
		(AC-FT)	43.	47.	47.	47.

CUMULATIVE AREA = .62 SQ MI

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          *            *
323 KK    *      260C  *
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COMBINE 125RD, 170RD AND 255S AT CP OF 255S

325 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 260C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2049.	13.20	(CFS)	971.	329.	329.	329.
		(INCHES)	14.685	16.511	16.511	16.511
		(AC-FT)	482.	542.	542.	542.

CUMULATIVE AREA = .62 SQ MI

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HYDROGRAPH AT STATION 260C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2030.	13.20	(CFS)	957.	324.	324.	324.
		(INCHES)	14.465	16.265	16.265	16.265
		(AC-FT)	474.	533.	533.	533.

CUMULATIVE AREA = .62 SQ MI

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HYDROGRAPH AT STATION 260C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2010.	13.20	(CFS)	942.	319.	319.	319.
		(INCHES)	14.235	16.007	16.007	16.007

	(AC-FT)	467.	525.	525.	525.

CUMULATIVE AREA = .62 SQ MI

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HYDROGRAPH AT STATION 260C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1973.	13.20	(CFS)	912.	309.	309.	309.
		(INCHES)	13.794	15.512	15.512	15.512
		(AC-FT)	452.	509.	509.	509.

CUMULATIVE AREA = .62 SQ MI

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HYDROGRAPH AT STATION 260C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1952.	13.20	(CFS)	896.	303.	303.	303.
		(INCHES)	13.544	15.233	15.233	15.233
		(AC-FT)	444.	500.	500.	500.

CUMULATIVE AREA = .62 SQ MI

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INTERPOLATED HYDROGRAPH AT 260C

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2035.	13.20	(CFS)	961.	325.	325.	325.
		(INCHES)	14.526	16.333	16.333	16.333
		(AC-FT)	476.	536.	536.	536.

CUMULATIVE AREA = .62 SQ MI

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*      265R  *
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326 KK

ROUTE 260C TO CP OF 250S ALONG SCATTER WASH NORTH OF DEER VALLEY ROAD

HYDROGRAPH ROUTING DATA

328 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

329 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	8300.	REACH LENGTH
SEL	.0048	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
331 RY	ELEVATION	17.00	12.50	10.00	.00	.00	10.00	12.50	17.00
330 RX	DISTANCE	250.00	700.00	900.00	980.00	1020.00	1100.00	1300.00	1750.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	8.04	18.52	31.44	46.80	64.60	84.85	107.53	132.66	160.22
OUTFLOW	.00	122.52	420.87	895.70	1562.65	2439.57	3544.56	4895.52	6509.91	8404.80
ELEVATION	.00	.89	1.79	2.68	3.58	4.47	5.37	6.26	7.16	8.05
STORAGE	190.23	222.67	265.01	331.41	422.21	540.66	689.61	869.06	1079.03	1319.50
OUTFLOW	10596.82	13102.20	16527.07	20753.99	25925.73	32211.23	39960.21	49394.78	60721.31	74133.61
ELEVATION	8.95	9.84	10.74	11.63	12.53	13.42	14.32	15.21	16.11	17.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 8405. TO 16527.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 265R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2036.	13.47	(CFS)	967.	320.	320.	320.
		(INCHES)	14.618	16.089	16.089	16.089
		(AC-FT)	479.	528.	528.	528.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
11.	13.47	6.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.06	13.47	2.59	.94	.94	.94

CUMULATIVE AREA = .62 SQ MI

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HYDROGRAPH AT STATION 265R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2017.	13.47	(CFS)	952.	316.	316.	316.
		(INCHES)	14.398	15.846	15.846	15.846
		(AC-FT)	472.	520.	520.	520.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR

11.	13.47		6.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.04	13.47	2.57	.93	.93	.93

CUMULATIVE AREA = .62 SQ MI

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HYDROGRAPH AT STATION 265R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1998.	13.47	(CFS)	937.	310.	310.	310.
		(INCHES)	14.168	15.593	15.593	15.593
		(AC-FT)	465.	511.	511.	511.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
11.	13.47	6.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.02	13.47	2.54	.92	.92	.92

CUMULATIVE AREA = .62 SQ MI

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HYDROGRAPH AT STATION 265R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1961.	13.47	(CFS)	908.	301.	301.	301.
		(INCHES)	13.727	15.106	15.106	15.106
		(AC-FT)	450.	495.	495.	495.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
11.	13.47	6.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.99	13.47	2.50	.90	.90	.90

CUMULATIVE AREA = .62 SQ MI

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HYDROGRAPH AT STATION 265R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1941.	13.53	(CFS)	892.	295.	295.	295.
		(INCHES)	13.479	14.830	14.830	14.830
		(AC-FT)	442.	486.	486.	486.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR

11.	13.53		6.	2.	2.	2.

PEAK STAGE	TIME			MAXIMUM AVERAGE STAGE		
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.97	13.53		2.47	.89	.89	.89

CUMULATIVE AREA = .62 SQ MI

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INTERPOLATED HYDROGRAPH AT 265R

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2022.	13.47	(CFS)	956.	317.	317.	317.
		(INCHES)	14.459	15.914	15.914	15.914
		(AC-FT)	474.	522.	522.	522.

PEAK STORAGE	TIME			MAXIMUM AVERAGE STORAGE		
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
11.	13.53		6.	2.	2.	2.

PEAK STAGE	TIME			MAXIMUM AVERAGE STAGE		
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.97	13.53		2.47	.89	.89	.89

CUMULATIVE AREA = .62 SQ MI

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332 KK    *    270C    *
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COMBINE 240R, 240R, 245R, 265R & 250S @ CP OF 250S

334 HC HYDROGRAPH COMBINATION

ICOMP 5 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 270C

TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3253.	13.67	(CFS)	1364.	477.	477.	477.
		(INCHES)	.987	1.146	1.146	1.146
		(AC-FT)	677.	785.	785.	785.

CUMULATIVE AREA = 12.85 SQ MI

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HYDROGRAPH AT STATION 270C

TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3416.	13.53	(CFS)	1400.	486.	486.	486.
		(INCHES)	1.013	1.169	1.169	1.169
		(AC-FT)	694.	801.	801.	801.

CUMULATIVE AREA = 12.85 SQ MI

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HYDROGRAPH AT STATION 270C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3257.	13.53	(CFS)	1360.	473.	473.	473.
		(INCHES)	.984	1.137	1.137	1.137
		(AC-FT)	674.	779.	779.	779.

CUMULATIVE AREA = 12.85 SQ MI

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HYDROGRAPH AT STATION 270C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2982.	13.53	(CFS)	1284.	448.	448.	448.
		(INCHES)	.929	1.077	1.077	1.077
		(AC-FT)	637.	738.	738.	738.

CUMULATIVE AREA = 12.85 SQ MI

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HYDROGRAPH AT STATION 270C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2835.	13.60	(CFS)	1244.	435.	435.	435.
		(INCHES)	.900	1.045	1.045	1.045
		(AC-FT)	617.	716.	716.	716.

CUMULATIVE AREA = 12.85 SQ MI

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INTERPOLATED HYDROGRAPH AT 270C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3157.	13.53	(CFS)	1332.	464.	464.	464.
		(INCHES)	.964	1.115	1.115	1.115
		(AC-FT)	661.	764.	764.	764.

CUMULATIVE AREA = 12.85 SQ MI

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335 KK    *      275R  *
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ROUTE 270C TO CP OF 280S ALONG SCATTER WASH NORTH OF BEARDSLEY ROAD

HYDROGRAPH ROUTING DATA

337 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

338 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	4500.	REACH LENGTH
SEL	.0056	ENERGY SLOPE
ELMAX	10.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
340 RY	ELEVATION	7.50	7.00	5.50	.00	.00	5.50	7.00	7.50
339 RX	DISTANCE	100.00	650.00	800.00	980.00	1020.00	1200.00	1350.00	1600.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	3.11	8.10	14.95	23.68	34.29	46.76	61.11	77.34	95.43
OUTFLOW	.00	61.22	233.86	541.37	1009.23	1661.54	2521.10	3609.55	4947.60	6555.15
ELEVATION	.00	.53	1.05	1.58	2.11	2.63	3.16	3.68	4.21	4.74
STORAGE	115.40	137.83	165.59	199.07	248.09	328.21	409.77	491.33	572.88	654.44
OUTFLOW	8451.39	10957.47	14102.14	17726.34	21753.31	27520.48	34669.50	42910.93	52153.02	62331.31
ELEVATION	5.26	5.79	6.32	6.84	7.37	7.89	8.42	8.95	9.47	10.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 2521. TO 62331.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 275R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3204.	13.87	(CFS)	1363.	470.	470.	470.
		(INCHES)	.986	1.131	1.131	1.131
		(AC-FT)	676.	775.	775.	775.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
11.	13.87	6.	2.	2.	2.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE

(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.49	13.87		2.23	1.00	1.00	1.00

CUMULATIVE AREA = 12.85 SQ MI

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HYDROGRAPH AT STATION 275R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3387.	13.67	(CFS)	1399.	480.	480.	480.
		(INCHES)	1.012	1.154	1.154	1.154
		(AC-FT)	694.	791.	791.	791.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
12.	13.67	6.	2.	2.	2.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.58	13.67	2.24	1.00	1.00	1.00

CUMULATIVE AREA = 12.85 SQ MI

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HYDROGRAPH AT STATION 275R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3229.	13.67	(CFS)	1358.	467.	467.	467.
		(INCHES)	.983	1.122	1.122	1.122
		(AC-FT)	674.	769.	769.	769.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
11.	13.67	6.	2.	2.	2.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.50	13.67	2.22	.99	.99	.99

CUMULATIVE AREA = 12.85 SQ MI

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HYDROGRAPH AT STATION 275R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2966.	13.73	(CFS)	1283.	442.	442.	442.
		(INCHES)	.928	1.063	1.063	1.063
		(AC-FT)	636.	728.	728.	728.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
11.	13.73	5.	2.	2.	2.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE

(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.37	13.73		2.16	.96	.96	.96

CUMULATIVE AREA = 12.85 SQ MI

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HYDROGRAPH AT STATION 275R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2823.	13.73	(CFS)	1243.	429.	429.	429.
		(INCHES)	.899	1.031	1.031	1.031
		(AC-FT)	616.	707.	707.	707.

PEAK STORAGE	TIME			MAXIMUM AVERAGE STORAGE		
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
10.	13.73		5.	2.	2.	2.

PEAK STAGE	TIME			MAXIMUM AVERAGE STAGE		
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.30	13.73		2.14	.95	.95	.95

CUMULATIVE AREA = 12.85 SQ MI

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INTERPOLATED HYDROGRAPH AT 275R

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3132.	13.73	(CFS)	1331.	458.	458.	458.
		(INCHES)	.963	1.101	1.101	1.101
		(AC-FT)	660.	754.	754.	754.

PEAK STORAGE	TIME			MAXIMUM AVERAGE STORAGE		
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
10.	13.73		5.	2.	2.	2.

PEAK STAGE	TIME			MAXIMUM AVERAGE STAGE		
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.30	13.73		2.14	.95	.95	.95

CUMULATIVE AREA = 12.85 SQ MI

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341 KK    *     280S   *
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SUB-BASIN 280

SUBBASIN RUNOFF DATA

343 BA SUBBASIN CHARACTERISTICS
TAREA .74 SUBBASIN AREA

344 LG GREEN AND AMPT LOSS RATE

STRTL	.23	STARTING LOSS
DTH	.33	MOISTURE DEFICIT
PSIF	4.90	WETTING FRONT SUCTION
XKSAT	.32	HYDRAULIC CONDUCTIVITY
RTIMP	13.00	PERCENT IMPERVIOUS AREA

345 UC CLARK UNITGRAPH

TC	.80	TIME OF CONCENTRATION
R	.52	STORAGE COEFFICIENT

346 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
100.0

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= .80 HR, R= .52 HR
SNYDER TP= .42 HR, CP= .45

UNIT HYDROGRAPH
47 END-OF-PERIOD ORDINATES

18.	69.	142.	252.	411.	514.	521.	506.	485.	457.
426.	397.	360.	317.	279.	245.	216.	190.	167.	147.
130.	114.	100.	88.	78.	68.	60.	53.	47.	41.
36.	32.	28.	25.	22.	19.	17.	15.	13.	11.
10.	9.	8.	7.	6.	5.	5.			

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HYDROGRAPH AT STATION 280S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.39, TOTAL EXCESS = 1.51

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
579.	12.27	(CFS)	110.	36.	36.	36.
		(INCHES)	1.373	1.498	1.498	1.498
		(AC-FT)	54.	59.	59.	59.

CUMULATIVE AREA = .74 SQ MI

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HYDROGRAPH AT STATION 280S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.35, TOTAL EXCESS = 1.47

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
562.	12.27	(CFS)	107.	35.	35.	35.
		(INCHES)	1.334	1.455	1.455	1.455
		(AC-FT)	53.	58.	58.	58.

CUMULATIVE AREA = .74 SQ MI

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HYDROGRAPH AT STATION 280S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.31, TOTAL EXCESS = 1.43

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
545.	12.27	(CFS)	104.	34.	34.	34.
		(INCHES)	1.294	1.413	1.413	1.413
		(AC-FT)	51.	56.	56.	56.

CUMULATIVE AREA = .74 SQ MI

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HYDROGRAPH AT STATION 280S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.24, TOTAL EXCESS = 1.35

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
512.	12.27	(CFS)	98.	32.	32.	32.
		(INCHES)	1.219	1.333	1.333	1.333
		(AC-FT)	48.	53.	53.	53.

CUMULATIVE AREA = .74 SQ MI

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HYDROGRAPH AT STATION 280S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.21, TOTAL EXCESS = 1.30

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
495.	12.27	(CFS)	94.	31.	31.	31.
		(INCHES)	1.178	1.290	1.290	1.290
		(AC-FT)	47.	51.	51.	51.

CUMULATIVE AREA = .74 SQ MI

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INTERPOLATED HYDROGRAPH AT 280S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
566.	12.27	(CFS)	107.	35.	35.	35.
		(INCHES)	1.343	1.466	1.466	1.466
		(AC-FT)	53.	58.	58.	58.

CUMULATIVE AREA = .74 SQ MI

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348 KK * 285C *

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                COMBINE 275R AND 280S AT CP OF 280S

350 HC          HYDROGRAPH COMBINATION
                ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

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                  HYDROGRAPH AT STATION     285C
                 TRANSPOSITION AREA       .0 SQ MI

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     19.93-HR
   3263.      13.80      (CFS)     1458.       506.        506.        506.
                        (INCHES)    .997      1.151       1.151       1.151
                        (AC-FT)     723.       834.        834.        834.

                  CUMULATIVE AREA =   13.59 SQ MI


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

                  HYDROGRAPH AT STATION     285C
                 TRANSPOSITION AREA      3.0 SQ MI

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     19.93-HR
   3460.      13.67      (CFS)     1490.       515.        515.        515.
                        (INCHES)   1.019      1.170       1.170       1.170
                        (AC-FT)     739.       849.        849.        849.

                  CUMULATIVE AREA =   13.59 SQ MI


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

                  HYDROGRAPH AT STATION     285C
                 TRANSPOSITION AREA     10.0 SQ MI

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     19.93-HR
   3300.      13.67      (CFS)     1447.       501.        501.        501.
                        (INCHES)    .990      1.138       1.138       1.138
                        (AC-FT)     717.       825.        825.        825.

                  CUMULATIVE AREA =   13.59 SQ MI


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

                  HYDROGRAPH AT STATION     285C
                 TRANSPOSITION AREA     20.0 SQ MI

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     19.93-HR
   3026.      13.73      (CFS)     1366.       474.        474.        474.
                        (INCHES)    .934      1.078       1.078       1.078
                        (AC-FT)     677.       781.        781.        781.

                  CUMULATIVE AREA =   13.59 SQ MI


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HYDROGRAPH AT STATION 285C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2882.	13.73	(CFS)	1322.	460.	460.	460.
		(INCHES)	.905	1.045	1.045	1.045
		(AC-FT)	656.	758.	758.	758.

CUMULATIVE AREA = 13.59 SQ MI

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INTERPOLATED HYDROGRAPH AT 285C

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3178.	13.67	(CFS)	1411.	489.	489.	489.
		(INCHES)	.965	1.111	1.111	1.111
		(AC-FT)	700.	806.	806.	806.

CUMULATIVE AREA = 13.59 SQ MI

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351 KK    *     290R   *
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ROUTE 285C TO CP OF 295S ALONG SCATTER WASH CHANNEL U/S OF 45TH AVE CROSSING

HYDROGRAPH ROUTING DATA

353 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

354 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.030	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.030	RIGHT OVERBANK N-VALUE
RLNTH	6200.	REACH LENGTH
SEL	.0027	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL		------- +	--- RIGHT OVERBANK ---		
356 RY	ELEVATION	10.00	2.50	2.50	.00	.00	2.50	2.50	10.00
355 RX	DISTANCE	830.00	850.00	980.00	990.00	1010.00	1020.00	1150.00	1170.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	1.66	3.63	5.91	8.52	16.30	38.93	61.77	84.82	108.09
OUTFLOW	.00	18.36	60.79	124.99	211.37	349.04	815.41	1550.89	2507.25	3660.73

ELEVATION	.00	.53	1.05	1.58	2.11	2.63	3.16	3.68	4.21	4.74
STORAGE	131.56	155.24	179.13	203.24	227.55	252.07	276.81	301.75	326.91	352.27
OUTFLOW	4996.10	6502.45	8171.42	9996.42	11972.02	14093.72	16357.67	18760.59	21299.61	23972.24
ELEVATION	5.26	5.79	6.32	6.84	7.37	7.89	8.42	8.95	9.47	10.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 8171. TO 23972.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 290R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3198.	14.07	(CFS)	1451.	497.	497.	497.
		(INCHES)	.993	1.129	1.129	1.129
		(AC-FT)	720.	818.	818.	818.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
20.	14.07	11.	4.	4.	4.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.53	14.07	3.50	1.75	1.75	1.75

CUMULATIVE AREA = 13.59 SQ MI

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HYDROGRAPH AT STATION 290R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3405.	13.93	(CFS)	1484.	505.	505.	505.
		(INCHES)	1.015	1.149	1.149	1.149
		(AC-FT)	736.	833.	833.	833.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
21.	13.93	11.	4.	4.	4.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.62	13.93	3.51	1.75	1.75	1.75

CUMULATIVE AREA = 13.59 SQ MI

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HYDROGRAPH AT STATION 290R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3258.	13.93	(CFS)	1441.	491.	491.	491.
		(INCHES)	.985	1.117	1.117	1.117
		(AC-FT)	714.	809.	809.	809.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
20.	13.93		11.	4.	4.	4.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.55	13.93		3.49	1.73	1.73	1.73

CUMULATIVE AREA = 13.59 SQ MI

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HYDROGRAPH AT STATION 290R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2999.	13.93	(CFS)	1360.	465.	465.	465.
		(INCHES)	.930	1.057	1.057	1.057
		(AC-FT)	674.	766.	766.	766.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
19.	13.93		10.	4.	4.	4.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.43	13.93		3.44	1.70	1.70	1.70

CUMULATIVE AREA = 13.59 SQ MI

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HYDROGRAPH AT STATION 290R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2862.	13.93	(CFS)	1317.	451.	451.	451.
		(INCHES)	.901	1.025	1.025	1.025
		(AC-FT)	653.	743.	743.	743.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
18.	13.93		10.	4.	4.	4.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.37	13.93		3.41	1.69	1.69	1.69

CUMULATIVE AREA = 13.59 SQ MI

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INTERPOLATED HYDROGRAPH AT 290R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3143.	13.93	(CFS)	1405.	480.	480.	480.
		(INCHES)	.961	1.090	1.090	1.090
		(AC-FT)	697.	790.	790.	790.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
18.	13.93	10.	4.	4.	4.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.37	13.93	3.41	1.69	1.69	1.69

CUMULATIVE AREA = 13.59 SQ MI

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357 KK    *      295S  *
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                    SUB-BASIN 295

               SUBBASIN RUNOFF DATA

359 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .35  SUBBASIN AREA

360 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .29  STARTING LOSS
                       DTH         .34  MOISTURE DEFICIT
                      PSIF        4.40  WETTING FRONT SUCTION
                     XKSAT         .33  HYDRAULIC CONDUCTIVITY
                     RTIMP       11.00  PERCENT IMPERVIOUS AREA

361 UC          CLARK UNITGRAPH
                       TC        1.17  TIME OF CONCENTRATION
                        R        1.04  STORAGE COEFFICIENT

362 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0
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UNIT HYDROGRAPH PARAMETERS
CLARK TC= 1.17 HR, R= 1.04 HR
SNYDER TP= 1.01 HR, CP= .65

UNIT HYDROGRAPH
94 END-OF-PERIOD ORDINATES

2.	5.	8.	10.	13.	16.	20.	26.	36.	55.
82.	113.	137.	149.	152.	150.	146.	141.	133.	125.
117.	110.	103.	97.	91.	85.	80.	75.	70.	66.
62.	58.	54.	51.	48.	45.	42.	40.	37.	35.
33.	31.	29.	27.	25.	24.	22.	21.	20.	18.
17.	16.	15.	14.	13.	12.	12.	11.	10.	10.
9.	9.	8.	7.	7.	7.	6.	6.	5.	5.
5.	4.	4.	4.	4.	3.	3.	3.	3.	3.
3.	2.	2.	2.	2.	2.	2.	2.	2.	1.
1.	1.	1.	1.						

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HYDROGRAPH AT STATION 295S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.45, TOTAL EXCESS = 1.45

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
176.	12.80	(CFS)	50.	16.	16.	16.
		(INCHES)	1.323	1.431	1.431	1.431
		(AC-FT)	25.	27.	27.	27.

CUMULATIVE AREA = .35 SQ MI

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HYDROGRAPH AT STATION 295S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.41, TOTAL EXCESS = 1.41

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
171.	12.80	(CFS)	49.	16.	16.	16.
		(INCHES)	1.284	1.389	1.389	1.389
		(AC-FT)	24.	26.	26.	26.

CUMULATIVE AREA = .35 SQ MI

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HYDROGRAPH AT STATION 295S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.37, TOTAL EXCESS = 1.37

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
165.	12.80	(CFS)	47.	15.	15.	15.
		(INCHES)	1.245	1.348	1.348	1.348
		(AC-FT)	23.	25.	25.	25.

CUMULATIVE AREA = .35 SQ MI

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HYDROGRAPH AT STATION 295S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.30, TOTAL EXCESS = 1.29

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
155.	12.80	(CFS)	44.	14.	14.	14.
		(INCHES)	1.170	1.269	1.269	1.269
		(AC-FT)	22.	24.	24.	24.

CUMULATIVE AREA = .35 SQ MI

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HYDROGRAPH AT STATION 295S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.27, TOTAL EXCESS = 1.24

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
150.	12.80	(CFS)	43.	14.	14.	14.
		(INCHES)	1.130	1.227	1.227	1.227
		(AC-FT)	21.	23.	23.	23.

CUMULATIVE AREA = .35 SQ MI

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INTERPOLATED HYDROGRAPH AT 295S

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
173.	12.80	(CFS)	49.	16.	16.	16.
		(INCHES)	1.299	1.405	1.405	1.405
		(AC-FT)	24.	26.	26.	26.

CUMULATIVE AREA = .35 SQ MI

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364 KK    *     300C   *
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COMBINE 290R AND 295S AT CP OF 295S

366 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 300C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3263.	14.07	(CFS)	1498.	513.	513.	513.
		(INCHES)	.999	1.136	1.136	1.136
		(AC-FT)	743.	845.	845.	845.

CUMULATIVE AREA = 13.95 SQ MI

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HYDROGRAPH AT STATION 300C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3475.	13.87	(CFS)	1529.	521.	521.	521.
		(INCHES)	1.020	1.155	1.155	1.155
		(AC-FT)	758.	859.	859.	859.

CUMULATIVE AREA = 13.95 SQ MI

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HYDROGRAPH AT STATION 300C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3326.	13.93	(CFS)	1484.	507.	507.	507.
		(INCHES)	.990	1.122	1.122	1.122
		(AC-FT)	736.	835.	835.	835.

CUMULATIVE AREA = 13.95 SQ MI

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HYDROGRAPH AT STATION 300C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3063.	13.93	(CFS)	1401.	479.	479.	479.
		(INCHES)	.934	1.062	1.062	1.062
		(AC-FT)	695.	790.	790.	790.

CUMULATIVE AREA = 13.95 SQ MI

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HYDROGRAPH AT STATION 300C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2924.	13.93	(CFS)	1356.	465.	465.	465.
		(INCHES)	.904	1.030	1.030	1.030
		(AC-FT)	673.	766.	766.	766.

CUMULATIVE AREA = 13.95 SQ MI

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INTERPOLATED HYDROGRAPH AT 300C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3200.	13.93	(CFS)	1444.	494.	494.	494.
		(INCHES)	.963	1.093	1.093	1.093
		(AC-FT)	716.	813.	813.	813.

CUMULATIVE AREA = 13.95 SQ MI

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367 KK      *      310S  *
            *            *
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                        ADOBE DAM OUTLET; ASSUMED CONSTANT OUTFLOW OF 1730 CFS FOR 100-YEAR STORM
                        SOURCE: F.I.S., MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS, FEMA

371 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN         120  TIME INTERVAL IN MINUTES
                    JXDATE      1    0  STARTING DATE
                    JXTIME           0  STARTING TIME

               SUBBASIN RUNOFF DATA

370 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .10  SUBBASIN AREA

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                       HYDROGRAPH AT STATION     310S
                     TRANSPOSITION AREA       .0 SQ MI

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     19.93-HR
   1730.       .07       (CFS)     1730.       1730.       1730.       1730.
                        (INCHES)  160.847     534.370     534.370     534.370
                         (AC-FT)     858.       2850.       2850.       2850.

                       CUMULATIVE AREA =     .10 SQ MI


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

                       HYDROGRAPH AT STATION     310S
                     TRANSPOSITION AREA      3.0 SQ MI

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     19.93-HR
   1730.       .07       (CFS)     1730.       1730.       1730.       1730.
                        (INCHES)  160.847     534.370     534.370     534.370
                         (AC-FT)     858.       2850.       2850.       2850.

                       CUMULATIVE AREA =     .10 SQ MI


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                       HYDROGRAPH AT STATION     310S
                     TRANSPOSITION AREA     10.0 SQ MI

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     19.93-HR
   1730.       .07       (CFS)     1730.       1730.       1730.       1730.
                        (INCHES)  160.847     534.370     534.370     534.370
                         (AC-FT)     858.       2850.       2850.       2850.

                       CUMULATIVE AREA =     .10 SQ MI


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                       HYDROGRAPH AT STATION     310S
                     TRANSPOSITION AREA     20.0 SQ MI

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
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(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1730.	.07	(CFS)	1730.	1730.	1730.	1730.
		(INCHES)	160.847	534.370	534.370	534.370
		(AC-FT)	858.	2850.	2850.	2850.

CUMULATIVE AREA = .10 SQ MI

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HYDROGRAPH AT STATION 310S
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1730.	.07	(CFS)	1730.	1730.	1730.	1730.
		(INCHES)	160.847	534.370	534.370	534.370
		(AC-FT)	858.	2850.	2850.	2850.

CUMULATIVE AREA = .10 SQ MI

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INTERPOLATED HYDROGRAPH AT 310S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1730.	.07	(CFS)	1730.	1730.	1730.	1730.
		(INCHES)	160.847	534.370	534.370	534.370
		(AC-FT)	858.	2850.	2850.	2850.

CUMULATIVE AREA = .10 SQ MI

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374 KK        *      320R   *
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SKUNK CREEK U/S OF BEARDSLEY ROAD AND D/S OF ADOBE DAM

HYDROGRAPH ROUTING DATA

376 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

377 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	3300.	REACH LENGTH
SEL	.0028	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

--- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---

379 RY	ELEVATION	7.00	6.00	5.00	.00	.00	7.00	9.00	11.00
378 RX	DISTANCE	645.00	795.00	945.00	965.00	1035.00	1085.00	1095.00	1105.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	3.21	6.71	10.48	14.54	18.89	23.51	28.42	33.62	39.34
OUTFLOW	.00	75.13	242.61	485.63	799.50	1182.67	1635.05	2157.28	2750.47	3431.90
ELEVATION	.00	.58	1.16	1.74	2.32	2.89	3.47	4.05	4.63	5.21
STORAGE	48.30	61.25	78.19	97.52	117.00	136.60	156.33	176.19	196.18	216.29
OUTFLOW	4258.12	5274.19	6533.31	8286.27	10331.07	12626.11	15157.34	17914.25	20888.55	24073.48
ELEVATION	5.79	6.37	6.95	7.53	8.11	8.68	9.26	9.84	10.42	11.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 486. TO 24073.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 320R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1730.	.07	(CFS)	1730.	1730.	1730.	1730.
		(INCHES)	160.847	534.370	534.370	534.370
		(AC-FT)	858.	2850.	2850.	2850.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	.07	5.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.58	.00	3.58	3.58	3.58	3.58

CUMULATIVE AREA = .10 SQ MI

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HYDROGRAPH AT STATION 320R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1730.	.07	(CFS)	1730.	1730.	1730.	1730.
		(INCHES)	160.847	534.370	534.370	534.370
		(AC-FT)	858.	2850.	2850.	2850.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	.07	5.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.58	.00	3.58	3.58	3.58	3.58

CUMULATIVE AREA = .10 SQ MI

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

HYDROGRAPH AT STATION 320R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1730.	.07	(CFS)	1730.	1730.	1730.	1730.
		(INCHES)	160.847	534.370	534.370	534.370
		(AC-FT)	858.	2850.	2850.	2850.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	.07	5.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.58	.00	3.58	3.58	3.58	3.58

CUMULATIVE AREA = .10 SQ MI

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

HYDROGRAPH AT STATION 320R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1730.	.07	(CFS)	1730.	1730.	1730.	1730.
		(INCHES)	160.847	534.370	534.370	534.370
		(AC-FT)	858.	2850.	2850.	2850.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	.07	5.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.58	.00	3.58	3.58	3.58	3.58

CUMULATIVE AREA = .10 SQ MI

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

HYDROGRAPH AT STATION 320R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1730.	.07	(CFS)	1730.	1730.	1730.	1730.
		(INCHES)	160.847	534.370	534.370	534.370
		(AC-FT)	858.	2850.	2850.	2850.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	.07	5.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.58	.00	3.58	3.58	3.58	3.58

CUMULATIVE AREA = .10 SQ MI

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INTERPOLATED HYDROGRAPH AT 320R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1730.	.07	(CFS)	1730.	1730.	1730.	1730.
		(INCHES)	160.847	534.370	534.370	534.370
		(AC-FT)	858.	2850.	2850.	2850.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	.07	5.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.58	.00	3.58	3.58	3.58	3.58

CUMULATIVE AREA = .10 SQ MI

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          *            *
380 KK    *      325S  *
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SUB-BASIN 325

SUBBASIN RUNOFF DATA

382 BA SUBBASIN CHARACTERISTICS

TAREA	.65	SUBBASIN AREA

383 LG GREEN AND AMPT LOSS RATE

STRTL	.30	STARTING LOSS
DTH	.34	MOISTURE DEFICIT
PSIF	3.90	WETTING FRONT SUCTION
XKSAT	.44	HYDRAULIC CONDUCTIVITY
RTIMP	9.00	PERCENT IMPERVIOUS AREA

384 UC CLARK UNITGRAPH

TC	1.50	TIME OF CONCENTRATION
R	1.13	STORAGE COEFFICIENT

385 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 3.0 5.0 8.0 12.0 20.0 43.0 75.0 90.0 96.0
100.0

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UNIT HYDROGRAPH PARAMETERS
CLARK TC= 1.50 HR, R= 1.13 HR
SNYDER TP= 1.26 HR, CP= .72

UNIT HYDROGRAPH
105 END-OF-PERIOD ORDINATES

2.	7.	11.	14.	16.	20.	24.	28.	33.	41.
51.	70.	100.	134.	174.	212.	234.	245.	247.	243.
237.	231.	222.	211.	199.	188.	177.	167.	157.	148.
140.	132.	124.	117.	111.	104.	98.	93.	87.	82.
78.	73.	69.	65.	61.	58.	55.	51.	49.	46.
43.	41.	38.	36.	34.	32.	30.	29.	27.	25.

24.	23.	21.	20.	19.	18.	17.	16.	15.	14.
13.	13.	12.	11.	11.	10.	9.	9.	8.	8.
7.	7.	7.	6.	6.	6.	5.	5.	5.	4.
4.	4.	4.	3.	3.	3.	3.	3.	3.	2.
2.	2.	2.	2.	2.					

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HYDROGRAPH AT STATION 325S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.59, TOTAL EXCESS = 1.31

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
268.	13.07	(CFS)	84.	27.	27.	27.
		(INCHES)	1.199	1.291	1.291	1.291
		(AC-FT)	42.	45.	45.	45.

CUMULATIVE AREA = .65 SQ MI

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HYDROGRAPH AT STATION 325S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.55, TOTAL EXCESS = 1.27

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
259.	13.07	(CFS)	81.	26.	26.	26.
		(INCHES)	1.160	1.250	1.250	1.250
		(AC-FT)	40.	43.	43.	43.

CUMULATIVE AREA = .65 SQ MI

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HYDROGRAPH AT STATION 325S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.51, TOTAL EXCESS = 1.23

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
250.	13.07	(CFS)	78.	25.	25.	25.
		(INCHES)	1.121	1.208	1.208	1.208
		(AC-FT)	39.	42.	42.	42.

CUMULATIVE AREA = .65 SQ MI

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HYDROGRAPH AT STATION 325S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.44, TOTAL EXCESS = 1.15

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
233.	13.07	(CFS)	73.	24.	24.	24.
		(INCHES)	1.046	1.131	1.131	1.131
		(AC-FT)	36.	39.	39.	39.

CUMULATIVE AREA = .65 SQ MI

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HYDROGRAPH AT STATION 325S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.41, TOTAL EXCESS = 1.10

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
224.	13.07	(CFS)	70.	23.	23.	23.
		(INCHES)	1.006	1.089	1.089	1.089
		(AC-FT)	35.	38.	38.	38.

CUMULATIVE AREA = .65 SQ MI

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INTERPOLATED HYDROGRAPH AT 325S

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
261.	13.07	(CFS)	82.	27.	27.	27.
		(INCHES)	1.170	1.261	1.261	1.261
		(AC-FT)	41.	44.	44.	44.

CUMULATIVE AREA = .65 SQ MI

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          *            *
387 KK    *     330C   *
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COMBINE 325S AND 310S (ADOBE DAM OUTLET)

389 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 330C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1998.	13.07	(CFS)	1814.	1757.	1757.	1757.
		(INCHES)	22.485	72.368	72.368	72.368
		(AC-FT)	899.	2895.	2895.	2895.

CUMULATIVE AREA = .75 SQ MI

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HYDROGRAPH AT STATION 330C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1989.	13.07	(CFS)	1811.	1756.	1756.	1756.
		(INCHES)	22.452	72.332	72.332	72.332
		(AC-FT)	898.	2893.	2893.	2893.

