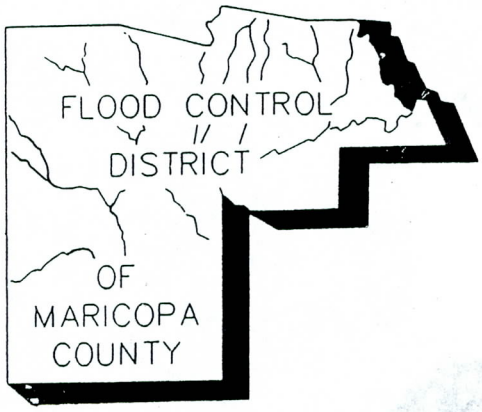
23SKUCVL0890

SKUNK CREEK

Between Arizona Canal Diversion Channel & Central Arizona Project

FLOOD INSURANCE STUDY



HYDROLOGY REPORT
August 1990

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August 7, 1990

Flood Control District of Maricopa County
3335 West Durango
Phoenix, AZ 85009

Re: Skunk Creek FIS
FCD 89-72
CVL Job. No. 1090-05

Att: Mr. Joe Tram

Dear Mr. Tram:

Enclosed please find two (2) copies of the hydrology report for the referenced Flood Insurance Study (FIS).

Based on our previous meetings with the Arizona Department of Water Resources (ADWR) and your office, we have incorporated all the comments and suggestions into the HEC-1 modeling.

This report presents peak flow computation for the 10-, 50-, and 100-year frequency storms for both the 6-hour and 24-hour durations. As concluded in our previous meeting, the 24-hour duration is recommended for the purpose of FIS.

We have received useful suggestions and technical guidance from Mr. Russ Cruff and Mr. Amir Motamedi from your office during the modeling process. Valuable input was also received from Mr. Dave Creighton, P.E. (ADWR) in regards to general hydrologic conditions around the study area. We are grateful for this assistance.

Please review and comment on the methodology presented. Once you concur with our findings, this report will be submitted to the Federal Emergency and Management Agency (FEMA) for their approval.

Please submit one copy of report to ADWR for their concurrence. If you have any questions regarding this report please call Mr. Jack Moody or myself.

Sincerely,

COE & VAN LOO
Consulting Engineers, Inc.

Ashok C. Patel, P.E., R.L.S.
Senior Vice President
Project Manager

ACP:sd
LTR0388.WP5

Enclosure
cc: Mr. Dave Creighton P.E., ADWR

SKUNK CREEK FIS
From ACDC to CAP
Floodplain Concerns

TO BE USED IN CONJUNCTION WITH FLOODPLAIN EXHIBITS (1A, B, C & 2A, B) PREPARED BY CVL

1. Break out near 71st Avenue: Right bank is overtopped in the 100-year flow, by approximately 0.5' at two locations that are approximately 10' wide each. Approximately 20 cfs will break out and continue west along Bell Road. (More flow may break out due to erosion of the bank.)

2. Break out near 67th Avenue and John Cabot Road: Approximately 800 cfs (100-yr) breaks out of the right bank in sheet flow approximately 1' deep.

3. Break out at 66th Avenue: Approximately 800 cfs (100-yr) breaks out of the left bank and will continue southwest toward 67th Avenue. Flow will be approximately 2' deep in 66th Lane.

4. Break out near 64th Drive and Murial Drive: Approximately 1000 cfs (100-yr) breaks out of the left bank and will continue south.

5. Shallow flooding area between 53rd Avenue and 55th Avenue (alignment): Approximately 1500 cfs (100-yr) causes shallow flooding 1' to 2' deep in the left overbank. This flow makes it back into the main channel by about 55th Avenue.

6. Five 10'x6' concrete box culverts and some channelization are being constructed by ADOT at Beardsley Road and 43rd Avenue: Box culverts are approximately 50% complete.

7. Scatter Wash break out at 43rd Avenue: Approximately 3000 cfs (100-yr) breaks out of the left bank and continues south.

8. Scatter Wash break out south of Beardsley Road (Section 1.038): Approximately 300 cfs (100-yr) breaks out of the left bank and continues south. This situation will be alleviated when ADOT completes the culverts and channelization on Scatter Wash.

9. Nine 10'x6' and one 10'x8' concrete box culverts and some channelization are being constructed by ADOT on Scatter Wash at Beardsley Road. Box culverts are approximately 30% complete.

10. Break out and shallow flooding area south of Pinacle Peak Road and east of 35th Avenue: Approximately 2700 cfs (100-yr) splits out east of 35th Avenue and continues south in shallow flow approximately 1' to 2' deep.

CVL

11. Possible break out south of Pinacle Peak Road in right overbank: Approximately 2500 cfs (100-yr) may break out of the right overbank south of Pinacle Peak Road. Some flow will continue south back into the channel, and some may continue west into the Adobe Dam impound.

12. City of Phoenix Landfill is encroaching approximately 300 feet into the current FEMA floodway.

13. Break out of 35th Avenue, approximately ½ mile north of Pinacle Peak Road (Section 9.400): Approximately 500 cfs (100-yr) breaks out of the right overbank across 35th Avenue and continues south through a subdivision toward Pinacle Peak Road. This seems to be a result of the Landfill encroachment into the floodway.

14. Possible breakout into City of Phoenix Landfill (Section 9.713): Approximately 800 cfs (100-yr) may break out of the left bank. The City of Phoenix indicated they would fill up this breach to contain the flow.

15. Possible break out into City of Phoenix Landfill (Section 10.280): Approximately 1000 cfs (100-yr) may break out of the left bank. The City of Phoenix indicated they would fill up this breach to contain the flow.

16. Central Arizona Project Canal overshoots do not have the capacity for the 100-year flow. The 100-year flow will overtop the canal and also break out to the west across I-17.

17. Break out near 71st Avenue: The right bank is overtopped in the 100-year future flow, by approximately 1.0' at two locations, approximately 20' wide each. Approximately 100 cfs will break out and continue west along Bell Road. (More flow may break out due to erosion of the bank.)

18. 67th Avenue does not have sufficient topography to the south to show limits of ponding.

19. Break out near 67th Avenue and John Cabot Road: Approximately 800 cfs (100-yr) breaks out of the right bank in sheet flow approximately 1' deep.

20. Break out at 66th Avenue: Approximately 1000 cfs (100-yr) breaks out of the left bank and will continue southwest toward 67th Avenue. Flow will be approximately 2' deep in 66th Lane.

21. Break out near 64th Drive and Murial Drive: Approximately 1000 cfs (100-yr) breaks out of the left bank and will continue south.

22. Shallow flooding area between 53rd Avenue and 55th Avenue (alignment): Approximately 1800 cfs (100-yr) caused shallow flooding 1' to 2' deep in the left overbank. This flow makes it back into the main channel by about 57th Avenue and will not cross Union Hills.

23. Five 10'x6' concrete box culverts and some channelization are being constructed by ADOT at Beardsley Road and 43rd Avenue. Box culverts are approximately 50% complete.

24. Scatter Wash break out at 43rd Avenue: Approximately 3000 cfs (100-yr) breaks out of the left bank and continues south.

25. Scatter Wash break out south of Beardsley Road (Section 1.038): Approximately 300 cfs (100-yr) breaks out of the left bank and continues south. This situation will be alleviated when ADOT completes the culverts and channelization on Scatter Wash.

26. Nine 10'x6' and one 10'x8' concrete box culverts and some channelization are being constructed by ADOT on Scatter Wash at Beardsley Road. Box culverts are approximately 30% complete.

SKUNK CREEK
From I-17 to CAP
SPF Concerns

27. At cross section 12.800 the right bank is overtopped in the standard project flood by 1.0 ft.

28. The left banks of cross sections 12.800 12.900 and 12.966 are each respectively overtopped by 0.2 ft., 0.8 ft., and 0.8 ft.

SKUNK CREEK

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

HYDROLOGY REPORT

Flood Insurance Study
FCD 89-72

August, 1990

Prepared for:
Flood Control District of Maricopa County
3335 West Durango Street
Phoenix, Arizona 85009
(602) 262-1501

Prepared by:
Coe & Van Consulting Engineers, Inc.
4550 North 12th Street
Phoenix, Arizona 85014
(602) 264-6831

SKUNK CREEK
BETWEEN ACDC AND THE CAP
FLOOD INSURANCE STUDY

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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.

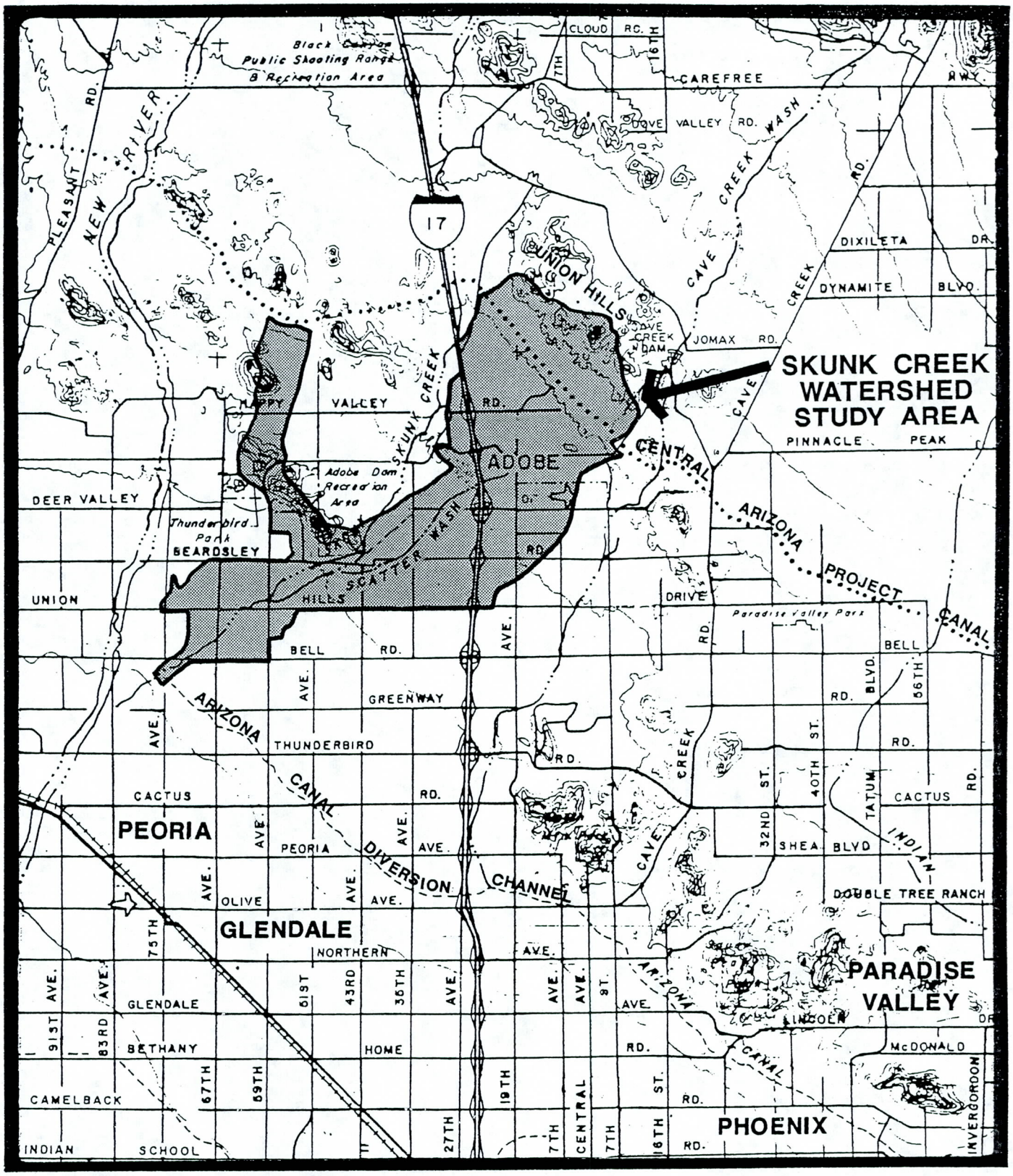
This report presents the hydrologic analysis performed for Skunk Creek downstream of Adobe Dam. The following table summarizes the computed peak discharges corresponding to a 24-hour duration storm at the specified locations along Skunk Creek and Scatter Wash, a major tributary to Skunk Creek. These 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	2,600	4,200	4,800
Skunk Creek at 67th Avenue	21.3	2,500	4,000	4,500
Skunk Creek below 55th Avenue Channel	19.9	2,500	3,900	4,400
Skunk Creek below confluence with Scatter Wash	14.0	2,400	3,800	4,300
Skunk Creek above confluence with Scatter Wash	13.1	1,500	1,900	2,000
Skunk Creek below Adobe Dam	–	1,370	1,650	1,730
Scatter Wash above Confluence with Skunk Creek	14.1	1,000	2,100	2,500

* 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 collect and convey flow westerly toward Skunk Creek in an inverted crown section and roadside channels. Although due to limited capacity, the majority of this flow breaks out to the south and out of the watershed.

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 to 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; Reference this

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 developed by NOAA (Ref. 4) and the CORPS (Ref. 34); 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 developed by the CORPS (Ref. 14); 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.

Why 0.6

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 Wier flow equation. Per the FCDMC direction, the modeling of this area was based on the report Scatter Wash Drainage and Storage Drain study by Griener, Inc. (Ref. 20). } is this a problem

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 capacity of Union Hills Drive to about 68 cfs. 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 have no effect on the overall flows in Skunk Creek; therefore, all storm drain pipes were ignored.

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.

Leave this out

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	2,200	2,600	3,500	4,200	4,300	4,800	14.13
67th Avenue	585C	2,200	2,500	3,400	4,000	4,000	4,500	14.27
Below 55th Avenue Channel	535C	2,200	2,500	3,400	3,900	4,000	4,400	14.13
Below Confluence with Scatter Wash	360C	2,100	2,400	3,400	3,800	4,000	4,300	14.00
Above Confluence with Scatter Wash	345C	1,400	1,500	1,800	1,900	1,900	2,000	13.13
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	800	1,000	1,700	2,100	2,300	2,500	14.13

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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
(Funished by FCDMC's Maricopa County Unit Hydrograph Procedure 1)
Fraction of 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	0.02	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	0.17	163	50% MTN, 50% DES	0.20	0.27	7.6	25	0.16	4
20	1.379	1.8	0.08	44	DES	0.35	0.29	6.7	25	0.17	0
35	1.514	2.1	0.08	48	DES	0.35	0.31	5.8	25	0.23	0
40	0.545	1.0	0.18	180	50% MTN, 50% DES	0.20	0.26	7.9	25	0.12	6
55	0.588	1.8	0.08	50	DES	0.35	0.32	5.1	25	0.29	0
60	1.202	1.8	0.18	128	60% MTN, 40% DES	0.21	0.27	7.5	25	0.15	8
90	1.227	2.4	0.08	42	DES	0.35	0.32	5.3	25	0.35	1
95	0.968	1.6	0.18	125	50% MTN, 50% DES	0.20	0.27	7.5	25	0.15	5
140	1.233	2.8	0.08	36	DES	0.35	0.33	4.7	25	0.43	1
145	0.383	1.0	0.12	183	40% MTN, 60% DES	0.19	0.31	6.2	25	0.27	0
175	0.299	1.8	0.04	36	IND	0.07	0.29	6.7	10	0.19	75
195	0.339	1.6	0.04	34	40% COM, 60% IND	0.09	0.31	11.0	13	0.02	80
235	0.062	0.4	0.05	50	20% APT, 80% IND	0.09	0.31	11.0	5	0.02	74
295	0.352	1.4	0.09	29	10% MTN, 70% DES 10% SFR, 10% APT	0.29	0.34	4.4	30	0.35	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	0.07	27	10% MTN, 50% DES 10% SFR, 20% APT, 10% IND	0.24	0.32	6.9	20	0.23	26
255	0.615	1.8	0.09	28	10% MTN, 80% DES 10% RU	0.32	0.33	6.2	24	0.24	10
280	0.744	1.7	0.06	26	50% DES, 50% SFR	0.23	0.33	4.9	23	0.32	13
325	0.650	1.7	0.08	24	10% MTN, 75% DES 15% SFR	0.30	0.34	3.9	20	0.44	9
340	0.086	0.5	0.07	60	50% DES, 50% SFR	0.23	0.35	3.2	20	0.66	13
350	0.263	0.5	0.14	255	70% MTN, 30% DES	0.28	0.32	5.6	17	0.25	23
375	0.984	1.4	0.07	35	10% IND, 15% APT, 75% DES	0.29	0.33	5.3	24	0.38	18
380	1.405	1.9	0.10	53	35% MTN, 65% DES	0.32	0.33	4.6	18	0.43	8
390	0.799	0.9	0.10	44	5% SFR, 25% MTN, 70% DES	0.31	0.34	4.4	19	0.34	23
405	1.776	3.1	0.10	29	60% MTN, 5% DES 25% SFR, 10% Lake	0.22	0.33	5.2	15	0.28	20
425	1.723	4.5	0.05	33	25% DES, 40% IND 35% SFR	0.16	0.30	7.4	19	0.16	39
440	0.846	1.8	0.05	28	5% APT, 40% DES 5% COM., 50% SFR	0.20	0.30	9.3	17	0.06	20
465	1.361	2.5	0.05	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	0.07	36	75% DES, 15% APT 10% IND	0.29	0.31	10.5	19	0.03	18
490	1.115	2.5	0.06	24	50% DES, 25% IND 25% SFR	0.23	0.29	8.3	20	0.29	26
515	0.476	1.8	0.04	22	10% IND, 5% DES 80% SFR, 5% COM	0.12	0.34	4.6	18	0.34	32
545	0.296	0.9	0.08	28	20% IND, 10% AG, 70% DES	0.31	0.33+	4.0	21	0.34	15
560	0.190	0.8	0.05	25	15% DES, 85% SFR	0.15	0.35	4.4	20	0.35	21
580	0.914	1.2	0.06	25	40% DES, 40% SFR 20% IND	0.20	0.34	4.5	16	0.34	25
595	0.302	1.5	0.06	7	40% DES, 60% COM	0.19	0.34	4.5	9	0.34	51
600	1.027	1.7	0.08	25	10% DES, 80% AG 5% IND, 5% COM	0.44	0.25+	5.5	79	0.33	8
610	0.690	1.3	0.05	19	10% AG, 15% GC, 75% SFR	0.21	0.27+	6.8	39	0.30	19
630	0.336	1.2	0.05	23	75% SFR, 25% DES	0.17	0.32	5.2	20	0.32	19
650	0.125	0.6	0.09	25	95% DES, 5% COM	0.34	0.35	3.7	19	0.35	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	0.883	1472
20	1.379	1.350	893 1887
35	1.514	1.500	797
40	0.545	0.767	589
55	0.588	1.367	247
60	1.202	1.500	730
90	1.227	1.500	497
95	0.968	1.400	610
140	1.233	1.500	432
145	0.383	0.650	348
175	0.299	0.867	213 361
195	0.399	0.667	425
235	0.062	0.300	104
250	1.103	1.450	708
255	0.615	1.500	262
280	0.744	1.450	330
295	0.352	1.500	134
325	0.650	1.500	261
340	0.086	0.450	74
350	0.263	0.367	392
375	0.984	1.267	614
380	1.405	1.500	674
390	0.799	1.017	718
405	1.776	1.500	894
425	1.723	1.500	783
440	0.846	0.983	702
465	1.361	1.400	880

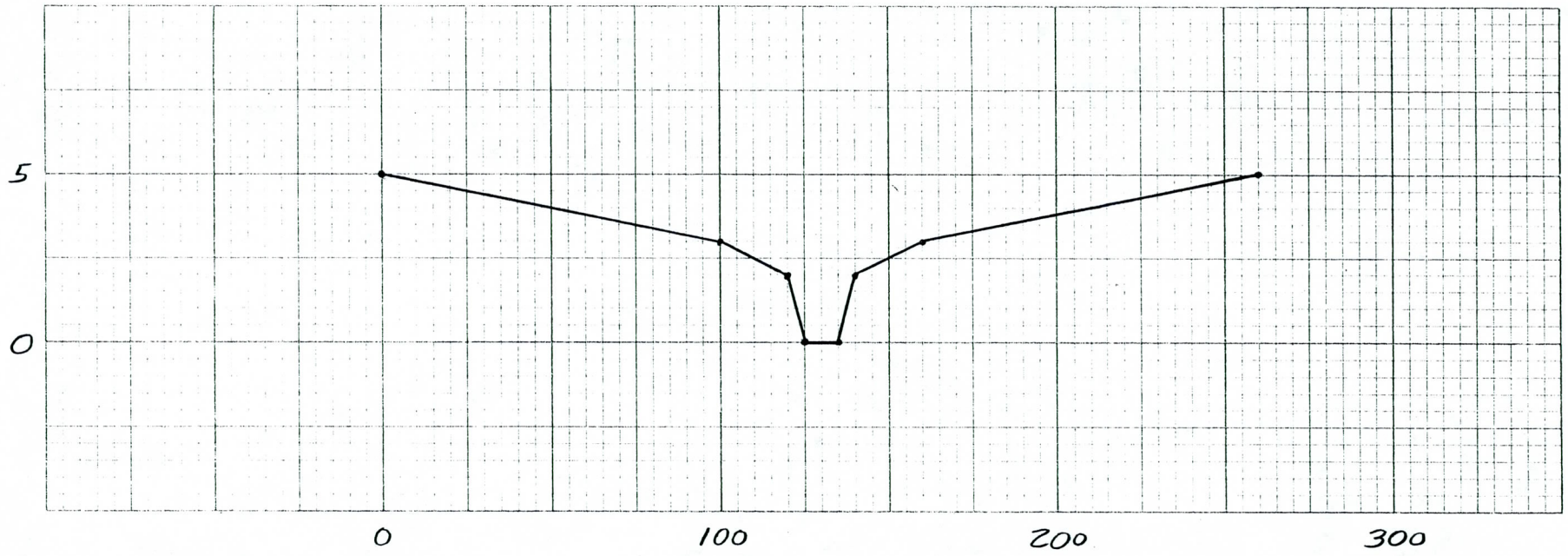
SUBBASIN I.D.	AREA (S.M.)	100-YR., 24-HR. TIME OF CONCENTRATION (HRS.)	100-YR., 24-HR. PEAK DISCHARGE (CFS)
475	0.596	0.900	583
490	1.115	1.500	478
515	0.476	1.183	239
545	0.296	1.033	195
560	0.190	0.683	157
580	0.914	1.117	685
595	0.302	1.500	108
600	1.027	1.500	512
610	0.690	1.117	447
630	0.336	1.000	198
650	0.125	0.883	80

SECTION II

HYDROGRAPH ROUTING PARAMETERS

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 15



RS	1	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

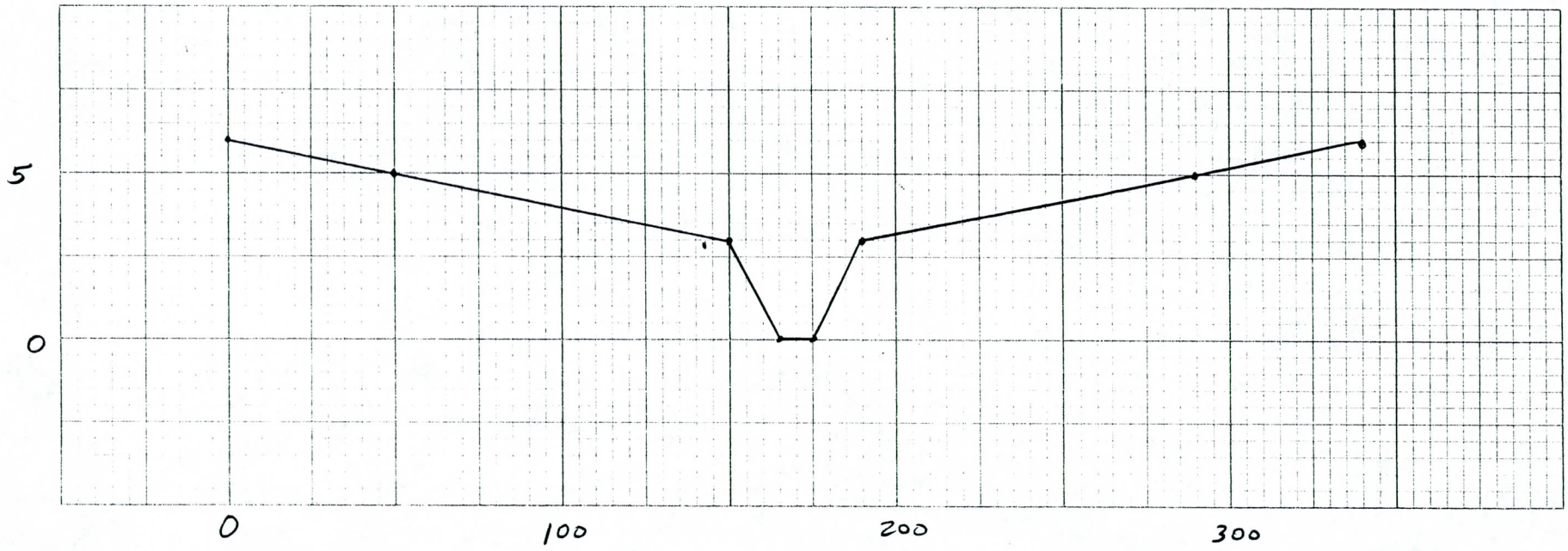
ROUTE IDENTIFICATION NUMBER 30

RS	1	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

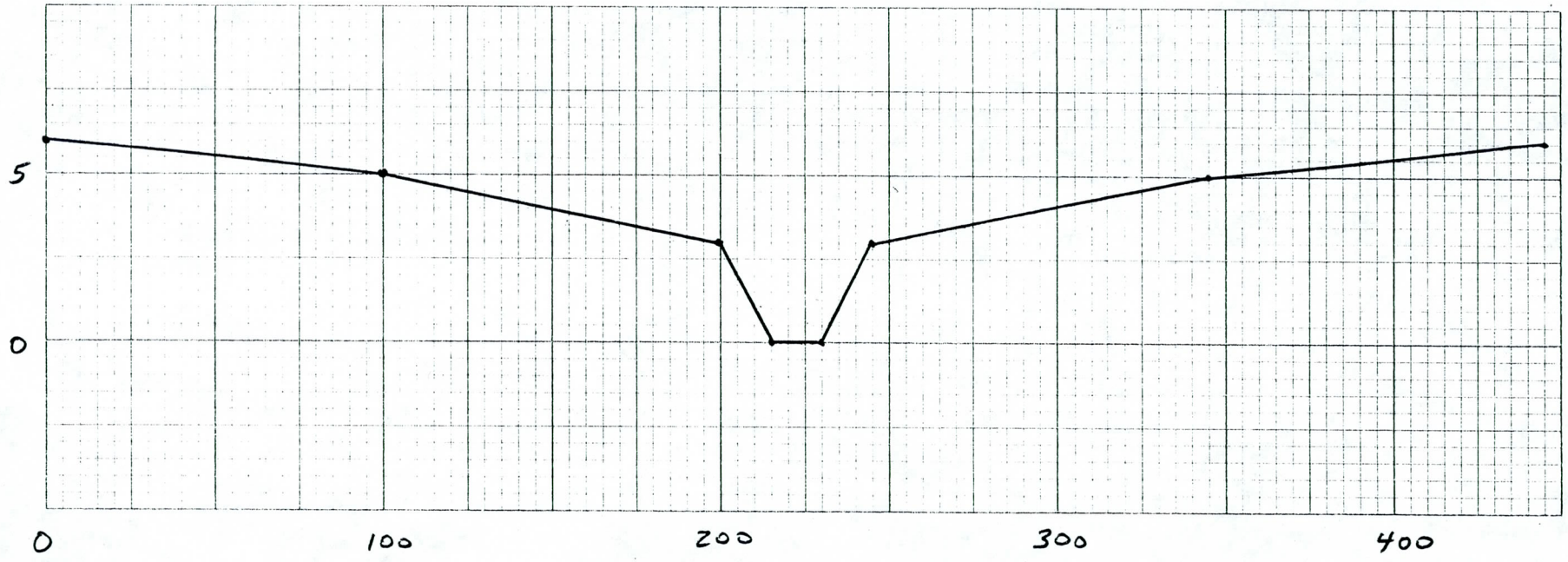


RS	1	Flow	-1					
RC	0.04	0.03	0.04	11000	0.0086			
RX	0	50	150	165	175	190	240	340
RY	6	5	3	0	0	3	5	6

CALCULATED BY: JM 6-25-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 70

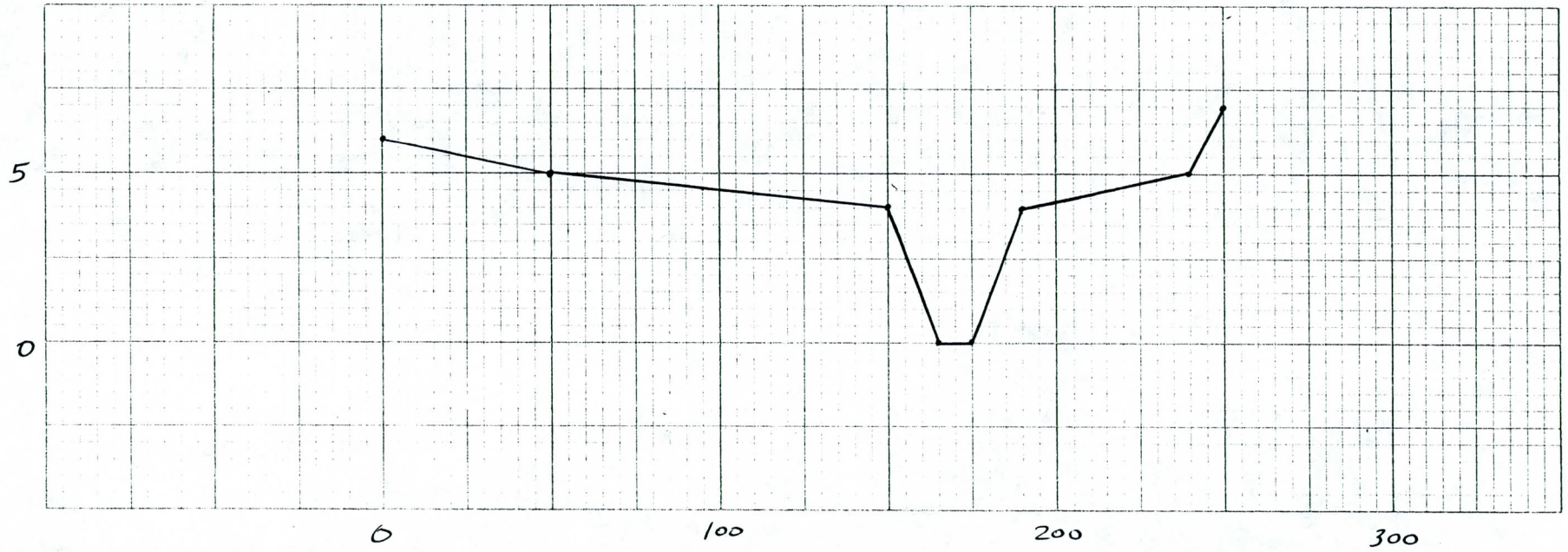


RS	1	Flow	-1					
RC	0.04	0.03	0.04	10000	0.0090			
RX	0	100	200	215	230	245	345	445
RY	6	5	3	0	0	3	5	6

CALCULATED BY: JM 6-25-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 85



RS 1 Flow -1

RC 0.04 0.03 0.04 2000 0.0050

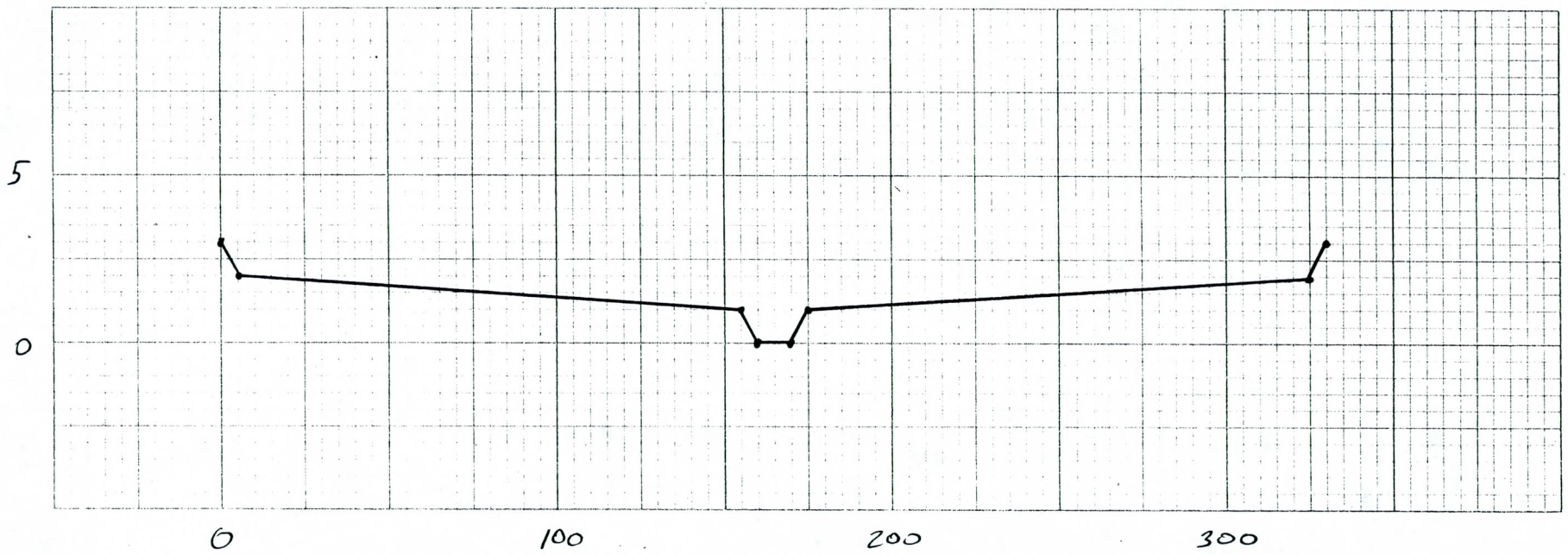
RX 6 5 4 0 0 4 5 7

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

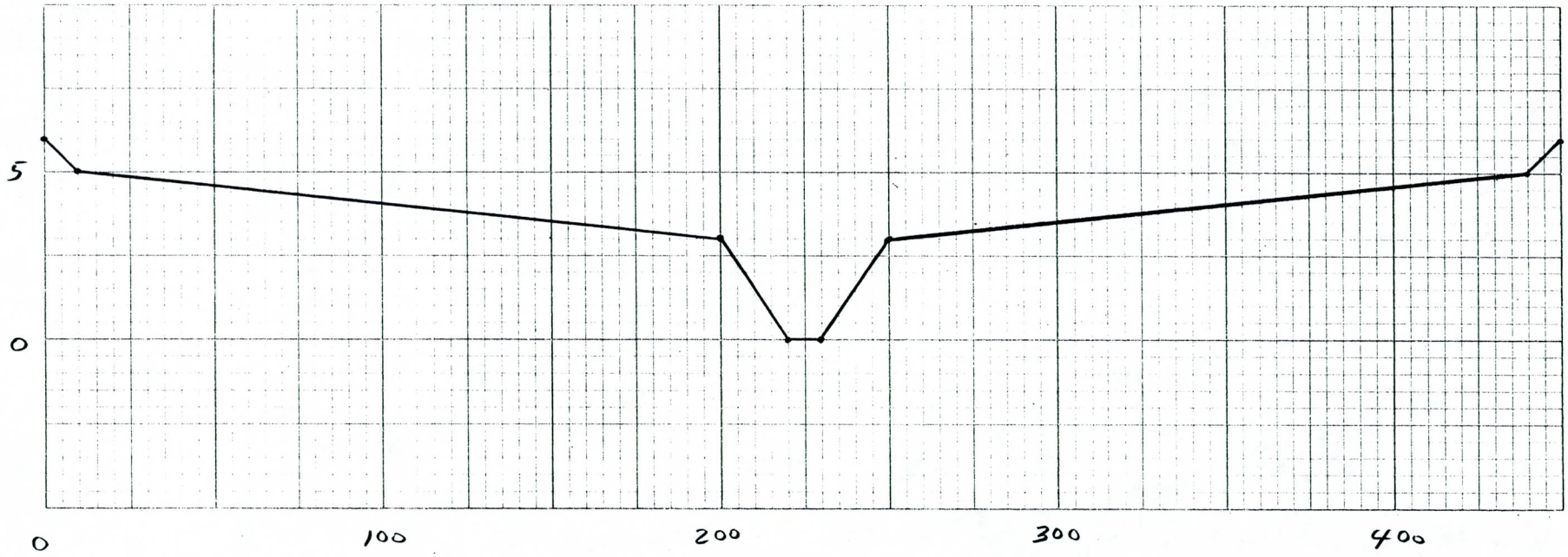


RS	1	Flow	-1					
RC	0.04	0.03	0.04	13000	0.0080			
RX	0	5	155	160	170	175	325	330
RY	3	2	1	0	0	1	2	3

CALCULATED BY: JM 6-26-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 155

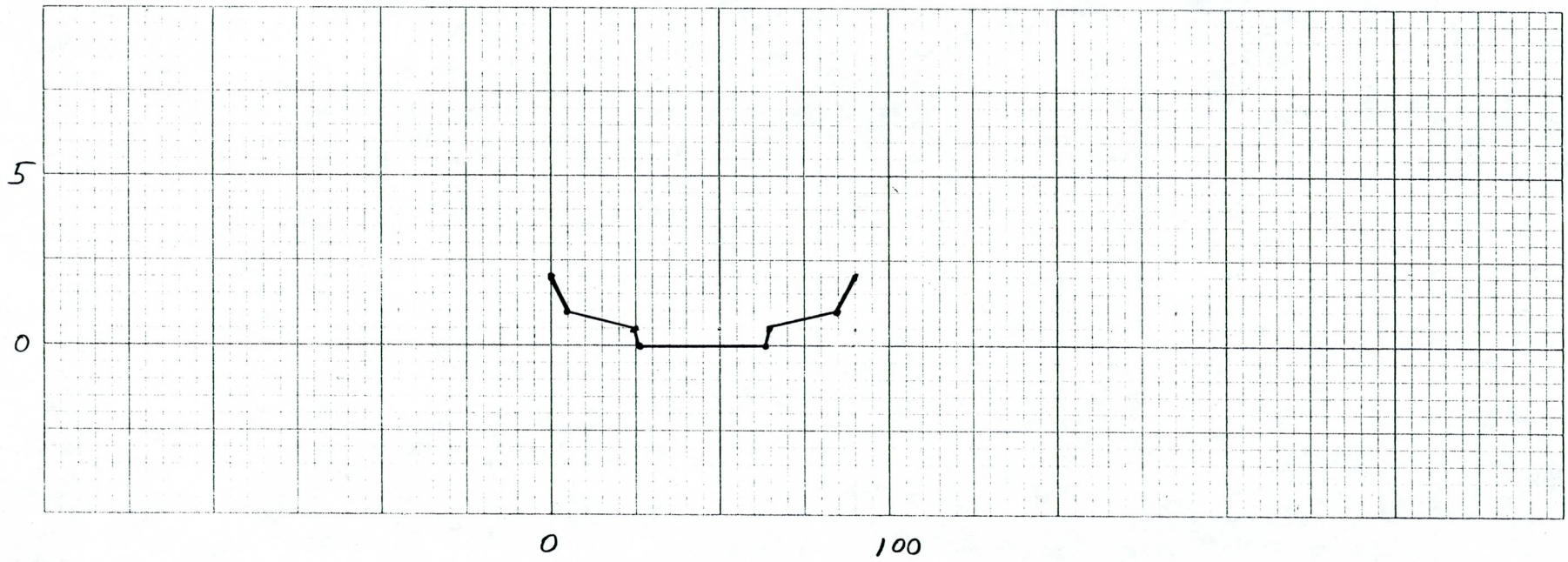


RS	1	Flow	-1					
RC	0.04	0.03	0.04	15000	0.0073			
RX	6	10	200	220	230	250	440	450
RY	6	5	3	0	0	3	5	6

CALCULATED BY: JM 6-26-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 230



RS 1 Flow -1

RC 0.03 0.02 0.03 7000 0.0057

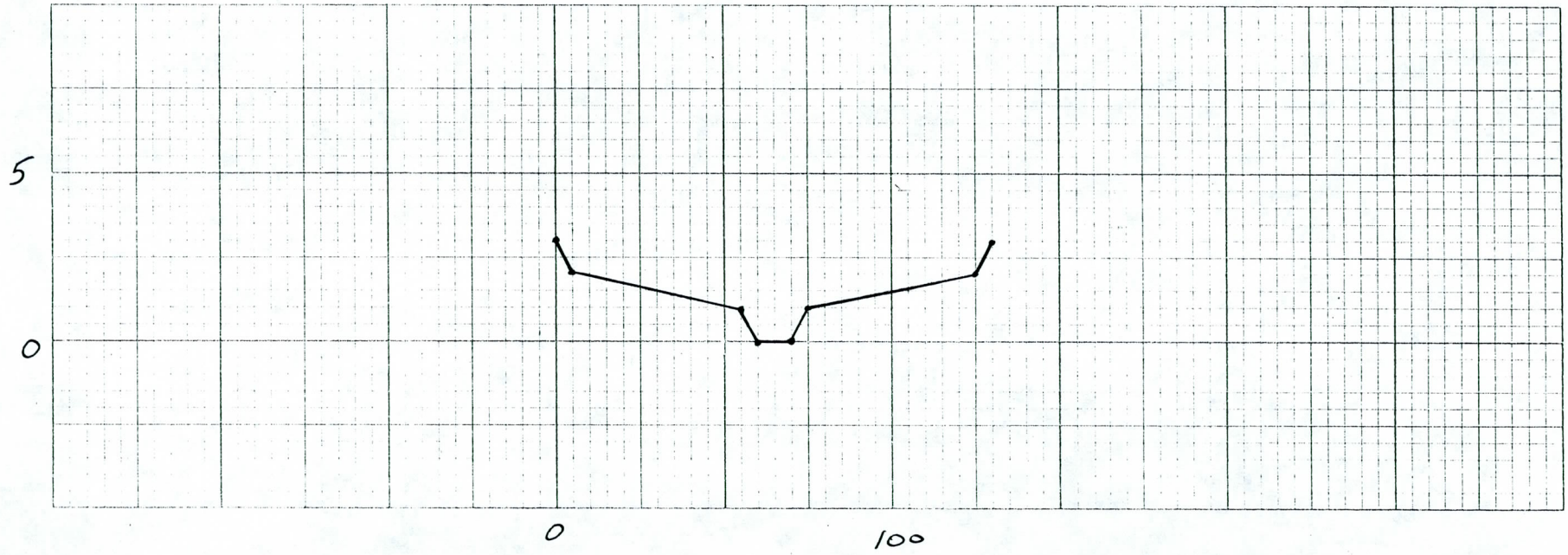
RX 0 5 25 26 64 65 85 90

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

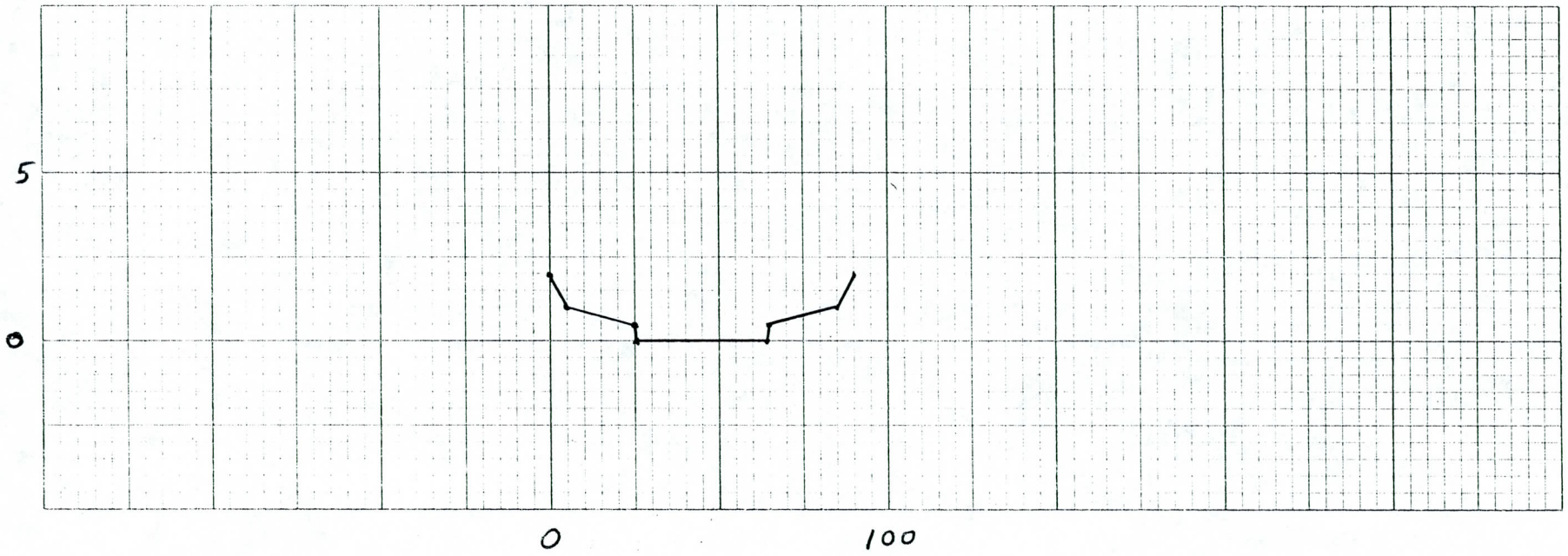


RS	1	Flow	-1					
RC	0.04	0.03	0.04	5500	0.0073			
RX	0	5	55	60	70	75	125	130
RY	3	2	1	0	0	1	2	3

CALCULATED BY: JM 6-26-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 245

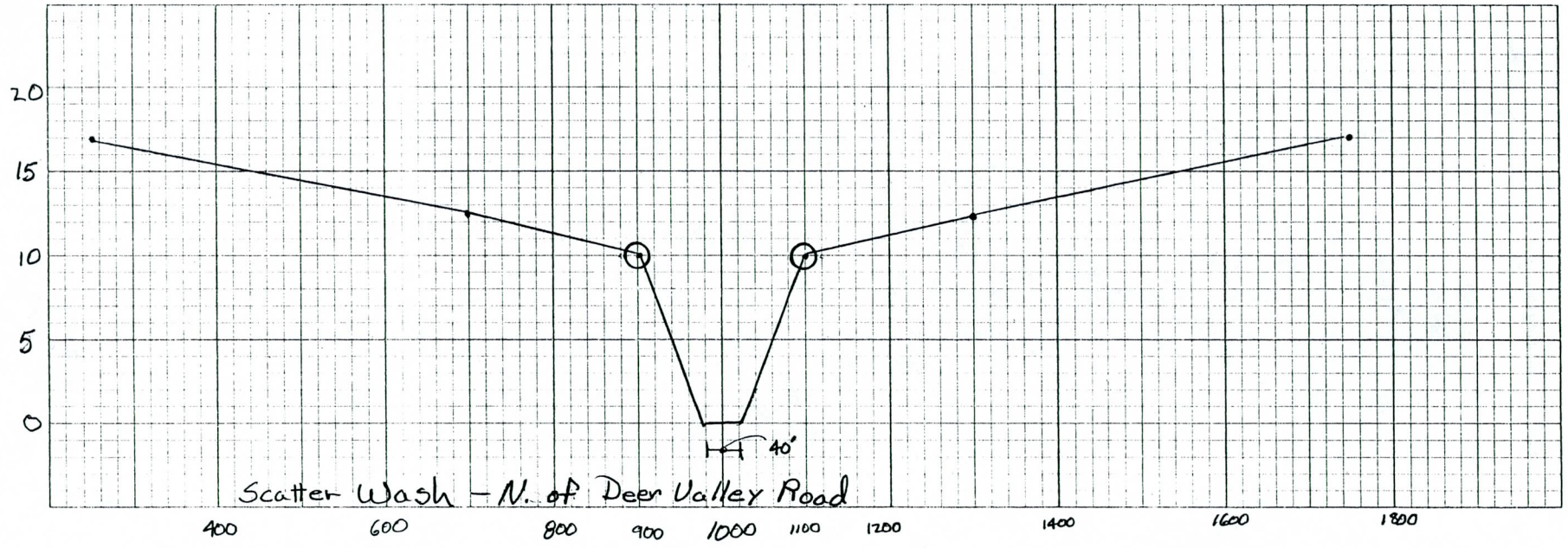


RS	1	Flow	-1					
RC	0.03	0.02	0.03	7500	0.0060			
RX	0	5	25	26	64	65	85	90
RY	2	1	0.5	0	0	0.5	1	2

CALCULATED BY: JM 6-26-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 265

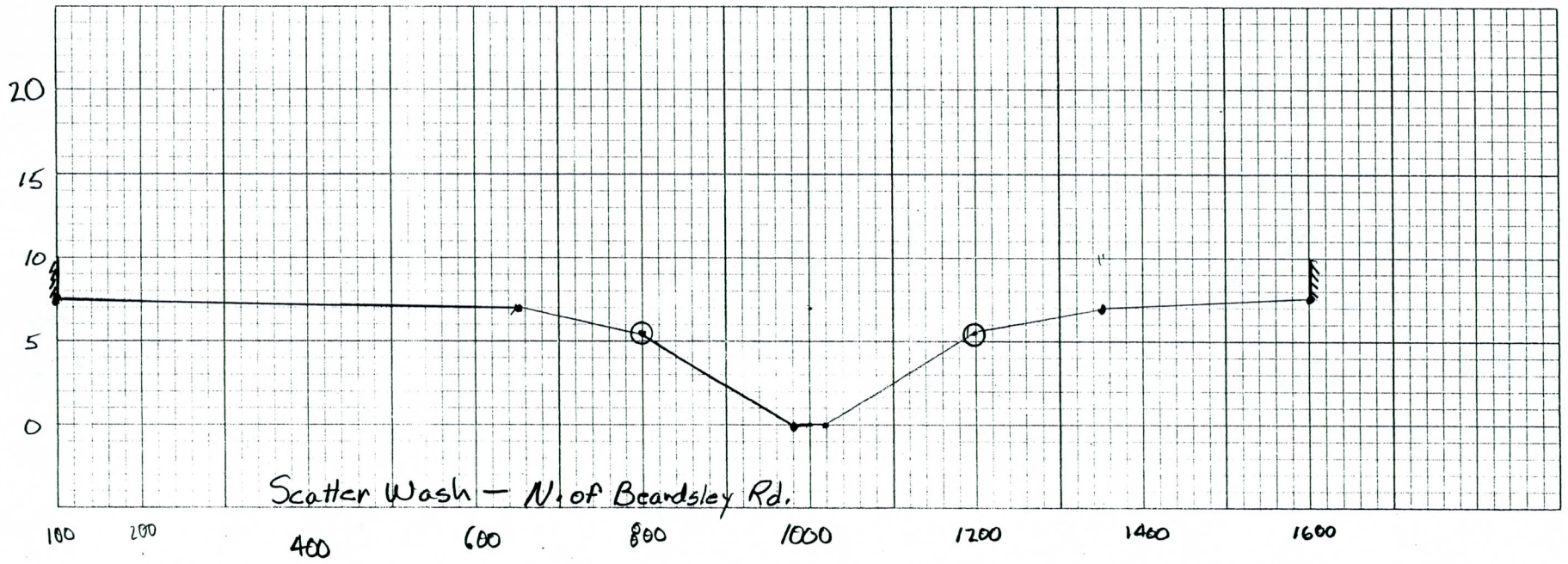


RS	1	Flow	-1					
RC	0.04	0.03	0.04	8,300	0.0048			
RX	250	700	900	980	1020	1100	1300	1750
RY	17.0	12.5	10	0	0	10	12.5	17.0
			LB			RB		

CALCULATED BY: DwD
6-26-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 275

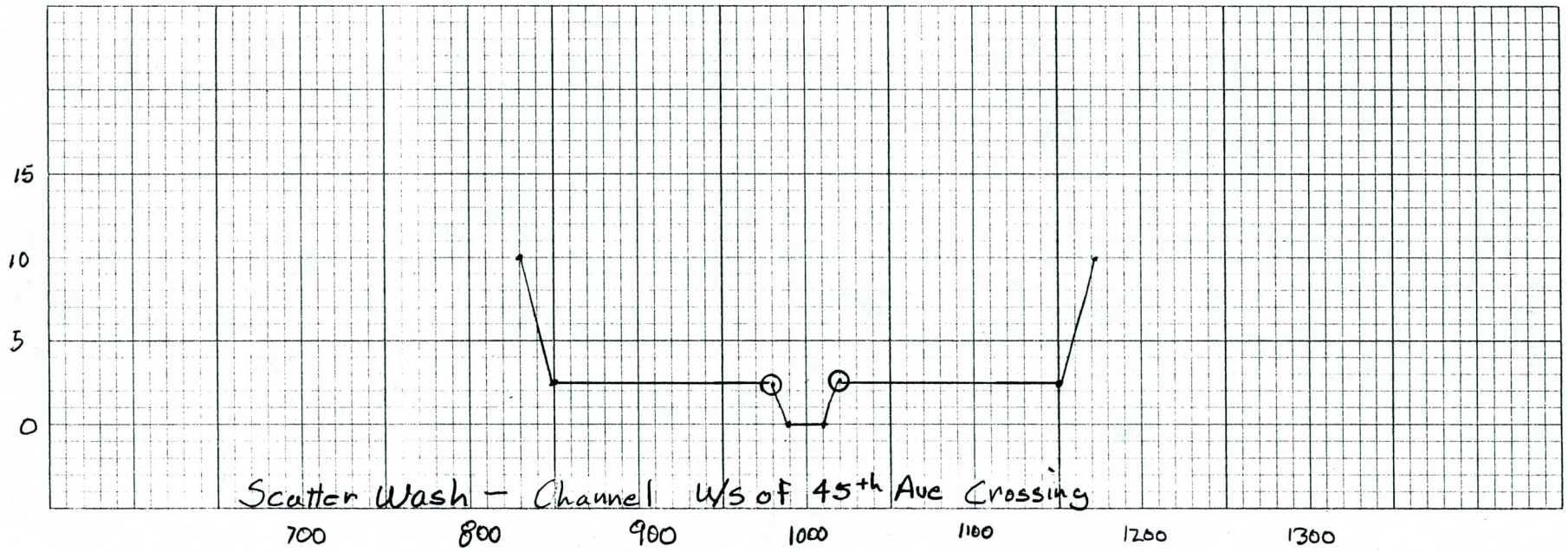


RS	1	FLOW	-1					
RC	0.04	0.03	0.04	4500	0.0056	10		
RX	100	650	800	980	1020	1200	1350	1600
RY	7.5	7	5.5 (LB)	0	0	5.5 (RB)	7	7.5

CALCULATED BY: DWD
6-26-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 290

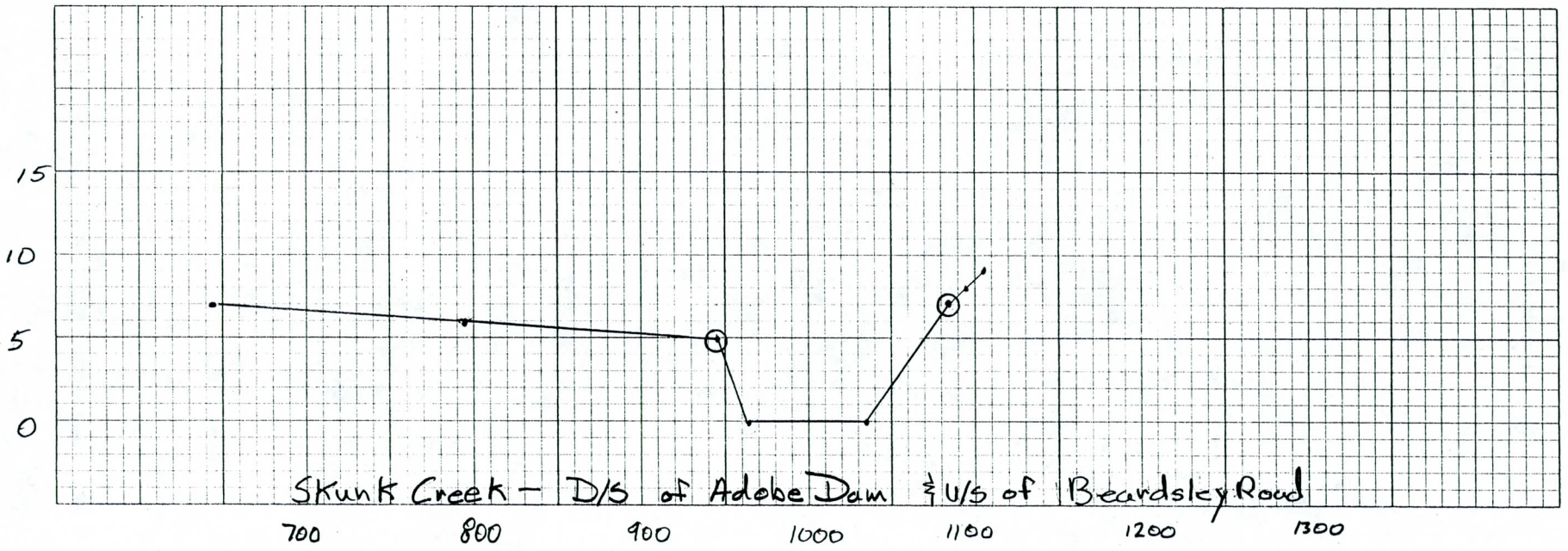


RS	1	Flow	-1					
RC	0.030	0.030	0.030	6200	0.0027			
RX	830	850	980	990	1010	1020	1150	1170
RY	10	2.5	2.5 LB	0	0	2.5 RB	2.5	10

CALCULATED BY: DWD
6-26-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 320