CUMULATIVE AREA = .75 SQ MI

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HYDROGRAPH AT STATION 330C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1980.	13.07	(CFS)	1808.	1755.	1755.	1755.
		(INCHES)	22.417	72.297	72.297	72.297
		(AC-FT)	897.	2892.	2892.	2892.

CUMULATIVE AREA = .75 SQ MI

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HYDROGRAPH AT STATION 330C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1963.	13.07	(CFS)	1803.	1754.	1754.	1754.
		(INCHES)	22.353	72.229	72.229	72.229
		(AC-FT)	894.	2889.	2889.	2889.

CUMULATIVE AREA = .75 SQ MI

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HYDROGRAPH AT STATION 330C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1954.	13.07	(CFS)	1800.	1753.	1753.	1753.
		(INCHES)	22.319	72.193	72.193	72.193
		(AC-FT)	893.	2888.	2888.	2888.

CUMULATIVE AREA = .75 SQ MI

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INTERPOLATED HYDROGRAPH AT 330C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1991.	13.07	(CFS)	1812.	1757.	1757.	1757.
		(INCHES)	22.460	72.341	72.341	72.341
		(AC-FT)	898.	2894.	2894.	2894.

CUMULATIVE AREA = .75 SQ MI

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390 KK * 335R *
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ROUTE 330C TO CP OF 340S ALONG SKUNK CREEK U/S OF WAHALLA LANE

HYDROGRAPH ROUTING DATA

392 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

393 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	3050.	REACH LENGTH
SEL	.0060	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------		+ --- RIGHT OVERBANK ---		
395 RY	ELEVATION	7.00	6.50	6.00	.00	.00	6.00	6.50	7.00
394 RX	DISTANCE	935.00	940.00	945.00	965.00	1035.00	1065.00	1070.00	1075.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	1.85	3.77	5.77	7.86	10.02	12.26	14.58	16.98	19.46
OUTFLOW	.00	51.33	164.15	325.10	529.30	774.11	1057.94	1379.83	1739.17	2135.64
ELEVATION	.00	.37	.74	1.11	1.47	1.84	2.21	2.58	2.95	3.32
STORAGE	22.02	24.65	27.37	30.17	33.04	36.00	39.03	42.17	45.50	49.01
OUTFLOW	2569.08	3039.48	3546.92	4091.57	4673.65	5293.43	5951.24	6724.67	7573.10	8468.93
ELEVATION	3.68	4.05	4.42	4.79	5.16	5.53	5.89	6.26	6.63	7.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 164. TO 8469.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 335R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1997.	13.13	(CFS)	1814.	1757.	1757.	1757.
		(INCHES)	22.485	72.368	72.368	72.368
		(AC-FT)	899.	2895.	2895.	2895.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR

4.	13.13	3.	3.	3.	3.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.19	13.13	3.02	2.96	2.96	2.96

CUMULATIVE AREA = .75 SQ MI

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HYDROGRAPH AT STATION 335R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1989.	13.13	(CFS)	1811.	1756.	1756.	1756.
		(INCHES)	22.451	72.332	72.332	72.332
		(AC-FT)	898.	2893.	2893.	2893.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
4.	13.13	3.	3.	3.	3.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.18	13.13	3.01	2.96	2.96	2.96

CUMULATIVE AREA = .75 SQ MI

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HYDROGRAPH AT STATION 335R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1980.	13.13	(CFS)	1808.	1755.	1755.	1755.
		(INCHES)	22.417	72.296	72.296	72.296
		(AC-FT)	897.	2892.	2892.	2892.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
4.	13.13	3.	3.	3.	3.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.17	13.13	3.01	2.96	2.96	2.96

CUMULATIVE AREA = .75 SQ MI

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HYDROGRAPH AT STATION 335R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1963.	13.13	(CFS)	1803.	1754.	1754.	1754.
		(INCHES)	22.353	72.229	72.229	72.229
		(AC-FT)	894.	2889.	2889.	2889.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR

4.	13.13		3.	3.	3.	3.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.16	13.13		3.01	2.96	2.96	2.96

CUMULATIVE AREA = .75 SQ MI

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HYDROGRAPH AT STATION 335R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1954.	13.13	(CFS)	1800.	1753.	1753.	1753.
		(INCHES)	22.319	72.192	72.192	72.192
		(AC-FT)	893.	2888.	2888.	2888.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
4.	13.13		3.	3.	3.	3.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.15	13.13		3.00	2.96	2.96	2.96

CUMULATIVE AREA = .75 SQ MI

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INTERPOLATED HYDROGRAPH AT 335R

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1991.	13.13	(CFS)	1812.	1756.	1756.	1756.
		(INCHES)	22.460	72.341	72.341	72.341
		(AC-FT)	898.	2894.	2894.	2894.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
4.	13.13		3.	3.	3.	3.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.15	13.13		3.00	2.96	2.96	2.96

CUMULATIVE AREA = .75 SQ MI

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396 KK    *     340S   *
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SUB-BASIN 340

SUBBASIN RUNOFF DATA

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398 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .09  SUBBASIN AREA

399 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .23  STARTING LOSS
                       DTH         .35  MOISTURE DEFICIT
                      PSIF        3.20  WETTING FRONT SUCTION
                     XKSAT         .66  HYDRAULIC CONDUCTIVITY
                     RTIMP       13.00  PERCENT IMPERVIOUS AREA

400 UC          CLARK UNITGRAPH
                        TC         .33  TIME OF CONCENTRATION
                         R         .25  STORAGE COEFFICIENT

401 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                   100.0

                                                  ***

                                                        UNIT HYDROGRAPH PARAMETERS
                                                  CLARK   TC=   .33 HR,       R=   .25 HR
                                                  SNYDER  TP=   .19 HR,      CP=   .44

                                                              UNIT HYDROGRAPH
                                                        23 END-OF-PERIOD ORDINATES
                     15.       75.      123.      122.      109.       90.       69.       53.       41.       31.
                     24.       18.       14.       11.       8.        6.        5.        4.        3.        2.
                      2.        1.        1.

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

                          HYDROGRAPH AT STATION     340S
                        TRANSPOSITION AREA       .0 SQ MI

    TOTAL RAINFALL =   3.90, TOTAL LOSS =    2.61, TOTAL EXCESS =    1.29

PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR       72-HR      19.93-HR
    90.       12.07       (CFS)         11.          4.          4.          4.
                          (INCHES)    1.155       1.283       1.283       1.283
                          (AC-FT)        5.          6.          6.          6.

                          CUMULATIVE AREA =     .09 SQ MI

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

                          HYDROGRAPH AT STATION     340S
                        TRANSPOSITION AREA      3.0 SQ MI

    TOTAL RAINFALL =   3.82, TOTAL LOSS =    2.57, TOTAL EXCESS =    1.25

PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR       72-HR      19.93-HR
    87.       12.07       (CFS)         10.          3.          3.          3.
                          (INCHES)    1.115       1.239       1.239       1.239
                          (AC-FT)        5.          6.          6.          6.

                          CUMULATIVE AREA =     .09 SQ MI

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

                          HYDROGRAPH AT STATION     340S
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TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.54, TOTAL EXCESS = 1.20

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
83.	12.07	(CFS)	10.	3.	3.	3.
		(INCHES)	1.074	1.196	1.196	1.196
		(AC-FT)	5.	5.	5.	5.

CUMULATIVE AREA = .09 SQ MI

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HYDROGRAPH AT STATION 340S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.47, TOTAL EXCESS = 1.12

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
77.	12.07	(CFS)	9.	3.	3.	3.
		(INCHES)	.998	1.115	1.115	1.115
		(AC-FT)	5.	5.	5.	5.

CUMULATIVE AREA = .09 SQ MI

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

HYDROGRAPH AT STATION 340S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.43, TOTAL EXCESS = 1.08

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
74.	12.07	(CFS)	9.	3.	3.	3.
		(INCHES)	.957	1.071	1.071	1.071
		(AC-FT)	4.	5.	5.	5.

CUMULATIVE AREA = .09 SQ MI

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INTERPOLATED HYDROGRAPH AT 340S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
89.	12.07	(CFS)	11.	4.	4.	4.
		(INCHES)	1.140	1.266	1.266	1.266
		(AC-FT)	5.	6.	6.	6.

CUMULATIVE AREA = .09 SQ MI

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403 KK * 345C *
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COMBINE 335R AND 340S AT CP OF 340S

405 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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

HYDROGRAPH AT STATION 345C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2002.	13.13	(CFS)	1824.	1761.	1761.	1761.
		(INCHES)	20.287	65.055	65.055	65.055
		(AC-FT)	905.	2901.	2901.	2901.

CUMULATIVE AREA = .84 SQ MI

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HYDROGRAPH AT STATION 345C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1993.	13.13	(CFS)	1821.	1760.	1760.	1760.
		(INCHES)	20.253	65.019	65.019	65.019
		(AC-FT)	903.	2899.	2899.	2899.

CUMULATIVE AREA = .84 SQ MI

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

HYDROGRAPH AT STATION 345C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1984.	13.13	(CFS)	1818.	1759.	1759.	1759.
		(INCHES)	20.218	64.982	64.982	64.982
		(AC-FT)	901.	2897.	2897.	2897.

CUMULATIVE AREA = .84 SQ MI

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HYDROGRAPH AT STATION 345C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1966.	13.13	(CFS)	1812.	1757.	1757.	1757.
		(INCHES)	20.153	64.913	64.913	64.913
		(AC-FT)	899.	2894.	2894.	2894.

CUMULATIVE AREA = .84 SQ MI

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HYDROGRAPH AT STATION 345C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1957.	13.13	(CFS)	1809.	1756.	1756.	1756.
		(INCHES)	20.117	64.876	64.876	64.876
		(AC-FT)	897.	2893.	2893.	2893.

CUMULATIVE AREA = .84 SQ MI

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INTERPOLATED HYDROGRAPH AT 345C

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1995.	13.13	(CFS)	1822.	1760.	1760.	1760.
		(INCHES)	20.260	65.027	65.027	65.027
		(AC-FT)	903.	2899.	2899.	2899.

CUMULATIVE AREA = .84 SQ MI

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          *            *
406 KK    *     350S   *
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SUB-BASIN 350

SUBBASIN RUNOFF DATA

408 BA SUBBASIN CHARACTERISTICS
TAREA .26 SUBBASIN AREA

409 LG GREEN AND AMPT LOSS RATE
STRTL .28 STARTING LOSS
DTH .32 MOISTURE DEFICIT
PSIF 5.60 WETTING FRONT SUCTION
XKSAT .25 HYDRAULIC CONDUCTIVITY
RTIMP 23.00 PERCENT IMPERVIOUS AREA

410 UC CLARK UNITGRAPH
TC .33 TIME OF CONCENTRATION
R .13 STORAGE COEFFICIENT

411 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES
.0 3.0 5.0 8.0 12.0 20.0 43.0 75.0 90.0 96.0
100.0

***

UNIT HYDROGRAPH PARAMETERS
CLARK TC= .33 HR, R= .13 HR
SNYDER TP= .28 HR, CP= 1.01

UNIT HYDROGRAPH
14 END-OF-PERIOD ORDINATES

25.	76.	240.	540.	613.	419.	252.	152.	91.	55.
33.	20.	12.	7.						

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HYDROGRAPH AT STATION 350S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.07, TOTAL EXCESS = 1.83

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
407.	12.13	(CFS)	45.	16.	16.	16.
		(INCHES)	1.596	1.821	1.821	1.821
		(AC-FT)	22.	26.	26.	26.

CUMULATIVE AREA = .26 SQ MI

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HYDROGRAPH AT STATION 350S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.04, TOTAL EXCESS = 1.78

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
396.	12.13	(CFS)	44.	15.	15.	15.
		(INCHES)	1.551	1.771	1.771	1.771
		(AC-FT)	22.	25.	25.	25.

CUMULATIVE AREA = .26 SQ MI

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HYDROGRAPH AT STATION 350S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.01, TOTAL EXCESS = 1.73

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
385.	12.13	(CFS)	43.	15.	15.	15.
		(INCHES)	1.507	1.723	1.723	1.723
		(AC-FT)	21.	24.	24.	24.

CUMULATIVE AREA = .26 SQ MI

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HYDROGRAPH AT STATION 350S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 1.94, TOTAL EXCESS = 1.65

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
365.	12.13	(CFS)	40.	14.	14.	14.
		(INCHES)	1.427	1.635	1.635	1.635
		(AC-FT)	20.	23.	23.	23.

CUMULATIVE AREA = .26 SQ MI

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HYDROGRAPH AT STATION 350S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 1.91, TOTAL EXCESS = 1.60

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
354.	12.13	(CFS)	39.	14.	14.	14.
		(INCHES)	1.385	1.587	1.587	1.587
		(AC-FT)	19.	22.	22.	22.

CUMULATIVE AREA = .26 SQ MI

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INTERPOLATED HYDROGRAPH AT 350S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
401.	12.13	(CFS)	44.	15.	15.	15.
		(INCHES)	1.570	1.793	1.793	1.793
		(AC-FT)	22.	25.	25.	25.

CUMULATIVE AREA = .26 SQ MI

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413 KK    *     355R   *
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ROUTE 350S TO CONFLUENCE OF SCATTER WASH & SKUNK CREEK, ALONG HAVASUPAI DR.

HYDROGRAPH ROUTING DATA

415 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

416 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.030	LEFT OVERBANK N-VALUE
ANCH	.020	MAIN CHANNEL N-VALUE
ANR	.030	RIGHT OVERBANK N-VALUE
RLNTH	2400.	REACH LENGTH
SEL	.0060	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---	+	------ MAIN CHANNEL	-------	+ ---	RIGHT OVERBANK ---		
418 RY	ELEVATION	5.50	.50	.50	.00	.00	.50	.50	5.50
417 RX	DISTANCE	70.00	70.10	79.90	80.00	120.00	120.10	130.00	130.10

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.64	1.37	2.32	3.28	4.23	5.19	6.14	7.10	8.06
OUTFLOW	.00	29.03	92.81	194.50	327.87	488.52	673.74	881.57	1110.48	1359.27
ELEVATION	.00	.29	.58	.87	1.16	1.45	1.74	2.03	2.32	2.61
STORAGE	9.01	9.97	10.93	11.89	12.84	13.80	14.76	15.72	16.68	17.63
OUTFLOW	1626.90	1912.51	2215.35	2534.77	2870.19	3221.08	3586.98	3967.48	4362.19	4770.76
ELEVATION	2.89	3.18	3.47	3.76	4.05	4.34	4.63	4.92	5.21	5.50

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 29. TO 4771.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 355R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
403.	12.20	(CFS)	45.	15.	15.	15.
		(INCHES)	1.596	1.818	1.818	1.818
		(AC-FT)	22.	25.	25.	25.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.13	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.29	12.20	.22	.09	.09	.09

CUMULATIVE AREA = .26 SQ MI

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HYDROGRAPH AT STATION 355R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
392.	12.20	(CFS)	44.	15.	15.	15.
		(INCHES)	1.551	1.768	1.768	1.768
		(AC-FT)	22.	25.	25.	25.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.13	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.27	12.20	.22	.08	.08	.08

CUMULATIVE AREA = .26 SQ MI

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HYDROGRAPH AT STATION 355R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
381.	12.20	(CFS)	43.	15.	15.	15.
		(INCHES)	1.507	1.719	1.719	1.719
		(AC-FT)	21.	24.	24.	24.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1.	12.13	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1.25	12.20	.22	.08	.08	.08

CUMULATIVE AREA = .26 SQ MI

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HYDROGRAPH AT STATION 355R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
361.	12.20	(CFS)	40.	14.	14.	14.
		(INCHES)	1.427	1.631	1.631	1.631
		(AC-FT)	20.	23.	23.	23.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1.	12.13	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1.22	12.20	.21	.08	.08	.08

CUMULATIVE AREA = .26 SQ MI

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HYDROGRAPH AT STATION 355R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
351.	12.20	(CFS)	39.	13.	13.	13.
		(INCHES)	1.385	1.584	1.584	1.584
		(AC-FT)	19.	22.	22.	22.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1.	12.20	0.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1.20	12.20	.20	.08	.08	.08

CUMULATIVE AREA = .26 SQ MI

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INTERPOLATED HYDROGRAPH AT 355R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
397.	12.20	(CFS)	44.	15.	15.	15.
		(INCHES)	1.570	1.789	1.789	1.789
		(AC-FT)	22.	25.	25.	25.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.20	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.20	12.20	.20	.08	.08	.08

CUMULATIVE AREA = .26 SQ MI

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419 KK    *     360C   *
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COMBINE 300C, 345C AND 355R NEAR CONFLUENCE OF SCATTER WASH AND SKUNK CREEK

421 HC HYDROGRAPH COMBINATION

ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 360C

TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
5143.	14.07	(CFS)	3350.	2289.	2289.	2289.
		(INCHES)	2.070	4.700	4.700	4.700
		(AC-FT)	1661.	3771.	3771.	3771.

CUMULATIVE AREA = 15.04 SQ MI

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HYDROGRAPH AT STATION 360C

TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
5376.	13.87	(CFS)	3377.	2296.	2296.	2296.
		(INCHES)	2.087	4.714	4.714	4.714
		(AC-FT)	1675.	3783.	3783.	3783.

CUMULATIVE AREA = 15.04 SQ MI

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HYDROGRAPH AT STATION 360C

TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
5218.	13.87	(CFS)	3328.	2280.	2280.	2280.
		(INCHES)	2.057	4.682	4.682	4.682
		(AC-FT)	1650.	3756.	3756.	3756.

CUMULATIVE AREA = 15.04 SQ MI

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HYDROGRAPH AT STATION 360C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
4943.	13.87	(CFS)	3237.	2250.	2250.	2250.
		(INCHES)	2.001	4.620	4.620	4.620
		(AC-FT)	1605.	3707.	3707.	3707.

CUMULATIVE AREA = 15.04 SQ MI

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HYDROGRAPH AT STATION 360C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
4801.	13.87	(CFS)	3188.	2234.	2234.	2234.
		(INCHES)	1.970	4.587	4.587	4.587
		(AC-FT)	1581.	3681.	3681.	3681.

CUMULATIVE AREA = 15.04 SQ MI

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INTERPOLATED HYDROGRAPH AT 360C

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
5056.	13.87	(CFS)	3274.	2263.	2263.	2263.
		(INCHES)	2.024	4.645	4.645	4.645
		(AC-FT)	1624.	3727.	3727.	3727.

CUMULATIVE AREA = 15.04 SQ MI

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422 KK    *     370R   *
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ROUTE 360C TO CP OF 375S ALONG SKUNK CREEK U/S OF 51ST AVENUE ALIGNMENT

HYDROGRAPH ROUTING DATA

424 RS STORAGE ROUTING

NSTPS	2	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

425 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	6200.	REACH LENGTH
SEL	.0047	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
427 RY	ELEVATION	1298.00	1296.00	1294.00	1290.00	1290.00	1294.00	1296.00	1298.00
426 RX	DISTANCE	120.00	130.00	350.00	460.00	580.00	590.00	720.00	770.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	7.57	15.90	24.98	34.82	45.42	56.77	68.88	81.75	95.37
OUTFLOW	.00	98.42	318.88	640.48	1058.07	1570.53	2178.55	2883.74	3688.28	4594.64
ELEVATION	1290.00	1290.42	1290.84	1291.26	1291.68	1292.11	1292.53	1292.95	1293.37	1293.79
STORAGE	110.21	129.00	152.21	179.84	211.88	247.31	283.61	320.66	358.48	397.05
OUTFLOW	5697.69	7035.37	8558.47	10296.70	12275.78	14592.63	17188.92	20027.62	23101.42	26405.10
ELEVATION	1294.21	1294.63	1295.05	1295.47	1295.89	1296.32	1296.74	1297.16	1297.58	1298.00

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HYDROGRAPH AT STATION 370R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
5099.	14.20	(CFS)	3347.	2285.	2285.	2285.
		(INCHES)	2.068	4.692	4.692	4.692
		(AC-FT)	1659.	3764.	3764.	3764.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
51.	14.20	38.	29.	29.	29.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1293.98	14.20	1293.15	1292.54	1292.54	1292.54

CUMULATIVE AREA = 15.04 SQ MI

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HYDROGRAPH AT STATION 370R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
5337.	14.00	(CFS)	3374.	2292.	2292.	2292.
		(INCHES)	2.085	4.706	4.706	4.706
		(AC-FT)	1673.	3776.	3776.	3776.

PEAK STORAGE TIME MAXIMUM AVERAGE STORAGE

(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
53.	14.00		38.	29.	29.	29.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1294.07	14.00	1293.16	1292.55	1292.55	1292.55

CUMULATIVE AREA = 15.04 SQ MI

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HYDROGRAPH AT STATION 370R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
5187.	14.00	(CFS)	3325.	2276.	2276.	2276.
		(INCHES)	2.055	4.673	4.673	4.673
		(AC-FT)	1649.	3750.	3750.	3750.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
52.	14.00	38.	29.	29.	29.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1294.02	14.00	1293.14	1292.54	1292.54	1292.54

CUMULATIVE AREA = 15.04 SQ MI

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HYDROGRAPH AT STATION 370R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
4923.	14.00	(CFS)	3234.	2246.	2246.	2246.
		(INCHES)	1.999	4.612	4.612	4.612
		(AC-FT)	1604.	3701.	3701.	3701.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
50.	14.00	37.	29.	29.	29.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1293.91	14.00	1293.10	1292.53	1292.53	1292.53

CUMULATIVE AREA = 15.04 SQ MI

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HYDROGRAPH AT STATION 370R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
4787.	14.00	(CFS)	3185.	2230.	2230.	2230.
		(INCHES)	1.969	4.580	4.580	4.580
		(AC-FT)	1580.	3674.	3674.	3674.

PEAK STORAGE TIME MAXIMUM AVERAGE STORAGE

(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
49.	14.00		37.	29.	29.	29.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1293.86	14.00		1293.07	1292.52	1292.52	1292.52

CUMULATIVE AREA = 15.04 SQ MI

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INTERPOLATED HYDROGRAPH AT 370R

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
5031.	14.00	(CFS)	3271.	2259.	2259.	2259.
		(INCHES)	2.022	4.637	4.637	4.637
		(AC-FT)	1622.	3721.	3721.	3721.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
49.	14.00		37.	29.	29.	29.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1293.86	14.00		1293.07	1292.52	1292.52	1292.52

CUMULATIVE AREA = 15.04 SQ MI

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428 KK    *      375S  *
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SUB-BASIN 375

SUBBASIN RUNOFF DATA

430 BA SUBBASIN CHARACTERISTICS

TAREA	.98	SUBBASIN AREA

431 LG GREEN AND AMPT LOSS RATE

STRTL	.29	STARTING LOSS
DTH	.33	MOISTURE DEFICIT
PSIF	5.30	WETTING FRONT SUCTION
XKSAT	.38	HYDRAULIC CONDUCTIVITY
RTIMP	18.00	PERCENT IMPERVIOUS AREA

432 UC CLARK UNITGRAPH

TC	.80	TIME OF CONCENTRATION
R	.38	STORAGE COEFFICIENT

433 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 3.0 5.0 8.0 12.0 20.0 43.0 75.0 90.0 96.0
100.0

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= .80 HR, R= .38 HR

SNYDER TP= .66 HR, CP= .96

UNIT HYDROGRAPH

38 END-OF-PERIOD ORDINATES

19.	49.	72.	99.	135.	195.	361.	642.	870.	942.
899.	816.	710.	596.	501.	420.	353.	296.	249.	209.
175.	147.	124.	104.	87.	73.	61.	51.	43.	36.
30.	26.	21.	18.	15.	13.	11.	9.		

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HYDROGRAPH AT STATION 375S

TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.34, TOTAL EXCESS = 1.56

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
898.	12.47	(CFS)	145.	49.	49.	49.
		(INCHES)	1.375	1.546	1.546	1.546
		(AC-FT)	72.	81.	81.	81.

CUMULATIVE AREA = .98 SQ MI

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HYDROGRAPH AT STATION 375S

TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.30, TOTAL EXCESS = 1.52

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
869.	12.47	(CFS)	141.	48.	48.	48.
		(INCHES)	1.333	1.500	1.500	1.500
		(AC-FT)	70.	79.	79.	79.

CUMULATIVE AREA = .98 SQ MI

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HYDROGRAPH AT STATION 375S

TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.27, TOTAL EXCESS = 1.47

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
841.	12.47	(CFS)	137.	46.	46.	46.
		(INCHES)	1.291	1.455	1.455	1.455
		(AC-FT)	68.	76.	76.	76.

CUMULATIVE AREA = .98 SQ MI

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HYDROGRAPH AT STATION 375S

TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.21, TOTAL EXCESS = 1.38

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
787.	12.47	(CFS)	128.	44.	44.	44.
		(INCHES)	1.211	1.369	1.369	1.369
		(AC-FT)	64.	72.	72.	72.

CUMULATIVE AREA = .98 SQ MI

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HYDROGRAPH AT STATION 375S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.17, TOTAL EXCESS = 1.34

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
758.	12.47	(CFS)	124.	42.	42.	42.
		(INCHES)	1.169	1.323	1.323	1.323
		(AC-FT)	61.	69.	69.	69.

CUMULATIVE AREA = .98 SQ MI

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INTERPOLATED HYDROGRAPH AT 375S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
875.	12.47	(CFS)	142.	48.	48.	48.
		(INCHES)	1.341	1.509	1.509	1.509
		(AC-FT)	70.	79.	79.	79.

CUMULATIVE AREA = .98 SQ MI

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435 KK     *      380S   *
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SUB-BASIN 380

SUBBASIN RUNOFF DATA

437 BA SUBBASIN CHARACTERISTICS

437 BA	TAREA	1.40	SUBBASIN AREA

438 LG GREEN AND AMPT LOSS RATE

STRTL	.32	STARTING LOSS
DTH	.33	MOISTURE DEFICIT
PSIF	4.60	WETTING FRONT SUCTION
XKSAT	.43	HYDRAULIC CONDUCTIVITY
RTIMP	8.00	PERCENT IMPERVIOUS AREA

439 UC CLARK UNITGRAPH

TC	1.48	TIME OF CONCENTRATION
R	.79	STORAGE COEFFICIENT

440 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 3.0 5.0 8.0 12.0 20.0 43.0 75.0 90.0 96.0
100.0

***

UNIT HYDROGRAPH PARAMETERS

CLARK TC= 1.48 HR, R= .79 HR
SNYDER TP= 1.22 HR, CP= .89

UNIT HYDROGRAPH
77 END-OF-PERIOD ORDINATES

7.	22.	33.	41.	49.	58.	69.	82.	96.	119.
149.	209.	302.	406.	524.	622.	670.	685.	677.	652.
624.	594.	558.	515.	473.	435.	400.	367.	337.	310.
285.	262.	241.	221.	203.	187.	172.	158.	145.	133.
122.	112.	103.	95.	87.	80.	74.	68.	62.	57.
53.	48.	44.	41.	37.	34.	32.	29.	27.	25.
23.	21.	19.	18.	16.	15.	14.	12.	11.	11.
10.	9.	8.	8.	7.	6.	6.			

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HYDROGRAPH AT STATION 380S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.65, TOTAL EXCESS = 1.25

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
702.	13.00	(CFS)	176.	56.	56.	56.
		(INCHES)	1.165	1.239	1.239	1.239
		(AC-FT)	87.	93.	93.	93.

CUMULATIVE AREA = 1.40 SQ MI

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HYDROGRAPH AT STATION 380S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.61, TOTAL EXCESS = 1.21

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
678.	13.00	(CFS)	170.	54.	54.	54.
		(INCHES)	1.125	1.197	1.197	1.197
		(AC-FT)	84.	90.	90.	90.

CUMULATIVE AREA = 1.40 SQ MI

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HYDROGRAPH AT STATION 380S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.57, TOTAL EXCESS = 1.17

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
653.	13.00	(CFS)	164.	53.	53.	53.
		(INCHES)	1.085	1.156	1.156	1.156
		(AC-FT)	81.	87.	87.	87.

CUMULATIVE AREA = 1.40 SQ MI

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HYDROGRAPH AT STATION 380S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.50, TOTAL EXCESS = 1.09

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
607.	13.00	(CFS)	153.	49.	49.	49.
		(INCHES)	1.010	1.077	1.077	1.077
		(AC-FT)	76.	81.	81.	81.

CUMULATIVE AREA = 1.40 SQ MI

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HYDROGRAPH AT STATION 380S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.46, TOTAL EXCESS = 1.05

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
582.	13.00	(CFS)	146.	47.	47.	47.
		(INCHES)	.969	1.035	1.035	1.035
		(AC-FT)	73.	78.	78.	78.

CUMULATIVE AREA = 1.40 SQ MI

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INTERPOLATED HYDROGRAPH AT 380S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
681.	13.00	(CFS)	171.	55.	55.	55.
		(INCHES)	1.131	1.203	1.203	1.203
		(AC-FT)	85.	90.	90.	90.

CUMULATIVE AREA = 1.40 SQ MI

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442 KK    *     385R   *
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ROUTE 380S TO CP OF 390S ALONG UNNAMED WASH WEST OF PILCHER HILL

HYDROGRAPH ROUTING DATA

444 RS STORAGE ROUTING
NSTPS 5 NUMBER OF SUBREACHES

	ITYP	FLOW	TYPE OF INITIAL CONDITION
	RSVRIC	-1.00	INITIAL CONDITION
	X	.00	WORKING R AND D COEFFICIENT

445 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	4400.	REACH LENGTH
SEL	.0100	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---	+	------ MAIN CHANNEL -------	+	--- RIGHT OVERBANK ---			
447 RY	ELEVATION	12.00	10.00	9.00	6.00	6.00	9.00	10.00	12.00
446 RX	DISTANCE	10.00	200.00	300.00	306.00	316.00	322.00	420.00	620.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.34	.72	1.14	1.60	2.10	2.64	3.22	3.84	4.50
OUTFLOW	.00	7.38	23.85	47.89	79.17	117.66	163.50	216.87	277.97	347.07
ELEVATION	6.00	6.32	6.63	6.95	7.26	7.58	7.89	8.21	8.53	8.84
STORAGE	5.45	8.14	12.84	19.52	28.17	38.79	51.37	65.92	82.43	100.91
OUTFLOW	433.90	565.42	767.35	1065.27	1480.93	2033.24	2740.28	3619.07	4685.80	5955.97
ELEVATION	9.16	9.47	9.79	10.11	10.42	10.74	11.05	11.37	11.68	12.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 79. TO 434.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 385R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
671.	13.27	(CFS)	176.	56.	56.	56.
		(INCHES)	1.165	1.235	1.235	1.235
		(AC-FT)	87.	93.	93.	93.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
2.	13.27	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
9.64	13.27	7.59	6.61	6.61	6.61

CUMULATIVE AREA = 1.40 SQ MI

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HYDROGRAPH AT STATION 385R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
648.	13.27	(CFS)	170.	54.	54.	54.
		(INCHES)	1.125	1.194	1.194	1.194
		(AC-FT)	84.	89.	89.	89.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
2.	13.27		1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
9.60	13.27		7.56	6.60	6.60	6.60

CUMULATIVE AREA = 1.40 SQ MI

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HYDROGRAPH AT STATION 385R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
625.	13.27	(CFS)	164.	52.	52.	52.
		(INCHES)	1.085	1.153	1.153	1.153
		(AC-FT)	81.	86.	86.	86.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
2.	13.27		1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
9.57	13.27		7.54	6.59	6.59	6.59

CUMULATIVE AREA = 1.40 SQ MI

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HYDROGRAPH AT STATION 385R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
583.	13.27	(CFS)	153.	49.	49.	49.
		(INCHES)	1.010	1.074	1.074	1.074
		(AC-FT)	76.	81.	81.	81.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
2.	13.27		0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
9.50	13.27		7.49	6.57	6.57	6.57

CUMULATIVE AREA = 1.40 SQ MI

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HYDROGRAPH AT STATION 385R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
561.	13.27	(CFS)	146.	47.	47.	47.
		(INCHES)	.969	1.032	1.032	1.032
		(AC-FT)	73.	77.	77.	77.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2.	13.27		0.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
9.46	13.27		7.46	6.56	6.56	6.56

CUMULATIVE AREA = 1.40 SQ MI

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INTERPOLATED HYDROGRAPH AT 385R

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
651.	13.27	(CFS)	171.	55.	55.	55.
		(INCHES)	1.131	1.200	1.200	1.200
		(AC-FT)	85.	90.	90.	90.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2.	13.27		0.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
9.46	13.27		7.46	6.56	6.56	6.56

CUMULATIVE AREA = 1.40 SQ MI

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          *            *
448 KK    *     390S   *
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SUB-BASIN 390

SUBBASIN RUNOFF DATA

450 BA SUBBASIN CHARACTERISTICS

TAREA	.80	SUBBASIN AREA

451 LG GREEN AND AMPT LOSS RATE

STRTL	.31	STARTING LOSS
DTH	.34	MOISTURE DEFICIT
PSIF	4.40	WETTING FRONT SUCTION
XKSAT	.34	HYDRAULIC CONDUCTIVITY
RTIMP	23.00	PERCENT IMPERVIOUS AREA

452 UC CLARK UNITGRAPH

TC	.75	TIME OF CONCENTRATION
R	.28	STORAGE COEFFICIENT

453 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 3.0 5.0 8.0 12.0 20.0 43.0 75.0 90.0 96.0
100.0

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= .75 HR, R= .28 HR

SNYDER TP= .60 HR, CP= 1.09

UNIT HYDROGRAPH

30 END-OF-PERIOD ORDINATES

22.	55.	79.	108.	156.	266.	493.	790.	950.	901.
785.	657.	525.	413.	326.	257.	202.	159.	126.	99.
78.	61.	48.	38.	30.	24.	19.	15.	12.	9.

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HYDROGRAPH AT STATION 390S

TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.13, TOTAL EXCESS = 1.77

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
892.	12.40	(CFS)	132.	45.	45.	45.
		(INCHES)	1.531	1.751	1.751	1.751
		(AC-FT)	65.	75.	75.	75.

CUMULATIVE AREA = .80 SQ MI

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

HYDROGRAPH AT STATION 390S

TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.10, TOTAL EXCESS = 1.72

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
866.	12.40	(CFS)	128.	44.	44.	44.
		(INCHES)	1.488	1.704	1.704	1.704
		(AC-FT)	63.	73.	73.	73.

CUMULATIVE AREA = .80 SQ MI

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

HYDROGRAPH AT STATION 390S

TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.07, TOTAL EXCESS = 1.67

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
840.	12.40	(CFS)	124.	43.	43.	43.
		(INCHES)	1.446	1.657	1.657	1.657
		(AC-FT)	62.	71.	71.	71.

CUMULATIVE AREA = .80 SQ MI

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HYDROGRAPH AT STATION 390S

TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.01, TOTAL EXCESS = 1.58

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
792.	12.40	(CFS)	117.	41.	41.	41.
		(INCHES)	1.366	1.568	1.568	1.568
		(AC-FT)	58.	67.	67.	67.

CUMULATIVE AREA = .80 SQ MI

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HYDROGRAPH AT STATION 390S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 1.97, TOTAL EXCESS = 1.54

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
766.	12.40	(CFS)	114.	39.	39.	39.
		(INCHES)	1.323	1.521	1.521	1.521
		(AC-FT)	56.	65.	65.	65.

CUMULATIVE AREA = .80 SQ MI

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INTERPOLATED HYDROGRAPH AT 390S

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
872.	12.40	(CFS)	129.	44.	44.	44.
		(INCHES)	1.498	1.715	1.715	1.715
		(AC-FT)	64.	73.	73.	73.

CUMULATIVE AREA = .80 SQ MI

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455 KK    *     395C   *
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COMBINE 385R AND 390S AT CP OF 390S

457 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 395C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1022.	12.47	(CFS)	306.	101.	101.	101.
		(INCHES)	1.292	1.422	1.422	1.422

(AC-FT)	152.	167.	167.	167.

CUMULATIVE AREA = 2.20 SQ MI

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HYDROGRAPH AT STATION 395C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
991.	12.47	(CFS)	297.	98.	98.	98.
		(INCHES)	1.252	1.379	1.379	1.379
		(AC-FT)	147.	162.	162.	162.

CUMULATIVE AREA = 2.20 SQ MI

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

HYDROGRAPH AT STATION 395C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
960.	12.47	(CFS)	287.	95.	95.	95.
		(INCHES)	1.211	1.335	1.335	1.335
		(AC-FT)	142.	157.	157.	157.

CUMULATIVE AREA = 2.20 SQ MI

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HYDROGRAPH AT STATION 395C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
901.	12.47	(CFS)	269.	89.	89.	89.
		(INCHES)	1.134	1.253	1.253	1.253
		(AC-FT)	133.	147.	147.	147.

CUMULATIVE AREA = 2.20 SQ MI

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HYDROGRAPH AT STATION 395C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
870.	12.47	(CFS)	259.	86.	86.	86.
		(INCHES)	1.093	1.209	1.209	1.209
		(AC-FT)	128.	142.	142.	142.

CUMULATIVE AREA = 2.20 SQ MI

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INTERPOLATED HYDROGRAPH AT 395C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
993.	12.47	(CFS)	297.	99.	99.	99.
		(INCHES)	1.254	1.381	1.381	1.381
		(AC-FT)	147.	162.	162.	162.

CUMULATIVE AREA = 2.20 SQ MI

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458 KK

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* 400R *
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ROUTE 395S TO CP OF 405S ALONG UNNAMED WASH NORTH OF ARROWHEAD RANCH

HYDROGRAPH ROUTING DATA

460 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

461 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	9600.	REACH LENGTH
SEL	.0073	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---			+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
463 RY	ELEVATION	1314.00	1309.00	1304.00	1300.00	1300.00	1304.00	1304.00	1304.00
462 RX	DISTANCE	300.00	350.00	400.00	460.00	540.00	600.00	650.00	700.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	14.79	33.16	55.12	80.68	109.82	151.44	201.44	252.63	305.02
OUTFLOW	.00	215.10	725.19	1516.52	2604.66	4010.77	6032.84	8817.78	12138.80	15958.45
ELEVATION	1300.00	1300.74	1301.47	1302.21	1302.95	1303.68	1304.42	1305.16	1305.89	1306.63
STORAGE	358.61	413.39	469.37	526.54	584.92	644.48	705.25	767.21	830.37	894.72
OUTFLOW	20254.64	25012.32	30220.54	35871.09	41957.68	48475.45	55420.65	62790.44	70582.63	78795.63
ELEVATION	1307.37	1308.10	1308.84	1309.58	1310.32	1311.05	1311.79	1312.53	1313.26	1314.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 12139. TO 78796.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 400R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR

924.	12.87	(CFS)	306.	101.	101.	101.
		(INCHES)	1.291	1.414	1.414	1.414
		(AC-FT)	152.	166.	166.	166.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
8.	12.87	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1301.66	12.87	1300.72	1300.25	1300.25	1300.25

CUMULATIVE AREA = 2.20 SQ MI

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HYDROGRAPH AT STATION 400R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
894.	12.87	(CFS)	296.	98.	98.	98.
		(INCHES)	1.250	1.371	1.371	1.371
		(AC-FT)	147.	161.	161.	161.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
8.	12.87	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1301.63	12.87	1300.70	1300.24	1300.24	1300.24

CUMULATIVE AREA = 2.20 SQ MI

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HYDROGRAPH AT STATION 400R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
863.	12.87	(CFS)	287.	95.	95.	95.
		(INCHES)	1.209	1.328	1.328	1.328
		(AC-FT)	142.	156.	156.	156.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
7.	12.87	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1301.60	12.87	1300.69	1300.24	1300.24	1300.24

CUMULATIVE AREA = 2.20 SQ MI

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HYDROGRAPH AT STATION 400R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
(CFS)	(HR)	6-HR	24-HR	72-HR	19.93-HR

802.	12.87	(CFS)	268.	89.	89.	89.
		(INCHES)	1.132	1.246	1.246	1.246
		(AC-FT)	133.	146.	146.	146.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
7.	12.87	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1301.54	12.87	1300.66	1300.23	1300.23	1300.23

CUMULATIVE AREA = 2.20 SQ MI

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HYDROGRAPH AT STATION 400R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
769.	12.93	(CFS)	259.	86.	86.	86.
		(INCHES)	1.091	1.202	1.202	1.202
		(AC-FT)	128.	141.	141.	141.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
7.	12.93	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1301.51	12.93	1300.64	1300.22	1300.22	1300.22

CUMULATIVE AREA = 2.20 SQ MI

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INTERPOLATED HYDROGRAPH AT 400R

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
896.	12.87	(CFS)	297.	98.	98.	98.
		(INCHES)	1.252	1.373	1.373	1.373
		(AC-FT)	147.	161.	161.	161.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
7.	12.93	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1301.51	12.93	1300.64	1300.22	1300.22	1300.22

CUMULATIVE AREA = 2.20 SQ MI

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464 KK      *      405S  *
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                        SUB-BASIN 405

                SUBBASIN RUNOFF DATA

466 BA            SUBBASIN CHARACTERISTICS
                        TAREA        1.78  SUBBASIN AREA

467 LG            GREEN AND AMPT LOSS RATE
                        STRTL         .22  STARTING LOSS
                          DTH         .33  MOISTURE DEFICIT
                         PSIF        5.20  WETTING FRONT SUCTION
                        XKSAT         .28  HYDRAULIC CONDUCTIVITY
                        RTIMP       20.00  PERCENT IMPERVIOUS AREA

468 UC            CLARK UNITGRAPH
                           TC        1.50  TIME OF CONCENTRATION
                            R        1.03  STORAGE COEFFICIENT

469 UA            ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                         .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                       100.0

                                                    ***

                                                UNIT HYDROGRAPH PARAMETERS
                                             CLARK   TC=  1.50 HR,       R=  1.03 HR
                                             SNYDER  TP=  1.25 HR,      CP=   .76

                                                UNIT HYDROGRAPH
                                             97 END-OF-PERIOD ORDINATES
                          7.       21.       32.       40.       49.       59.       70.       83.       97.      119.
                        150.      206.      294.      396.      513.      624.      687.      715.      721.      704.
                        685.      663.      636.      601.      563.      528.      495.      464.      435.      408.
                        383.      359.      336.      315.      296.      277.      260.      244.      228.      214.
                        201.      188.      176.      165.      155.      145.      136.      128.      120.      112.
                        105.       99.       93.       87.       81.       76.       72.       67.       63.       59.
                         55.       52.       49.       46.       43.       40.       38.       35.       33.       31.
                         29.       27.       25.       24.       22.       21.       20.       18.       17.       16.
                         15.       14.       13.       13.       12.       11.       10.       10.        9.        9.
                          8.        7.        7.        7.        6.        6.        5.

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                        HYDROGRAPH AT STATION     405S
                       TRANSPOSITION AREA       .0 SQ MI

    TOTAL RAINFALL =    3.90, TOTAL LOSS =    2.17, TOTAL EXCESS =    1.73

PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR       72-HR     19.93-HR
   917.      13.07        (CFS)        288.         98.         98.         98.
                         (INCHES)    1.510       1.700       1.700       1.700
                         (AC-FT)      143.        161.        161.        161.

                       CUMULATIVE AREA =    1.78 SQ MI

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

                        HYDROGRAPH AT STATION     405S
                       TRANSPOSITION AREA       3.0 SQ MI

    TOTAL RAINFALL =    3.82, TOTAL LOSS =    2.13, TOTAL EXCESS =    1.69
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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
892.	13.07	(CFS)	281.	95.	95.	95.
		(INCHES)	1.469	1.655	1.655	1.655
		(AC-FT)	139.	157.	157.	157.

CUMULATIVE AREA = 1.78 SQ MI

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HYDROGRAPH AT STATION 405S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.10, TOTAL EXCESS = 1.64

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
866.	13.07	(CFS)	273.	93.	93.	93.
		(INCHES)	1.428	1.610	1.610	1.610
		(AC-FT)	135.	153.	153.	153.

CUMULATIVE AREA = 1.78 SQ MI

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HYDROGRAPH AT STATION 405S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.03, TOTAL EXCESS = 1.56

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
818.	13.07	(CFS)	258.	88.	88.	88.
		(INCHES)	1.351	1.526	1.526	1.526
		(AC-FT)	128.	145.	145.	145.

CUMULATIVE AREA = 1.78 SQ MI

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HYDROGRAPH AT STATION 405S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.00, TOTAL EXCESS = 1.51

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
792.	13.07	(CFS)	250.	85.	85.	85.
		(INCHES)	1.310	1.481	1.481	1.481
		(AC-FT)	124.	140.	140.	140.

CUMULATIVE AREA = 1.78 SQ MI

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INTERPOLATED HYDROGRAPH AT 405S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
894.	13.07	(CFS)	281.	95.	95.	95.

(INCHES)	1.473	1.659	1.659	1.659
(AC-FT)	139.	157.	157.	157.

CUMULATIVE AREA = 1.78 SQ MI

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471 KK    *      410C  *
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COMBINE 400R AND 405S AT CP OF 405S

473 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 410C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1805.	13.00	(CFS)	594.	199.	199.	199.
		(INCHES)	1.388	1.542	1.542	1.542
		(AC-FT)	295.	327.	327.	327.

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 410C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1754.	13.00	(CFS)	577.	193.	193.	193.
		(INCHES)	1.348	1.498	1.498	1.498
		(AC-FT)	286.	318.	318.	318.

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 410C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1702.	13.00	(CFS)	559.	187.	187.	187.
		(INCHES)	1.307	1.454	1.454	1.454
		(AC-FT)	277.	309.	309.	309.

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 410C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1602.	13.00	(CFS)	527.	177.	177.	177.
		(INCHES)	1.230	1.371	1.371	1.371
		(AC-FT)	261.	291.	291.	291.

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 410C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1548.	13.00	(CFS)	509.	171.	171.	171.
		(INCHES)	1.189	1.326	1.326	1.326
		(AC-FT)	252.	282.	282.	282.

CUMULATIVE AREA = 3.98 SQ MI

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INTERPOLATED HYDROGRAPH AT 410C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1742.	13.00	(CFS)	573.	192.	192.	192.
		(INCHES)	1.338	1.487	1.487	1.487
		(AC-FT)	284.	316.	316.	316.

CUMULATIVE AREA = 3.98 SQ MI

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          *            *
474 KK    *    411RET  *
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LAKE 1, ARROWHEAD RANCH
SOURCE: ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA

HYDROGRAPH ROUTING DATA

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478 RS          STORAGE ROUTING
                     NSTPS           1  NUMBER OF SUBREACHES
                      ITYP        ELEV  TYPE OF INITIAL CONDITION
                    RSVRIC     1296.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

479 SV            STORAGE          .0       6.4      12.9      19.4      26.0      32.6      39.4      46.2      53.1      60.0
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480 SE	ELEVATION	1296.00	1296.50	1297.00	1297.50	1298.00	1298.50	1299.00	1299.50	1300.00	1300.50
481 SQ	DISCHARGE	0.	126.	356.	655.	1008.	1409.	1852.	2334.	2851.	3402.

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HYDROGRAPH AT STATION 411RET
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1670.	13.20	(CFS)	592.	198.	198.	198.
		(INCHES)	1.382	1.533	1.533	1.533
		(AC-FT)	293.	325.	325.	325.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
37.	13.20	16.	6.	6.	6.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1298.79	13.20	1297.27	1296.46	1296.46	1296.46

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 411RET
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1621.	13.27	(CFS)	574.	192.	192.	192.
		(INCHES)	1.342	1.489	1.489	1.489
		(AC-FT)	285.	316.	316.	316.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
36.	13.27	16.	6.	6.	6.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1298.74	13.27	1297.24	1296.45	1296.45	1296.45

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 411RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1572.	13.27	(CFS)	557.	186.	186.	186.
		(INCHES)	1.301	1.446	1.446	1.446
		(AC-FT)	276.	307.	307.	307.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
35.	13.27	16.	6.	6.	6.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1298.68	13.27	1297.22	1296.44	1296.44	1296.44

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 411RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1480.	13.27	(CFS)	524.	176.	176.	176.
		(INCHES)	1.224	1.363	1.363	1.363
		(AC-FT)	260.	289.	289.	289.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
34.	13.27	15.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1298.58	13.27	1297.17	1296.42	1296.42	1296.42

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 411RET
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1431.	13.27	(CFS)	506.	170.	170.	170.
		(INCHES)	1.183	1.319	1.319	1.319
		(AC-FT)	251.	280.	280.	280.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
33.	13.27	15.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1298.52	13.27	1297.14	1296.41	1296.41	1296.41

CUMULATIVE AREA = 3.98 SQ MI

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INTERPOLATED HYDROGRAPH AT 411RET

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1610.	13.27	(CFS)	570.	191.	191.	191.
		(INCHES)	1.332	1.479	1.479	1.479
		(AC-FT)	283.	314.	314.	314.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
33.	13.27	15.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1298.52	13.27	1297.14	1296.41	1296.41	1296.41

CUMULATIVE AREA = 3.98 SQ MI

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          *            *
482 KK    *    412RET  *
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LAKE 2, ARROWHEAD RANCH
SOURCE: ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA

HYDROGRAPH ROUTING DATA

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486 RS          STORAGE ROUTING
                     NSTPS           1  NUMBER OF SUBREACHES
                      ITYP        ELEV  TYPE OF INITIAL CONDITION
                     RSVRIC     1294.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

487 SV            STORAGE          .0      14.4      29.2      44.1      58.9      74.3      89.6     108.2     126.8     145.4

488 SE            ELEVATION     1294.00   1294.50   1295.00   1295.50   1296.00   1296.50   1297.00   1297.50   1298.00   1298.50

489 SQ            DISCHARGE        0.       168.      475.      873.     1344.     1878.     2469.     3112.     3802.     4536.
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HYDROGRAPH AT STATION 412RET
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1424.	13.73	(CFS)	582.	194.	194.	194.
		(INCHES)	1.361	1.509	1.509	1.509
		(AC-FT)	289.	320.	320.	320.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
61.	13.73	31.	11.	11.	11.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1296.07	13.73	1295.06	1294.38	1294.38	1294.38

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 412RET

TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1377.	13.80	(CFS)	565.	189.	189.	189.
		(INCHES)	1.320	1.466	1.466	1.466
		(AC-FT)	280.	311.	311.	311.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
60.	13.80	30.	11.	11.	11.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1296.03	13.80	1295.04	1294.37	1294.37	1294.37

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 412RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1332.	13.80	(CFS)	548.	183.	183.	183.
		(INCHES)	1.280	1.422	1.422	1.422
		(AC-FT)	272.	302.	302.	302.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
59.	13.80	30.	11.	11.	11.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1295.99	13.80	1295.01	1294.36	1294.36	1294.36

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 412RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1252.	13.80	(CFS)	515.	173.	173.	173.
		(INCHES)	1.204	1.341	1.341	1.341
		(AC-FT)	256.	285.	285.	285.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
56.	13.80	28.	10.	10.	10.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1295.90	13.80	1294.97	1294.35	1294.35	1294.35

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 412RET

TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		6-HR	24-HR	72-HR	19.93-HR
			MAXIMUM AVERAGE FLOW			
1208.	13.80	(CFS)	498.	167.	167.	167.
		(INCHES)	1.163	1.297	1.297	1.297
		(AC-FT)	247.	275.	275.	275.

PEAK STORAGE (AC-FT)	TIME (HR)	6-HR	24-HR	72-HR	19.93-HR
		MAXIMUM AVERAGE STORAGE			
55.	13.80	28.	10.	10.	10.

PEAK STAGE (FEET)	TIME (HR)	6-HR	24-HR	72-HR	19.93-HR
		MAXIMUM AVERAGE STAGE			
1295.86	13.80	1294.95	1294.34	1294.34	1294.34

CUMULATIVE AREA = 3.98 SQ MI

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INTERPOLATED HYDROGRAPH AT 412RET

PEAK FLOW (CFS)	TIME (HR)		6-HR	24-HR	72-HR	19.93-HR
			MAXIMUM AVERAGE FLOW			
1367.	13.80	(CFS)	561.	188.	188.	188.
		(INCHES)	1.311	1.455	1.455	1.455
		(AC-FT)	278.	309.	309.	309.

PEAK STORAGE (AC-FT)	TIME (HR)	6-HR	24-HR	72-HR	19.93-HR
		MAXIMUM AVERAGE STORAGE			
55.	13.80	28.	10.	10.	10.

PEAK STAGE (FEET)	TIME (HR)	6-HR	24-HR	72-HR	19.93-HR
		MAXIMUM AVERAGE STAGE			
1295.86	13.80	1294.95	1294.34	1294.34	1294.34

CUMULATIVE AREA = 3.98 SQ MI

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           *             *
490 KK     *    413RET   *
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LAKES 3 AND 7, ARROWHEAD RANCH
SOURCE: ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA

HYDROGRAPH ROUTING DATA

494 RS STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	ELEV	TYPE OF INITIAL CONDITION
RSVRIC	1292.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

495 SV	STORAGE	.0	29.8	61.7	91.6	122.5	154.5	186.3	225.3	264.3	303.1

496 SE	ELEVATION	1292.00	1292.50	1293.00	1293.50	1294.00	1294.50	1295.00	1295.50	1296.00	1296.5
497 SQ	DISCHARGE	0.	47.	132.	242.	373.	522.	686.	865.	1056.	126(

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HYDROGRAPH AT STATION 413RET
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
576.	15.40	(CFS)	428.	140.	140.	140.
		(INCHES)	.999	1.090	1.090	1.090
		(AC-FT)	212.	231.	231.	231.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
165.	15.40	134.	46.	46.	46.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1294.66	15.40	1294.17	1292.75	1292.75	1292.75

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 413RET
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
553.	15.40	(CFS)	413.	136.	136.	136.
		(INCHES)	.965	1.053	1.053	1.053
		(AC-FT)	205.	223.	223.	223.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
161.	15.40	130.	45.	45.	45.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1294.60	15.40	1294.12	1292.74	1292.74	1292.74

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 413RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
531.	15.47	(CFS)	399.	131.	131.	131.
		(INCHES)	.931	1.016	1.016	1.016
		(AC-FT)	198.	216.	216.	216.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
156.	15.47	127.	44.	44.	44.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1294.53	15.47	1294.07	1292.72	1292.72	1292.72

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 413RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
490.	15.47	(CFS)	372.	122.	122.	122.
		(INCHES)	.868	.946	.946	.946
		(AC-FT)	184.	201.	201.	201.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
148.	15.47	121.	42.	42.	42.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1294.39	15.47	1293.98	1292.69	1292.69	1292.69

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 413RET
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
469.	15.53	(CFS)	357.	117.	117.	117.
		(INCHES)	.834	.909	.909	.909
		(AC-FT)	177.	193.	193.	193.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
143.	15.53	118.	41.	41.	41.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1294.32	15.53	1293.92	1292.67	1292.67	1292.67

CUMULATIVE AREA = 3.98 SQ MI

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INTERPOLATED HYDROGRAPH AT 413RET

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
548.	15.40	(CFS)	410.	135.	135.	135.
		(INCHES)	.957	1.044	1.044	1.044
		(AC-FT)	203.	222.	222.	222.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
143.	15.53	118.	41.	41.	41.

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 PEAK STAGE    TIME                           MAXIMUM AVERAGE STAGE
   (FEET)      (HR)                  6-HR        24-HR        72-HR       19.93-HR
  1294.32      15.53               1293.92      1292.67      1292.67       1292.67

                       CUMULATIVE AREA =     3.98 SQ MI


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            *            *
 498 KK     *    415RET  *
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                          LAKE 8, ARROWHEAD RANCH
                          SOURCE:  ARROWHEAD RANCH PRELIMINARY STORM DRAINAGE MASTER PLAN
                                   DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA

              HYDROGRAPH ROUTING DATA

 502 RS          STORAGE ROUTING
                      NSTPS            1  NUMBER OF SUBREACHES
                       ITYP         ELEV  TYPE OF INITIAL CONDITION
                     RSVRIC      1290.00  INITIAL CONDITION
                          X          .00 WORKING R AND D COEFFICIENT

 503 SV            STORAGE           .0      20.6      42.1      63.5      84.9     107.1     129.4     456.8     184.3     211.8

 504 SE          ELEVATION      1290.00   1290.50   1291.00   1291.50   1292.00   1292.50   1293.00   1293.50   1294.00   1294.5.

 505 SQ          DISCHARGE           0.       93.      264.      485.      747.     1044.     1372.     1729.     2112.     252(

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                        HYDROGRAPH AT STATION    415RET
                      TRANSPOSITION AREA        .0 SQ MI

 PEAK FLOW     TIME                           MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                  6-HR        24-HR        72-HR       19.93-HR
     474.      16.93      (CFS)      358.         112.         112.         112.
                        (INCHES)     .837         .871         .871         .871
                         (AC-FT)     178.         185.         185.         185.

PEAK STORAGE   TIME                         MAXIMUM AVERAGE STORAGE
  (AC-FT)      (HR)                  6-HR        24-HR        72-HR       19.93-HR
       62.     16.93                  50.          1      62.      16.93                 50.        16.        16.        1

 PEAK STAGE    TIME                           MAXIMUM AVERAGE STAGE
   (FEET)      (HR)                  6-HR        24-HR        72-HR       19.93-HR
  1291.48      16.93               1291.20      1290.38      1290.38       1290.38

                       CUMULATIVE AREA =     3.98 SQ MI


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                        HYDROGRAPH AT STATION    415RET
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TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
456.	16.93	(CFS)	344.	108.	108.	108.
		(INCHES)	.804	.837	.837	.837
		(AC-FT)	171.	178.	178.	178.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
61.	16.93	49.	16.	16.	16.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1291.44	16.93	1291.16	1290.37	1290.37	1290.37

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 415RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
439.	17.00	(CFS)	330.	104.	104.	104.
		(INCHES)	.772	.804	.804	.804
		(AC-FT)	164.	171.	171.	171.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
59.	17.00	48.	15.	15.	15.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1291.40	17.00	1291.13	1290.36	1290.36	1290.36

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 415RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
406.	17.07	(CFS)	305.	96.	96.	96.
		(INCHES)	.711	.742	.742	.742
		(AC-FT)	151.	157.	157.	157.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
56.	17.07	45.	14.	14.	14.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1291.32	17.07	1291.07	1290.34	1290.34	1290.34

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 415RET

TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
388.	17.13	(CFS)	291.	91.	91.	91.
		(INCHES)	.679	.709	.709	.709
		(AC-FT)	144.	150.	150.	150.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
54.	17.07	44.	14.	14.	14.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1291.28	17.07	1291.03	1290.33	1290.33	1290.33

CUMULATIVE AREA = 3.98 SQ MI

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INTERPOLATED HYDROGRAPH AT 415RET

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
452.	17.00	(CFS)	341.	107.	107.	107.
		(INCHES)	.797	.829	.829	.829
		(AC-FT)	169.	176.	176.	176.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
54.	17.07	44.	14.	14.	14.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1291.28	17.07	1291.03	1290.33	1290.33	1290.33

CUMULATIVE AREA = 3.98 SQ MI

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506 KK    *      420R  *
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ROUTE 415RET TO CP OF 375S (55TH AVENUE CHANNEL)

HYDROGRAPH ROUTING DATA

508 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

509 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.030	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.030	RIGHT OVERBANK N-VALUE
RLNTH	4560.	REACH LENGTH

SEL .0025 ENERGY SLOPE
ELMAX .0 MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---			+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
511 RY	ELEVATION	1283.00	1282.00	1280.00	1276.00	1276.00	1283.00	1285.00	1286.00
510 RX	DISTANCE	390.00	400.00	440.00	460.00	536.00	566.00	686.00	690.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	4.32	8.91	13.78	18.91	24.31	29.97	35.91	42.16	49.02
OUTFLOW	.00	65.43	210.07	417.87	683.44	1004.27	1379.14	1807.56	2302.96	2878.21
ELEVATION	1276.00	1276.53	1277.05	1277.58	1278.11	1278.63	1279.16	1279.68	1280.21	1280.74
STORAGE	56.60	64.87	73.80	83.17	93.28	105.07	118.60	133.86	150.21	166.69
OUTFLOW	3521.69	4239.25	5040.69	5924.84	6957.97	8129.04	9431.93	10883.27	12537.51	14348.08
ELEVATION	1281.26	1281.79	1282.32	1282.84	1283.37	1283.90	1284.42	1284.95	1285.47	1286.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 1808. TO 14348.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 420R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
474.	17.13	(CFS)	339.	105.	105.	105.
		(INCHES)	.792	.817	.817	.817
		(AC-FT)	168.	173.	173.	173.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	17.13	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1277.69	17.13	1277.33	1276.42	1276.42	1276.42

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 420R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
456.	17.20	(CFS)	325.	101.	101.	101.
		(INCHES)	.760	.784	.784	.784
		(AC-FT)	161.	166.	166.	166.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	17.13	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1277.65	17.20	1277.29	1276.41	1276.41	1276.41

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 420R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
438.	17.27	(CFS)	312.	97.	97.	97.
		(INCHES)	.728	.752	.752	.752
		(AC-FT)	155.	160.	160.	160.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	17.20	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1277.62	17.20	1277.26	1276.40	1276.40	1276.40

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 420R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
405.	17.33	(CFS)	286.	89.	89.	89.
		(INCHES)	.669	.691	.691	.691
		(AC-FT)	142.	147.	147.	147.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	17.33	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1277.55	17.33	1277.19	1276.38	1276.38	1276.38

CUMULATIVE AREA = 3.98 SQ MI

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HYDROGRAPH AT STATION 420R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
387.	17.40	(CFS)	273.	85.	85.	85.
		(INCHES)	.637	.659	.659	.659
		(AC-FT)	135.	140.	140.	140.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	17.33	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1277.50	17.40	1277.15	1276.37	1276.37	1276.37

CUMULATIVE AREA = 3.98 SQ MI

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INTERPOLATED HYDROGRAPH AT 420R

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
452.	17.20	(CFS)	322.	100.	100.	100.
		(INCHES)	.753	.776	.776	.776
		(AC-FT)	160.	165.	165.	165.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.	17.33	2.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1277.50	17.40	1277.15	1276.37	1276.37	1276.37

CUMULATIVE AREA = 3.98 SQ MI

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512 KK    *      425S   *
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SUB-BASIN 425

SUBBASIN RUNOFF DATA

514 BA SUBBASIN CHARACTERISTICS
TAREA 1.72 SUBBASIN AREA

515 LG GREEN AND AMPT LOSS RATE
STRTL .16 STARTING LOSS
DTH .30 MOISTURE DEFICIT
PSIF 7.40 WETTING FRONT SUCTION
XKSAT .16 HYDRAULIC CONDUCTIVITY
RTIMP 39.00 PERCENT IMPERVIOUS AREA

516 UC CLARK UNITGRAPH
TC 1.45 TIME OF CONCENTRATION
R 1.37 STORAGE COEFFICIENT

517 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES
.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
100.0

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UNIT HYDROGRAPH PARAMETERS
CLARK TC= 1.45 HR, R= 1.37 HR
SNYDER TP= .87 HR, CP= .39

UNIT HYDROGRAPH
118 END-OF-PERIOD ORDINATES
9. 27. 53. 89. 128. 171. 233. 329. 429. 482.

502.	511.	513.	512.	510.	504.	496.	486.	474.	463.
452.	440.	423.	403.	383.	365.	348.	331.	315.	300.
286.	272.	259.	247.	235.	224.	213.	203.	193.	184.
175.	167.	159.	152.	144.	137.	131.	125.	119.	113.
108.	103.	98.	93.	89.	84.	80.	76.	73.	69.
66.	63.	60.	57.	54.	52.	49.	47.	45.	43.
41.	39.	37.	35.	33.	32.	30.	29.	27.	26.
25.	24.	23.	21.	20.	19.	19.	18.	17.	16.
15.	15.	14.	13.	13.	12.	11.	11.	10.	10.
9.	9.	8.	8.	8.	7.	7.	7.	6.	6.
6.	5.	5.	5.	5.	4.	4.	4.		

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HYDROGRAPH AT STATION 425S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 1.53, TOTAL EXCESS = 2.37

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
826.	12.73	(CFS)	355.	129.	129.	129.
		(INCHES)	1.914	2.309	2.309	2.309
		(AC-FT)	176.	212.	212.	212.

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 425S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 1.51, TOTAL EXCESS = 2.31

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
805.	12.73	(CFS)	346.	126.	126.	126.
		(INCHES)	1.866	2.253	2.253	2.253
		(AC-FT)	171.	207.	207.	207.

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 425S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 1.48, TOTAL EXCESS = 2.26

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
784.	12.73	(CFS)	337.	122.	122.	122.
		(INCHES)	1.817	2.196	2.196	2.196
		(AC-FT)	167.	202.	202.	202.

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 425S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 1.44, TOTAL EXCESS = 2.15

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PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR        24-HR       72-HR      19.93-HR
    745.     12.73       (CFS)      320.         117.        117.          117.
                      (INCHES)     1.726        2.090       2.090         2.090
                        (AC-FT)     159.         192.        192.          192.

                    CUMULATIVE AREA =     1.72 SQ MI


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

                      HYDROGRAPH AT STATION      425S
                    TRANSPOSITION AREA     30.0 SQ MI

   TOTAL RAINFALL =    3.51, TOTAL LOSS =    1.42, TOTAL EXCESS =    2.09

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR        24-HR       72-HR      19.93-HR
    724.     12.73       (CFS)      311.         113.        113.          113.
                      (INCHES)     1.678        2.033       2.033         2.033
                        (AC-FT)     154.         187.        187.          187.

                    CUMULATIVE AREA =     1.72 SQ MI


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


                    INTERPOLATED HYDROGRAPH AT      425S

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR        24-HR       72-HR      19.93-HR
    807.     12.73       (CFS)      347.         126.        126.          126.
                      (INCHES)     1.870        2.258       2.258         2.258
                        (AC-FT)     172.         208.        208.          208.

                    CUMULATIVE AREA =     1.72 SQ MI



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519 KK    *   430RET    *
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                    ROUTE FLOW THROUGH DETENTION BEHIND 3-10X3 RCBC NORTHEAST OF I-17 AND
                    UNION HILLS DRIVE; DETENTION VOLUME IS BASED ON AERIAL PHOTOGRAPHS
                    AND FIELD VISITS, AND SHOULD BE CONSIDERED APPROXIMATE.  OUTFLOW IS
                    BASED ON CULVERT INLET CONTROL UP TO 4' DEEP, THEN WEIR FLOW OVER UNION
                    HILLS DRIVE IS ADDED IN.

            HYDROGRAPH ROUTING DATA

525 RS        STORAGE ROUTING
                  NSTPS          1  NUMBER OF SUBREACHES
                   ITYP       ELEV  TYPE OF INITIAL CONDITION
                 RSVRIC        .00  INITIAL CONDITION
                      X        .00 WORKING R AND D COEFFICIENT

526 SA            AREA          .0       6.0       9.0      12.0      15.0      22.0      31.0
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527 SE	ELEVATION	.00	1.00	2.00	3.00	4.00	5.00	6.00
528 SQ	DISCHARGE	0.	0.	90.	255.	450.	2010.	4600.

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COMPUTED STORAGE-ELEVATION DATA

STORAGE	.00	2.00	9.45	19.91	33.39	51.77	78.15
ELEVATION	.00	1.00	2.00	3.00	4.00	5.00	6.00

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HYDROGRAPH AT STATION 430RET
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
770.	13.13	(CFS)	349.	125.	125.	125.
		(INCHES)	1.881	2.242	2.242	2.242
		(AC-FT)	173.	206.	206.	206.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
37.	13.13	24.	10.	10.	10.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.21	13.13	3.23	1.79	1.79	1.79

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 430RET
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
746.	13.13	(CFS)	340.	122.	122.	122.
		(INCHES)	1.833	2.186	2.186	2.186
		(AC-FT)	168.	201.	201.	201.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
37.	13.13	24.	10.	10.	10.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.19	13.13	3.21	1.78	1.78	1.78

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 430RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
721.	13.20	(CFS)	331.	119.	119.	119.
		(INCHES)	1.785	2.130	2.130	2.130
		(AC-FT)	164.	196.	196.	196.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
37.	13.20		23.	10.	10.	10.
PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.17	13.20		3.19	1.77	1.77	1.77

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 430RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
675.	13.20	(CFS)	314.	113.	113.	113.
		(INCHES)	1.695	2.025	2.025	2.025
		(AC-FT)	156.	186.	186.	186.
PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
36.	13.20		23.	10.	10.	10.
PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.14	13.20		3.14	1.74	1.74	1.74

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 430RET
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
648.	13.20	(CFS)	305.	110.	110.	110.
		(INCHES)	1.647	1.970	1.970	1.970
		(AC-FT)	151.	181.	181.	181.
PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
36.	13.20		22.	9.	9.	9.
PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.13	13.20		3.11	1.73	1.73	1.73

CUMULATIVE AREA = 1.72 SQ MI

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INTERPOLATED HYDROGRAPH AT 430RET

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
748.	13.13	(CFS)	340.	122.	122.	122.
		(INCHES)	1.837	2.191	2.191	2.191
		(AC-FT)	169.	201.	201.	201.

PEAK STORAGE	TIME			MAXIMUM AVERAGE STORAGE		
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
36.	13.20		22.	9.	9.	9.

PEAK STAGE	TIME			MAXIMUM AVERAGE STAGE		
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
4.13	13.20		3.11	1.73	1.73	1.73

CUMULATIVE AREA = 1.72 SQ MI

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529 KK    *     432D   *
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DIVERT FLOW OVER UNION HILLS DRIVE, EAST OF I-17
DQ REPRESENTS THE BREAKOUT FROM THE DETENTION BASIN OVER UNION HILLS DRIVE.

DT DIVERSION
ISTAD 433D DIVERSION HYDROGRAPH IDENTIFICATION

DI	INFLOW	.00	81.00	255.00	450.00	2010.00	4600.00
DQ	DIVERTED FLOW	.00	.00	.00	.00	1350.00	3820.00

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DIVERSION HYDROGRAPH 433D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
277.	13.13	(CFS)	41.	12.	12.	12.
		(INCHES)	.219	.219	.219	.219
		(AC-FT)	20.	20.	20.	20.

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 432D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
493.	13.13	(CFS)	308.	113.	113.	113.
		(INCHES)	1.662	2.023	2.023	2.023
		(AC-FT)	153.	186.	186.	186.