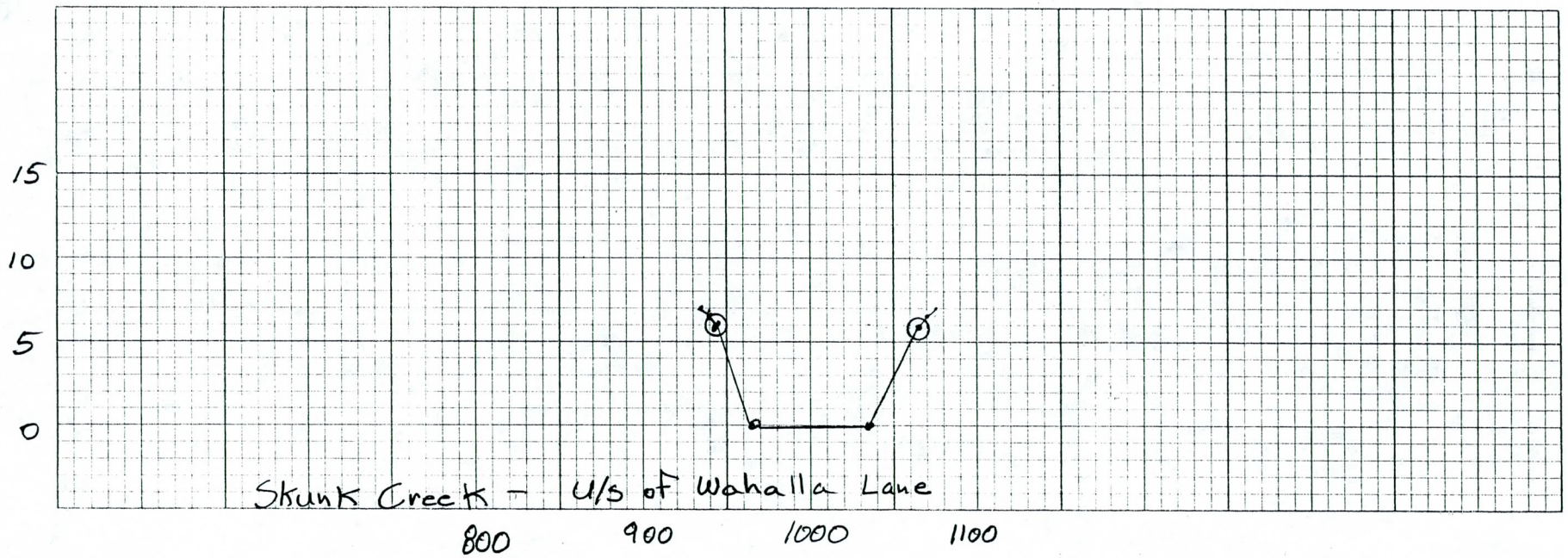


RS	1	FLOW	-1					
RC	0.04	0.03	0.04	3300	0.0028			
RX	645	795	945	965	1035	1085	1095	1105
RY	7	6	5	0	0	7	9	11
			LB			RB		

CALCULATED BY: DWD
6-26-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 335

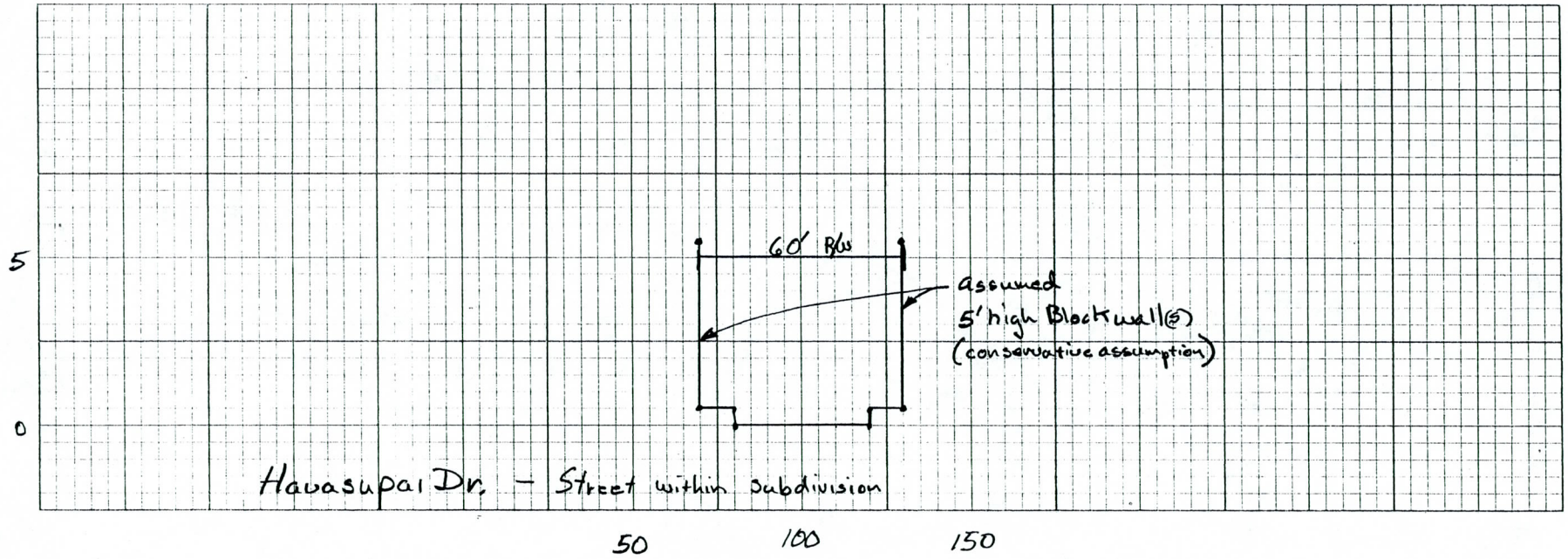


RS	1	Flow	-1					
RC	0.04	0.03	0.04	3050	0.006			
RX	935	940	945	965	1035	1065	1070	1075
RY	7	6.5	6	0	0	6	6.5	7

CALCULATED BY: DWD
6-26-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 355

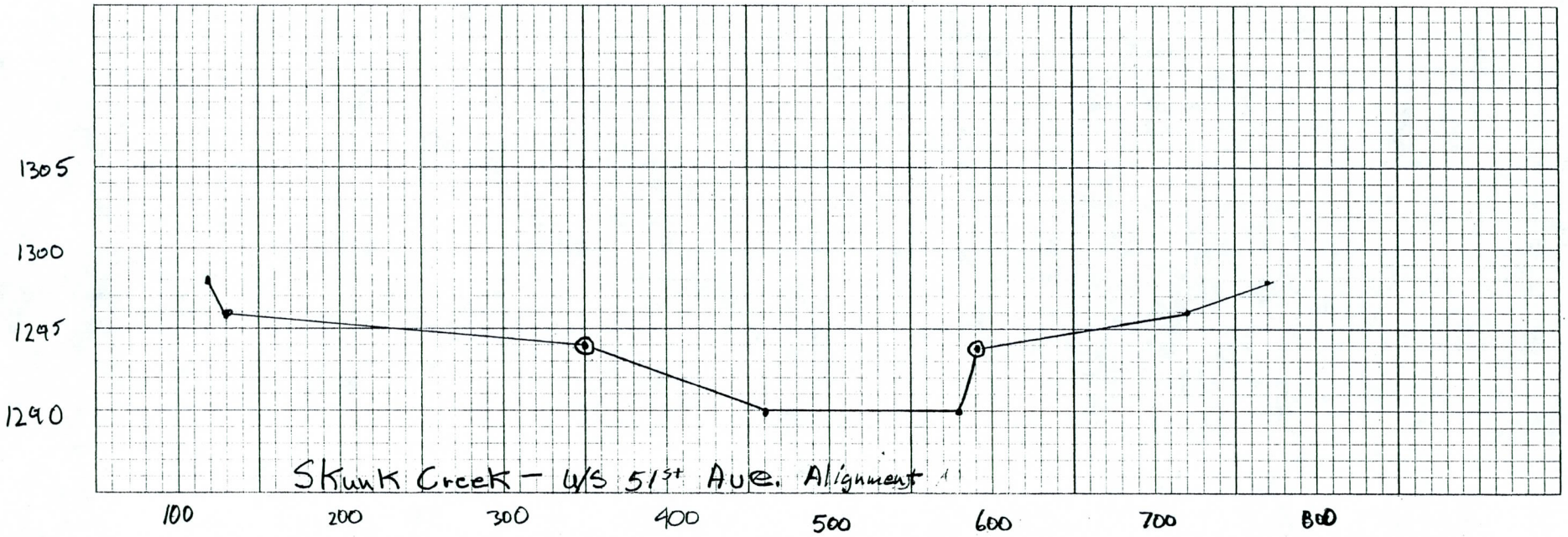


RS	1	FLOW	-1					
RC	0.03	0.02	0.03	2400	0.006			
RX	70	70.1	79.9	80	120	120.1	130	130.1
RY	5.5	6.5	0.5	6	0	0.5	0.5	5.5

CALCULATED BY: DWD
6-27-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 370

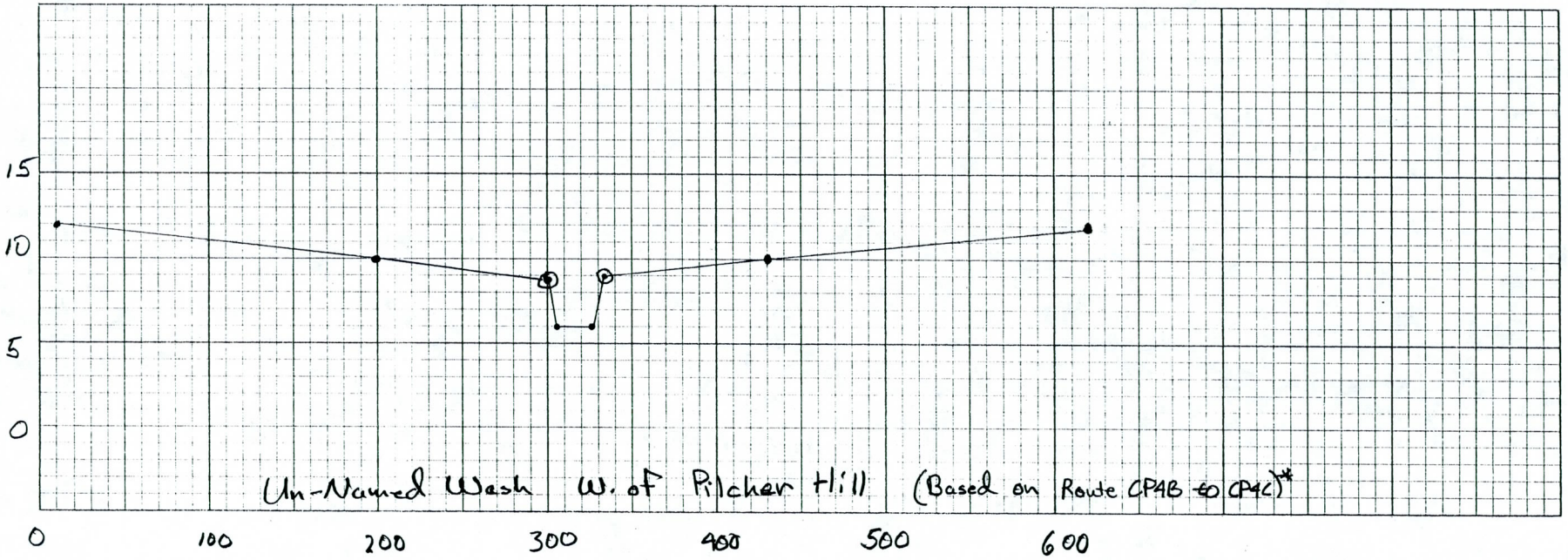


RS	1	FLOW	-1					
RC	0.04	0.03	0.04	6200	0.0647 an overall slope			
RX	120	130	350	460	580	590	720	770
RY	1298	1296	1294	1290	1290	1294	1296	1298

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)

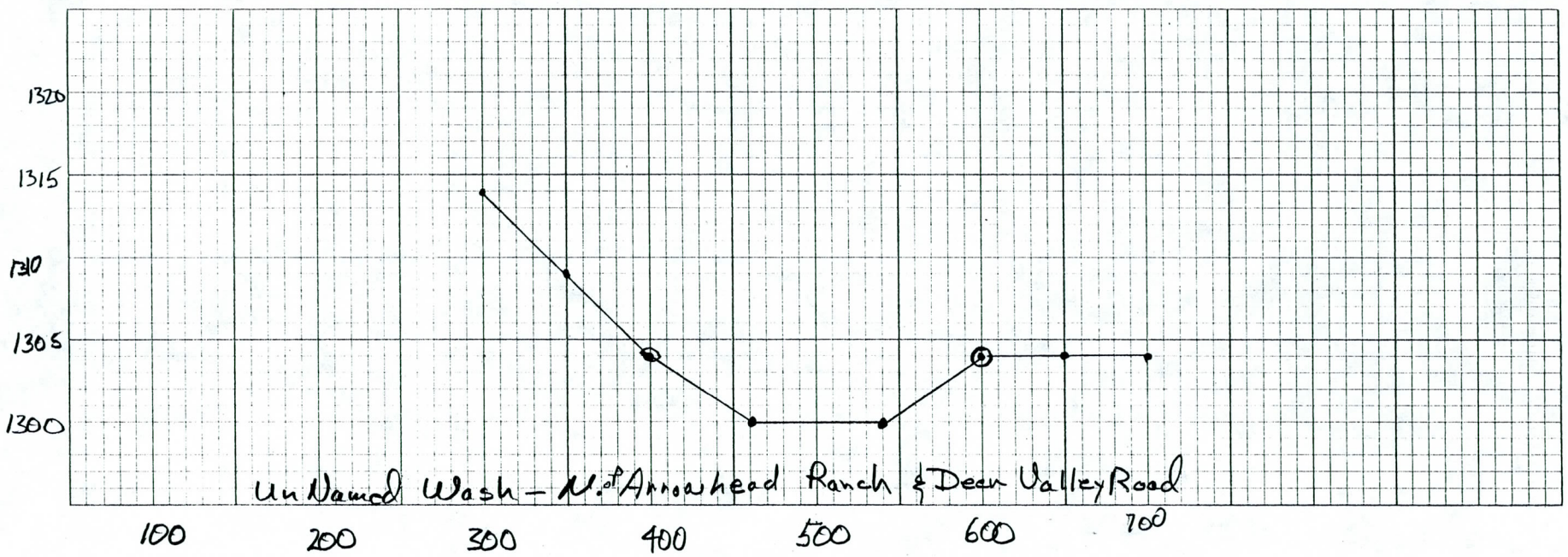
RS	1	Flow	-1					
RC	0.04	0.03	0.04	4400	0.01			
RX	10	200	300	306	316	322	420	620
RY	12	10	9	6	6	9	10	12

CALCULATED BY: DWD

9-27-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 400



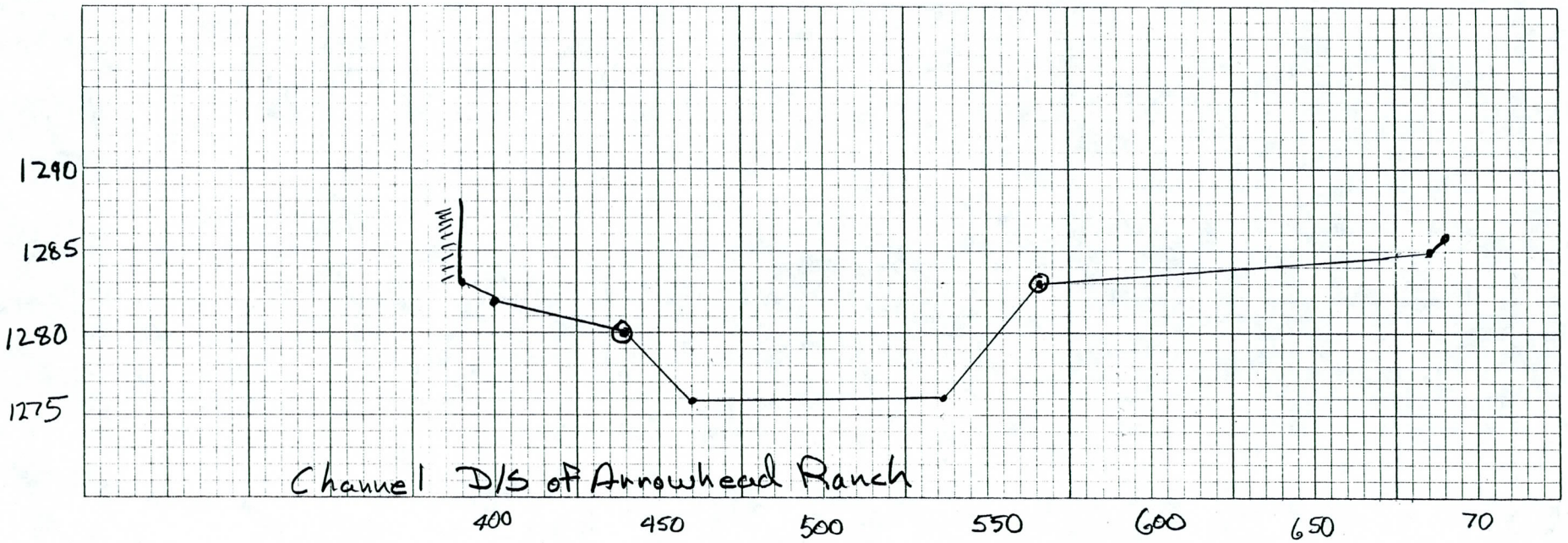
RS	1	Flow	-1					
RC	0.04	0.03	0.04	9600	0.0073			
RX	300	350	400	460	540	600	650	700
RY	1314	1309	1304	1300	1300	1304.	1304.	1304

CALCULATED BY: DWD

6-27-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 420

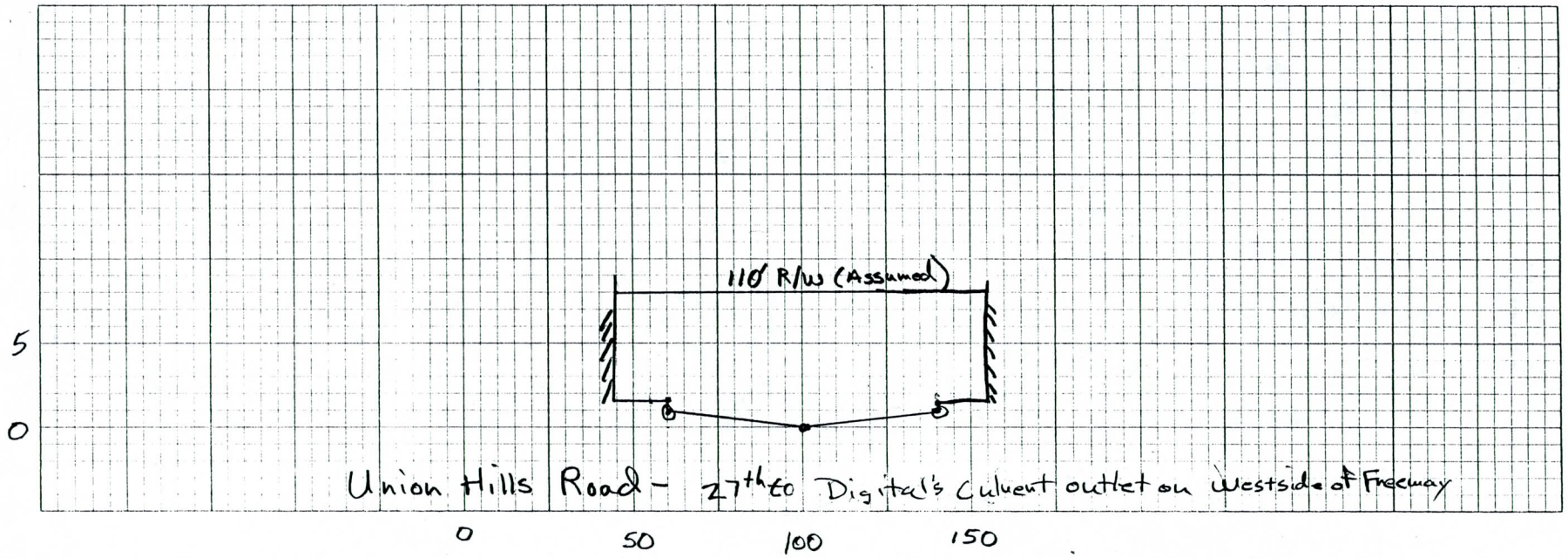


RS	1	FLOW	-1					
RC	0.03	0.03	0.03	4560	0.0025			
RX	390	400	440	460	536	566	686	690
RY	1283	1282	1280	1276	1276	1283	1285	1286

CALCULATED BY: DWD
C-27-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 435

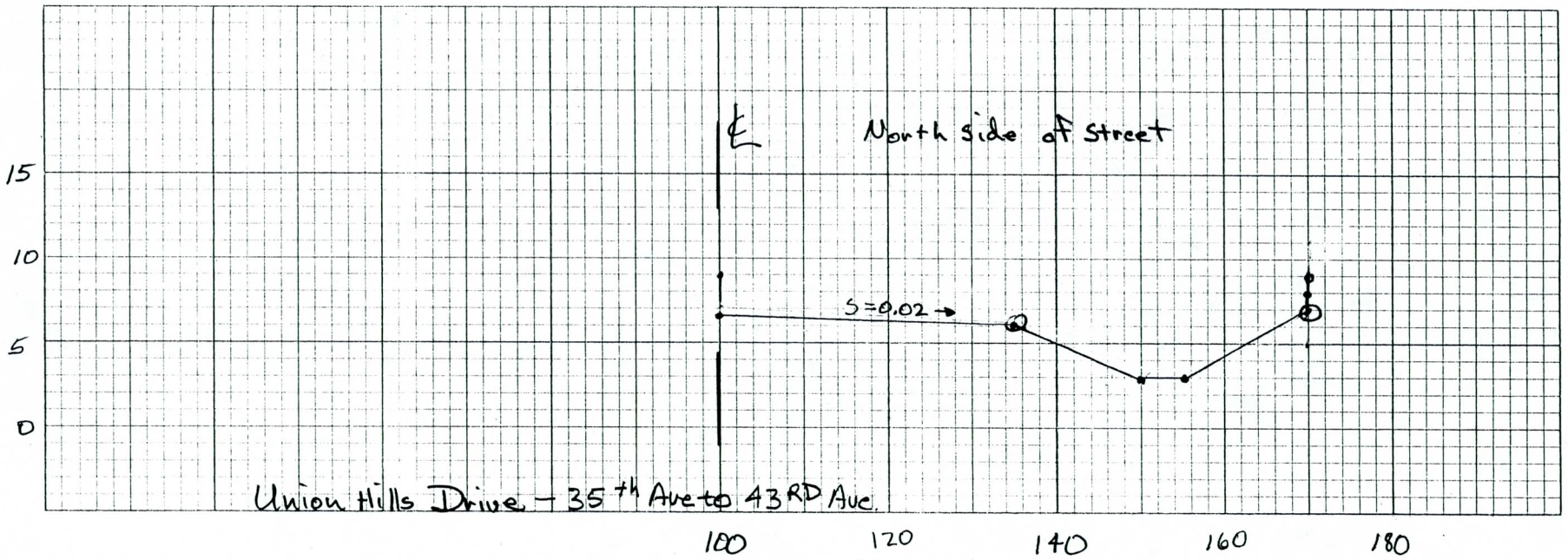


RS	1	FLOW	-1					
RC	0.025	0.02	0.025	6800	0.004	4		
RX	45	59.9	60	100	100.1	140	140.1	155
RY	1.5	1.5	1	0	0	1	1.5	1.5

CALCULATED BY: DWD
6-27-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 460



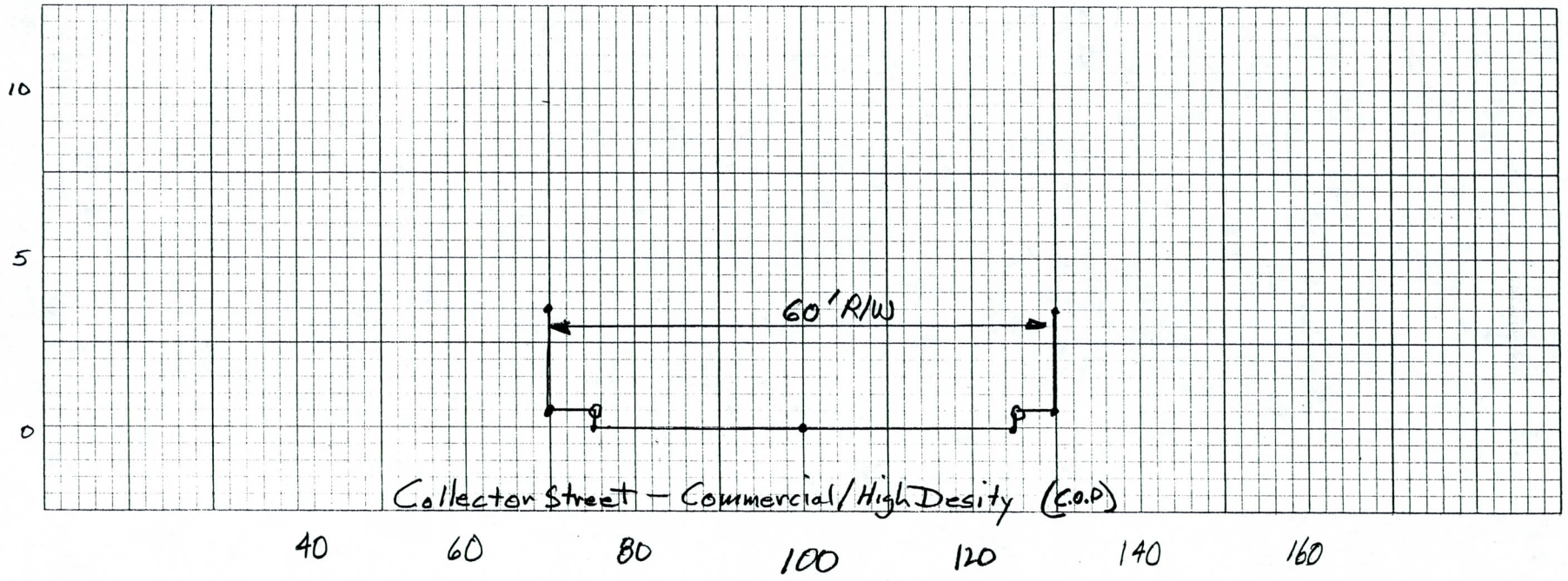
RS	1	Flow	-1					
RC	0.02	0.025	0.03	5280	0.004			
RX	99.9	100	135	150	155	170	170.1	170.2
RY	9	6.7	6	3	3	7	8	9

CALCULATED BY: DwD

6-28-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 470

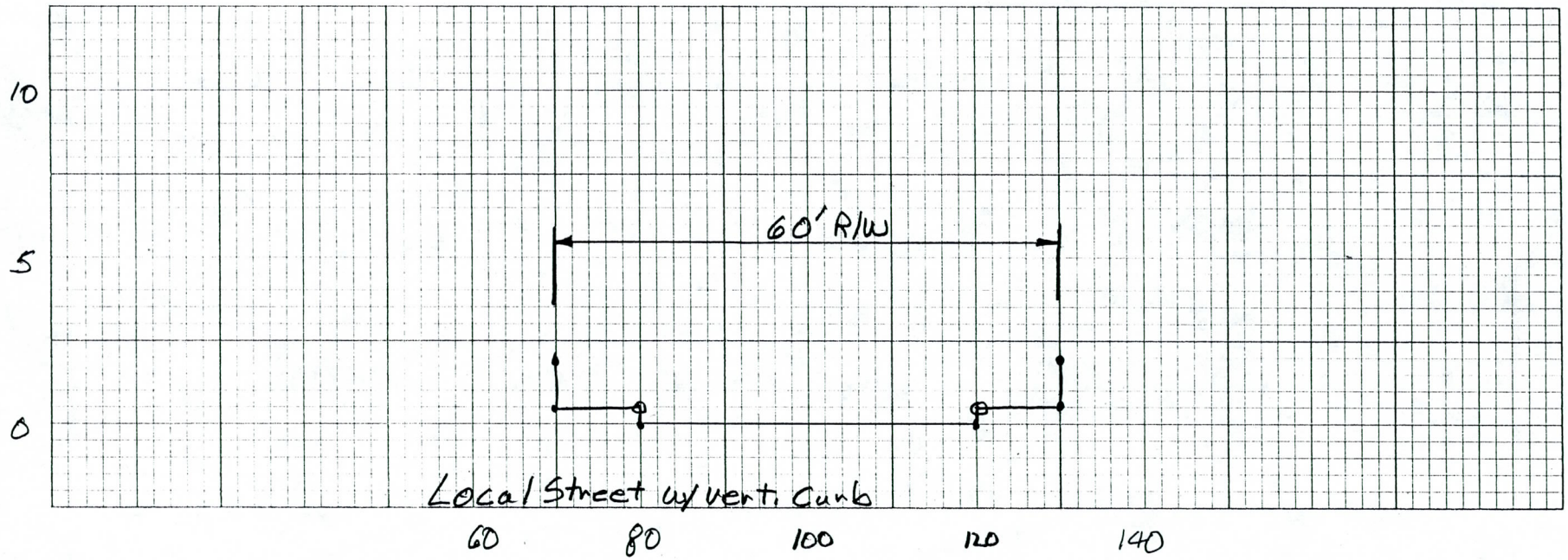


RS	1	Flow	-1					
RC	0.025	0.02	0.075	8200	0.0046			
RX	69.9	70	74.9	75	125	125.1	130	130.1
RY	3.5	0.5	0.5	0	0	0.5	0.5	3.5

CALCULATED BY: DWD

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 485

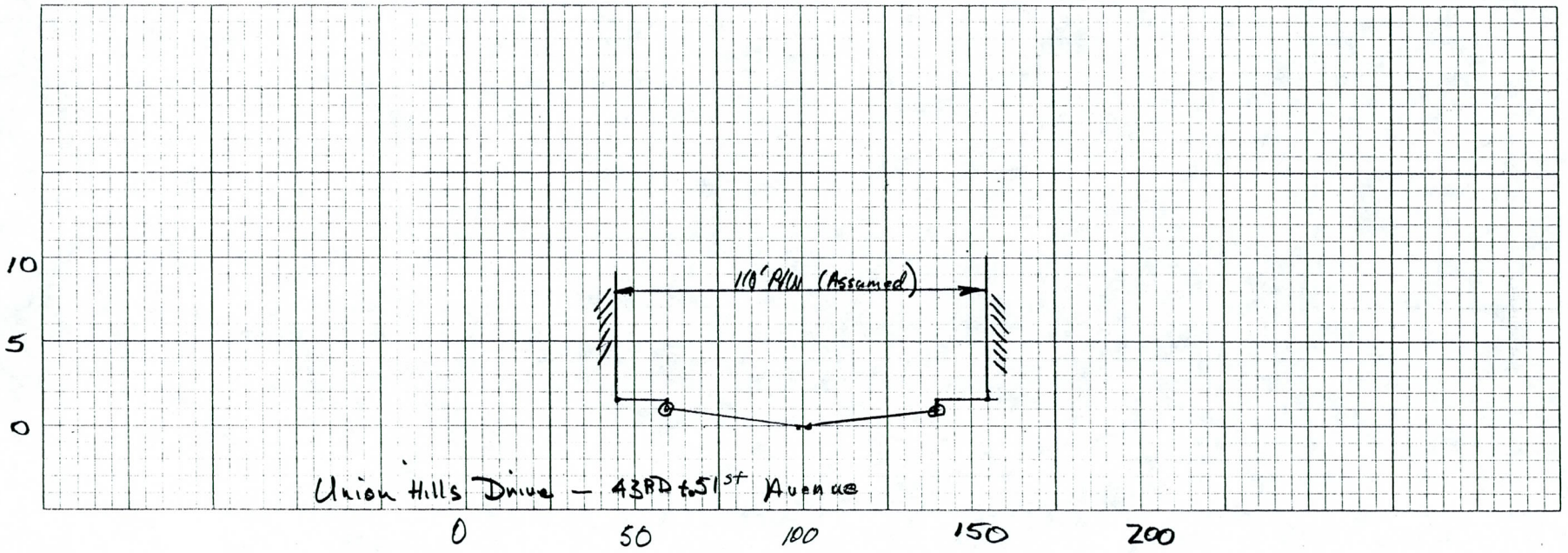


RS	1	FLOW	-1				
RC	0.025	0.02	0.025	10300	0.0038		← 5
RX	69.9	70	79.9	80	120	120.1	
RY	2	0.5	0.5	6	0	0.5	

CALCULATED BY: DWD

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 510



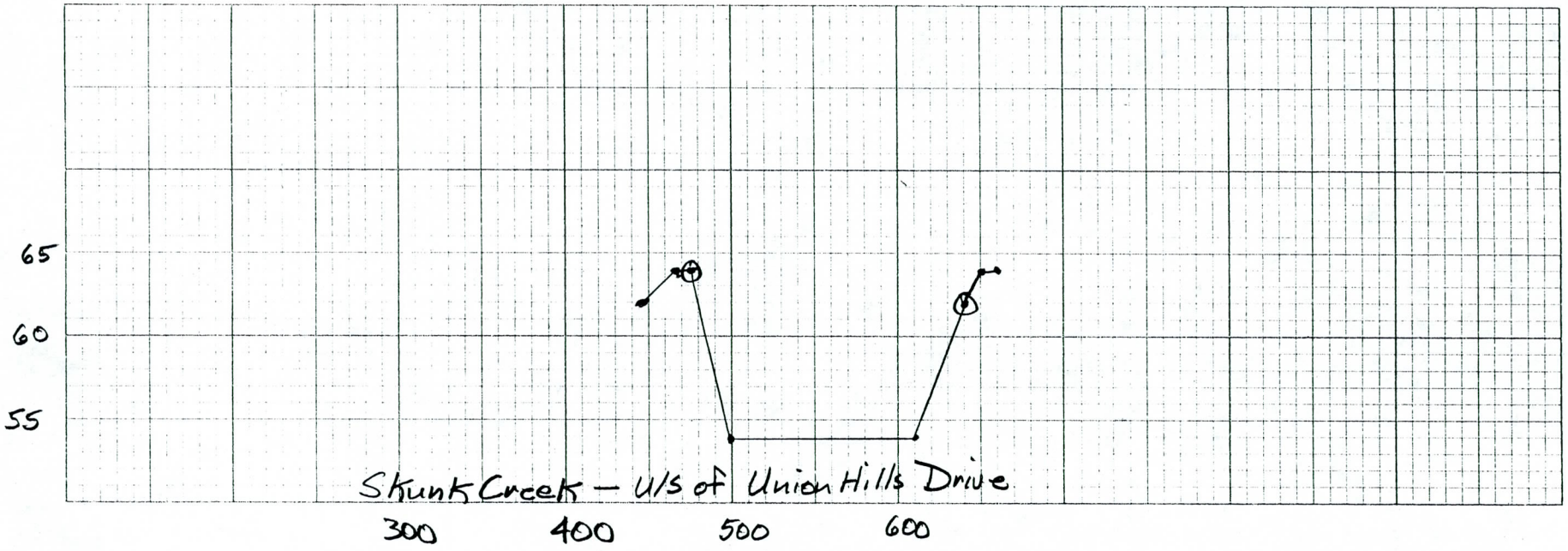
RS	1	FLOW	-1					
RC	0.025	0.02	0.025	7500	0.0042	4		
RX	45	59.9	60	100	100.1	140	140.1	155
RY	1.5	1.5	1	0	6	1	1.5	1.5

CALCULATED BY: DwD

6-28-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 540

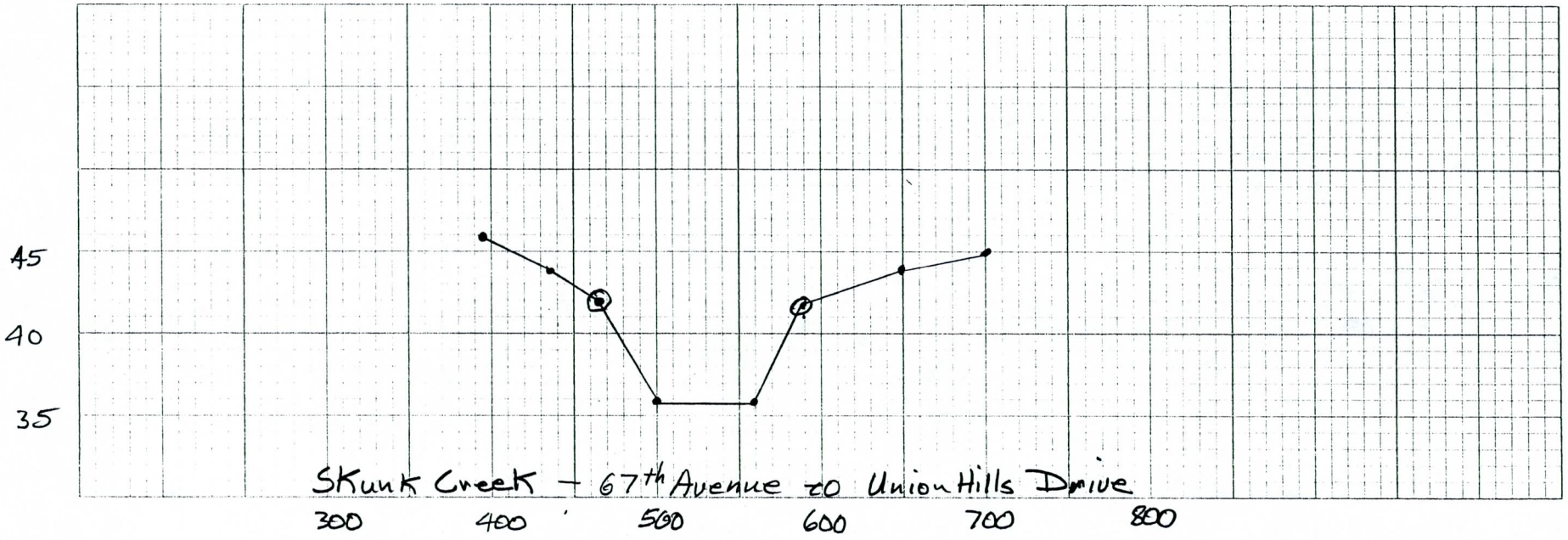


RS	1	FLOW	−1					
RC	0.04	0.03	0.04	3400	0.0056			
RX	445	465	475	500	610	640	650	660
RY	1262	1264	1264	1254	1254	1262	1269	1264

CALCULATED BY: DwD
6-28-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 555

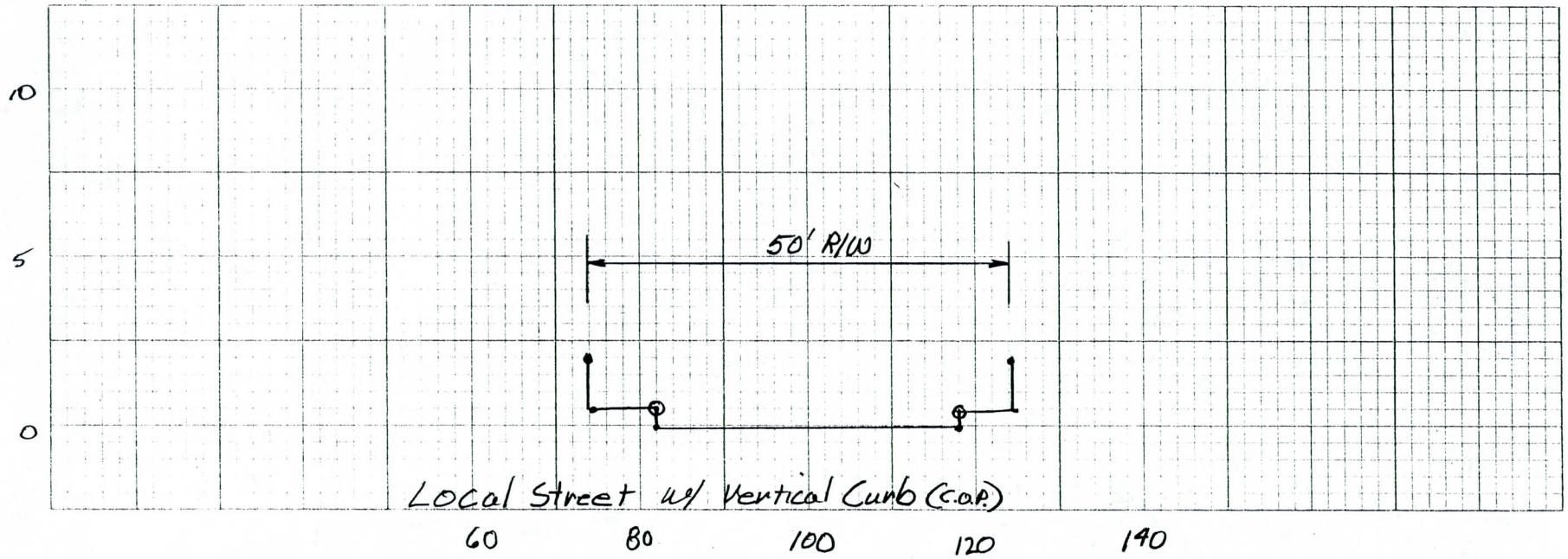


RS	1	FLOW	-1					
RC	0.04	0.03	0.04	5350	0.0039			
RX	395	435	465	500	560	590	650	700
RY	1246	1244	1242	1236	1236	1242	1244	1245

CALCULATED BY: DWD
6-28-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 575

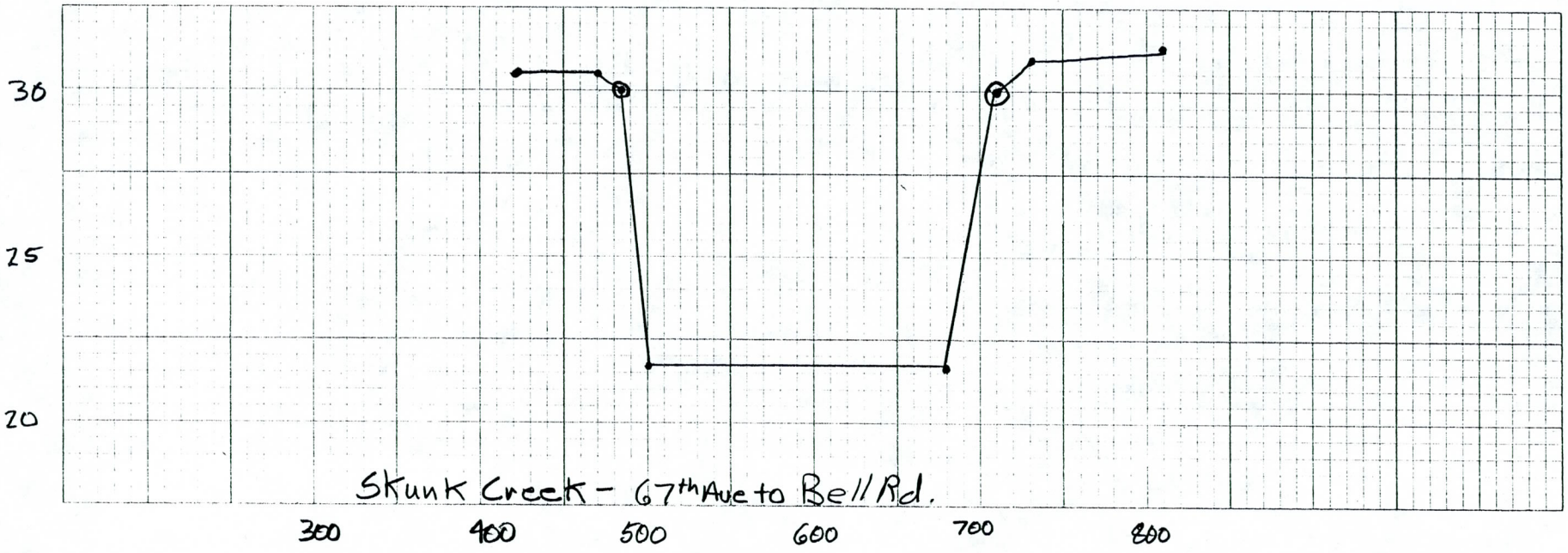


RS	1	FLOW	-1					
RC	0.03	0.02	0.03	6500	0.0044			
RX	74.9	75	81.9	82	118	118.1	125	125.1
RY	2	0.5	0.5	0	0	0.5	0.5	2

CALCULATED BY: DWD
6-28-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 590

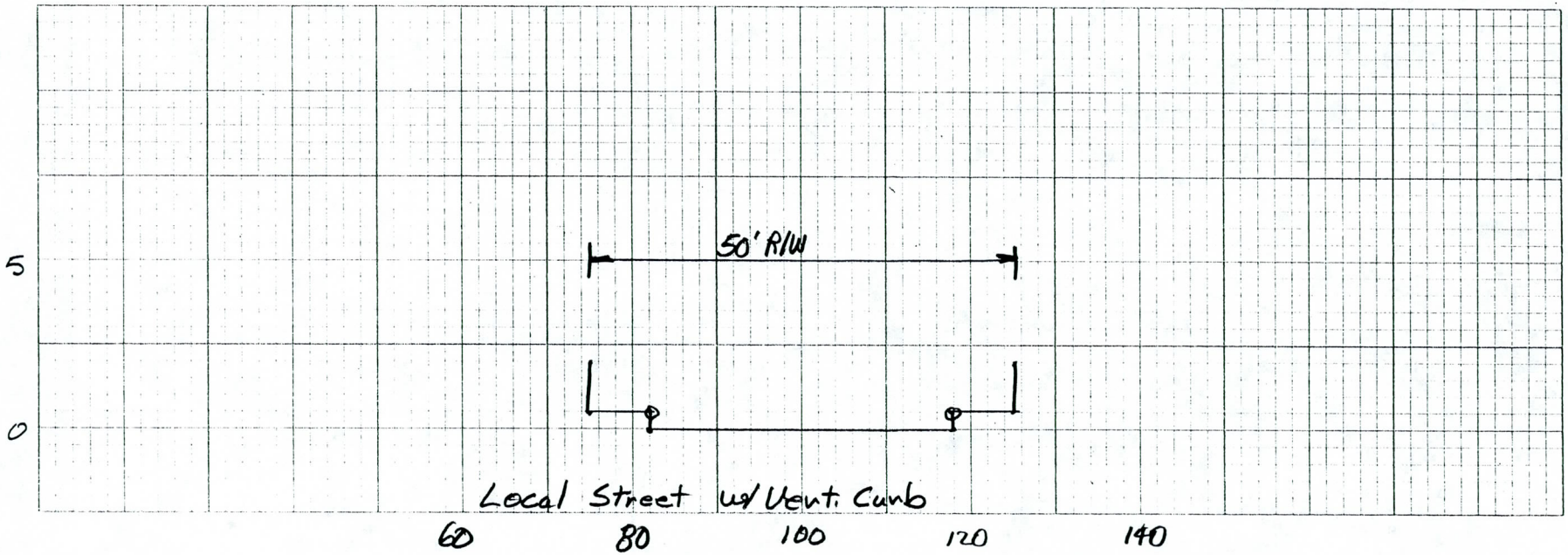


RS	1	FLOW	-1					
RC	0.04	0.03	0.04	4000	0.0075			
RX	370	470	485	500	680	710	730	810
RY	1231	1231	1230	1223.5	1223.5	1230	1232	1232.5

CALCULATED BY: DwD
6-28-90

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 605

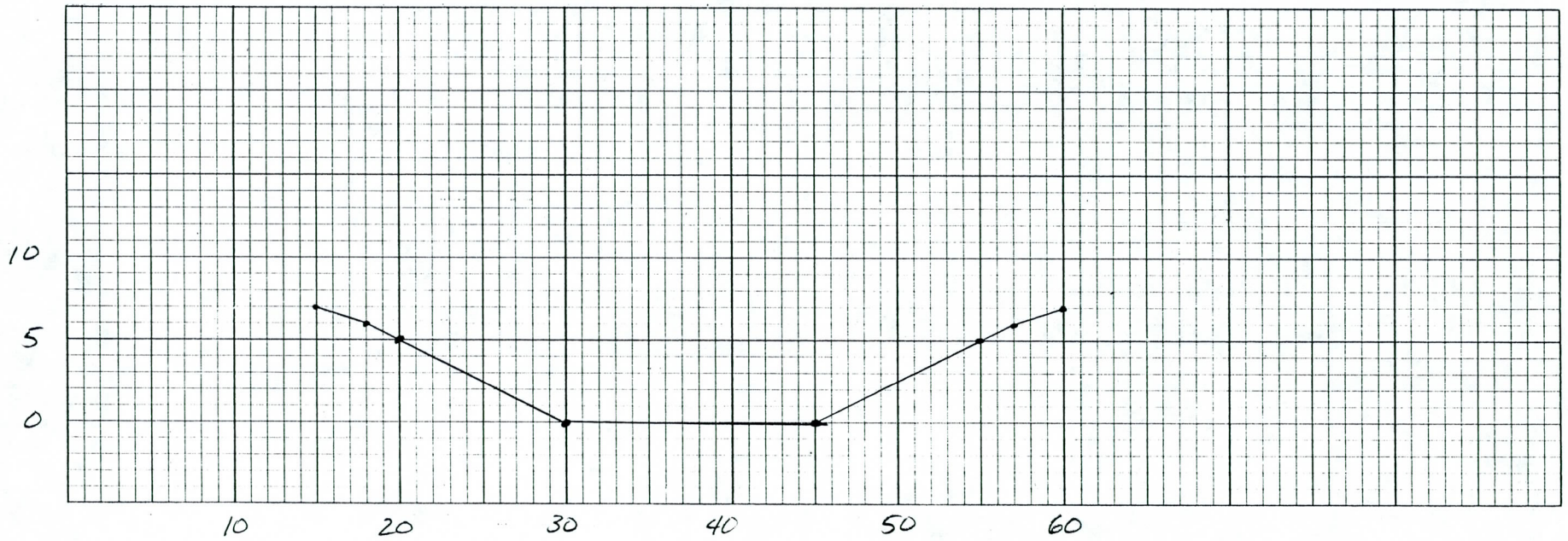


RS	1	FLOW	-1					
RC	0.03	0.02	0.03	2500	0.006			
RX	74.9	75	81.9	82	118	118.1	125	125.1
RY	2	0.5	0.5	0	0	0.5	0.5	2

CALCULATED BY: DwD
6-28-90

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 625

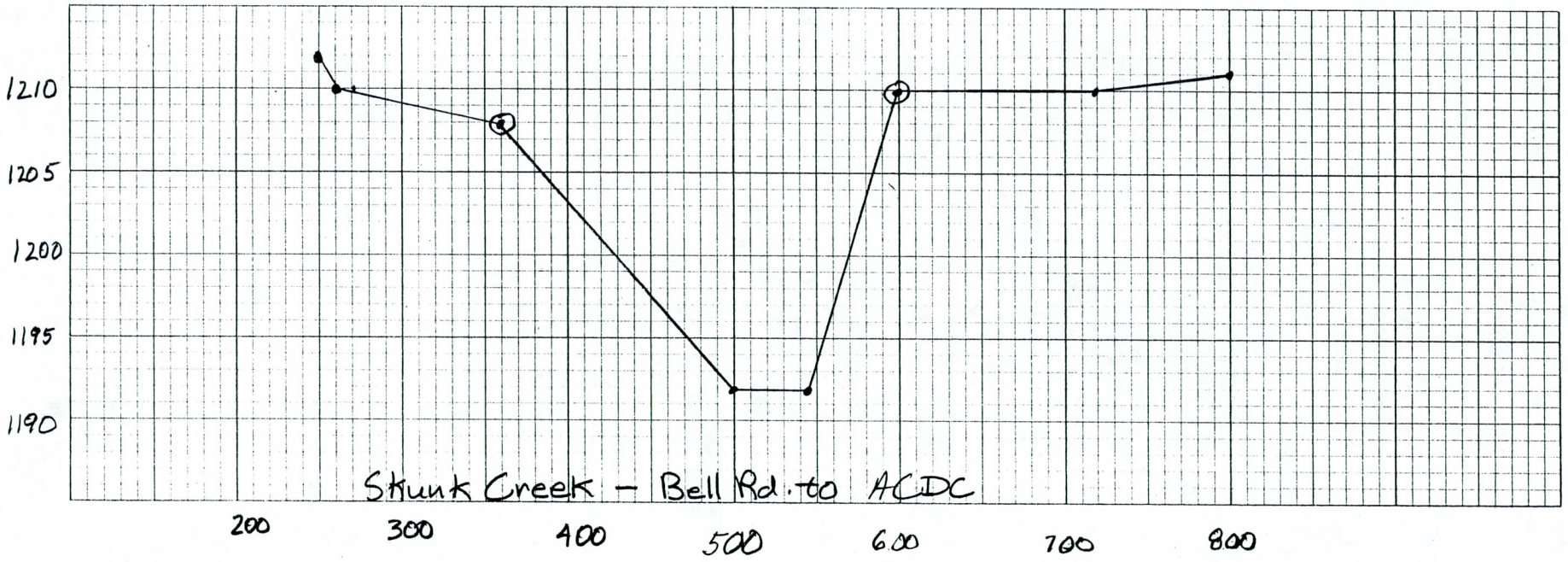


RS	1	FLOW	-1					
RC	.03	.03	.03	4500	.0022			
RX	15	18	20	30	45	55	57	60
RY	7	6	5	0	0	5	6	7

CALCULATED BY: AJR

NORMAL DEPTH CHANNEL ROUTE COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 645



RS	1	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

DIVERT 450

IRREGULAR CHANNEL ANALYSIS
NORMAL DEPTH COMPUTATION

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.

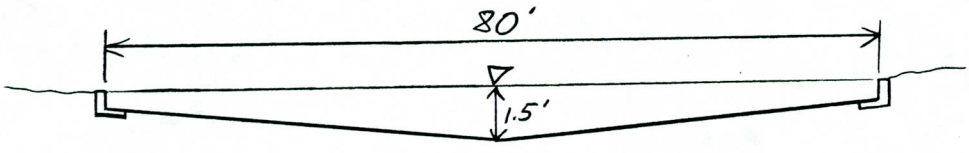
==========

PROGRAM DATA:

FLOW RATE (cfs)	469.9
CHANNEL BOTTOM SLOPE (ft/ft)	0.0063
MANNINGS ROUGHNESS COEFFICIENT (n-value)	0.0200
NORMAL DEPTH (ft)	1.50
FLOW VELOCITY (fps)	5.87
VELOCITY HEAD (ft)	0.54
ENERGY HEAD (ft)	2.04
AREA OF FLOW (sq ft)	80.03
WETTED PERIMETER (ft)	80.53
CRITICAL DEPTH (ft)	1.51
FROUDE NUMBER	1.04

==========

PT#	STATION	ELEVATION	n VALUE
1.000	59.900	1.500	0.020
2.000	60.000	1.000	0.020
3.000	100.000	0.000	0.020
4.000	140.000	1.000	0.020
5.000	140.100	1.500	0.000



DIVERT 500

IRREGULAR CHANNEL ANALYSIS
NORMAL DEPTH COMPUTATION

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

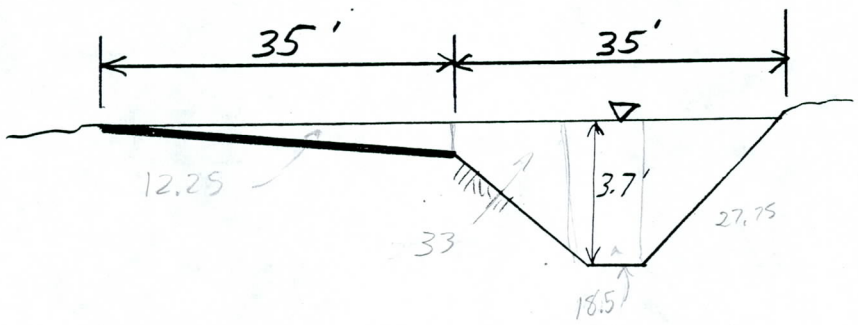
==========

PROGRAM DATA:

FLOW RATE (cfs)	553.1
CHANNEL BOTTOM SLOPE (ft/ft)	0.0050
MANNINGS ROUGHNESS COEFFICIENT (n-value)	0.0250
NORMAL DEPTH (ft)	3.70
FLOW VELOCITY (fps)	7.17
VELOCITY HEAD (ft)	0.80
ENERGY HEAD (ft)	4.50
AREA OF FLOW (sq ft)	77.17
WETTED PERIMETER (ft)	34.66
CRITICAL DEPTH (ft)	4.00
FROUDE NUMBER	1.19

==========

PT#	STATION	ELEVATION	n VALUE
1.000	100.000	6.700	0.020
2.000	135.000	6.000	0.025
3.000	150.000	3.000	0.025
4.000	155.000	3.000	0.025
5.000	170.000	7.000	0.000



DIVERT 530

IRREGULAR CHANNEL ANALYSIS
NORMAL DEPTH COMPUTATION

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

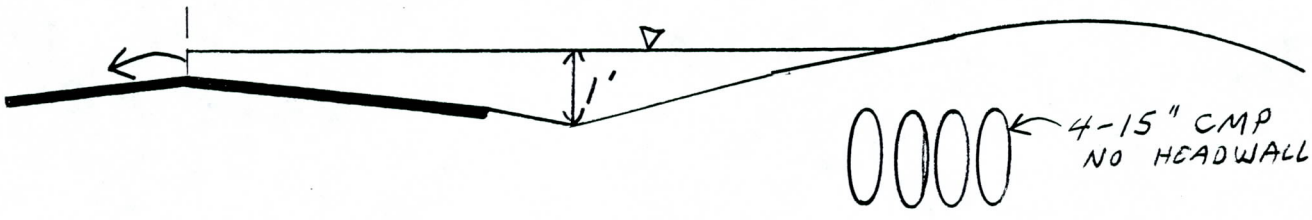
==========

PROGRAM DATA:

FLOW RATE (cfs)	43.6
CHANNEL BOTTOM SLOPE (ft/ft)	0.0034
MANNINGS ROUGHNESS COEFFICIENT (n-value)	0.0283
NORMAL DEPTH (ft)	1.00
FLOW VELOCITY (fps)	2.15
VELOCITY HEAD (ft)	0.07
ENERGY HEAD (ft)	1.07
AREA OF FLOW (sq ft)	20.25
WETTED PERIMETER (ft)	34.35
CRITICAL DEPTH (ft)	0.76
FROUDE NUMBER	0.49

==========

PT#	STATION	ELEVATION	n VALUE
1.000	0.000	2.000	0.020
2.000	0.100	1.000	0.020
3.000	15.000	0.700	0.035
4.000	20.000	0.400	0.035
5.000	30.000	1.000	0.035
6.000	40.000	2.000	0.000



Capacity of pipes is 6 cfs each.