CUMULATIVE AREA = 1.72 SQ MI

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DIVERSION HYDROGRAPH 433D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
256.	13.13	(CFS)	36.	11.	11.	11.
		(INCHES)	.194	.194	.194	.194
		(AC-FT)	18.	18.	18.	18.

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 432D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
490.	13.13	(CFS)	304.	111.	111.	111.
		(INCHES)	1.639	1.992	1.992	1.992
		(AC-FT)	151.	183.	183.	183.

CUMULATIVE AREA = 1.72 SQ MI

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DIVERSION HYDROGRAPH 433D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
235.	13.20	(CFS)	32.	9.	9.	9.
		(INCHES)	.170	.170	.170	.170
		(AC-FT)	16.	16.	16.	16.

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 432D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
486.	13.20	(CFS)	299.	109.	109.	109.
		(INCHES)	1.615	1.960	1.960	1.960
		(AC-FT)	148.	180.	180.	180.

CUMULATIVE AREA = 1.72 SQ MI

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DIVERSION HYDROGRAPH 433D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
195.	13.20	(CFS)	23.	7.	7.	7.
		(INCHES)	.127	.127	.127	.127
		(AC-FT)	12.	12.	12.	12.

CUMULATIVE AREA = 1.72 SQ MI

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

HYDROGRAPH AT STATION 432D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
480.	13.20	(CFS)	291.	106.	106.	106.
		(INCHES)	1.568	1.899	1.899	1.899
		(AC-FT)	144.	175.	175.	175.

CUMULATIVE AREA = 1.72 SQ MI

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DIVERSION HYDROGRAPH 433D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
172.	13.20	(CFS)	19.	6.	6.	6.
		(INCHES)	.105	.105	.105	.105
		(AC-FT)	10.	10.	10.	10.

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 432D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
477.	13.20	(CFS)	286.	104.	104.	104.
		(INCHES)	1.542	1.865	1.865	1.865
		(AC-FT)	142.	171.	171.	171.

CUMULATIVE AREA = 1.72 SQ MI

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INTERPOLATED DIVERSION HYDROGRAPH AT 433D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
258.	13.13	(CFS)	36.	11.	11.	11.
		(INCHES)	.197	.197	.197	.197
		(AC-FT)	18.	18.	18.	18.

CUMULATIVE AREA = 1.72 SQ MI

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

INTERPOLATED HYDROGRAPH AT 432D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
490.	13.13	(CFS)	304.	111.	111.	111.
		(INCHES)	1.641	1.995	1.995	1.995
		(AC-FT)	151.	183.	183.	183.

CUMULATIVE AREA = 1.72 SQ MI

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535 KK * 435R *
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ROUTE 432D TO CP OF 440S ALONG UNION HILLS DRIVE (INVERTED CROWN) -
CULVERT OUTLET ON WEST SIDE OF I-17 TO 35TH AVENUE

HYDROGRAPH ROUTING DATA

538 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

539 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.025	LEFT OVERBANK N-VALUE
ANCH	.020	MAIN CHANNEL N-VALUE
ANR	.025	RIGHT OVERBANK N-VALUE
RLNTH	6800.	REACH LENGTH
SEL	.0040	ENERGY SLOPE
ELMAX	4.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
541 RY	ELEVATION	1.50	1.50	1.00	.00	.00	1.00	1.50	1.50
540 RX	DISTANCE	45.00	59.90	60.00	100.00	100.10	140.00	140.10	155.00

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.28	1.11	2.50	4.44	6.91	9.54	12.17	15.67	19.28
OUTFLOW	.00	1.89	11.90	35.00	75.27	140.52	240.52	360.89	506.70	680.40
ELEVATION	.00	.21	.42	.63	.84	1.05	1.26	1.47	1.68	1.89
STORAGE	22.90	26.51	30.13	33.74	37.36	40.97	44.59	48.20	51.82	55.43
OUTFLOW	878.26	1098.46	1339.75	1601.14	1881.81	2181.11	2498.42	2833.24	3185.10	3553.59
ELEVATION	2.11	2.32	2.53	2.74	2.95	3.16	3.37	3.58	3.79	4.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 1601. TO 3554.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 435R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
490.	13.47	(CFS)	307.	111.	111.	111.
		(INCHES)	1.657	1.984	1.984	1.984
		(AC-FT)	152.	182.	182.	182.

PEAK STORAGE TIME MAXIMUM AVERAGE STORAGE

(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.	13.47		2.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.66	13.47		1.35	.71	.71	.71

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 435R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
487.	13.47	(CFS)	303.	109.	109.	109.
		(INCHES)	1.634	1.953	1.953	1.953
		(AC-FT)	150.	179.	179.	179.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.	13.47		2.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.66	13.47		1.35	.70	.70	.70

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 435R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
484.	13.53	(CFS)	298.	107.	107.	107.
		(INCHES)	1.610	1.922	1.922	1.922
		(AC-FT)	148.	177.	177.	177.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.	13.53		2.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.65	13.53		1.34	.70	.70	.70

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 435R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
478.	13.53	(CFS)	290.	104.	104.	104.
		(INCHES)	1.564	1.862	1.862	1.862
		(AC-FT)	144.	171.	171.	171.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			

(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.	13.53		2.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.64	13.53		1.32	.69	.69	.69

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 435R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
474.	13.60	(CFS)	285.	102.	102.	102.
		(INCHES)	1.538	1.829	1.829	1.829
		(AC-FT)	141.	168.	168.	168.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.	13.53		2.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.64	13.60		1.31	.68	.68	.68

CUMULATIVE AREA = 1.72 SQ MI

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INTERPOLATED HYDROGRAPH AT 435R

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
487.	13.47	(CFS)	303.	109.	109.	109.
		(INCHES)	1.636	1.956	1.956	1.956
		(AC-FT)	150.	180.	180.	180.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.	13.53		2.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.64	13.60		1.31	.68	.68	.68

CUMULATIVE AREA = 1.72 SQ MI

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542 KK    *     440S    *
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SUB-BASIN 440

SUBBASIN RUNOFF DATA

544 BA SUBBASIN CHARACTERISTICS

TAREA	.85	SUBBASIN AREA

545 LG GREEN AND AMPT LOSS RATE

STRTL	.20	STARTING LOSS
DTH	.30	MOISTURE DEFICIT
PSIF	9.30	WETTING FRONT SUCTION
XKSAT	.06	HYDRAULIC CONDUCTIVITY
RTIMP	20.00	PERCENT IMPERVIOUS AREA

546 UC CLARK UNITGRAPH

TC	.67	TIME OF CONCENTRATION
R	.41	STORAGE COEFFICIENT

547 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0 100.0

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= .67 HR, R= .41 HR

SNYDER TP= .34 HR, CP= .46

UNIT HYDROGRAPH

38 END-OF-PERIOD ORDINATES

30.	123.	257.	517.	726.	734.	704.	660.	605.	551.
488.	415.	354.	301.	256.	218.	186.	158.	135.	115.
98.	83.	71.	60.	51.	44.	37.	32.	27.	23.
19.	17.	14.	12.	10.	9.	7.	6.		

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HYDROGRAPH AT STATION 440S

TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 1.71, TOTAL EXCESS = 2.19

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
966.	12.20	(CFS)	180.	59.	59.	59.
		(INCHES)	1.976	2.168	2.168	2.168
		(AC-FT)	89.	98.	98.	98.

CUMULATIVE AREA = .85 SQ MI

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HYDROGRAPH AT STATION 440S

TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 1.69, TOTAL EXCESS = 2.13

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
943.	12.20	(CFS)	175.	58.	58.	58.
		(INCHES)	1.921	2.109	2.109	2.109
		(AC-FT)	87.	95.	95.	95.

CUMULATIVE AREA = .85 SQ MI

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HYDROGRAPH AT STATION 440S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 1.67, TOTAL EXCESS = 2.07

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
920.	12.20	(CFS)	170.	56.	56.	56.
		(INCHES)	1.866	2.050	2.050	2.050
		(AC-FT)	84.	93.	93.	93.

CUMULATIVE AREA = .85 SQ MI

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HYDROGRAPH AT STATION 440S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 1.63, TOTAL EXCESS = 1.96

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
876.	12.20	(CFS)	160.	53.	53.	53.
		(INCHES)	1.762	1.940	1.940	1.940
		(AC-FT)	80.	88.	88.	88.

CUMULATIVE AREA = .85 SQ MI

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HYDROGRAPH AT STATION 440S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 1.61, TOTAL EXCESS = 1.90

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
853.	12.20	(CFS)	155.	52.	52.	52.
		(INCHES)	1.708	1.881	1.881	1.881
		(AC-FT)	77.	85.	85.	85.

CUMULATIVE AREA = .85 SQ MI

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INTERPOLATED HYDROGRAPH AT 440S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
948.	12.20	(CFS)	176.	58.	58.	58.
		(INCHES)	1.933	2.123	2.123	2.123
		(AC-FT)	87.	96.	96.	96.

CUMULATIVE AREA = .85 SQ MI

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549 KK      *      445C  *
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COMBINE 435R AND 440S AT CP OF 440S

551 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 445C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1032.	12.27	(CFS)	475.	170.	170.	170.
		(INCHES)	1.717	2.044	2.044	2.044
		(AC-FT)	235.	280.	280.	280.

CUMULATIVE AREA = 2.57 SQ MI

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HYDROGRAPH AT STATION 445C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1008.	12.27	(CFS)	466.	167.	167.	167.
		(INCHES)	1.685	2.005	2.005	2.005
		(AC-FT)	231.	275.	275.	275.

CUMULATIVE AREA = 2.57 SQ MI

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HYDROGRAPH AT STATION 445C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
983.	12.27	(CFS)	457.	163.	163.	163.
		(INCHES)	1.652	1.964	1.964	1.964
		(AC-FT)	226.	269.	269.	269.

CUMULATIVE AREA = 2.57 SQ MI

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HYDROGRAPH AT STATION 445C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
936.	12.27	(CFS)	439.	157.	157.	157.
		(INCHES)	1.590	1.888	1.888	1.888
		(AC-FT)	218.	259.	259.	259.

CUMULATIVE AREA = 2.57 SQ MI

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HYDROGRAPH AT STATION 445C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
912.	12.27	(CFS)	430.	154.	154.	154.
		(INCHES)	1.556	1.846	1.846	1.846
		(AC-FT)	213.	253.	253.	253.

CUMULATIVE AREA = 2.57 SQ MI

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INTERPOLATED HYDROGRAPH AT 445C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1008.	12.27	(CFS)	466.	167.	167.	167.
		(INCHES)	1.686	2.006	2.006	2.006
		(AC-FT)	231.	275.	275.	275.

CUMULATIVE AREA = 2.57 SQ MI

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552 KK

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* 450D *
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SURFACE FLOW CAPACITY OF UNION HILLS DRIVE INVERTED CROWN SECTION IS 470 CFS,
STORM DRAIN CAPACITY IS 890 CFS, TOTAL CAPACITY FLOWING WEST IS 1360 CFS
REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN I-17 AND 35TH AVENUE

DT DIVERSION ISTAD 455D DIVERSION HYDROGRAPH IDENTIFICATION

DI INFLOW .00 500.00 1000.00 1360.00 2000.00 3000.00

DQ DIVERTED FLOW .00 .00 .00 .00 640.00 1640.00

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DIVERSION HYDROGRAPH 455D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
0.	.07	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 2.57 SQ MI

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HYDROGRAPH AT STATION 450D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1032.	12.27	(CFS)	475.	170.	170.	170.
		(INCHES)	1.717	2.044	2.044	2.044
		(AC-FT)	235.	280.	280.	280.

CUMULATIVE AREA = 2.57 SQ MI

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DIVERSION HYDROGRAPH 455D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
0.	.07	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 2.57 SQ MI

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HYDROGRAPH AT STATION 450D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1008.	12.27	(CFS)	466.	167.	167.	167.
		(INCHES)	1.685	2.005	2.005	2.005
		(AC-FT)	231.	275.	275.	275.

CUMULATIVE AREA = 2.57 SQ MI

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DIVERSION HYDROGRAPH 455D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
0.	.07	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 2.57 SQ MI

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HYDROGRAPH AT STATION 450D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
983.	12.27	(CFS)	457.	163.	163.	163.
		(INCHES)	1.652	1.964	1.964	1.964

	(AC-FT)	226.	269.	269.	269.

CUMULATIVE AREA = 2.57 SQ MI

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DIVERSION HYDROGRAPH 455D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
0.	.07	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 2.57 SQ MI

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HYDROGRAPH AT STATION 450D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
936.	12.27	(CFS)	439.	157.	157.	157.
		(INCHES)	1.590	1.888	1.888	1.888
		(AC-FT)	218.	259.	259.	259.

CUMULATIVE AREA = 2.57 SQ MI

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DIVERSION HYDROGRAPH 455D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
0.	.07	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 2.57 SQ MI

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HYDROGRAPH AT STATION 450D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
912.	12.27	(CFS)	430.	154.	154.	154.
		(INCHES)	1.556	1.846	1.846	1.846
		(AC-FT)	213.	253.	253.	253.

CUMULATIVE AREA = 2.57 SQ MI

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INTERPOLATED DIVERSION HYDROGRAPH AT 455D

PEAK FLOW (CFS)	TIME (HR)		6-HR	24-HR	72-HR	19.93-HR
			MAXIMUM AVERAGE FLOW			
0.	.07	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 2.57 SQ MI

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INTERPOLATED HYDROGRAPH AT 450D

PEAK FLOW (CFS)	TIME (HR)		6-HR	24-HR	72-HR	19.93-HR
			MAXIMUM AVERAGE FLOW			
1008.	12.27	(CFS)	466.	167.	167.	167.
		(INCHES)	1.686	2.006	2.006	2.006
		(AC-FT)	231.	275.	275.	275.

CUMULATIVE AREA = 2.57 SQ MI

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559 KK        *    460R    *
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ROUTE 450D TO CP OF 490S ALONG UNION HILLS DRIVE - 35TH TO 43RD AVENUE

HYDROGRAPH ROUTING DATA

561 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

562 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.020	LEFT OVERBANK N-VALUE
ANCH	.025	MAIN CHANNEL N-VALUE
ANR	.030	RIGHT OVERBANK N-VALUE
RLNTH	5280.	REACH LENGTH
SEL	.0040	ENERGY SLOPE
ELMAX	10.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK --- +		------ MAIN CHANNEL -------		+ --- RIGHT OVERBANK ---		
564 RY	ELEVATION	9.00	6.70	6.00	3.00	3.00	7.00	8.00	9.00
563 RX	DISTANCE	99.90	100.00	135.00	150.00	155.00	170.00	170.10	170.20

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.30	.73	1.32	2.04	2.92	3.93	5.09	6.39	8.11
OUTFLOW	.00	4.05	14.80	33.17	60.38	97.60	145.99	206.61	280.52	381.56
ELEVATION	3.00	3.37	3.74	4.11	4.47	4.84	5.21	5.58	5.95	6.32
STORAGE	10.71	13.81	16.94	20.07	23.20	26.34	29.47	32.61	35.75	38.89
OUTFLOW	517.84	710.33	957.88	1241.90	1559.18	1907.29	2284.34	2693.11	3131.77	3597.93

ELEVATION	6.68	7.05	7.42	7.79	8.16	8.53	8.89	9.26	9.63	10.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 710. TO 3598.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 460R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1017.	12.40	(CFS)	474.	169.	169.	169.
		(INCHES)	1.715	2.027	2.027	2.027
		(AC-FT)	235.	278.	278.	278.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
4.	12.40	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
7.50	12.40	6.41	4.71	4.71	4.71

CUMULATIVE AREA = 2.57 SQ MI

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HYDROGRAPH AT STATION 460R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
992.	12.40	(CFS)	465.	165.	165.	165.
		(INCHES)	1.683	1.988	1.988	1.988
		(AC-FT)	231.	272.	272.	272.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	12.40	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
7.47	12.40	6.38	4.69	4.69	4.69

CUMULATIVE AREA = 2.57 SQ MI

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HYDROGRAPH AT STATION 460R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
965.	12.40	(CFS)	456.	162.	162.	162.
		(INCHES)	1.650	1.948	1.948	1.948
		(AC-FT)	226.	267.	267.	267.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	12.40	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
7.43	12.40		6.36	4.68	4.68	4.68

CUMULATIVE AREA = 2.57 SQ MI

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HYDROGRAPH AT STATION 460R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
919.	12.40	(CFS)	439.	156.	156.	156.
		(INCHES)	1.587	1.872	1.872	1.872
		(AC-FT)	217.	256.	256.	256.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	12.40	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
7.36	12.40	6.32	4.65	4.65	4.65

CUMULATIVE AREA = 2.57 SQ MI

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HYDROGRAPH AT STATION 460R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
894.	12.40	(CFS)	429.	152.	152.	152.
		(INCHES)	1.553	1.830	1.830	1.830
		(AC-FT)	213.	251.	251.	251.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	12.40	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
7.33	12.40	6.29	4.63	4.63	4.63

CUMULATIVE AREA = 2.57 SQ MI

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INTERPOLATED HYDROGRAPH AT 460R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
992.	12.40	(CFS)	465.	165.	165.	165.
		(INCHES)	1.684	1.989	1.989	1.989
		(AC-FT)	231.	273.	273.	273.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	12.40	2.	1.	1.	1.

CUMULATIVE AREA = 1.36 SQ MI

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HYDROGRAPH AT STATION 465S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 1.01, TOTAL EXCESS = 2.81

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1234.	12.33	(CFS)	327.	122.	122.	122.
		(INCHES)	2.235	2.765	2.765	2.765
		(AC-FT)	162.	201.	201.	201.

CUMULATIVE AREA = 1.36 SQ MI

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HYDROGRAPH AT STATION 465S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = .99, TOTAL EXCESS = 2.75

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1206.	12.33	(CFS)	319.	119.	119.	119.
		(INCHES)	2.182	2.702	2.702	2.702
		(AC-FT)	158.	196.	196.	196.

CUMULATIVE AREA = 1.36 SQ MI

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HYDROGRAPH AT STATION 465S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = .96, TOTAL EXCESS = 2.63

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1152.	12.33	(CFS)	305.	114.	114.	114.
		(INCHES)	2.085	2.583	2.583	2.583
		(AC-FT)	151.	188.	188.	188.

CUMULATIVE AREA = 1.36 SQ MI

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HYDROGRAPH AT STATION 465S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = .95, TOTAL EXCESS = 2.56

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1124.	12.33	(CFS)	297.	111.	111.	111.
		(INCHES)	2.032	2.520	2.520	2.520
		(AC-FT)	148.	183.	183.	183.

CUMULATIVE AREA = 1.36 SQ MI

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
7.33	12.40	6.29	4.63	4.63	4.63

CUMULATIVE AREA = 2.57 SQ MI

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565 KK    *      465S  *
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SUB-BASIN 465

SUBBASIN RUNOFF DATA

567 BA SUBBASIN CHARACTERISTICS

TAREA	1.36	SUBBASIN AREA

568 LG GREEN AND AMPT LOSS RATE

STRTL	.14	STARTING LOSS
DTH	.31	MOISTURE DEFICIT
PSIF	9.10	WETTING FRONT SUCTION
XKSAT	.10	HYDRAULIC CONDUCTIVITY
RTIMP	57.00	PERCENT IMPERVIOUS AREA

569 UC CLARK UNITGRAPH

TC	.92	TIME OF CONCENTRATION
R	.59	STORAGE COEFFICIENT

570 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0 100.0

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= .92 HR, R= .59 HR

SNYDER TP= .48 HR, CP= .46

UNIT HYDROGRAPH
53 END-OF-PERIOD ORDINATES

26.	94.	189.	301.	507.	741.	841.	845.	822.	793.
756.	711.	665.	621.	566.	505.	451.	402.	359.	320.
286.	255.	228.	203.	181.	162.	145.	129.	115.	103.
92.	82.	73.	65.	58.	52.	46.	41.	37.	33.
29.	26.	23.	21.	19.	17.	15.	13.	12.	11.
9.	8.	8.							

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HYDROGRAPH AT STATION 465S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 1.02, TOTAL EXCESS = 2.88

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1263.	12.33	(CFS)	335.	125.	125.	125.
		(INCHES)	2.288	2.830	2.830	2.830
		(AC-FT)	166.	205.	205.	205.

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INTERPOLATED HYDROGRAPH AT 465S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1238.	12.33	(CFS)	328.	122.	122.	122.
		(INCHES)	2.242	2.774	2.774	2.774
		(AC-FT)	163.	201.	201.	201.

CUMULATIVE AREA = 1.36 SQ MI

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572 KK
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* 470R *
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ROUTE 465S TO CP OF 475S ALONG COLLECTOR STREET

HYDROGRAPH ROUTING DATA

574 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

575 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.025	LEFT OVERBANK N-VALUE
ANCH	.020	MAIN CHANNEL N-VALUE
ANR	.025	RIGHT OVERBANK N-VALUE
RLNTH	8200.	REACH LENGTH
SEL	.0046	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

--- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---

577 RY	ELEVATION	3.50	.50	.50	.00	.00	.50	.50	3.50
576 RX	DISTANCE	69.90	70.00	74.90	75.00	125.00	125.10	130.00	130.10

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	1.74	3.47	5.31	7.39	9.47	11.55	13.64	15.72	17.80
OUTFLOW	.00	15.01	47.48	93.40	153.98	227.28	311.96	407.12	512.10	626.35
ELEVATION	.00	.18	.37	.55	.74	.92	1.11	1.29	1.47	1.66
STORAGE	19.89	21.97	24.05	26.14	28.22	30.31	32.40	34.48	36.57	38.66
OUTFLOW	749.44	881.00	1020.69	1168.25	1323.42	1485.98	1655.73	1832.50	2016.11	2206.42
ELEVATION	1.84	2.03	2.21	2.39	2.58	2.76	2.95	3.13	3.32	3.50

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 1168. TO 2206.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 470R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1244.	12.53	(CFS)	335.	123.	123.	123.
		(INCHES)	2.287	2.792	2.792	2.792
		(AC-FT)	166.	203.	203.	203.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	12.53	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.48	12.53	1.02	.49	.49	.49

CUMULATIVE AREA = 1.36 SQ MI

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HYDROGRAPH AT STATION 470R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1215.	12.53	(CFS)	327.	120.	120.	120.
		(INCHES)	2.234	2.728	2.728	2.728
		(AC-FT)	162.	198.	198.	198.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	12.53	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.45	12.53	1.01	.49	.49	.49

CUMULATIVE AREA = 1.36 SQ MI

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HYDROGRAPH AT STATION 470R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1186.	12.53	(CFS)	319.	117.	117.	117.
		(INCHES)	2.181	2.665	2.665	2.665
		(AC-FT)	158.	193.	193.	193.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	12.53	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.42	12.53	.99	.48	.48	.48

CUMULATIVE AREA = 1.36 SQ MI

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HYDROGRAPH AT STATION 470R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1132.	12.53	(CFS)	305.	112.	112.	112.
		(INCHES)	2.084	2.548	2.548	2.548
		(AC-FT)	151.	185.	185.	185.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	12.53	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.35	12.53	.97	.47	.47	.47

CUMULATIVE AREA = 1.36 SQ MI

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HYDROGRAPH AT STATION 470R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1103.	12.53	(CFS)	297.	109.	109.	109.
		(INCHES)	2.031	2.485	2.485	2.485
		(AC-FT)	147.	180.	180.	180.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	12.53	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.31	12.53	.95	.46	.46	.46

CUMULATIVE AREA = 1.36 SQ MI

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INTERPOLATED HYDROGRAPH AT 470R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1219.	12.53	(CFS)	328.	121.	121.	121.
		(INCHES)	2.241	2.737	2.737	2.737
		(AC-FT)	163.	199.	199.	199.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	12.53	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.31	12.53	.95	.46	.46	.46

CUMULATIVE AREA = 1.36 SQ MI

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578 KK    *      475S  *
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                    SUB-BASIN 475

               SUBBASIN RUNOFF DATA

580 BA           SUBBASIN CHARACTERISTICS
                       TAREA         .60  SUBBASIN AREA

581 LG           GREEN AND AMPT LOSS RATE
                       STRTL         .29  STARTING LOSS
                         DTH         .31  MOISTURE DEFICIT
                        PSIF       10.50  WETTING FRONT SUCTION
                       XKSAT         .03  HYDRAULIC CONDUCTIVITY
                       RTIMP       18.00  PERCENT IMPERVIOUS AREA

582 UC           CLARK UNITGRAPH
                          TC         .60  TIME OF CONCENTRATION
                           R         .37  STORAGE COEFFICIENT

583 UA           ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                        .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                     100.0

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                                                UNIT HYDROGRAPH PARAMETERS
                                             CLARK   TC=   .60 HR,       R=   .37 HR
                                             SNYDER  TP=   .51 HR,      CP=   .84

                                                UNIT HYDROGRAPH
                                            35 END-OF-PERIOD ORDINATES
              15.       40.       63.       99.      195.      396.      588.      639.      597.      520.
             434.      362.      302.      252.      210.      175.      146.      122.      102.       85.
              71.       59.       49.       41.       34.       29.       24.       20.       17.       14.
              12.       10.        8.        7.        6.

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                     HYDROGRAPH AT STATION     475S
                    TRANSPOSITION AREA       .0 SQ MI

   TOTAL RAINFALL =    3.90, TOTAL LOSS =    1.54, TOTAL EXCESS =    2.36

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     19.93-HR
   770.      12.33       (CFS)      139.         45.         45.         45.
                         (INCHES)  2.166       2.340       2.340       2.340
                         (AC-FT)    69.         74.         74.         74.

                     CUMULATIVE AREA =     .60 SQ MI

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

                     HYDROGRAPH AT STATION     475S
                    TRANSPOSITION AREA      3.0 SQ MI
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TOTAL RAINFALL = 3.82, TOTAL LOSS = 1.53, TOTAL EXCESS = 2.29

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
753.	12.33	(CFS)	135.	44.	44.	44.
		(INCHES)	2.103	2.274	2.274	2.274
		(AC-FT)	67.	72.	72.	72.

CUMULATIVE AREA = .60 SQ MI

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HYDROGRAPH AT STATION 475S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 1.51, TOTAL EXCESS = 2.23

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
735.	12.33	(CFS)	131.	43.	43.	43.
		(INCHES)	2.041	2.208	2.208	2.208
		(AC-FT)	65.	70.	70.	70.

CUMULATIVE AREA = .60 SQ MI

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HYDROGRAPH AT STATION 475S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 1.49, TOTAL EXCESS = 2.10

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
702.	12.33	(CFS)	123.	40.	40.	40.
		(INCHES)	1.925	2.085	2.085	2.085
		(AC-FT)	61.	66.	66.	66.

CUMULATIVE AREA = .60 SQ MI

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HYDROGRAPH AT STATION 475S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 1.47, TOTAL EXCESS = 2.04

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
685.	12.33	(CFS)	119.	39.	39.	39.
		(INCHES)	1.864	2.019	2.019	2.019
		(AC-FT)	59.	64.	64.	64.

CUMULATIVE AREA = .60 SQ MI

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INTERPOLATED HYDROGRAPH AT 475S

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR

758.	12.33	(CFS)	136.	44.	44.	44.
		(INCHES)	2.121	2.293	2.293	2.293
		(AC-FT)	67.	73.	73.	73.

CUMULATIVE AREA = .60 SQ MI

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585 KK

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* 480C *
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COMBINE 470R AND 475S AT CP OF 475S

587 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 480C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1920.	12.47	(CFS)	474.	168.	168.	168.
		(INCHES)	2.250	2.655	2.655	2.655
		(AC-FT)	235.	277.	277.	277.

CUMULATIVE AREA = 1.96 SQ MI

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HYDROGRAPH AT STATION 480C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1874.	12.47	(CFS)	462.	164.	164.	164.
		(INCHES)	2.194	2.590	2.590	2.590
		(AC-FT)	229.	270.	270.	270.

CUMULATIVE AREA = 1.96 SQ MI

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HYDROGRAPH AT STATION 480C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1828.	12.47	(CFS)	450.	160.	160.	160.
		(INCHES)	2.138	2.526	2.526	2.526
		(AC-FT)	223.	264.	264.	264.

CUMULATIVE AREA = 1.96 SQ MI

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HYDROGRAPH AT STATION 480C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1745.	12.47	(CFS)	428.	152.	152.	152.
		(INCHES)	2.035	2.407	2.407	2.407
		(AC-FT)	212.	251.	251.	251.

CUMULATIVE AREA = 1.96 SQ MI

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HYDROGRAPH AT STATION 480C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1700.	12.47	(CFS)	417.	148.	148.	148.
		(INCHES)	1.980	2.343	2.343	2.343
		(AC-FT)	207.	245.	245.	245.

CUMULATIVE AREA = 1.96 SQ MI

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INTERPOLATED HYDROGRAPH AT 480C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1877.	12.47	(CFS)	463.	164.	164.	164.
		(INCHES)	2.198	2.595	2.595	2.595
		(AC-FT)	229.	271.	271.	271.

CUMULATIVE AREA = 1.96 SQ MI

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588 KK    *     485R    *
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ROUTE 480C TO CP OF 490S ALONG LOCAL STREET WITH VERTICAL CURBS

HYDROGRAPH ROUTING DATA

590 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

591 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.025	LEFT OVERBANK N-VALUE
ANCH	.020	MAIN CHANNEL N-VALUE
ANR	.025	RIGHT OVERBANK N-VALUE

RLNTH	10300.	REACH LENGTH
SEL	.0038	ENERGY SLOPE
ELMAX	5.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---	+	------ MAIN CHANNEL -------	+	--- RIGHT OVERBANK ---			
593 RY	ELEVATION	2.00	.50	.50	.00	.00	.50	.50	2.00
592 RX	DISTANCE	69.90	70.00	79.90	80.00	120.00	120.10	130.00	130.10

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	2.49	5.11	8.85	12.59	16.33	20.07	23.81	27.56	31.30
OUTFLOW	.00	19.72	62.42	131.57	224.20	336.70	466.99	613.59	776.29	955.39
ELEVATION	.00	.26	.53	.79	1.05	1.32	1.58	1.84	2.11	2.37
STORAGE	35.05	38.79	42.54	46.29	50.03	53.78	57.52	61.27	65.02	68.76
OUTFLOW	1149.23	1357.26	1579.01	1814.06	2062.04	2322.62	2595.51	2880.43	3177.13	3485.37
ELEVATION	2.63	2.89	3.16	3.42	3.68	3.95	4.21	4.47	4.74	5.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 2323. TO 3485.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 485R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1869.	12.67	(CFS)	473.	166.	166.	166.
		(INCHES)	2.248	2.618	2.618	2.618
		(AC-FT)	235.	273.	273.	273.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
9.	12.67	4.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.48	12.67	1.40	.64	.64	.64

CUMULATIVE AREA = 1.96 SQ MI

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HYDROGRAPH AT STATION 485R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1823.	12.67	(CFS)	461.	162.	162.	162.
		(INCHES)	2.192	2.554	2.554	2.554
		(AC-FT)	229.	267.	267.	267.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
9.	12.67	3.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.43	12.67	1.38	.63	.63	.63

CUMULATIVE AREA = 1.96 SQ MI

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HYDROGRAPH AT STATION 485R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1778.	12.67	(CFS)	450.	158.	158.	158.
		(INCHES)	2.137	2.491	2.491	2.491
		(AC-FT)	223.	260.	260.	260.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
9.	12.67	3.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.38	12.67	1.36	.62	.62	.62

CUMULATIVE AREA = 1.96 SQ MI

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HYDROGRAPH AT STATION 485R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1694.	12.67	(CFS)	428.	150.	150.	150.
		(INCHES)	2.033	2.372	2.372	2.372
		(AC-FT)	212.	248.	248.	248.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
9.	12.67	3.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.29	12.67	1.32	.61	.61	.61

CUMULATIVE AREA = 1.96 SQ MI

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HYDROGRAPH AT STATION 485R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1649.	12.67	(CFS)	416.	146.	146.	146.
		(INCHES)	1.978	2.309	2.309	2.309
		(AC-FT)	206.	241.	241.	241.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
9.	12.67	3.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.24	12.67	1.30	.60	.60	.60

CUMULATIVE AREA = 1.96 SQ MI

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INTERPOLATED HYDROGRAPH AT 485R

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1826.	12.67	(CFS)	462.	162.	162.	162.
		(INCHES)	2.196	2.559	2.559	2.559
		(AC-FT)	229.	267.	267.	267.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
9.	12.67		3.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.24	12.67		1.30	.60	.60	.60

CUMULATIVE AREA = 1.96 SQ MI

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594 KK    *     490S   *
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                SUB-BASIN 490
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SUBBASIN RUNOFF DATA

596 BA SUBBASIN CHARACTERISTICS

TAREA	1.12	SUBBASIN AREA

597 LG GREEN AND AMPT LOSS RATE

STRTL	.23	STARTING LOSS
DTH	.29	MOISTURE DEFICIT
PSIF	8.30	WETTING FRONT SUCTION
XKSAT	.09	HYDRAULIC CONDUCTIVITY
RTIMP	26.00	PERCENT IMPERVIOUS AREA

598 UC CLARK UNITGRAPH

TC	1.20	TIME OF CONCENTRATION
R	.89	STORAGE COEFFICIENT

599 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
100.0

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= 1.20 HR, R= .89 HR

SNYDER TP= .66 HR, CP= .43

UNIT HYDROGRAPH

79 END-OF-PERIOD ORDINATES

11.	34.	69.	115.	163.	240.	356.	443.	473.	480.
475.	468.	459.	446.	429.	412.	395.	380.	359.	333.
308.	286.	265.	246.	228.	212.	196.	182.	169.	157.
145.	135.	125.	116.	108.	100.	92.	86.	80.	74.
68.	63.	59.	55.	51.	47.	44.	40.	37.	35.
32.	30.	28.	26.	24.	22.	21.	19.	18.	16.
15.	14.	13.	12.	11.	10.	10.	9.	8.	8.
7.	7.	6.	6.	5.	5.	5.	4.	4.	

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HYDROGRAPH AT STATION 490S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 1.70, TOTAL EXCESS = 2.20

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
732.	12.53	(CFS)	230.	78.	78.	78.
		(INCHES)	1.917	2.165	2.165	2.165
		(AC-FT)	114.	129.	129.	129.

CUMULATIVE AREA = 1.12 SQ MI

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HYDROGRAPH AT STATION 490S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 1.68, TOTAL EXCESS = 2.14

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
713.	12.53	(CFS)	223.	76.	76.	76.
		(INCHES)	1.863	2.107	2.107	2.107
		(AC-FT)	111.	125.	125.	125.

CUMULATIVE AREA = 1.12 SQ MI

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HYDROGRAPH AT STATION 490S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 1.66, TOTAL EXCESS = 2.08

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
694.	12.53	(CFS)	217.	74.	74.	74.
		(INCHES)	1.810	2.049	2.049	2.049
		(AC-FT)	108.	122.	122.	122.

CUMULATIVE AREA = 1.12 SQ MI

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HYDROGRAPH AT STATION 490S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 1.62, TOTAL EXCESS = 1.97

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR

659.	12.53	(CFS)	205.	70.	70.	70.
		(INCHES)	1.714	1.942	1.942	1.942
		(AC-FT)	102.	115.	115.	115.

CUMULATIVE AREA = 1.12 SQ MI

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HYDROGRAPH AT STATION 490S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 1.59, TOTAL EXCESS = 1.92

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
642.	12.53	(CFS)	199.	68.	68.	68.
		(INCHES)	1.663	1.887	1.887	1.887
		(AC-FT)	99.	112.	112.	112.

CUMULATIVE AREA = 1.12 SQ MI

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INTERPOLATED HYDROGRAPH AT 490S

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
716.	12.53	(CFS)	225.	76.	76.	76.
		(INCHES)	1.872	2.117	2.117	2.117
		(AC-FT)	111.	126.	126.	126.

CUMULATIVE AREA = 1.12 SQ MI

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601 KK    *     495C   *
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COMBINE 460R, 485R AND 490S AT CP OF 490S

603 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 495C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3484.	12.60	(CFS)	1172.	413.	413.	413.
		(INCHES)	1.932	2.260	2.260	2.260
		(AC-FT)	581.	680.	680.	680.

CUMULATIVE AREA = 5.64 SQ MI

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HYDROGRAPH AT STATION 495C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3394.	12.60	(CFS)	1145.	403.	403.	403.
		(INCHES)	1.887	2.208	2.208	2.208
		(AC-FT)	568.	664.	664.	664.

CUMULATIVE AREA = 5.64 SQ MI

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HYDROGRAPH AT STATION 495C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3305.	12.60	(CFS)	1118.	394.	394.	394.
		(INCHES)	1.843	2.156	2.156	2.156
		(AC-FT)	554.	649.	649.	649.

CUMULATIVE AREA = 5.64 SQ MI

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HYDROGRAPH AT STATION 495C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3137.	12.60	(CFS)	1067.	376.	376.	376.
		(INCHES)	1.759	2.059	2.059	2.059
		(AC-FT)	529.	620.	620.	620.

CUMULATIVE AREA = 5.64 SQ MI

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HYDROGRAPH AT STATION 495C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3046.	12.60	(CFS)	1040.	367.	367.	367.
		(INCHES)	1.715	2.008	2.008	2.008
		(AC-FT)	516.	604.	604.	604.

CUMULATIVE AREA = 5.64 SQ MI

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INTERPOLATED HYDROGRAPH AT 495C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
3347.	12.60	(CFS)	1131.	398.	398.	398.

(INCHES)	1.864	2.181	2.181	2.181
(AC-FT)	561.	656.	656.	656.

CUMULATIVE AREA = 5.64 SQ MI

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604 KK    *     500D   *
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SURFACE FLOW CAPACITY OF THE UNION HILLS DRIVE AND CHANNEL IS 520 CFS,
STORM DRAIN CAPACITY IS 1280 CFS. TOTAL CAPACITY FLOWING WEST IS 1800 CFS.
REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 35TH AVENUE
AND 43RD AVENUE

DT DIVERSION
ISTAD 505D DIVERSION HYDROGRAPH IDENTIFICATION

DI	INFLOW	.00	500.00	1000.00	1800.00	2000.00	3000.00	4000.00
DQ	DIVERTED FLOW	.00	.00	.00	.00	200.00	1200.00	2200.00

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DIVERSION HYDROGRAPH 505D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1684.	12.60	(CFS)	217.	65.	65.	65.
		(INCHES)	.357	.357	.357	.357
		(AC-FT)	107.	107.	107.	107.

CUMULATIVE AREA = 5.64 SQ MI

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HYDROGRAPH AT STATION 500D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1800.	12.27	(CFS)	956.	347.	347.	347.
		(INCHES)	1.575	1.903	1.903	1.903
		(AC-FT)	474.	572.	572.	572.

CUMULATIVE AREA = 5.64 SQ MI

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DIVERSION HYDROGRAPH 505D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1594.	12.60	(CFS)	201.	61.	61.	61.

(INCHES)	.331	.331	.331	.331
(AC-FT)	100.	100.	100.	100.

CUMULATIVE AREA = 5.64 SQ MI

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HYDROGRAPH AT STATION 500D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1800.	12.27	(CFS)	944.	343.	343.	343.
		(INCHES)	1.556	1.876	1.876	1.876
		(AC-FT)	468.	565.	565.	565.

CUMULATIVE AREA = 5.64 SQ MI

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DIVERSION HYDROGRAPH 505D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1505.	12.60	(CFS)	186.	56.	56.	56.
		(INCHES)	.306	.306	.306	.306
		(AC-FT)	92.	92.	92.	92.

CUMULATIVE AREA = 5.64 SQ MI

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HYDROGRAPH AT STATION 500D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1800.	12.27	(CFS)	933.	338.	338.	338.
		(INCHES)	1.537	1.850	1.850	1.850
		(AC-FT)	462.	557.	557.	557.

CUMULATIVE AREA = 5.64 SQ MI

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DIVERSION HYDROGRAPH 505D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1337.	12.60	(CFS)	157.	47.	47.	47.
		(INCHES)	.259	.259	.259	.259
		(AC-FT)	78.	78.	78.	78.

CUMULATIVE AREA = 5.64 SQ MI

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HYDROGRAPH AT STATION 500D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1800.	12.27	(CFS)	911.	329.	329.	329.
		(INCHES)	1.501	1.801	1.801	1.801
		(AC-FT)	452.	542.	542.	542.

CUMULATIVE AREA = 5.64 SQ MI

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DIVERSION HYDROGRAPH 505D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1246.	12.60	(CFS)	142.	43.	43.	43.
		(INCHES)	.234	.234	.234	.234
		(AC-FT)	70.	70.	70.	70.

CUMULATIVE AREA = 5.64 SQ MI

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HYDROGRAPH AT STATION 500D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1800.	12.33	(CFS)	898.	324.	324.	324.
		(INCHES)	1.481	1.773	1.773	1.773
		(AC-FT)	446.	534.	534.	534.

CUMULATIVE AREA = 5.64 SQ MI

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INTERPOLATED DIVERSION HYDROGRAPH AT 505D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1547.	12.60	(CFS)	193.	58.	58.	58.
		(INCHES)	.318	.318	.318	.318
		(AC-FT)	96.	96.	96.	96.

CUMULATIVE AREA = 5.64 SQ MI

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INTERPOLATED HYDROGRAPH AT 500D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1800.	12.27	(CFS)	938.	340.	340.	340.
		(INCHES)	1.546	1.863	1.863	1.863
		(AC-FT)	465.	560.	560.	560.

CUMULATIVE AREA = 5.64 SQ MI

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612 KK    *      510R  *
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ROUTE 500D TO CP OF 515S ALONG UNION HILLS DRIVE - 43RD TO 51ST AVENUE

HYDROGRAPH ROUTING DATA

614 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

615 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.025	LEFT OVERBANK N-VALUE
ANCH	.020	MAIN CHANNEL N-VALUE
ANR	.025	RIGHT OVERBANK N-VALUE
RLNTH	7500.	REACH LENGTH
SEL	.0042	ENERGY SLOPE
ELMAX	10.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---		
617 RY	ELEVATION	1.50	1.50	1.00	.00	.00	1.00	1.50	1.50
616 RX	DISTANCE	45.00	59.90	60.00	100.00	100.10	140.00	140.10	155.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	1.91	7.62	15.29	25.25	35.22	45.19	55.16	65.13	75.10
OUTFLOW	.00	22.08	143.99	440.44	899.95	1504.24	2234.97	3081.32	4035.60	5091.86
ELEVATION	.00	.53	1.05	1.58	2.11	2.63	3.16	3.68	4.21	4.74
STORAGE	85.06	95.03	105.00	114.97	124.94	134.90	144.87	154.84	164.81	174.78
OUTFLOW	6245.31	7491.96	8828.43	10251.75	11759.35	13348.91	15018.36	16765.84	18589.62	20488.14
ELEVATION	5.26	5.79	6.32	6.84	7.37	7.89	8.42	8.95	9.47	10.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 1504. TO 20488.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 510R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1800.	12.60	(CFS)	955.	343.	343.	343.
		(INCHES)	1.574	1.878	1.878	1.878
		(AC-FT)	473.	565.	565.	565.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
8.	12.60	5.	2.	2.	2.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE

(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2.84	12.60		2.06	1.09	1.09	1.09

CUMULATIVE AREA = 5.64 SQ MI

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HYDROGRAPH AT STATION 510R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1800.	12.60	(CFS)	943.	338.	338.	338.
		(INCHES)	1.555	1.852	1.852	1.852
		(AC-FT)	468.	557.	557.	557.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
8.	12.60	5.	2.	2.	2.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
2.84	12.60	2.05	1.08	1.08	1.08

CUMULATIVE AREA = 5.64 SQ MI

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HYDROGRAPH AT STATION 510R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1800.	12.60	(CFS)	932.	334.	334.	334.
		(INCHES)	1.536	1.826	1.826	1.826
		(AC-FT)	462.	549.	549.	549.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
8.	12.60	5.	2.	2.	2.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
2.84	12.60	2.04	1.07	1.07	1.07

CUMULATIVE AREA = 5.64 SQ MI

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HYDROGRAPH AT STATION 510R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1800.	12.60	(CFS)	910.	325.	325.	325.
		(INCHES)	1.500	1.778	1.778	1.778
		(AC-FT)	451.	535.	535.	535.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
8.	12.60	5.	2.	2.	2.

PEAK STAGE TIME MAXIMUM AVERAGE STAGE

(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2.84	12.60		2.01	1.05	1.05	1.05

CUMULATIVE AREA = 5.64 SQ MI

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HYDROGRAPH AT STATION 510R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1800.	12.67	(CFS)	898.	320.	320.	320.
		(INCHES)	1.480	1.751	1.751	1.751
		(AC-FT)	445.	527.	527.	527.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
8.	12.67	5.	2.	2.	2.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
2.84	12.67	2.00	1.05	1.05	1.05

CUMULATIVE AREA = 5.64 SQ MI

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INTERPOLATED HYDROGRAPH AT 510R

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1800.	12.60	(CFS)	937.	336.	336.	336.
		(INCHES)	1.545	1.839	1.839	1.839
		(AC-FT)	465.	553.	553.	553.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
8.	12.67	5.	2.	2.	2.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
2.84	12.67	2.00	1.05	1.05	1.05

CUMULATIVE AREA = 5.64 SQ MI

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618 KK    *      515S  *
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SUB-BASIN 515

SUBBASIN RUNOFF DATA

620 BA SUBBASIN CHARACTERISTICS
TAREA .48 SUBBASIN AREA

621 LG GREEN AND AMPT LOSS RATE

STRTL	.12	STARTING LOSS
DTH	.34	MOISTURE DEFICIT
PSIF	4.60	WETTING FRONT SUCTION
XKSAT	.28	HYDRAULIC CONDUCTIVITY
RTIMP	32.00	PERCENT IMPERVIOUS AREA

622 UC CLARK UNITGRAPH

TC	.92	TIME OF CONCENTRATION
R	.82	STORAGE COEFFICIENT

623 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
100.0

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= .92 HR, R= .82 HR
SNYDER TP= .54 HR, CP= .40

UNIT HYDROGRAPH
71 END-OF-PERIOD ORDINATES

7.	24.	49.	79.	133.	196.	226.	233.	232.	229.
223.	215.	206.	197.	184.	170.	157.	144.	133.	123.
113.	104.	96.	89.	82.	75.	70.	64.	59.	54.
50.	46.	43.	39.	36.	33.	31.	28.	26.	24.
22.	21.	19.	17.	16.	15.	14.	13.	12.	11.
10.	9.	8.	8.	7.	7.	6.	6.	5.	5.
4.	4.	4.	3.	3.	3.	3.	2.	2.	2.
2.									

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HYDROGRAPH AT STATION 515S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 1.81, TOTAL EXCESS = 2.09

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
317.	12.40	(CFS)	90.	32.	32.	32.
		(INCHES)	1.750	2.054	2.054	2.054
		(AC-FT)	44.	52.	52.	52.

CUMULATIVE AREA = .48 SQ MI

WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO

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HYDROGRAPH AT STATION 515S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 1.79, TOTAL EXCESS = 2.03

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
309.	12.40	(CFS)	87.	31.	31.	31.
		(INCHES)	1.704	2.002	2.002	2.002
		(AC-FT)	43.	51.	51.	51.

CUMULATIVE AREA = .48 SQ MI

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HYDROGRAPH AT STATION 515S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 1.76, TOTAL EXCESS = 1.98

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
301.	12.40	(CFS)	85.	30.	30.	30.
		(INCHES)	1.659	1.950	1.950	1.950
		(AC-FT)	42.	50.	50.	50.

CUMULATIVE AREA = .48 SQ MI

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HYDROGRAPH AT STATION 515S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 1.70, TOTAL EXCESS = 1.89

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
285.	12.40	(CFS)	81.	29.	29.	29.
		(INCHES)	1.577	1.857	1.857	1.857
		(AC-FT)	40.	47.	47.	47.

CUMULATIVE AREA = .48 SQ MI

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HYDROGRAPH AT STATION 515S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 1.67, TOTAL EXCESS = 1.84

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
277.	12.40	(CFS)	79.	28.	28.	28.
		(INCHES)	1.534	1.807	1.807	1.807
		(AC-FT)	39.	46.	46.	46.

CUMULATIVE AREA = .48 SQ MI

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INTERPOLATED HYDROGRAPH AT 515S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
311.	12.40	(CFS)	88.	31.	31.	31.
		(INCHES)	1.719	2.019	2.019	2.019
		(AC-FT)	44.	51.	51.	51.

CUMULATIVE AREA = .48 SQ MI

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          *            *
625 KK    *      520C  *
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COMBINE 510R AND 515S AT CP OF 515S

627 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 520C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2102.	12.53	(CFS)	1042.	375.	375.	375.
		(INCHES)	1.583	1.892	1.892	1.892
		(AC-FT)	517.	617.	617.	617.

CUMULATIVE AREA = 6.12 SQ MI

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HYDROGRAPH AT STATION 520C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2092.	12.53	(CFS)	1028.	369.	369.	369.
		(INCHES)	1.562	1.864	1.864	1.864
		(AC-FT)	510.	608.	608.	608.

CUMULATIVE AREA = 6.12 SQ MI

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HYDROGRAPH AT STATION 520C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2083.	12.53	(CFS)	1014.	364.	364.	364.
		(INCHES)	1.541	1.836	1.836	1.836
		(AC-FT)	503.	599.	599.	599.

CUMULATIVE AREA = 6.12 SQ MI

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HYDROGRAPH AT STATION 520C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2065.	12.60	(CFS)	988.	353.	353.	353.
		(INCHES)	1.502	1.784	1.784	1.784
		(AC-FT)	490.	582.	582.	582.

CUMULATIVE AREA = 6.12 SQ MI

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HYDROGRAPH AT STATION 520C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2057.	12.60	(CFS)	974.	348.	348.	348.
		(INCHES)	1.480	1.755	1.755	1.755
		(AC-FT)	483.	573.	573.	573.

CUMULATIVE AREA = 6.12 SQ MI

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INTERPOLATED HYDROGRAPH AT 520C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2087.	12.53	(CFS)	1020.	366.	366.	366.
		(INCHES)	1.550	1.847	1.847	1.847
		(AC-FT)	506.	603.	603.	603.

CUMULATIVE AREA = 6.12 SQ MI

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628 KK    *      530D   *
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SURFACE FLOW CAPACITY OF UNION HILLS DRIVE AND 4-15" CULVERTS IS 65 CFS,
STORM DRAIN CAPACITY IS 1495 CFS, TOTAL CAPACITY FLOWING WEST IS 1560 CFS.
THE REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 43RD AVENUE
AND 55TH AVENUE

DT DIVERSION
ISTAD 525D DIVERSION HYDROGRAPH IDENTIFICATION

DI	INFLOW	.00	500.00	1000.00	1560.00	2000.00	4000.00
DQ	DIVERTED FLOW	.00	.00	.00	.00	440.00	2440.00

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DIVERSION HYDROGRAPH 525D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
542.	12.53	(CFS)	109.	33.	33.	33.
		(INCHES)	.166	.166	.166	.166
		(AC-FT)	54.	54.	54.	54.

CUMULATIVE AREA = 6.12 SQ MI

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HYDROGRAPH AT STATION 530D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1560.	12.33	(CFS)	933.	342.	342.	342.
		(INCHES)	1.418	1.726	1.726	1.726
		(AC-FT)	463.	563.	563.	563.

CUMULATIVE AREA = 6.12 SQ MI

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DIVERSION HYDROGRAPH 525D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
532.	12.53	(CFS)	105.	32.	32.	32.
		(INCHES)	.159	.159	.159	.159
		(AC-FT)	52.	52.	52.	52.

CUMULATIVE AREA = 6.12 SQ MI

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HYDROGRAPH AT STATION 530D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1560.	12.33	(CFS)	923.	338.	338.	338.
		(INCHES)	1.403	1.705	1.705	1.705
		(AC-FT)	458.	556.	556.	556.

CUMULATIVE AREA = 6.12 SQ MI

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DIVERSION HYDROGRAPH 525D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
523.	12.53	(CFS)	101.	30.	30.	30.
		(INCHES)	.154	.154	.154	.154
		(AC-FT)	50.	50.	50.	50.

CUMULATIVE AREA = 6.12 SQ MI

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HYDROGRAPH AT STATION 530D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR

1560.	12.40	(CFS)	913.	333.	333.	333.
		(INCHES)	1.387	1.682	1.682	1.682
		(AC-FT)	453.	549.	549.	549.

CUMULATIVE AREA = 6.12 SQ MI

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DIVERSION HYDROGRAPH 525D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
505.	12.60	(CFS)	95.	28.	28.	28.
		(INCHES)	.144	.144	.144	.144
		(AC-FT)	47.	47.	47.	47.

CUMULATIVE AREA = 6.12 SQ MI

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HYDROGRAPH AT STATION 530D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1560.	12.40	(CFS)	893.	325.	325.	325.
		(INCHES)	1.358	1.640	1.640	1.640
		(AC-FT)	443.	535.	535.	535.

CUMULATIVE AREA = 6.12 SQ MI

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DIVERSION HYDROGRAPH 525D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
497.	12.60	(CFS)	91.	27.	27.	27.
		(INCHES)	.138	.138	.138	.138
		(AC-FT)	45.	45.	45.	45.

CUMULATIVE AREA = 6.12 SQ MI

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HYDROGRAPH AT STATION 530D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1560.	12.40	(CFS)	882.	320.	320.	320.
		(INCHES)	1.341	1.617	1.617	1.617
		(AC-FT)	438.	527.	527.	527.

CUMULATIVE AREA = 6.12 SQ MI

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INTERPOLATED DIVERSION HYDROGRAPH AT 525D

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
527.	12.53	(CFS)	103.	31.	31.	31.
		(INCHES)	.156	.156	.156	.156
		(AC-FT)	51.	51.	51.	51.

CUMULATIVE AREA = 6.12 SQ MI

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INTERPOLATED HYDROGRAPH AT 530D

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1560.	12.40	(CFS)	917.	335.	335.	335.
		(INCHES)	1.394	1.691	1.691	1.691
		(AC-FT)	455.	552.	552.	552.

CUMULATIVE AREA = 6.12 SQ MI

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636 KK        *     535C   *
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COMBINE 370R, 375S, 420R & 530RD @ CP OF 375S

638 HC HYDROGRAPH COMBINATION
ICOMP 4 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 535C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
6654.	14.07	(CFS)	4630.	2781.	2781.	2781.
		(INCHES)	2.163	4.317	4.317	4.317
		(AC-FT)	2296.	4582.	4582.	4582.

CUMULATIVE AREA = 19.90 SQ MI

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HYDROGRAPH AT STATION 535C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
6967.	14.00	(CFS)	4633.	2778.	2778.	2778.
		(INCHES)	2.165	4.313	4.313	4.313
		(AC-FT)	2297.	4577.	4577.	4577.

CUMULATIVE AREA = 19.90 SQ MI

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HYDROGRAPH AT STATION 535C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		6-HR	24-HR	72-HR	19.93-HR
			MAXIMUM AVERAGE FLOW			
6803.	14.00	(CFS)	4560.	2752.	2752.	2752.
		(INCHES)	2.130	4.272	4.272	4.272
		(AC-FT)	2261.	4534.	4534.	4534.

CUMULATIVE AREA = 19.90 SQ MI

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HYDROGRAPH AT STATION 535C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		6-HR	24-HR	72-HR	19.93-HR
			MAXIMUM AVERAGE FLOW			
6539.	13.93	(CFS)	4423.	2704.	2704.	2704.
		(INCHES)	2.067	4.197	4.197	4.197
		(AC-FT)	2193.	4454.	4454.	4454.

CUMULATIVE AREA = 19.90 SQ MI

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HYDROGRAPH AT STATION 535C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		6-HR	24-HR	72-HR	19.93-HR
			MAXIMUM AVERAGE FLOW			
6394.	13.87	(CFS)	4350.	2678.	2678.	2678.
		(INCHES)	2.033	4.156	4.156	4.156
		(AC-FT)	2157.	4411.	4411.	4411.

CUMULATIVE AREA = 19.90 SQ MI

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INTERPOLATED HYDROGRAPH AT 535C

PEAK FLOW (CFS)	TIME (HR)		6-HR	24-HR	72-HR	19.93-HR
			MAXIMUM AVERAGE FLOW			
6541.	13.93	(CFS)	4424.	2704.	2704.	2704.
		(INCHES)	2.067	4.197	4.197	4.197
		(AC-FT)	2194.	4455.	4455.	4455.

CUMULATIVE AREA = 19.90 SQ MI

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639 KK    *     540R  *
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ROUTE 535C TO CP OF 545S ALONG SKUNK CREEK U/S OF UNION HILLS DRIVE

HYDROGRAPH ROUTING DATA

641 RS STORAGE ROUTING

NSTPS	2	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

642 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	3400.	REACH LENGTH
SEL	.0056	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---	+	------ MAIN CHANNEL -------	+	--- RIGHT OVERBANK ---		
644 RY	ELEVATION	1262.00	1264.00	1264.00	1254.00	1254.00	1262.00	1264.00	1264.00
643 RX	DISTANCE	445.00	465.00	475.00	500.00	610.00	640.00	650.00	660.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	4.59	9.31	14.17	19.16	24.29	29.55	34.95	40.48	46.15
OUTFLOW	.00	140.87	449.17	886.93	1439.47	2098.37	2858.17	3715.09	4666.44	5710.27
ELEVATION	1254.00	1254.53	1255.05	1255.58	1256.11	1256.63	1257.16	1257.68	1258.21	1258.74
STORAGE	51.95	57.89	63.96	70.17	76.52	83.00	89.69	96.75	104.20	112.02
OUTFLOW	6845.17	8070.13	9384.45	10787.67	12279.53	13859.92	15625.97	17513.84	19505.32	21581.64
ELEVATION	1259.26	1259.79	1260.32	1260.84	1261.37	1261.90	1262.42	1262.95	1263.47	1264.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 4666. TO 21582.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 540R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6642.	14.13	(CFS)	4628.	2778.	2778.	2778.
		(INCHES)	2.162	4.311	4.311	4.311
		(AC-FT)	2295.	4576.	4576.	4576.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
25.	14.13	20.	14.	14.	14.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1259.17	14.13	1258.15	1257.02	1257.02	1257.02

CUMULATIVE AREA = 19.90 SQ MI

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HYDROGRAPH AT STATION 540R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6949.	14.07	(CFS)	4632.	2775.	2775.	2775.
		(INCHES)	2.164	4.307	4.307	4.307
		(AC-FT)	2297.	4571.	4571.	4571.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
26.	14.07	20.	14.	14.	14.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1259.31	14.07	1258.15	1257.01	1257.01	1257.01

CUMULATIVE AREA = 19.90 SQ MI

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HYDROGRAPH AT STATION 540R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6794.	14.00	(CFS)	4559.	2749.	2749.	2749.
		(INCHES)	2.130	4.267	4.267	4.267
		(AC-FT)	2261.	4528.	4528.	4528.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
26.	14.00	20.	14.	14.	14.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1259.24	14.00	1258.11	1257.00	1257.00	1257.00

CUMULATIVE AREA = 19.90 SQ MI

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HYDROGRAPH AT STATION 540R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6522.	14.00	(CFS)	4422.	2700.	2700.	2700.
		(INCHES)	2.066	4.191	4.191	4.191
		(AC-FT)	2193.	4448.	4448.	4448.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
25.	14.00	19.	14.	14.	14.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1259.11	14.00	1258.04	1256.97	1256.97	1256.97

CUMULATIVE AREA = 19.90 SQ MI

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HYDROGRAPH AT STATION 540R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
6387.	13.93	(CFS)	4349.	2674.	2674.	2674.
		(INCHES)	2.032	4.151	4.151	4.151
		(AC-FT)	2157.	4405.	4405.	4405.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE		
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
25.	13.93	19.	14.	14.	14.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE		
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1259.05	13.93	1258.00	1256.96	1256.96	1256.96

CUMULATIVE AREA = 19.90 SQ MI

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INTERPOLATED HYDROGRAPH AT 540R

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
6524.	14.00	(CFS)	4423.	2701.	2701.	2701.
		(INCHES)	2.067	4.192	4.192	4.192
		(AC-FT)	2193.	4449.	4449.	4449.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE		
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
25.	13.93	19.	14.	14.	14.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE		
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1259.05	13.93	1258.00	1256.96	1256.96	1256.96

CUMULATIVE AREA = 19.90 SQ MI

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645 KK    *     545S   *
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SUB-BASIN 545

SUBBASIN RUNOFF DATA

647 BA   SUBBASIN CHARACTERISTICS
TAREA .30 SUBBASIN AREA

648 LG   GREEN AND AMPT LOSS RATE
STRTL .31 STARTING LOSS
DTH .33 MOISTURE DEFICIT
PSIF 4.00 WETTING FRONT SUCTION
XKSAT .46 HYDRAULIC CONDUCTIVITY

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                    RTIMP       15.00  PERCENT IMPERVIOUS AREA

649 UC          CLARK UNITGRAPH
                      TC         .70  TIME OF CONCENTRATION
                       R         .46  STORAGE COEFFICIENT

650 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                     .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                  100.0

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                                                        UNIT HYDROGRAPH PARAMETERS
                                                  CLARK   TC=   .70 HR,       R=   .46 HR
                                                 SNYDER   TP=   .60 HR,      CP=   .81

                                                        UNIT HYDROGRAPH
                                                  43 END-OF-PERIOD ORDINATES
                    6.       14.       21.       31.       47.       90.      167.      238.      262.      253.
                  232.      204.      176.      152.      132.      114.       98.       85.       74.       64.
                   55.       47.       41.       35.       31.       26.       23.       20.       17.       15.
                   13.       11.       10.        8.        7.        6.        5.        5.        4.        3.
                    3.        3.        2.

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                      HYDROGRAPH AT STATION     545S
                     TRANSPOSITION AREA       .0 SQ MI

   TOTAL RAINFALL =    3.90, TOTAL LOSS =    2.44, TOTAL EXCESS =    1.46

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     19.93-HR
   245.     12.40       (CFS)         42.         14.         14.         14.
                        (INCHES)   1.304       1.446       1.446       1.446
                        (AC-FT)       21.         23.         23.         23.

                      CUMULATIVE AREA =     .30 SQ MI


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

                      HYDROGRAPH AT STATION     545S
                     TRANSPOSITION AREA      3.0 SQ MI

   TOTAL RAINFALL =    3.82, TOTAL LOSS =    2.40, TOTAL EXCESS =    1.42

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     19.93-HR
   237.     12.40       (CFS)         40.         13.         13.         13.
                        (INCHES)   1.263       1.402       1.402       1.402
                        (AC-FT)       20.         22.         22.         22.

                      CUMULATIVE AREA =     .30 SQ MI


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

                      HYDROGRAPH AT STATION     545S
                     TRANSPOSITION AREA     10.0 SQ MI

   TOTAL RAINFALL =    3.74, TOTAL LOSS =    2.37, TOTAL EXCESS =    1.37

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR       24-HR       72-HR     19.93-HR
   229.     12.40       (CFS)         39.         13.         13.         13.
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(INCHES)	1.221	1.358	1.358	1.358
(AC-FT)	19.	21.	21.	21.

CUMULATIVE AREA = .30 SQ MI

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HYDROGRAPH AT STATION 545S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.30, TOTAL EXCESS = 1.29

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
214.	12.40	(CFS)	36.	12.	12.	12.
		(INCHES)	1.144	1.275	1.275	1.275
		(AC-FT)	18.	20.	20.	20.

CUMULATIVE AREA = .30 SQ MI

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HYDROGRAPH AT STATION 545S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.27, TOTAL EXCESS = 1.24

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
206.	12.40	(CFS)	35.	12.	12.	12.
		(INCHES)	1.102	1.230	1.230	1.230
		(AC-FT)	17.	19.	19.	19.

CUMULATIVE AREA = .30 SQ MI

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INTERPOLATED HYDROGRAPH AT 545S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
240.	12.40	(CFS)	41.	14.	14.	14.
		(INCHES)	1.279	1.420	1.420	1.420
		(AC-FT)	20.	22.	22.	22.

CUMULATIVE AREA = .30 SQ MI

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652 KK    *     550C   *
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COMBINE 540R AND 545S AT CP OF 545S

654 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 550C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6656.	14.13	(CFS)	4666.	2791.	2791.	2791.
		(INCHES)	2.148	4.269	4.269	4.269
		(AC-FT)	2314.	4599.	4599.	4599.

CUMULATIVE AREA = 20.20 SQ MI

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HYDROGRAPH AT STATION 550C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6964.	14.07	(CFS)	4668.	2788.	2788.	2788.
		(INCHES)	2.149	4.264	4.264	4.264
		(AC-FT)	2315.	4593.	4593.	4593.

CUMULATIVE AREA = 20.20 SQ MI

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HYDROGRAPH AT STATION 550C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6810.	14.00	(CFS)	4594.	2762.	2762.	2762.
		(INCHES)	2.115	4.224	4.224	4.224
		(AC-FT)	2278.	4550.	4550.	4550.

CUMULATIVE AREA = 20.20 SQ MI

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HYDROGRAPH AT STATION 550C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6537.	13.93	(CFS)	4455.	2712.	2712.	2712.
		(INCHES)	2.051	4.149	4.149	4.149
		(AC-FT)	2209.	4468.	4468.	4468.

CUMULATIVE AREA = 20.20 SQ MI

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HYDROGRAPH AT STATION 550C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR

6403.	13.93	(CFS)	4380.	2686.	2686.	2686.
		(INCHES)	2.017	4.108	4.108	4.108
		(AC-FT)	2172.	4425.	4425.	4425.

CUMULATIVE AREA = 20.20 SQ MI

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INTERPOLATED HYDROGRAPH AT 550C

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
6534.	13.93	(CFS)	4453.	2712.	2712.	2712.
		(INCHES)	2.050	4.148	4.148	4.148
		(AC-FT)	2208.	4467.	4467.	4467.

CUMULATIVE AREA = 20.20 SQ MI

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655 KK    *      555R  *
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ROUTE 550C TO CP OF 580S ALONG SKUNK CREEK FROM 67TH AVE. TO UNION HILLS DR.

HYDROGRAPH ROUTING DATA

657 RS STORAGE ROUTING

NSTPS	2	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

658 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	5350.	REACH LENGTH
SEL	.0039	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---			+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
660 RY	ELEVATION	1246.00	1244.00	1242.00	1236.00	1236.00	1242.00	1244.00	1245.00
659 RX	DISTANCE	395.00	435.00	465.00	500.00	560.00	590.00	650.00	700.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	4.06	8.50	13.30	18.46	24.00	29.91	36.18	42.83	49.84
OUTFLOW	.00	64.88	209.65	419.93	691.81	1024.07	1416.76	1870.52	2386.43	2965.78
ELEVATION	1236.00	1236.53	1237.05	1237.58	1238.11	1238.63	1239.16	1239.68	1240.21	1240.74
STORAGE	57.22	64.97	73.30	83.07	94.36	107.19	121.83	138.83	157.52	176.90
OUTFLOW	3610.02	4320.70	5186.64	6197.20	7311.84	8542.39	9887.69	11382.17	13099.16	14984.30
ELEVATION	1241.26	1241.79	1242.32	1242.84	1243.37	1243.90	1244.42	1244.95	1245.47	1246.00

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HYDROGRAPH AT STATION 555R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6631.	14.20	(CFS)	4663.	2785.	2785.	2785.
		(INCHES)	2.146	4.259	4.259	4.259
		(AC-FT)	2312.	4587.	4587.	4587.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
44.	14.20	34.	23.	23.	23.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1243.05	14.20	1241.91	1240.42	1240.42	1240.42

CUMULATIVE AREA = 20.20 SQ MI

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HYDROGRAPH AT STATION 555R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6941.	14.13	(CFS)	4665.	2782.	2782.	2782.
		(INCHES)	2.148	4.254	4.254	4.254
		(AC-FT)	2313.	4582.	4582.	4582.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
45.	14.13	34.	23.	23.	23.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1243.19	14.13	1241.90	1240.42	1240.42	1240.42

CUMULATIVE AREA = 20.20 SQ MI

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HYDROGRAPH AT STATION 555R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6785.	14.13	(CFS)	4590.	2755.	2755.	2755.
		(INCHES)	2.113	4.214	4.214	4.214
		(AC-FT)	2276.	4539.	4539.	4539.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
45.	14.13	33.	23.	23.	23.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1243.12	14.13	1241.86	1240.40	1240.40	1240.40

CUMULATIVE AREA = 20.20 SQ MI

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HYDROGRAPH AT STATION 555R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6519.	14.07	(CFS)	4452.	2706.	2706.	2706.
		(INCHES)	2.049	4.139	4.139	4.139
		(AC-FT)	2207.	4458.	4458.	4458.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
43.	14.07	33.	23.	23.	23.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1242.99	14.07	1241.77	1240.37	1240.37	1240.37

CUMULATIVE AREA = 20.20 SQ MI

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HYDROGRAPH AT STATION 555R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6378.	14.07	(CFS)	4377.	2680.	2680.	2680.
		(INCHES)	2.015	4.099	4.099	4.099
		(AC-FT)	2171.	4415.	4415.	4415.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
42.	14.07	32.	23.	23.	23.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1242.93	14.07	1241.73	1240.35	1240.35	1240.35

CUMULATIVE AREA = 20.20 SQ MI

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INTERPOLATED HYDROGRAPH AT 555R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6516.	14.07	(CFS)	4450.	2705.	2705.	2705.
		(INCHES)	2.049	4.138	4.138	4.138
		(AC-FT)	2207.	4457.	4457.	4457.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
42.	14.07	32.	23.	23.	23.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1242.93	14.07	1241.73	1240.35	1240.35	1240.35

CUMULATIVE AREA = 20.20 SQ MI

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661 KK    *      560S  *
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                        SUB-BASIN 560

               SUBBASIN RUNOFF DATA

663 BA           SUBBASIN CHARACTERISTICS
                       TAREA         .19  SUBBASIN AREA

664 LG           GREEN AND AMPT LOSS RATE
                       STRTL         .15  STARTING LOSS
                         DTH         .35  MOISTURE DEFICIT
                        PSIF        4.40  WETTING FRONT SUCTION
                       XKSAT         .28  HYDRAULIC CONDUCTIVITY
                       RTIMP       21.00  PERCENT IMPERVIOUS AREA

665 UC           CLARK UNITGRAPH
                          TC         .45  TIME OF CONCENTRATION
                           R         .33  STORAGE COEFFICIENT

666 UA           ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                       .0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                    100.0

                                                    ***

                                                UNIT HYDROGRAPH PARAMETERS
                                          CLARK   TC=   .45 HR,       R=   .33 HR
                                          SNYDER  TP=   .26 HR,      CP=   .47

                                                UNIT HYDROGRAPH
                                          29 END-OF-PERIOD ORDINATES
                      17.       64.      154.      217.      213.      196.      174.      148.      121.       98.
                      80.       66.       53.       44.       36.       29.       24.       19.       16.       13.
                      11.        9.        7.        6.        5.        4.        3.        3.        2.