Total capacity of section is 68 cfs

DIVERT 570

IRREGULAR CHANNEL ANALYSIS
NORMAL DEPTH COMPUTATION

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

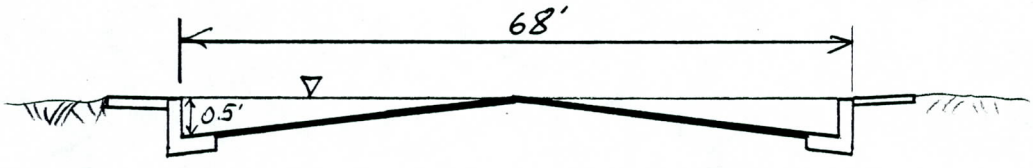
==========

PROGRAM DATA:

FLOW RATE (cfs)	12.4
CHANNEL BOTTOM SLOPE (ft/ft)	0.0025
MANNINGS ROUGHNESS COEFFICIENT (n-value)	0.0200
NORMAL DEPTH (ft)	0.50
FLOW VELOCITY (fps)	1.46
VELOCITY HEAD (ft)	0.03
ENERGY HEAD (ft)	0.53
AREA OF FLOW (sq ft)	8.50
WETTED PERIMETER (ft)	34.41
CRITICAL DEPTH (ft)	0.30
FROUDE NUMBER	0.73

==========

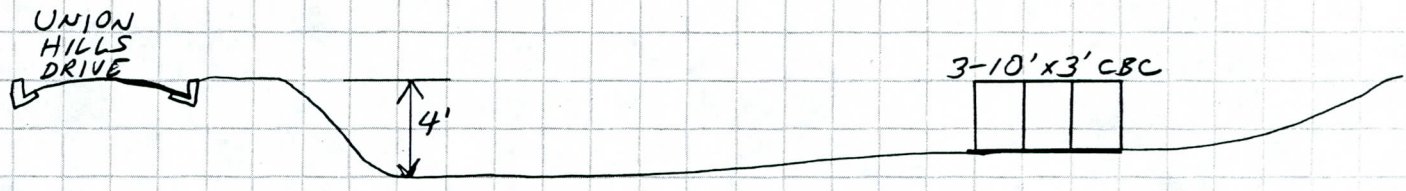
PT#	STATION	ELEVATION	n VALUE
1.000	0.000	1.000	0.020
2.000	0.100	0.500	0.020
3.000	34.000	1.000	0.020
4.000	67.900	0.500	0.020
5.000	68.000	1.000	0.000



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)	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  07/27/1990  TIME  15:54:10 *
*                                       *
*****************************************
```


```
*****************************************
*                                       *
*     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 BY THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
  3       ID   BY COE & VAN LOO CONSULTING ENGINEERS, INC.
  4       ID   JULY 1990   JM/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    .717    .234
 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      1    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   1.033    .511
  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      1    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   1.183    .637
  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    .617    .306
  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       1    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   1.033    .831
 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   1.167    .633
 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       1    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      1    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   1.067    .590
  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      1    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      76
  179     SE    3.8       4       6       8      10      11      12      13    13.7      14
  180     SQ      0       1     176     414     680     880    1091    1593    2678    3746
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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    .533   .328
  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      1   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   .650   .731
  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
  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   .020 80.000
  253         UC   .567   .484
  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
  261         KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  262         KM   DI REPRESENTS TOTAL FLOW TO DEPRESSED INTERCHANGE AT DEER VALLEY RD.
  263         DT   210D
  264         DI     0      1    156    157   1000   3000
  265         DQ     0      1    156    156    156    156
```

```
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
  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       1    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    .233    .172
  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       1    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
  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      1    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    .230  26.000
  317     UC   1.100    .538
  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    .240  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      1    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      1    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   1.100    .744
  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      1    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    .350  11.000
  372     UC   1.317   1.192
  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 PER COMPUTATION
  380     KM   SOURCE:
  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      1    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     KM    .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     1    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   .317   .127
  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     1    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     1    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  1.033    .507
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     1    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   .800    .302
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     1    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 OF375S (55TH AVENUE CHANNEL)
  519     RS      1    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   1.418
  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      90     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   27TH AVENUE TO DIGITAL'S CULVERT OUTLET ON WEST SIDE OF I-17
549       RS       1    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    .817    .520
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   CAPACITY OF UNION HILLS DRIVE INVERTED CROWN SECTION IS 470 CFS
565       KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN I-17 AND 35TH AVENUE
566       DT    455D
567       DI       0     100     300     470     500    1000    2000
568       DQ       0       0       0       0      30     530    1530

569       KK    460R
570       KM   ROUTE 450D TO CP OF 490S ALONG UNION HILLS DRIVE - 35TH TO 43RD AVENUE
571       RS       1    FLOW      -1
572       RC     .02    .025     .03    5280    .004
573       RX    99.9     100     135     150     155     170   170.1   170.2
574       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

  575     KK   465S
  576     KM   SUB-BASIN 465
  577     BA   1.361
  578     LG    .140    .310   9.100    .100  57.000
  579     UC   1.100    .718
  580     UA      0       5      16      30      65      77      84      90      94      97
  581     UA    100

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

  588     KK   475S
  589     KM   SUB-BASIN 475
  590     BA   .596
  591     LG    .290    .310  10.500    .030  18.000
  592     UC    .767    .484
  593     UA      0       3       5       8      12      20      43      75      90      96
  594     UA    100

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

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

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

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

  614     KK   500D
  615     KM   CAPACITY OF THE UNION HILLS DIRVE AND CHANNEL IS 550 CFS
  616     KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 35TH AVENUE AND
  617     KM   43RD AVENUE
  618     DT   505D
  619     DI      0     100     300     550     600    1000    2000
  620     DQ      0       0       0       0      50     450    1450
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  621     KK   510R
  622     KM   ROUTE 500D TO CP OF 515S ALONG UNION HILLS DRIVE - 43RD TO 51ST AVENUE
  623     RS     1    FLOW     -1
  624     RC  .025    .02    .025    7500   .0042       4
  625     RX   45    59.9     60     100    100.1     140   140.1     155
  626     RY  1.5     1.5      1       0        0       1     1.5     1.5

  627     KK   515S
  628     KM   SUB-BASIN 515
  629     BA   .476
  630     LG   .120    .340   4.600    .340  32.000
  631     UC   .933    .837
  632     UA     0       5      16      30      65      77      84      90      94      97
  633     UA   100

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

  637     KK   530D
  638     KM   CAPACITY OF UNION HILLS DRIVE AND 4-15" CULVERTS IS 68 CFS
  639     KM   THE REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 43RD AVENUE AND
  640     KM   55TH AVENUE
  641     DT   525D
  642     DI     0      68     100     500    1000    2000
  643     DQ     0       0      32     432     932    1932

  644     KK   535C
  645     KM   COMBINE 370R, 375S, 420R & 530RD @ CP OF 375S
  646     HC     4    19.9

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

  653     KK   545S
  654     KM   SUB-BASIN 545
  655     BA   .296
  656     LG   .310    .330   4.000    .340  15.000
  657     UC   .817    .544
  658     UA     0       3       5       8      12      20      43      75      90      96
  659     UA   100

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

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

  669         KK   560S
  670         KM   SUB-BASIN 560
  671         BA   .190
  672         LG   .150    .350   4.400    .350  21.000
  673         UC   .567    .425
  674         UA      0       5      16      30      65      77      84      90      94      97
  675         UA    100

  676         KK   565D
  677         KM   CAPACITY OF 59TH AVENUE IS 12 CFS.
  678         KM   THIS IS DIVERTED OUT OF THE WATERSHED (DQ)
  679         DT   570D
  680         DI      0      12      50     100     500    1000
  681         DQ      0      12      12      12      12      12

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

  688         KK   580S
  689         KM   SUB-BASIN 580
  690         BA   .914
  691         LG   .200    .340   4.500    .340  25.000
  692         UC   .867    .384
  693         UA      0       5      16      30      65      77      84      90      94      97
  694         UA    100

  695         KK   585C
  696         KM   COMBINE 555R, 575R AND 580S AT CP OF 580S
  697         HC      3

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

  704         KK   595S
  705         KM   SUB-BASIN 595
  706         BA   .302
  707         LG   .190    .340   4.500    .340  13.000
  708         UC  1.500   1.588
  709         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

 710      UA     100

 711      KK    600S
 712      KM    SUB-BASIN 600
 713      BA    1.027
 714      LG     .440    .250   5.500    .330   8.000
 715      UC    1.500    .874
 716      UA        0       3       5       8      12      20      43      75      90      96
 717      UA      100

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

 724      KK    610S
 725      KM    SUB-BASIN 610
 726      BA     .690
 727      LG     .210    .270   6.800    .300  19.000
 728      UC     .950    .533
 729      UA        0       5      16      30      65      77      84      90      94      97
 730      UA      100

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

 736      KK    620C
 737      KM    COMBINE 605R AND 615RET AT CP OF 610S
 738      HC       2

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

 745      KK    630S
 746      KM    SUB-BASIN 630
 747      BA     .336
 748      LG     .170    .320   5.200    .320  19.000
 749      UC     .783    .608
 750      UA        0       5      16      30      65      77      84      90      94      97
 751      UA      100
```

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

  752     KK    635C
  753     KM   COMBINE 625R AND 630S AT CP OF 630S
  754     HC       2

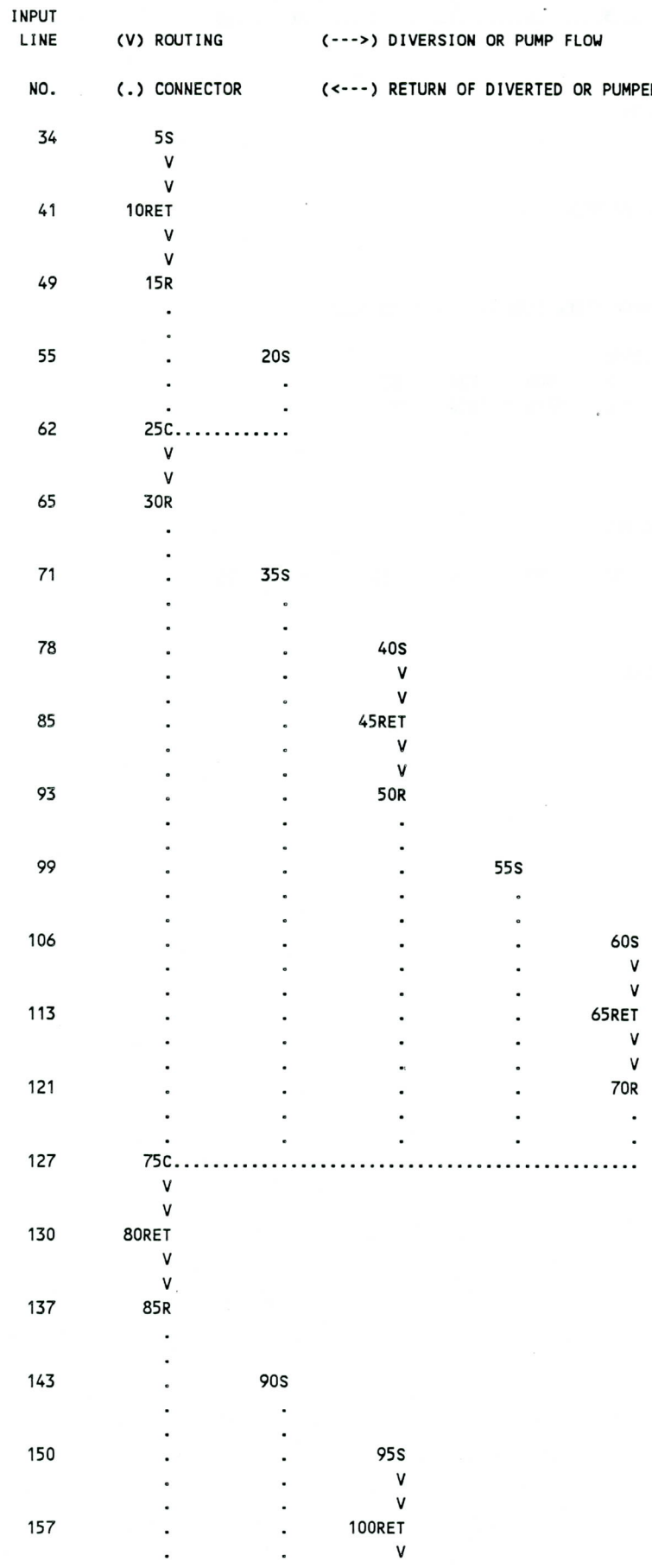
  755     KK    640C
  756     KM   COMBINE 540R, 595S AND 635C AT CP OF 595S
  757     HC       3

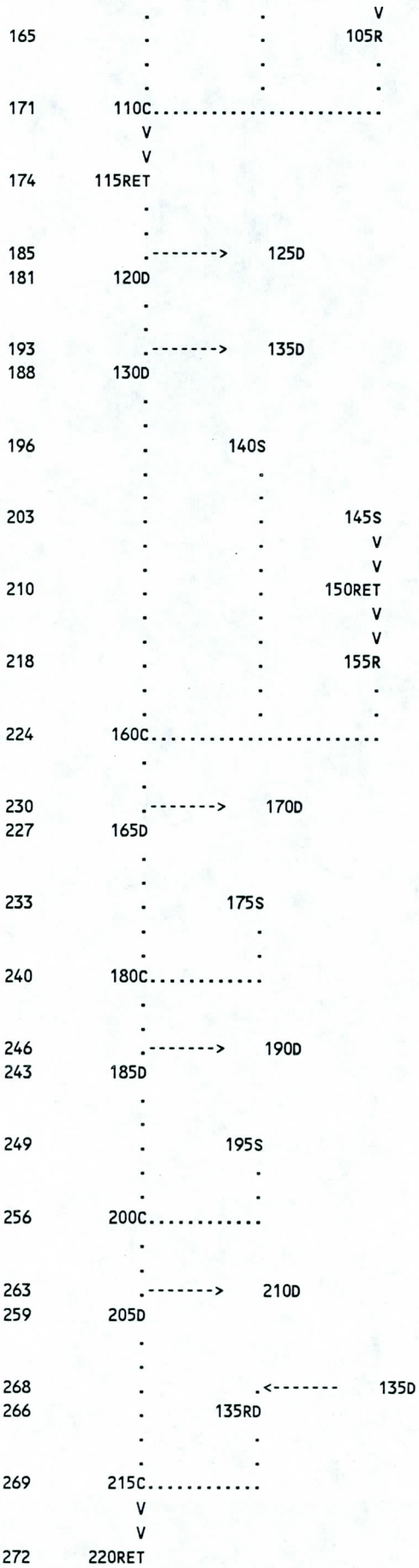
  758     KK    645R
  759     KM   ROUTE 585C TO CP OF 595S ALONG SKUNK CREEK FROM BELL ROAD TO ACDC
  760     RS       1    FLOW      -1
  761     RC     .04     .03     .04    3500   .0068
  762     RX     250     260     360     500     545     600     720     800
  763     RY    1212    1210    1208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

  764     KK    650S
  765     KM   SUB-BASIN 650
  766     BA    .125
  767     LG    .340    .350   3.700    .350   4.000
  768     UC    .683    .527
  769     UA       0       3       5       8      12      20      43      75      90      96
  770     UA     100

  771     KK    655C
  772     KM   COMBINE 645R AND 650S AT CP OF 650S
  773     HC       2
  774     ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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174 115RET
185 125D
181 120D
193 135D
188 130D
196 140S
203 145S
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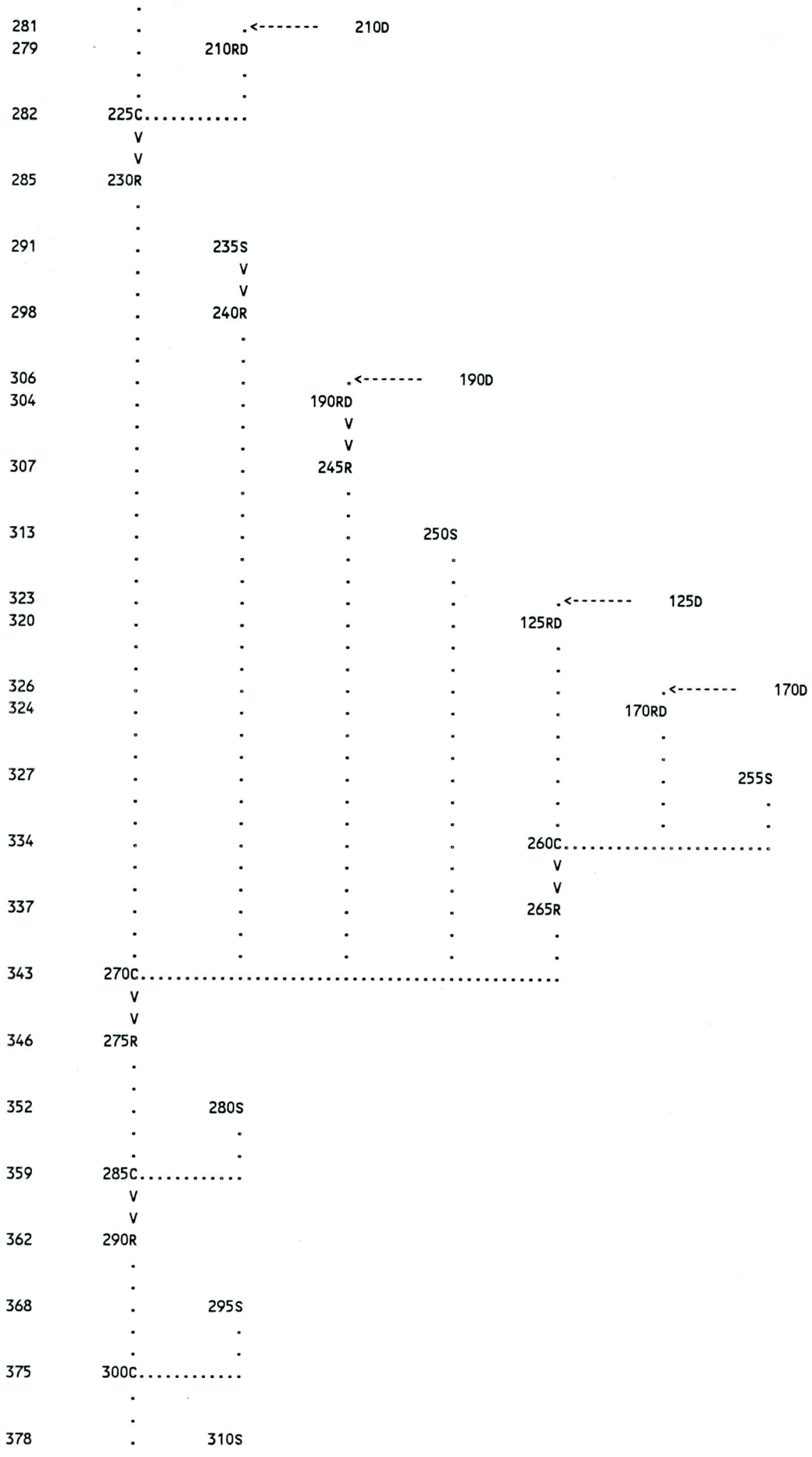
218 155R
224 160C
230 170D
227 165D
233 175S
240 180C
246 190D
243 185D
249 195S
256 200C
263 210D
259 205D
268 135D
266 135RD
269 215C
272 220RET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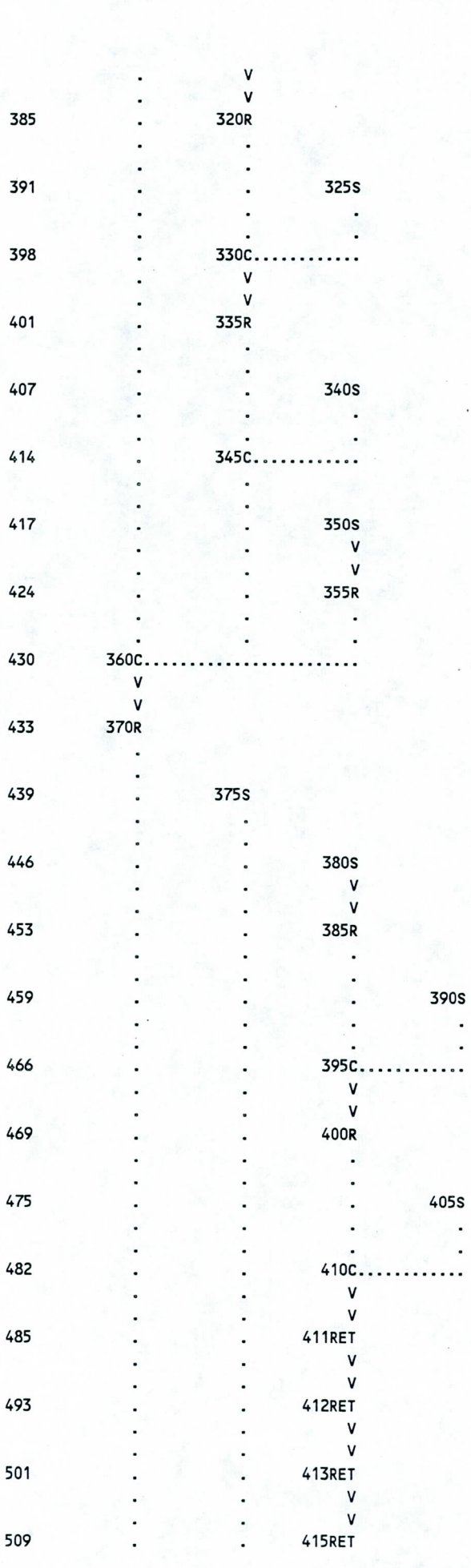
362
368
375
378
210D
210RD
225C
230R
235S
240R
190D
190RD
245R
250S
125D
125RD
170D
170RD
255S
260C
265R
270C
275R
280S
285C
290R
295S
300C
310S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330C
401
335R
407
340S
414
345C
417
350S
424
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360C
433
370R
439
375S
446
380S
453
385R
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390S
466
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475
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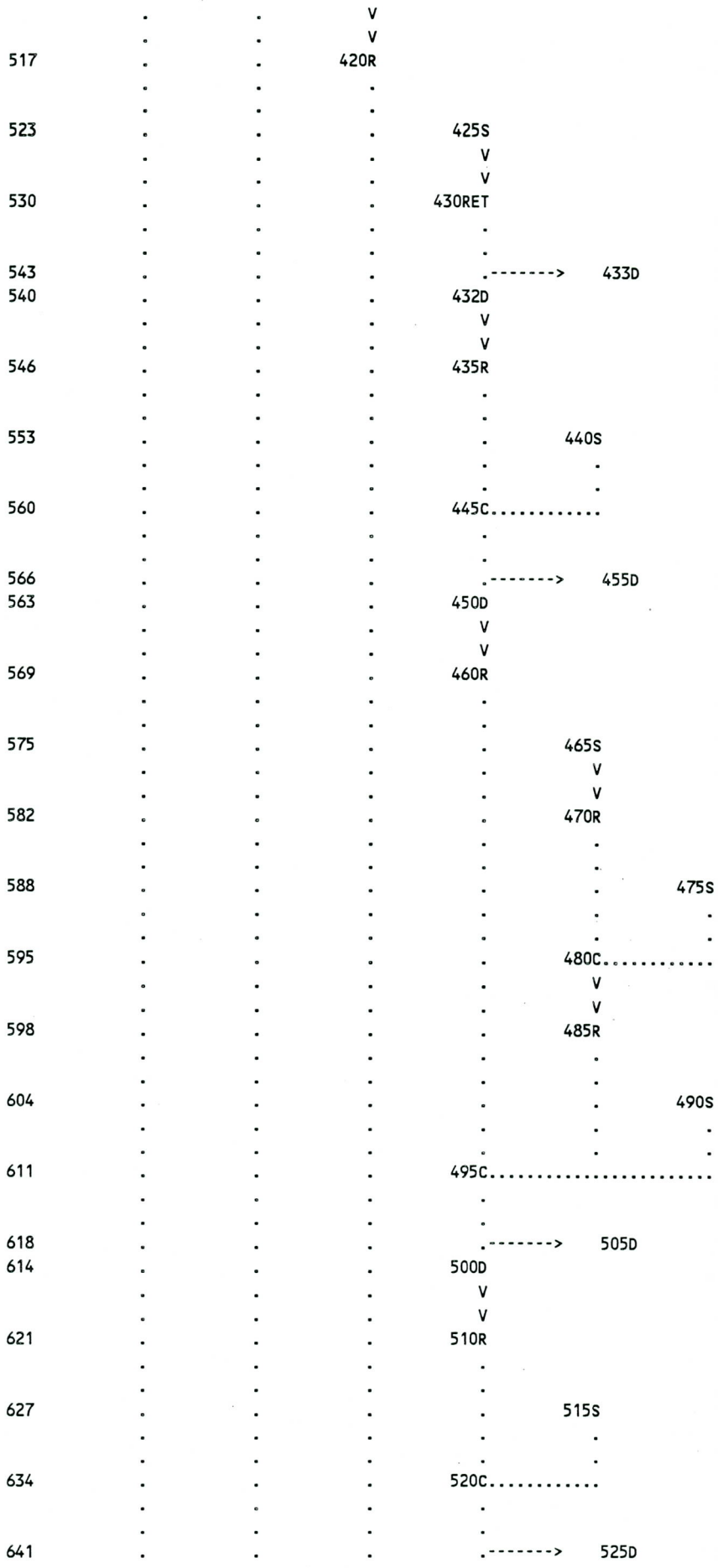
482
410C
485
411RET
493
412RET
501
413RET
509
415RET


V
V
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523 425S
V
V
530 430RET
543 433D
540 432D
V
V
546 435R
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563 450D
V
V
569 460R
575 465S
V
V
582 470R
588 475S
595 480C
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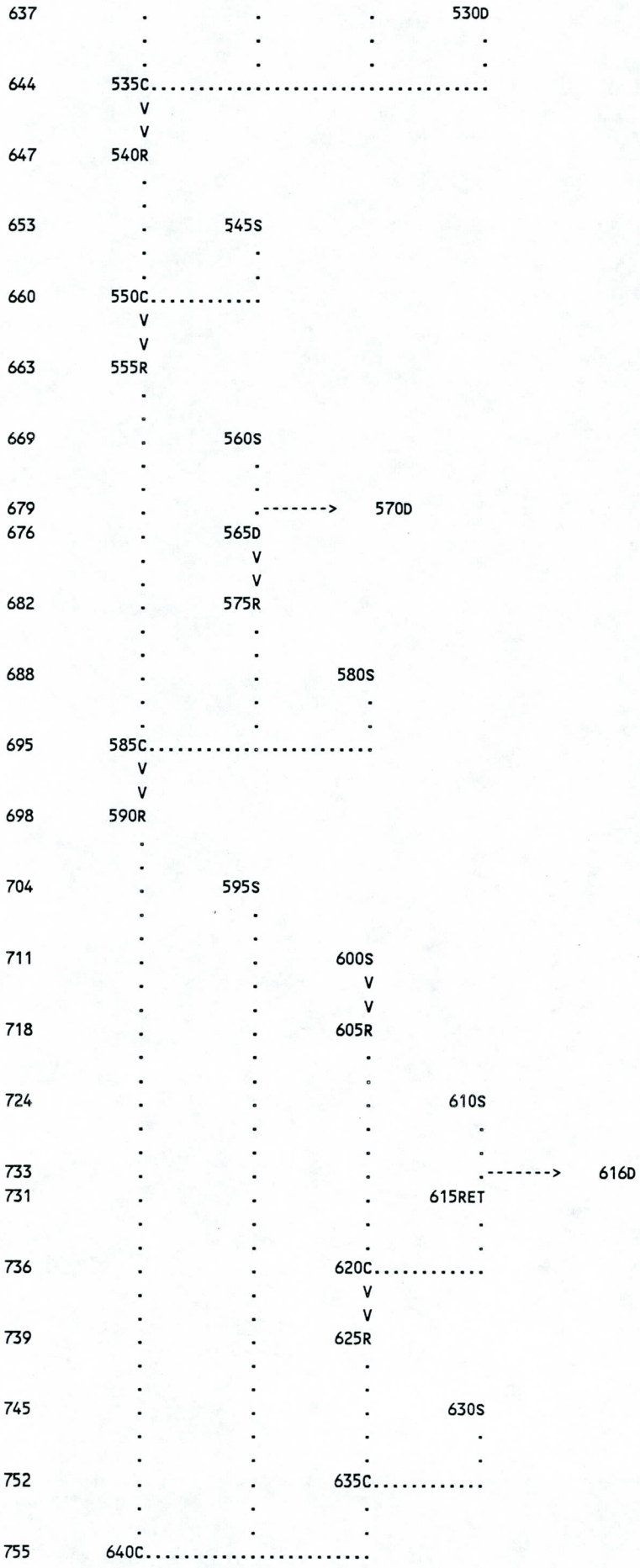
V
V
621 510R
627 515S
634 520C
641 525D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682
575R
688
580S
695
585C
698
590R
704
595S
711
600S
718
605R
724
610S
733
616D
731
615RET
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620C
739
625R
745
630S
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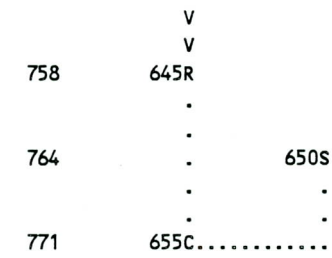
635C
755
640C



(***) 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  07/27/1990  TIME  15:54:10 *
*                                       *
*****************************************
```


```
*****************************************
*                                       *
*     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 BY THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
BY COE & VAN LOO CONSULTING ENGINEERS, INC.
JULY 1990 JM/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
```

```
                .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
```

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	944.	4.45	104.	42.	42.	1.33		
ROUTED TO	10RET	76.	5.20	70.	41.	41.	1.33	15.25	5.05
ROUTED TO	15R	75.	6.20	69.	40.	40.	1.33	.37	5.75
HYDROGRAPH AT	20S	521.	4.75	86.	34.	34.	1.38		
2 COMBINED AT	25C	465.	4.80	135.	66.	66.	2.71		
ROUTED TO	30R	350.	5.15	132.	65.	65.	2.71	.25	6.65
HYDROGRAPH AT	35S	406.	4.85	78.	31.	31.	1.51		
HYDROGRAPH AT	40S	504.	4.40	56.	22.	22.	.55		
ROUTED TO	45RET	37.	5.30	35.	22.	22.	.55	15.30	5.05
ROUTED TO	50R	36.	7.15	34.	21.	21.	.55	.22	6.15
HYDROGRAPH AT	55S	177.	4.75	37.	15.	15.	.59		
HYDROGRAPH AT	60S	506.	4.85	104.	42.	42.	1.20		
ROUTED TO	65RET	87.	6.15	79.	42.	42.	1.20	15.47	5.40
ROUTED TO	70R	85.	6.95	78.	41.	41.	1.20	.40	6.10
5 COMBINED AT	75C	636.	5.05	267.	127.	127.	6.56		
ROUTED TO	80RET	524.	5.40	267.	127.	127.	6.56	11.56	6.20
ROUTED TO	85R	522.	5.50	266.	127.	127.	6.56	.83	6.35
HYDROGRAPH AT	90S	188.	5.15	51.	21.	21.	1.23		
HYDROGRAPH AT	95S	448.	4.75	83.	33.	33.	.97		
ROUTED TO	100RET	59.	6.15	55.	33.	33.	.97	15.30	5.45
ROUTED TO	105R	56.	7.80	53.	31.	31.	.97	.33	6.50
3 COMBINED AT	110C	574.	5.45	311.	147.	147.	8.76		
ROUTED TO	115RET	545.	5.80	311.	147.	147.	8.76	4.44	6.35
DIVERSION TO	125D	545.	5.80	311.	147.	147.	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	275.	4.35	27.	11.	11.	.38		

ROUTED TO	150RET	9.	5.50	9.	6.	6.	.38	15.00	.00
ROUTED TO	155R	8.	10.90	8.	5.	5.	.38		
3 COMBINED AT	160C	149.	5.20	50.	24.	24.	10.37		
DIVERSION TO	170D	31.	5.20	13.	7.	7.	10.37		
HYDROGRAPH AT	165D	0.	.05	0.	0.	0.	10.37		
HYDROGRAPH AT	175S	215.	4.30	53.	22.	22.	.30		
2 COMBINED AT	180C	143.	4.45	47.	19.	19.	10.67		
DIVERSION TO	190D	115.	4.15	44.	18.	18.	10.67		
HYDROGRAPH AT	185D	28.	4.45	2.	1.	1.	10.67		
HYDROGRAPH AT	195S	400.	4.25	78.	32.	32.	.40		
2 COMBINED AT	200C	281.	4.35	74.	30.	30.	11.07		
DIVERSION TO	210D	156.	3.95	61.	25.	25.	11.07		
HYDROGRAPH AT	205D	125.	4.35	13.	5.	5.	11.07		
HYDROGRAPH AT	135RD	0.	.05	0.	0.	0.	8.76		
2 COMBINED AT	215C	125.	4.35	13.	5.	5.	11.07		
ROUTED TO	220RET	21.	4.75	2.	1.	1.	11.07	96.00	.00
HYDROGRAPH AT	210RD	156.	3.95	61.	25.	25.	11.07		
2 COMBINED AT	225C	177.	4.75	63.	26.	26.	11.07		
ROUTED TO	230R	164.	4.95	61.	26.	26.	11.07	.59	4.75
HYDROGRAPH AT	235S	109.	4.05	12.	5.	5.	.06		
ROUTED TO	240R	67.	4.25	12.	5.	5.	.06	.50	4.50
HYDROGRAPH AT	190RD	115.	4.15	44.	18.	18.	10.67		
ROUTED TO	245R	108.	4.95	43.	18.	18.	10.67	.41	4.95
HYDROGRAPH AT	250S	511.	4.75	105.	43.	43.	1.10		
HYDROGRAPH AT	125RD	545.	5.80	311.	147.	147.	8.76		
HYDROGRAPH AT	170RD	31.	5.20	13.	7.	7.	10.37		
HYDROGRAPH AT	255S	150.	5.15	47.	19.	19.	.62		
3 COMBINED AT	260C	1215.	5.55	634.	315.	315.	.62		
ROUTED TO	265R	1171.	6.00	623.	309.	309.	.62	.33	6.90
5 COMBINED AT	270C	795.	5.35	453.	225.	225.	12.85		
ROUTED TO	275R	778.	5.65	450.	224.	224.	12.85	1.05	5.20
HYDROGRAPH AT	280S	244.	4.50	59.	24.	24.	.74		
2 COMBINED AT	285C	813.	5.55	470.	233.	233.	13.59		

ROUTED TO	290R	740.	6.20	464.	231.	231.	13.59	2.19	5.65
HYDROGRAPH AT	295S	93.	5.00	28.	11.	11.	.35		
2 COMBINED AT	300C	751.	6.15	472.	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	24.	5.10	7.	3.	3.	.10		
2 COMBINED AT	330C	1394.	5.10	1377.	1373.	1373.	.20		
ROUTED TO	335R	1394.	5.20	1377.	1373.	1373.	.20	2.57	5.45
HYDROGRAPH AT	340S	61.	4.15	6.	3.	3.	.09		
2 COMBINED AT	345C	1433.	4.15	1383.	1376.	1376.	.29		
HYDROGRAPH AT	350S	365.	4.15	27.	11.	11.	.26		
ROUTED TO	355R	314.	4.25	27.	11.	11.	.26	.18	4.45
3 COMBINED AT	360C	2122.	6.15	1850.	1610.	1610.	14.49		
ROUTED TO	370R	2113.	6.40	1848.	1610.	1610.	14.49	1292.14	5.80
HYDROGRAPH AT	375S	383.	4.70	72.	29.	29.	.98		
HYDROGRAPH AT	380S	259.	5.10	65.	27.	27.	1.40		
ROUTED TO	385R	246.	5.25	65.	27.	27.	1.40	6.65	5.50
HYDROGRAPH AT	390S	531.	4.50	73.	29.	29.	.80		
2 COMBINED AT	395C	399.	4.55	110.	45.	45.	2.20		
ROUTED TO	400R	263.	5.30	108.	45.	45.	2.20	1300.19	5.35
HYDROGRAPH AT	405S	442.	5.15	139.	58.	58.	1.78		
2 COMBINED AT	410C	575.	5.25	211.	89.	89.	3.98		
ROUTED TO	411RET	524.	5.50	210.	89.	89.	3.98	1296.47	5.90
ROUTED TO	412RET	415.	6.15	204.	89.	89.	3.98	1294.30	6.80
ROUTED TO	413RET	143.	8.55	120.	63.	63.	3.98	1292.41	9.55
ROUTED TO	415RET	113.	10.90	100.	49.	49.	3.98	1290.17	12.30
ROUTED TO	420R	112.	11.35	98.	45.	45.	3.98	1276.25	13.15
HYDROGRAPH AT	425S	483.	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	353.	6.00	192.	84.	84.	1.72	.92	6.45
HYDROGRAPH AT	440S	553.	4.35	106.	43.	43.	.85		

2 COMBINED AT	445C	504.	4.50	276.	121.	121.	2.57		
DIVERSION TO	455D	34.	4.50	2.	1.	1.	2.57		
HYDROGRAPH AT	450D	470.	4.35	274.	121.	121.	2.57		
ROUTED TO	460R	454.	4.85	272.	120.	120.	2.57	4.98	6.30
HYDROGRAPH AT	465S	735.	4.55	208.	86.	86.	1.36		
ROUTED TO	470R	670.	4.80	206.	86.	86.	1.36	.79	5.10
HYDROGRAPH AT	475S	481.	4.50	79.	32.	32.	.60		
2 COMBINED AT	480C	992.	4.70	277.	115.	115.	1.96		
ROUTED TO	485R	860.	5.00	274.	115.	115.	1.96	1.00	5.40
HYDROGRAPH AT	490S	261.	4.75	94.	39.	39.	1.12		
3 COMBINED AT	495C	1346.	5.00	575.	250.	250.	5.64		
DIVERSION TO	505D	796.	5.00	187.	75.	75.	5.64		
HYDROGRAPH AT	500D	550.	4.35	388.	175.	175.	5.64		
ROUTED TO	510R	550.	6.70	384.	174.	174.	5.64	1.46	5.70
HYDROGRAPH AT	515S	207.	4.45	54.	22.	22.	.48		
2 COMBINED AT	520C	624.	5.05	418.	190.	190.	6.12		
DIVERSION TO	525D	556.	5.05	350.	143.	143.	6.12		
HYDROGRAPH AT	530D	68.	3.70	68.	47.	47.	6.12		
4 COMBINED AT	535C	2151.	6.30	1932.	1685.	1685.	19.90		
ROUTED TO	540R	2150.	6.40	1932.	1684.	1684.	19.90	1256.33	5.70
HYDROGRAPH AT	545S	158.	4.55	26.	11.	11.	.30		
2 COMBINED AT	550C	2153.	6.35	1939.	1688.	1688.	20.20		
ROUTED TO	555R	2150.	6.50	1938.	1687.	1687.	20.20	1239.51	5.80
HYDROGRAPH AT	560S	126.	4.25	19.	8.	8.	.19		
DIVERSION TO	570D	12.	3.80	6.	2.	2.	.19		
HYDROGRAPH AT	565D	114.	4.25	13.	5.	5.	.19		
ROUTED TO	575R	64.	4.60	13.	5.	5.	.19	.00	5.15
HYDROGRAPH AT	580S	504.	4.35	87.	35.	35.	.91		
3 COMBINED AT	585C	2156.	6.40	1967.	1706.	1706.	21.30		
ROUTED TO	590R	2154.	6.50	1966.	1705.	1705.	21.30	1225.11	5.75
HYDROGRAPH AT	595S	67.	5.15	25.	11.	11.	.30		
HYDROGRAPH AT	600S	238.	5.10	62.	25.	25.	1.03		
ROUTED TO	605R	232.	5.20	62.	25.	25.	1.03	.23	5.50

HYDROGRAPH AT	610S	315.	4.40	62.	25.	25.	.69		
DIVERSION TO	616D	315.	4.40	62.	25.	25.	.69		
HYDROGRAPH AT	615RET	0.	.05	0.	0.	0.	.69		
2 COMBINED AT	620C	232.	5.20	62.	25.	25.	1.72		
ROUTED TO	625R	165.	5.55	52.	21.	21.	1.72	.60	6.00
HYDROGRAPH AT	630S	164.	4.35	32.	13.	13.	.34		
2 COMBINED AT	635C	182.	5.45	72.	30.	30.	2.05		
3 COMBINED AT	640C	2198.	6.30	1995.	1717.	1717.	23.65		
ROUTED TO	645R	2198.	6.40	1995.	1717.	1717.	23.65	1195.45	5.80
HYDROGRAPH AT	650S	62.	4.50	9.	4.	4.	.13		
2 COMBINED AT	655C	2197.	6.35	1996.	1717.	1717.	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  07/27/1990  TIME  16:00:48 *
*                                       *
*****************************************
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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 BY THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
    3     ID   BY COE & VAN LOO CONSULTING ENGINEERS, INC.
    4     ID   JULY 1990   JM/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    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    2.78    0.50
   18     JD    2.75    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    1.59   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    .717    .234
   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      1    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   1.033    .511
   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      1    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   1.183    .637
   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    .617    .306
   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       1    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   1.033    .831
 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   1.167    .633
 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       1    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      1    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   1.067    .590
  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      1    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      76
  179     SE    3.8       4       6       8      10      11      12      13    13.7      14
  180     SQ      0       1     176     414     680     880    1091    1593    2678    3746
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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    .533    .328
  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      1    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   .650   .731
  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
  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   .020 80.000
  253     UC   .567   .484
  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
  261     KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  262     KM   DI REPRESENTS TOTAL FLOW TO DEPRESSED INTERCHANGE AT DEER VALLEY RD.
  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
 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       1    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    .233    .172
 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       1    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
 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      1    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    .230  26.000
  317     UC   1.100    .538
  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    .240  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      1    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      1    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   1.100    .744
  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      1    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    .350  11.000
  372     UC   1.317   1.192
  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 PER COMPUTATION
  380     KM   SOURCE:
  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      1    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     KM    .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     1   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   .317   .127
  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     1   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     1   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   1.033    .507
  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      1    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    .800    .302
  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      1    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 OF375S (55TH AVENUE CHANNEL)
  519     RS      1    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   1.418
  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      90     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   27TH AVENUE TO DIGITAL'S CULVERT OUTLET ON WEST SIDE OF I-17
549       RS       1    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    .817    .520
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   CAPACITY OF UNION HILLS DRIVE INVERTED CROWN SECTION IS 470 CFS
565       KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN I-17 AND 35TH AVENUE
566       DT    455D
567       DI       0     100     300     470     500    1000    2000
568       DQ       0       0       0       0      30     530    1530

569       KK    460R
570       KM   ROUTE 450D TO CP OF 490S ALONG UNION HILLS DRIVE - 35TH TO 43RD AVENUE
571       RS       1    FLOW      -1
572       RC     .02    .025     .03    5280    .004
573       RX    99.9     100     135     150     155     170   170.1   170.2
574       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

  575     KK   465S
  576     KM   SUB-BASIN 465
  577     BA   1.361
  578     LG    .140    .310   9.100    .100  57.000
  579     UC   1.100    .718
  580     UA      0       5      16      30      65      77      84      90      94      97
  581     UA    100

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

  588     KK   475S
  589     KM   SUB-BASIN 475
  590     BA   .596
  591     LG   .290    .310  10.500    .030  18.000
  592     UC   .767    .484
  593     UA      0       3       5       8      12      20      43      75      90      96
  594     UA    100

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

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

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

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

  614     KK   500D
  615     KM   CAPACITY OF THE UNION HILLS DIRVE AND CHANNEL IS 550 CFS
  616     KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 35TH AVENUE AND
  617     KM   43RD AVENUE
  618     DT   505D
  619     DI      0     100     300     550     600    1000    2000
  620     DQ      0       0       0       0      50     450    1450
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  621     KK   510R
  622     KM   ROUTE 500D TO CP OF 515S ALONG UNION HILLS DRIVE - 43RD TO 51ST AVENUE
  623     RS      1    FLOW      -1
  624     RC   .025     .02    .025    7500   .0042       4
  625     RX    45    59.9      60     100   100.1     140   140.1     155
  626     RY   1.5     1.5       1       0       0       1     1.5     1.5

  627     KK   515S
  628     KM   SUB-BASIN 515
  629     BA   .476
  630     LG   .120    .340   4.600    .340  32.000
  631     UC   .933    .837
  632     UA     0       5      16      30      65      77      84      90      94      97
  633     UA   100

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

  637     KK   530D
  638     KM   CAPACITY OF UNION HILLS DRIVE AND 4-15" CULVERTS IS 68 CFS
  639     KM   THE REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 43RD AVENUE AND
  640     KM   55TH AVENUE
  641     DT   525D
  642     DI     0      68     100     500    1000    2000
  643     DQ     0       0      32     432     932    1932

  644     KK   535C
  645     KM   COMBINE 370R, 375S, 420R & 530RD @ CP OF 375S
  646     HC     4    19.9

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

  653     KK   545S
  654     KM   SUB-BASIN 545
  655     BA   .296
  656     LG   .310    .330   4.000    .340  15.000
  657     UC   .817    .544
  658     UA     0       3       5       8      12      20      43      75      90      96
  659     UA   100

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

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

  669     KK   560S
  670     KM   SUB-BASIN 560
  671     BA   .190
  672     LG   .150   .350  4.400   .350 21.000
  673     UC   .567   .425
  674     UA      0      5     16     30     65     77     84     90     94     97
  675     UA    100

  676     KK   565D
  677     KM   CAPACITY OF 59TH AVENUE IS 12 CFS.
  678     KM   THIS IS DIVERTED OUT OF THE WATERSHED (DQ)
  679     DT   570D
  680     DI      0     12     50    100    500   1000
  681     DQ      0     12     12     12     12     12

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

  688     KK   580S
  689     KM   SUB-BASIN 580
  690     BA   .914
  691     LG   .200   .340  4.500   .340 25.000
  692     UC   .867   .384
  693     UA      0      5     16     30     65     77     84     90     94     97
  694     UA    100

  695     KK   585C
  696     KM   COMBINE 555R, 575R AND 580S AT CP OF 580S
  697     HC      3

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

  704     KK   595S
  705     KM   SUB-BASIN 595
  706     BA   .302
  707     LG   .190   .340  4.500   .340 13.000
  708     UC 1.500  1.588
  709     UA      0      3      5      8     12     20     43     75     90     96
```

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

  710     UA     100

  711     KK    600S
  712     KM    SUB-BASIN 600
  713     BA    1.027
  714     LG     .440    .250   5.500    .330   8.000
  715     UC    1.500    .874
  716     UA       0       3       5       8      12      20      43      75      90      96
  717     UA     100

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

  724     KK    610S
  725     KM    SUB-BASIN 610
  726     BA     .690
  727     LG     .210    .270   6.800    .300  19.000
  728     UC     .950    .533
  729     UA       0       5      16      30      65      77      84      90      94      97
  730     UA     100

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

  736     KK    620C
  737     KM    COMBINE 605R AND 615RET AT CP OF 610S
  738     HC       2

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

  745     KK    630S
  746     KM    SUB-BASIN 630
  747     BA     .336
  748     LG     .170    .320   5.200    .320  19.000
  749     UC     .783    .608
  750     UA       0       5      16      30      65      77      84      90      94      97
  751     UA     100
```

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

  752         KK    635C
  753         KM    COMBINE 625R AND 630S AT CP OF 630S
  754         HC       2

  755         KK    640C
  756         KM    COMBINE 540R, 595S AND 635C AT CP OF 595S
  757         HC       3

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

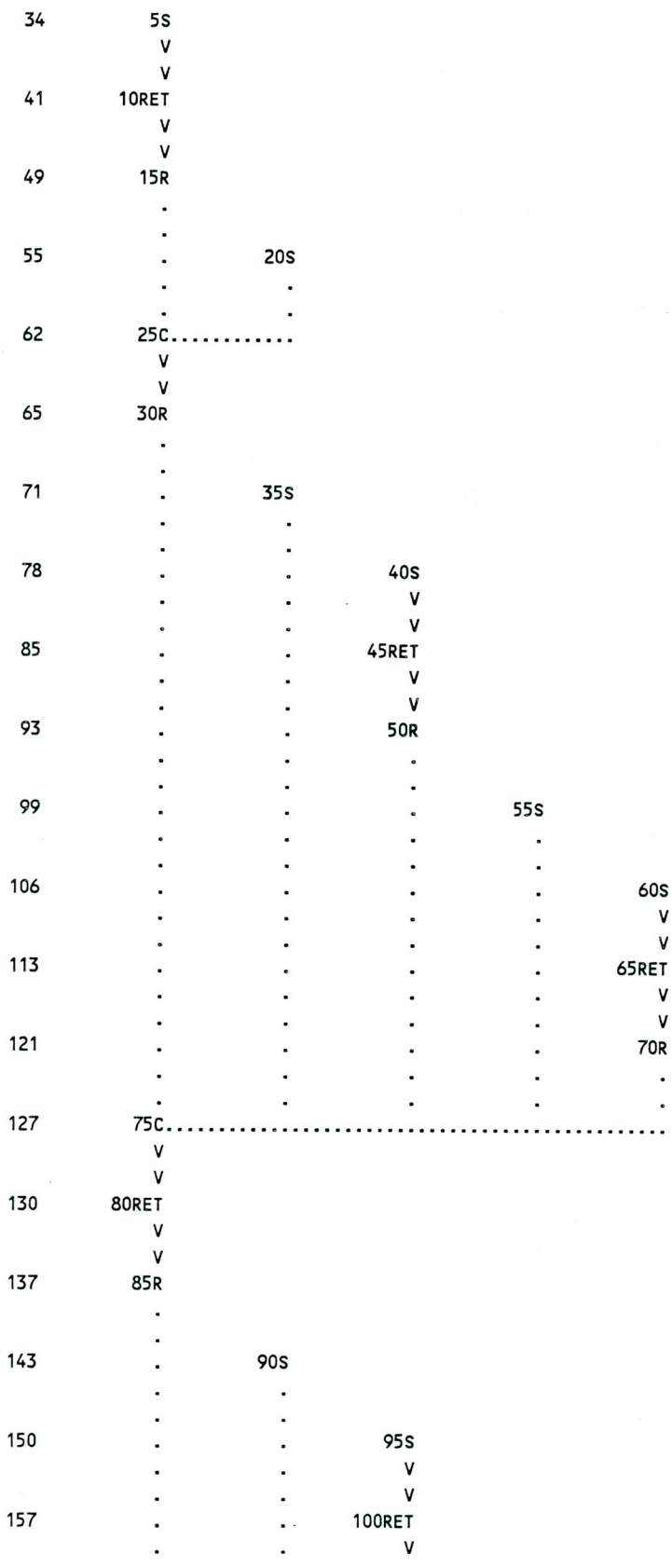
  764         KK    650S
  765         KM    SUB-BASIN 650
  766         BA    .125
  767         LG    .340    .350   3.700    .350   4.000
  768         UC    .683    .527
  769         UA       0       3       5       8      12      20      43      75      90      96
  770         UA     100

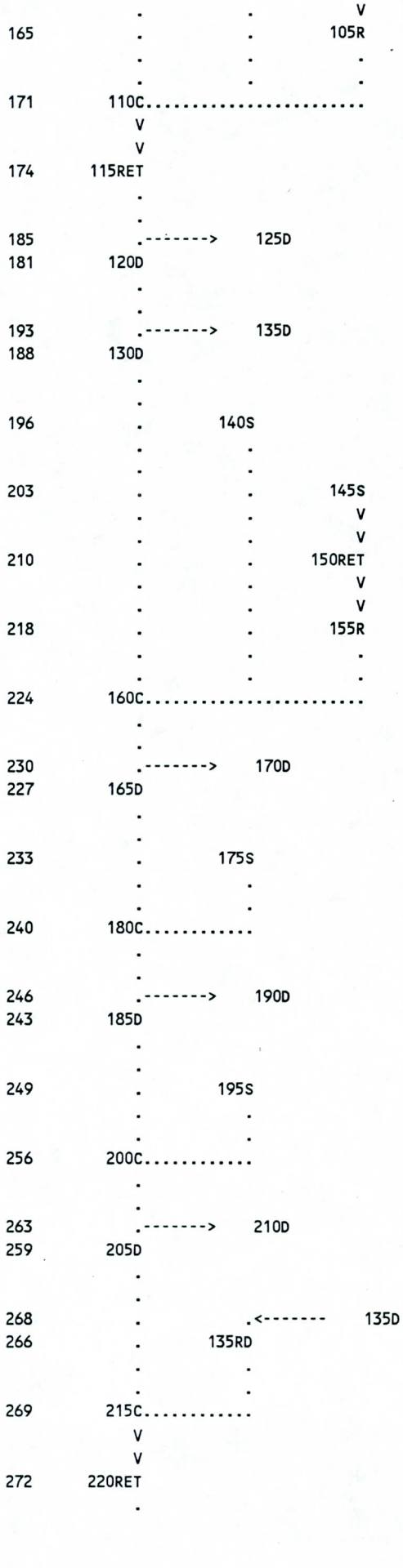
  771         KK    655C
  772         KM    COMBINE 645R AND 650S AT CP OF 650S
  773         HC       2
  774         ZZ
```

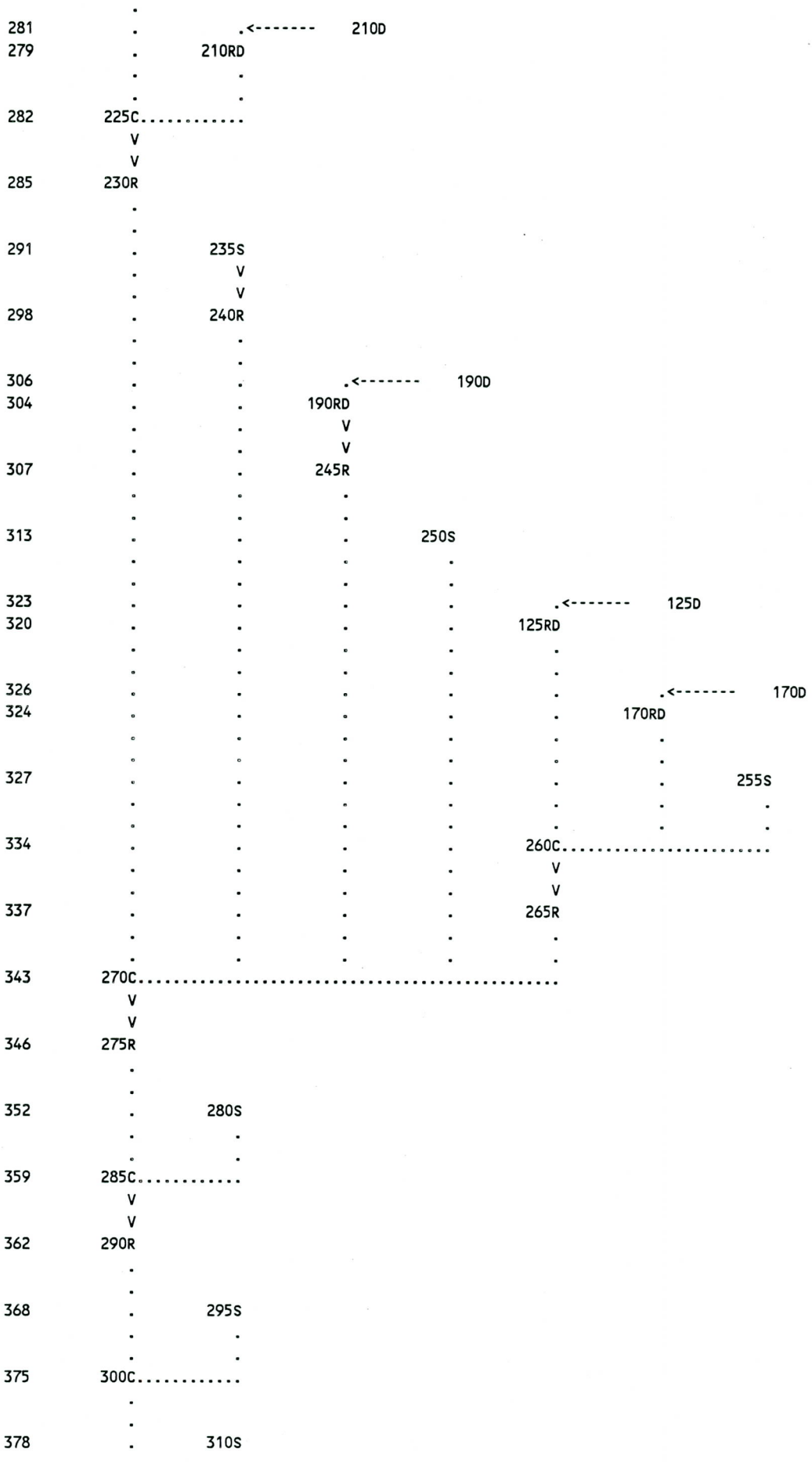
SCHEMATIC DIAGRAM OF STREAM NETWORK

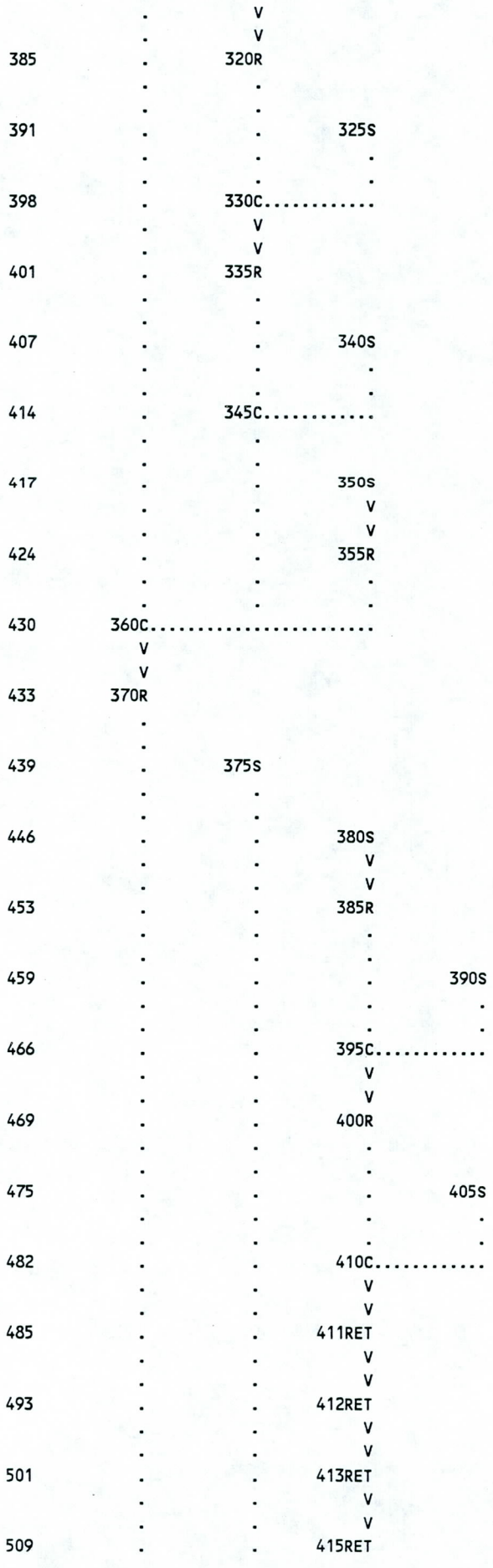
INPUT LINE NO.

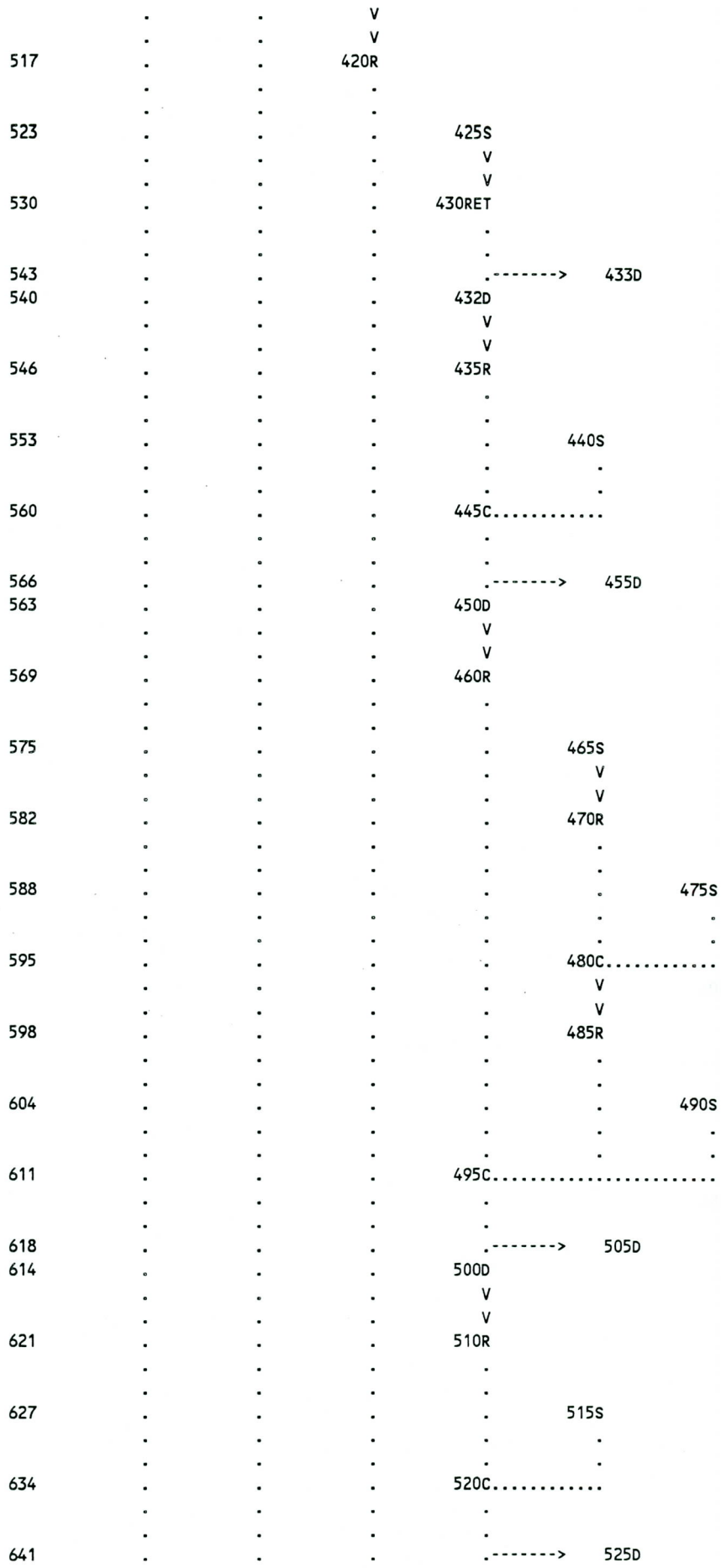
(V) ROUTING (.) CONNECTOR (---->) DIVERSION OR PUMP FLOW (<----) RETURN OF DIVERTED OR PUMPED FLOW

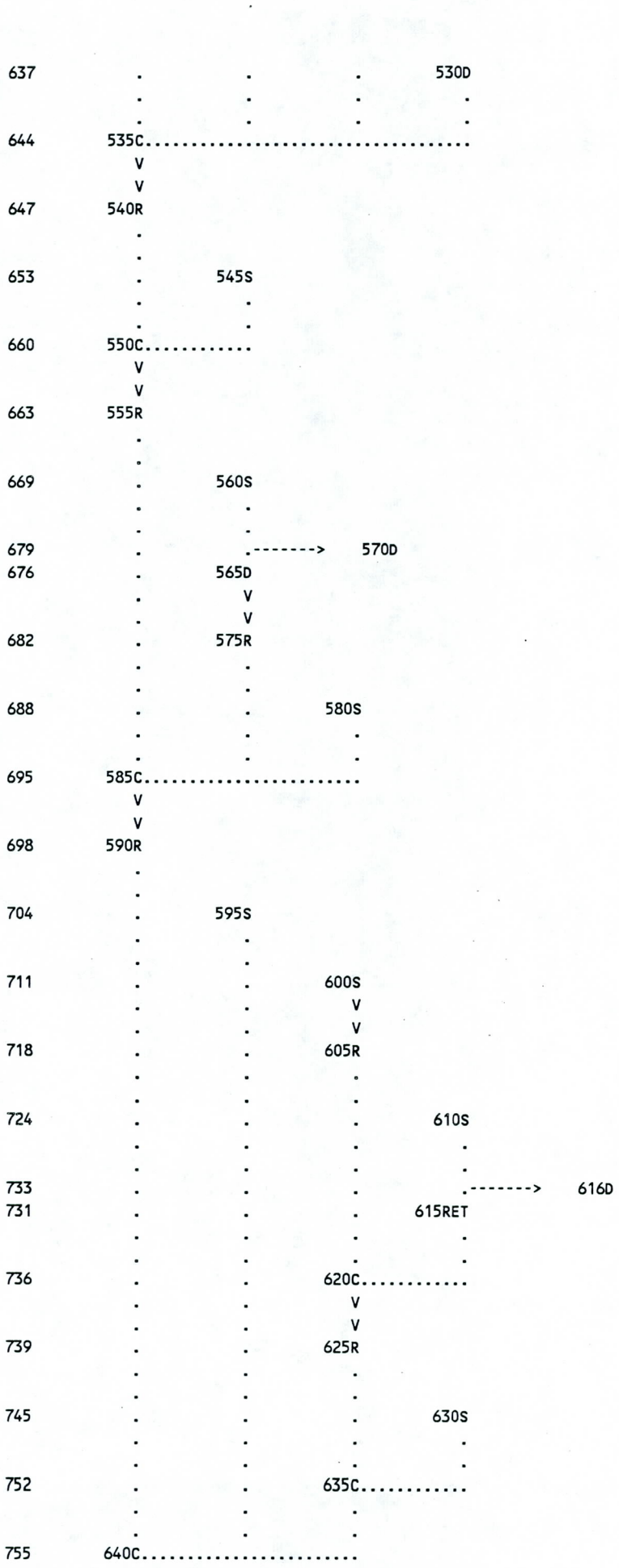


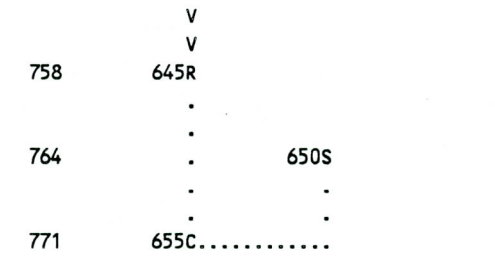

165 105R
171 110C
174 115RET
185 125D
181 120D
193 135D
188 130D
196 140S
203 145S
210 150RET
218 155R
224 160C
230 170D
227 165D
233 175S
240 180C
246 190D
243 185D
249 195S
256 200C
263 210D
259 205D
268 135D
266 135RD
269 215C
272 220RET


281 .<------- 210D
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


385 320R
391 325S
398 330C
401 335R
407 340S
414 345C
417 350S
424 355R
430 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


V
V
517 420R
523 425S
V
V
530 430RET
543 .-------> 433D
540 432D
V
V
546 435R
553 440S
560 445C.....
566 .-------> 455D
563 450D
V
V
569 460R
575 465S
V
V
582 470R
588 475S
595 480C.....
V
V
598 485R
604 490S
611 495C.....
618 .-------> 505D
614 500D
V
V
621 510R
627 515S
634 520C.....
641 .-------> 525D


637
530D
644
535C
647
540R
653
545S
660
550C
663
555R
669
560S
679
570D
676
565D
682
575R
688
580S
695
585C
698
590R
704
595S
711
600S
718
605R
724
610S
733
616D
731
615RET
736
620C
739
625R
745
630S
752
635C
755
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  07/27/1990  TIME  16:00:48 *
*                                       *
*****************************************
```


```
*****************************************
*                                       *
*     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 BY THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
BY COE & VAN LOO CONSULTING ENGINEERS, INC.
JULY 1990 JM/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	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        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        2.75  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	1.59	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	1617.	4.45	194.	78.	78.	1.33		
ROUTED TO	10RET	89.	5.35	85.	59.	59.	1.33	15.93	5.05
ROUTED TO	15R	88.	6.25	84.	56.	56.	1.33	.82	5.60
HYDROGRAPH AT	20S	1010.	4.75	178.	72.	72.	1.38		
2 COMBINED AT	25C	930.	4.80	239.	121.	121.	2.71		
ROUTED TO	30R	732.	5.10	237.	119.	119.	2.71	.60	5.85
HYDROGRAPH AT	35S	857.	4.85	173.	70.	70.	1.51		
HYDROGRAPH AT	40S	801.	4.40	93.	38.	38.	.55		
ROUTED TO	45RET	42.	5.45	41.	28.	28.	.55	16.19	5.20
ROUTED TO	50R	41.	7.25	40.	26.	26.	.55	.60	6.50
HYDROGRAPH AT	55S	330.	4.75	71.	28.	28.	.59		
HYDROGRAPH AT	60S	881.	4.85	186.	75.	75.	1.20		
ROUTED TO	65RET	104.	6.45	98.	66.	66.	1.20	16.23	5.65
ROUTED TO	70R	103.	7.20	97.	62.	62.	1.20	.72	6.45
5 COMBINED AT	75C	1511.	5.00	510.	264.	264.	6.56		
ROUTED TO	80RET	1180.	5.35	509.	264.	264.	6.56	12.49	6.20
ROUTED TO	85R	1160.	5.50	509.	262.	262.	6.56	1.63	6.30
HYDROGRAPH AT	90S	426.	5.15	119.	48.	48.	1.23		
HYDROGRAPH AT	95S	773.	4.75	149.	60.	60.	.97		
ROUTED TO	100RET	69.	6.40	66.	45.	45.	.97	16.07	5.55
ROUTED TO	105R	67.	8.20	65.	41.	41.	.97	.70	6.40
3 COMBINED AT	110C	1352.	5.45	617.	322.	322.	8.76		
ROUTED TO	115RET	1155.	5.95	617.	322.	322.	8.76	5.51	6.35
DIVERSION TO	125D	1042.	6.00	598.	314.	314.	8.76		
HYDROGRAPH AT	120D	115.	5.90	19.	7.	7.	8.76		
DIVERSION TO	135D	0.	.05	0.	0.	0.	8.76		
HYDROGRAPH AT	130D	115.	5.90	19.	7.	7.	8.76		
HYDROGRAPH AT	140S	362.	5.15	108.	44.	44.	1.23		
HYDROGRAPH AT	145S	485.	4.35	51.	20.	20.	.38		

ROUTED TO	150RET	10.	5.60	10.	7.	7.	.38	15.00	.00
ROUTED TO	155R	10.	10.85	10.	6.	6.	.38		
3 COMBINED AT	160C	355.	5.75	108.	47.	47.	10.37		
DIVERSION TO	170D	230.	5.70	80.	35.	35.	10.37		
HYDROGRAPH AT	165D	0.	.05	0.	0.	0.	10.37		
HYDROGRAPH AT	175S	317.	4.30	78.	32.	32.	.30		
2 COMBINED AT	180C	212.	4.45	68.	28.	28.	10.67		
DIVERSION TO	190D	115.	3.95	55.	23.	23.	10.67		
HYDROGRAPH AT	185D	97.	4.45	13.	5.	5.	10.67		
HYDROGRAPH AT	195S	569.	4.25	112.	45.	45.	.40		
2 COMBINED AT	200C	456.	4.35	116.	47.	47.	11.07		
DIVERSION TO	210D	156.	3.80	73.	30.	30.	11.07		
HYDROGRAPH AT	205D	300.	4.35	43.	17.	17.	11.07		
HYDROGRAPH AT	135RD	0.	.05	0.	0.	0.	8.76		
2 COMBINED AT	215C	300.	4.35	43.	17.	17.	11.07		
ROUTED TO	220RET	224.	4.70	28.	12.	12.	11.07	96.00	.00
HYDROGRAPH AT	210RD	156.	3.80	73.	30.	30.	11.07		
2 COMBINED AT	225C	380.	4.70	101.	42.	42.	11.07		
ROUTED TO	230R	322.	4.95	99.	42.	42.	11.07	.73	4.75
HYDROGRAPH AT	235S	166.	4.05	18.	7.	7.	.06		
ROUTED TO	240R	99.	4.25	18.	7.	7.	.06	.64	4.45
HYDROGRAPH AT	190RD	115.	3.95	55.	23.	23.	10.67		
ROUTED TO	245R	114.	5.30	54.	23.	23.	10.67	.51	4.90
HYDROGRAPH AT	250S	876.	4.75	179.	73.	73.	1.10		
HYDROGRAPH AT	125RD	1042.	6.00	598.	314.	314.	8.76		
HYDROGRAPH AT	170RD	230.	5.70	80.	35.	35.	10.37		
HYDROGRAPH AT	255S	268.	5.15	84.	35.	35.	.62		
3 COMBINED AT	260C	1935.	5.55	994.	490.	490.	.62		
ROUTED TO	265R	1874.	5.95	982.	480.	480.	.62	.93	6.90
5 COMBINED AT	270C	1698.	5.45	937.	475.	475.	12.85		
ROUTED TO	275R	1673.	5.70	933.	469.	469.	12.85	1.25	5.20
HYDROGRAPH AT	280S	433.	4.50	104.	42.	42.	.74		
2 COMBINED AT	285C	1760.	5.55	987.	494.	494.	13.59		

ROUTED TO	290R	1674.	6.00	974.	487.	487.	13.59	2.57	5.75
HYDROGRAPH AT	295S	164.	5.00	49.	20.	20.	.35		
2 COMBINED AT	300C	1714.	6.00	997.	497.	497.	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	47.	5.10	14.	6.	6.	.10		
2 COMBINED AT	330C	1695.	5.10	1663.	1655.	1655.	.20		
ROUTED TO	335R	1694.	5.20	1663.	1655.	1655.	.20	2.86	5.45
HYDROGRAPH AT	340S	119.	4.15	12.	5.	5.	.09		
2 COMBINED AT	345C	1764.	4.15	1674.	1660.	1660.	.29		
HYDROGRAPH AT	350S	596.	4.15	46.	19.	19.	.26		
ROUTED TO	355R	542.	4.20	46.	19.	19.	.26	.26	4.45
3 COMBINED AT	360C	3373.	5.95	2670.	2162.	2162.	14.49		
ROUTED TO	370R	3349.	6.20	2666.	2159.	2159.	14.49	1292.40	5.90
HYDROGRAPH AT	375S	703.	4.70	130.	52.	52.	.98		
HYDROGRAPH AT	380S	573.	5.10	143.	58.	58.	1.40		
ROUTED TO	385R	527.	5.30	143.	58.	58.	1.40	6.79	5.50
HYDROGRAPH AT	390S	903.	4.50	123.	49.	49.	.80		
2 COMBINED AT	395C	794.	4.60	240.	99.	99.	2.20		
ROUTED TO	400R	638.	5.25	237.	99.	99.	2.20	1300.27	5.35
HYDROGRAPH AT	405S	816.	5.15	252.	104.	104.	1.78		
2 COMBINED AT	410C	1292.	5.20	446.	186.	186.	3.98		
ROUTED TO	411RET	1221.	5.45	444.	186.	186.	3.98	1296.61	5.75
ROUTED TO	412RET	1033.	5.90	435.	185.	185.	3.98	1294.42	6.60
ROUTED TO	413RET	387.	7.75	296.	149.	149.	3.98	1292.56	9.40
ROUTED TO	415RET	313.	9.40	258.	128.	128.	3.98	1290.24	11.95
ROUTED TO	420R	311.	9.75	256.	123.	123.	3.98	1276.36	12.85
HYDROGRAPH AT	425S	775.	4.90	320.	136.	136.	1.72		
ROUTED TO	430RET	707.	5.30	313.	135.	135.	1.72	2.44	5.85
DIVERSION TO	433D	222.	5.30	29.	12.	12.	1.72		
HYDROGRAPH AT	432D	485.	5.30	283.	123.	123.	1.72		
ROUTED TO	435R	467.	5.85	280.	123.	123.	1.72	1.09	6.30
HYDROGRAPH AT	440S	861.	4.35	169.	68.	68.	.85		

2 COMBINED AT	445C	818.	4.55	427.	187.	187.	2.57		
DIVERSION TO	455D	348.	4.55	77.	31.	31.	2.57		
HYDROGRAPH AT	450D	470.	4.05	350.	156.	156.	2.57		
ROUTED TO	460R	470.	6.55	348.	156.	156.	2.57	5.68	5.00
HYDROGRAPH AT	465S	1104.	4.55	312.	128.	128.	1.36		
ROUTED TO	470R	1032.	4.75	309.	128.	128.	1.36	1.05	5.05
HYDROGRAPH AT	475S	732.	4.50	124.	50.	50.	.60		
2 COMBINED AT	480C	1548.	4.70	426.	176.	176.	1.96		
ROUTED TO	485R	1396.	4.95	422.	175.	175.	1.96	1.40	5.30
HYDROGRAPH AT	490S	459.	4.75	162.	68.	68.	1.12		
3 COMBINED AT	495C	2065.	4.95	871.	377.	377.	5.64		
DIVERSION TO	505D	1515.	4.95	423.	170.	170.	5.64		
HYDROGRAPH AT	500D	550.	4.10	448.	208.	208.	5.64		
ROUTED TO	510R	550.	7.45	444.	206.	206.	5.64	1.72	6.00
HYDROGRAPH AT	515S	331.	4.45	85.	35.	35.	.48		
2 COMBINED AT	520C	733.	4.75	507.	235.	235.	6.12		
DIVERSION TO	525D	665.	4.75	439.	184.	184.	6.12		
HYDROGRAPH AT	530D	68.	3.40	68.	51.	51.	6.12		
4 COMBINED AT	535C	3366.	6.15	2822.	2301.	2301.	19.90		
ROUTED TO	540R	3363.	6.20	2822.	2299.	2299.	19.90	1256.64	5.80
HYDROGRAPH AT	545S	274.	4.55	46.	18.	18.	.30		
2 COMBINED AT	550C	3372.	6.20	2839.	2308.	2308.	20.20		
ROUTED TO	555R	3363.	6.35	2836.	2304.	2304.	20.20	1239.93	5.90
HYDROGRAPH AT	560S	218.	4.25	32.	13.	13.	.19		
DIVERSION TO	570D	12.	3.65	7.	3.	3.	.19		
HYDROGRAPH AT	565D	206.	4.25	26.	10.	10.	.19		
ROUTED TO	575R	133.	4.55	26.	10.	10.	.19	.03	4.85
HYDROGRAPH AT	580S	854.	4.35	145.	59.	59.	.91		
3 COMBINED AT	585C	3373.	6.30	2898.	2343.	2343.	21.30		
ROUTED TO	590R	3369.	6.40	2897.	2340.	2340.	21.30	1225.33	5.75
HYDROGRAPH AT	595S	119.	5.15	44.	18.	18.	.30		
HYDROGRAPH AT	600S	469.	5.10	121.	49.	49.	1.03		
ROUTED TO	605R	463.	5.20	121.	49.	49.	1.03	.28	5.45

HYDROGRAPH AT	610S	539.	4.40	105.	42.	42.	.69		
DIVERSION TO	616D	539.	4.40	78.	31.	31.	.69		
HYDROGRAPH AT	615RET	240.	5.00	27.	11.	11.	.69		
2 COMBINED AT	620C	512.	5.40	132.	53.	53.	1.72		
ROUTED TO	625R	463.	5.55	131.	53.	53.	1.72	.77	5.95
HYDROGRAPH AT	630S	280.	4.35	54.	22.	22.	.34		
2 COMBINED AT	635C	496.	5.50	171.	70.	70.	2.05		
3 COMBINED AT	640C	3510.	6.20	2982.	2376.	2376.	23.65		
ROUTED TO	645R	3508.	6.25	2981.	2374.	2374.	23.65	1195.86	5.80
HYDROGRAPH AT	650S	120.	4.45	18.	7.	7.	.13		
2 COMBINED AT	655C	3508.	6.25	2986.	2377.	2377.	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  07/26/1990  TIME  15:13:33 *
*                                       *
*****************************************
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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 BY THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
  3       ID   BY COE & VAN LOO CONSULTING ENGINEERS, INC.
  4       ID   JULY 1990   JM/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    .717    .234
 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      1    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   1.033    .511
   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      1    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   1.183    .637
   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    .617    .306
   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       1    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   1.033    .831
 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   1.167    .633
 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       1    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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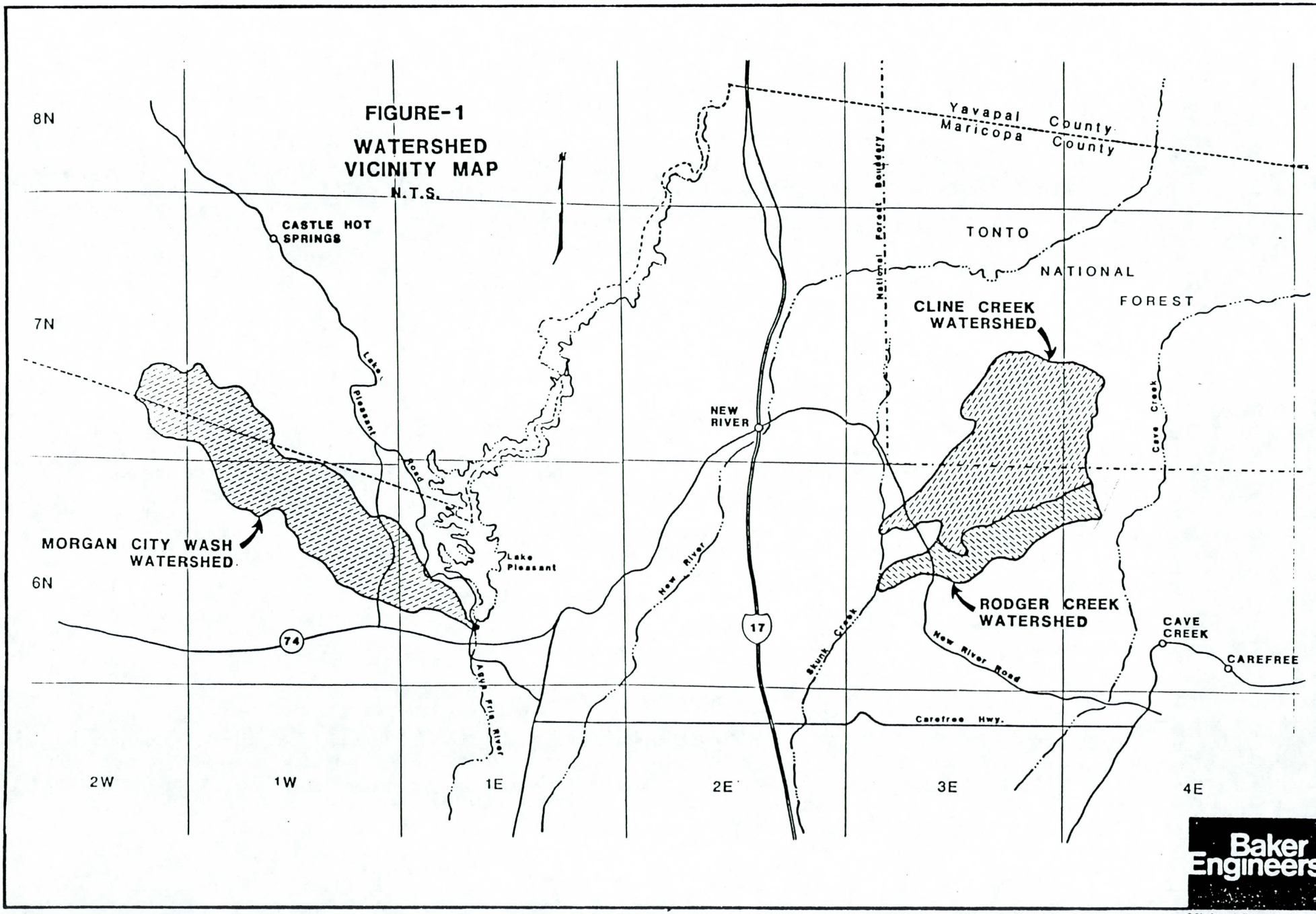

Baker Engineers

Michael Baker Jr., Inc.

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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      1    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   1.067    .590
  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      1    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      76
  179     SE    3.8       4       6       8      10      11      12      13    13.7      14
  180     SQ      0       1     176     414     680     880    1091    1593    2678    3746
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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    .533    .328
  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      1    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   .650   .731
  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
  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   .020 80.000
  253         UC   .567   .484
  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
  261         KM   SOURCE:  SCATTER WASH DRAINAGE AND STORM DRAIN STUDY, GREINER, INC.
  262         KM   DI REPRESENTS TOTAL FLOW TO DEPRESSED INTERCHANGE AT DEER VALLEY RD.
  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
  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       1    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    .233    .172
  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       1    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
  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      1    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    .230  26.000
  317     UC   1.100    .538
  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    .240  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      1    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      1    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   1.100    .744
  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      1    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    .350  11.000
  372     UC   1.317   1.192
  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 PER COMPUTATION
  380     KM   SOURCE:
  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      1    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     KM    .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     1    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   .317   .127
  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     1    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     1    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   1.033    .507
 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      1    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    .800    .302
 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      1    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 OF375S (55TH AVENUE CHANNEL)
 519      RS      1    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   1.418
 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      90     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   27TH AVENUE TO DIGITAL'S CULVERT OUTLET ON WEST SIDE OF I-17
549       RS       1    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    .817    .520
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   CAPACITY OF UNION HILLS DRIVE INVERTED CROWN SECTION IS 470 CFS
565       KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN I-17 AND 35TH AVENUE
566       DT    455D
567       DI       0     100     300     470     500    1000    2000
568       DQ       0       0       0       0      30     530    1530

569       KK    460R
570       KM   ROUTE 450D TO CP OF 490S ALONG UNION HILLS DRIVE - 35TH TO 43RD AVENUE
571       RS       1    FLOW      -1
572       RC     .02    .025     .03    5280    .004
573       RX    99.9     100     135     150     155     170   170.1   170.2
574       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

  575     KK   465S
  576     KM   SUB-BASIN 465
  577     BA   1.361
  578     LG    .140    .310   9.100    .100  57.000
  579     UC   1.100    .718
  580     UA      0       5      16      30      65      77      84      90      94      97
  581     UA    100

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

  588     KK   475S
  589     KM   SUB-BASIN 475
  590     BA    .596
  591     LG    .290    .310  10.500    .030  18.000
  592     UC    .767    .484
  593     UA      0       3       5       8      12      20      43      75      90      96
  594     UA    100

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

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

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

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

  614     KK   500D
  615     KM   CAPACITY OF THE UNION HILLS DIRVE AND CHANNEL IS 550 CFS
  616     KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 35TH AVENUE AND
  617     KM   43RD AVENUE
  618     DT   505D
  619     DI      0     100     300     550     600    1000    2000
  620     DQ      0       0       0       0      50     450    1450
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

621       KK   510R
622       KM   ROUTE 500D TO CP OF 515S ALONG UNION HILLS DRIVE - 43RD TO 51ST AVENUE
623       RS     1    FLOW     -1
624       RC  .025    .02    .025    7500   .0042      4
625       RX   45    59.9     60     100    100.1     140   140.1     155
626       RY  1.5     1.5      1       0        0       1     1.5     1.5

627       KK   515S
628       KM   SUB-BASIN 515
629       BA   .476
630       LG   .120    .340   4.600    .340  32.000
631       UC   .933    .837
632       UA     0       5      16      30      65      77      84      90      94      97
633       UA   100

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

637       KK   530D
638       KM   CAPACITY OF UNION HILLS DRIVE AND 4-15" CULVERTS IS 68 CFS
639       KM   THE REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 43RD AVENUE AND
640       KM   55TH AVENUE
641       DT   525D
642       DI     0      68     100     500    1000    2000
643       DQ     0       0      32     432     932    1932

644       KK   535C
645       KM   COMBINE 370R, 375S, 420R & 530RD @ CP OF 375S
646       HC     4    19.9

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

653       KK   545S
654       KM   SUB-BASIN 545
655       BA   .296
656       LG   .310    .330   4.000    .340  15.000
657       UC   .817    .544
658       UA     0       3       5       8      12      20      43      75      90      96
659       UA   100

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

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

  669     KK   560S
  670     KM   SUB-BASIN 560
  671     BA   .190
  672     LG   .150   .350  4.400   .350 21.000
  673     UC   .567   .425
  674     UA      0      5     16     30     65     77     84     90     94     97
  675     UA    100

  676     KK   565D
  677     KM   CAPACITY OF 59TH AVENUE IS 12 CFS.
  678     KM   THIS IS DIVERTED OUT OF THE WATERSHED (DQ)
  679     DT   570D
  680     DI      0     12     50    100    500   1000
  681     DQ      0     12     12     12     12     12

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

  688     KK   580S
  689     KM   SUB-BASIN 580
  690     BA   .914
  691     LG   .200   .340  4.500   .340 25.000
  692     UC   .867   .384
  693     UA      0      5     16     30     65     77     84     90     94     97
  694     UA    100

  695     KK   585C
  696     KM   COMBINE 555R, 575R AND 580S AT CP OF 580S
  697     HC      3

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

  704     KK   595S
  705     KM   SUB-BASIN 595
  706     BA   .302
  707     LG   .190   .340  4.500   .340 13.000
  708     UC 1.500 1.588
  709     UA      0      3      5      8     12     20     43     75     90     96
```

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

  710     UA     100

  711     KK    600S
  712     KM    SUB-BASIN 600
  713     BA    1.027
  714     LG     .440    .250   5.500    .330   8.000
  715     UC    1.500    .874
  716     UA        0       3       5       8      12      20      43      75      90      96
  717     UA      100

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

  724     KK    610S
  725     KM    SUB-BASIN 610
  726     BA     .690
  727     LG     .210    .270   6.800    .300  19.000
  728     UC     .950    .533
  729     UA        0       5      16      30      65      77      84      90      94      97
  730     UA      100

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

  736     KK    620C
  737     KM    COMBINE 605R AND 615RET AT CP OF 610S
  738     HC        2

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

  745     KK    630S
  746     KM    SUB-BASIN 630
  747     BA     .336
  748     LG     .170    .320   5.200    .320  19.000
  749     UC     .783    .608
  750     UA        0       5      16      30      65      77      84      90      94      97
  751     UA      100
```

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

  752         KK    635C
  753         KM   COMBINE 625R AND 630S AT CP OF 630S
  754         HC       2

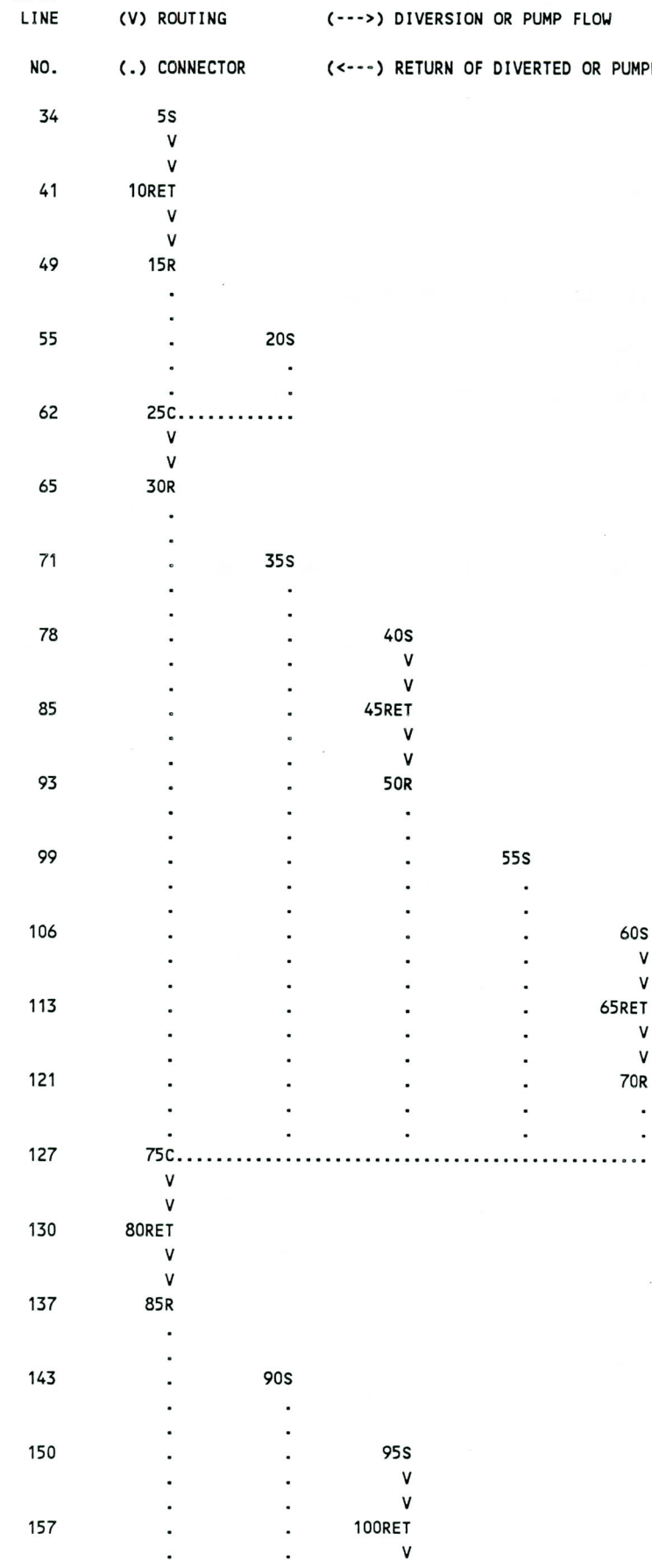
  755         KK    640C
  756         KM   COMBINE 540R, 595S AND 635C AT CP OF 595S
  757         HC       3

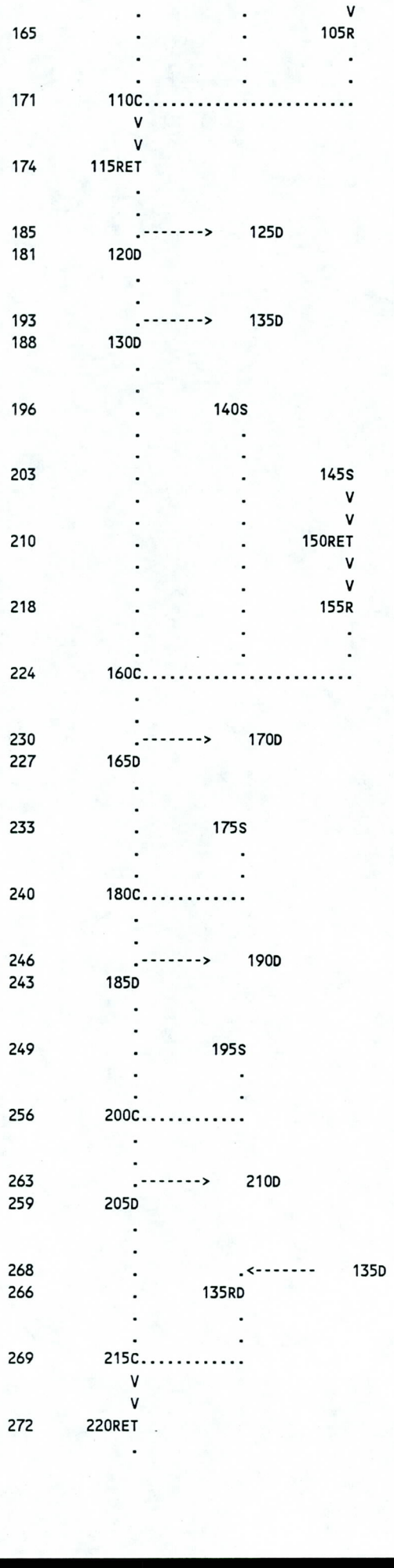
  758         KK    645R
  759         KM   ROUTE 585C TO CP OF 595S ALONG SKUNK CREEK FROM BELL ROAD TO ACDC
  760         RS       1    FLOW      -1
  761         RC     .04     .03     .04    3500   .0068
  762         RX     250     260     360     500     545     600     720     800
  763        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

  764         KK    650S
  765         KM   SUB-BASIN 650
  766         BA    .125
  767         LG    .340    .350   3.700    .350   4.000
  768         UC    .683    .527
  769         UA       0       3       5       8      12      20      43      75      90      96
  770         UA     100

  771         KK    655C
  772         KM   COMBINE 645R AND 650S AT CP OF 650S
  773         HC       2
  774         ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

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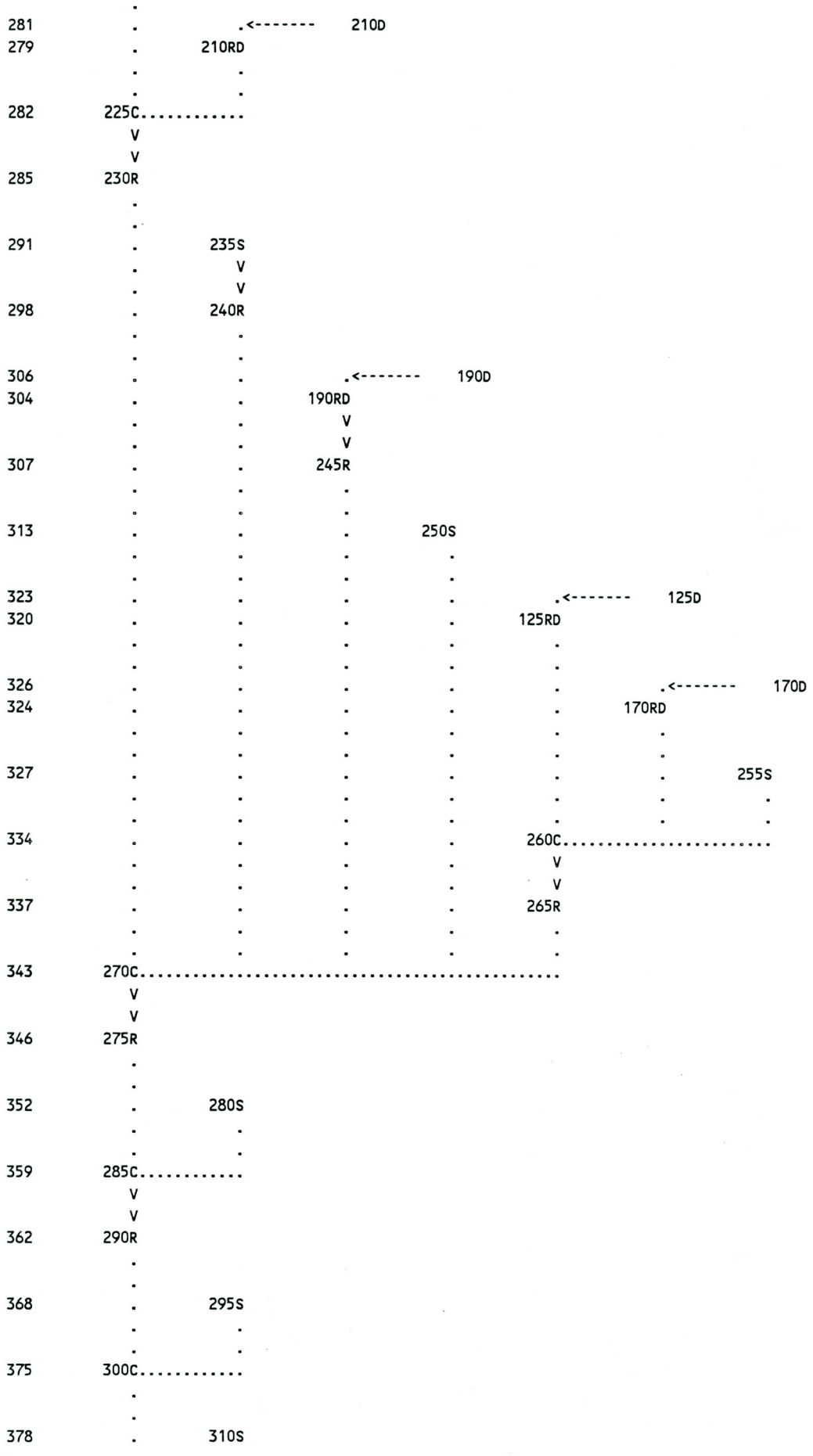
171 110C
174 115RET
185 125D
181 120D
193 135D
188 130D
196 140S
203 145S
210 150RET
218 155R
224 160C
230 170D
227 165D
233 175S
240 180C
246 190D
243 185D
249 195S
256 200C
263 210D
259 205D
268 135D
266 135RD
269 215C
272 220RET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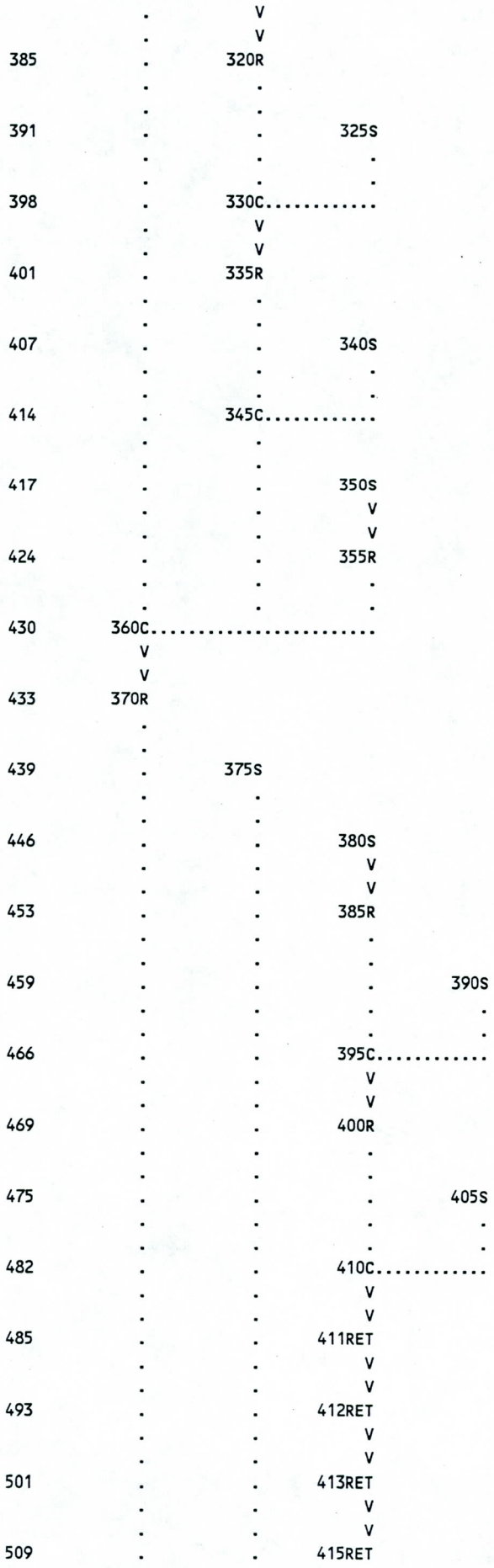
279 210RD
282 225C.....
285 230R
291 235S
298 240R
306 .<------- 190D
304 190RD
307 245R
313 250S
323 .<------- 125D
320 125RD
326 .<------- 170D
324 170RD
327 255S
334 260C.....
337 265R
343 270C.....
346 275R
352 280S
359 285C.....
362 290R
368 295S
375 300C.....
378 310S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325S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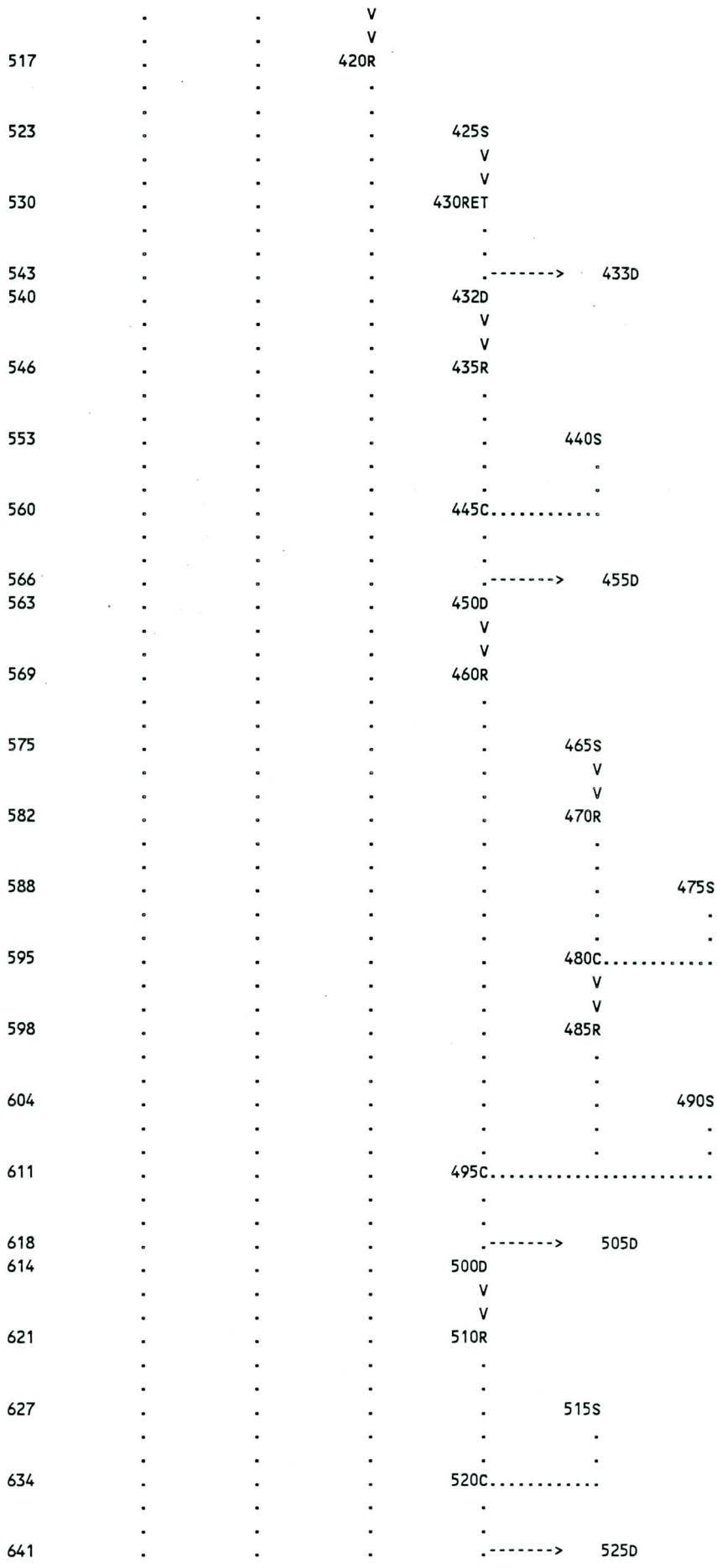
395C
400R
405S
410C
411RET
412RET
413RET
415RET


V
V
517 420R
523 425S
V
V
530 430RET
543 433D
540 432D
V
V
546 435R
553 440S
560 445C
566 455D
563 450D
V
V
569 460R
575 465S
V
V
582 470R
588 475S
595 480C
V
V
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604 490S
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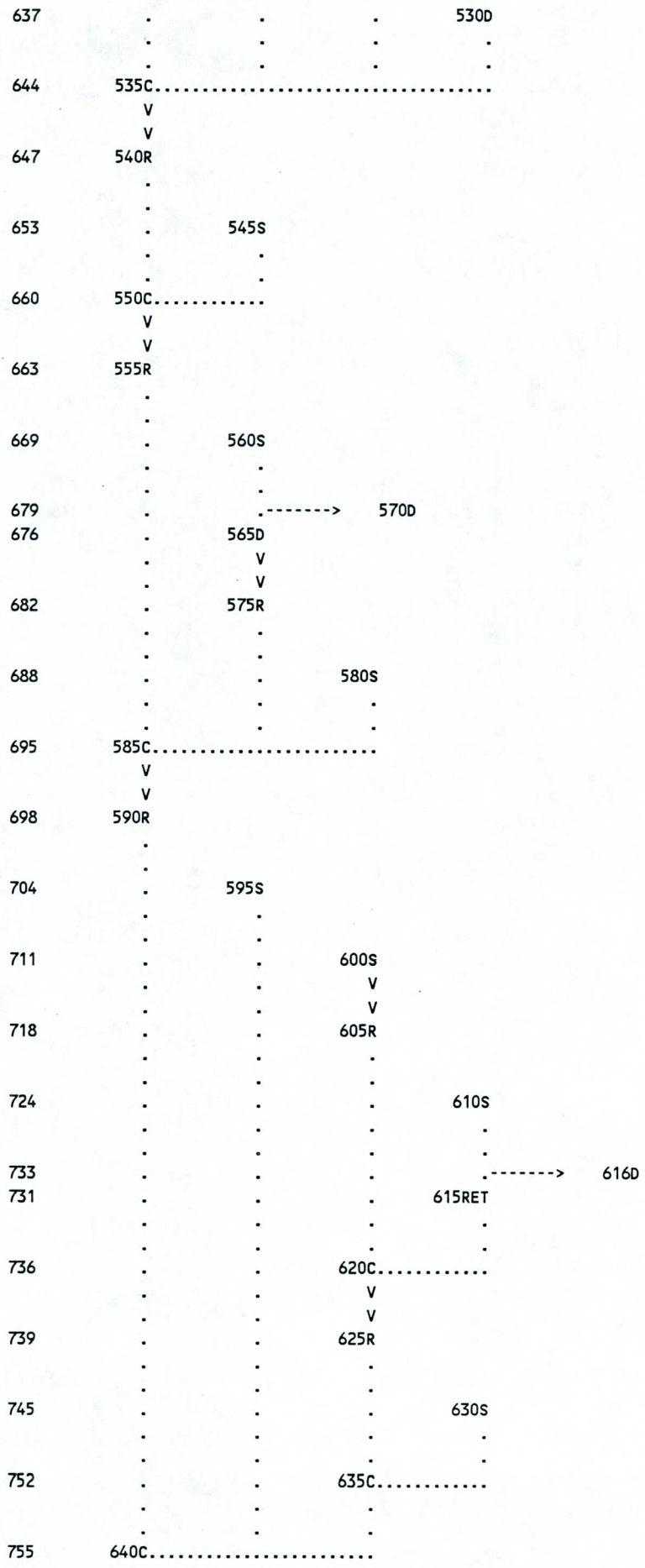
618 505D
614 500D
V
V
621 510R
627 515S
634 520C
641 525D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647
540R
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550C
663
555R
669
560S
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570D
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682
575R
688
580S
695
585C
698
590R
704
595S
711
600S
718
605R
724
610S
733
616D
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615RET
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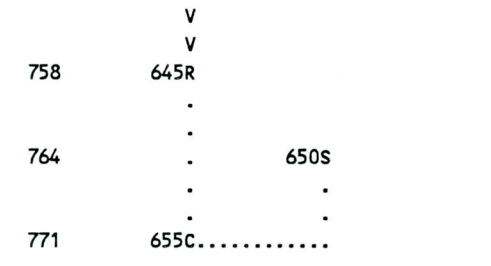
625R
745
630S
752
635C
755
640C



(***) 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  07/26/1990  TIME  15:13:33 *
*                                       *
*****************************************
```


```
*****************************************
*                                       *
*     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 BY THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
BY COE & VAN LOO CONSULTING ENGINEERS, INC.
JULY 1990 JM/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	1946.	4.45	240.	96.	96.	1.33		
ROUTED TO	10RET	95.	5.40	91.	64.	64.	1.33	16.46	5.25
ROUTED TO	15R	94.	6.30	90.	61.	61.	1.33	1.04	6.00
HYDROGRAPH AT	20S	1251.	4.75	225.	90.	90.	1.38		
2 COMBINED AT	25C	1155.	4.80	290.	144.	144.	2.71		
ROUTED TO	30R	922.	5.10	288.	142.	142.	2.71	1.06	5.35
HYDROGRAPH AT	35S	1088.	4.85	224.	90.	90.	1.51		
HYDROGRAPH AT	40S	950.	4.40	113.	45.	45.	.55		
ROUTED TO	45RET	44.	5.50	43.	30.	30.	.55	16.54	5.35
ROUTED TO	50R	43.	7.25	42.	28.	28.	.55	.66	6.70
HYDROGRAPH AT	55S	418.	4.75	91.	37.	37.	.59		
HYDROGRAPH AT	60S	1068.	4.85	229.	92.	92.	1.20		
ROUTED TO	65RET	111.	6.55	106.	72.	72.	1.20	17.06	5.90
ROUTED TO	70R	110.	7.25	105.	68.	68.	1.20	.87	6.65
5 COMBINED AT	75C	1952.	5.00	631.	321.	321.	6.56		
ROUTED TO	80RET	1656.	5.35	631.	321.	321.	6.56	13.36	5.55
ROUTED TO	85R	1621.	5.45	630.	319.	319.	6.56	2.23	5.65
HYDROGRAPH AT	90S	559.	5.15	157.	63.	63.	1.23		
HYDROGRAPH AT	95S	936.	4.75	183.	74.	74.	.97		
ROUTED TO	100RET	73.	6.50	71.	49.	49.	.97	16.68	5.85
ROUTED TO	105R	71.	8.55	69.	45.	45.	.97	.84	7.00
3 COMBINED AT	110C	1923.	5.40	775.	396.	396.	8.76		
ROUTED TO	115RET	1631.	5.80	775.	396.	396.	8.76	6.39	5.75
DIVERSION TO	125D	1171.	5.85	698.	365.	365.	8.76		
HYDROGRAPH AT	120D	460.	5.80	76.	31.	31.	8.76		
DIVERSION TO	135D	34.	5.70	3.	1.	1.	8.76		
HYDROGRAPH AT	130D	429.	5.80	73.	29.	29.	8.76		
HYDROGRAPH AT	140S	481.	5.15	145.	59.	59.	1.23		
HYDROGRAPH AT	145S	584.	4.35	63.	25.	25.	.38		

ROUTED TO	150RET	11.	5.65	11.	8.	8.	.38	15.09	5.25
ROUTED TO	155R	11.	10.90	11.	6.	6.	.38	.01	7.20
3 COMBINED AT	160C	599.	5.75	163.	69.	69.	10.37		
DIVERSION TO	170D	469.	5.80	148.	63.	63.	10.37		
HYDROGRAPH AT	165D	139.	5.65	16.	6.	6.	10.37		
HYDROGRAPH AT	175S	359.	4.30	88.	36.	36.	.30		
2 COMBINED AT	180C	246.	4.45	94.	39.	39.	10.67		
DIVERSION TO	190D	115.	3.90	60.	25.	25.	10.67		
HYDROGRAPH AT	185D	131.	4.45	34.	14.	14.	10.67		
HYDROGRAPH AT	195S	648.	4.25	127.	52.	52.	.40		
2 COMBINED AT	200C	543.	4.35	151.	61.	61.	11.07		
DIVERSION TO	210D	156.	3.75	81.	33.	33.	11.07		
HYDROGRAPH AT	205D	387.	4.35	70.	28.	28.	11.07		
HYDROGRAPH AT	135RD	34.	5.70	3.	1.	1.	8.76		
2 COMBINED AT	215C	387.	4.35	72.	29.	29.	11.07		
ROUTED TO	220RET	318.	4.65	57.	23.	23.	11.07	96.05	4.75
HYDROGRAPH AT	210RD	156.	3.75	81.	33.	33.	11.07		
2 COMBINED AT	225C	474.	4.65	137.	56.	56.	11.07		
ROUTED TO	230R	408.	4.95	135.	56.	56.	11.07	.78	4.80
HYDROGRAPH AT	235S	177.	4.05	20.	8.	8.	.06		
ROUTED TO	240R	105.	4.25	19.	8.	8.	.06	.69	4.45
HYDROGRAPH AT	190RD	115.	3.90	60.	25.	25.	10.67		
ROUTED TO	245R	114.	5.45	59.	25.	25.	10.67	.57	4.90
HYDROGRAPH AT	250S	1064.	4.75	218.	88.	88.	1.10		
HYDROGRAPH AT	125RD	1171.	5.85	698.	365.	365.	8.76		
HYDROGRAPH AT	170RD	469.	5.80	148.	63.	63.	10.37		
HYDROGRAPH AT	255S	334.	5.15	105.	43.	43.	.62		
3 COMBINED AT	260C	2089.	5.40	1110.	546.	546.	.62		
ROUTED TO	265R	2009.	5.80	1097.	535.	535.	.62	1.20	6.50
5 COMBINED AT	270C	2204.	5.80	1197.	593.	593.	12.85		
ROUTED TO	275R	2191.	5.90	1194.	586.	586.	12.85	1.38	5.40
HYDROGRAPH AT	280S	538.	4.50	129.	53.	53.	.74		
2 COMBINED AT	285C	2276.	5.75	1267.	619.	619.	13.59		

ROUTED TO	290R	2225.	6.10	1251.	610.	610.	13.59	2.72	6.20
HYDROGRAPH AT	295S	200.	5.00	60.	25.	25.	.35		
2 COMBINED AT	300C	2277.	6.05	1283.	624.	624.	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	53.	5.10	16.	6.	6.	.10		
2 COMBINED AT	330C	1783.	5.10	1746.	1736.	1736.	.20		
ROUTED TO	335R	1783.	5.20	1746.	1736.	1736.	.20	2.94	5.45
HYDROGRAPH AT	340S	132.	4.15	13.	5.	5.	.09		
2 COMBINED AT	345C	1866.	4.15	1759.	1742.	1742.	.29		
HYDROGRAPH AT	350S	684.	4.15	54.	22.	22.	.26		
ROUTED TO	355R	632.	4.20	54.	22.	22.	.26	.31	4.50
3 COMBINED AT	360C	4018.	6.00	3044.	2374.	2374.	14.49		
ROUTED TO	370R	3996.	6.20	3040.	2370.	2370.	14.49	1292.52	6.30
HYDROGRAPH AT	375S	876.	4.70	162.	65.	65.	.98		
HYDROGRAPH AT	380S	744.	5.10	187.	76.	76.	1.40		
ROUTED TO	385R	667.	5.35	186.	76.	76.	1.40	6.86	5.50
HYDROGRAPH AT	390S	1099.	4.50	151.	61.	61.	.80		
2 COMBINED AT	395C	1012.	4.65	310.	127.	127.	2.20		
ROUTED TO	400R	829.	5.20	307.	127.	127.	2.20	1300.31	5.35
HYDROGRAPH AT	405S	1006.	5.15	312.	129.	129.	1.78		
2 COMBINED AT	410C	1657.	5.20	570.	237.	237.	3.98		
ROUTED TO	411RET	1579.	5.40	568.	237.	237.	3.98	1296.68	5.70
ROUTED TO	412RET	1364.	5.85	558.	236.	236.	3.98	1294.49	6.60
ROUTED TO	413RET	536.	7.55	395.	196.	196.	3.98	1292.63	9.30
ROUTED TO	415RET	436.	9.10	350.	173.	173.	3.98	1290.29	11.65
ROUTED TO	420R	433.	9.35	347.	167.	167.	3.98	1276.43	12.55
HYDROGRAPH AT	425S	924.	4.90	381.	162.	162.	1.72		
ROUTED TO	430RET	874.	5.20	373.	161.	161.	1.72	2.73	5.85
DIVERSION TO	433D	367.	5.20	62.	25.	25.	1.72		
HYDROGRAPH AT	432D	507.	5.20	311.	136.	136.	1.72		
ROUTED TO	435R	488.	5.70	307.	135.	135.	1.72	1.19	6.20
HYDROGRAPH AT	440S	1015.	4.35	200.	81.	81.	.85		

2 COMBINED AT	445C	976.	4.60	485.	213.	213.	2.57		
DIVERSION TO	455D	506.	4.60	117.	47.	47.	2.57		
HYDROGRAPH AT	450D	470.	4.00	368.	166.	166.	2.57		
ROUTED TO	460R	470.	6.65	366.	166.	166.	2.57	6.00	5.00
HYDROGRAPH AT	465S	1289.	4.55	364.	150.	150.	1.36		
ROUTED TO	470R	1216.	4.75	362.	150.	150.	1.36	1.19	5.00
HYDROGRAPH AT	475S	857.	4.50	147.	59.	59.	.60		
2 COMBINED AT	480C	1826.	4.70	501.	206.	206.	1.96		
ROUTED TO	485R	1669.	4.90	497.	206.	206.	1.96	1.60	5.25
HYDROGRAPH AT	490S	567.	4.75	199.	83.	83.	1.12		
3 COMBINED AT	495C	2408.	4.95	997.	432.	432.	5.64		
DIVERSION TO	505D	1858.	4.95	530.	213.	213.	5.64		
HYDROGRAPH AT	500D	550.	4.00	467.	219.	219.	5.64		
ROUTED TO	510R	550.	7.65	463.	218.	218.	5.64	1.72	6.50
HYDROGRAPH AT	515S	397.	4.45	102.	42.	42.	.48		
2 COMBINED AT	520C	793.	4.70	541.	253.	253.	6.12		
DIVERSION TO	525D	725.	4.70	473.	200.	200.	6.12		
HYDROGRAPH AT	530D	68.	3.20	68.	53.	53.	6.12		
4 COMBINED AT	535C	4004.	6.15	3260.	2559.	2559.	19.90		
ROUTED TO	540R	4001.	6.20	3259.	2556.	2556.	19.90	1256.75	6.30
HYDROGRAPH AT	545S	326.	4.55	55.	22.	22.	.30		
2 COMBINED AT	550C	4012.	6.20	3282.	2568.	2568.	20.20		
ROUTED TO	555R	4003.	6.35	3279.	2564.	2564.	20.20	1240.10	6.35
HYDROGRAPH AT	560S	251.	4.25	37.	15.	15.	.19		
DIVERSION TO	570D	12.	3.60	7.	3.	3.	.19		
HYDROGRAPH AT	565D	239.	4.25	31.	12.	12.	.19		
ROUTED TO	575R	160.	4.55	30.	12.	12.	.19	.06	4.90
HYDROGRAPH AT	580S	1038.	4.35	178.	72.	72.	.91		
3 COMBINED AT	585C	4017.	6.25	3360.	2614.	2614.	21.30		
ROUTED TO	590R	4012.	6.35	3359.	2611.	2611.	21.30	1225.41	6.20
HYDROGRAPH AT	595S	142.	5.15	53.	22.	22.	.30		
HYDROGRAPH AT	600S	600.	5.10	157.	64.	64.	1.03		
ROUTED TO	605R	593.	5.20	157.	64.	64.	1.03	.31	5.45

HYDROGRAPH AT	610S	660.	4.40	129.	52.	52.	.69		
DIVERSION TO	616D	660.	4.40	78.	31.	31.	.69		
HYDROGRAPH AT	615RET	430.	4.75	52.	21.	21.	.69		
2 COMBINED AT	620C	823.	5.05	190.	77.	77.	1.72		
ROUTED TO	625R	733.	5.30	189.	77.	77.	1.72	.83	5.90
HYDROGRAPH AT	630S	333.	4.35	65.	26.	26.	.34		
2 COMBINED AT	635C	805.	5.30	239.	98.	98.	2.05		
3 COMBINED AT	640C	4266.	6.05	3491.	2667.	2667.	23.65		
ROUTED TO	645R	4264.	6.15	3490.	2665.	2665.	23.65	1196.02	6.15
HYDROGRAPH AT	650S	137.	4.45	21.	8.	8.	.13		
2 COMBINED AT	655C	4265.	6.15	3497.	2668.	2668.	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  07/27/1990  TIME  15:56:05 *
*                                       *
*****************************************
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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 # 1090-05)
  4       ID   JULY 1990   JKM/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    .883    .295
 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       1    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   1.350    .688
 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      1    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   1.500    .829
  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      1    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   1.367   1.134
  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   1.500    .836
 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      1    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      1    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   1.400    .798
  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      1    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      76
  168     SE    3.8       4       6       8      10      11      12      13    13.7      14
  169     SQ      0       1     176     414     680     880    1091    1593    2678    3746

  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    .650    .409
  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      1    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    .867   1.005
  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
  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    .020  80.000
  242     UC   .667    .580
  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
  250     KM   DI REPRESENTS TOTAL FLOW TO DEPRESSED INTERCHANGE AT DEER VALLEY RD.
  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
  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     1    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   .300   .228
  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     1    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
  295     DR   190D

  296     KK   245R
  297     KM   ROUTE 190RD TO CP OF 250S ALONG NATURAL CHANNEL
  298     RS     1    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   .230 26.000
  306     UC  1.450   .731
  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    .240  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       1    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       1    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   1.450   1.011
  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       1    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    .350  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 1730 CFS PER COMPUTATION
  369     KM   SOURCE:
  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      1    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      1    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    .450    .355
  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   .367   .149
  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     1   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     1   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  1.267   .635
  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     1   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   1.017    .394
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      1   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, AR SOURCE:  ARROWHEA
  494     KM       DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  495     RS       1    ELEV  1292.0
  496     SV       0    29.8   61.7   91.6   122.5   154.5   186.3   225.3   264.3   303.1
  497     SE  1292.0  1292.5  1293.0  1293.5  1294.0  1294.5  1295.0  1295.5  1296.0  1296.5
  498     SQ       0      47     132     242     373     522     686     865    1056    1260

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

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

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

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

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

  536     KK   435R
  537     KM   ROUTE 432D TO CP OF 440S ALONG UNION HILLS DRIVE (INVERTED CROWN) -
  538     KM   27TH AVENUE TO DIGITAL'S CULVERT OUTLET ON WEST SIDE OF I-17
  539     RS      1   FLOW     -1
  540     RC   .025    .02   .025   6800   .004      4
  541     RX    45   59.9     60    100  100.1    140  140.1    155
  542     RY   1.5    1.5      1      0      0      1    1.5    1.5

  543     KK   440S
  544     KM   SUB-BASIN 440
  545     BA   .846
  546     LG   .200   .300  9.300   .060 20.000
  547     UC   .983   .639
  548     UA     0      5     16     30     65     77     84     90     94     97
  549     UA   100

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

  553     KK   450D
  554     KM   CAPACITY OF UNION HILLS DRIVE INVERTED CROWN SECTION IS 470 CFS
  555     KM   REMAINING FLOW (DQ) BREAKS OUT TO THESOUTH BETWEEN I-17 AND 35TH AVENUE
  556     DT   455D
  557     DI     0    100    300    470    500   1000   2000
  558     DQ     0      0      0      0     30    530   1530

  559     KK   460R
  560     KM   ROUTE 450D TO CP OF 490S ALONG UNION HILLS DRIVE - 35TH TO 43RD AVENUE
  561     RS      1   FLOW     -1
  562     RC    .02   .025    .03   5280   .004
  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      1   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    .900    .579
  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       1    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    .290  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   CAPACITY OF THE UNION HILLS DIRVE AND CHANNEL IS 550 CFS
  606     KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 35TH AVENUE
  607     KM   AND 43RD AVENUE
  608     DT   505D
  609     DI       0     100     300     550     600    1000    2000
  610     DQ       0       0       0       0      50     450    1450

  611     KK   510R
  612     KM   ROUTE 500D TO CP OF 515S ALONG UNION HILLS DRIVE - 43RD TO 51ST AVENUE
  613     RS       1    FLOW      -1
  614     RC    .025     .02    .025    7500   .0042       4
  615     RX      45    59.9      60     100   100.1     140   140.1     155
  616     RY     1.5     1.5       1       0       0       1     1.5     1.5

  617     KK   515S
  618     KM   SUB-BASIN 515
  619     BA    .476
  620     LG    .120    .340   4.600    .340  32.000
  621     UC   1.183   1.090
  622     UA       0       5      16      30      65      77      84      90      94      97
  623     UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

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

627       KK   530D
628       KM   CAPACITY OF UNION HILLS DRIVE AND 4-15" CULVERTS IS 68 CFS
629       KM   THE REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 43RD AVENUE
630       KM   AND 55TH AVENUE
631       DT   525D
632       DI     0     68    100    500   1000   2000
633       DQ     0      0     32    432    932   1932

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

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

643       KK   545S
644       KM   SUB-BASIN 545
645       BA   .296
646       LG   .310   .330  4.000   .340 15.000
647       UC  1.033   .706
648       UA     0      3      5      8     12     20     43     75     90     96
649       UA   100

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

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

659       KK   560S
660       KM   SUB-BASIN 560
661       BA   .190
662       LG   .150   .350  4.400   .350 21.000
663       UC   .683   .523
664       UA     0      5     16     30     65     77     84     90     94     97
665       UA   100
```