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                          HYDROGRAPH AT STATION     560S
                         TRANSPOSITION AREA       .0 SQ MI

   TOTAL RAINFALL =    3.90, TOTAL LOSS =    2.11, TOTAL EXCESS =    1.79

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR        72-HR     19.93-HR
   224.      12.13       (CFS)         32.          11.          11.          11.
                         (INCHES)     1.575        1.779        1.779        1.779
                         (AC-FT)       16.          18.          18.          18.

                         CUMULATIVE AREA =     .19 SQ MI


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                          HYDROGRAPH AT STATION     560S
                         TRANSPOSITION AREA      3.0 SQ MI
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TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.08, TOTAL EXCESS = 1.74

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
218.	12.13	(CFS)	31.	11.	11.	11.
		(INCHES)	1.530	1.730	1.730	1.730
		(AC-FT)	16.	18.	18.	18.

CUMULATIVE AREA = .19 SQ MI

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HYDROGRAPH AT STATION 560S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.04, TOTAL EXCESS = 1.70

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
212.	12.13	(CFS)	30.	10.	10.	10.
		(INCHES)	1.487	1.682	1.682	1.682
		(AC-FT)	15.	17.	17.	17.

CUMULATIVE AREA = .19 SQ MI

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HYDROGRAPH AT STATION 560S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 1.98, TOTAL EXCESS = 1.61

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
200.	12.13	(CFS)	29.	10.	10.	10.
		(INCHES)	1.409	1.597	1.597	1.597
		(AC-FT)	14.	16.	16.	16.

CUMULATIVE AREA = .19 SQ MI

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HYDROGRAPH AT STATION 560S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 1.94, TOTAL EXCESS = 1.57

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
194.	12.13	(CFS)	28.	10.	10.	10.
		(INCHES)	1.368	1.552	1.552	1.552
		(AC-FT)	14.	16.	16.	16.

CUMULATIVE AREA = .19 SQ MI

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INTERPOLATED HYDROGRAPH AT 560S

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR

221.	12.13	(CFS)	32.	11.	11.	11.
		(INCHES)	1.552	1.753	1.753	1.753
		(AC-FT)	16.	18.	18.	18.

CUMULATIVE AREA = .19 SQ MI

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668 KK    *      565D  *
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CAPACITY OF 59TH AVENUE IS 25 CFS.
THIS IS DIVERTED OUT OF THE WATERSHED (DQ).

DT	DIVERSION ISTAD	570D	DIVERSION HYDROGRAPH IDENTIFICATION				
DI	INFLOW	.00	25.00	50.00	100.00	500.00	1000.00
DQ	DIVERTED FLOW	.00	25.00	25.00	25.00	25.00	25.00

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DIVERSION HYDROGRAPH 570D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
25.	11.67	(CFS)	11.	5.	5.	5.
		(INCHES)	.528	.732	.732	.732
		(AC-FT)	5.	7.	7.	7.

CUMULATIVE AREA = .19 SQ MI

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HYDROGRAPH AT STATION 565D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
199.	12.13	(CFS)	21.	6.	6.	6.
		(INCHES)	1.047	1.047	1.047	1.047
		(AC-FT)	11.	11.	11.	11.

CUMULATIVE AREA = .19 SQ MI

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DIVERSION HYDROGRAPH 570D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
25.	11.67	(CFS)	11.	4.	4.	4.
		(INCHES)	.522	.722	.722	.722

	(AC-FT)	5.	7.	7.	7.

CUMULATIVE AREA = .19 SQ MI

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HYDROGRAPH AT STATION 565D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
193.	12.13	(CFS)	21.	6.	6.	6.
		(INCHES)	1.008	1.008	1.008	1.008
		(AC-FT)	10.	10.	10.	10.

CUMULATIVE AREA = .19 SQ MI

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DIVERSION HYDROGRAPH 570D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
25.	11.67	(CFS)	11.	4.	4.	4.
		(INCHES)	.517	.712	.712	.712
		(AC-FT)	5.	7.	7.	7.

CUMULATIVE AREA = .19 SQ MI

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HYDROGRAPH AT STATION 565D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
187.	12.13	(CFS)	20.	6.	6.	6.
		(INCHES)	.970	.970	.970	.970
		(AC-FT)	10.	10.	10.	10.

CUMULATIVE AREA = .19 SQ MI

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DIVERSION HYDROGRAPH 570D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
25.	11.67	(CFS)	10.	4.	4.	4.
		(INCHES)	.507	.695	.695	.695
		(AC-FT)	5.	7.	7.	7.

CUMULATIVE AREA = .19 SQ MI

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HYDROGRAPH AT STATION 565D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
175.	12.13	(CFS)	18.	6.	6.	6.
		(INCHES)	.902	.902	.902	.902
		(AC-FT)	9.	9.	9.	9.

CUMULATIVE AREA = .19 SQ MI

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DIVERSION HYDROGRAPH 570D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
25.	11.67	(CFS)	10.	4.	4.	4.
		(INCHES)	.502	.685	.685	.685
		(AC-FT)	5.	7.	7.	7.

CUMULATIVE AREA = .19 SQ MI

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HYDROGRAPH AT STATION 565D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
169.	12.13	(CFS)	18.	5.	5.	5.
		(INCHES)	.867	.867	.867	.867
		(AC-FT)	9.	9.	9.	9.

CUMULATIVE AREA = .19 SQ MI

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INTERPOLATED DIVERSION HYDROGRAPH AT 570D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
25.	11.67	(CFS)	11.	4.	4.	4.
		(INCHES)	.525	.727	.727	.727
		(AC-FT)	5.	7.	7.	7.

CUMULATIVE AREA = .19 SQ MI

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INTERPOLATED HYDROGRAPH AT 565D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
196.	12.13	(CFS)	21.	6.	6.	6.
		(INCHES)	1.026	1.026	1.026	1.026
		(AC-FT)	10.	10.	10.	10.

CUMULATIVE AREA = .19 SQ MI

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674 KK    *      575R  *
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ROUTE 565D TO CP OF 580S ALONG LOCAL STREETS WITH VERTICAL CURBS

HYDROGRAPH ROUTING DATA

676 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

677 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.030	LEFT OVERBANK N-VALUE
ANCH	.020	MAIN CHANNEL N-VALUE
ANR	.030	RIGHT OVERBANK N-VALUE
RLNTH	6500.	REACH LENGTH
SEL	.0044	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------		+ --- RIGHT OVERBANK ---		
679 RY	ELEVATION	2.00	.50	.50	.00	.00	.50	.50	2.00
678 RX	DISTANCE	74.90	75.00	81.90	82.00	118.00	118.10	125.00	125.10

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.57	1.13	1.70	2.27	2.89	3.68	4.46	5.25	6.03
OUTFLOW	.00	4.16	13.18	25.82	41.59	60.31	83.17	109.65	139.37	172.11
ELEVATION	.00	.11	.21	.32	.42	.53	.63	.74	.84	.95
STORAGE	6.82	7.61	8.39	9.18	9.97	10.75	11.54	12.33	13.12	13.91
OUTFLOW	207.69	245.98	286.84	330.20	375.95	424.02	474.34	526.84	581.48	638.19
ELEVATION	1.05	1.16	1.26	1.37	1.47	1.58	1.68	1.79	1.89	2.00

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HYDROGRAPH AT STATION 575R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
168.	12.47	(CFS)	21.	6.	6.	6.
		(INCHES)	1.047	1.047	1.047	1.047
		(AC-FT)	11.	11.	11.	11.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.47	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.93	12.47	.17	.05	.05	.05

CUMULATIVE AREA = .19 SQ MI

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HYDROGRAPH AT STATION 575R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
162.	12.47	(CFS)	21.	6.	6.	6.
		(INCHES)	1.008	1.008	1.008	1.008
		(AC-FT)	10.	10.	10.	10.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.47	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.92	12.47	.17	.05	.05	.05

CUMULATIVE AREA = .19 SQ MI

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HYDROGRAPH AT STATION 575R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
157.	12.47	(CFS)	20.	6.	6.	6.
		(INCHES)	.970	.970	.970	.970
		(AC-FT)	10.	10.	10.	10.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.47	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.90	12.47	.17	.05	.05	.05

CUMULATIVE AREA = .19 SQ MI

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HYDROGRAPH AT STATION 575R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
146.	12.47	(CFS)	18.	6.	6.	6.
		(INCHES)	.902	.902	.902	.902
		(AC-FT)	9.	9.	9.	9.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.47	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.86	12.47	.16	.05	.05	.05

CUMULATIVE AREA = .19 SQ MI

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HYDROGRAPH AT STATION 575R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
140.	12.47	(CFS)	18.	5.	5.	5.
		(INCHES)	.867	.867	.867	.867
		(AC-FT)	9.	9.	9.	9.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.47	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.84	12.47	.16	.05	.05	.05

CUMULATIVE AREA = .19 SQ MI

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INTERPOLATED HYDROGRAPH AT 575R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
165.	12.47	(CFS)	21.	6.	6.	6.
		(INCHES)	1.026	1.026	1.026	1.026
		(AC-FT)	10.	10.	10.	10.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.47	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.84	12.47	.16	.05	.05	.05

CUMULATIVE AREA = .19 SQ MI

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680 KK    *    580S    *
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SUB-BASIN 580

SUBBASIN RUNOFF DATA

682 BA SUBBASIN CHARACTERISTICS
TAREA .91 SUBBASIN AREA

683 LG GREEN AND AMPT LOSS RATE
STRTL .20 STARTING LOSS
DTH .34 MOISTURE DEFICIT
PSIF 4.50 WETTING FRONT SUCTION

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                    XKSAT        .33  HYDRAULIC CONDUCTIVITY
                    RTIMP      25.00  PERCENT IMPERVIOUS AREA

684 UC          CLARK UNITGRAPH
                     TC         .62  TIME OF CONCENTRATION
                      R         .26  STORAGE COEFFICIENT

685 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                     .0       5.0      16.0      30.0      65.0      77.0      84.0      90.0      94.0      97.0
                   100.0

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                                                        UNIT HYDROGRAPH PARAMETERS
                                                  CLARK   TC=   .62 HR,       R=   .26 HR
                                                  SNYDER  TP=   .32 HR,      CP=   .60

                                                          UNIT HYDROGRAPH
                                                  26 END-OF-PERIOD ORDINATES
                    59.      227.      500.      891.     1102.     1034.      925.      807.      694.      579.
                   457.      354.      274.      213.      165.      128.       99.       77.       59.       46.
                    36.       28.       21.       17.       13.       10.

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                       HYDROGRAPH AT STATION     580S
                      TRANSPOSITION AREA       .0 SQ MI

     TOTAL RAINFALL =    3.90, TOTAL LOSS =    2.05, TOTAL EXCESS =    1.85

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR        24-HR       72-HR      19.93-HR
  1078.      12.20       (CFS)       156.         54.         54.         54.
                         (INCHES)   1.588       1.831       1.831       1.831
                         (AC-FT)     77.         89.         89.         89.

                       CUMULATIVE AREA =     .91 SQ MI


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

                       HYDROGRAPH AT STATION     580S
                      TRANSPOSITION AREA      3.0 SQ MI

     TOTAL RAINFALL =    3.82, TOTAL LOSS =    2.02, TOTAL EXCESS =    1.80

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR        24-HR       72-HR      19.93-HR
  1048.      12.20       (CFS)       152.         53.         53.         53.
                         (INCHES)   1.546       1.784       1.784       1.784
                         (AC-FT)     75.         87.         87.         87.

                       CUMULATIVE AREA =     .91 SQ MI


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

                       HYDROGRAPH AT STATION     580S
                      TRANSPOSITION AREA     10.0 SQ MI

     TOTAL RAINFALL =    3.74, TOTAL LOSS =    1.99, TOTAL EXCESS =    1.75

PEAK FLOW     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR        24-HR       72-HR      19.93-HR
  1018.      12.20       (CFS)       148.         51.         51.         51.
                         (INCHES)   1.504       1.736       1.736       1.736
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		(AC-FT)	73.	85.	85.	85.

CUMULATIVE AREA = .91 SQ MI

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HYDROGRAPH AT STATION 580S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 1.93, TOTAL EXCESS = 1.66

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
962.	12.20	(CFS)	140.	49.	49.	49.
		(INCHES)	1.424	1.647	1.647	1.647
		(AC-FT)	69.	80.	80.	80.

CUMULATIVE AREA = .91 SQ MI

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HYDROGRAPH AT STATION 580S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 1.90, TOTAL EXCESS = 1.61

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
932.	12.20	(CFS)	136.	47.	47.	47.
		(INCHES)	1.381	1.600	1.600	1.600
		(AC-FT)	67.	78.	78.	78.

CUMULATIVE AREA = .91 SQ MI

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INTERPOLATED HYDROGRAPH AT 580S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1054.	12.20	(CFS)	153.	53.	53.	53.
		(INCHES)	1.555	1.794	1.794	1.794
		(AC-FT)	76.	87.	87.	87.

CUMULATIVE AREA = .91 SQ MI

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          *            *
687 KK    *     585C   *
          *            *
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COMBINE 555R, 575R AND 580S AT CP OF 580S

689 HC HYDROGRAPH COMBINATION
ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

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

HYDROGRAPH AT STATION 585C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6662.	14.20	(CFS)	4795.	2845.	2845.	2845.
		(INCHES)	2.093	4.126	4.126	4.126
		(AC-FT)	2378.	4687.	4687.	4687.

CUMULATIVE AREA = 21.30 SQ MI

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

HYDROGRAPH AT STATION 585C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6972.	14.13	(CFS)	4793.	2840.	2840.	2840.
		(INCHES)	2.092	4.119	4.119	4.119
		(AC-FT)	2377.	4679.	4679.	4679.

CUMULATIVE AREA = 21.30 SQ MI

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HYDROGRAPH AT STATION 585C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6816.	14.13	(CFS)	4715.	2813.	2813.	2813.
		(INCHES)	2.058	4.079	4.079	4.079
		(AC-FT)	2338.	4633.	4633.	4633.

CUMULATIVE AREA = 21.30 SQ MI

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HYDROGRAPH AT STATION 585C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6550.	14.07	(CFS)	4568.	2760.	2760.	2760.
		(INCHES)	1.994	4.003	4.003	4.003
		(AC-FT)	2265.	4547.	4547.	4547.

CUMULATIVE AREA = 21.30 SQ MI

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HYDROGRAPH AT STATION 585C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6408.	14.00	(CFS)	4490.	2732.	2732.	2732.

(INCHES)	1.960	3.962	3.962	3.962
(AC-FT)	2227.	4501.	4501.	4501.

CUMULATIVE AREA = 21.30 SQ MI

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INTERPOLATED HYDROGRAPH AT 585C

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
6528.	14.07	(CFS)	4556.	2756.	2756.	2756.
		(INCHES)	1.989	3.997	3.997	3.997
		(AC-FT)	2259.	4540.	4540.	4540.

CUMULATIVE AREA = 21.30 SQ MI

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690 KK    *     590R   *
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ROUTE 640C TO CP OF 650S ALONG SKUNK CREEK FROM 67TH AVENUE TO BELL ROAD

HYDROGRAPH ROUTING DATA

692 RS STORAGE ROUTING

NSTPS	2	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

693 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	4000.	REACH LENGTH
SEL	.0075	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---	+	------ MAIN CHANNEL	-------	+	--- RIGHT OVERBANK ---		
695 RY	ELEVATION	1231.00	1231.00	1230.00	1223.50	1223.50	1230.00	1232.00	1232.50
694 RX	DISTANCE	370.00	470.00	485.00	500.00	680.00	710.00	730.00	810.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	7.90	15.94	24.13	32.46	40.93	49.54	58.29	67.19	76.23
OUTFLOW	.00	223.38	711.05	1401.42	2269.96	3302.09	4487.92	5820.24	7293.57	8903.65
ELEVATION	1223.50	1223.97	1224.45	1224.92	1225.39	1225.87	1226.34	1226.82	1227.29	1227.76
STORAGE	85.42	94.74	104.21	113.82	123.59	133.78	145.19	160.55	176.12	193.60
OUTFLOW	10647.05	12521.01	14523.28	16652.02	18956.95	21530.97	24247.61	27241.33	30476.11	33936.80
ELEVATION	1228.24	1228.71	1229.18	1229.66	1230.13	1230.60	1231.08	1231.55	1232.03	1232.50

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 8904. TO 33937.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 590R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6654.	14.27	(CFS)	4793.	2840.	2840.	2840.
		(INCHES)	2.092	4.119	4.119	4.119
		(AC-FT)	2377.	4679.	4679.	4679.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
32.	14.27	26.	18.	18.	18.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1227.08	14.27	1226.43	1225.60	1225.60	1225.60

CUMULATIVE AREA = 21.30 SQ MI

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HYDROGRAPH AT STATION 590R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6962.	14.20	(CFS)	4792.	2836.	2836.	2836.
		(INCHES)	2.092	4.112	4.112	4.112
		(AC-FT)	2376.	4671.	4671.	4671.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
33.	14.20	26.	18.	18.	18.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1227.18	14.20	1226.42	1225.59	1225.59	1225.59

CUMULATIVE AREA = 21.30 SQ MI

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HYDROGRAPH AT STATION 590R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6807.	14.20	(CFS)	4713.	2808.	2808.	2808.
		(INCHES)	2.057	4.072	4.072	4.072
		(AC-FT)	2337.	4626.	4626.	4626.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
32.	14.20	25.	18.	18.	18.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1227.13	14.20	1226.40	1225.58	1225.58	1225.58

CUMULATIVE AREA = 21.30 SQ MI

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HYDROGRAPH AT STATION 590R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6542.	14.13	(CFS)	4567.	2756.	2756.	2756.
		(INCHES)	1.994	3.996	3.996	3.996
		(AC-FT)	2265.	4540.	4540.	4540.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
31.	14.13	25.	18.	18.	18.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1227.05	14.13	1226.34	1225.56	1225.56	1225.56

CUMULATIVE AREA = 21.30 SQ MI

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HYDROGRAPH AT STATION 590R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6401.	14.13	(CFS)	4489.	2728.	2728.	2728.
		(INCHES)	1.959	3.956	3.956	3.956
		(AC-FT)	2226.	4494.	4494.	4494.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
31.	14.13	25.	18.	18.	18.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1227.00	14.13	1226.31	1225.55	1225.55	1225.55

CUMULATIVE AREA = 21.30 SQ MI

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INTERPOLATED HYDROGRAPH AT 590R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6520.	14.13	(CFS)	4555.	2751.	2751.	2751.
		(INCHES)	1.988	3.990	3.990	3.990
		(AC-FT)	2259.	4533.	4533.	4533.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
31.	14.13	25.	18.	18.	18.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1227.00	14.13	1226.31	1225.55	1225.55	1225.55

CUMULATIVE AREA = 21.30 SQ MI

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696 KK    *      595S  *
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SUB-BASIN 595

SUBBASIN RUNOFF DATA

698 BA SUBBASIN CHARACTERISTICS

TAREA	.30	SUBBASIN AREA

699 LG GREEN AND AMPT LOSS RATE

STRTL	.19	STARTING LOSS
DTH	.34	MOISTURE DEFICIT
PSIF	4.50	WETTING FRONT SUCTION
XKSAT	.42	HYDRAULIC CONDUCTIVITY
RTIMP	13.00	PERCENT IMPERVIOUS AREA

700 UC CLARK UNITGRAPH

TC	1.42	TIME OF CONCENTRATION
R	1.49	STORAGE COEFFICIENT

701 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0	3.0	5.0	8.0	12.0	20.0	43.0	75.0	90.0	96.0
100.0									

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= 1.42 HR, R= 1.49 HR

SNYDER TP= 1.23 HR, CP= .58

UNIT HYDROGRAPH

132 END-OF-PERIOD ORDINATES

1.	3.	4.	5.	6.	8.	9.	11.	14.	17.
23.	33.	46.	61.	77.	87.	93.	95.	94.	93.
92.	89.	86.	82.	78.	75.	72.	69.	66.	63.
60.	57.	55.	52.	50.	48.	46.	44.	42.	40.
38.	37.	35.	33.	32.	31.	29.	28.	27.	26.
24.	23.	22.	21.	20.	20.	19.	18.	17.	16.
16.	15.	14.	14.	13.	13.	12.	11.	11.	10.
10.	10.	9.	9.	8.	8.	8.	7.	7.	7.
6.	6.	6.	6.	5.	5.	5.	5.	4.	4.
4.	4.	4.	4.	3.	3.	3.	3.	3.	3.
3.	3.	2.	2.	2.	2.	2.	2.	2.	2.
2.	2.	2.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.								

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HYDROGRAPH AT STATION 595S

TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.47, TOTAL EXCESS = 1.43

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
109.	13.00	(CFS)	41.	14.	14.	14.
		(INCHES)	1.253	1.400	1.400	1.400
		(AC-FT)	20.	23.	23.	23.

CUMULATIVE AREA = .30 SQ MI

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HYDROGRAPH AT STATION 595S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.43, TOTAL EXCESS = 1.39

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
105.	13.00	(CFS)	39.	13.	13.	13.
		(INCHES)	1.214	1.358	1.358	1.358
		(AC-FT)	20.	22.	22.	22.

CUMULATIVE AREA = .30 SQ MI

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HYDROGRAPH AT STATION 595S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.39, TOTAL EXCESS = 1.35

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
102.	13.00	(CFS)	38.	13.	13.	13.
		(INCHES)	1.175	1.316	1.316	1.316
		(AC-FT)	19.	21.	21.	21.

CUMULATIVE AREA = .30 SQ MI

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HYDROGRAPH AT STATION 595S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.33, TOTAL EXCESS = 1.26

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
95.	13.00	(CFS)	36.	12.	12.	12.
		(INCHES)	1.102	1.236	1.236	1.236
		(AC-FT)	18.	20.	20.	20.

CUMULATIVE AREA = .30 SQ MI

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HYDROGRAPH AT STATION 595S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.29, TOTAL EXCESS = 1.22

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR

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  92.     13.00       (CFS)        35.         12.         12.         12.
                   (INCHES)     1.063       1.193       1.193       1.193
                    (AC-FT)       17.         19.         19.         19.

                  CUMULATIVE AREA =      .30 SQ MI

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



                  INTERPOLATED HYDROGRAPH AT      595S

PEAK FLOW       TIME                         MAXIMUM AVERAGE FLOW
  (CFS)         (HR)                  6-HR        24-HR       72-HR     19.93-HR
    107.      13.00       (CFS)        40.         13.         13.         13.
                   (INCHES)     1.230       1.375       1.375       1.375
                    (AC-FT)       20.         22.         22.         22.

                  CUMULATIVE AREA =      .30 SQ MI



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703 KK      *     600S   *
            *            *
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                     SUB-BASIN 600

              SUBBASIN RUNOFF DATA

705 BA          SUBBASIN CHARACTERISTICS
                      TAREA        1.03  SUBBASIN AREA

706 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .44  STARTING LOSS
                        DTH         .25  MOISTURE DEFICIT
                       PSIF        5.50  WETTING FRONT SUCTION
                      XKSAT         .38  HYDRAULIC CONDUCTIVITY
                      RTIMP        8.00  PERCENT IMPERVIOUS AREA

707 UC          CLARK UNITGRAPH
                         TC        1.03  TIME OF CONCENTRATION
                          R         .58  STORAGE COEFFICIENT

708 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                       .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                    100.0

                                                       ***

                                         UNIT HYDROGRAPH PARAMETERS
                                    CLARK   TC=  1.03 HR,        R=   .58 HR
                                   SNYDER   TP=   .84 HR,       CP=   .85

                                              UNIT HYDROGRAPH
                                         56 END-OF-PERIOD ORDINATES
            10.       29.       42.       54.       70.       88.      118.      171.      274.      428.
           586.      678.      690.      669.      630.      582.      526.      469.      417.      372.
           331.      295.      263.      234.      209.      186.      166.      148.      132.      117.
           104.       93.       83.       74.       66.       59.       52.       47.       41.       37.
            33.       29.       26.       23.       21.       18.       16.       15.       13.       12.
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10. 9. 8. 7. 7. 6.

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HYDROGRAPH AT STATION 600S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.60, TOTAL EXCESS = 1.30

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
698.	12.67	(CFS)	134.	43.	43.	43.
		(INCHES)	1.214	1.288	1.288	1.288
		(AC-FT)	66.	71.	71.	71.

CUMULATIVE AREA = 1.03 SQ MI

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HYDROGRAPH AT STATION 600S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.56, TOTAL EXCESS = 1.26

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
674.	12.67	(CFS)	130.	41.	41.	41.
		(INCHES)	1.173	1.247	1.247	1.247
		(AC-FT)	64.	68.	68.	68.

CUMULATIVE AREA = 1.03 SQ MI

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HYDROGRAPH AT STATION 600S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.52, TOTAL EXCESS = 1.22

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
651.	12.67	(CFS)	125.	40.	40.	40.
		(INCHES)	1.133	1.205	1.205	1.205
		(AC-FT)	62.	66.	66.	66.

CUMULATIVE AREA = 1.03 SQ MI

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HYDROGRAPH AT STATION 600S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.45, TOTAL EXCESS = 1.14

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
606.	12.67	(CFS)	117.	37.	37.	37.
		(INCHES)	1.056	1.125	1.125	1.125
		(AC-FT)	58.	62.	62.	62.

CUMULATIVE AREA = 1.03 SQ MI

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HYDROGRAPH AT STATION 600S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.42, TOTAL EXCESS = 1.09

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
582.	12.67	(CFS)	112.	36.	36.	36.
		(INCHES)	1.015	1.082	1.082	1.082
		(AC-FT)	56.	59.	59.	59.

CUMULATIVE AREA = 1.03 SQ MI

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INTERPOLATED HYDROGRAPH AT 600S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
679.	12.67	(CFS)	130.	42.	42.	42.
		(INCHES)	1.181	1.254	1.254	1.254
		(AC-FT)	65.	69.	69.	69.

CUMULATIVE AREA = 1.03 SQ MI

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710 KK **********
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* 605R *
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ROUTE 600S TO CP OF 610S ALONG LOCAL STREETS WITH VERTICAL CURBS

HYDROGRAPH ROUTING DATA

712 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

713 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.030	LEFT OVERBANK N-VALUE
ANCH	.020	MAIN CHANNEL N-VALUE
ANR	.030	RIGHT OVERBANK N-VALUE
RLNTH	2500.	REACH LENGTH
SEL	.0060	ENERGY SLOPE
ELMAX	5.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
715 RY	ELEVATION	2.00	.50	.50	.00	.00	.50	2.00
714 RX	DISTANCE	74.90	75.00	81.90	82.00	118.00	118.10	125.00	125.10

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.54	1.11	1.87	2.62	3.38	4.14	4.89	5.65	6.41
OUTFLOW	.00	22.28	70.42	144.94	242.53	359.92	495.14	646.81	814.70	999.10
ELEVATION	.00	.26	.53	.79	1.05	1.32	1.58	1.84	2.11	2.37
STORAGE	7.17	7.93	8.68	9.44	10.20	10.96	11.72	12.48	13.23	13.99
OUTFLOW	1198.36	1411.96	1639.43	1880.34	2134.35	2401.10	2680.31	2971.70	3275.03	3590.05
ELEVATION	2.63	2.89	3.16	3.42	3.68	3.95	4.21	4.47	4.74	5.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 22. TO 3590.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 605R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
695.	12.73	(CFS)	134.	43.	43.	43.
		(INCHES)	1.214	1.287	1.287	1.287
		(AC-FT)	66.	70.	70.	70.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.73	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.92	12.73	.56	.20	.20	.20

CUMULATIVE AREA = 1.03 SQ MI

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HYDROGRAPH AT STATION 605R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
672.	12.73	(CFS)	130.	41.	41.	41.
		(INCHES)	1.173	1.245	1.245	1.245
		(AC-FT)	64.	68.	68.	68.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.73	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.88	12.73	.55	.19	.19	.19

CUMULATIVE AREA = 1.03 SQ MI

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HYDROGRAPH AT STATION 605R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
648.	12.73	(CFS)	125.	40.	40.	40.

		(INCHES)	1.133	1.203	1.203	1.203
		(AC-FT)	62.	66.	66.	66.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.73	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.84	12.73	.54	.19	.19	.19

CUMULATIVE AREA = 1.03 SQ MI

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HYDROGRAPH AT STATION 605R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
604.	12.73	(CFS)	117.	37.	37.	37.
		(INCHES)	1.056	1.124	1.124	1.124
		(AC-FT)	58.	62.	62.	62.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.73	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.77	12.73	.52	.18	.18	.18

CUMULATIVE AREA = 1.03 SQ MI

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HYDROGRAPH AT STATION 605R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
580.	12.73	(CFS)	112.	36.	36.	36.
		(INCHES)	1.015	1.081	1.081	1.081
		(AC-FT)	56.	59.	59.	59.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.73	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.73	12.73	.51	.18	.18	.18

CUMULATIVE AREA = 1.03 SQ MI

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INTERPOLATED HYDROGRAPH AT 605R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
677.	12.73	(CFS)	130.	42.	42.	42.

	(INCHES)	1.181	1.253	1.253	1.253
	(AC-FT)	65.	69.	69.	69.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
1.	12.73	0.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.73	12.73	.51	.18	.18	.18

CUMULATIVE AREA = 1.03 SQ MI

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716 KK    *      610S  *
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SUB-BASIN 610

SUBBASIN RUNOFF DATA

718 BA SUBBASIN CHARACTERISTICS

TAREA	.69	SUBBASIN AREA

719 LG GREEN AND AMPT LOSS RATE

STRTL	.21	STARTING LOSS
DTH	.27	MOISTURE DEFICIT
PSIF	6.80	WETTING FRONT SUCTION
XKSAT	.18	HYDRAULIC CONDUCTIVITY
RTIMP	19.00	PERCENT IMPERVIOUS AREA

720 UC CLARK UNITGRAPH

TC	.77	TIME OF CONCENTRATION
R	.42	STORAGE COEFFICIENT

721 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0	5.0	16.0	30.0	65.0	77.0	84.0	90.0	94.0	97.0
100.0									

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= .77 HR, R= .42 HR
SNYDER TP= .40 HR, CP= .51

UNIT HYDROGRAPH
39 END-OF-PERIOD ORDINATES

21.	83.	170.	309.	483.	568.	560.	533.	498.	456.
415.	373.	325.	277.	236.	202.	172.	147.	125.	107.
91.	78.	66.	56.	48.	41.	35.	30.	25.	22.
19.	16.	13.	12.	10.	8.	7.	6.	5.	

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HYDROGRAPH AT STATION 610S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.04, TOTAL EXCESS = 1.86

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
690.	12.27	(CFS)	123.	41.	41.	41.
		(INCHES)	1.664	1.846	1.846	1.846
		(AC-FT)	61.	68.	68.	68.

CUMULATIVE AREA = .69 SQ MI

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HYDROGRAPH AT STATION 610S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.01, TOTAL EXCESS = 1.81

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
672.	12.27	(CFS)	120.	40.	40.	40.
		(INCHES)	1.617	1.796	1.796	1.796
		(AC-FT)	60.	66.	66.	66.

CUMULATIVE AREA = .69 SQ MI

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HYDROGRAPH AT STATION 610S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 1.98, TOTAL EXCESS = 1.76

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
654.	12.27	(CFS)	117.	39.	39.	39.
		(INCHES)	1.570	1.745	1.745	1.745
		(AC-FT)	58.	64.	64.	64.

CUMULATIVE AREA = .69 SQ MI

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HYDROGRAPH AT STATION 610S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 1.92, TOTAL EXCESS = 1.67

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
620.	12.27	(CFS)	110.	37.	37.	37.
		(INCHES)	1.483	1.651	1.651	1.651
		(AC-FT)	55.	61.	61.	61.

CUMULATIVE AREA = .69 SQ MI

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HYDROGRAPH AT STATION 610S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 1.89, TOTAL EXCESS = 1.62

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR

601.	12.27	(CFS)	107.	36.	36.	36.
		(INCHES)	1.436	1.601	1.601	1.601
		(AC-FT)	53.	59.	59.	59.

CUMULATIVE AREA = .69 SQ MI

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INTERPOLATED HYDROGRAPH AT 610S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
676.	12.27	(CFS)	121.	40.	40.	40.
		(INCHES)	1.629	1.809	1.809	1.809
		(AC-FT)	60.	67.	67.	67.

CUMULATIVE AREA = .69 SQ MI

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723 KK     *    615RET   *
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ENTIRE VOLUME OF RETENTION (38.6 AF) IS MODELED AS A DIVERT

DT	DIVERSION					
	ISTAD	616D	DIVERSION HYDROGRAPH IDENTIFICATION			
	DSTRMX	38.60	MAXIMUM VOLUME TO BE DIVERTED			
DI	INFLOW	.00	100.00	500.00	1000.00	
DQ	DIVERTED FLOW	.00	100.00	500.00	1000.00	

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DIVERSION HYDROGRAPH 616D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
690.	12.27	(CFS)	73.	23.	23.	23.
		(INCHES)	.989	1.049	1.049	1.049
		(AC-FT)	36.	39.	39.	39.

CUMULATIVE AREA = .69 SQ MI

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HYDROGRAPH AT STATION 615RET
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
535.	12.53	(CFS)	58.	18.	18.	18.
		(INCHES)	.778	.797	.797	.797

	(AC-FT)	29.	29.	29.	29.

CUMULATIVE AREA = .69 SQ MI

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DIVERSION HYDROGRAPH 616D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
672.	12.27	(CFS)	73.	23.	23.	23.
		(INCHES)	.990	1.049	1.049	1.049
		(AC-FT)	36.	39.	39.	39.

CUMULATIVE AREA = .69 SQ MI

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HYDROGRAPH AT STATION 615RET
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
471.	12.60	(CFS)	54.	17.	17.	17.
		(INCHES)	.729	.747	.747	.747
		(AC-FT)	27.	27.	27.	27.

CUMULATIVE AREA = .69 SQ MI

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DIVERSION HYDROGRAPH 616D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
654.	12.27	(CFS)	74.	23.	23.	23.
		(INCHES)	.991	1.049	1.049	1.049
		(AC-FT)	36.	39.	39.	39.

CUMULATIVE AREA = .69 SQ MI

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HYDROGRAPH AT STATION 615RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
456.	12.60	(CFS)	50.	16.	16.	16.
		(INCHES)	.678	.696	.696	.696
		(AC-FT)	25.	26.	26.	26.

CUMULATIVE AREA = .69 SQ MI

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DIVERSION HYDROGRAPH 616D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
620.	12.27	(CFS)	74.	23.	23.	23.
		(INCHES)	.992	1.049	1.049	1.049
		(AC-FT)	37.	39.	39.	39.