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

  666     KK   565D
  667     KM   CAPACITY OF 59TH AVENUE IS 12 CFS.
  668     KM   THIS IS DIVERTED OUT OF THE WATERSHED (DQ).
  669     DT   570D
  670     DI      0      12      50     100     500    1000
  671     DQ      0      12      12      12      12      12

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

  678     KK   580S
  679     KM   SUB-BASIN 580
  680     BA   .914
  681     LG   .200    .340   4.500    .340  25.000
  682     UC  1.117    .509
  683     UA      0       5      16      30      65      77      84      90      94      97
  684     UA    100

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

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

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

  701     KK   600S
  702     KM   SUB-BASIN 600
  703     BA  1.027
  704     LG   .440    .250   5.500    .330   8.000
  705     UC  1.500    .874
  706     UA      0       3       5       8      12      20      43      75      90      96
  707     UA    100
```

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

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

  714     KK   610S
  715     KM   SUB-BASIN 610
  716     BA   .690
  717     LG   .210    .270   6.800    .300  19.000
  718     UC  1.117    .637
  719     UA      0       5      16      30      65      77      84      90      94      97
  720     UA    100

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

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

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

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

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

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

  748     KK   645R
  749     KM   ROUTE 585C TO CP OF 595S ALONG SKUNK CREEK FROM BELL ROAD TO ACDC
  750     RS      1    FLOW      -1
  751     RC    .04     .03     .04    3500   .0068
  752     RX    250     260     360     500     545     600     720     800
  753     RY   1212    1210    1208    1192    1192    1210    1210    1211
```

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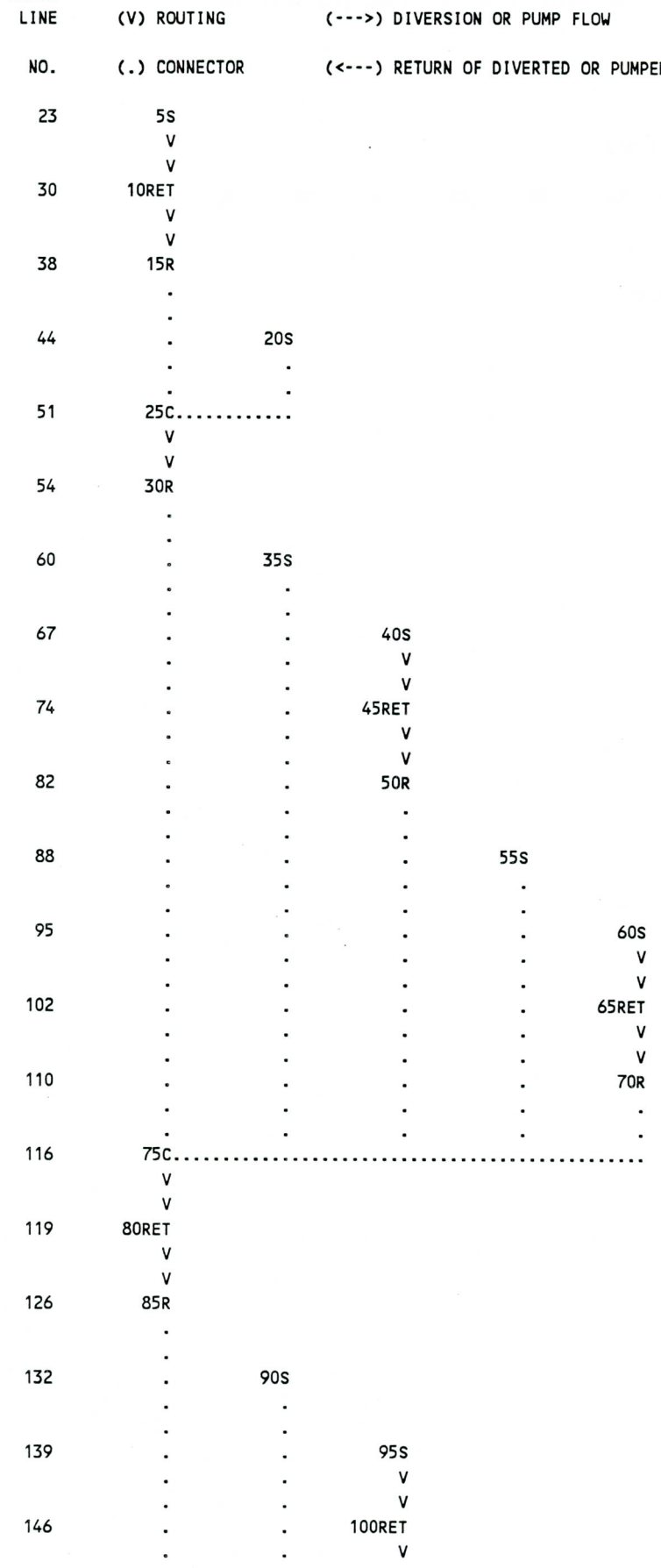
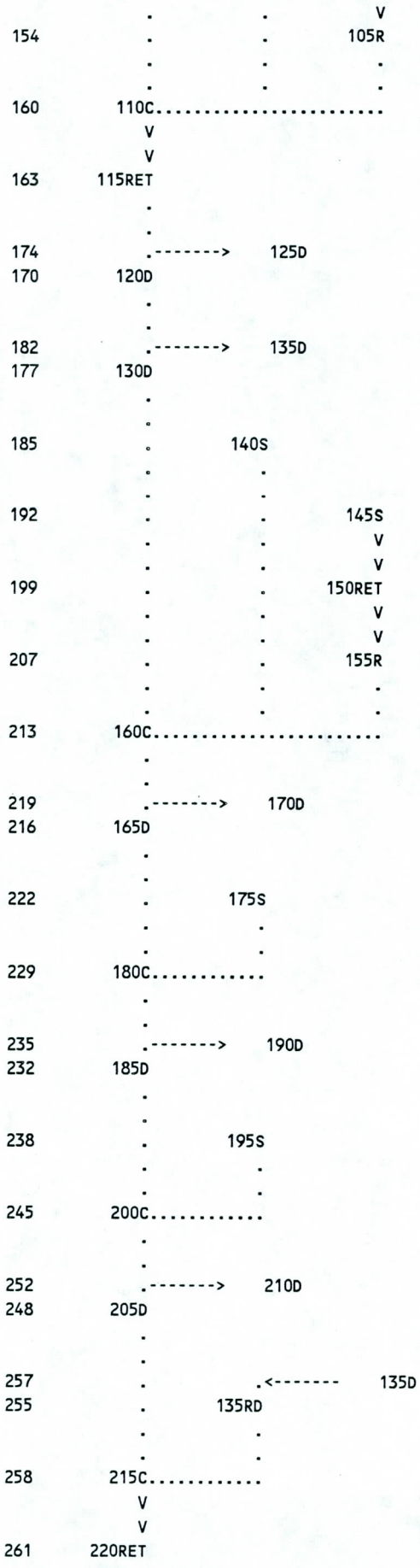
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  754         KK    650S
  755         KM   SUB-BASIN 650
  756         BA    .125
  757         LG    .340    .350   3.700    .350   4.000
  758         UC    .883    .701
  759         UA       0       3       5       8      12      20      43      75      90      96
  760         UA     100

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

SCHEMATIC DIAGRAM OF STREAM NETWORK

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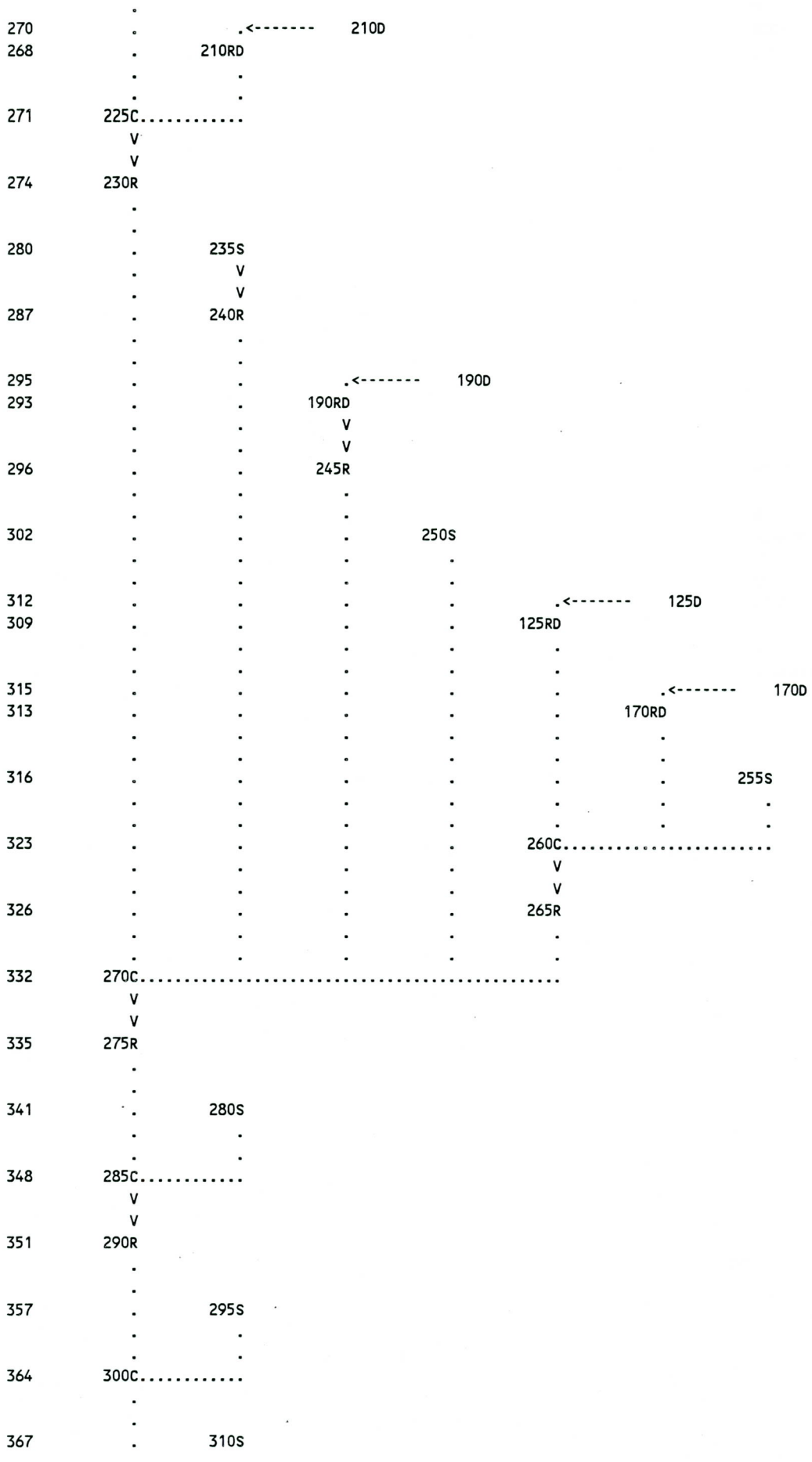
160 110C
163 115RET
174 125D
170 120D
182 135D
177 130D
185 140S
192 145S
199 150RET
207 155R
213 160C
219 170D
216 165D
222 175S
229 180C
235 190D
232 185D
238 195S
245 200C
252 210D
248 205D
257 135D
255 135RD
258 215C
261 220RET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296
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302
250S
312
125D
309
125RD
315
170D
313
170RD
316
255S
323
260C
326
265R
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351
290R
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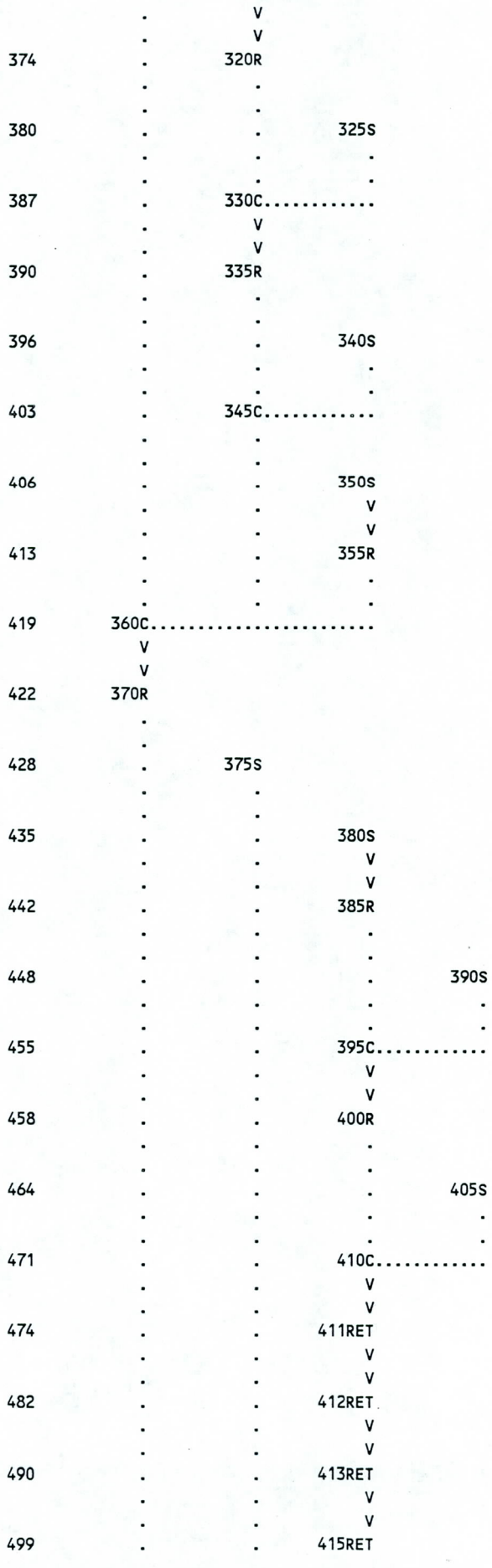
295S
364
300C
367
310S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387 330C
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406 350S
413 355R
419 360C
422 370R
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442 385R
448 390S
455 395C
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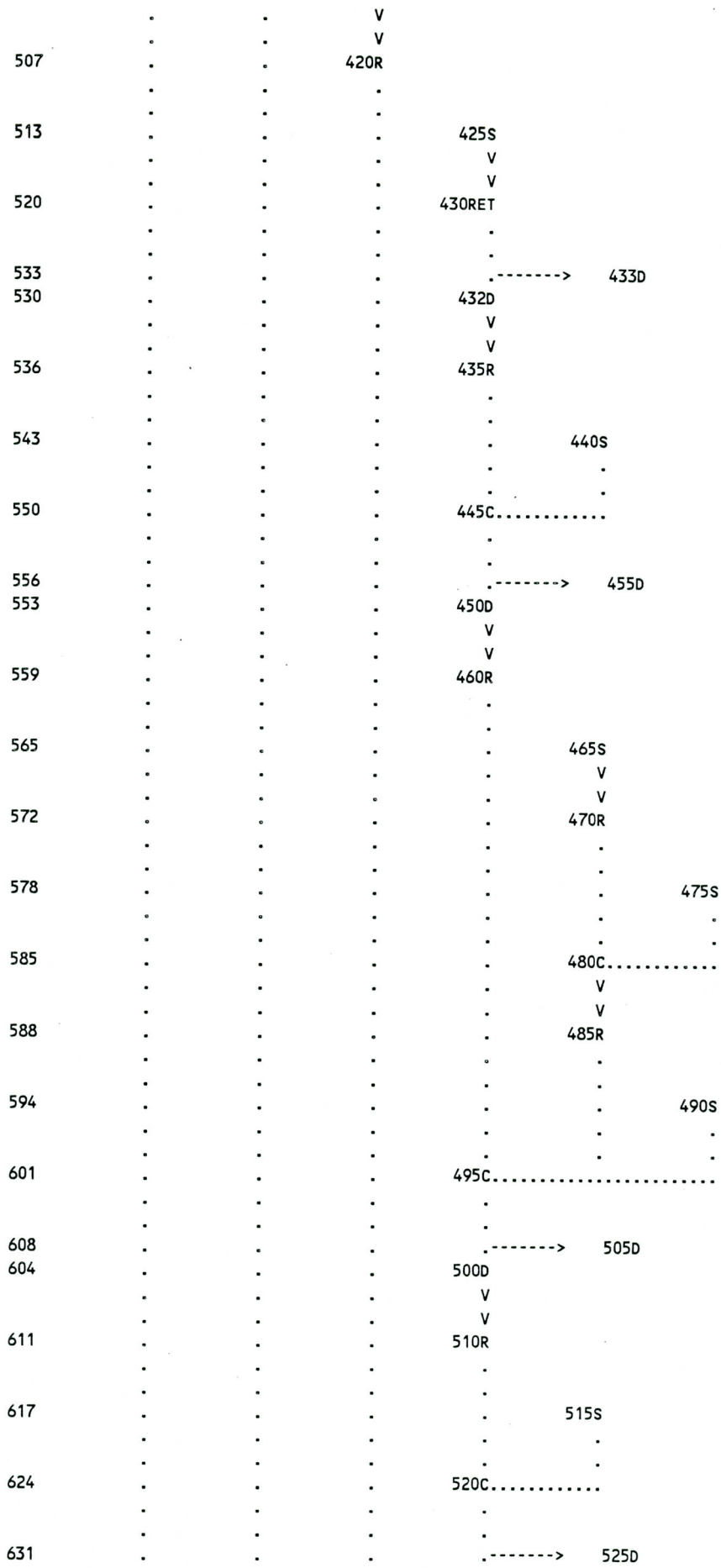
464 405S
471 410C
474 411RET
482 412RET
490 413RET
499 415RET


V
V
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533 433D
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550 445C
556 455D
553 450D
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559 460R
565 465S
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572 470R
578 475S
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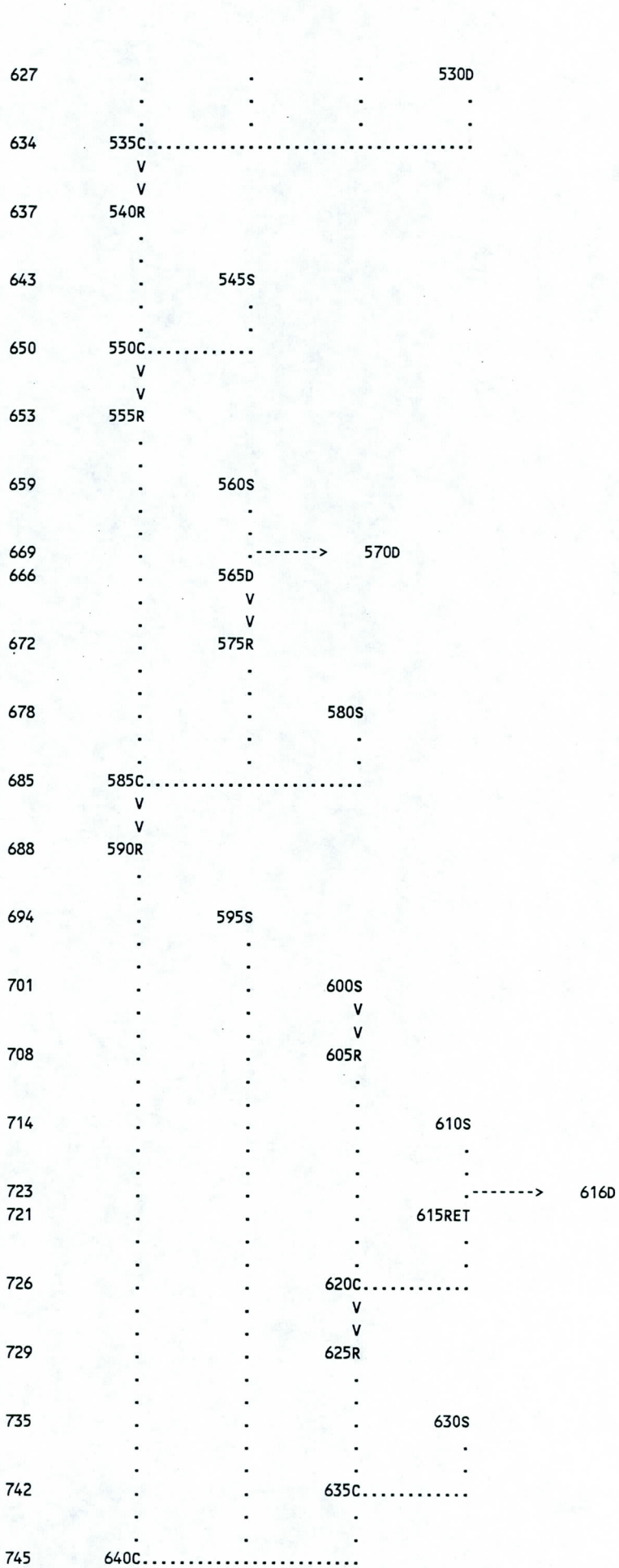
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672
575R
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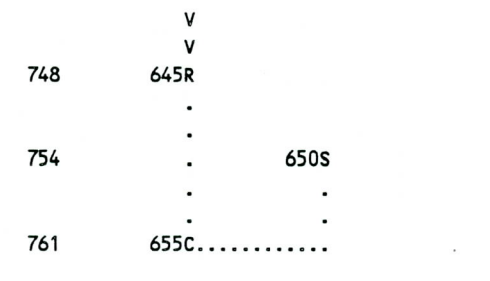
640C



(***) 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  07/27/1990  TIME  15:56:05 *
*                                       *
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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)
JULY 1990 JKM/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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      .00    .00    .00    .00    .00    .00    .00    .00    .00
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

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.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	.03	.05	.05	.05	.05	.05	.05	.05
.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	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	

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	701.	12.53	92.	29.	29.	1.33		
ROUTED TO	10RET	74.	13.33	68.	26.	26.	1.33	17.36	13.33
ROUTED TO	15R	72.	14.27	67.	25.	25.	1.33	1.22	14.27
HYDROGRAPH AT	20S	378.	12.93	79.	24.	24.	1.38		
2 COMBINED AT	25C	430.	12.93	140.	48.	48.	2.71		
ROUTED TO	30R	333.	13.27	139.	47.	47.	2.71	1.58	13.33
HYDROGRAPH AT	35S	310.	13.00	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	34.	15.20	31.	11.	11.	.55	.73	14.93
HYDROGRAPH AT	55S	89.	13.00	25.	8.	8.	.59		
HYDROGRAPH AT	60S	351.	13.00	91.	29.	29.	1.20		
ROUTED TO	65RET	81.	14.47	75.	28.	28.	1.20	17.80	14.40
ROUTED TO	70R	80.	15.27	73.	26.	26.	1.20	.97	15.20
5 COMBINED AT	75C	748.	13.13	323.	112.	112.	6.56		
ROUTED TO	80RET	612.	13.67	323.	111.	111.	6.56	16.09	13.60
ROUTED TO	85R	611.	13.73	323.	111.	111.	6.56	3.72	13.67
HYDROGRAPH AT	90S	154.	13.07	43.	13.	13.	1.23		
HYDROGRAPH AT	95S	291.	12.93	70.	22.	22.	.97		
ROUTED TO	100RET	55.	14.47	52.	20.	20.	.97	17.41	14.40
ROUTED TO	105R	53.	16.00	50.	17.	17.	.97	.96	15.93
3 COMBINED AT	110C	739.	13.53	402.	139.	139.	8.76		
ROUTED TO	115RET	701.	14.00	402.	139.	139.	8.76	9.60	13.93
DIVERSION TO	125D	701.	14.00	402.	139.	139.	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	140.	12.40	18.	6.	6.	.38		

ROUTED TO	150RET	8.	13.60	8.	3.	3.	.38	17.20	13.53
ROUTED TO	155R	8.	19.20	7.	2.	2.	.38	.32	18.27
3 COMBINED AT	160C	113.	13.13	38.	13.	13.	10.37		
DIVERSION TO	170D	102.	13.13	35.	12.	12.	10.37		
HYDROGRAPH AT	165D	0.	.07	0.	0.	0.	10.37		
HYDROGRAPH AT	175S	125.	12.40	46.	18.	18.	.30		
2 COMBINED AT	180C	120.	12.40	45.	18.	18.	10.67		
DIVERSION TO	190D	115.	12.40	45.	17.	17.	10.67		
HYDROGRAPH AT	185D	5.	12.40	0.	0.	0.	10.67		
HYDROGRAPH AT	195S	258.	12.27	69.	27.	27.	.40		
2 COMBINED AT	200C	248.	12.27	67.	26.	26.	11.07		
DIVERSION TO	210D	156.	12.00	59.	24.	24.	11.07		
HYDROGRAPH AT	205D	92.	12.27	8.	2.	2.	11.07		
HYDROGRAPH AT	135RD	0.	.07	0.	0.	0.	8.76		
2 COMBINED AT	215C	92.	12.27	8.	2.	2.	11.07		
ROUTED TO	220RET	1.	12.87	1.	0.	0.	11.07	96.32	12.80
HYDROGRAPH AT	210RD	156.	12.00	59.	24.	24.	11.07		
2 COMBINED AT	225C	157.	12.73	59.	24.	24.	11.07		
ROUTED TO	230R	149.	12.87	59.	23.	23.	11.07	.78	12.80
HYDROGRAPH AT	235S	63.	12.07	11.	4.	4.	.06		
ROUTED TO	240R	43.	12.27	11.	4.	4.	.06	.85	12.27
HYDROGRAPH AT	190RD	115.	12.40	45.	17.	17.	10.67		
ROUTED TO	245R	101.	12.87	44.	17.	17.	10.67	.60	12.87
HYDROGRAPH AT	250S	333.	13.00	93.	33.	33.	1.10		
HYDROGRAPH AT	125RD	701.	14.00	402.	139.	139.	8.76		
HYDROGRAPH AT	170RD	102.	13.13	35.	12.	12.	10.37		
HYDROGRAPH AT	255S	107.	13.07	36.	12.	12.	.62		
3 COMBINED AT	260C	871.	13.67	493.	170.	170.	.62		
ROUTED TO	265R	838.	14.13	483.	163.	163.	.62	2.31	14.13
5 COMBINED AT	270C	1057.	13.60	615.	225.	225.	12.85		
ROUTED TO	275R	1040.	13.87	611.	221.	221.	12.85	2.03	13.93
HYDROGRAPH AT	280S	139.	12.60	46.	16.	16.	.74		
2 COMBINED AT	285C	1094.	13.80	645.	234.	234.	13.59		

ROUTED TO	290R	1025.	14.33	635.	228.	228.	13.59	3.24	14.40
HYDROGRAPH AT	295S	53.	13.07	20.	7.	7.	.35		
2 COMBINED AT	300C	1046.	14.33	650.	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	1460.	13.20	1400.	1380.	1380.	.75	2.64	13.20
HYDROGRAPH AT	340S	23.	12.13	4.	1.	1.	.09		
2 COMBINED AT	345C	1464.	13.13	1403.	1381.	1381.	.84		
HYDROGRAPH AT	350S	186.	12.13	22.	8.	8.	.26		
ROUTED TO	355R	168.	12.27	22.	8.	8.	.26	.71	12.27
3 COMBINED AT	360C	2448.	14.27	2048.	1618.	1618.	15.04		
ROUTED TO	370R	2433.	14.53	2046.	1615.	1615.	15.04	1292.62	14.53
HYDROGRAPH AT	375S	236.	12.87	58.	21.	21.	.98		
HYDROGRAPH AT	380S	216.	13.07	58.	19.	19.	1.40		
ROUTED TO	385R	205.	13.20	57.	19.	19.	1.40	7.77	13.20
HYDROGRAPH AT	390S	312.	12.67	60.	21.	21.	.80		
2 COMBINED AT	395C	389.	12.73	116.	40.	40.	2.20		
ROUTED TO	400R	285.	13.33	114.	40.	40.	2.20	1300.70	13.40
HYDROGRAPH AT	405S	408.	13.07	133.	47.	47.	1.78		
2 COMBINED AT	410C	658.	13.20	244.	85.	85.	3.98		
ROUTED TO	411RET	600.	13.47	242.	85.	85.	3.98	1297.21	13.47
ROUTED TO	412RET	473.	14.07	236.	83.	83.	3.98	1294.85	14.13
ROUTED TO	413RET	177.	16.33	146.	48.	48.	3.98	1293.03	16.73
ROUTED TO	415RET	145.	18.53	101.	33.	33.	3.98	1290.56	19.20
ROUTED TO	420R	144.	19.00	89.	29.	29.	3.98	1276.70	19.60
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	309.	13.93	180.	65.	65.	1.72	1.32	13.93
HYDROGRAPH AT	440S	379.	12.40	90.	30.	30.	.85		

2 COMBINED AT	445C	434.	12.40	263.	95.	95.	2.57		
DIVERSION TO	455D	0.	.07	0.	0.	0.	2.57		
HYDROGRAPH AT	450D	434.	12.40	263.	95.	95.	2.57		
ROUTED TO	460R	414.	13.00	262.	94.	94.	2.57	6.25	12.87
HYDROGRAPH AT	465S	500.	12.60	186.	70.	70.	1.36		
ROUTED TO	470R	457.	13.00	185.	69.	69.	1.36	1.29	13.00
HYDROGRAPH AT	475S	323.	12.60	68.	22.	22.	.60		
2 COMBINED AT	480C	722.	12.73	251.	91.	91.	1.96		
ROUTED TO	485R	624.	13.13	249.	89.	89.	1.96	1.73	13.13
HYDROGRAPH AT	490S	208.	12.67	82.	30.	30.	1.12		
3 COMBINED AT	495C	1202.	13.07	582.	209.	209.	5.64		
DIVERSION TO	505D	652.	13.07	165.	50.	50.	5.64		
HYDROGRAPH AT	500D	550.	12.33	416.	160.	160.	5.64		
ROUTED TO	510R	550.	14.93	413.	156.	156.	5.64	1.72	14.80
HYDROGRAPH AT	515S	117.	12.53	43.	16.	16.	.48		
2 COMBINED AT	520C	626.	13.13	453.	171.	171.	6.12		
DIVERSION TO	525D	558.	13.13	385.	125.	125.	6.12		
HYDROGRAPH AT	530D	68.	10.00	68.	47.	47.	6.12		
4 COMBINED AT	535C	2511.	14.47	2182.	1695.	1695.	19.90		
ROUTED TO	540R	2509.	14.60	2181.	1693.	1693.	19.90	1256.88	14.60
HYDROGRAPH AT	545S	83.	12.67	20.	7.	7.	.30		
2 COMBINED AT	550C	2516.	14.60	2193.	1698.	1698.	20.20		
ROUTED TO	555R	2511.	14.73	2191.	1694.	1694.	20.20	1240.27	14.73
HYDROGRAPH AT	560S	71.	12.27	14.	5.	5.	.19		
DIVERSION TO	570D	12.	11.80	6.	3.	3.	.19		
HYDROGRAPH AT	565D	59.	12.27	8.	2.	2.	.19		
ROUTED TO	575R	32.	12.67	8.	2.	2.	.19	.29	12.73
HYDROGRAPH AT	580S	313.	12.40	73.	26.	26.	.91		
3 COMBINED AT	585C	2526.	14.67	2233.	1718.	1718.	21.30		
ROUTED TO	590R	2524.	14.80	2232.	1715.	1715.	21.30	1225.49	14.80
HYDROGRAPH AT	595S	46.	13.13	18.	6.	6.	.30		
HYDROGRAPH AT	600S	187.	13.07	51.	17.	17.	1.03		
ROUTED TO	605R	182.	13.13	51.	17.	17.	1.03	.76	13.20

HYDROGRAPH AT	610S	195.	12.47	49.	17.	17.	.69		
DIVERSION TO	616D	195.	12.47	49.	17.	17.	.69		
HYDROGRAPH AT	615RET	0.	.07	0.	0.	0.	.69		
2 COMBINED AT	620C	182.	13.13	51.	17.	17.	1.72		
ROUTED TO	625R	157.	13.47	51.	17.	17.	1.72	1.95	13.53
HYDROGRAPH AT	630S	88.	12.40	24.	9.	9.	.34		
2 COMBINED AT	635C	195.	13.40	74.	25.	25.	2.05		
3 COMBINED AT	640C	2589.	14.67	2294.	1738.	1738.	23.65		
ROUTED TO	645R	2587.	14.73	2294.	1736.	1736.	23.65	1196.21	14.73
HYDROGRAPH AT	650S	30.	12.60	6.	2.	2.	.13		
2 COMBINED AT	655C	2588.	14.73	2297.	1737.	1737.	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  07/27/1990  TIME  16:02:45 *
*                                       *
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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 # 1090-05)
    4     ID   JULY 1990   JKM/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    .883    .295
   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       1    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   1.350    .688
   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      1    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  1.500    .829
  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      1    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  1.367   1.134
  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    1.500    .836
 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        1    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        1    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   1.400    .798
  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      1    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      76
  168     SE    3.8       4       6       8      10      11      12      13    13.7      14
  169     SQ      0       1     176     414     680     880    1091    1593    2678    3746

  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    .650    .409
  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      1    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    .867   1.005
  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
  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   .020 80.000
  242         UC   .667   .580
  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
  250         KM   DI REPRESENTS TOTAL FLOW TO DEPRESSED INTERCHANGE AT DEER VALLEY RD.
  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
  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     1    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   .300   .228
  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     1    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
  295     DR   190D

  296     KK   245R
  297     KM   ROUTE 190RD TO CP OF 250S ALONG NATURAL CHANNEL
  298     RS     1    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   .230 26.000
  306     UC  1.450   .731
  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    .240  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       1    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       1    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   1.450   1.011
  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       1    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    .350  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 1730 CFS PER COMPUTATION
  369     KM   SOURCE:
  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      1    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      1    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    .450    .355
  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   .367   .149
  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     1   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     1   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  1.267   .635
  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     1   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   1.017    .394
  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      1    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, AR SOURCE:  ARROWHEA
  494     KM       DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  495     RS       1    ELEV  1292.0
  496     SV       0    29.8    61.7    91.6   122.5   154.5   186.3   225.3   264.3   303.1
  497     SE  1292.0  1292.5  1293.0  1293.5  1294.0  1294.5  1295.0  1295.5  1296.0  1296.5
  498     SQ       0      47     132     242     373     522     686     865    1056    1260

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

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

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

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

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

536       KK   435R
537       KM   ROUTE 432D TO CP OF 440S ALONG UNION HILLS DRIVE (INVERTED CROWN) -
538       KM   27TH AVENUE TO DIGITAL'S CULVERT OUTLET ON WEST SIDE OF I-17
539       RS      1    FLOW      -1
540       RC   .025     .02    .025    6800    .004       4
541       RX    45    59.9      60     100   100.1     140   140.1     155
542       RY   1.5     1.5       1       0       0       1     1.5     1.5

543       KK   440S
544       KM   SUB-BASIN 440
545       BA   .846
546       LG   .200    .300   9.300    .060  20.000
547       UC   .983    .639
548       UA      0       5      16      30      65      77      84      90      94      97
549       UA    100

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

553       KK   450D
554       KM   CAPACITY OF UNION HILLS DRIVE INVERTED CROWN SECTION IS 470 CFS
555       KM   REMAINING FLOW (DQ) BREAKS OUT TO THESOUTH BETWEEN I-17 AND 35TH AVENUE
556       DT   455D
557       DI      0     100     300     470     500    1000    2000
558       DQ      0       0       0       0      30     530    1530

559       KK   460R
560       KM   ROUTE 450D TO CP OF 490S ALONG UNION HILLS DRIVE - 35TH TO 43RD AVENUE
561       RS      1    FLOW      -1
562       RC    .02    .025     .03    5280    .004
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      1    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    .900    .579
  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       1    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    .290  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   CAPACITY OF THE UNION HILLS DIRVE AND CHANNEL IS 550 CFS
  606     KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 35TH AVENUE
  607     KM   AND 43RD AVENUE
  608     DT    505D
  609     DI       0     100     300     550     600    1000    2000
  610     DQ       0       0       0       0      50     450    1450

  611     KK   510R
  612     KM   ROUTE 500D TO CP OF 515S ALONG UNION HILLS DRIVE - 43RD TO 51ST AVENUE
  613     RS       1    FLOW      -1
  614     RC    .025     .02    .025    7500   .0042       4
  615     RX      45    59.9      60     100   100.1     140   140.1     155
  616     RY     1.5     1.5       1       0       0       1     1.5     1.5

  617     KK   515S
  618     KM   SUB-BASIN 515
  619     BA    .476
  620     LG    .120    .340   4.600    .340  32.000
  621     UC   1.183   1.090
  622     UA       0       5      16      30      65      77      84      90      94      97
  623     UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

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

 627      KK   530D
 628      KM   CAPACITY OF UNION HILLS DRIVE AND 4-15" CULVERTS IS 68 CFS
 629      KM   THE REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 43RD AVENUE
 630      KM   AND 55TH AVENUE
 631      DT   525D
 632      DI     0     68    100    500   1000   2000
 633      DQ     0      0     32    432    932   1932

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

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

 643      KK   545S
 644      KM   SUB-BASIN 545
 645      BA   .296
 646      LG   .310   .330  4.000   .340 15.000
 647      UC  1.033   .706
 648      UA     0      3      5      8     12     20     43     75     90     96
 649      UA   100

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

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

 659      KK   560S
 660      KM   SUB-BASIN 560
 661      BA   .190
 662      LG   .150   .350  4.400   .350 21.000
 663      UC   .683   .523
 664      UA     0      5     16     30     65     77     84     90     94     97
 665      UA   100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  666     KK   565D
  667     KM   CAPACITY OF 59TH AVENUE IS 12 CFS.
  668     KM   THIS IS DIVERTED OUT OF THE WATERSHED (DQ).
  669     DT   570D
  670     DI      0      12      50     100     500    1000
  671     DQ      0      12      12      12      12      12

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

  678     KK   580S
  679     KM   SUB-BASIN 580
  680     BA    .914
  681     LG    .200    .340   4.500    .340  25.000
  682     UC   1.117    .509
  683     UA       0       5      16      30      65      77      84      90      94      97
  684     UA     100

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

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

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

  701     KK   600S
  702     KM   SUB-BASIN 600
  703     BA   1.027
  704     LG    .440    .250   5.500    .330   8.000
  705     UC   1.500    .874
  706     UA       0       3       5       8      12      20      43      75      90      96
  707     UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

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

  714     KK   610S
  715     KM   SUB-BASIN 610
  716     BA   .690
  717     LG   .210   .270  6.800   .300 19.000
  718     UC 1.117   .637
  719     UA      0      5     16     30     65     77     84     90     94     97
  720     UA    100

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

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

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

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

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

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

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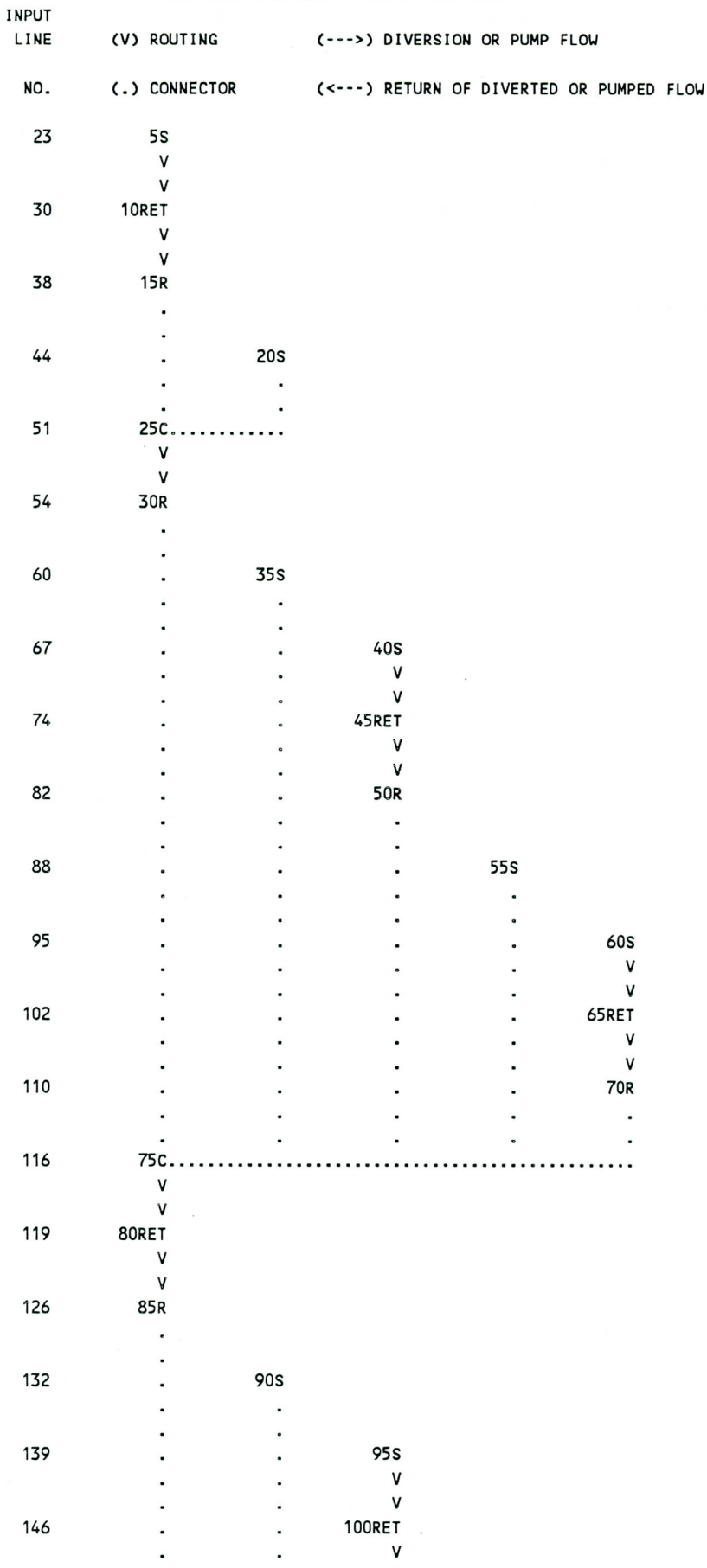
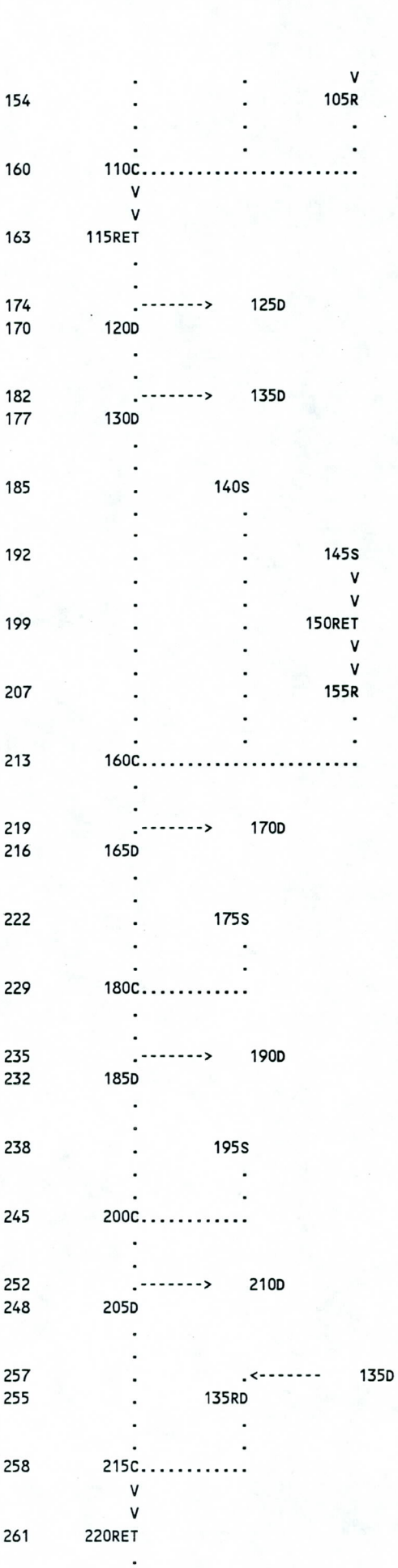
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  754         KK    650S
  755         KM   SUB-BASIN 650
  756         BA    .125
  757         LG    .340    .350   3.700    .350   4.000
  758         UC    .883    .701
  759         UA       0       3       5       8      12      20      43      75      90      96
  760         UA     100

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

SCHEMATIC DIAGRAM OF STREAM NETWORK

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163 115RET
174 125D
170 120D
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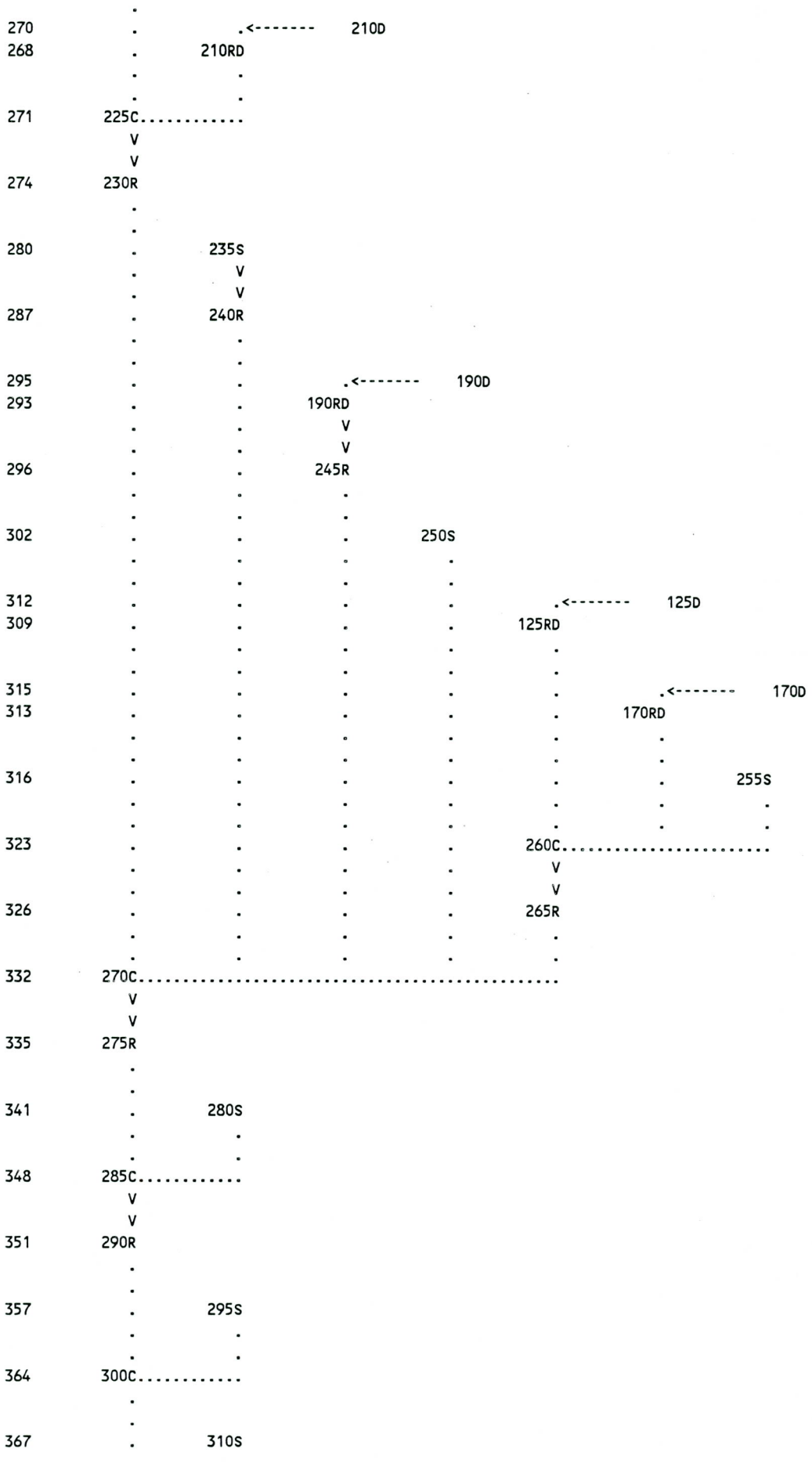
185 140S
192 145S
199 150RET
207 155R
213 160C
219 170D
216 165D
222 175S
229 180C
235 190D
232 185D
238 195S
245 200C
252 210D
248 205D
257 135D
255 135RD
258 215C
261 220RET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250S
312
125D
309
125RD
315
170D
313
170RD
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255S
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260C
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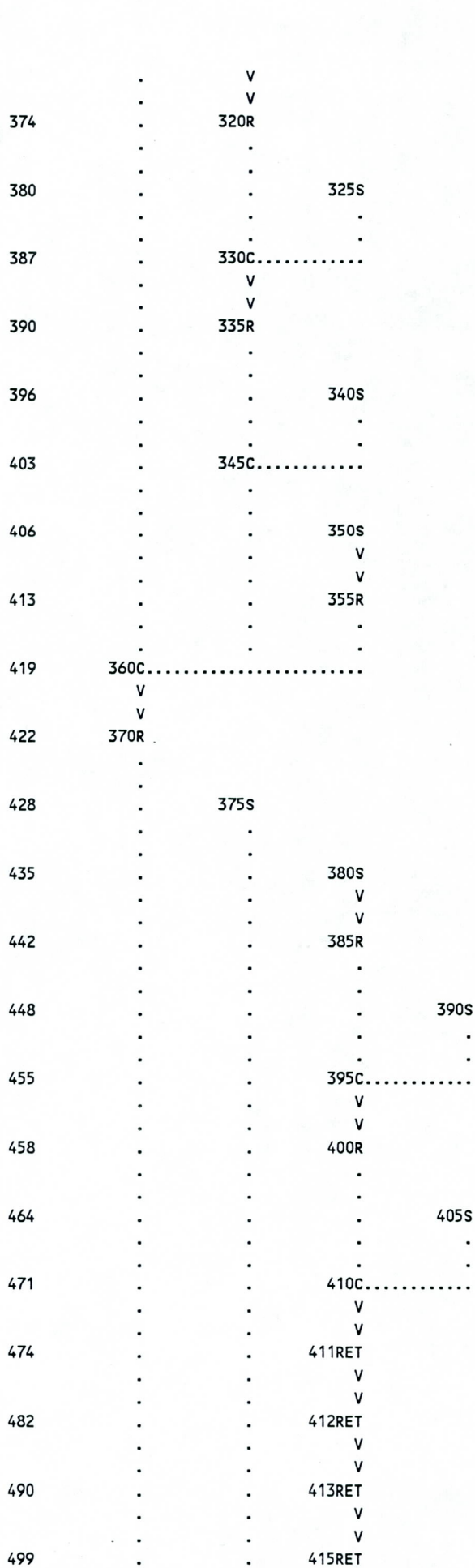
310S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387 330C
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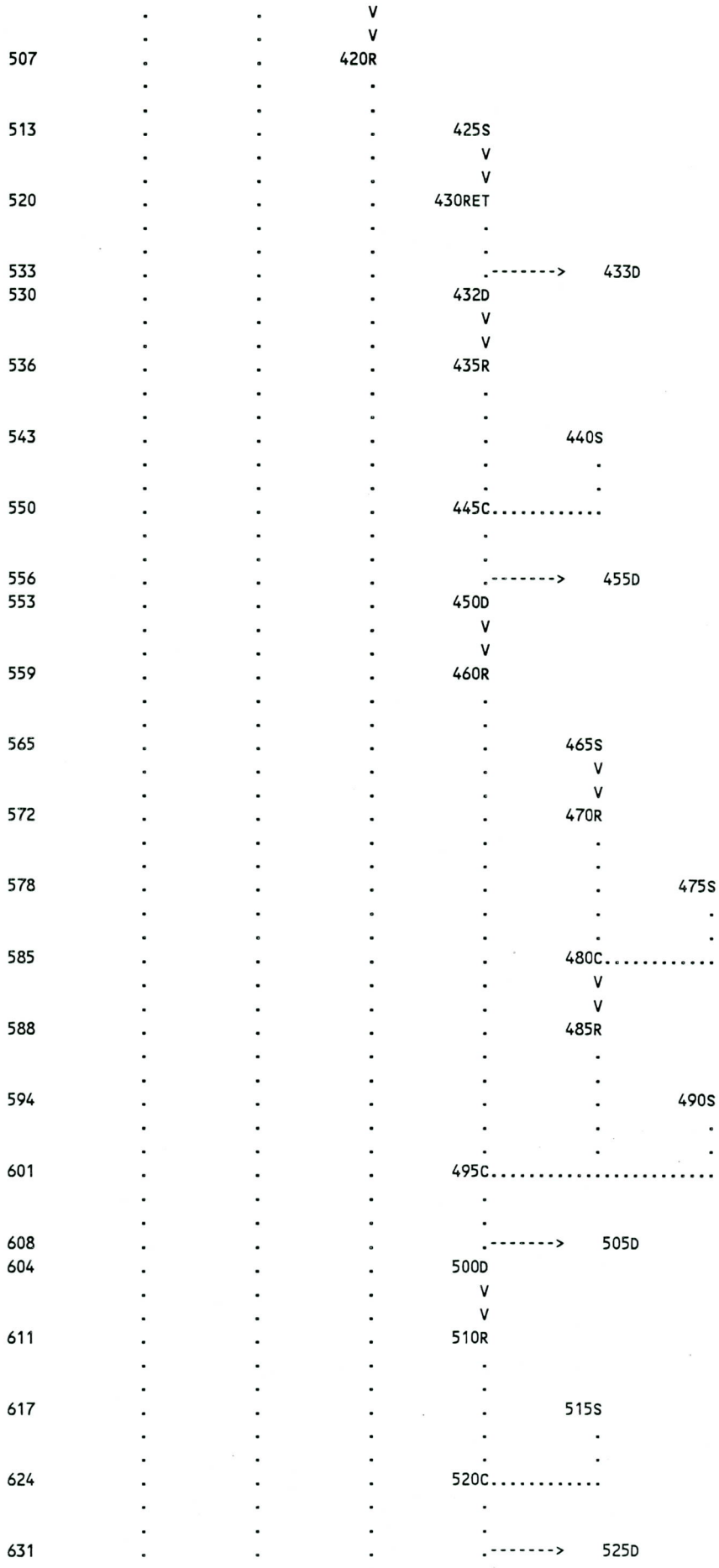
396 340S
403 345C
406 350S
413 355R
419 360C
422 370R
428 375S
435 380S
442 385R
448 390S
455 395C
458 400R
464 405S
471 410C
474 411RET
482 412RET
490 413RET
499 415RET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513
425S
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430RET
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433D
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432D
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435R
543
440S
550
445C
556
455D
553
450D
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460R
565
465S
572
470R
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475S
585
480C
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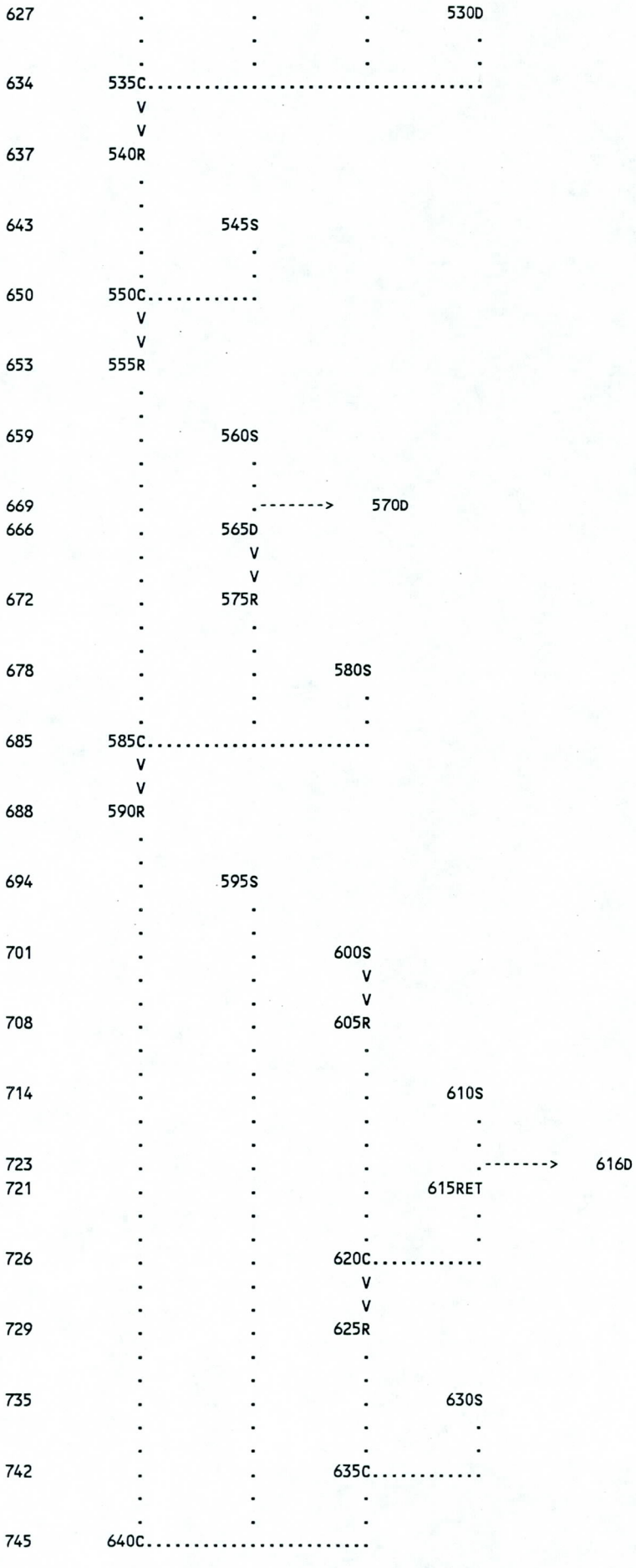
631
525D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708 605R
714 610S
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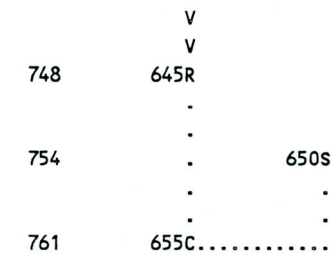
742 635C
745 640C



(***) 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  07/27/1990  TIME  16:02:45 *
*                                       *
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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)
JULY 1990 JKM/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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22 JD      INDEX STORM NO. 5
             STRM      3.15  PRECIPITATION DEPTH
             TRDA     30.00  TRANSPOSITION DRAINAGE AREA
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0 PI PRECIPITATION PATTERN

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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	1269.	12.53	173.	53.	53.	1.33		
ROUTED TO	10RET	86.	13.53	82.	33.	33.	1.33	18.23	13.47
ROUTED TO	15R	85.	14.33	81.	31.	31.	1.33	1.34	14.33
HYDROGRAPH AT	20S	758.	12.87	162.	49.	49.	1.38		
2 COMBINED AT	25C	818.	12.87	235.	79.	79.	2.71		
ROUTED TO	30R	640.	13.27	233.	78.	78.	2.71	2.00	13.27
HYDROGRAPH AT	35S	672.	13.00	162.	49.	49.	1.51		
HYDROGRAPH AT	40S	513.	12.47	79.	25.	25.	.55		
ROUTED TO	45RET	40.	13.67	38.	16.	16.	.55	17.72	13.60
ROUTED TO	50R	39.	15.20	38.	14.	14.	.55	.79	15.20
HYDROGRAPH AT	55S	207.	12.93	59.	18.	18.	.59		
HYDROGRAPH AT	60S	630.	13.00	166.	52.	52.	1.20		
ROUTED TO	65RET	99.	14.87	94.	37.	37.	1.20	19.17	14.80
ROUTED TO	70R	98.	15.53	93.	34.	34.	1.20	1.07	15.47
5 COMBINED AT	75C	1515.	13.07	555.	189.	189.	6.56		
ROUTED TO	80RET	1238.	13.53	555.	188.	188.	6.56	18.08	13.60
ROUTED TO	85R	1212.	13.67	554.	187.	187.	6.56	4.73	13.73
HYDROGRAPH AT	90S	408.	13.07	114.	35.	35.	1.23		
HYDROGRAPH AT	95S	525.	12.93	130.	40.	40.	.97		
ROUTED TO	100RET	65.	14.87	63.	24.	24.	.97	18.39	14.80
ROUTED TO	105R	64.	16.47	61.	22.	22.	.97	1.04	16.40
3 COMBINED AT	110C	1503.	13.60	710.	241.	241.	8.76		
ROUTED TO	115RET	1293.	14.07	710.	240.	240.	8.76	12.06	14.13
DIVERSION TO	125D	1110.	14.07	681.	232.	232.	8.76		
HYDROGRAPH AT	120D	183.	14.07	28.	9.	9.	8.76		
DIVERSION TO	135D	0.	.07	0.	0.	0.	8.76		
HYDROGRAPH AT	130D	183.	14.07	28.	9.	9.	8.76		
HYDROGRAPH AT	140S	348.	13.07	105.	32.	32.	1.23		
HYDROGRAPH AT	145S	294.	12.40	40.	12.	12.	.38		

ROUTED TO	150RET	10.	13.80	10.	4.	4.	.38	18.11	13.80
ROUTED TO	155R	9.	19.00	8.	3.	3.	.38	.36	18.87
3 COMBINED AT	160C	353.	13.93	132.	41.	41.	10.37		
DIVERSION TO	170D	353.	13.93	132.	41.	41.	10.37		
HYDROGRAPH AT	165D	0.	.07	0.	0.	0.	10.37		
HYDROGRAPH AT	175S	190.	12.40	70.	27.	27.	.30		
2 COMBINED AT	180C	183.	12.40	67.	26.	26.	10.67		
DIVERSION TO	190D	115.	12.07	59.	24.	24.	10.67		
HYDROGRAPH AT	185D	68.	12.40	9.	3.	3.	10.67		
HYDROGRAPH AT	195S	380.	12.27	104.	40.	40.	.40		
2 COMBINED AT	200C	425.	12.27	109.	41.	41.	11.07		
DIVERSION TO	210D	156.	11.87	75.	31.	31.	11.07		
HYDROGRAPH AT	205D	269.	12.27	34.	10.	10.	11.07		
HYDROGRAPH AT	135RD	0.	.07	0.	0.	0.	8.76		
2 COMBINED AT	215C	269.	12.27	34.	10.	10.	11.07		
ROUTED TO	220RET	168.	12.67	19.	6.	6.	11.07	96.99	12.73
HYDROGRAPH AT	210RD	156.	11.87	75.	31.	31.	11.07		
2 COMBINED AT	225C	324.	12.67	94.	37.	37.	11.07		
ROUTED TO	230R	272.	13.00	93.	36.	36.	11.07	1.01	13.00
HYDROGRAPH AT	235S	93.	12.07	16.	6.	6.	.06		
ROUTED TO	240R	66.	12.27	16.	6.	6.	.06	1.06	12.27
HYDROGRAPH AT	190RD	115.	12.07	59.	24.	24.	10.67		
ROUTED TO	245R	113.	13.33	58.	23.	23.	10.67	.66	13.27
HYDROGRAPH AT	250S	611.	13.00	164.	57.	57.	1.10		
HYDROGRAPH AT	125RD	1110.	14.07	681.	232.	232.	8.76		
HYDROGRAPH AT	170RD	353.	13.93	132.	41.	41.	10.37		
HYDROGRAPH AT	255S	222.	13.07	73.	24.	24.	.62		
3 COMBINED AT	260C	1678.	13.87	915.	307.	307.	.62		
ROUTED TO	265R	1628.	14.13	903.	299.	299.	.62	3.29	14.13
5 COMBINED AT	270C	2000.	13.40	1138.	400.	400.	12.85		
ROUTED TO	275R	1962.	13.67	1134.	394.	394.	12.85	2.73	13.67
HYDROGRAPH AT	280S	281.	12.60	91.	30.	30.	.74		
2 COMBINED AT	285C	2098.	13.60	1207.	420.	420.	13.59		

ROUTED TO	290R	2001.	14.07	1189.	411.	411.	13.59	3.85	14.07
HYDROGRAPH AT	295S	113.	13.07	40.	13.	13.	.35		
2 COMBINED AT	300C	2056.	14.07	1222.	422.	422.	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	1864.	13.13	1718.	1672.	1672.	.75	3.03	13.13
HYDROGRAPH AT	340S	61.	12.13	9.	3.	3.	.09		
2 COMBINED AT	345C	1871.	13.13	1726.	1675.	1675.	.84		
HYDROGRAPH AT	350S	338.	12.13	38.	13.	13.	.26		
ROUTED TO	355R	322.	12.20	38.	13.	13.	.26	1.06	12.20
3 COMBINED AT	360C	3810.	13.93	2944.	2105.	2105.	15.04		
ROUTED TO	370R	3781.	14.20	2939.	2101.	2101.	15.04	1293.34	14.20
HYDROGRAPH AT	375S	514.	12.87	120.	41.	41.	.98		
HYDROGRAPH AT	380S	554.	13.00	141.	45.	45.	1.40		
ROUTED TO	385R	508.	13.20	141.	45.	45.	1.40	9.17	13.20
HYDROGRAPH AT	390S	613.	12.60	111.	38.	38.	.80		
2 COMBINED AT	395C	876.	12.80	250.	83.	83.	2.20		
ROUTED TO	400R	694.	13.27	248.	83.	83.	2.20	1301.29	13.27
HYDROGRAPH AT	405S	768.	13.07	243.	83.	83.	1.78		
2 COMBINED AT	410C	1422.	13.13	485.	164.	164.	3.98		
ROUTED TO	411RET	1335.	13.40	483.	163.	163.	3.98	1298.19	13.40
ROUTED TO	412RET	1126.	13.87	474.	160.	160.	3.98	1295.60	13.87
ROUTED TO	413RET	438.	15.60	337.	110.	110.	3.98	1293.98	15.80
ROUTED TO	415RET	362.	17.27	270.	85.	85.	3.98	1291.09	17.47
ROUTED TO	420R	359.	17.53	251.	78.	78.	3.98	1277.28	17.80
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	456.	13.87	280.	101.	101.	1.72	1.59	13.93
HYDROGRAPH AT	440S	616.	12.40	151.	50.	50.	.85		

2 COMBINED AT	445C	739.	12.87	422.	150.	150.	2.57		
DIVERSION TO	455D	269.	12.87	69.	21.	21.	2.57		
HYDROGRAPH AT	450D	470.	12.13	353.	130.	130.	2.57		
ROUTED TO	460R	470.	14.53	351.	128.	128.	2.57	6.56	14.40
HYDROGRAPH AT	465S	779.	12.60	288.	108.	108.	1.36		
ROUTED TO	470R	732.	12.93	287.	106.	106.	1.36	1.71	12.93
HYDROGRAPH AT	475S	515.	12.60	116.	38.	38.	.60		
2 COMBINED AT	480C	1174.	12.73	402.	144.	144.	1.96		
ROUTED TO	485R	1057.	13.07	400.	141.	141.	1.96	2.35	13.07
HYDROGRAPH AT	490S	407.	12.67	154.	54.	54.	1.12		
3 COMBINED AT	495C	1876.	13.00	892.	320.	320.	5.64		
DIVERSION TO	505D	1326.	13.00	411.	124.	124.	5.64		
HYDROGRAPH AT	500D	550.	12.13	481.	196.	196.	5.64		
ROUTED TO	510R	550.	15.67	477.	192.	192.	5.64	1.72	15.67
HYDROGRAPH AT	515S	207.	12.53	74.	26.	26.	.48		
2 COMBINED AT	520C	717.	12.87	547.	217.	217.	6.12		
DIVERSION TO	525D	649.	12.87	479.	165.	165.	6.12		
HYDROGRAPH AT	530D	68.	7.53	68.	52.	52.	6.12		
4 COMBINED AT	535C	3904.	14.13	3222.	2246.	2246.	19.90		
ROUTED TO	540R	3901.	14.20	3221.	2243.	2243.	19.90	1257.74	14.20
HYDROGRAPH AT	545S	166.	12.67	38.	13.	13.	.30		
2 COMBINED AT	550C	3924.	14.20	3247.	2254.	2254.	20.20		
ROUTED TO	555R	3911.	14.33	3244.	2248.	2248.	20.20	1241.43	14.33
HYDROGRAPH AT	560S	134.	12.27	26.	9.	9.	.19		
DIVERSION TO	570D	12.	11.67	8.	3.	3.	.19		
HYDROGRAPH AT	565D	122.	12.27	19.	6.	6.	.19		
ROUTED TO	575R	80.	12.60	18.	6.	6.	.19	.55	12.60
HYDROGRAPH AT	580S	588.	12.40	131.	46.	46.	.91		
3 COMBINED AT	585C	3956.	14.27	3331.	2292.	2292.	21.30		
ROUTED TO	590R	3951.	14.40	3329.	2288.	2288.	21.30	1226.10	14.40
HYDROGRAPH AT	595S	92.	13.07	36.	12.	12.	.30		
HYDROGRAPH AT	600S	428.	13.00	114.	37.	37.	1.03		
ROUTED TO	605R	421.	13.07	114.	36.	36.	1.03	1.31	13.13

HYDROGRAPH AT	610S	382.	12.40	92.	31.	31.	.69		
DIVERSION TO	616D	382.	12.40	73.	23.	23.	.69		
HYDROGRAPH AT	615RET	144.	13.40	25.	8.	8.	.69		
2 COMBINED AT	620C	504.	13.40	137.	44.	44.	1.72		
ROUTED TO	625R	449.	13.53	137.	44.	44.	1.72	3.43	13.33
HYDROGRAPH AT	630S	170.	12.40	45.	15.	15.	.34		
2 COMBINED AT	635C	512.	13.47	180.	59.	59.	2.05		
3 COMBINED AT	640C	4215.	14.20	3490.	2343.	2343.	23.65		
ROUTED TO	645R	4212.	14.27	3489.	2340.	2340.	23.65	1197.40	14.27
HYDROGRAPH AT	650S	67.	12.60	13.	4.	4.	.13		
2 COMBINED AT	655C	4217.	14.27	3498.	2343.	2343.	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  08/03/1990  TIME  10:01:14 *
*                                       *
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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  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 # 1090-05)
  4       ID   JULY 1990   JKM/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    .883    .295
 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       1    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   1.350    .688
 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     1    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  1.500    .829
  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     1    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  1.367   1.134
  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    1.500    .836
 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        1    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        1    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   1.400    .798
  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      1    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      76
  168     SE    3.8       4       6       8      10      11      12      13    13.7      14
  169     SQ      0       1     176     414     680     880    1091    1593    2678    3746

  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    .650    .409
  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      1    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    .867   1.005
  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
  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    .020  80.000
  242     UC   .667    .580
  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
  250     KM   DI REPRESENTS TOTAL FLOW TO DEPRESSED INTERCHANGE AT DEER VALLEY RD.
  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
  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     1    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   .300   .228
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     1    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
295       DR   190D

296       KK   245R
297       KM   ROUTE 190RD TO CP OF 250S ALONG NATURAL CHANNEL
298       RS     1    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   .230 26.000
306       UC  1.450   .731
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    .240  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       1    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       1    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   1.450   1.011
  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       1    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   .350 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 1730 CFS PER COMPUTATION
  369     KM   SOURCE:
  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     1   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     1   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   .450   .355
  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   .367   .149
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     1   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     1   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  1.267   .635
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     1   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   1.017    .394
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      1    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, AR SOURCE:  ARROWHEA
  494     KM       DIBBLE AND ASSOCIATES CONSULTING ENGINEERS, PHOENIX, ARIZONA
  495     RS       1    ELEV  1292.0
  496     SV       0    29.8    61.7    91.6   122.5   154.5   186.3   225.3   264.3   303.1
  497     SE  1292.0  1292.5  1293.0  1293.5  1294.0  1294.5  1295.0  1295.5  1296.0  1296.5
  498     SQ       0      47     132     242     373     522     686     865    1056    1260

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

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

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

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

  530     KK   432D
  531     KM   DIVERT FLOW OVER UNION HILLS DRIVE, EAST OF I-17
  532     KM   DQ REPRESENTS THE BREAKOUT FROM THE DETENTION BASIN OVER UNION HILLS DRIVE.
  533     DT   433D
  534     DI       0      81     255     450    2010    4600
  535     DQ       0       0       0       0    1350    3820
```

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

  536     KK   435R
  537     KM   ROUTE 432D TO CP OF 440S ALONG UNION HILLS DRIVE (INVERTED CROWN) -
  538     KM   27TH AVENUE TO DIGITAL'S CULVERT OUTLET ON WEST SIDE OF I-17
  539     RS      1   FLOW     -1
  540     RC   .025    .02   .025   6800   .004      4
  541     RX    45   59.9     60    100  100.1    140  140.1    155
  542     RY   1.5    1.5      1      0      0      1    1.5    1.5

  543     KK   440S
  544     KM   SUB-BASIN 440
  545     BA   .846
  546     LG   .200    .300  9.300   .060 20.000
  547     UC   .983    .639
  548     UA      0       5     16     30     65     77     84     90     94     97
  549     UA    100

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

  553     KK   450D
  554     KM   CAPACITY OF UNION HILLS DRIVE INVERTED CROWN SECTION IS 470 CFS
  555     KM   REMAINING FLOW (DQ) BREAKS OUT TO THESOUTH BETWEEN I-17 AND 35TH AVENUE
  556     DT   455D
  557     DI      0     100     300     470     500    1000    2000
  558     DQ      0       0       0       0      30     530    1530

  559     KK   460R
  560     KM   ROUTE 450D TO CP OF 490S ALONG UNION HILLS DRIVE - 35TH TO 43RD AVENUE
  561     RS      1   FLOW     -1
  562     RC    .02    .025    .03   5280   .004
  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      1   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
```

```
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    .900    .579
  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       1    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    .290  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   CAPACITY OF THE UNION HILLS DIRVE AND CHANNEL IS 550 CFS
  606         KM   REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 35TH AVENUE
  607         KM   AND 43RD AVENUE
  608         DT    505D
  609         DI       0     100     300     550     600    1000    2000
  610         DQ       0       0       0       0      50     450    1450

  611         KK   510R
  612         KM   ROUTE 500D TO CP OF 515S ALONG UNION HILLS DRIVE - 43RD TO 51ST AVENUE
  613         RS       1    FLOW      -1
  614         RC    .025     .02    .025    7500   .0042       4
  615         RX      45    59.9      60     100   100.1     140   140.1     155
  616         RY     1.5     1.5       1       0       0       1     1.5     1.5

  617         KK   515S
  618         KM   SUB-BASIN 515
  619         BA    .476
  620         LG    .120    .340   4.600    .340  32.000
  621         UC   1.183   1.090
  622         UA       0       5      16      30      65      77      84      90      94      97
  623         UA     100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

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

627       KK   530D
628       KM   CAPACITY OF UNION HILLS DRIVE AND 4-15" CULVERTS IS 68 CFS
629       KM   THE REMAINING FLOW (DQ) BREAKS OUT TO THE SOUTH BETWEEN 43RD AVENUE
630       KM   AND 55TH AVENUE
631       DT   525D
632       DI     0     68    100    500   1000   2000
633       DQ     0      0     32    432    932   1932

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

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

643       KK   545S
644       KM   SUB-BASIN 545
645       BA   .296
646       LG   .310  .330 4.000  .340 15.000
647       UC 1.033  .706
648       UA     0     3     5     8    12    20    43    75    90    96
649       UA   100

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

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

659       KK   560S
660       KM   SUB-BASIN 560
661       BA   .190
662       LG   .150  .350 4.400  .350 21.000
663       UC   .683  .523
664       UA     0     5    16    30    65    77    84    90    94    97
665       UA   100
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  666     KK   565D
  667     KM   CAPACITY OF 59TH AVENUE IS 12 CFS.
  668     KM   THIS IS DIVERTED OUT OF THE WATERSHED (DQ).
  669     DT   570D
  670     DI      0      12      50     100     500    1000
  671     DQ      0      12      12      12      12      12

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

  678     KK   580S
  679     KM   SUB-BASIN 580
  680     BA   .914
  681     LG   .200    .340   4.500    .340  25.000
  682     UC  1.117    .509
  683     UA      0       5      16      30      65      77      84      90      94      97
  684     UA    100

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

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

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

  701     KK   600S
  702     KM   SUB-BASIN 600
  703     BA  1.027
  704     LG   .440    .250   5.500    .330   8.000
  705     UC  1.500    .874
  706     UA      0       3       5       8      12      20      43      75      90      96
  707     UA    100
```

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

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

  714     KK   610S
  715     KM   SUB-BASIN 610
  716     BA   .690
  717     LG   .210   .270  6.800   .300 19.000
  718     UC  1.117   .637
  719     UA      0      5     16     30     65     77     84     90     94     97
  720     UA    100

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

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

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

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

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

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

  748     KK   645R
  749     KM   ROUTE 585C TO CP OF 595S ALONG SKUNK CREEK FROM BELL ROAD TO ACDC
  750     RS      1   FLOW     -1
  751     RC    .04    .03    .04   3500  .0068
  752     RX    250    260    360    500    545    600    720    800
  753     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

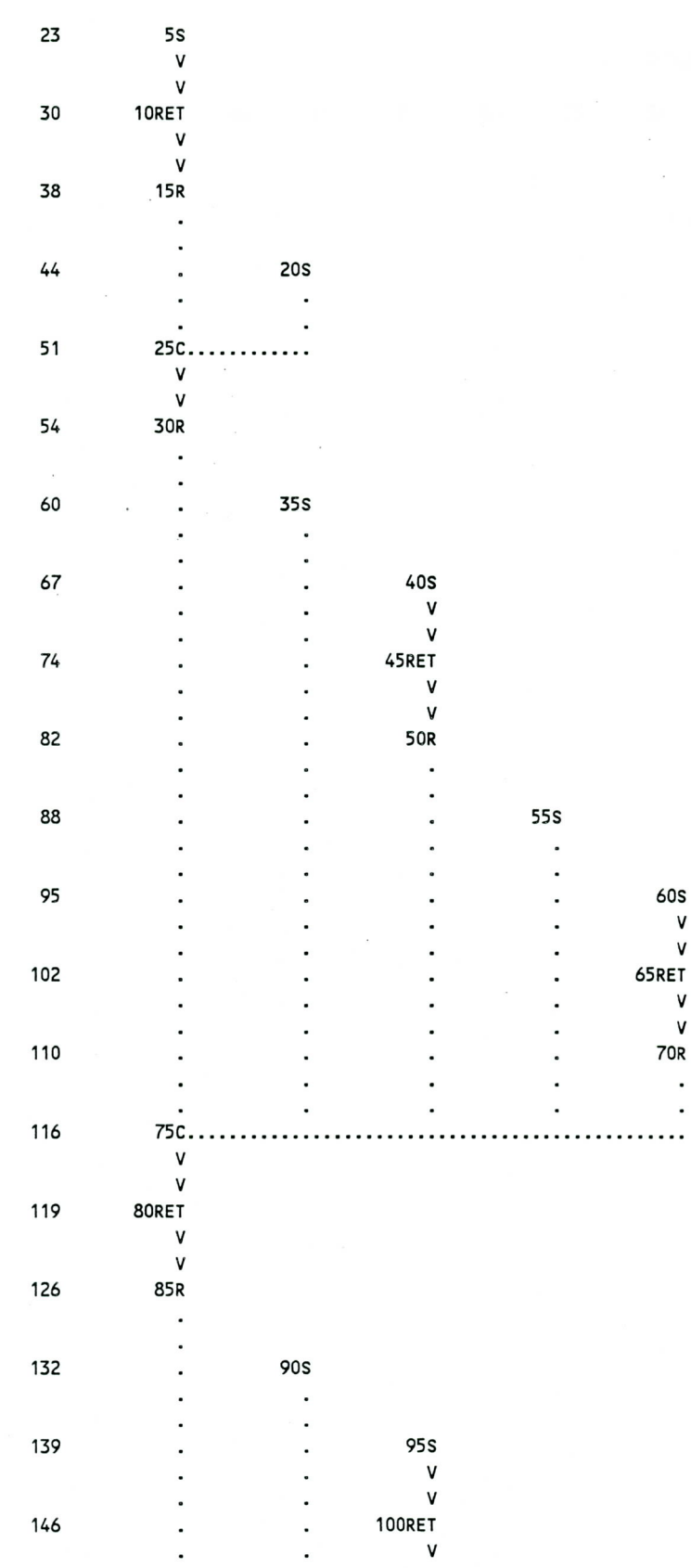
  754         KK    650S
  755         KM    SUB-BASIN 650
  756         BA     .125
  757         LG     .340    .350   3.700    .350   4.000
  758         UC     .883    .701
  759         UA        0       3       5       8      12      20      43      75      90      96
  760         UA      100

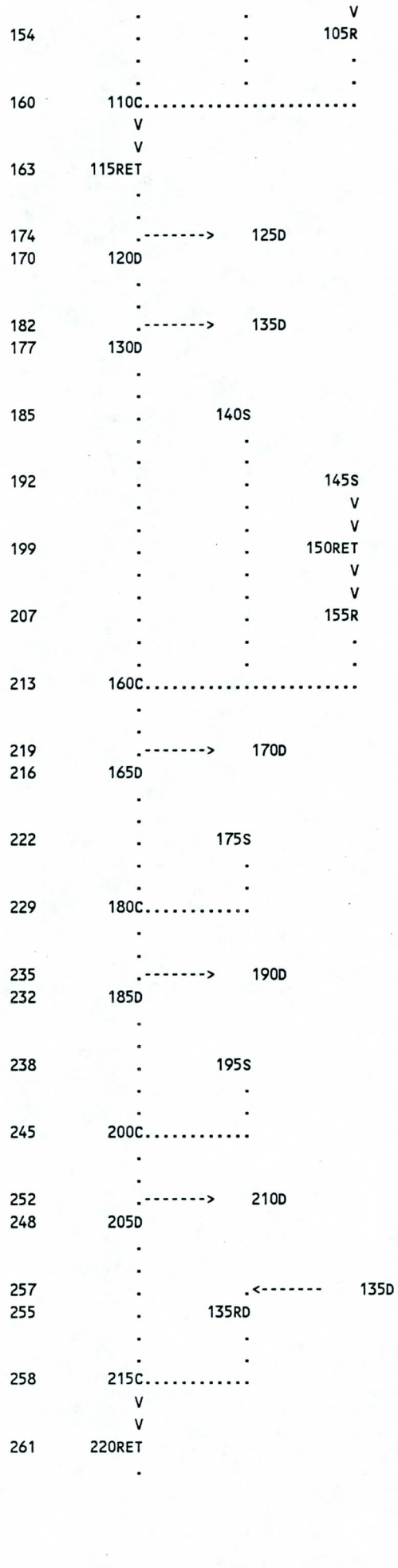
  761         KK    655C
  762         KM    COMBINE 645R AND 650S AT CP OF 650S
  763         HC        2
  764         ZZ
```

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
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150RET
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190D
185D
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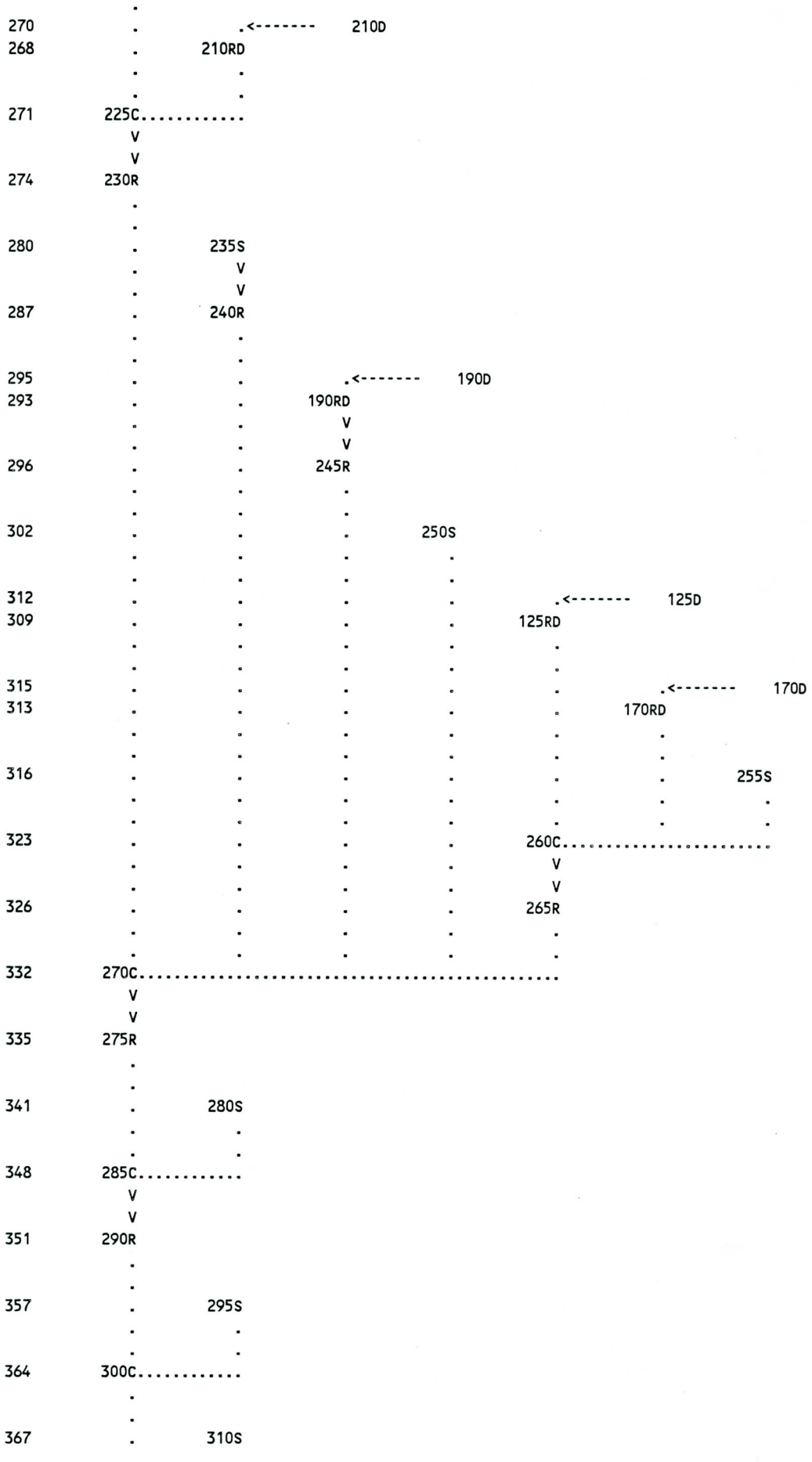
200C
210D
205D
135D
135RD
215C
220RET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250S
312
125D
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125RD
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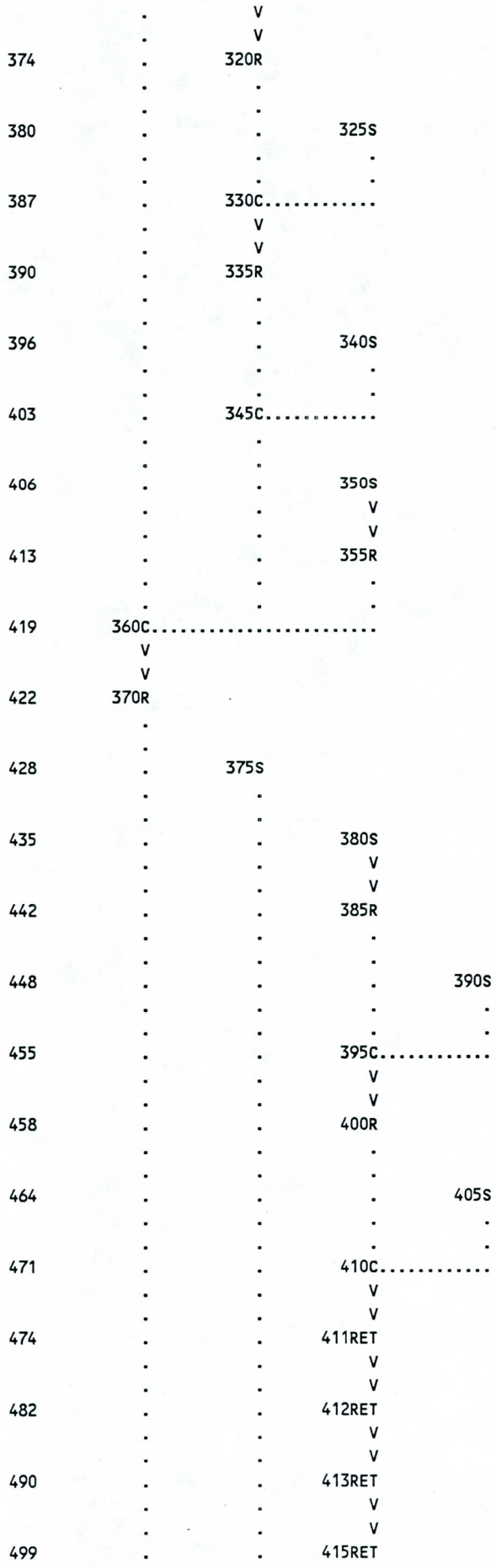
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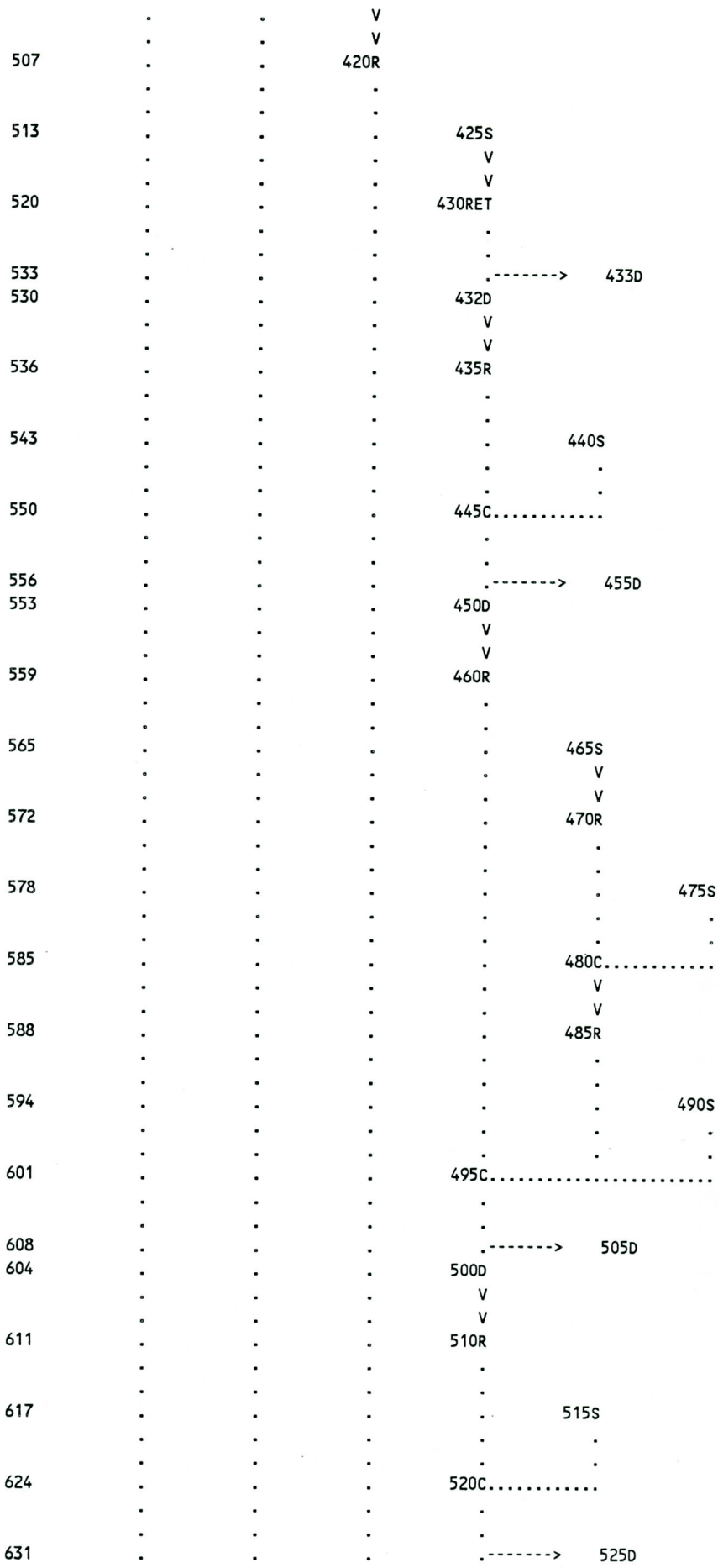
499 415RET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553
450D
559
460R
565
465S
572
470R
578
475S
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480C
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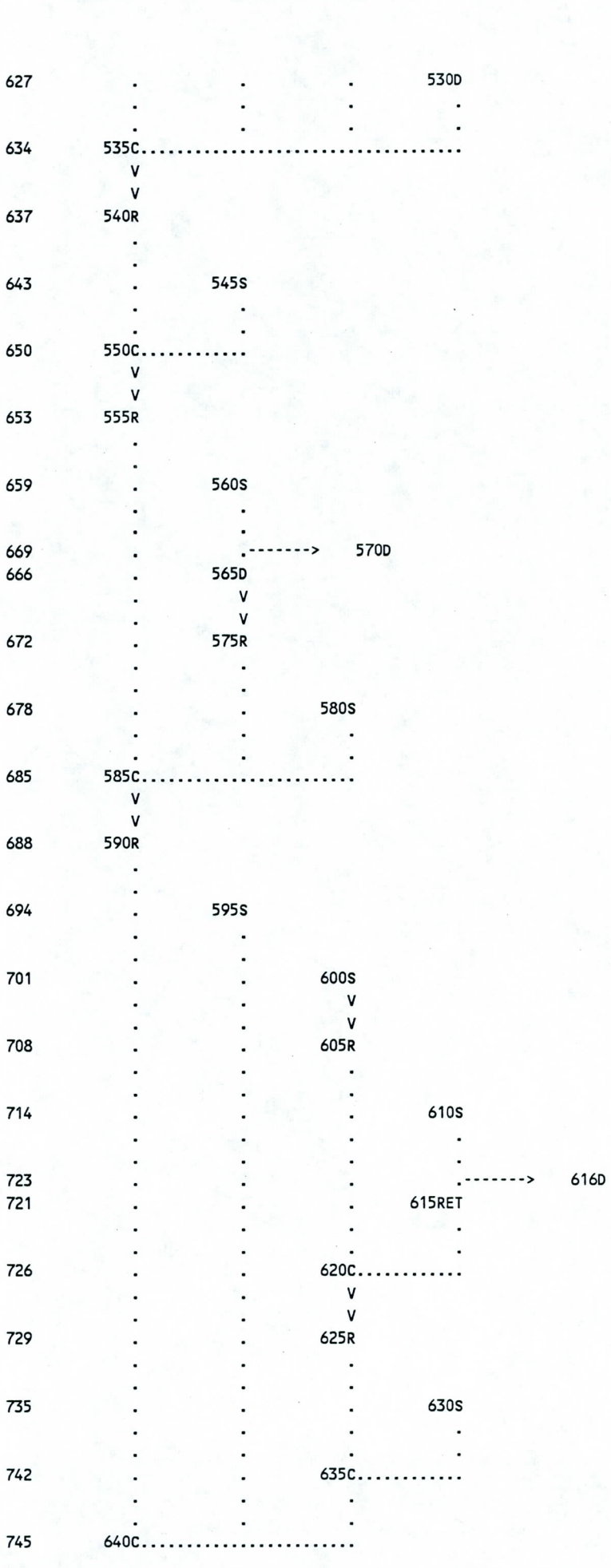
525D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672
575R
678
580S
685
585C
688
590R
694
595S
701
600S
708
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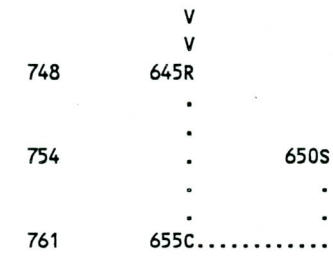

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*      BY THE COE IN FEBRUARY 1981      *
*           REVISED 02 AUG 88           *
*                                       *
*  RUN DATE  08/03/1990  TIME  10:01:14 *
*                                       *
*****************************************
```


```
*****************************************
*                                       *
*     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 # 1090-05)
JULY 1990 JKM/AJR
INPUT FILE NAME: SK100-24

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

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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
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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
.00  .00  .00  .00  .00  .00  .00  .00  .00  .00
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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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.01	.01	.03	.05	.05	.05	.05	.05	.05	.05
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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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.01	.01	.03	.05	.05	.05	.05	.05	.05	.05
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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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.01	.01	.03	.05	.05	.05	.05	.05	.05	.05
.01	.01	.01	.01	.01	.01	.01	.01	.00	.00
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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 .88 TIME OF CONCENTRATION

R .29 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= .88 HR, R= .29 HR
SNYDER TP= .69 HR, CP= 1.10

UNIT HYDROGRAPH
32 END-OF-PERIOD ORDINATES

30.	76.	107.	138.	180.	250.	402.	687.	1096.	1383.
1409.	1293.	1128.	948.	765.	610.	486.	387.	309.	246.
196.	156.	124.	99.	79.	63.	50.	40.	32.	25.
20.	16.								

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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
1508.	12.53	(CFS)	209.	65.	65.	65.
		(INCHES)	1.461	1.499	1.499	1.499
		(AC-FT)	104.	106.	106.	106.

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
1467.	12.53	(CFS)	203.	63.	63.	63.
		(INCHES)	1.416	1.453	1.453	1.453
		(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
1425.	12.53	(CFS)	197.	61.	61.	61.
		(INCHES)	1.372	1.408	1.408	1.408
		(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

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.26, TOTAL EXCESS = 1.33

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1348.	12.53	(CFS)	184.	57.	57.	57.
		(INCHES)	1.288	1.323	1.323	1.323
		(AC-FT)	91.	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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1306.	12.53	(CFS)	178.	55.	55.	55.
		(INCHES)	1.243	1.277	1.277	1.277
		(AC-FT)	88.	91.	91.	91.

CUMULATIVE AREA = 1.33 SQ MI

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INTERPOLATED HYDROGRAPH AT 5S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1472.	12.53	(CFS)	204.	63.	63.	63.
		(INCHES)	1.422	1.460	1.460	1.460
		(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

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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
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35 SE ELEVATION 15.00 16.00 17.00 18.00 19.00 20.00 21.00 22.00

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

***

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								

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

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
91.	13.60	(CFS)	87.	35.	35.	35.
		(INCHES)	.606	.813	.813	.813
		(AC-FT)	43.	58.	58.	58.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
90.	13.60	75.	27.	27.	27.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.86	13.60	18.53	16.36	16.36	16.36

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
90.	13.60	(CFS)	86.	35.	35.	35.
		(INCHES)	.601	.805	.805	.805
		(AC-FT)	43.	57.	57.	57.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
87.	13.60	72.	26.	26.	26.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
18.79	13.60	18.46	16.33	16.33	16.33

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
89.	13.53	(CFS)	85.	34.	34.	34.
		(INCHES)	.595	.796	.796	.796
		(AC-FT)	42.	57.	57.	57.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
84.	13.53	70.	25.	25.	25.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
18.73	13.53	18.40	16.31	16.31	16.31

CUMULATIVE AREA = 1.33 SQ MI

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

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
88.	13.53	(CFS)	84.	34.	34.	34.
		(INCHES)	.584	.780	.780	.780
		(AC-FT)	41.	55.	55.	55.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
78.	13.53	64.	23.	23.	23.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
18.60	13.53	18.28	16.26	16.26	16.26

CUMULATIVE AREA = 1.33 SQ MI

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

HYDROGRAPH AT STATION 10RET
TRANSPOSITION AREA 30.0 SQ MI

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 PEAK FLOW      TIME                               MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                     6-HR         24-HR        72-HR      19.93-HR
      87.      13.53         (CFS)        83.           33.          33.           33.
                           (INCHES)      .578          .771         .771          .771
                            (AC-FT)       41.           55.          55.           55.

PEAK STORAGE    TIME                              MAXIMUM AVERAGE STORAGE
  (AC-FT)       (HR)                     6-HR         24-HR        72-HR      19.93-HR
      75.      13.53                      61.           22.          22.           22.

 PEAK STAGE     TIME                               MAXIMUM AVERAGE STAGE
   (FEET)       (HR)                     6-HR         24-HR        72-HR      19.93-HR
    18.53      13.53                    18.21         16.23        16.23         16.23

                            CUMULATIVE AREA =    1.33 SQ MI

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


                            INTERPOLATED HYDROGRAPH AT     10RET

 PEAK FLOW      TIME                               MAXIMUM AVERAGE FLOW
   (CFS)        (HR)                     6-HR         24-HR        72-HR      19.93-HR
      90.      13.60         (CFS)        86.           35.          35.           35.
                           (INCHES)      .601          .806         .806          .806
                            (AC-FT)       43.           57.          57.           57.

PEAK STORAGE    TIME                              MAXIMUM AVERAGE STORAGE
  (AC-FT)       (HR)                     6-HR         24-HR        72-HR      19.93-HR
      75.      13.53                      61.           22.          22.           22.

 PEAK STAGE     TIME                               MAXIMUM AVERAGE STAGE
   (FEET)       (HR)                     6-HR         24-HR        72-HR      19.93-HR
    18.53      13.53                    18.21         16.23        16.23         16.23

                            CUMULATIVE AREA =    1.33 SQ MI


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            ***************
            *             *
  38 KK     *       15R   *
            *             *
            ***************
                              ROUTE 10RET TO CP OF 20S ALONG NATURAL CHANNEL

               HYDROGRAPH ROUTING DATA

  40 RS          STORAGE ROUTING
                       NSTPS            1  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
90.	14.33	(CFS)	86.	33.	33.	33.
		(INCHES)	.601	.762	.762	.762
		(AC-FT)	43.	54.	54.	54.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
4.	14.27	4.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.41	14.33	1.38	.58	.58	.58

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
89.	14.33	(CFS)	85.	33.	33.	33.
		(INCHES)	.596	.754	.754	.754
		(AC-FT)	42.	54.	54.	54.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
4.	14.27	4.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.40	14.33	1.37	.57	.57	.57

CUMULATIVE AREA = 1.33 SQ MI

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HYDROGRAPH AT STATION 15R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
88.	14.33	(CFS)	85.	32.	32.	32.
		(INCHES)	.590	.746	.746	.746
		(AC-FT)	42.	53.	53.	53.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
4.	14.27	4.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.40	14.33	1.36	.57	.57	.57

CUMULATIVE AREA = 1.33 SQ MI

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HYDROGRAPH AT STATION 15R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
87.	14.33	(CFS)	83.	32.	32.	32.
		(INCHES)	.579	.731	.731	.731
		(AC-FT)	41.	52.	52.	52.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
4.	14.27	4.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.38	14.33	1.35	.56	.56	.56

CUMULATIVE AREA = 1.33 SQ MI

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HYDROGRAPH AT STATION 15R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
86.	14.33	(CFS)	82.	31.	31.	31.
		(INCHES)	.573	.722	.722	.722
		(AC-FT)	41.	51.	51.	51.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
4.	14.27	4.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.38	14.33	1.34	.56	.56	.56

CUMULATIVE AREA = 1.33 SQ MI

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INTERPOLATED HYDROGRAPH AT 15R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
89.	14.33	(CFS)	85.	33.	33.	33.
		(INCHES)	.597	.755	.755	.755
		(AC-FT)	42.	54.	54.	54.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
4.	14.27	4.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.38	14.33	1.34	.56	.56	.56

CUMULATIVE AREA = 1.33 SQ MI

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          *            *
44 KK     *       20S  *
          *            *
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SUB-BASIN 20

SUBBASIN RUNOFF DATA

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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        1.35  TIME OF CONCENTRATION
                       R         .69  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= 1.35 HR, R= .69 HR

SNYDER TP= 1.10 HR, CP= .91

UNIT HYDROGRAPH

68 END-OF-PERIOD ORDINATES

9.	27.	39.	48.	59.	71.	86.	102.	128.	164.
237.	350.	481.	627.	722.	755.	755.	727.	692.	654.
608.	555.	504.	457.	415.	377.	342.	310.	282.	256.
232.	211.	191.	173.	157.	143.	130.	118.	107.	97.
88.	80.	72.	66.	60.	54.	49.	45.	40.	37.
33.	30.	27.	25.	23.	21.	19.	17.	15.	14.

13. 11. 10. 9. 9. 8. 7. 6.

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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
917.	12.87	(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
889.	12.87	(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
862.	12.87	(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
810.	12.87	(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
782.	12.87	(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
893.	12.87	(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

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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
984.	12.93	(CFS)	278.	93.	93.	93.
		(INCHES)	.953	1.062	1.062	1.062
		(AC-FT)	138.	154.	154.	154.

CUMULATIVE AREA = 2.71 SQ MI

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HYDROGRAPH AT STATION 25C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
956.	12.93	(CFS)	271.	91.	91.	91.
		(INCHES)	.928	1.036	1.036	1.036
		(AC-FT)	134.	150.	150.	150.

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
927.	12.93	(CFS)	263.	89.	89.	89.
		(INCHES)	.903	1.009	1.009	1.009
		(AC-FT)	131.	146.	146.	146.

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
874.	12.87	(CFS)	249.	84.	84.	84.
		(INCHES)	.856	.959	.959	.959
		(AC-FT)	124.	139.	139.	139.

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
846.	12.87	(CFS)	242.	82.	82.	82.
		(INCHES)	.830	.932	.932	.932
		(AC-FT)	120.	135.	135.	135.

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
956.	12.93	(CFS)	271.	91.	91.	91.
		(INCHES)	.928	1.036	1.036	1.036
		(AC-FT)	134.	150.	150.	150.

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           1  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

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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
783.	13.27	(CFS)	276.	91.	91.	91.
		(INCHES)	.946	1.042	1.042	1.042
		(AC-FT)	137.	151.	151.	151.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
26.	13.27	9.	3.	3.	3.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.24	13.27	1.41	.54	.54	.54

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
759.	13.27	(CFS)	268.	89.	89.	89.
		(INCHES)	.921	1.015	1.015	1.015
		(AC-FT)	133.	147.	147.	147.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
25.	13.27	9.	3.	3.	3.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.21	13.27	1.40	.54	.54	.54

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
735.	13.27	(CFS)	261.	87.	87.	87.
		(INCHES)	.895	.989	.989	.989
		(AC-FT)	129.	143.	143.	143.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
24.	13.27	9.	3.	3.	3.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.19	13.27	1.39	.53	.53	.53

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
689.	13.27	(CFS)	247.	82.	82.	82.
		(INCHES)	.848	.939	.939	.939
		(AC-FT)	123.	136.	136.	136.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
23.	13.27	8.	3.	3.	3.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
2.15	13.27	1.36	.52	.52	.52

CUMULATIVE AREA = 2.71 SQ MI

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HYDROGRAPH AT STATION 30R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
665.	13.27	(CFS)	240.	80.	80.	80.
		(INCHES)	.823	.912	.912	.912
		(AC-FT)	119.	132.	132.	132.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
22.	13.27	8.	3.	3.	3.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
2.12	13.27	1.35	.52	.52	.52

CUMULATIVE AREA = 2.71 SQ MI

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INTERPOLATED HYDROGRAPH AT 30R

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
759.	13.27	(CFS)	269.	89.	89.	89.
		(INCHES)	.921	1.016	1.016	1.016
		(AC-FT)	133.	147.	147.	147.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
22.	13.27	8.	3.	3.	3.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
2.12	13.27	1.35	.52	.52	.52

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

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                XKSAT          .23  HYDRAULIC CONDUCTIVITY
                RTIMP          .00  PERCENT IMPERVIOUS AREA

64 UC       CLARK UNITGRAPH
                TC            1.50  TIME OF CONCENTRATION
                 R             .83  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

                                                ***

                                          UNIT HYDROGRAPH PARAMETERS
                                      CLARK   TC=  1.50 HR,       R=   .83 HR
                                     SNYDER   TP=  1.24 HR,      CP=   .87

                                          UNIT HYDROGRAPH
                                     80 END-OF-PERIOD ORDINATES
            8.      22.      34.      42.      50.      60.      71.      84.      97.     120.
          151.     208.     298.     402.     521.     631.     690.     712.     710.     685.
          659.     629.     596.     555.     512.     472.     436.     402.     371.     342.
          316.     291.     269.     248.     229.     211.     195.     180.     166.     153.
          141.     130.     120.     111.     102.      94.      87.      80.      74.      68.
           63.      58.      54.      50.      46.      42.      39.      36.      33.      31.
           28.      26.      24.      22.      20.      19.      17.      16.      15.      14.
           13.      12.      11.      10.       9.       8.       8.       7.       7.       6.

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

                  HYDROGRAPH AT STATION      35S
                 TRANSPOSITION AREA       .0 SQ MI

 TOTAL RAINFALL =   3.90, TOTAL LOSS     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
   821.     13.00      (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
   794.     13.00      (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
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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
768.	13.00	(CFS)	186.	56.	56.	56.
		(INCHES)	1.145	1.145	1.145	1.145
		(AC-FT)	92.	92.	92.	92.

CUMULATIVE AREA = 1.51 SQ MI

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

HYDROGRAPH AT STATION 35S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.51, TOTAL EXCESS = 1.08

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
721.	13.00	(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
695.	13.00	(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

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INTERPOLATED HYDROGRAPH AT 35S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
797.	13.00	(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

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 .77 TIME OF CONCENTRATION
R .39 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

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UNIT HYDROGRAPH PARAMETERS
CLARK TC= .77 HR, R= .39 HR
SNYDER TP= .62 HR, CP= .89

UNIT HYDROGRAPH
39 END-OF-PERIOD ORDINATES

11.	28.	41.	57.	81.	131.	239.	404.	513.	518.
482.	430.	370.	311.	262.	221.	186.	157.	132.	111.
93.	79.	66.	56.	47.	40.	33.	28.	24.	20.
17.	14.	12.	10.	8.	7.	6.	5.	4.	

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

HYDROGRAPH AT STATION 40S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.24, TOTAL EXCESS = 1.66

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
600.	12.47	(CFS)	93.	29.	29.	29.
		(INCHES)	1.594	1.651	1.651	1.651
		(AC-FT)	46.	48.	48.	48.

CUMULATIVE AREA = .55 SQ MI

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HYDROGRAPH AT STATION 40S
TRANSPOSITION AREA 3.0 SQ MI

TOTAL RAINFALL = 3.82, TOTAL LOSS = 2.21, TOTAL EXCESS = 1.61

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
584.	12.47	(CFS)	91.	28.	28.	28.
		(INCHES)	1.547	1.603	1.603	1.603
		(AC-FT)	45.	47.	47.	47.

CUMULATIVE AREA = .55 SQ MI

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

HYDROGRAPH AT STATION 40S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.17, TOTAL EXCESS = 1.57

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
569.	12.47	(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

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

HYDROGRAPH AT STATION 40S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.11, TOTAL EXCESS = 1.48

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
540.	12.47	(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

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HYDROGRAPH AT STATION 40S
TRANSPOSITION AREA 30.0 SQ MI

TOTAL RAINFALL = 3.51, TOTAL LOSS = 2.07, TOTAL EXCESS = 1.44

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
525.	12.47	(CFS)	81.	25.	25.	25.
		(INCHES)	1.376	1.427	1.427	1.427
		(AC-FT)	40.	41.	41.	41.

CUMULATIVE AREA = .55 SQ MI

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INTERPOLATED HYDROGRAPH AT 40S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
589.	12.47	(CFS)	92.	29.	29.	29.
		(INCHES)	1.561	1.617	1.617	1.617
		(AC-FT)	45.	47.	47.	47.

CUMULATIVE AREA = .55 SQ MI

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          *            *
74 KK     *     45RET  *
          *            *
          **************
                    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
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42.	13.73	(CFS)	40.	17.	17.	17.
		(INCHES)	.689	.937	.937	.937
		(AC-FT)	20.	27.	27.	27.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
39.	13.73	33.	12.	12.	12.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
18.17	13.73	17.93	16.14	16.14	16.14

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.	13.73	(CFS)	40.	16.	16.	16.
		(INCHES)	.683	.929	.929	.929
		(AC-FT)	20.	27.	27.	27.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
37.	13.73	31.	11.	11.	11.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
18.12	13.73	17.88	16.12	16.12	16.12

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
41.	13.73	(CFS)	40.	16.	16.	16.
		(INCHES)	.678	.921	.921	.921
		(AC-FT)	20.	27.	27.	27.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
36.	13.73	30.	11.	11.	11.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
18.08	13.73	17.83	16.11	16.11	16.11

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.	13.67	(CFS)	39.	16.	16.	16.
		(INCHES)	.667	.904	.904	.904
		(AC-FT)	19.	26.	26.	26.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
34.	13.73		28.	10.	10.	10.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.00	13.73		17.74	16.07	16.07	16.07

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.	13.67	(CFS)	39.	16.	16.	16.
		(INCHES)	.661	.895	.895	.895
		(AC-FT)	19.	26.	26.	26.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
33.	13.67		27.	10.	10.	10.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
17.95	13.67		17.70	16.05	16.05	16.05

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.	13.73	(CFS)	40.	16.	16.	16.
		(INCHES)	.685	.931	.931	.931
		(AC-FT)	20.	27.	27.	27.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
33.	13.67		27.	10.	10.	10.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
17.95	13.67		17.70	16.05	16.05	16.05

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           1  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

                                                ***

                                    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


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

                    HYDROGRAPH AT STATION      50R
                   TRANSPOSITION AREA       .0 SQ MI

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     19.93-HR
    41.      15.40       (CFS)       40.         15.         15.         15.
                         (INCHES)    .676        .841        .841        .841
                         (AC-FT)     20.         24.         24.         24.

PEAK STORAGE  TIME                       MAXIMUM AVERAGE STORAGE
  (AC-FT)     (HR)                 6-HR       24-HR       72-HR     19.93-HR
     3.       15.33                  3.          1.          1.          1.

PEAK STAGE    TIME                       MAXIMUM AVERAGE STAGE
  (FEET)      (HR)                 6-HR       24-HR       72-HR     19.93-HR
    .83       15.40                 .81         .33         .33         .33

                    CUMULATIVE AREA =     .55 SQ MI


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

                    HYDROGRAPH AT STATION      50R
                   TRANSPOSITION AREA      3.0 SQ MI
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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
41.	15.33	(CFS)	39.	15.	15.	15.
		(INCHES)	.671	.833	.833	.833
		(AC-FT)	19.	24.	24.	24.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.	15.33	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
.83	15.33	.81	.33	.33	.33

CUMULATIVE AREA = .55 SQ MI

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HYDROGRAPH AT STATION 50R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
40.	15.27	(CFS)	39.	15.	15.	15.
		(INCHES)	.665	.826	.826	.826
		(AC-FT)	19.	24.	24.	24.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.	15.27	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
.82	15.27	.80	.32	.32	.32

CUMULATIVE AREA = .55 SQ MI

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HYDROGRAPH AT STATION 50R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
40.	15.20	(CFS)	38.	14.	14.	14.
		(INCHES)	.654	.811	.811	.811
		(AC-FT)	19.	24.	24.	24.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.	15.20	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
.81	15.27	.80	.32	.32	.32

CUMULATIVE AREA = .55 SQ MI

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HYDROGRAPH AT STATION 50R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
39.	15.20	(CFS)	38.	14.	14.	14.
		(INCHES)	.648	.803	.803	.803
		(AC-FT)	19.	23.	23.	23.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.	15.20	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
.81	15.27	.79	.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
41.	15.33	(CFS)	39.	15.	15.	15.
		(INCHES)	.672	.836	.836	.836
		(AC-FT)	20.	24.	24.	24.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.	15.20	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
.81	15.27	.79	.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 1.37 TIME OF CONCENTRATION
R 1.13 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

                                                  ***

                                                UNIT HYDROGRAPH PARAMETERS
                                              CLARK   TC=  1.37 HR,       R=  1.13 HR
                                              SNYDER  TP=  1.17 HR,      CP=   .68

                                                UNIT HYDROGRAPH
                                            103 END-OF-PERIOD ORDINATES
                     2.        7.       11.       13.       16.       20.       24.       29.       36.       46.
                    65.       95.      131.      172.      204.      221.      228.      227.      223.      217.
                   210.      199.      188.      177.      167.      158.      149.      140.      132.      125.
                   117.      111.      104.       98.       93.       88.       83.       78.       73.       69.
                    65.       62.       58.       55.       52.       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.        2.

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

                      HYDROGRAPH AT STATION      55S
                    TRANSPOSITION AREA       .0 SQ MI

   TOTAL RAINFALL =    3.90, TOTAL LOSS =    2.74, TOTAL EXCESS =    1.16

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     19.93-HR
   253.      12.93       (CFS)       73.         22.         22.         22.
                        (INCHES)    1.150       1.158       1.158       1.158
                        (AC-FT)      36.         36.         36.         36.

                      CUMULATIVE AREA =     .59 SQ MI


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

                      HYDROGRAPH AT STATION      55S
                    TRANSPOSITION AREA      3.0 SQ MI

   TOTAL RAINFALL =    3.82, TOTAL LOSS =    2.69, TOTAL EXCESS =    1.13

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     19.93-HR
   245.      12.93       (CFS)       70.         21.         21.         21.
                        (INCHES)    1.113       1.120       1.120       1.120
                        (AC-FT)      35.         35.         35.         35.

                      CUMULATIVE AREA =     .59 SQ MI


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

                      HYDROGRAPH AT STATION      55S
                    TRANSPOSITION AREA     10.0 SQ MI

   TOTAL RAINFALL =    3.74, TOTAL LOSS =    2.65, TOTAL EXCESS =    1.09

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     19.93-HR
```

237.	12.93	(CFS)	68.	21.	21.	21.
		(INCHES)	1.075	1.082	1.082	1.082
		(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	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
221.	12.93	(CFS)	64.	19.	19.	19.
		(INCHES)	1.004	1.011	1.011	1.011
		(AC-FT)	31.	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	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
213.	12.93	(CFS)	61.	19.	19.	19.
		(INCHES)	.966	.973	.973	.973
		(AC-FT)	30.	31.	31.	31.