CUMULATIVE AREA = .69 SQ MI

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HYDROGRAPH AT STATION 615RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
385.	12.67	(CFS)	43.	13.	13.	13.
		(INCHES)	.586	.602	.602	.602
		(AC-FT)	22.	22.	22.	22.

CUMULATIVE AREA = .69 SQ MI

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DIVERSION HYDROGRAPH 616D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
601.	12.27	(CFS)	74.	23.	23.	23.
		(INCHES)	.994	1.049	1.049	1.049
		(AC-FT)	37.	39.	39.	39.

CUMULATIVE AREA = .69 SQ MI

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HYDROGRAPH AT STATION 615RET
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
371.	12.67	(CFS)	40.	12.	12.	12.
		(INCHES)	.536	.552	.552	.552
		(AC-FT)	20.	20.	20.	20.

CUMULATIVE AREA = .69 SQ MI

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INTERPOLATED DIVERSION HYDROGRAPH AT 616D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
676.	12.27	(CFS)	73.	23.	23.	23.
		(INCHES)	.989	1.049	1.049	1.049
		(AC-FT)	36.	39.	39.	39.

CUMULATIVE AREA = .69 SQ MI

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INTERPOLATED HYDROGRAPH AT 615RET

PEAK FLOW (CFS)	TIME (HR)		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	19.93-HR
474.	12.60	(CFS)	55.	17.	17.	17.
		(INCHES)	.741	.760	.760	.760
		(AC-FT)	27.	28.	28.	28.

CUMULATIVE AREA = .69 SQ MI

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728 KK

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* 620C *
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COMBINE 605R AND 615RET AT CP OF 610S

730 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 620C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	19.93-HR
1126.	12.60	(CFS)	190.	61.	61.	61.
		(INCHES)	1.031	1.090	1.090	1.090
		(AC-FT)	94.	100.	100.	100.

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 620C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	19.93-HR
1089.	12.60	(CFS)	182.	58.	58.	58.
		(INCHES)	.987	1.045	1.045	1.045
		(AC-FT)	90.	96.	96.	96.

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 620C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		6-HR	MAXIMUM AVERAGE FLOW 24-HR	72-HR	19.93-HR
1053.	12.60	(CFS)	174.	56.	56.	56.

		(INCHES)	.943	.999	.999	.999
		(AC-FT)	86.	92.	92.	92.

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 620C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
977.	12.67	(CFS)	159.	51.	51.	51.
		(INCHES)	.860	.914	.914	.914
		(AC-FT)	79.	84.	84.	84.

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 620C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
941.	12.67	(CFS)	151.	48.	48.	48.
		(INCHES)	.815	.868	.868	.868
		(AC-FT)	75.	80.	80.	80.

CUMULATIVE AREA = 1.72 SQ MI

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INTERPOLATED HYDROGRAPH AT 620C

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1093.	12.60	(CFS)	183.	58.	58.	58.
		(INCHES)	.992	1.049	1.049	1.049
		(AC-FT)	91.	96.	96.	96.

CUMULATIVE AREA = 1.72 SQ MI

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731 KK    *     625R   *
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ROUTE 620C TO CP OF 630S ALONG CHANNEL BESIDE 71ST AVENUE

HYDROGRAPH ROUTING DATA

733 RS STORAGE ROUTING

NSTPS	5	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION

X .00 WORKING R AND D COEFFICIENT

734 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.030	LEFT OVERBANK N-VALUE
ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.030	RIGHT OVERBANK N-VALUE
RLNTH	4500.	REACH LENGTH
SEL	.0022	ENERGY SLOPE
ELMAX	10.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---		+ ------ MAIN CHANNEL -------		+ --- RIGHT OVERBANK ---		
736 RY	ELEVATION	7.00	6.00	5.00	.00	.00	5.00	6.00	7.00
735 RX	DISTANCE	15.00	18.00	20.00	30.00	45.00	55.00	57.00	60.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.87	1.86	2.96	4.18	5.51	6.95	8.51	10.19	11.98
OUTFLOW	.00	12.18	39.49	79.54	131.90	196.67	274.13	364.69	468.79	586.92
ELEVATION	.00	.53	1.05	1.58	2.11	2.63	3.16	3.68	4.21	4.74
STORAGE	13.88	15.90	18.04	20.35	22.79	25.23	27.68	30.13	32.57	35.02
OUTFLOW	733.43	910.12	1104.28	1317.52	1553.70	1810.63	2086.09	2379.27	2689.52	3016.32
ELEVATION	5.26	5.79	6.32	6.84	7.37	7.89	8.42	8.95	9.47	10.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 587. TO 3016.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 625R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1121.	12.80	(CFS)	190.	60.	60.	60.
		(INCHES)	1.030	1.083	1.083	1.083
		(AC-FT)	94.	99.	99.	99.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
4.	12.80	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
6.36	12.80	1.95	.71	.71	.71

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 625R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1079.	12.80	(CFS)	182.	58.	58.	58.
		(INCHES)	.986	1.038	1.038	1.038
		(AC-FT)	90.	95.	95.	95.

PEAK STORAGE TIME MAXIMUM AVERAGE STORAGE

(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
4.	12.80		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
6.25	12.80		1.91	.70	.70	.70

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 625R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1029.	12.80	(CFS)	174.	55.	55.	55.
		(INCHES)	.942	.992	.992	.992
		(AC-FT)	86.	91.	91.	91.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.	12.80		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
6.11	12.80		1.87	.69	.69	.69

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 625R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
936.	12.87	(CFS)	159.	50.	50.	50.
		(INCHES)	.859	.907	.907	.907
		(AC-FT)	79.	83.	83.	83.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.	12.87		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
5.86	12.87		1.80	.66	.66	.66

CUMULATIVE AREA = 1.72 SQ MI

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HYDROGRAPH AT STATION 625R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
878.	12.87	(CFS)	150.	48.	48.	48.
		(INCHES)	.814	.862	.862	.862
		(AC-FT)	75.	79.	79.	79.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			

(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.	12.87		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
5.69	12.87		1.75	.64	.64	.64

CUMULATIVE AREA = 1.72 SQ MI

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INTERPOLATED HYDROGRAPH AT 625R

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1083.	12.80	(CFS)	183.	58.	58.	58.
		(INCHES)	.990	1.042	1.042	1.042
		(AC-FT)	91.	95.	95.	95.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
3.	12.87		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
5.69	12.87		1.75	.64	.64	.64

CUMULATIVE AREA = 1.72 SQ MI

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737 KK        *     630S   *
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SUB-BASIN 630

SUBBASIN RUNOFF DATA

739 BA SUBBASIN CHARACTERISTICS

TAREA	.34	SUBBASIN AREA

740 LG GREEN AND AMPT LOSS RATE

STRTL	.17	STARTING LOSS
DTH	.32	MOISTURE DEFICIT
PSIF	5.20	WETTING FRONT SUCTION
XKSAT	.26	HYDRAULIC CONDUCTIVITY
RTIMP	19.00	PERCENT IMPERVIOUS AREA

741 UC CLARK UNITGRAPH

TC	.65	TIME OF CONCENTRATION
R	.49	STORAGE COEFFICIENT

742 UA ACCUMULATED-AREA VS. TIME, 11 ORDINATES

.0 5.0 16.0 30.0 65.0 77.0 84.0 90.0 94.0 97.0
100.0

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= .65 HR, R= .49 HR

SNYDER TP= .37 HR, CP= .44

UNIT HYDROGRAPH

44 END-OF-PERIOD ORDINATES

11.	44.	95.	184.	254.	260.	254.	242.	225.	208.
186.	163.	142.	124.	109.	95.	83.	72.	63.	55.
48.	42.	37.	32.	28.	25.	21.	19.	16.	14.
12.	11.	10.	8.	7.	6.	6.	5.	4.	4.
3.	3.	2.	2.						

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HYDROGRAPH AT STATION 630S

TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.15, TOTAL EXCESS = 1.75

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
304.	12.20	(CFS)	56.	19.	19.	19.
		(INCHES)	1.551	1.733	1.733	1.733
		(AC-FT)	28.	31.	31.	31.

CUMULATIVE AREA = .34 SQ MI

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HYDROGRAPH AT STATION 630S

TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.12, TOTAL EXCESS = 1.70

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
296.	12.20	(CFS)	54.	18.	18.	18.
		(INCHES)	1.505	1.684	1.684	1.684
		(AC-FT)	27.	30.	30.	30.

CUMULATIVE AREA = .34 SQ MI

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HYDROGRAPH AT STATION 630S

TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.09, TOTAL EXCESS = 1.65

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
288.	12.20	(CFS)	53.	18.	18.	18.
		(INCHES)	1.461	1.636	1.636	1.636
		(AC-FT)	26.	29.	29.	29.

CUMULATIVE AREA = .34 SQ MI

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HYDROGRAPH AT STATION 630S

TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.02, TOTAL EXCESS = 1.57

PEAK FLOW (CFS)	TIME (HR)		6-HR	24-HR	72-HR	19.93-HR
			MAXIMUM AVERAGE FLOW			
272.	12.20	(CFS)	50.	17.	17.	17.
		(INCHES)	1.382	1.550	1.550	1.550
		(AC-FT)	25.	28.	28.	28.

CUMULATIVE AREA = .34 SQ MI

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HYDROGRAPH AT STATION 630S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 1.99, TOTAL EXCESS = 1.52

PEAK FLOW (CFS)	TIME (HR)		6-HR	24-HR	72-HR	19.93-HR
			MAXIMUM AVERAGE FLOW			
264.	12.20	(CFS)	48.	16.	16.	16.
		(INCHES)	1.341	1.506	1.506	1.506
		(AC-FT)	24.	27.	27.	27.

CUMULATIVE AREA = .34 SQ MI

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INTERPOLATED HYDROGRAPH AT 630S

PEAK FLOW (CFS)	TIME (HR)		6-HR	24-HR	72-HR	19.93-HR
			MAXIMUM AVERAGE FLOW			
299.	12.20	(CFS)	55.	19.	19.	19.
		(INCHES)	1.523	1.703	1.703	1.703
		(AC-FT)	27.	31.	31.	31.

CUMULATIVE AREA = .34 SQ MI

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          *             *
744 KK    *      635C   *
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COMBINE 625R AND 630S AT CP OF 630S

746 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 635C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		6-HR	24-HR	72-HR	19.93-HR
			MAXIMUM AVERAGE FLOW			
1264.	12.80	(CFS)	245.	79.	79.	79.
		(INCHES)	1.109	1.189	1.189	1.189

	(AC-FT)	121.	130.	130.	130.

CUMULATIVE AREA = 2.05 SQ MI

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HYDROGRAPH AT STATION 635C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1217.	12.80	(CFS)	235.	76.	76.	76.
		(INCHES)	1.065	1.143	1.143	1.143
		(AC-FT)	117.	125.	125.	125.

CUMULATIVE AREA = 2.05 SQ MI

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HYDROGRAPH AT STATION 635C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1163.	12.80	(CFS)	225.	73.	73.	73.
		(INCHES)	1.020	1.098	1.098	1.098
		(AC-FT)	112.	120.	120.	120.

CUMULATIVE AREA = 2.05 SQ MI

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HYDROGRAPH AT STATION 635C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1047.	12.87	(CFS)	207.	67.	67.	67.
		(INCHES)	.938	1.013	1.013	1.013
		(AC-FT)	103.	111.	111.	111.

CUMULATIVE AREA = 2.05 SQ MI

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HYDROGRAPH AT STATION 635C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
986.	12.87	(CFS)	197.	64.	64.	64.
		(INCHES)	.894	.967	.967	.967
		(AC-FT)	98.	106.	106.	106.

CUMULATIVE AREA = 2.05 SQ MI

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INTERPOLATED HYDROGRAPH AT 635C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1220.	12.80	(CFS)	236.	76.	76.	76.
		(INCHES)	1.068	1.146	1.146	1.146
		(AC-FT)	117.	126.	126.	126.

CUMULATIVE AREA = 2.05 SQ MI

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747 KK

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* 640C *
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COMBINE 540R, 595S AND 635C AT CP OF 595S

749 HC HYDROGRAPH COMBINATION

ICOMP 3 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 640C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6918.	12.73	(CFS)	5072.	2933.	2933.	2933.
		(INCHES)	1.994	3.830	3.830	3.830
		(AC-FT)	2515.	4832.	4832.	4832.

CUMULATIVE AREA = 23.65 SQ MI

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HYDROGRAPH AT STATION 640C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
7204.	14.13	(CFS)	5060.	2925.	2925.	2925.
		(INCHES)	1.989	3.819	3.819	3.819
		(AC-FT)	2509.	4818.	4818.	4818.

CUMULATIVE AREA = 23.65 SQ MI

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HYDROGRAPH AT STATION 640C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
7051.	14.13	(CFS)	4971.	2894.	2894.	2894.
		(INCHES)	1.954	3.779	3.779	3.779
		(AC-FT)	2465.	4767.	4767.	4767.

CUMULATIVE AREA = 23.65 SQ MI

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HYDROGRAPH AT STATION 640C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6785.	14.07	(CFS)	4804.	2835.	2835.	2835.
		(INCHES)	1.888	3.702	3.702	3.702
		(AC-FT)	2382.	4671.	4671.	4671.

CUMULATIVE AREA = 23.65 SQ MI

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HYDROGRAPH AT STATION 640C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6646.	14.07	(CFS)	4715.	2804.	2804.	2804.
		(INCHES)	1.853	3.661	3.661	3.661
		(AC-FT)	2338.	4619.	4619.	4619.

CUMULATIVE AREA = 23.65 SQ MI

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INTERPOLATED HYDROGRAPH AT 640C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6727.	14.07	(CFS)	4767.	2822.	2822.	2822.
		(INCHES)	1.874	3.685	3.685	3.685
		(AC-FT)	2364.	4649.	4649.	4649.

CUMULATIVE AREA = 23.65 SQ MI

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750 KK    *      645R  *
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ROUTE 585C TO CP OF 595S ALONG SKUNK CREEK FROM BELL ROAD TO ACDC

HYDROGRAPH ROUTING DATA

752 RS STORAGE ROUTING

NSTPS	2	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

753 RC NORMAL DEPTH CHANNEL ROUTING

ANL	.040	LEFT OVERBANK N-VALUE

ANCH	.030	MAIN CHANNEL N-VALUE
ANR	.040	RIGHT OVERBANK N-VALUE
RLNTH	3500.	REACH LENGTH
SEL	.0068	ENERGY SLOPE
ELMAX	.0	MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

CROSS-SECTION DATA

		--- LEFT OVERBANK ---			+ ------ MAIN CHANNEL -------			+ --- RIGHT OVERBANK ---	
755 RY	ELEVATION	1212.00	1210.00	1208.00	1192.00	1192.00	1210.00	1210.00	1211.00
754 RX	DISTANCE	250.00	260.00	360.00	500.00	545.00	600.00	720.00	800.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	4.33	9.71	16.15	23.63	32.17	41.75	52.39	64.08	76.82
OUTFLOW	.00	211.11	710.67	1484.55	2547.72	3920.69	5625.50	7684.53	10120.03	12953.93
ELEVATION	1192.00	1193.05	1194.11	1195.16	1196.21	1197.26	1198.32	1199.37	1200.42	1201.47
STORAGE	90.61	105.45	121.34	138.29	156.28	175.33	196.60	222.52	263.44	309.73
OUTFLOW	16207.76	19902.64	24059.30	28698.07	33838.90	39501.40	46572.55	54573.16	64351.39	75889.75
ELEVATION	1202.53	1203.58	1204.63	1205.68	1206.74	1207.79	1208.84	1209.89	1210.95	1212.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 5625. TO 75890.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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HYDROGRAPH AT STATION 645R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6879.	14.27	(CFS)	5071.	2929.	2929.	2929.
		(INCHES)	1.993	3.825	3.825	3.825
		(AC-FT)	2515.	4826.	4826.	4826.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
24.	14.27	19.	13.	13.	13.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1198.96	14.27	1197.91	1196.34	1196.34	1196.34

CUMULATIVE AREA = 23.65 SQ MI

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HYDROGRAPH AT STATION 645R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
7199.	14.20	(CFS)	5059.	2921.	2921.	2921.
		(INCHES)	1.988	3.814	3.814	3.814
		(AC-FT)	2509.	4812.	4812.	4812.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
25.	14.20	19.	13.	13.	13.

PEAK STAGE TIME MAXIMUM AVERAGE STAGE

(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1199.12	14.20	1197.90	1196.33	1196.33	1196.33

CUMULATIVE AREA = 23.65 SQ MI

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HYDROGRAPH AT STATION 645R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
7046.	14.20	(CFS)	4970.	2890.	2890.	2890.
		(INCHES)	1.953	3.774	3.774	3.774
		(AC-FT)	2464.	4761.	4761.	4761.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
25.	14.20	19.	13.	13.	13.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1199.04	14.20	1197.85	1196.32	1196.32	1196.32

CUMULATIVE AREA = 23.65 SQ MI

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HYDROGRAPH AT STATION 645R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6780.	14.13	(CFS)	4803.	2832.	2832.	2832.
		(INCHES)	1.888	3.697	3.697	3.697
		(AC-FT)	2382.	4665.	4665.	4665.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
24.	14.13	18.	12.	12.	12.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1198.91	14.13	1197.75	1196.28	1196.28	1196.28

CUMULATIVE AREA = 23.65 SQ MI

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HYDROGRAPH AT STATION 645R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6640.	14.13	(CFS)	4714.	2800.	2800.	2800.
		(INCHES)	1.853	3.657	3.657	3.657
		(AC-FT)	2338.	4613.	4613.	4613.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
23.	14.13	18.	12.	12.	12.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE

(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1198.83	14.13	1197.70	1196.26	1196.26	1196.26

CUMULATIVE AREA = 23.65 SQ MI

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INTERPOLATED HYDROGRAPH AT 645R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6722.	14.13	(CFS)	4767.	2819.	2819.	2819.
		(INCHES)	1.873	3.681	3.681	3.681
		(AC-FT)	2364.	4643.	4643.	4643.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
23.	14.13	18.	12.	12.	12.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1198.83	14.13	1197.70	1196.26	1196.26	1196.26

CUMULATIVE AREA = 23.65 SQ MI

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756 KK    *      650S  *
          *            *
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SUB-BASIN 650

SUBBASIN RUNOFF DATA

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758 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .13  SUBBASIN AREA

759 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .34  STARTING LOSS
                       DTH         .35  MOISTURE DEFICIT
                      PSIF        3.70  WETTING FRONT SUCTION
                     XKSAT         .49  HYDRAULIC CONDUCTIVITY
                     RTIMP        4.00  PERCENT IMPERVIOUS AREA

760 UC          CLARK UNITGRAPH
                        TC         .53  TIME OF CONCENTRATION
                         R         .40  STORAGE COEFFICIENT

761 UA          ACCUMULATED-AREA VS. TIME,  11 ORDINATES
                      .0       3.0       5.0       8.0      12.0      20.0      43.0      75.0      90.0      96.0
                   100.0
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UNIT HYDROGRAPH PARAMETERS

CLARK TC= .53 HR, R= .40 HR

SNYDER TP= .47 HR, CP= .75

UNIT HYDROGRAPH
37 END-OF-PERIOD ORDINATES

3.	9.	14.	25.	58.	108.	131.	127.	113.	96.
81.	68.	58.	49.	41.	35.	30.	25.	21.	18.
15.	13.	11.	9.	8.	7.	6.	5.	4.	3.
3.	2.	2.	2.	1.	1.	1.			

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HYDROGRAPH AT STATION 650S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.79, TOTAL EXCESS = 1.11

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
105.	12.33	(CFS)	14.	4.	4.	4.
		(INCHES)	1.068	1.107	1.107	1.107
		(AC-FT)	7.	7.	7.	7.

CUMULATIVE AREA = .13 SQ MI

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HYDROGRAPH AT STATION 650S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.75, TOTAL EXCESS = 1.07

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
101.	12.33	(CFS)	14.	4.	4.	4.
		(INCHES)	1.029	1.067	1.067	1.067
		(AC-FT)	7.	7.	7.	7.

CUMULATIVE AREA = .13 SQ MI

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HYDROGRAPH AT STATION 650S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.71, TOTAL EXCESS = 1.03

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
97.	12.33	(CFS)	13.	4.	4.	4.
		(INCHES)	.990	1.027	1.027	1.027
		(AC-FT)	7.	7.	7.	7.

CUMULATIVE AREA = .13 SQ MI

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HYDROGRAPH AT STATION 650S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.63, TOTAL EXCESS = .96

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
90.	12.33	(CFS)	12.	4.	4.	4.
		(INCHES)	.916	.951	.951	.951

	(AC-FT)	6.	6.	6.	6.

CUMULATIVE AREA = .13 SQ MI

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HYDROGRAPH AT STATION 650S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.59, TOTAL EXCESS = .92

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
86.	12.33	(CFS)	12.	4.	4.	4.
		(INCHES)	.876	.910	.910	.910
		(AC-FT)	6.	6.	6.	6.

CUMULATIVE AREA = .13 SQ MI

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INTERPOLATED HYDROGRAPH AT 650S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
103.	12.33	(CFS)	14.	4.	4.	4.
		(INCHES)	1.051	1.089	1.089	1.089
		(AC-FT)	7.	7.	7.	7.

CUMULATIVE AREA = .13 SQ MI

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          *             *
763 KK    *     655C    *
          *             *
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COMBINE 645R AND 650S AT CP OF 650S

765 HC HYDROGRAPH COMBINATION
ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

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HYDROGRAPH AT STATION 655C
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
6897.	12.80	(CFS)	5084.	2934.	2934.	2934.
		(INCHES)	1.988	3.811	3.811	3.811
		(AC-FT)	2521.	4833.	4833.	4833.

CUMULATIVE AREA = 23.78 SQ MI

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HYDROGRAPH AT STATION 655C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
7201.	14.20	(CFS)	5071.	2925.	2925.	2925.
		(INCHES)	1.983	3.800	3.800	3.800
		(AC-FT)	2515.	4819.	4819.	4819.

CUMULATIVE AREA = 23.78 SQ MI

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HYDROGRAPH AT STATION 655C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
7047.	14.20	(CFS)	4981.	2894.	2894.	2894.
		(INCHES)	1.948	3.759	3.759	3.759
		(AC-FT)	2470.	4768.	4768.	4768.

CUMULATIVE AREA = 23.78 SQ MI

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HYDROGRAPH AT STATION 655C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6782.	14.13	(CFS)	4814.	2835.	2835.	2835.
		(INCHES)	1.882	3.683	3.683	3.683
		(AC-FT)	2387.	4671.	4671.	4671.

CUMULATIVE AREA = 23.78 SQ MI

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HYDROGRAPH AT STATION 655C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6642.	14.13	(CFS)	4725.	2804.	2804.	2804.
		(INCHES)	1.847	3.642	3.642	3.642
		(AC-FT)	2343.	4619.	4619.	4619.

CUMULATIVE AREA = 23.78 SQ MI

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INTERPOLATED HYDROGRAPH AT 655C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
6722.	14.13	(CFS)	4776.	2822.	2822.	2822.
		(INCHES)	1.867	3.666	3.666	3.666
		(AC-FT)	2368.	4649.	4649.	4649.

CUMULATIVE AREA = 23.78 SQ MI

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	5S	1906.	12.20	204.	63.	63.	1.33		
ROUTED TO	10RET	91.	13.00	87.	36.	36.	1.33	18.60	12.93
ROUTED TO	15R	91.	13.40	86.	34.	34.	1.33	1.39	13.40
HYDROGRAPH AT	20S	1408.	12.47	195.	59.	59.	1.38		
2 COMBINED AT	25C	1462.	12.47	272.	92.	92.	2.71		
ROUTED TO	30R	1289.	12.80	271.	90.	90.	2.71	2.53	12.80
HYDROGRAPH AT	35S	1275.	12.53	194.	58.	58.	1.51		
HYDROGRAPH AT	40S	737.	12.27	91.	29.	29.	.55		
ROUTED TO	45RET	42.	13.27	40.	17.	17.	.55	18.01	13.20
ROUTED TO	50R	42.	14.07	40.	15.	15.	.55	.83	14.07
HYDROGRAPH AT	55S	416.	12.47	72.	22.	22.	.59		
HYDROGRAPH AT	60S	1084.	12.60	195.	62.	62.	1.20		
ROUTED TO	65RET	106.	14.00	101.	41.	41.	1.20	19.90	13.93
ROUTED TO	70R	106.	14.47	101.	38.	38.	1.20	1.13	14.40
5 COMBINED AT	75C	2701.	12.67	643.	219.	219.	6.56		
ROUTED TO	80RET	2180.	12.93	642.	219.	219.	6.56	18.70	12.93
ROUTED TO	85R	2171.	13.00	642.	217.	217.	6.56	5.61	13.00
HYDROGRAPH AT	90S	666.	12.73	140.	42.	42.	1.23		
HYDROGRAPH AT	95S	916.	12.53	153.	47.	47.	.97		
ROUTED TO	100RET	70.	13.93	67.	27.	27.	.97	18.95	13.87
ROUTED TO	105R	70.	15.47	67.	24.	24.	.97	1.09	15.00
3 COMBINED AT	110C	2709.	13.00	827.	281.	281.	8.76		
ROUTED TO	115RET	2309.	13.27	827.	280.	280.	8.76	13.26	13.33
DIVERSION TO	125D	1258.	13.27	681.	236.	236.	8.76		
HYDROGRAPH AT	120D	1051.	13.27	145.	44.	44.	8.76		
DIVERSION TO	135D	142.	13.27	12.	4.	4.	8.76		
HYDROGRAPH AT	130D	909.	13.27	133.	40.	40.	8.76		
HYDROGRAPH AT	140S	466.	12.93	131.	40.	40.	1.23		
HYDROGRAPH AT	145S	380.	12.33	48.	14.	14.	.38		

ROUTED TO	150RET	10.	13.67	10.	4.	4.	.38	18.41	13.67
ROUTED TO	155R	10.	16.00	10.	3.	3.	.38	.37	16.07
3 COMBINED AT	160C	1277.	13.27	261.	80.	80.	10.37		
DIVERSION TO	170D	510.	12.87	178.	55.	55.	10.37		
HYDROGRAPH AT	165D	767.	13.27	83.	25.	25.	10.37		
HYDROGRAPH AT	175S	257.	12.27	79.	31.	31.	.30		
2 COMBINED AT	180C	886.	13.20	158.	54.	54.	10.67		
DIVERSION TO	190D	115.	11.93	62.	25.	25.	10.67		
HYDROGRAPH AT	185D	771.	13.20	96.	29.	29.	10.67		
HYDROGRAPH AT	195S	454.	12.20	106.	42.	42.	.40		
2 COMBINED AT	200C	882.	13.20	197.	69.	69.	11.07		
DIVERSION TO	210D	156.	11.80	80.	34.	34.	11.07		
HYDROGRAPH AT	205D	726.	13.20	117.	35.	35.	11.07		
HYDROGRAPH AT	135RD	142.	13.27	12.	4.	4.	8.76		
2 COMBINED AT	215C	854.	13.20	129.	39.	39.	11.07		
ROUTED TO	220RET	721.	13.40	114.	34.	34.	11.07	97.45	13.40
HYDROGRAPH AT	210RD	156.	11.80	80.	34.	34.	11.07		
2 COMBINED AT	225C	877.	13.40	193.	68.	68.	11.07		
ROUTED TO	230R	848.	13.60	193.	67.	67.	11.07	1.54	13.67
HYDROGRAPH AT	235S	112.	12.00	18.	7.	7.	.06		
ROUTED TO	240R	93.	12.33	18.	7.	7.	.06	1.24	12.33
HYDROGRAPH AT	190RD	115.	11.93	62.	25.	25.	10.67		
ROUTED TO	245R	115.	13.33	62.	25.	25.	10.67	.67	13.67
HYDROGRAPH AT	250S	878.	12.67	186.	64.	64.	1.10		
HYDROGRAPH AT	125RD	1258.	13.27	681.	236.	236.	8.76		
HYDROGRAPH AT	170RD	510.	12.87	178.	55.	55.	10.37		
HYDROGRAPH AT	255S	265.	13.07	87.	28.	28.	.62		
3 COMBINED AT	260C	2035.	13.20	961.	325.	325.	.62		
ROUTED TO	265R	2022.	13.47	956.	317.	317.	.62	3.97	13.53
5 COMBINED AT	270C	3157.	13.53	1332.	464.	464.	12.85		
ROUTED TO	275R	3132.	13.73	1331.	458.	458.	12.85	3.30	13.73
HYDROGRAPH AT	280S	566.	12.27	107.	35.	35.	.74		
2 COMBINED AT	285C	3178.	13.67	1411.	489.	489.	13.59		

ROUTED TO	290R	3143.	13.93	1405.	480.	480.	13.59	4.37	13.93
HYDROGRAPH AT	295S	173.	12.80	49.	16.	16.	.35		
2 COMBINED AT	300C	3200.	13.93	1444.	494.	494.	13.95		
HYDROGRAPH AT	310S	1730.	.07	1730.	1730.	1730.	.10		
ROUTED TO	320R	1730.	.07	1730.	1730.	1730.	.10	3.58	.00
HYDROGRAPH AT	325S	261.	13.07	82.	27.	27.	.65		
2 COMBINED AT	330C	1991.	13.07	1812.	1757.	1757.	.75		
ROUTED TO	335R	1991.	13.13	1812.	1756.	1756.	.75	3.15	13.13
HYDROGRAPH AT	340S	89.	12.07	11.	4.	4.	.09		
2 COMBINED AT	345C	1995.	13.13	1822.	1760.	1760.	.84		
HYDROGRAPH AT	350S	401.	12.13	44.	15.	15.	.26		
ROUTED TO	355R	397.	12.20	44.	15.	15.	.26	1.20	12.20
3 COMBINED AT	360C	5056.	13.87	3274.	2263.	2263.	15.04		
ROUTED TO	370R	5031.	14.00	3271.	2259.	2259.	15.04	1293.86	14.00
HYDROGRAPH AT	375S	875.	12.47	142.	48.	48.	.98		
HYDROGRAPH AT	380S	681.	13.00	171.	55.	55.	1.40		
ROUTED TO	385R	651.	13.27	171.	55.	55.	1.40	9.46	13.27
HYDROGRAPH AT	390S	872.	12.40	129.	44.	44.	.80		
2 COMBINED AT	395C	993.	12.47	297.	99.	99.	2.20		
ROUTED TO	400R	896.	12.87	297.	98.	98.	2.20	1301.51	12.93
HYDROGRAPH AT	405S	894.	13.07	281.	95.	95.	1.78		
2 COMBINED AT	410C	1742.	13.00	573.	192.	192.	3.98		
ROUTED TO	411RET	1610.	13.27	570.	191.	191.	3.98	1298.52	13.27
ROUTED TO	412RET	1367.	13.80	561.	188.	188.	3.98	1295.86	13.80
ROUTED TO	413RET	548.	15.40	410.	135.	135.	3.98	1294.32	15.53
ROUTED TO	415RET	452.	17.00	341.	107.	107.	3.98	1291.28	17.07
ROUTED TO	420R	452.	17.20	322.	100.	100.	3.98	1277.50	17.40
HYDROGRAPH AT	425S	807.	12.73	347.	126.	126.	1.72		
ROUTED TO	430RET	748.	13.13	340.	122.	122.	1.72	4.13	13.20
DIVERSION TO	433D	258.	13.13	36.	11.	11.	1.72		
HYDROGRAPH AT	432D	490.	13.13	304.	111.	111.	1.72		
ROUTED TO	435R	487.	13.47	303.	109.	109.	1.72	1.64	13.60
HYDROGRAPH AT	440S	948.	12.20	176.	58.	58.	.85		

2 COMBINED AT	445C	1008.	12.27	466.	167.	167.	2.57		
DIVERSION TO	455D	0.	.07	0.	0.	0.	2.57		
HYDROGRAPH AT	450D	1008.	12.27	466.	167.	167.	2.57		
ROUTED TO	460R	992.	12.40	465.	165.	165.	2.57	7.33	12.40
HYDROGRAPH AT	465S	1238.	12.33	328.	122.	122.	1.36		
ROUTED TO	470R	1219.	12.53	328.	121.	121.	1.36	2.31	12.53
HYDROGRAPH AT	475S	758.	12.33	136.	44.	44.	.60		
2 COMBINED AT	480C	1877.	12.47	463.	164.	164.	1.96		
ROUTED TO	485R	1826.	12.67	462.	162.	162.	1.96	3.24	12.67
HYDROGRAPH AT	490S	716.	12.53	225.	76.	76.	1.12		
3 COMBINED AT	495C	3347.	12.60	1131.	398.	398.	5.64		
DIVERSION TO	505D	1547.	12.60	193.	58.	58.	5.64		
HYDROGRAPH AT	500D	1800.	12.27	938.	340.	340.	5.64		
ROUTED TO	510R	1800.	12.60	937.	336.	336.	5.64	2.84	12.67
HYDROGRAPH AT	515S	311.	12.40	88.	31.	31.	.48		
2 COMBINED AT	520C	2087.	12.53	1020.	366.	366.	6.12		
DIVERSION TO	525D	527.	12.53	103.	31.	31.	6.12		
HYDROGRAPH AT	530D	1560.	12.40	917.	335.	335.	6.12		
4 COMBINED AT	535C	6541.	13.93	4424.	2704.	2704.	19.90		
ROUTED TO	540R	6524.	14.00	4423.	2701.	2701.	19.90	1259.05	13.93
HYDROGRAPH AT	545S	240.	12.40	41.	14.	14.	.30		
2 COMBINED AT	550C	6534.	13.93	4453.	2712.	2712.	20.20		
ROUTED TO	555R	6516.	14.07	4450.	2705.	2705.	20.20	1242.93	14.07
HYDROGRAPH AT	560S	221.	12.13	32.	11.	11.	.19		
DIVERSION TO	570D	25.	11.67	11.	4.	4.	.19		
HYDROGRAPH AT	565D	196.	12.13	21.	6.	6.	.19		
ROUTED TO	575R	165.	12.47	21.	6.	6.	.19	.84	12.47
HYDROGRAPH AT	580S	1054.	12.20	153.	53.	53.	.91		
3 COMBINED AT	585C	6528.	14.07	4556.	2756.	2756.	21.30		
ROUTED TO	590R	6520.	14.13	4555.	2751.	2751.	21.30	1227.00	14.13
HYDROGRAPH AT	595S	107.	13.00	40.	13.	13.	.30		
HYDROGRAPH AT	600S	679.	12.67	130.	42.	42.	1.03		
ROUTED TO	605R	677.	12.73	130.	42.	42.	1.03	1.73	12.73

HYDROGRAPH AT	610S	676.	12.27	121.	40.	40.	.69		
DIVERSION TO	616D	676.	12.27	73.	23.	23.	.69		
HYDROGRAPH AT	615RET	474.	12.60	55.	17.	17.	.69		
2 COMBINED AT	620C	1093.	12.60	183.	58.	58.	1.72		
ROUTED TO	625R	1083.	12.80	183.	58.	58.	1.72	5.69	12.87
HYDROGRAPH AT	630S	299.	12.20	55.	19.	19.	.34		
2 COMBINED AT	635C	1220.	12.80	236.	76.	76.	2.05		
3 COMBINED AT	640C	6727.	14.07	4767.	2822.	2822.	23.65		
ROUTED TO	645R	6722.	14.13	4767.	2819.	2819.	23.65	1198.83	14.13
HYDROGRAPH AT	650S	103.	12.33	14.	4.	4.	.13		
2 COMBINED AT	655C	6722.	14.13	4776.	2822.	2822.	23.78		