CUMULATIVE AREA = .59 SQ MI

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INTERPOLATED HYDROGRAPH AT 55S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
247.	12.93	(CFS)	71.	22.	22.	22.
		(INCHES)	1.123	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

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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

99 UC          CLARK UNITGRAPH
                      TC        1.50  TIME OF CONCENTRATION
                       R         .84  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= 1.50 HR, R= .84 HR
SNYDER TP= 1.24 HR, CP= .87

UNIT HYDROGRAPH
81 END-OF-PERIOD ORDINATES

6.	17.	26.	33.	39.	47.	56.	66.	77.	95.
119.	164.	235.	317.	411.	498.	545.	562.	561.	542.
521.	498.	471.	439.	406.	375.	346.	319.	295.	272.
251.	232.	214.	198.	183.	169.	156.	144.	133.	123.
113.	104.	96.	89.	82.	76.	70.	65.	60.	55.
51.	47.	43.	40.	37.	34.	32.	29.	27.	25.
23.	21.	20.	18.	17.	15.	14.	13.	12.	11.
10.	10.	9.	8.	8.	7.	6.	6.	5.	5.
5.									

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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
747.	13.00	(CFS)	199.	63.	63.	63.
		(INCHES)	1.542	1.616	1.616	1.616
		(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
727.	13.00	(CFS)	194.	61.	61.	61.
		(INCHES)	1.497	1.570	1.570	1.570
		(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
707.	13.00	(CFS)	188.	59.	59.	59.
		(INCHES)	1.452	1.523	1.523	1.523
		(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
668.	13.00	(CFS)	177.	56.	56.	56.
		(INCHES)	1.368	1.436	1.436	1.436
		(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
648.	13.00	(CFS)	171.	54.	54.	54.
		(INCHES)	1.322	1.389	1.389	1.389
		(AC-FT)	85.	89.	89.	89.

CUMULATIVE AREA = 1.20 SQ MI

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INTERPOLATED HYDROGRAPH AT 60S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
730.	13.00	(CFS)	194.	61.	61.	61.
		(INCHES)	1.504	1.577	1.577	1.577
		(AC-FT)	96.	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
105.	15.00	(CFS)	100.	39.	39.	39.
		(INCHES)	.774	1.015	1.015	1.015
		(AC-FT)	50.	65.	65.	65.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
70.	15.00	59.	20.	20.	20.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
20.10	15.00	19.68	16.72	16.72	16.72

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
104.	15.00	(CFS)	99.	39.	39.	39.
		(INCHES)	.766	1.004	1.004	1.004
		(AC-FT)	49.	64.	64.	64.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
67.	15.00	57.	19.	19.	19.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
20.01	15.00	19.58	16.68	16.68	16.68

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
103.	14.93	(CFS)	98.	39.	39.	39.
		(INCHES)	.757	.992	.992	.992
		(AC-FT)	49.	64.	64.	64.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
65.	14.93	55.	19.	19.	19.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
19.92	14.93	19.48	16.65	16.65	16.65

CUMULATIVE AREA = 1.20 SQ MI

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HYDROGRAPH AT STATION 65RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
101.	14.93	(CFS)	96.	38.	38.	38.
		(INCHES)	.741	.969	.969	.969
		(AC-FT)	47.	62.	62.	62.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
60.	14.93	50.	17.	17.	17.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
19.72	14.93	19.29	16.58	16.58	16.58

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
99.	14.87	(CFS)	95.	37.	37.	37.
		(INCHES)	.732	.956	.956	.956
		(AC-FT)	47.	61.	61.	61.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
58.	14.87	48.	16.	16.	16.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
19.62	14.87	19.19	16.54	16.54	16.54

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
104.	15.00	(CFS)	99.	39.	39.	39.
		(INCHES)	.767	1.005	1.005	1.005
		(AC-FT)	49.	64.	64.	64.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
58.	14.87	48.	16.	16.	16.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
19.62	14.87	19.19	16.54	16.54	16.54

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

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112 RS          STORAGE ROUTING
                     NSTPS           1  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
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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
104.	15.67	(CFS)	99.	36.	36.	36.
		(INCHES)	.768	.937	.937	.937
		(AC-FT)	49.	60.	60.	60.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	15.60	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.14	15.67	1.11	.46	.46	.46

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
103.	15.60	(CFS)	98.	36.	36.	36.
		(INCHES)	.760	.927	.927	.927
		(AC-FT)	49.	59.	59.	59.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	15.53	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.13	15.67	1.10	.45	.45	.45

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
102.	15.60	(CFS)	97.	36.	36.	36.
		(INCHES)	.751	.916	.916	.916
		(AC-FT)	48.	59.	59.	59.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	15.53	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.13	15.60	1.10	.45	.45	.45

CUMULATIVE AREA = 1.20 SQ MI

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

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
100.	15.60	(CFS)	95.	35.	35.	35.
		(INCHES)	.735	.894	.894	.894
		(AC-FT)	47.	57.	57.	57.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	15.60	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.11	15.60	1.08	.44	.44	.44

CUMULATIVE AREA = 1.20 SQ MI

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

HYDROGRAPH AT STATION 70R

TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
99.	15.53	(CFS)	94.	34.	34.	34.
		(INCHES)	.725	.883	.883	.883
		(AC-FT)	47.	57.	57.	57.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
5.	15.47	5.	2.	2.	2.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1.11	15.60	1.08	.44	.44	.44

CUMULATIVE AREA = 1.20 SQ MI

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INTERPOLATED HYDROGRAPH AT 70R

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
103.	15.67	(CFS)	98.	36.	36.	36.
		(INCHES)	.761	.928	.928	.928
		(AC-FT)	49.	60.	60.	60.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
5.	15.47	5.	2.	2.	2.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1.11	15.60	1.08	.44	.44	.44

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	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1882.	13.07	(CFS)	668.	225.	225.	225.

	(INCHES)	.946	1.060	1.060	1.060
	(AC-FT)	331.	371.	371.	371.

CUMULATIVE AREA = 6.56 SQ MI

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HYDROGRAPH AT STATION 75C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1824.	13.07	(CFS)	650.	219.	219.	219.
		(INCHES)	.921	1.033	1.033	1.033
		(AC-FT)	322.	361.	361.	361.

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
1767.	13.07	(CFS)	632.	214.	214.	214.
		(INCHES)	.896	1.006	1.006	1.006
		(AC-FT)	313.	352.	352.	352.

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
1659.	13.07	(CFS)	599.	203.	203.	203.
		(INCHES)	.850	.957	.957	.957
		(AC-FT)	297.	335.	335.	335.

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
1603.	13.07	(CFS)	582.	198.	198.	198.
		(INCHES)	.825	.931	.931	.931
		(AC-FT)	289.	326.	326.	326.

CUMULATIVE AREA = 6.56 SQ MI

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INTERPOLATED HYDROGRAPH AT 75C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1787.	13.07	(CFS)	638.	216.	216.	216.
		(INCHES)	.904	1.016	1.016	1.016
		(AC-FT)	316.	355.	355.	355.

CUMULATIVE AREA = 6.56 SQ MI

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119 KK

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* *
* 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.)

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HYDROGRAPH AT STATION 80RET
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1613.	13.47	(CFS)	667.	225.	225.	225.
		(INCHES)	.946	1.057	1.057	1.057
		(AC-FT)	331.	370.	370.	370.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
50.	13.47	18.	6.	6.	6.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.48	13.47	16.01	12.82	12.82	12.82

CUMULATIVE AREA = 6.56 SQ MI

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HYDROGRAPH AT STATION 80RET
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1555.	13.47	(CFS)	649.	219.	219.	219.
		(INCHES)	.920	1.030	1.030	1.030
		(AC-FT)	322.	361.	361.	361.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
49.	13.47	17.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.44	13.47	15.96	12.80	12.80	12.80

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
1497.	13.47	(CFS)	632.	213.	213.	213.
		(INCHES)	.895	1.004	1.004	1.004
		(AC-FT)	313.	351.	351.	351.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
47.	13.47	17.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.40	13.47	15.91	12.78	12.78	12.78

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
1388.	13.53	(CFS)	599.	203.	203.	203.
		(INCHES)	.849	.954	.954	.954
		(AC-FT)	297.	334.	334.	334.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
45.	13.53	16.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.32	13.53	15.81	12.75	12.75	12.75

CUMULATIVE AREA = 6.56 SQ MI

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HYDROGRAPH AT STATION 80RET
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1331.	13.53	(CFS)	582.	197.	197.	197.
		(INCHES)	.825	.928	.928	.928
		(AC-FT)	289.	325.	325.	325.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
44.	13.53	15.	5.	5.	5.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
18.28	13.53	15.76	12.73	12.73	12.73

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
1517.	13.47	(CFS)	638.	215.	215.	215.
		(INCHES)	.904	1.013	1.013	1.013
		(AC-FT)	316.	354.	354.	354.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
44.	13.53	15.	5.	5.	5.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
18.28	13.53	15.76	12.73	12.73	12.73

CUMULATIVE AREA = 6.56 SQ MI

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          *             *
126 KK    *      85R    *
          *             *
          ***************
                         ROUTE 80RET TO CP OF 90S ALONG NATURAL CHANNEL

          HYDROGRAPH ROUTING DATA

128 RS       STORAGE ROUTING
                   NSTPS          1  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
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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

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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
1585.	13.60	(CFS)	667.	223.	223.	223.
		(INCHES)	.945	1.052	1.052	1.052
		(AC-FT)	331.	368.	368.	368.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
13.	13.60	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
5.33	13.60	3.72	1.49	1.49	1.49

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
1527.	13.60	(CFS)	649.	218.	218.	218.
		(INCHES)	.920	1.025	1.025	1.025
		(AC-FT)	322.	359.	359.	359.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
12.	13.60	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
5.28	13.60	3.69	1.48	1.48	1.48

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
1469.	13.60	(CFS)	631.	212.	212.	212.
		(INCHES)	.895	.998	.998	.998
		(AC-FT)	313.	349.	349.	349.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
12.	13.60	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
5.23	13.60	3.65	1.46	1.46	1.46

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
1359.	13.67	(CFS)	599.	201.	201.	201.
		(INCHES)	.849	.949	.949	.949
		(AC-FT)	297.	332.	332.	332.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
11.	13.67	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
5.12	13.67	3.59	1.44	1.44	1.44

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
1303.	13.67	(CFS)	582.	196.	196.	196.
		(INCHES)	.824	.923	.923	.923
		(AC-FT)	288.	323.	323.	323.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
10.	13.67	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
5.06	13.67	3.55	1.42	1.42	1.42

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
1489.	13.60	(CFS)	637.	214.	214.	214.
		(INCHES)	.903	1.007	1.007	1.007
		(AC-FT)	316.	352.	352.	352.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
10.	13.67	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
5.06	13.67	3.55	1.42	1.42	1.42

CUMULATIVE AREA = 6.56 SQ MI

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132 KK    *       90S  *
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SUB-BASIN 90

SUBBASIN RUNOFF DATA

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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        1.50  TIME OF CONCENTRATION
                        R        1.04  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= 1.50 HR, R= 1.04 HR

SNYDER TP= 1.25 HR, CP= .76

UNIT HYDROGRAPH

97 END-OF-PERIOD ORDINATES

5.	14.	22.	28.	33.	40.	48.	57.	67.	82.
103.	141.	202.	272.	353.	429.	472.	492.	496.	485.
472.	457.	438.	414.	388.	364.	342.	320.	301.	282.

264.	248.	233.	218.	205.	192.	180.	169.	158.	148.
139.	131.	122.	115.	108.	101.	95.	89.	83.	78.
73.	69.	64.	60.	57.	53.	50.	47.	44.	41.
39.	36.	34.	32.	30.	28.	26.	25.	23.	22.
20.	19.	18.	17.	16.	15.	14.	13.	12.	11.
11.	10.	9.	9.	8.	8.	7.	7.	6.	6.
6.	5.	5.	5.	4.	4.	4.			

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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
512.	13.07	(CFS)	143.	44.	44.	44.
		(INCHES)	1.087	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
494.	13.07	(CFS)	138.	42.	42.	42.
		(INCHES)	1.049	1.062	1.062	1.062
		(AC-FT)	69.	69.	69.	69.

CUMULATIVE AREA = 1.23 SQ MI

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

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
476.	13.07	(CFS)	133.	41.	41.	41.
		(INCHES)	1.010	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
442.	13.07	(CFS)	124.	38.	38.	38.

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                   (INCHES)      .938         .950         .950          .950
                   (AC-FT)        61.          62.          62.           62.

                   CUMULATIVE AREA =     1.23 SQ MI


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

                     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
    424.    13.07       (CFS)      119.          36.          36.           36.
                       (INCHES)    .898         .910         .910          .910
                       (AC-FT)      59.          60.          60.           60.

                   CUMULATIVE AREA =     1.23 SQ MI

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


                   INTERPOLATED HYDROGRAPH AT       90S

PEAK FLOW    TIME                          MAXIMUM AVERAGE FLOW
  (CFS)      (HR)                  6-HR        24-HR        72-HR      19.93-HR
    497.    13.07       (CFS)      139.          42.          42.           42.
                       (INCHES)   1.055        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   *
          *             *
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                        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        1.40  TIME OF CONCENTRATION
                         R         .80  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
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100.0

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UNIT HYDROGRAPH PARAMETERS

CLARK TC= 1.40 HR, R= .80 HR

SNYDER TP= 1.16 HR, CP= .86

UNIT HYDROGRAPH

77 END-OF-PERIOD ORDINATES

5.	16.	24.	29.	35.	43.	51.	61.	75.	94.
129.	188.	261.	345.	423.	464.	477.	473.	456.	437.
417.	390.	359.	330.	304.	279.	257.	236.	217.	200.
184.	169.	156.	143.	132.	121.	111.	102.	94.	87.
80.	73.	67.	62.	57.	52.	48.	44.	41.	38.
35.	32.	29.	27.	25.	23.	21.	19.	18.	16.
15.	14.	13.	12.	11.	10.	9.	8.	8.	7.
6.	6.	5.	5.	5.	4.	4.			

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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
623.	12.93	(CFS)	156.	49.	49.	49.
		(INCHES)	1.502	1.548	1.548	1.548
		(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
606.	12.93	(CFS)	152.	47.	47.	47.
		(INCHES)	1.458	1.503	1.503	1.503
		(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
589.	12.93	(CFS)	147.	46.	46.	46.
		(INCHES)	1.413	1.458	1.458	1.458
		(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     TIME                             MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR         24-HR        72-HR       19.93-HR
   557.      12.93        (CFS)       138.           43.          43.            43.
                        (INCHES)     1.330         1.372        1.372          1.372
                         (AC-FT)       69.           71.          71.            71.

                         CUMULATIVE AREA =      .97 SQ MI

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

                          HYDROGRAPH AT STATION      95S
                        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
   540.      12.93        (CFS)       134.           42.          42.            42.
                        (INCHES)     1.285         1.326        1.326          1.326
                         (AC-FT)       66.           68.          68.            68.

                         CUMULATIVE AREA =      .97 SQ MI

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



                         INTERPOLATED HYDROGRAPH AT       95S

PEAK FLOW     TIME                             MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR         24-HR        72-HR       19.93-HR
   610.      12.93        (CFS)       153.           47.          47.            47.
                        (INCHES)     1.466         1.512        1.512          1.512
                         (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
69.	15.00	(CFS)	67.	26.	26.	26.
		(INCHES)	.640	.832	.832	.832
		(AC-FT)	33.	43.	43.	43.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
59.	15.00	51.	18.	18.	18.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
19.12	15.00	18.84	16.42	16.42	16.42

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
68.	15.00	(CFS)	66.	26.	26.	26.
		(INCHES)	.634	.824	.824	.824
		(AC-FT)	33.	43.	43.	43.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
57.	15.00	49.	17.	17.	17.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
19.05	15.00	18.77	16.39	16.39	16.39

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
68.	14.93	(CFS)	65.	26.	26.	26.
		(INCHES)	.627	.815	.815	.815
		(AC-FT)	32.	42.	42.	42.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
55.	14.93	47.	16.	16.	16.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.98	14.93	18.69	16.36	16.36	16.36

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
67.	14.93	(CFS)	64.	25.	25.	25.
		(INCHES)	.615	.798	.798	.798
		(AC-FT)	32.	41.	41.	41.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
51.	14.93	44.	15.	15.	15.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.83	14.93	18.55	16.31	16.31	16.31

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
66.	14.87	(CFS)	63.	25.	25.	25.
		(INCHES)	.608	.789	.789	.789
		(AC-FT)	31.	41.	41.	41.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
49.	14.87	42.	14.	14.	14.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.75	14.87	18.47	16.28	16.28	16.28

CUMULATIVE AREA = .97 SQ MI

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INTERPOLATED HYDROGRAPH AT 100RET

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
69.	15.00	(CFS)	66.	26.	26.	26.
		(INCHES)	.635	.825	.825	.825
		(AC-FT)	33.	43.	43.	43.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
49.	14.87	42.	14.	14.	14.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.75	14.87	18.47	16.28	16.28	16.28

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

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156 RS          STORAGE ROUTING
                     NSTPS           1  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
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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
68.	16.60	(CFS)	65.	23.	23.	23.
		(INCHES)	.623	.732	.732	.732
		(AC-FT)	32.	38.	38.	38.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
6.	16.53	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.10	16.60	1.07	.44	.44	.44

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
67.	16.53	(CFS)	64.	23.	23.	23.
		(INCHES)	.617	.724	.724	.724
		(AC-FT)	32.	37.	37.	37.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	16.47	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.09	16.53	1.07	.43	.43	.43

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
66.	16.53	(CFS)	64.	22.	22.	22.
		(INCHES)	.611	.717	.717	.717
		(AC-FT)	32.	37.	37.	37.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	16.53	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.08	16.53	1.06	.43	.43	.43

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
65.	16.47	(CFS)	62.	22.	22.	22.
		(INCHES)	.598	.701	.701	.701
		(AC-FT)	31.	36.	36.	36.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	16.40	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.07	16.47	1.05	.43	.43	.43

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
64.	16.47	(CFS)	62.	22.	22.	22.
		(INCHES)	.592	.693	.693	.693
		(AC-FT)	31.	36.	36.	36.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	16.40	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.07	16.47	1.05	.42	.42	.42

CUMULATIVE AREA = .97 SQ MI

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                                   INTERPOLATED HYDROGRAPH AT      105R

   PEAK FLOW      TIME                                     MAXIMUM AVERAGE FLOW
     (CFS)        (HR)                          6-HR          24-HR          72-HR        19.93-HR
       67.       16.53          (CFS)            64.            23.            23.             23.
                              (INCHES)          .618           .726           .726            .726
                               (AC-FT)           32.            37.            37.             37.

  PEAK STORAGE    TIME                                   MAXIMUM AVERAGE STORAGE
    (AC-FT)       (HR)                          6-HR          24-HR          72-HR        19.93-HR
        5.       16.40                            5.             2.             2.              2.

   PEAK STAGE     TIME                                     MAXIMUM AVERAGE STAGE
     (FEET)       (HR)                          6-HR          24-HR          72-HR        19.93-HR
      1.07       16.47                          1.05            .42            .42             .42

                                   CUMULATIVE AREA =      .97 SQ MI



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                *             *
   160 KK       *      110C   *
                *             *
                ***************
                                      COMBINE 85R, 90S AND 105R AT CP OF 90S

   162 HC            HYDROGRAPH COMBINATION
                                  ICOMP             3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                                 ***

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

                                    HYDROGRAPH AT STATION      110C
                                  TRANSPOSITION AREA        .0 SQ MI

   PEAK FLOW      TIME                                     MAXIMUM AVERAGE FLOW
     (CFS)        (HR)                          6-HR          24-HR          72-HR        19.93-HR
     1994.       13.53          (CFS)           863.           290.           290.            290.
                              (INCHES)          .917          1.023          1.023           1.023
                               (AC-FT)          428.           478.           478.            478.

                                   CUMULATIVE AREA =     8.76 SQ MI

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

                                    HYDROGRAPH AT STATION      110C
                                  TRANSPOSITION AREA       3.0 SQ MI

   PEAK FLOW      TIME                                     MAXIMUM AVERAGE FLOW
     (CFS)        (HR)                          6-HR          24-HR          72-HR        19.93-HR
     1921.       13.53          (CFS)           840.           283.           283.            283.
                              (INCHES)          .892           .997           .997            .997
                               (AC-FT)          416.           465.           465.            465.

                                   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
1846.	13.53	(CFS)	816.	275.	275.	275.
		(INCHES)	.867	.970	.970	.970
		(AC-FT)	405.	453.	453.	453.

CUMULATIVE AREA = 8.76 SQ MI

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

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
1705.	13.60	(CFS)	773.	261.	261.	261.
		(INCHES)	.821	.922	.922	.922
		(AC-FT)	384.	430.	430.	430.

CUMULATIVE AREA = 8.76 SQ MI

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

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
1634.	13.60	(CFS)	751.	254.	254.	254.
		(INCHES)	.797	.896	.896	.896
		(AC-FT)	372.	418.	418.	418.

CUMULATIVE AREA = 8.76 SQ MI

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

INTERPOLATED HYDROGRAPH AT 110C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1855.	13.53	(CFS)	819.	276.	276.	276.
		(INCHES)	.870	.973	.973	.973
		(AC-FT)	406.	454.	454.	454.

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     76.0

168 SE          ELEVATION       3.80     4.00     6.00     8.00    10.00    11.00    12.00    13.00    13.70    14.00

169 SQ          DISCHARGE         0.       1.     176.     414.     680.     880.    1091.    1593.    2678.    3746.

                                                                ***

*** 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.)

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

                      HYDROGRAPH AT STATION   115RET
                     TRANSPOSITION AREA       .0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                6-HR        24-HR        72-HR     19.93-HR
    1754.     13.93       (CFS)      863.         290.         290.         290.
                         (INCHES)    .916        1.022        1.022        1.022
                          (AC-FT)     428.         477.         477.         477.

PEAK STORAGE   TIME                        MAXIMUM AVERAGE STORAGE
  (AC-FT)      (HR)                6-HR        24-HR        72-HR     19.93-HR
     52.      13.93                 19.           6.           6.           6.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
   (FEET)      (HR)                6-HR        24-HR        72-HR     19.93-HR
    13.10     13.93               10.22         6.17         6.17         6.17

                     CUMULATIVE AREA =    8.76 SQ MI

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

                      HYDROGRAPH AT STATION   115RET
                     TRANSPOSITION AREA      3.0 SQ MI

 PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
   (CFS)       (HR)                6-HR        24-HR        72-HR     19.93-HR
    1664.     13.93       (CFS)      839.         282.         282.         282.
                         (INCHES)    .891         .995         .995         .995
                          (AC-FT)     416.         465.         465.         465.

PEAK STORAGE   TIME                        MAXIMUM AVERAGE STORAGE
  (AC-FT)      (HR)                6-HR        24-HR        72-HR     19.93-HR
     50.      13.93                 19.           6.           6.           6.

 PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
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(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
13.05	13.93		10.15	6.14	6.14	6.14

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 115RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1574.	14.00	(CFS)	816.	275.	275.	275.
		(INCHES)	.867	.969	.969	.969
		(AC-FT)	405.	453.	453.	453.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
48.	14.00	18.	5.	5.	5.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
12.96	14.00	10.07	6.11	6.11	6.11

CUMULATIVE AREA = 8.76 SQ MI

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

HYDROGRAPH AT STATION 115RET
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1463.	14.00	(CFS)	773.	261.	261.	261.
		(INCHES)	.821	.920	.920	.920
		(AC-FT)	383.	430.	430.	430.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
44.	14.00	16.	5.	5.	5.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
12.74	14.00	9.91	6.05	6.05	6.05

CUMULATIVE AREA = 8.76 SQ MI

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

HYDROGRAPH AT STATION 115RET
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1403.	14.00	(CFS)	751.	254.	254.	254.
		(INCHES)	.797	.894	.894	.894
		(AC-FT)	372.	418.	418.	418.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
42.	14.00	15.	5.	5.	5.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE

(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
12.62	14.00		9.82	6.02	6.02	6.02

CUMULATIVE AREA = 8.76 SQ MI

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INTERPOLATED HYDROGRAPH AT 115RET

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1583.	14.00	(CFS)	819.	276.	276.	276.
		(INCHES)	.870	.972	.972	.972
		(AC-FT)	406.	454.	454.	454.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
42.	14.00	15.	5.	5.	5.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
12.62	14.00	9.82	6.02	6.02	6.02

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
1201.	13.93	(CFS)	764.	260.	260.	260.
		(INCHES)	.811	.917	.917	.917
		(AC-FT)	379.	428.	428.	428.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 120D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
553.	13.93	(CFS)	99.	30.	30.	30.
		(INCHES)	.105	.105	.105	.105
		(AC-FT)	49.	49.	49.	49.

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
1191.	13.93	(CFS)	753.	256.	256.	256.
		(INCHES)	.800	.904	.904	.904
		(AC-FT)	374.	422.	422.	422.

CUMULATIVE AREA = 8.76 SQ MI

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

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
473.	13.93	(CFS)	86.	26.	26.	26.
		(INCHES)	.091	.091	.091	.091
		(AC-FT)	43.	43.	43.	43.

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
1179.	14.00	(CFS)	742.	252.	252.	252.
		(INCHES)	.788	.890	.890	.890
		(AC-FT)	368.	416.	416.	416.

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
394.	14.00	(CFS)	74.	22.	22.	22.
		(INCHES)	.079	.079	.079	.079
		(AC-FT)	37.	37.	37.	37.

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
1152.	14.00	(CFS)	719.	244.	244.	244.
		(INCHES)	.763	.862	.862	.862
		(AC-FT)	356.	403.	403.	403.

CUMULATIVE AREA = 8.76 SQ MI

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

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
311.	14.00	(CFS)	55.	16.	16.	16.
		(INCHES)	.058	.058	.058	.058
		(AC-FT)	27.	27.	27.	27.

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
1137.	14.00	(CFS)	706.	240.	240.	240.
		(INCHES)	.749	.847	.847	.847
		(AC-FT)	350.	395.	395.	395.

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
266.	14.00	(CFS)	45.	13.	13.	13.
		(INCHES)	.048	.048	.048	.048
		(AC-FT)	22.	22.	22.	22.

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

1180.	14.00	(CFS)	743.	253.	253.	253.
		(INCHES)	.789	.892	.892	.892
		(AC-FT)	368.	416.	416.	416.

CUMULATIVE AREA = 8.76 SQ MI

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

INTERPOLATED HYDROGRAPH AT 120D

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
402.	14.00	(CFS)	76.	23.	23.	23.
		(INCHES)	.080	.080	.080	.080
		(AC-FT)	38.	38.	38.	38.

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
32.	13.93	(CFS)	2.	1.	1.	1.
		(INCHES)	.002	.002	.002	.002
		(AC-FT)	1.	1.	1.	1.

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

521.	13.93	(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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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
14.	13.93	(CFS)	1.	0.	0.	0.
		(INCHES)	.001	.001	.001	.001
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 130D
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
459.	13.93	(CFS)	85.	26.	26.	26.
		(INCHES)	.091	.091	.091	.091
		(AC-FT)	42.	42.	42.	42.

CUMULATIVE AREA = 8.76 SQ MI

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DIVERSION HYDROGRAPH 135D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		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 = 8.76 SQ MI

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HYDROGRAPH AT STATION 130D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
394.	14.00	(CFS)	74.	22.	22.	22.
		(INCHES)	.079	.079	.079	.079
		(AC-FT)	37.	37.	37.	37.

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
0.	.07	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

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
311.	14.00	(CFS)	55.	16.	16.	16.
		(INCHES)	.058	.058	.058	.058
		(AC-FT)	27.	27.	27.	27.

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
0.	.07	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

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
266.	14.00	(CFS)	45.	13.	13.	13.
		(INCHES)	.048	.048	.048	.048
		(AC-FT)	22.	22.	22.	22.

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
2.	13.93	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

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
401.	14.00	(CFS)	76.	23.	23.	23.
		(INCHES)	.080	.080	.080	.080
		(AC-FT)	38.	38.	38.	38.

CUMULATIVE AREA = 8.76 SQ MI

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185 KK    *      140S  *
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SUB-BASIN 140

SUBBASIN RUNOFF DATA

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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        1.50  TIME OF CONCENTRATION
                        R        1.17  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= 1.50 HR, R= 1.17 HR

SNYDER TP= 1.27 HR, CP= .70

UNIT HYDROGRAPH

108 END-OF-PERIOD ORDINATES

4.	13.	20.	25.	30.	37.	44.	52.	61.	75.
94.	129.	184.	248.	321.	391.	432.	452.	458.	450.
441.	429.	414.	394.	372.	352.	332.	314.	297.	280.
265.	250.	236.	223.	211.	199.	188.	178.	168.	159.
150.	142.	134.	126.	119.	113.	107.	101.	95.	90.
85.	80.	76.	72.	68.	64.	60.	57.	54.	51.
48.	45.	43.	41.	38.	36.	34.	32.	31.	29.
27.	26.	24.	23.	22.	21.	19.	18.	17.	16.
15.	15.	14.	13.	12.	12.	11.	10.	10.	9.
9.	8.	8.	7.	7.	7.	6.	6.	6.	5.
5.	5.	4.	4.	4.	4.	4.	3.		

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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
446.	13.07	(CFS)	134.	41.	41.	41.
		(INCHES)	1.013	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
429.	13.07	(CFS)	129.	40.	40.	40.
		(INCHES)	.974	.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
412.	13.07	(CFS)	124.	38.	38.	38.
		(INCHES)	.936	.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
380.	13.07	(CFS)	114.	35.	35.	35.
		(INCHES)	.863	.879	.879	.879
		(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	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
363.	13.07	(CFS)	109.	34.	34.	34.
		(INCHES)	.823	.839	.839	.839
		(AC-FT)	54.	55.	55.	55.

CUMULATIVE AREA = 1.23 SQ MI

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INTERPOLATED HYDROGRAPH AT 140S

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
432.	13.07	(CFS)	130.	40.	40.	40.
		(INCHES)	.980	.999	.999	.999
		(AC-FT)	64.	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 .65 TIME OF CONCENTRATION
R .41 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= .65 HR, R= .41 HR
SNYDER TP= .54 HR, CP= .80

UNIT HYDROGRAPH
39 END-OF-PERIOD ORDINATES

9.	22.	33.	49.	83.	169.	296.	372.	370.	339.
296.	252.	214.	182.	154.	131.	111.	94.	80.	68.
58.	49.	42.	35.	30.	26.	22.	18.	16.	13.
11.	10.	8.	7.	6.	5.	4.	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
355.	12.40	(CFS)	49.	15.	15.	15.
		(INCHES)	1.180	1.180	1.180	1.180
		(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
344.	12.40	(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
333.	12.40	(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
313.	12.40	(CFS)	43.	13.	13.	13.

	6-HR	24-HR	72-HR	19.93-HR
(INCHES)	1.037	1.037	1.037	1.037
(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
302.	12.40	(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
348.	12.40	(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    *    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.	13.87	(CFS)	10.	4.	4.	4.
		(INCHES)	.246	.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
22.	13.93	21.	8.	8.	8.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
18.69	13.93	18.55	16.37	16.37	16.37

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.	13.87	(CFS)	10.	4.	4.	4.
		(INCHES)	.244	.318	.318	.318
		(AC-FT)	5.	6.	6.	6.

PEAK STORAGE TIME MAXIMUM AVERAGE STORAGE

(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
22.	13.93		20.	7.	7.	7.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.63	13.93		18.49	16.34	16.34	16.34

CUMULATIVE AREA = .38 SQ MI

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HYDROGRAPH AT STATION 150RET
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
10.	13.87	(CFS)	10.	4.	4.	4.
		(INCHES)	.242	.315	.315	.315
		(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.	13.87		19.	7.	7.	7.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.57	13.93		18.43	16.32	16.32	16.32

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.	13.80	(CFS)	10.	4.	4.	4.
		(INCHES)	.238	.310	.310	.310
		(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.	13.87		18.	7.	7.	7.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.46	13.87		18.32	16.28	16.28	16.28

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.	13.80	(CFS)	10.	4.	4.	4.
		(INCHES)	.235	.307	.307	.307
		(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.	13.87		17.	6.	6.	6.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.40	13.87		18.26	16.25	16.25	16.25

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.	13.87	(CFS)	10.	4.	4.	4.
		(INCHES)	.244	.319	.319	.319
		(AC-FT)	5.	7.	7.	7.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
19.	13.87		17.	6.	6.	6.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
18.40	13.87		18.26	16.25	16.25	16.25

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

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209 RS          STORAGE ROUTING
                      NSTPS           1  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
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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.	18.93	(CFS)	9.	3.	3.	3.
		(INCHES)	.216	.240	.240	.240
		(AC-FT)	4.	5.	5.	5.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
2.	18.80	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.37	19.00	.35	.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.	18.93	(CFS)	9.	3.	3.	3.
		(INCHES)	.214	.237	.237	.237
		(AC-FT)	4.	5.	5.	5.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
2.	18.73	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.37	19.00	.35	.12	.12	.12

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.	18.93	(CFS)	9.	3.	3.	3.
		(INCHES)	.212	.235	.235	.235
		(AC-FT)	4.	5.	5.	5.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
2.	18.73		2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.37	19.00		.35	.12	.12	.12

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.	19.00	(CFS)	9.	3.	3.	3.
		(INCHES)	.208	.230	.230	.230
		(AC-FT)	4.	5.	5.	5.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
2.	18.60		2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.37	19.07		.35	.12	.12	.12

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
9.	19.00	(CFS)	8.	3.	3.	3.
		(INCHES)	.205	.228	.228	.228
		(AC-FT)	4.	5.	5.	5.

PEAK STORAGE (AC-FT)	TIME (HR)		MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
2.	18.80		2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.37	19.07		.34	.12	.12	.12

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.	18.93	(CFS)	9.	3.	3.	3.
		(INCHES)	.214	.238	.238	.238
		(AC-FT)	4.	5.	5.	5.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
2.	18.80	2.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.37	19.07	.34	.12	.12	.12

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
781.	13.87	(CFS)	238.	73.	73.	73.
		(INCHES)	.213	.218	.218	.218
		(AC-FT)	118.	121.	121.	121.

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
699.	13.87	(CFS)	221.	68.	68.	68.
		(INCHES)	.198	.203	.203	.203
		(AC-FT)	110.	113.	113.	113.

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
625.	13.87	(CFS)	205.	63.	63.	63.
		(INCHES)	.184	.189	.189	.189

	(AC-FT)	102.	104.	104.	104.

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
521.	13.87	(CFS)	175.	54.	54.	54.
		(INCHES)	.157	.162	.162	.162
		(AC-FT)	87.	90.	90.	90.

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
465.	13.93	(CFS)	160.	50.	50.	50.
		(INCHES)	.144	.148	.148	.148
		(AC-FT)	79.	82.	82.	82.

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
620.	13.87	(CFS)	203.	63.	63.	63.
		(INCHES)	.182	.187	.187	.187
		(AC-FT)	101.	104.	104.	104.

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.	13.40	(CFS)	210.	65.	65.	65.
		(INCHES)	.188	.194	.194	.194
		(AC-FT)	104.	107.	107.	107.

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
271.	13.87	(CFS)	28.	8.	8.	8.
		(INCHES)	.025	.025	.025	.025
		(AC-FT)	14.	14.	14.	14.

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.	13.47	(CFS)	203.	63.	63.	63.
		(INCHES)	.182	.187	.187	.187
		(AC-FT)	101.	104.	104.	104.

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
189.	13.87	(CFS)	18.	5.	5.	5.
		(INCHES)	.016	.016	.016	.016
		(AC-FT)	9.	9.	9.	9.

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.	13.53	(CFS)	195.	60.	60.	60.
		(INCHES)	.175	.180	.180	.180
		(AC-FT)	97.	100.	100.	100.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 165D
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
115.	13.87	(CFS)	10.	3.	3.	3.
		(INCHES)	.009	.009	.009	.009
		(AC-FT)	5.	5.	5.	5.

CUMULATIVE AREA = 10.37 SQ MI

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DIVERSION HYDROGRAPH 170D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
510.	13.80	(CFS)	175.	54.	54.	54.
		(INCHES)	.157	.162	.162	.162
		(AC-FT)	87.	90.	90.	90.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 165D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
11.	13.87	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 10.37 SQ MI

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DIVERSION HYDROGRAPH 170D
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
465.	13.93	(CFS)	160.	50.	50.	50.
		(INCHES)	.144	.148	.148	.148
		(AC-FT)	79.	82.	82.	82.

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
0.	.07	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 10.37 SQ MI

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INTERPOLATED DIVERSION HYDROGRAPH AT 170D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
510.	13.80	(CFS)	194.	60.	60.	60.
		(INCHES)	.174	.179	.179	.179
		(AC-FT)	96.	99.	99.	99.

CUMULATIVE AREA = 10.37 SQ MI

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INTERPOLATED HYDROGRAPH AT 165D

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
110.	13.87	(CFS)	9.	3.	3.	3.
		(INCHES)	.008	.008	.008	.008
		(AC-FT)	5.	5.	5.	5.

CUMULATIVE AREA = 10.37 SQ MI

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          *             *
222 KK    *     175S    *
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SUB-BASIN 175

SUBBASIN RUNOFF DATA

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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        .87  TIME OF CONCENTRATION
                    R       1.00  STORAGE COEFFICIENT
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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= .87 HR, R= 1.00 HR
SNYDER TP= .58 HR, CP= .38

UNIT HYDROGRAPH
86 END-OF-PERIOD ORDINATES

4.	13.	28.	46.	80.	112.	123.	127.	128.	127.
124.	121.	117.	112.	105.	98.	92.	86.	80.	75.
70.	66.	62.	58.	54.	51.	47.	44.	41.	39.
36.	34.	32.	30.	28.	26.	24.	23.	21.	20.
19.	17.	16.	15.	14.	13.	13.	12.	11.	10.
10.	9.	8.	8.	7.	7.	6.	6.	6.	5.
5.	5.	4.	4.	4.	4.	3.	3.	3.	3.
3.	2.	2.	2.	2.	2.	2.	2.	1.	1.
1.	1.	1.	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
216.	12.40	(CFS)	79.	31.	31.	31.
		(INCHES)	2.469	3.189	3.189	3.189
		(AC-FT)	39.	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
211.	12.40	(CFS)	78.	30.	30.	30.
		(INCHES)	2.414	3.120	3.120	3.120
		(AC-FT)	38.	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
206.	12.40	(CFS)	76.	30.	30.	30.
		(INCHES)	2.360	3.051	3.051	3.051

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                    (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     TIME                         MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR        24-HR        72-HR     19.93-HR
    197.     12.40       (CFS)      73.          28.          28.          28.
                       (INCHES)   2.258        2.921        2.921        2.921
                         (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     TIME                         MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR        24-HR        72-HR     19.93-HR
    193.     12.40       (CFS)      71.          28.          28.          28.
                       (INCHES)   2.204        2.852        2.852        2.852
                         (AC-FT)    35.          45.          45.          45.

                    CUMULATIVE AREA =     .30 SQ MI

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                    INTERPOLATED HYDROGRAPH AT     175S

PEAK FLOW     TIME                         MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR        24-HR        72-HR     19.93-HR
    213.     12.40       (CFS)      78.          30.          30.          30.
                       (INCHES)   2.436        3.148        3.148        3.148
                         (AC-FT)    39.          50.          50.          50.

                    CUMULATIVE AREA =     .30 SQ MI



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           *             *
229 KK     *      180C   *
           *             *
           ***************
                         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
362.	13.87	(CFS)	107.	39.	39.	39.
		(INCHES)	.093	.113	.113	.113
		(AC-FT)	53.	65.	65.	65.

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
279.	13.87	(CFS)	96.	36.	36.	36.
		(INCHES)	.083	.103	.103	.103
		(AC-FT)	47.	59.	59.	59.

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
206.	12.40	(CFS)	86.	33.	33.	33.
		(INCHES)	.075	.094	.094	.094
		(AC-FT)	43.	54.	54.	54.

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
197.	12.40	(CFS)	73.	28.	28.	28.
		(INCHES)	.064	.082	.082	.082
		(AC-FT)	36.	47.	47.	47.

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
193.	12.40	(CFS)	71.	28.	28.	28.

(INCHES)	.062	.080	.080	.080
(AC-FT)	35.	45.	45.	45.

CUMULATIVE AREA = 10.67 SQ MI

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INTERPOLATED HYDROGRAPH AT 180C

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
206.	12.40	(CFS)	85.	32.	32.	32.
		(INCHES)	.074	.093	.093	.093
		(AC-FT)	42.	53.	53.	53.

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
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	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
115.	12.00	(CFS)	68.	27.	27.	27.
		(INCHES)	.059	.080	.080	.080
		(AC-FT)	34.	45.	45.	45.

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 185D
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
247.	13.87	(CFS)	39.	12.	12.	12.
		(INCHES)	.034	.034	.034	.034
		(AC-FT)	19.	19.	19.	19.

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.	12.00	(CFS)	67.	27.	27.	27.
		(INCHES)	.059	.078	.078	.078
		(AC-FT)	33.	45.	45.	45.

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
164.	13.87	(CFS)	28.	9.	9.	9.
		(INCHES)	.025	.025	.025	.025
		(AC-FT)	14.	14.	14.	14.

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.	12.00	(CFS)	66.	27.	27.	27.
		(INCHES)	.058	.077	.077	.077
		(AC-FT)	33.	44.	44.	44.

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
91.	12.40	(CFS)	20.	6.	6.	6.
		(INCHES)	.017	.017	.017	.017
		(AC-FT)	10.	10.	10.	10.

CUMULATIVE AREA = 10.67 SQ MI

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DIVERSION HYDROGRAPH 190D
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW TIME MAXIMUM AVERAGE FLOW

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	12.00	(CFS)	62.	25.	25.	25.
		(INCHES)	.054	.072	.072	.072
		(AC-FT)	31.	41.	41.	41.

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
82.	12.40	(CFS)	11.	3.	3.	3.
		(INCHES)	.010	.010	.010	.010
		(AC-FT)	6.	6.	6.	6.

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.	12.07	(CFS)	60.	24.	24.	24.
		(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 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
78.	12.40	(CFS)	10.	3.	3.	3.
		(INCHES)	.009	.009	.009	.009
		(AC-FT)	5.	5.	5.	5.

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.	12.00	(CFS)	66.	26.	26.	26.
		(INCHES)	.057	.077	.077	.077
		(AC-FT)	33.	44.	44.	44.

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
91.	12.40	(CFS)	19.	6.	6.	6.
		(INCHES)	.016	.016	.016	.016
		(AC-FT)	9.	9.	9.	9.

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	.02	HYDRAULIC CONDUCTIVITY
RTIMP	80.00	PERCENT IMPERVIOUS AREA

242 UC CLARK UNITGRAPH

TC	.67	TIME OF CONCENTRATION
R	.58	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= .67 HR, R= .58 HR
SNYDER TP= .39 HR, CP= .42

UNIT HYDROGRAPH
51 END-OF-PERIOD ORDINATES

10.	43.	91.	184.	262.	274.	271.	263.	249.	234.
215.	192.	171.	152.	136.	121.	108.	96.	86.	76.
68.	61.	54.	48.	43.	38.	34.	30.	27.	24.
22.	19.	17.	15.	14.	12.	11.	10.	9.	8.
7.	6.	5.	5.	4.	4.	3.	3.	3.	2.
2.									

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HYDROGRAPH AT STATION 195S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = .31, TOTAL EXCESS = 3.59

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
430.	12.27	(CFS)	118.	46.	46.	46.
		(INCHES)	2.753	3.529	3.529	3.529
		(AC-FT)	59.	75.	75.	75.

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 = .31, TOTAL EXCESS = 3.51

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
421.	12.27	(CFS)	116.	45.	45.	45.
		(INCHES)	2.693	3.452	3.452	3.452
		(AC-FT)	57.	73.	73.	73.

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 = .31, TOTAL EXCESS = 3.43

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
412.	12.27	(CFS)	113.	44.	44.	44.
		(INCHES)	2.633	3.375	3.375	3.375
		(AC-FT)	56.	72.	72.	72.

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 = .31, TOTAL EXCESS = 3.28

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
396.	12.27	(CFS)	108.	42.	42.	42.
		(INCHES)	2.521	3.232	3.232	3.232
		(AC-FT)	54.	69.	69.	69.

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 = .30, TOTAL EXCESS = 3.21

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR

387.	12.27	(CFS)	106.	41.	41.	41.
		(INCHES)	2.462	3.155	3.155	3.155
		(AC-FT)	52.	67.	67.	67.

CUMULATIVE AREA = .40 SQ MI

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INTERPOLATED HYDROGRAPH AT 195S

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
425.	12.27	(CFS)	116.	45.	45.	45.
		(INCHES)	2.714	3.479	3.479	3.479
		(AC-FT)	58.	74.	74.	74.

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	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
520.	12.27	(CFS)	157.	57.	57.	57.
		(INCHES)	.132	.160	.160	.160
		(AC-FT)	78.	94.	94.	94.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 200C

TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
506.	12.27	(CFS)	144.	53.	53.	53.
		(INCHES)	.121	.148	.148	.148
		(AC-FT)	71.	88.	88.	88.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 200C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
493.	12.27	(CFS)	133.	50.	50.	50.
		(INCHES)	.111	.138	.138	.138
		(AC-FT)	66.	82.	82.	82.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 200C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
468.	12.27	(CFS)	120.	45.	45.	45.
		(INCHES)	.100	.126	.126	.126
		(AC-FT)	59.	74.	74.	74.

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
454.	12.27	(CFS)	116.	44.	44.	44.
		(INCHES)	.097	.122	.122	.122
		(AC-FT)	58.	72.	72.	72.

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
489.	12.27	(CFS)	131.	49.	49.	49.
		(INCHES)	.110	.136	.136	.136
		(AC-FT)	65.	81.	81.	81.

CUMULATIVE AREA = 11.07 SQ MI

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         *            *
248 KK   *     205D   *
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DIVERT FLOW ACROSS I-17 THROUGH 6X3 RCBC AT LOUISE
DI REPRESENTS TOTAL FLOW TO DEPRESSED INTERCHANGE AT DEER VALLEY RD.
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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
156.	11.80	(CFS)	90.	37.	37.	37.
		(INCHES)	.076	.104	.104	.104
		(AC-FT)	45.	61.	61.	61.

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
364.	12.27	(CFS)	67.	20.	20.	20.
		(INCHES)	.056	.056	.056	.056
		(AC-FT)	33.	33.	33.	33.

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)	89.	36.	36.	36.
		(INCHES)	.074	.102	.102	.102
		(AC-FT)	44.	60.	60.	60.

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
350.	12.27	(CFS)	55.	17.	17.	17.
		(INCHES)	.046	.046	.046	.046
		(AC-FT)	27.	27.	27.	27.

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.	11.87	(CFS)	86.	35.	35.	35.
		(INCHES)	.072	.099	.099	.099
		(AC-FT)	43.	58.	58.	58.

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
337.	12.27	(CFS)	47.	14.	14.	14.
		(INCHES)	.039	.039	.039	.039
		(AC-FT)	23.	23.	23.	23.

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.	11.87	(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
312.	12.27	(CFS)	41.	12.	12.	12.
		(INCHES)	.035	.035	.035	.035
		(AC-FT)	20.	20.	20.	20.

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.	11.87	(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	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
298.	12.27	(CFS)	39.	12.	12.	12.
		(INCHES)	.033	.033	.033	.033
		(AC-FT)	19.	19.	19.	19.

CUMULATIVE AREA = 11.07 SQ MI

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INTERPOLATED DIVERSION HYDROGRAPH AT 210D

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
156.	11.87	(CFS)	85.	35.	35.	35.
		(INCHES)	.071	.098	.098	.098
		(AC-FT)	42.	58.	58.	58.

CUMULATIVE AREA = 11.07 SQ MI

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INTERPOLATED HYDROGRAPH AT 205D

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
333.	12.27	(CFS)	46.	14.	14.	14.
		(INCHES)	.039	.039	.039	.039
		(AC-FT)	23.	23.	23.	23.

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
32.	13.93	(CFS)	2.	1.	1.	1.
		(INCHES)	.002	.002	.002	.002
		(AC-FT)	1.	1.	1.	1.

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
14.	13.93	(CFS)	1.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 135RD
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 = 8.76 SQ MI

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HYDROGRAPH AT STATION 135RD
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 = 8.76 SQ MI

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HYDROGRAPH AT STATION 135RD
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 = 8.76 SQ MI

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INTERPOLATED HYDROGRAPH AT 135RD

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2.	13.93	(CFS)	0.	0.	0.	0.
		(INCHES)	.000	.000	.000	.000
		(AC-FT)	0.	0.	0.	0.

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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
364.	12.27	(CFS)	69.	21.	21.	21.
		(INCHES)	.058	.058	.058	.058
		(AC-FT)	34.	34.	34.	34.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 215C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
350.	12.27	(CFS)	56.	17.	17.	17.
		(INCHES)	.047	.047	.047	.047
		(AC-FT)	28.	28.	28.	28.

CUMULATIVE AREA = 11.07 SQ MI

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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
337.	12.27	(CFS)	47.	14.	14.	14.
		(INCHES)	.039	.039	.039	.039
		(AC-FT)	23.	23.	23.	23.

CUMULATIVE AREA = 11.07 SQ MI

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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
312.	12.27	(CFS)	41.	12.	12.	12.
		(INCHES)	.035	.035	.035	.035
		(AC-FT)	20.	20.	20.	20.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 215C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
298.	12.27	(CFS)	39.	12.	12.	12.
		(INCHES)	.033	.033	.033	.033
		(AC-FT)	19.	19.	19.	19.

CUMULATIVE AREA = 11.07 SQ MI

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INTERPOLATED HYDROGRAPH AT 215C

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
333.	12.27	(CFS)	46.	14.	14.	14.
		(INCHES)	.039	.039	.039	.039
		(AC-FT)	23.	23.	23.	23.

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 (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.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
50.	14.27	50.	28.	28.	28.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
95.51	14.27	95.51	92.00	92.00	92.00

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 220RET
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
254.	12.67	(CFS)	41.	13.	13.	13.
		(INCHES)	.035	.035	.035	.035
		(AC-FT)	20.	21.	21.	21.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
65.	12.67	62.	57.	57.	57.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
97.18	12.67	96.85	96.33	96.33	96.33

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
240.	12.67	(CFS)	32.	10.	10.	10.
		(INCHES)	.027	.027	.027	.027
		(AC-FT)	16.	16.	16.	16.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
65.	12.67	62.	57.	57.	57.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
97.16	12.67	96.84	96.32	96.32	96.32

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
214.	12.67	(CFS)	27.	8.	8.	8.
		(INCHES)	.023	.023	.023	.023
		(AC-FT)	13.	13.	13.	13.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
65.	12.67	62.	57.	57.	57.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
97.12	12.67	96.82	96.32	96.32	96.32

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
200.	12.67	(CFS)	24.	7.	7.	7.
		(INCHES)	.020	.021	.021	.021
		(AC-FT)	12.	12.	12.	12.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
64.	12.67	62.	57.	57.	57.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
97.10	12.67	96.82	96.32	96.32	96.32

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
237.	12.67	(CFS)	32.	10.	10.	10.
		(INCHES)	.027	.027	.027	.027
		(AC-FT)	16.	16.	16.	16.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
64.	12.67	62.	57.	57.	57.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
97.10	12.67	96.82	96.32	96.32	96.32

CUMULATIVE AREA = 11.07 SQ MI

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268 KK    *     210RD  *
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RETRIEVE FLOW DIVERTED THROUGH CULVERT AT LOUISE

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)	90.	37.	37.	37.
		(INCHES)	.076	.104	.104	.104
		(AC-FT)	45.	61.	61.	61.