*** NORMAL END OF HEC-1 ***

SECTION X

PLATES

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

SKUNK CREEK
Between ACDC and CAP
FLOOD INSURANCE STUDY

LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- (A) Compute Runoff from Sub-Basin A
- (B) Route Hydrograph
- (C) Compute Runoff from Sub-Basin C
- (D) Combine Hydrographs
- (E) Route Hydrograph through Retention Basin E
- (G) Divide Hydrograph into F and G (F)

LOCATION	HEC-1 I.D.	10-YEAR 6 HR.	10-YEAR 24 HR.	50-YEAR 6 HR.	50-YEAR 24 HR.	100-YEAR 6 HR.	100-YEAR 24 HR.	100-year, 24-hour Intensity (in/hr)
Confluence of ACDC	655C	3,300	3,800	5,200	6,000	6,200	6,700	14.1
67th Avenue	565C	3,300	3,800	5,200	5,800	6,100	6,500	14.1
Below 55th Avenue Channel	535C	2,900	3,700	5,200	5,800	6,100	6,500	13.0
Below Confluence with Scatter Wash	360C	2,300	2,700	3,800	4,300	4,700	5,100	13.0
Above Confluence with Scatter Wash	345C	1,500	1,500	1,900	1,900	2,100	2,000	13.1
Below Adobe Dam	320R	1,370	1,370	1,650	1,650	1,730	1,730	NA

LOCATION	HEC-1 I.D.	10-YEAR 6 HR.	10-YEAR 24 HR.	50-YEAR 6 HR.	50-YEAR 24 HR.	100-YEAR 6 HR.	100-YEAR 24 HR.	100-YEAR, 24-Hour Intensity (in/hr)
Above Confluence with Skunk Creek	300C	900	1,300	2,000	2,500	2,900	3,200	13.0

DRAINAGE AREA MAP & HEC-1 SCHEMATIC

PLATE 1

NOVEMBER 9, 1990

REDUCED SCALE, FULL SCALE MAP IN POCKET

COE & VAN LOO
PLANNING • ENGINEERING
LANDSCAPE ARCHITECTURE

0 2000 6000
1000 4000

NORTH

1090-05-01

FLOOD CONTROL
DISTRICT
OF
MARICOPA COUNTY

SKUNK CREEK
Between ACDC and CAP
FLOOD INSURANCE STUDY

LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- (250) Drainage Sub-Basin Number

DRAINAGE BASIN LAND USE MAP

PLATE 2

NOVEMBER 9, 1990

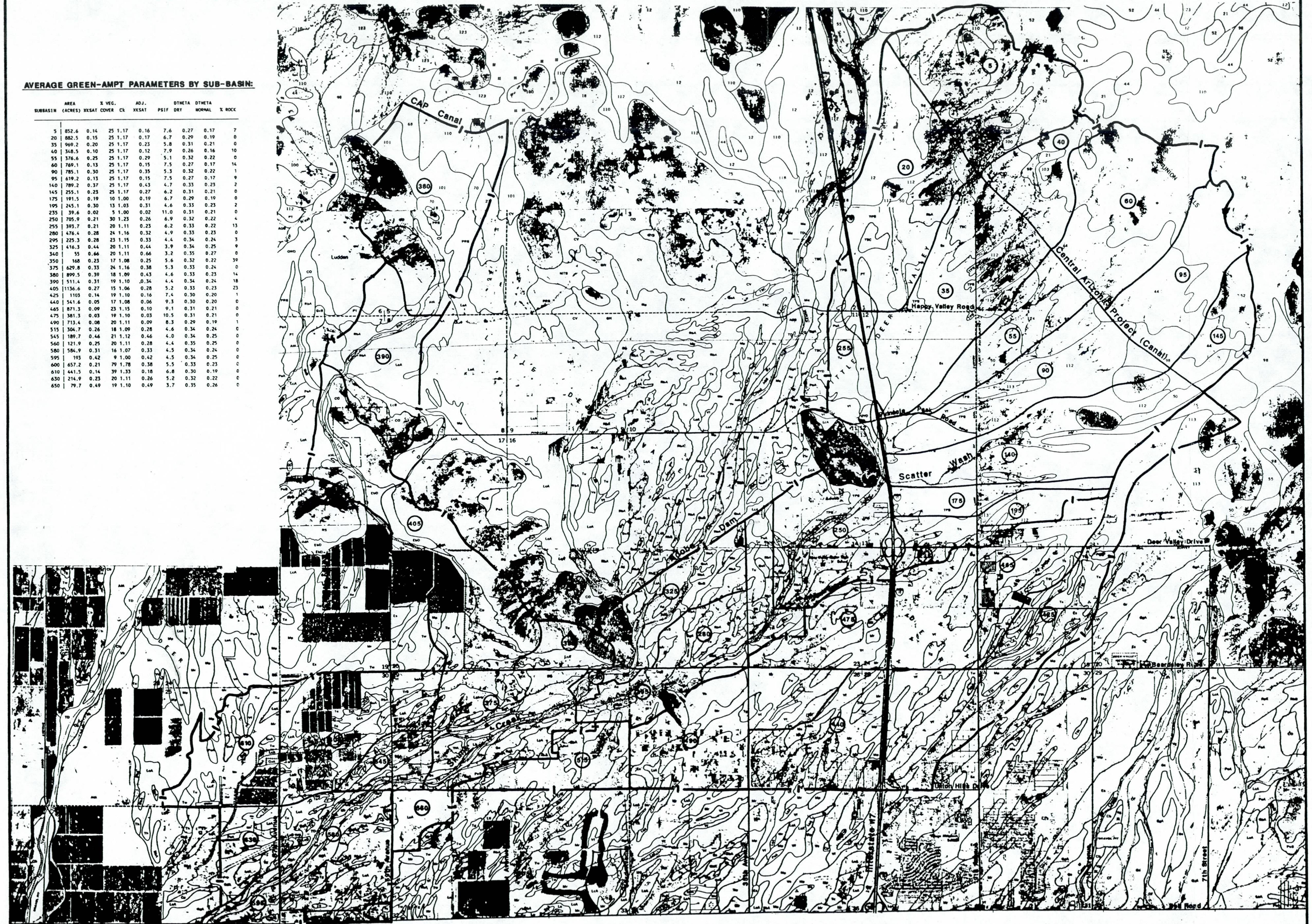
REDUCED SCALE, FULL SCALE MAP IN POCKET

COE & VAN LOO
PLANNING · ENGINEERING
LANDSCAPE ARCHITECTURE

0 2000 6000
1000 4000

NORTH

1090-05-02



AVERAGE GREEN-AMPT PARAMETERS BY SUB-BASIN:

SUBBASIN	AREA (ACRES)	XKSAT	% VEG. COVER	Ck	ADJ. XKSAT	PSIF	DTHETA DRY	DTHETA NORMAL	% ROCK
5	852.6	0.14	25	1.17	0.16	7.6	0.27	0.17	7
20	882.5	0.15	25	1.17	0.17	6.7	0.29	0.19	0
35	969.2	0.20	25	1.17	0.23	5.8	0.31	0.21	0
40	348.5	0.10	25	1.17	0.12	7.9	0.26	0.16	10
55	376.6	0.25	25	1.17	0.29	5.1	0.32	0.22	0
60	769.1	0.13	25	1.17	0.15	7.5	0.27	0.17	14
90	785.1	0.30	25	1.17	0.35	5.3	0.32	0.22	1
95	619.2	0.13	25	1.17	0.15	7.5	0.27	0.17	9
140	789.2	0.37	25	1.17	0.43	4.7	0.33	0.23	2
145	255.1	0.23	25	1.17	0.27	6.2	0.31	0.21	0
175	191.5	0.19	10	1.00	0.19	6.7	0.29	0.19	0
195	245.1	0.30	13	1.03	0.31	4.6	0.33	0.23	2
235	39.6	0.02	5	1.00	0.02	11.0	0.31	0.21	0
250	705.9	0.21	30	1.23	0.26	6.9	0.32	0.22	4
255	393.7	0.21	20	1.11	0.23	6.2	0.33	0.22	13
280	476.4	0.28	24	1.16	0.32	4.9	0.33	0.23	0
295	225.3	0.28	23	1.15	0.33	4.4	0.34	0.24	3
325	416.3	0.44	20	1.11	0.44	3.9	0.34	0.25	9
340	55	0.66	20	1.11	0.66	3.2	0.35	0.27	0
350	168	0.23	17	1.08	0.25	5.6	0.32	0.22	39
375	629.8	0.33	24	1.16	0.38	5.3	0.33	0.24	0
380	899.5	0.39	18	1.09	0.43	4.6	0.33	0.23	14
390	511.4	0.31	19	1.10	.0.34	4.4	0.34	0.24	18
405	1136.6	0.27	15	1.06	0.28	5.2	0.33	0.23	23
425	1103	0.14	19	1.10	0.16	7.4	0.30	0.20	1
440	541.6	0.05	17	1.08	0.06	9.3	0.30	0.20	0
465	871.3	0.09	23	1.15	0.10	9.1	0.31	0.21	0
475	381.3	0.03	19	1.10	0.03	10.5	0.31	0.21	0
490	713.4	0.08	20	1.11	0.09	8.3	0.29	0.19	1
515	304.7	0.26	18	1.09	0.28	4.6	0.34	0.24	0
545	189.7	0.46	21	1.12	0.46	4.0	0.34	0.25	0
560	121.9	0.25	20	1.11	0.28	4.4	0.35	0.25	0
580	584.9	0.31	16	1.07	0.33	4.5	0.34	0.24	0
595	193	0.42	9	1.00	0.42	4.5	0.34	0.25	0
600	657.2	0.21	79	1.78	0.38	5.5	0.33	0.23	0
610	441.5	0.14	39	1.33	0.18	6.8	0.30	0.19	0
630	214.9	0.23	20	1.11	0.26	5.2	0.32	0.22	0
650	79.7	0.49	19	1.10	0.49	3.7	0.35	0.26	0

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

SKUNK CREEK
Between ACDC and CAP
FLOOD INSURANCE STUDY

LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- 250 Drainage Sub-Basin Number
- LcA Soil Unit Boundary
- ck Soil Unit Boundary
  Reference: USDA, Soil Conservation Service, Soil Survey of Maricopa County, Arizona, Central Part
- 107 Soil Unit Identification
  Reference: USDA, Soil Conservation Service, Soil Survey of Aguila-Carefree Area, Parts of Maricopa and Pinal Counties, Arizona

AVERAGE GREEN-AMPT PARAMETERS BY SOIL UNIT:

SOIL UNIT

	12	18	21	22	23	44	50	52	68	70	75	77	90	98	100	101	103	109	110	112	113	118
XKSAT	0.04	0.95	0.17	0.04	0.04	0.06	0.26	0.16	0.4	0.4	0.24	0.05	0.38	0.21	0.86	0.4	0.05	0.06	0.18	0.4	0.4	0.38
PSIF	8.2	3.8	7.4	8.5	8.8	8.6	4.2	7	3.5	3.5	4.6	8.1	3.9	6.4	3.5	3.5	7.1	8.6	6.8	3.5	3.5	3.8
DTHETA (DRY)	0.25	0.33	0.26	0.24	0.24	0.25	0.35	0.28	0.35	0.35	0.35	0.26	0.34	0.29	0.34	0.35	0.28	0.25	0.29	0.35	0.35	0.35
DTHETA (NORM)	0.15	0.22	0.17	0.14	0.14	0.15	0.25	0.18	0.25	0.25	0.25	0.16	0.24	0.19	0.27	0.25	0.18	0.15	0.19	0.25	0.25	0.25
% ROCK	0	15	4	0	0	0	0	20	0	0	0	0	0	0	20	0	65	35	4	0	0	0

	124	Aa	AbA	AdA	AdB	Ae	AfA	AgB	Be	Bt	Cb	CO	Cp	CrB	CV	EbB	Ea	Ge	GpA	GaA	GxB	GTD
XKSAT	0.4	0.25	0.4	0.4	0.4	0.4	0.7	0.62	0.4	0.4	1.2	0.36	0.4	0.4	0.34	0.19	0.25	0.25	0.25	0.4	0.4	0.4
PSIF	3.5	4.3	3.5	3.5	3.5	3.5	3.1	3.4	3.5	3.5	2.4	4.1	3.5	3.5	3.8	7.4	4.3	4.3	4.3	3.5	3.5	3.5
DTHETA (DRY)	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.34	0.35	0.35	0.35	0.27	0.35	0.35	0.35	0.35	0.35	0.35
DTHETA (NORM)	0.25	0.25	0.25	0.25	0.25	0.25	0.27	0.26	0.25	0.25	0.3	0.24	0.25	0.25	0.25	0.18	0.25	0.25	0.25	0.25	0.25	0.25
% ROCK	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	6	0	0	0	0	0	0

	Lb	LcA	LcB	Le	Ma	Mp	Mr	Ms	Pa	Pb	PaA	PeB	PRB	PT	RaA	RbA	RbB	RS	Ta	Tc	TD	Te
XKSAT	0.25	0.25	0.25	0.25	0.4	0.04	0.04	0.04	0.4	0.39	0.4	0.4	0.4	0.25	0.4	0.4	0.38	0.25	0.25	1.2	1.2	0.06
PSIF	4.3	4.3	4.3	4.3	3.5	8.2	8.2	8.2	3.5	3.5	3.5	3.5	3.5	4.3	3.5	3.5	3.6	5.7	4.3	2.4	2.4	8.6
DTHETA (DRY)	0.35	0.35	0.35	0.35	0.35	0.25	0.25	0.25	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.31	0.35	0.35	0.35	0.25
DTHETA (NORM)	0.25	0.25	0.25	0.25	0.25	0.15	0.15	0.15	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.21	0.25	0.3	0.3	0.15
% ROCK	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	0	0	0	0

	TfA	TfB	Tg	Th	TPB	TrA	TrB	TSC	Tu	Tw	Vf	Vh	Vk
XKSAT	0.06	0.06	0.06	0.06	0.06	0.24	0.27	0.26	0.25	0.25	0.01	1.04	1.03
PSIF	8.6	8.6	8.6	8.6	8.6	5.8	5.5	5.6	4.3	4.3	12.4	2.6	2.7
DTHETA (DRY)	0.25	0.25	0.25	0.25	0.25	0.31	0.31	0.31	0.35	0.35	0.35	0.35	0.35
DTHETA (NORM)	0.15	0.15	0.15	0.15	0.15	0.21	0.21	0.21	0.21	0.25	0.25	0.25	0.29
% ROCK	0	0	0	0	0	0	0	0	0	0	0	0	0

SOIL CLASSIFICATION MAP

PLATE 3

NOVEMBER 9, 1990

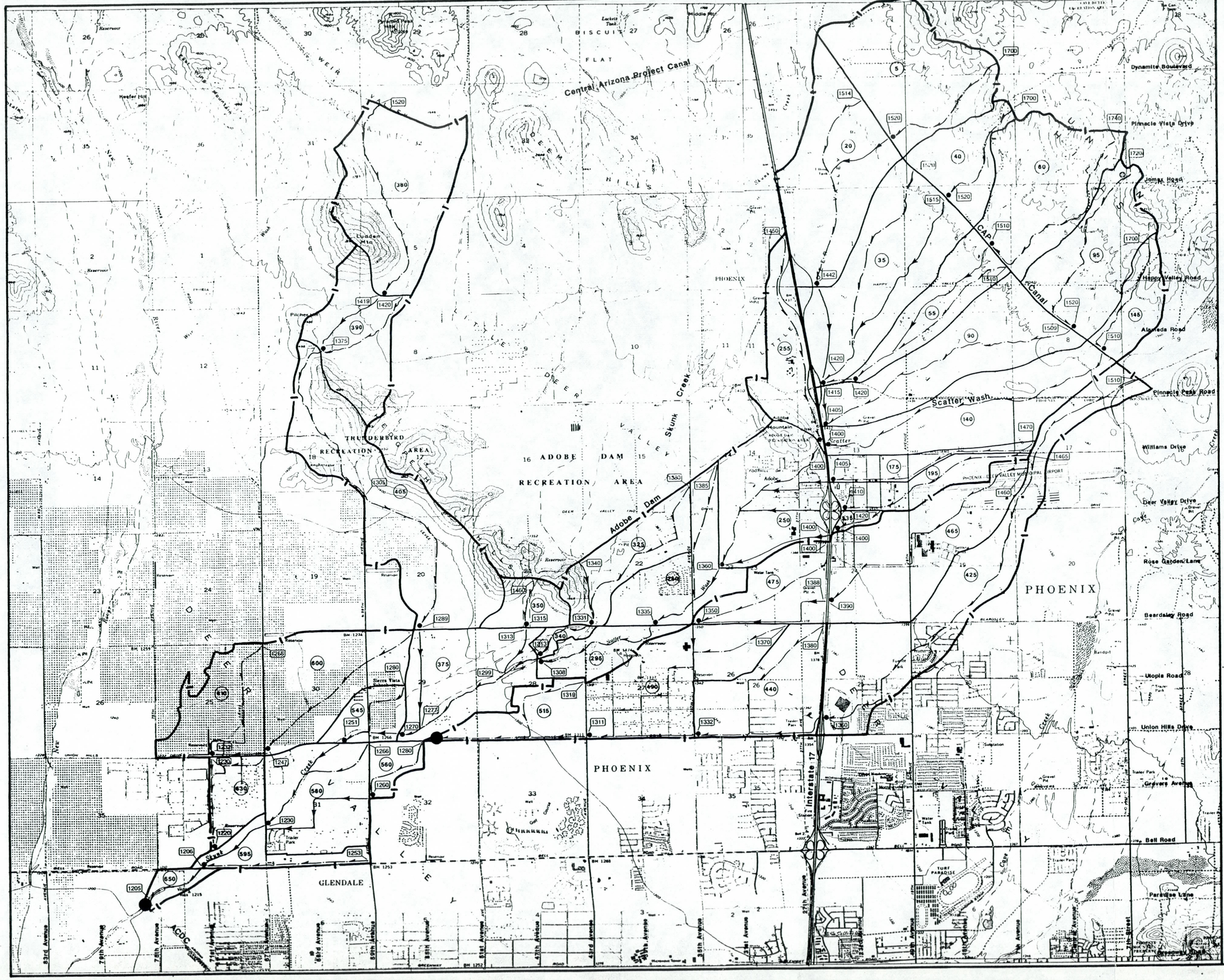
REDUCED SCALE, FULL SCALE MAP IN POCKET

CVL
COE & VAN LOO
PLANNING • ENGINEERING
LANDSCAPE ARCHITECTURE

0 1000 2000 4000 6000

NORTH

1090-05-03



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

SKUNK CREEK
Between ACDC and CAP
FLOOD INSURANCE STUDY

LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- (250) Drainage Sub-Basin Number
- Major Drainage Basin Concentration Point
- Drainage Sub-Basin Concentration Point
- Routing Flow Path
- Time of Concentration Flow Path
- (1230) Elevation Along Flow Path

FLOW ROUTING MAP

PLATE 4

NOVEMBER 9, 1990

REDUCED SCALE, FULL SCALE MAP IN POCKET

COE & VAN LOO
PLANNING · ENGINEERING
LANDSCAPE ARCHITECTURE

0 2000 6000
1000 4000

NORTH

1090-05-04

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

SKUNK CREEK
Between ACDC and CAP
FLOOD INSURANCE STUDY

LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- (A) Compute Runoff from Sub-Basin A
- [B] Route Hydrograph
- (C) Compute Runoff from Sub-Basin C
- <D> Combine Hydrographs
- [E] Route Hydrograph through Retention Basin E
- G/F Divide Hydrograph into F and G

LOCATION	HEC-1 I.D.	10-YEAR 6 HR.	10-YEAR 24 HR.	50-YEAR 6 HR.	50-YEAR 24 HR.	100-YEAR 6 HR.	100-YEAR 24 HR.	100-year, 24-hour time to peak (hrs.)
Confluence of ACDC	655C	3,300	3,800	5,200	6,000	6,200	6,700	14.1
67th Avenue	585C	3,300	3,800	5,200	5,800	6,100	6,500	14.1
Below 55th Avenue Channel	535C	3,300	3,700	5,200	5,800	6,100	6,500	13.9
Below Confluence with Scatter Wash	360C	2,300	2,700	3,600	4,300	4,700	5,100	13.9
Above Confluence with Scatter Wash	345C	1,500	1,500	1,900	1,900	2,100	2,000	13.1
Below Adobe Dam	320R	1,370	1,370	1,650	1,650	1,730	1,730	NA

LOCATION	HEC-1 I.D.	10-YEAR 6 HR.	10-YEAR 24 HR.	50-YEAR 6 HR.	50-YEAR 24 HR.	100-YEAR 6 HR.	100-YEAR 24 HR.	100-YEAR, 24-hour time to peak (hrs.)
Above Confluence with Skunk Creek	300C	900	1,300	2,000	2,500	2,900	3,200	13.9

DRAINAGE AREA MAP & HEC-1 SCHEMATIC

PLATE 1

NOVEMBER 9, 1990

COE & VAN LOO
PLANNING • ENGINEERING
LANDSCAPE ARCHITECTURE

0 2000 6000
1000 4000

NORTH

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

SKUNK CREEK
Between ACDC and CAP
FLOOD INSURANCE STUDY

LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- (250) Drainage Sub-Basin Number

DRAINAGE BASIN LAND USE MAP

PLATE 2

NOVEMBER 9, 1990

COE & VAN LOO
PLANNING • ENGINEERING
LANDSCAPE ARCHITECTURE

0 2000 6000
1000 4000

NORTH

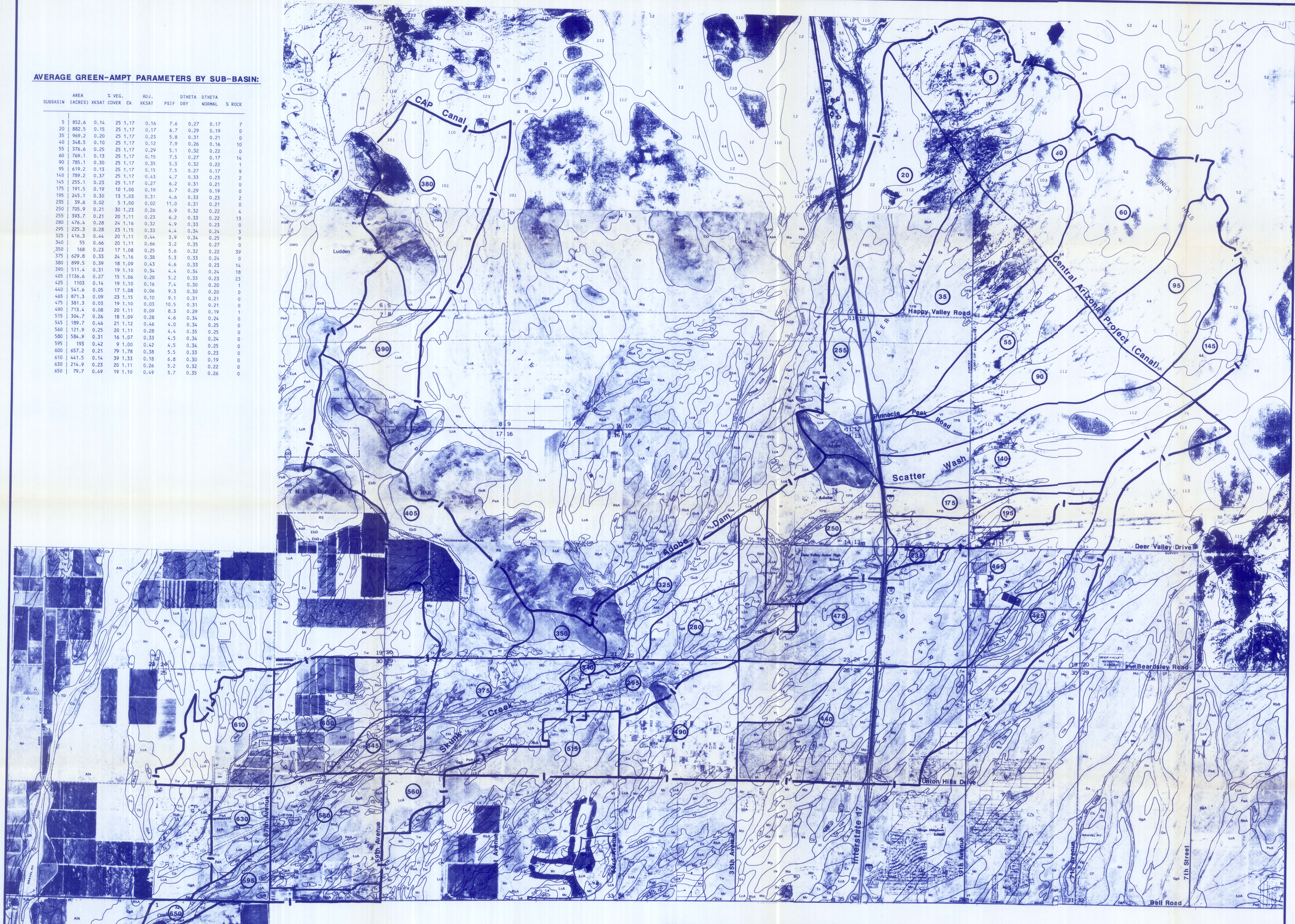
Central Arizona Project (Canal)
Dynamite Boulevard
Pinnacle Vista Drive
Jomax Road
CAP Canal
Happy Valley Road
Alameda Road
Pinnacle Peak Road
Williams Drive
Deer Valley Airport
Deer Valley Drive
Rose Garden Lane
Beardsley Road
Utopia Road
Union Hills Drive
Grovers Avenue
Bell Road
Paradise Lane
Greenway Road
Oasis Water Park
The 500 Club at Adobe Dam
Adobe Dam
Scatter Wash
Honeywell
Adobe Dam Outlet Works
Skunk Creek Channelization
Intel
American Express
Digital
Cave Creek
Interstate 17
Turf Paradise
Arrowhead Ranch
The Legend Golf Course
New River
Agua Fria Freeway (Under Construction)
Arrowhead Ranch Country Club
55th Avenue Channel
Skunk Creek
ACDC
83rd Avenue
79th Avenue
75th Avenue
71st Avenue
67th Avenue
63rd Avenue
59th Avenue
55th Avenue
51st Avenue
47th Avenue
43rd Avenue
39th Avenue
35th Avenue
31st Avenue
27th Avenue
23rd Avenue
19th Avenue
15th Avenue
7th Avenue
Central Avenue
7th Street

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

SKUNK CREEK
Between ACDC and CAP
FLOOD INSURANCE STUDY

AVERAGE GREEN-AMPT PARAMETERS BY SUB-BASIN:

SUBBASIN	AREA (ACRES)	XKSAT	% VEG. COVER	Ck	ADJ. XKSAT	PSIF	DTHETA DRY	DTHETA NORMAL	% ROCK
5	852.6	0.14	25	1.17	0.16	7.6	0.27	0.17	7
20	882.5	0.15	25	1.17	0.17	6.7	0.29	0.19	0
35	969.2	0.20	25	1.17	0.23	5.8	0.31	0.21	0
40	348.5	0.10	25	1.17	0.12	7.9	0.26	0.16	10
55	376.6	0.25	25	1.17	0.29	5.1	0.32	0.22	0
60	769.1	0.13	25	1.17	0.15	7.5	0.27	0.17	14
90	785.1	0.30	25	1.17	0.35	5.3	0.32	0.22	1
95	619.2	0.13	25	1.17	0.15	7.5	0.27	0.17	9
140	789.2	0.37	25	1.17	0.43	4.7	0.33	0.23	2
145	255.1	0.23	25	1.17	0.27	6.2	0.31	0.21	0
175	191.5	0.19	10	1.00	0.19	6.7	0.29	0.19	0
195	245.1	0.30	13	1.03	0.31	4.6	0.33	0.23	2
235	39.6	0.02	5	1.00	0.02	11.0	0.31	0.21	0
250	705.9	0.21	30	1.23	0.26	6.9	0.32	0.22	4
255	393.7	0.21	20	1.11	0.23	6.2	0.33	0.22	13
280	476.4	0.28	24	1.16	0.32	4.9	0.33	0.23	0
295	225.3	0.28	23	1.15	0.33	4.4	0.34	0.24	3
325	416.3	0.44	20	1.11	0.44	3.9	0.34	0.25	9
340	55	0.66	20	1.11	0.66	3.2	0.35	0.27	0
350	168	0.23	17	1.08	0.25	5.6	0.32	0.22	39
375	629.8	0.33	24	1.16	0.38	5.3	0.33	0.24	0
380	899.5	0.39	18	1.09	0.43	4.6	0.33	0.23	14
390	511.4	0.31	19	1.10	0.34	4.4	0.34	0.24	18
405	1136.6	0.27	15	1.06	0.28	5.2	0.33	0.23	23
425	1103	0.14	19	1.10	0.16	7.4	0.30	0.20	1
440	541.6	0.05	17	1.08	0.06	9.3	0.30	0.20	0
465	871.3	0.09	23	1.15	0.10	9.1	0.31	0.21	0
475	381.3	0.03	19	1.10	0.03	10.5	0.31	0.21	0
490	713.4	0.08	20	1.11	0.09	8.3	0.29	0.19	1
515	304.7	0.26	18	1.09	0.28	4.6	0.34	0.24	0
545	189.7	0.46	21	1.12	0.46	4.0	0.34	0.25	0
560	121.9	0.25	20	1.11	0.28	4.4	0.35	0.25	0
580	584.9	0.31	16	1.07	0.33	4.5	0.34	0.24	0
595	193	0.42	9	1.00	0.42	4.5	0.34	0.25	0
600	657.2	0.21	79	1.78	0.38	5.5	0.33	0.23	0
610	441.5	0.14	39	1.33	0.18	6.8	0.30	0.19	0
630	214.9	0.23	20	1.11	0.26	5.2	0.32	0.22	0
650	79.7	0.49	19	1.10	0.49	3.7	0.35	0.26	0



LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- (250) Drainage Sub-Basin Number
- LcA Soil Unit Boundary
- ck Soil Unit Boundary
  Reference: USDA, Soil Conservation Service, Soil Survey of Maricopa County, Arizona, Central Part
- 107 Soil Unit Identification
  Reference: USDA, Soil Conservation Service, Soil Survey of Aguila-Carefree Area, Parts of Maricopa and Pinal Counties, Arizona

AVERAGE GREEN-AMPT PARAMETERS BY SOIL UNIT:

SOIL UNIT

	12	18	21	22	23	44	50	52	68	70	75	77	90	98	100	101	103	109	110	112	113	118	124	Aa	AbA	AdA
XKSAT	0.04	0.95	0.17	0.04	0.04	0.06	0.26	0.16	0.4	0.4	0.24	0.05	0.38	0.21	0.86	0.4	0.05	0.06	0.18	0.4	0.4	0.38	0.4	0.25	0.4	0.4
PSIF	8.2	3.8	7.4	8.5	8.8	8.6	4.2	7	3.5	3.5	4.6	8.1	3.9	6.4	3.5	3.5	7.1	8.6	6.8	3.5	3.5	3.8	3.5	4.3	3.5	3.5
DTHETA (DRY)	0.25	0.33	0.26	0.24	0.24	0.25	0.35	0.28	0.35	0.35	0.35	0.26	0.34	0.29	0.34	0.35	0.28	0.25	0.29	0.35	0.35	0.35	0.35	0.35	0.35	0.35
DTHETA (NORM)	0.15	0.22	0.17	0.14	0.14	0.15	0.25	0.18	0.25	0.25	0.25	0.16	0.24	0.19	0.27	0.25	0.18	0.15	0.19	0.25	0.25	0.25	0.25	0.25	0.25	0.25
% ROCK	0	15	4	0	0	0	0	20	0	0	0	0	0	0	20	0	65	35	4	0	0	0	0	0	0	0

	AdB	Ae	AfA	AGB	Bs	Bt	Cb	CO	Cp	CrB	CV	EbD	Es	Ge	GgA	GxA	GxB	GYD	Lb	LcA	LcB	Le	Ma	Mp	Mr	Ms
XKSAT	0.4	0.4	0.7	0.62	0.4	0.4	1.2	0.36	0.4	0.4	0.34	0.19	0.25	0.25	0.25	0.4	0.4	0.4	0.25	0.25	0.25	0.25	0.4	0.04	0.04	0.04
PSIF	3.5	3.5	3.1	3.4	3.5	3.5	2.4	4.1	3.5	3.5	3.8	7.4	4.3	4.3	4.3	3.5	3.5	3.5	4.3	4.3	4.3	4.3	3.5	8.2	8.2	8.2
DTHETA (DRY)	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.34	0.35	0.35	0.35	0.27	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.25	0.25	0.25
DTHETA (NORM)	0.25	0.25	0.27	0.26	0.25	0.25	0.3	0.24	0.25	0.25	0.25	0.18	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.15	0.15	0.15
% ROCK	0	0	0	0	0	0	0	20	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Pa	Pb	PeA	PeB	PRB	PT	RaA	RbA	RbB	RS	Ta	Tc	TD	Te	TfA	TfB	Tg	Th	TPB	TrA	TrB	TSC	Tu	Tw	Vf	Vh	Vk
XKSAT	0.4	0.39	0.4	0.4	0.4	0.25	0.4	0.4	0.38	0.25	0.25	1.2	1.2	0.06	0.06	0.06	0.06	0.06	0.06	0.24	0.27	0.26	0.25	0.25	0.01	1.04	1.03
PSIF	3.5	3.5	3.5	3.5	3.5	4.3	3.5	3.5	3.5	5.7	4.3	2.4	2.4	8.6	8.6	8.6	8.6	8.6	8.6	5.8	5.5	5.6	4.3	4.3	12.4	2.6	2.7
DTHETA (DRY)	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.31	0.35	0.35	0.35	0.25	0.25	0.25	0.25	0.25	0.25	0.31	0.31	0.31	0.35	0.35	0.35	0.35	0.35
DTHETA (NORM)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.21	0.25	0.3	0.3	0.15	0.15	0.15	0.15	0.15	0.15	0.21	0.21	0.21	0.21	0.25	0.25	0.25	0.29
% ROCK	0	0	0	0	0	0	0	0	0	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SOIL CLASSIFICATION MAP

PLATE 3

NOVEMBER 9, 1990

CVL
COE & VAN LOO
PLANNING • ENGINEERING
LANDSCAPE ARCHITECTURE

0 1000 2000 4000 6000

NORTH

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

SKUNK CREEK
Between ACDC and CAP
FLOOD INSURANCE STUDY

LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- (250) Drainage Sub-Basin Number
- Major Drainage Basin Concentration Point
- Drainage Sub-Basin Concentration Point
- Routing Flow Path
- Time of Concentration Flow Path
- (1230) Elevation Along Flow Path

FLOW ROUTING MAP

PLATE 4

NOVEMBER 9, 1990

COE & VAN LOO
PLANNING + ENGINEERING
LANDSCAPE ARCHITECTURE

0 2000 6000
1000 4000

NORTH