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)	89.	36.	36.	36.
		(INCHES)	.074	.102	.102	.102
		(AC-FT)	44.	60.	60.	60.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 210RD
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
156.	11.87	(CFS)	86.	35.	35.	35.
		(INCHES)	.072	.099	.099	.099
		(AC-FT)	43.	58.	58.	58.

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 210RD
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
156.	11.87	(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.	11.87	(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.	11.87	(CFS)	85.	35.	35.	35.
		(INCHES)	.071	.098	.098	.098
		(AC-FT)	42.	58.	58.	58.

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
156.	11.80	(CFS)	90.	37.	37.	37.
		(INCHES)	.076	.104	.104	.104
		(AC-FT)	45.	61.	61.	61.

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
410.	12.67	(CFS)	130.	49.	49.	49.
		(INCHES)	.109	.137	.137	.137
		(AC-FT)	64.	81.	81.	81.

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
396.	12.67	(CFS)	118.	45.	45.	45.
		(INCHES)	.099	.126	.126	.126
		(AC-FT)	58.	75.	75.	75.

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
370.	12.67	(CFS)	105.	41.	41.	41.
		(INCHES)	.088	.114	.114	.114
		(AC-FT)	52.	67.	67.	67.

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
356.	12.67	(CFS)	101.	40.	40.	40.

(INCHES)	.085	.111	.111	.111
(AC-FT)	50.	65.	65.	65.

CUMULATIVE AREA = 11.07 SQ MI

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INTERPOLATED HYDROGRAPH AT 225C

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
393.	12.67	(CFS)	116.	45.	45.	45.
		(INCHES)	.097	.124	.124	.124
		(AC-FT)	57.	73.	73.	73.

CUMULATIVE AREA = 11.07 SQ MI

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*      230R  *
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ROUTE 225C TO CP OF 250S ALONG NATURAL CHANNEL

HYDROGRAPH ROUTING DATA

STORAGE ROUTING

NSTPS	1	NUMBER OF SUBREACHES
ITYP	FLOW	TYPE OF INITIAL CONDITION
RSVRIC	-1.00	INITIAL CONDITION
X	.00	WORKING R AND D COEFFICIENT

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

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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
156.	14.13	(CFS)	90.	37.	37.	37.
		(INCHES)	.076	.102	.102	.102
		(AC-FT)	45.	60.	60.	60.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
6.	14.07	4.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.80	14.13	.55	.27	.27	.27

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 230R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
348.	12.93	(CFS)	129.	48.	48.	48.
		(INCHES)	.109	.135	.135	.135
		(AC-FT)	64.	80.	80.	80.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
11.	12.93	5.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.21	12.93	.65	.30	.30	.30

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 230R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
336.	12.93	(CFS)	117.	45.	45.	45.
		(INCHES)	.099	.124	.124	.124
		(AC-FT)	58.	73.	73.	73.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
10.	12.93	4.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.19	12.93	.61	.29	.29	.29

CUMULATIVE AREA = 11.07 SQ MI

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HYDROGRAPH AT STATION 230R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
312.	12.93	(CFS)	104.	40.	40.	40.
		(INCHES)	.088	.112	.112	.112
		(AC-FT)	52.	66.	66.	66.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
10.	12.93	4.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.15	12.93	.57	.27	.27	.27

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
299.	13.00	(CFS)	101.	39.	39.	39.
		(INCHES)	.085	.109	.109	.109
		(AC-FT)	50.	64.	64.	64.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
10.	13.00	4.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.12	13.00	.56	.27	.27	.27

CUMULATIVE AREA = 11.07 SQ MI

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INTERPOLATED HYDROGRAPH AT 230R

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
332.	12.93	(CFS)	116.	44.	44.	44.
		(INCHES)	.097	.123	.123	.123
		(AC-FT)	57.	72.	72.	72.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
10.	13.00	4.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.12	13.00	.56	.27	.27	.27

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

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         .30  TIME OF CONCENTRATION
                         R         .23  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

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                                                UNIT HYDROGRAPH PARAMETERS
                                           CLARK   TC=   .30 HR,       R=   .23 HR
                                          SNYDER   TP=   .19 HR,      CP=   .49

                                                    UNIT HYDROGRAPH
                                                20 END-OF-PERIOD ORDINATES
                15.       65.      101.       95.       80.       62.       46.       35.       26.       19.
                14.       11.       8.        6.         4.        3.        2.        2.        1.        1.

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                       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
   105.      12.07       (CFS)       18.          7.          7.          7.
                         (INCHES)   2.724       3.460       3.460       3.460
                         (AC-FT)      9.          11.         11.         11.

                       CUMULATIVE AREA =     .06 SQ MI


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                       HYDROGRAPH AT STATION     235S
                      TRANSPOSITION AREA      3.0 SQ MI

   TOTAL RAINFALL =    3.82, TOTAL LOSS =     .41, TOTAL EXCESS =    3.41
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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
103.	12.07	(CFS)	18.	7.	7.	7.
		(INCHES)	2.663	3.383	3.383	3.383
		(AC-FT)	9.	11.	11.	11.

CUMULATIVE AREA = .06 SQ MI

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HYDROGRAPH AT STATION 235S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = .40, TOTAL EXCESS = 3.34

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
101.	12.07	(CFS)	17.	7.	7.	7.
		(INCHES)	2.603	3.307	3.307	3.307
		(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
97.	12.07	(CFS)	17.	6.	6.	6.
		(INCHES)	2.490	3.163	3.163	3.163
		(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
94.	12.07	(CFS)	16.	6.	6.	6.
		(INCHES)	2.430	3.087	3.087	3.087
		(AC-FT)	8.	10.	10.	10.

CUMULATIVE AREA = .06 SQ MI

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INTERPOLATED HYDROGRAPH AT 235S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
104.	12.07	(CFS)	18.	7.	7.	7.
		(INCHES)	2.704	3.436	3.436	3.436

	(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	1	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	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
74.	12.27	(CFS)	18.	7.	7.	7.
		(INCHES)	2.711	3.397	3.397	3.397
		(AC-FT)	9.	11.	11.	11.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.	12.27	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.16	12.27		.48	.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
73.	12.27	(CFS)	18.	7.	7.	7.
		(INCHES)	2.651	3.321	3.321	3.321
		(AC-FT)	9.	11.	11.	11.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
2.	12.27	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.15	12.27		.48	.24	.24	.24

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
71.	12.27	(CFS)	17.	7.	7.	7.
		(INCHES)	2.591	3.245	3.245	3.245
		(AC-FT)	9.	11.	11.	11.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
2.	12.27	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)		MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.14	12.27		.47	.24	.24	.24

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
68.	12.27	(CFS)	17.	6.	6.	6.
		(INCHES)	2.478	3.103	3.103	3.103
		(AC-FT)	8.	10.	10.	10.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
2.	12.27	1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.13	12.27		.46	.23	.23	.23

CUMULATIVE AREA = .06 SQ MI

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HYDROGRAPH AT STATION 240R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
67.	12.27	(CFS)	16.	6.	6.	6.
		(INCHES)	2.418	3.028	3.028	3.028
		(AC-FT)	8.	10.	10.	10.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2.	12.27		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.12	12.27		.45	.23	.23	.23

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
74.	12.27	(CFS)	18.	7.	7.	7.
		(INCHES)	2.692	3.372	3.372	3.372
		(AC-FT)	9.	11.	11.	11.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
2.	12.27		1.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1.12	12.27		.45	.23	.23	.23

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

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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	12.00	(CFS)	68.	27.	27.	27.
		(INCHES)	10.225	13.700	13.700	13.700
		(AC-FT)	34.	45.	45.	45.

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.	12.00	(CFS)	67.	27.	27.	27.
		(INCHES)	10.084	13.488	13.488	13.488
		(AC-FT)	33.	45.	45.	45.

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.	12.00	(CFS)	66.	27.	27.	27.
		(INCHES)	9.912	13.244	13.244	13.244
		(AC-FT)	33.	44.	44.	44.

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.	12.00	(CFS)	62.	25.	25.	25.
		(INCHES)	9.240	12.438	12.438	12.438
		(AC-FT)	31.	41.	41.	41.

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.	12.07	(CFS)	60.	24.	24.	24.

(INCHES)	9.068	12.194	12.194	12.194
(AC-FT)	30.	40.	40.	40.

CUMULATIVE AREA = 10.67 SQ MI

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INTERPOLATED HYDROGRAPH AT 190RD

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
115.	12.00	(CFS)	66.	26.	26.	26.
		(INCHES)	.057	.077	.077	.077
		(AC-FT)	33.	44.	44.	44.

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	1	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.	14.27	(CFS)	68.	27.	27.	27.
		(INCHES)	.059	.078	.078	.078
		(AC-FT)	34.	44.	44.	44.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	14.27	3.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.67	14.27	.47	.24	.24	.24

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 245R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	14.27	(CFS)	67.	26.	26.	26.
		(INCHES)	.058	.077	.077	.077
		(AC-FT)	33.	44.	44.	44.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	14.27	3.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.67	14.27	.47	.23	.23	.23

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 245R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
115.	14.13	(CFS)	66.	26.	26.	26.
		(INCHES)	.057	.075	.075	.075
		(AC-FT)	33.	43.	43.	43.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	14.13	3.	2.	2.	2.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.67	14.13	.46	.23	.23	.23

CUMULATIVE AREA = 10.67 SQ MI

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HYDROGRAPH AT STATION 245R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
114.	13.40	(CFS)	61.	24.	24.	24.
		(INCHES)	.053	.071	.071	.071
		(AC-FT)	30.	40.	40.	40.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	13.40	3.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.66	13.40	.44	.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
113.	13.40	(CFS)	60.	24.	24.	24.
		(INCHES)	.052	.069	.069	.069
		(AC-FT)	30.	39.	39.	39.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	13.40	3.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.66	13.40	.44	.22	.22	.22

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
114.	13.53	(CFS)	65.	26.	26.	26.
		(INCHES)	.057	.075	.075	.075
		(AC-FT)	32.	43.	43.	43.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
5.	13.40	3.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
.66	13.40	.44	.22	.22	.22

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         .23  HYDRAULIC CONDUCTIVITY
                     RTIMP       26.00  PERCENT IMPERVIOUS AREA

306 UC          CLARK UNITGRAPH
                        TC        1.45  TIME OF CONCENTRATION
                         R         .73  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

                                                  ***

                                                UNIT HYDROGRAPH PARAMETERS
                                          CLARK   TC=  1.45 HR,       R=   .73 HR
                                          SNYDER  TP=  1.18 HR,      CP=   .91

                                                UNIT HYDROGRAPH
                                          72 END-OF-PERIOD ORDINATES
                     6.       19.       28.       35.       42.       50.       60.       70.       84.      105.
                   134.      193.      274.      367.      471.      539.      564.      568.      552.      527.
                   501.      472.      438.      399.      365.      333.      304.      277.      253.      231.
                   211.      192.      176.      160.      146.      134.      122.      111.      102.       93.
                    85.       77.       71.       64.       59.       54.       49.       45.       41.       37.
                    34.       31.       28.       26.       24.       22.       20.       18.       16.       15.
                    14.       12.       11.       10.        9.        9.        8.        7.        7.        6.
                     5.        5.

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                       HYDROGRAPH AT STATION     250S
                      TRANSPOSITION AREA       .0 SQ MI

   TOTAL RAINFALL =    3.90, TOTAL LOSS =    1.99, TOTAL EXCESS =    1.91

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     19.93-HR
   725.     13.00        (CFS)      194.        67.         67.         67.
                        (INCHES)   1.632       1.869       1.869       1.869
                        (AC-FT)     96.        110.        110.        110.

                       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 = 1.97, TOTAL EXCESS = 1.85

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
705.	13.00	(CFS)	188.	65.	65.	65.
		(INCHES)	1.587	1.820	1.820	1.820
		(AC-FT)	93.	107.	107.	107.

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 = 1.93, TOTAL EXCESS = 1.81

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
685.	13.00	(CFS)	183.	63.	63.	63.
		(INCHES)	1.543	1.771	1.771	1.771
		(AC-FT)	91.	104.	104.	104.

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 = 1.88, TOTAL EXCESS = 1.71

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
648.	13.00	(CFS)	173.	60.	60.	60.
		(INCHES)	1.462	1.681	1.681	1.681
		(AC-FT)	86.	99.	99.	99.

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 = 1.84, TOTAL EXCESS = 1.67

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
628.	13.00	(CFS)	168.	58.	58.	58.
		(INCHES)	1.419	1.633	1.633	1.633
		(AC-FT)	83.	96.	96.	96.

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
708.	13.00	(CFS)	189.	65.	65.	65.
		(INCHES)	1.594	1.828	1.828	1.828
		(AC-FT)	94.	108.	108.	108.

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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1201.	13.93	(CFS)	764.	260.	260.	260.
		(INCHES)	6.440	7.278	7.278	7.278
		(AC-FT)	379.	428.	428.	428.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 125RD
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1191.	13.93	(CFS)	753.	256.	256.	256.
		(INCHES)	6.351	7.176	7.176	7.176
		(AC-FT)	374.	422.	422.	422.

CUMULATIVE AREA = 8.76 SQ MI

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HYDROGRAPH AT STATION 125RD
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1179.	14.00	(CFS)	742.	252.	252.	252.
		(INCHES)	6.253	7.065	7.065	7.065

	(AC-FT)	368.	416.	416.	416.

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
1152.	14.00	(CFS)	719.	244.	244.	244.
		(INCHES)	6.057	6.844	6.844	6.844
		(AC-FT)	356.	403.	403.	403.

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
1137.	14.00	(CFS)	706.	240.	240.	240.
		(INCHES)	5.949	6.721	6.721	6.721
		(AC-FT)	350.	395.	395.	395.

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
1180.	14.00	(CFS)	743.	253.	253.	253.
		(INCHES)	.789	.892	.892	.892
		(AC-FT)	368.	416.	416.	416.

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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
510.	13.40	(CFS)	210.	65.	65.	65.
		(INCHES)	.223	.229	.229	.229
		(AC-FT)	104.	107.	107.	107.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 170RD
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
510.	13.47	(CFS)	203.	63.	63.	63.
		(INCHES)	.216	.222	.222	.222
		(AC-FT)	101.	104.	104.	104.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 170RD
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
510.	13.53	(CFS)	195.	60.	60.	60.
		(INCHES)	.207	.213	.213	.213
		(AC-FT)	97.	100.	100.	100.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 170RD
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
510.	13.80	(CFS)	175.	54.	54.	54.
		(INCHES)	.186	.192	.192	.192
		(AC-FT)	87.	90.	90.	90.

CUMULATIVE AREA = 10.37 SQ MI

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HYDROGRAPH AT STATION 170RD
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
465.	13.93	(CFS)	160.	50.	50.	50.
		(INCHES)	.170	.176	.176	.176
		(AC-FT)	79.	82.	82.	82.

CUMULATIVE AREA = 10.37 SQ MI

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INTERPOLATED HYDROGRAPH AT 170RD

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
510.	13.80	(CFS)	194.	60.	60.	60.
		(INCHES)	.174	.179	.179	.179
		(AC-FT)	96.	99.	99.	99.

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	.24	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									

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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.

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HYDROGRAPH AT STATION 255S
TRANSPOSITION AREA .0 SQ MI

TOTAL RAINFALL = 3.90, TOTAL LOSS = 2.44, TOTAL EXCESS = 1.46

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
268.	13.07	(CFS)	88.	29.	29.	29.
		(INCHES)	1.330	1.437	1.437	1.437
		(AC-FT)	44.	47.	47.	47.

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 = 2.40, TOTAL EXCESS = 1.42

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
260.	13.07	(CFS)	85.	28.	28.	28.
		(INCHES)	1.290	1.394	1.394	1.394
		(AC-FT)	42.	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 = 2.37, TOTAL EXCESS = 1.37

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
252.	13.07	(CFS)	83.	27.	27.	27.
		(INCHES)	1.250	1.353	1.353	1.353
		(AC-FT)	41.	44.	44.	44.

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 = 2.30, TOTAL EXCESS = 1.29

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
237.	13.07	(CFS)	78.	25.	25.	25.
		(INCHES)	1.176	1.274	1.274	1.274
		(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 =    2.26, TOTAL EXCESS =    1.25

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     19.93-HR
    229.     13.07       (CFS)       75.         25.         25.         25.
                        (INCHES)    1.136       1.232       1.232       1.232
                        (AC-FT)      37.         40.         40.         40.

                      CUMULATIVE AREA =     .62 SQ MI

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


                      INTERPOLATED HYDROGRAPH AT     255S

PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     19.93-HR
    262.     13.07       (CFS)       86.         28.         28.         28.
                        (INCHES)    1.301       1.406       1.406       1.406
                        (AC-FT)      43.         46.         46.         46.

                      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     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                 6-HR       24-HR       72-HR     19.93-HR
   1882.     13.73       (CFS)     1059.        354.        354.        354.
                        (INCHES)   16.008      17.757      17.757      17.757
                        (AC-FT)     525.        582.        582.        582.

                      CUMULATIVE AREA =     .62 SQ MI

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                      HYDROGRAPH AT STATION     260C
                     TRANSPOSITION AREA      3.0 SQ MI
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PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1862.	13.73	(CFS)	1039.	347.	347.	347.
		(INCHES)	15.701	17.423	17.423	17.423
		(AC-FT)	515.	571.	571.	571.

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
1841.	13.80	(CFS)	1016.	340.	340.	340.
		(INCHES)	15.363	17.058	17.058	17.058
		(AC-FT)	504.	559.	559.	559.

CUMULATIVE AREA = .62 SQ MI

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HYDROGRAPH AT STATION 260C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1803.	13.80	(CFS)	968.	324.	324.	324.
		(INCHES)	14.636	16.277	16.277	16.277
		(AC-FT)	480.	534.	534.	534.

CUMULATIVE AREA = .62 SQ MI

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HYDROGRAPH AT STATION 260C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1736.	13.87	(CFS)	938.	314.	314.	314.
		(INCHES)	14.179	15.789	15.789	15.789
		(AC-FT)	465.	518.	518.	518.

CUMULATIVE AREA = .62 SQ MI

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INTERPOLATED HYDROGRAPH AT 260C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1867.	13.73	(CFS)	1044.	349.	349.	349.
		(INCHES)	15.786	17.516	17.516	17.516
		(AC-FT)	518.	575.	575.	575.

CUMULATIVE AREA = .62 SQ MI

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326 KK    *      265R  *
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ROUTE 260C TO CP OF 250S ALONG SCATTER WASH NORTH OF DEER VALLEY ROAD

HYDROGRAPH ROUTING DATA

328 RS STORAGE ROUTING

NSTPS	1	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

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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
1846.	14.07	(CFS)	1047.	345.	345.	345.
		(INCHES)	15.831	17.328	17.328	17.328
		(AC-FT)	519.	568.	568.	568.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
53.	14.07	34.	12.	12.	12.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.87	14.07	2.77	.99	.99	.99

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
1828.	14.13	(CFS)	1027.	338.	338.	338.
		(INCHES)	15.526	16.998	16.998	16.998
		(AC-FT)	509.	558.	558.	558.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
52.	14.13	34.	12.	12.	12.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.85	14.13	2.74	.98	.98	.98

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
1808.	14.13	(CFS)	1005.	331.	331.	331.
		(INCHES)	15.190	16.636	16.636	16.636
		(AC-FT)	498.	546.	546.	546.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
52.	14.13	33.	11.	11.	11.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.83	14.13	2.71	.97	.97	.97

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
1755.	14.13	(CFS)	957.	316.	316.	316.
		(INCHES)	14.467	15.864	15.864	15.864
		(AC-FT)	475.	520.	520.	520.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
51.	14.13	32.	11.	11.	11.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.78	14.13	2.64	.94	.94	.94

CUMULATIVE AREA = .62 SQ MI

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HYDROGRAPH AT STATION 265R

TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1685.	14.13	(CFS)	927.	306.	306.	306.
		(INCHES)	14.010	15.380	15.380	15.380
		(AC-FT)	460.	504.	504.	504.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE		
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
49.	14.13	31.	11.	11.	11.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE		
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.70	14.13	2.59	.93	.93	.93

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
1833.	14.13	(CFS)	1033.	340.	340.	340.
		(INCHES)	15.611	17.090	17.090	17.090
		(AC-FT)	512.	561.	561.	561.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE		
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
49.	14.13	31.	11.	11.	11.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE		
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.70	14.13	2.59	.93	.93	.93

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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2440.	13.67	(CFS)	1382.	482.	482.	482.
		(INCHES)	1.000	1.159	1.159	1.159
		(AC-FT)	685.	794.	794.	794.

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
2468.	13.67	(CFS)	1395.	485.	485.	485.
		(INCHES)	1.009	1.166	1.166	1.166
		(AC-FT)	692.	799.	799.	799.

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
2400.	13.67	(CFS)	1355.	472.	472.	472.
		(INCHES)	.980	1.134	1.134	1.134
		(AC-FT)	672.	777.	777.	777.

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
2245.	13.73	(CFS)	1279.	447.	447.	447.
		(INCHES)	.926	1.074	1.074	1.074
		(AC-FT)	634.	736.	736.	736.

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
2171.	13.40	(CFS)	1239.	434.	434.	434.
		(INCHES)	.897	1.042	1.042	1.042
		(AC-FT)	615.	714.	714.	714.

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
2344.	13.73	(CFS)	1327.	463.	463.	463.
		(INCHES)	.961	1.112	1.112	1.112
		(AC-FT)	658.	762.	762.	762.

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

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337 RS          STORAGE ROUTING
                     NSTPS           1  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
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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

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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
2417.	13.87	(CFS)	1377.	476.	476.	476.
		(INCHES)	.997	1.143	1.143	1.143
		(AC-FT)	683.	784.	784.	784.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
45.	13.87	29.	11.	11.	11.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.09	13.87	2.31	1.02	1.02	1.02

CUMULATIVE AREA = 12.85 SQ MI

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HYDROGRAPH AT STATION 275R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2453.	13.87	(CFS)	1390.	479.	479.	479.
		(INCHES)	1.006	1.150	1.150	1.150
		(AC-FT)	689.	788.	788.	788.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
46.	13.87	29.	11.	11.	11.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.12	13.87	2.32	1.02	1.02	1.02

CUMULATIVE AREA = 12.85 SQ MI

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HYDROGRAPH AT STATION 275R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2384.	13.87	(CFS)	1350.	465.	465.	465.
		(INCHES)	.977	1.119	1.119	1.119
		(AC-FT)	670.	767.	767.	767.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
45.	13.87	28.	11.	11.	11.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
3.07	13.87	2.29	1.00	1.00	1.00

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
2234.	13.87	(CFS)	1275.	441.	441.	441.
		(INCHES)	.923	1.059	1.059	1.059
		(AC-FT)	632.	726.	726.	726.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
43.	13.87	27.	10.	10.	10.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
2.98	13.87	2.23	.98	.98	.98

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
2150.	13.87	(CFS)	1235.	427.	427.	427.
		(INCHES)	.894	1.028	1.028	1.028
		(AC-FT)	613.	704.	704.	704.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
41.	13.87	27.	10.	10.	10.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
2.93	13.87	2.20	.96	.96	.96

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
2330.	13.87	(CFS)	1323.	456.	456.	456.
		(INCHES)	.957	1.097	1.097	1.097
		(AC-FT)	656.	752.	752.	752.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
41.	13.87	27.	10.	10.	10.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
2.93	13.87	2.20	.96	.96	.96

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        1.45  TIME OF CONCENTRATION
                        R        1.01  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=  1.45 HR,       R=  1.01 HR
                                     SNYDER   TP=   .77 HR,      CP=   .43

                                          UNIT HYDROGRAPH
                                     90 END-OF-PERIOD ORDINATES
                    5.       16.       30.       51.       73.       96.      130.      184.      239.      266.
                  274.      276.      273.      270.      265.      259.      252.      243.      235.      226.
                  218.      210.      199.      186.      174.      163.      152.      143.      134.      125.
                  117.      110.      103.       96.       90.       84.       79.       74.       69.       65.
                   61.       57.       53.       50.       47.       44.       41.       38.       36.       33.
                   31.       29.       27.       26.       24.       23.       21.       20.       18.       17.
                   16.       15.       14.       13.       12.       12.       11.       10.       10.        9.
                    8.        8.        7.        7.        6.        6.        6.        5.        5.        5.
                    4.        4.        4.        4.        3.        3.        3.        3.        3.        2.

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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     TIME                          MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                6-HR       24-HR       72-HR     19.93-HR
   338.      12.60       (CFS)      109.        36.         36.         36.
                        (INCHES)  1.364       1.491       1.491       1.491
                        (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
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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
328.	12.60	(CFS)	106.	35.	35.	35.
		(INCHES)	1.324	1.449	1.449	1.449
		(AC-FT)	53.	57.	57.	57.

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
318.	12.60	(CFS)	103.	34.	34.	34.
		(INCHES)	1.284	1.406	1.406	1.406
		(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
299.	12.60	(CFS)	97.	32.	32.	32.
		(INCHES)	1.210	1.327	1.327	1.327
		(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
289.	12.60	(CFS)	94.	31.	31.	31.
		(INCHES)	1.170	1.284	1.284	1.284
		(AC-FT)	46.	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

330.	12.60	(CFS)	107.	35.	35.	35.
		(INCHES)	1.334	1.459	1.459	1.459
		(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2572.	13.80	(CFS)	1479.	512.	512.	512.
		(INCHES)	1.011	1.162	1.162	1.162
		(AC-FT)	733.	843.	843.	843.

CUMULATIVE AREA = 13.59 SQ MI

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HYDROGRAPH AT STATION 285C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2608.	13.73	(CFS)	1489.	513.	513.	513.
		(INCHES)	1.018	1.167	1.167	1.167
		(AC-FT)	738.	846.	846.	846.

CUMULATIVE AREA = 13.59 SQ MI

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HYDROGRAPH AT STATION 285C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2533.	13.73	(CFS)	1445.	499.	499.	499.
		(INCHES)	.989	1.134	1.134	1.134
		(AC-FT)	717.	822.	822.	822.

CUMULATIVE AREA = 13.59 SQ MI

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HYDROGRAPH AT STATION 285C
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2376.	13.67	(CFS)	1365.	473.	473.	473.
		(INCHES)	.934	1.074	1.074	1.074
		(AC-FT)	677.	778.	778.	778.

CUMULATIVE AREA = 13.59 SQ MI

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HYDROGRAPH AT STATION 285C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2298.	13.60	(CFS)	1322.	458.	458.	458.
		(INCHES)	.904	1.042	1.042	1.042
		(AC-FT)	655.	755.	755.	755.

CUMULATIVE AREA = 13.59 SQ MI

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INTERPOLATED HYDROGRAPH AT 285C

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2463.	13.73	(CFS)	1410.	487.	487.	487.
		(INCHES)	.964	1.108	1.108	1.108
		(AC-FT)	699.	803.	803.	803.

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	1	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

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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

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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
2496.	14.20	(CFS)	1457.	501.	501.	501.
		(INCHES)	.997	1.138	1.138	1.138
		(AC-FT)	722.	825.	825.	825.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
85.	14.20	56.	20.	20.	20.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.20	14.20	3.55	1.76	1.76	1.76

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
2543.	14.13	(CFS)	1467.	503.	503.	503.
		(INCHES)	1.004	1.143	1.143	1.143
		(AC-FT)	728.	829.	829.	829.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
86.	14.13	56.	20.	20.	20.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.23	14.13	3.56	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
2465.	14.13	(CFS)	1425.	489.	489.	489.
		(INCHES)	.974	1.111	1.111	1.111
		(AC-FT)	706.	805.	805.	805.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
84.	14.13	55.	20.	20.	20.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.19	14.13	3.53	1.74	1.74	1.74

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
2311.	14.13	(CFS)	1345.	463.	463.	463.
		(INCHES)	.920	1.051	1.051	1.051
		(AC-FT)	667.	762.	762.	762.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
80.	14.13	53.	19.	19.	19.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.10	14.13	3.48	1.71	1.71	1.71

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
2225.	14.13	(CFS)	1303.	449.	449.	449.
		(INCHES)	.891	1.019	1.019	1.019
		(AC-FT)	646.	739.	739.	739.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
78.	14.13	52.	19.	19.	19.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.05	14.13	3.45	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
2397.	14.13	(CFS)	1389.	477.	477.	477.
		(INCHES)	.950	1.084	1.084	1.084
		(AC-FT)	689.	786.	786.	786.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
78.	14.13	52.	19.	19.	19.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
4.05	14.13	3.45	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	.35	HYDRAULIC CONDUCTIVITY
RTIMP	11.00	PERCENT IMPERVIOUS AREA

361 UC CLARK UNITGRAPH

TC	1.50	TIME OF CONCENTRATION
R	1.38	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= 1.50 HR, R= 1.38 HR
SNYDER TP= 1.29 HR, CP= .64

UNIT HYDROGRAPH
124 END-OF-PERIOD ORDINATES

1.	3.	5.	6.	8.	9.	11.	13.	15.	19.
24.	32.	46.	62.	80.	98.	108.	114.	116.	115.
113.	111.	108.	104.	99.	94.	90.	85.	81.	77.
74.	70.	67.	64.	61.	58.	55.	53.	50.	48.

45.	43.	41.	39.	37.	36.	34.	32.	31.	29.
28.	27.	25.	24.	23.	22.	21.	20.	19.	18.
17.	16.	16.	15.	14.	14.	13.	12.	12.	11.
11.	10.	10.	9.	9.	8.	8.	8.	7.	7.
7.	6.	6.	6.	5.	5.	5.	5.	4.	4.
4.	4.	4.	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.						

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HYDROGRAPH AT STATION 295S
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
137.	13.07	(CFS)	48.	16.	16.	16.
		(INCHES)	1.281	1.405	1.405	1.405
		(AC-FT)	24.	26.	26.	26.

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 = 2.43, TOTAL EXCESS = 1.39

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
132.	13.07	(CFS)	47.	16.	16.	16.
		(INCHES)	1.242	1.364	1.364	1.364
		(AC-FT)	23.	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 = 2.39, TOTAL EXCESS = 1.35

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
128.	13.07	(CFS)	46.	15.	15.	15.
		(INCHES)	1.203	1.322	1.322	1.322
		(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 = 2.32, TOTAL EXCESS = 1.27

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW

(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
120.	13.07	(CFS)	43.	14.	14.	14.
		(INCHES)	1.130	1.243	1.243	1.243
		(AC-FT)	21.	23.	23.	23.

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 = 2.29, TOTAL EXCESS = 1.22

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
116.	13.07	(CFS)	41.	14.	14.	14.
		(INCHES)	1.090	1.201	1.201	1.201
		(AC-FT)	20.	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
134.	13.07	(CFS)	48.	16.	16.	16.
		(INCHES)	1.256	1.379	1.379	1.379
		(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
2570.	14.13	(CFS)	1503.	517.	517.	517.
		(INCHES)	1.002	1.145	1.145	1.145
		(AC-FT)	746.	852.	852.	852.

CUMULATIVE AREA = 13.95 SQ MI

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HYDROGRAPH AT STATION 300C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
2616.	14.13	(CFS)	1513.	519.	519.	519.
		(INCHES)	1.008	1.149	1.149	1.149
		(AC-FT)	750.	854.	854.	854.

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
2535.	14.13	(CFS)	1468.	504.	504.	504.
		(INCHES)	.979	1.116	1.116	1.116
		(AC-FT)	728.	830.	830.	830.

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
2377.	14.13	(CFS)	1386.	477.	477.	477.
		(INCHES)	.924	1.056	1.056	1.056
		(AC-FT)	687.	785.	785.	785.

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
2289.	14.07	(CFS)	1342.	462.	462.	462.
		(INCHES)	.895	1.024	1.024	1.024
		(AC-FT)	665.	761.	761.	761.

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

2459.	14.13	(CFS)	1429.	491.	491.	491.
		(INCHES)	.953	1.087	1.087	1.087
		(AC-FT)	708.	809.	809.	809.

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 PER COMPUTATION SOURCE:

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 (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.

CUMULATIVE AREA = .10 SQ MI

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HYDROGRAPH AT STATION 310S
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.

CUMULATIVE AREA = .10 SQ MI

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

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		
(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 1 NUMBER OF SUBREACHES

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                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

                                                ***

                                        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

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                      HYDROGRAPH AT STATION     320R
                     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.

PEAK STORAGE  TIME                       MAXIMUM AVERAGE STORAGE
  (AC-FT)     (HR)                 6-HR       24-HR       72-HR     19.93-HR
    24.        .07                   24.         24.         24.         24.

PEAK STAGE    TIME                       MAXIMUM AVERAGE STAGE
  (FEET)      (HR)                 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      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.

PEAK STORAGE  TIME                       MAXIMUM AVERAGE STORAGE
  (AC-FT)     (HR)                 6-HR       24-HR       72-HR     19.93-HR
    24.        .07                   24.         24.         24.         24.
```

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 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
24.	.07	24.	24.	24.	24.

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 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
24.	.07	24.	24.	24.	24.

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 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
24.	.07	24.	24.	24.	24.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		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	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.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	19.93-HR
24.	.07		24.	24.	24.	24.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 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

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*      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	1	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

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HYDROGRAPH AT STATION 335R
TRANSPOSITION AREA .0 SQ MI

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR

1994.	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
19.	13.13	17.	17.	17.	17.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.18	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	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1985.	13.13	(CFS)	1811.	1756.	1756.	1756.
		(INCHES)	22.451	72.332	72.332	72.332
		(AC-FT)	898.	2893.	2893.	2893.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
19.	13.13	17.	17.	17.	17.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	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

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

HYDROGRAPH AT STATION 335R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1977.	13.13	(CFS)	1808.	1755.	1755.	1755.
		(INCHES)	22.417	72.296	72.296	72.296
		(AC-FT)	897.	2892.	2892.	2892.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
18.	13.13	17.	17.	17.	17.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	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

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

HYDROGRAPH AT STATION 335R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
(CFS)	(HR)	6-HR	24-HR	72-HR	19.93-HR

1960.	13.13	(CFS)	1803.	1754.	1754.	1754.
		(INCHES)	22.353	72.229	72.229	72.229
		(AC-FT)	894.	2889.	2889.	2889.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
18.	13.13	17.	17.	17.	17.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.15	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
1951.	13.13	(CFS)	1800.	1753.	1753.	1753.
		(INCHES)	22.318	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
18.	13.13	17.	17.	17.	17.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.14	13.13	3.00	2.96	2.96	2.96

CUMULATIVE AREA = .75 SQ MI

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

INTERPOLATED HYDROGRAPH AT 335R

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
1988.	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
18.	13.13	17.	17.	17.	17.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.14	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

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         .45  TIME OF CONCENTRATION
                           R         .35  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=   .45 HR,       R=   .35 HR
                                            SNYDER   TP=   .26 HR,      CP=   .44

                                                    UNIT HYDROGRAPH
                                                32 END-OF-PERIOD ORDINATES
                      7.       27.       65.       93.       92.       86.       77.       66.       55.       45.
                     38.       31.       26.       21.       18.       15.       12.       10.        8.        7.
                      6.        5.        4.        3.        3.        2.        2.        2.        1.        1.
                      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
    75.      12.13       (CFS)       11.          4.          4.          4.
                        (INCHES)    1.155       1.281       1.281       1.281
                         (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
    73.      12.13       (CFS)       10.          3.          3.          3.
                        (INCHES)    1.115       1.238       1.238       1.238
                         (AC-FT)        5.          6.          6.          6.
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CUMULATIVE AREA = .09 SQ MI

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

HYDROGRAPH AT STATION 340S
TRANSPOSITION AREA 10.0 SQ MI

TOTAL RAINFALL = 3.74, TOTAL LOSS = 2.54, TOTAL EXCESS = 1.20

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
70.	12.13	(CFS)	10.	3.	3.	3.
		(INCHES)	1.074	1.195	1.195	1.195
		(AC-FT)	5.	5.	5.	5.

CUMULATIVE AREA = .09 SQ MI

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

HYDROGRAPH AT STATION 340S
TRANSPOSITION AREA 20.0 SQ MI

TOTAL RAINFALL = 3.59, TOTAL LOSS = 2.47, TOTAL EXCESS = 1.12

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
65.	12.13	(CFS)	9.	3.	3.	3.
		(INCHES)	.997	1.114	1.114	1.114
		(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
62.	12.13	(CFS)	9.	3.	3.	3.
		(INCHES)	.956	1.070	1.070	1.070
		(AC-FT)	4.	5.	5.	5.

CUMULATIVE AREA = .09 SQ MI

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

INTERPOLATED HYDROGRAPH AT 340S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
74.	12.13	(CFS)	11.	4.	4.	4.
		(INCHES)	1.140	1.265	1.265	1.265
		(AC-FT)	5.	6.	6.	6.

CUMULATIVE AREA = .09 SQ MI

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403 KK    *      345C  *
          *            *
          *            *
          **************
                    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
   2003.     13.13      (CFS)     1824.       1761.       1761.       1761.
                       (INCHES)  20.288      65.055      65.055      65.055
                        (AC-FT)    905.       2901.       2901.       2901.

                      CUMULATIVE AREA =     .84 SQ MI


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

                      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
   1994.     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
   1985.     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


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

                      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
```

1967.	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
1958.	13.13	(CFS)	1809.	1756.	1756.	1756.
		(INCHES)	20.118	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
1996.	13.13	(CFS)	1822.	1760.	1760.	1760.
		(INCHES)	20.261	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 .37 TIME OF CONCENTRATION
R .15 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

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UNIT HYDROGRAPH PARAMETERS
CLARK TC= .37 HR, R= .15 HR
SNYDER TP= .31 HR, CP= 1.04

UNIT HYDROGRAPH
16 END-OF-PERIOD ORDINATES

22.	63.	159.	420.	573.	462.	310.	197.	125.	79.
50.	32.	20.	13.	8.	5.				

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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
398.	12.13	(CFS)	45.	16.	16.	16.
		(INCHES)	1.597	1.822	1.822	1.822
		(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
387.	12.13	(CFS)	44.	15.	15.	15.
		(INCHES)	1.552	1.772	1.772	1.772
		(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
377.	12.13	(CFS)	43.	15.	15.	15.
		(INCHES)	1.508	1.724	1.724	1.724
		(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	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
356.	12.13	(CFS)	40.	14.	14.	14.
		(INCHES)	1.428	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
345.	12.13	(CFS)	39.	14.	14.	14.
		(INCHES)	1.386	1.588	1.588	1.588
		(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
392.	12.13	(CFS)	44.	15.	15.	15.
		(INCHES)	1.571	1.794	1.794	1.794
		(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	1	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

***

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 2870. 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	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
384.	12.20	(CFS)	45.	15.	15.	15.
		(INCHES)	1.597	1.818	1.818	1.818
		(AC-FT)	22.	26.	26.	26.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
4.	12.20	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1.26	12.20	.23	.09	.09	.09

CUMULATIVE AREA = .26 SQ MI

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HYDROGRAPH AT STATION 355R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
373.	12.20	(CFS)	44.	15.	15.	15.
		(INCHES)	1.551	1.768	1.768	1.768
		(AC-FT)	22.	25.	25.	25.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
4.	12.20	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1.24	12.20	.23	.09	.09	.09

CUMULATIVE AREA = .26 SQ MI

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HYDROGRAPH AT STATION 355R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
362.	12.20	(CFS)	43.	15.	15.	15.
		(INCHES)	1.507	1.720	1.720	1.720
		(AC-FT)	21.	24.	24.	24.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	12.20	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.22	12.20	.22	.09	.09	.09

CUMULATIVE AREA = .26 SQ MI

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HYDROGRAPH AT STATION 355R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
341.	12.20	(CFS)	40.	14.	14.	14.
		(INCHES)	1.428	1.632	1.632	1.632
		(AC-FT)	20.	23.	23.	23.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	12.20	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.18	12.20	.22	.08	.08	.08

CUMULATIVE AREA = .26 SQ MI

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HYDROGRAPH AT STATION 355R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
329.	12.20	(CFS)	39.	13.	13.	13.
		(INCHES)	1.385	1.585	1.585	1.585
		(AC-FT)	19.	22.	22.	22.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
3.	12.20	1.	0.	0.	0.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1.16	12.20	.21	.08	.08	.08

CUMULATIVE AREA = .26 SQ MI

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INTERPOLATED HYDROGRAPH AT 355R

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
378.	12.20	(CFS)	44.	15.	15.	15.
		(INCHES)	1.571	1.790	1.790	1.790
		(AC-FT)	22.	25.	25.	25.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
3.	12.20	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1.16	12.20	.21	.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	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
4449.	14.00	(CFS)	3342.	2293.	2293.	2293.
		(INCHES)	2.066	4.708	4.708	4.708
		(AC-FT)	1657.	3778.	3778.	3778.

CUMULATIVE AREA = 15.04 SQ MI

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HYDROGRAPH AT STATION 360C
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
4493.	14.00	(CFS)	3348.	2293.	2293.	2293.
		(INCHES)	2.069	4.709	4.709	4.709
		(AC-FT)	1660.	3778.	3778.	3778.

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			
			6-HR	24-HR	72-HR	19.93-HR
(CFS)	(HR)					
4408.	14.00	(CFS)	3300.	2277.	2277.	2277.
		(INCHES)	2.040	4.676	4.676	4.676
		(AC-FT)	1636.	3752.	3752.	3752.

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			
			6-HR	24-HR	72-HR	19.93-HR
(CFS)	(HR)					
4241.	14.00	(CFS)	3211.	2247.	2247.	2247.
		(INCHES)	1.984	4.615	4.615	4.615
		(AC-FT)	1592.	3702.	3702.	3702.

CUMULATIVE AREA = 15.04 SQ MI

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

HYDROGRAPH AT STATION 360C
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	19.93-HR
(CFS)	(HR)					
4149.	14.00	(CFS)	3163.	2232.	2232.	2232.
		(INCHES)	1.955	4.582	4.582	4.582
		(AC-FT)	1569.	3676.	3676.	3676.

CUMULATIVE AREA = 15.04 SQ MI

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INTERPOLATED HYDROGRAPH AT 360C

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	19.93-HR
(CFS)	(HR)					
4310.	14.00	(CFS)	3248.	2260.	2260.	2260.
		(INCHES)	2.007	4.640	4.640	4.640
		(AC-FT)	1610.	3723.	3723.	3723.

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

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424 RS          STORAGE ROUTING
                     NSTPS           1  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
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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
4423.	14.27	(CFS)	3337.	2289.	2289.	2289.
		(INCHES)	2.062	4.699	4.699	4.699
		(AC-FT)	1655.	3770.	3770.	3770.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
93.	14.27	76.	58.	58.	58.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1293.71	14.27	1293.16	1292.55	1292.55	1292.55

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
4467.	14.20	(CFS)	3343.	2289.	2289.	2289.
		(INCHES)	2.066	4.700	4.700	4.700
		(AC-FT)	1658.	3771.	3771.	3771.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
93.	14.20	76.	58.	58.	58.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1293.73	14.20	1293.17	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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
4382.	14.20	(CFS)	3295.	2273.	2273.	2273.
		(INCHES)	2.036	4.667	4.667	4.667
		(AC-FT)	1634.	3744.	3744.	3744.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
92.	14.20	75.	58.	58.	58.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1293.69	14.20	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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
4217.	14.20	(CFS)	3206.	2243.	2243.	2243.
		(INCHES)	1.981	4.606	4.606	4.606
		(AC-FT)	1590.	3696.	3696.	3696.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
90.	14.20	74.	57.	57.	57.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1293.61	14.20	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
4125.	14.20	(CFS)	3159.	2227.	2227.	2227.
		(INCHES)	1.952	4.573	4.573	4.573
		(AC-FT)	1566.	3669.	3669.	3669.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE		
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
88.	14.20	73.	57.	57.	57.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE		
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1293.57	14.20	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
4285.	14.20	(CFS)	3243.	2255.	2255.	2255.
		(INCHES)	2.004	4.631	4.631	4.631
		(AC-FT)	1608.	3716.	3716.	3716.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE		
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
88.	14.20	73.	57.	57.	57.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE		
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1293.57	14.20	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	1.27	TIME OF CONCENTRATION
R	.63	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= 1.27 HR, R= .63 HR
SNYDER TP= 1.03 HR, CP= .91

UNIT HYDROGRAPH
63 END-OF-PERIOD ORDINATES

7.	22.	32.	39.	48.	59.	71.	88.	113.	161.
241.	345.	462.	546.	579.	579.	556.	526.	494.	455.
409.	368.	332.	299.	269.	242.	218.	196.	177.	159.
143.	129.	116.	104.	94.	85.	76.	69.	62.	56.
50.	45.	41.	37.	33.	30.	27.	24.	22.	19.
17.	16.	14.	13.	11.	10.	9.	8.	8.	7.
6.	6.	5.							

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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
630.	12.80	(CFS)	145.	49.	49.	49.
		(INCHES)	1.373	1.539	1.539	1.539
		(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
610.	12.80	(CFS)	141.	48.	48.	48.
		(INCHES)	1.331	1.494	1.494	1.494
		(AC-FT)	70.	78.	78.	78.

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
590.	12.80	(CFS)	136.	46.	46.	46.
		(INCHES)	1.289	1.449	1.449	1.449
		(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
552.	12.80	(CFS)	128.	43.	43.	43.
		(INCHES)	1.210	1.363	1.363	1.363
		(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
531.	12.80	(CFS)	124.	42.	42.	42.
		(INCHES)	1.168	1.317	1.317	1.317
		(AC-FT)	61.	69.	69.	69.

CUMULATIVE AREA = .98 SQ MI

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INTERPOLATED HYDROGRAPH AT 375S

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
614.	12.80	(CFS)	142.	48.	48.	48.
		(INCHES)	1.340	1.503	1.503	1.503
		(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
TAREA 1.40 SUBBASIN AREA

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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        1.50  TIME OF CONCENTRATION
                          R         .80  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=  1.50 HR,       R=   .80 HR
                                                SNYDER  TP=  1.23 HR,      CP=   .89

                                                    UNIT HYDROGRAPH
                                                78 END-OF-PERIOD ORDINATES
                      7.       21.       32.       40.       48.       57.       68.       80.       93.      114.
                    144.      198.      285.      384.      497.      602.      658.      677.      674.      649.
                    623.      593.      560.      520.      479.      440.      405.      373.      343.      315.
                    290.      267.      245.      226.      208.      191.      176.      162.      149.      137.
                    126.      116.      106.       98.       90.       83.       76.       70.       65.       59.
                     55.       50.       46.       43.       39.       36.       33.       30.       28.       26.
                     24.       22.       20.       18.       17.       16.       14.       13.       12.       11.
                     10.        9.        9.        8.        7.        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     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR       72-HR     19.93-HR
   695.     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     TIME                              MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                    6-HR        24-HR       72-HR     19.93-HR
   671.     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	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
647.	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
600.	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
576.	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
674.	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	1	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

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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
621.	13.27	(CFS)	176.	56.	56.	56.
		(INCHES)	1.164	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
9.	13.27	3.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
9.56	13.27	7.61	6.62	6.62	6.62

CUMULATIVE AREA = 1.40 SQ MI

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HYDROGRAPH AT STATION 385R
TRANSPOSITION AREA 3.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
601.	13.20	(CFS)	170.	54.	54.	54.
		(INCHES)	1.124	1.194	1.194	1.194
		(AC-FT)	84.	89.	89.	89.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
9.	13.20	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
9.53	13.20	7.58	6.61	6.61	6.61

CUMULATIVE AREA = 1.40 SQ MI

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HYDROGRAPH AT STATION 385R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
582.	13.20	(CFS)	164.	52.	52.	52.
		(INCHES)	1.084	1.152	1.152	1.152
		(AC-FT)	81.	86.	86.	86.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
9.	13.20	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
9.50	13.20	7.56	6.60	6.60	6.60

CUMULATIVE AREA = 1.40 SQ MI

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HYDROGRAPH AT STATION 385R
TRANSPOSITION AREA 20.0 SQ MI

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
546.	13.20	(CFS)	152.	49.	49.	49.
		(INCHES)	1.009	1.074	1.074	1.074
		(AC-FT)	76.	80.	80.	80.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
8.	13.20	2.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
9.43	13.20	7.50	6.58	6.58	6.58

CUMULATIVE AREA = 1.40 SQ MI

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HYDROGRAPH AT STATION 385R
TRANSPOSITION AREA 30.0 SQ MI

PEAK FLOW	TIME			MAXIMUM AVERAGE FLOW		
(CFS)	(HR)		6-HR	24-HR	72-HR	19.93-HR
525.	13.20	(CFS)	146.	47.	47.	47.
		(INCHES)	.968	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
7.	13.20	2.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE		
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
9.38	13.20	7.47	6.57	6.57	6.57

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
604.	13.20	(CFS)	171.	55.	55.	55.
		(INCHES)	1.130	1.199	1.199	1.199
		(AC-FT)	85.	90.	90.	90.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE		
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
7.	13.20	2.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE		
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
9.38	13.20	7.47	6.57	6.57	6.57

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 1.02 TIME OF CONCENTRATION

R .39 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= 1.02 HR, R= .39 HR
SNYDER TP= .81 HR, CP= 1.06

UNIT HYDROGRAPH
42 END-OF-PERIOD ORDINATES

12.	32.	45.	57.	74.	91.	123.	188.	303.	468.
621.	688.	671.	619.	560.	492.	420.	354.	299.	252.
213.	180.	152.	128.	108.	91.	77.	65.	55.	46.
39.	33.	28.	23.	20.	17.	14.	12.	10.	8.
7.	6.								

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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
734.	12.60	(CFS)	132.	45.	45.	45.
		(INCHES)	1.530	1.747	1.747	1.747
		(AC-FT)	65.	74.	74.	74.

CUMULATIVE AREA = .80 SQ MI

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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
713.	12.60	(CFS)	128.	44.	44.	44.
		(INCHES)	1.488	1.700	1.700	1.700
		(AC-FT)	63.	72.	72.	72.

CUMULATIVE AREA = .80 SQ MI

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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
692.	12.60	(CFS)	124.	43.	43.	43.
		(INCHES)	1.445	1.653	1.653	1.653
		(AC-FT)	62.	70.	70.	70.

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
   652.      12.60        (CFS)     117.          40.         40.          40.
                       (INCHES)    1.365        1.565       1.565        1.565
                        (AC-FT)      58.          67.         67.          67.

                    CUMULATIVE AREA =     .80 SQ MI

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

                     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
   630.      12.60        (CFS)     114.          39.         39.          39.
                       (INCHES)    1.322        1.517       1.517        1.517
                        (AC-FT)      56.          65.         65.          65.

                    CUMULATIVE AREA =     .80 SQ MI

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


                    INTERPOLATED HYDROGRAPH AT      390S

PEAK FLOW     TIME                           MAXIMUM AVERAGE FLOW
  (CFS)       (HR)                  6-HR        24-HR       72-HR     19.93-HR
   718.      12.60        (CFS)     129.          44.         44.          44.
                       (INCHES)    1.498        1.711       1.711        1.711
                        (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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1069.	12.73	(CFS)	307.	101.	101.	101.
		(INCHES)	1.293	1.421	1.421	1.421
		(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1038.	12.80	(CFS)	297.	98.	98.	98.
		(INCHES)	1.253	1.377	1.377	1.377
		(AC-FT)	147.	162.	162.	162.

CUMULATIVE AREA = 2.20 SQ MI

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HYDROGRAPH AT STATION 395C
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
1007.	12.80	(CFS)	287.	95.	95.	95.
		(INCHES)	1.212	1.334	1.334	1.334
		(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
943.	12.80	(CFS)	269.	89.	89.	89.
		(INCHES)	1.135	1.252	1.252	1.252
		(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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
909.	12.80	(CFS)	259.	86.	86.	86.
		(INCHES)	1.093	1.208	1.208	1.208
		(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
1040.	12.80	(CFS)	297.	98.	98.	98.
		(INCHES)	1.255	1.380	1.380	1.380
		(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	1	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

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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
866.	13.27	(CFS)	304.	101.	101.	101.
		(INCHES)	1.282	1.411	1.411	1.411
		(AC-FT)	151.	166.	166.	166.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
37.	13.27	16.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1301.61	13.27	1300.73	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 (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
838.	13.27	(CFS)	294.	98.	98.	98.
		(INCHES)	1.242	1.368	1.368	1.368
		(AC-FT)	146.	161.	161.	161.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
36.	13.27	15.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1301.58	13.27	1300.71	1300.25	1300.25	1300.25

CUMULATIVE AREA = 2.20 SQ MI

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HYDROGRAPH AT STATION 400R
TRANSPOSITION AREA 10.0 SQ MI

PEAK FLOW (CFS)	TIME (HR)		MAXIMUM AVERAGE FLOW 6-HR	24-HR	72-HR	19.93-HR
809.	13.27	(CFS)	285.	95.	95.	95.
		(INCHES)	1.201	1.325	1.325	1.325
		(AC-FT)	141.	156.	156.	156.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE 6-HR	24-HR	72-HR	19.93-HR
35.	13.27	15.	5.	5.	5.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE 6-HR	24-HR	72-HR	19.93-HR
1301.55	13.27	1300.70	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
752.	13.27	(CFS)	267.	89.	89.	89.
		(INCHES)	1.125	1.243	1.243	1.243
		(AC-FT)	132.	146.	146.	146.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
34.	13.27	14.	5.	5.	5.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1301.50	13.27	1300.67	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
720.	13.27	(CFS)	257.	86.	86.	86.
		(INCHES)	1.084	1.199	1.199	1.199
		(AC-FT)	127.	141.	141.	141.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
33.	13.27	14.	5.	5.	5.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1301.47	13.27	1300.65	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
840.	13.27	(CFS)	295.	98.	98.	98.
		(INCHES)	1.244	1.371	1.371	1.371
		(AC-FT)	146.	161.	161.	161.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	19.93-HR
33.	13.27	14.	5.	5.	5.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	19.93-HR
1301.47	13.27	1300.65	1300.22	1300.22	1300.22

CUMULATIVE AREA = 2.20 SQ MI

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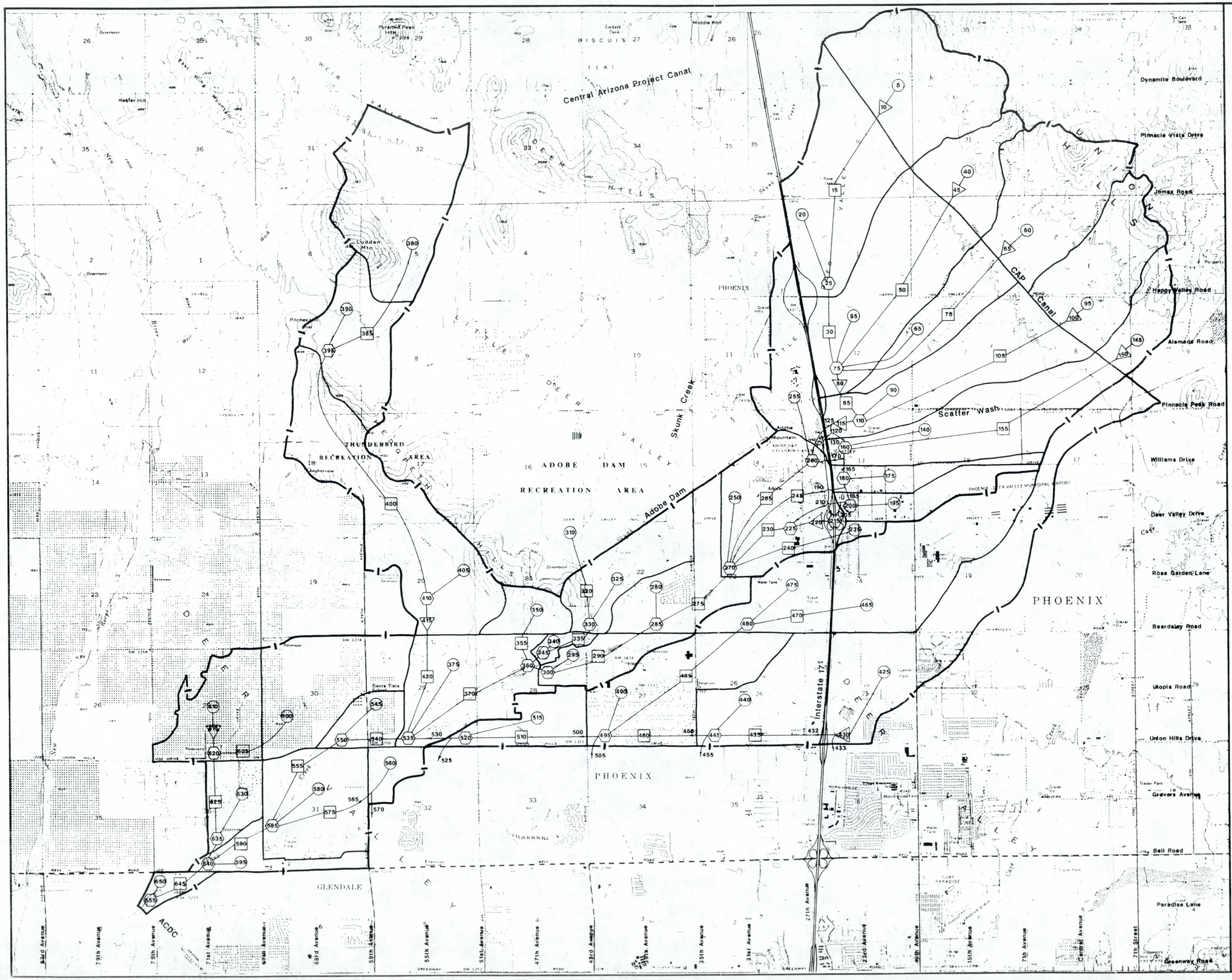
2 COMBINED AT	445C	855.	12.80	468.	167.	167.	2.57		
DIVERSION TO	455D	385.	12.80	99.	30.	30.	2.57		
HYDROGRAPH AT	450D	470.	12.07	369.	137.	137.	2.57		
ROUTED TO	460R	470.	14.80	367.	136.	136.	2.57	6.56	14.67
HYDROGRAPH AT	465S	880.	12.60	325.	121.	121.	1.36		
ROUTED TO	470R	832.	12.93	324.	120.	120.	1.36	1.84	12.93
HYDROGRAPH AT	475S	583.	12.60	136.	44.	44.	.60		
2 COMBINED AT	480C	1336.	12.73	458.	163.	163.	1.96		
ROUTED TO	485R	1213.	13.00	456.	161.	161.	1.96	2.55	13.07
HYDROGRAPH AT	490S	478.	12.67	179.	63.	63.	1.12		
3 COMBINED AT	495C	2098.	13.00	988.	355.	355.	5.64		
DIVERSION TO	505D	1548.	13.00	492.	148.	148.	5.64		
HYDROGRAPH AT	500D	550.	12.07	496.	207.	207.	5.64		
ROUTED TO	510R	550.	15.60	493.	202.	202.	5.64	1.72	15.87
HYDROGRAPH AT	515S	239.	12.53	85.	30.	30.	.48		
2 COMBINED AT	520C	751.	12.80	573.	232.	232.	6.12		
DIVERSION TO	525D	683.	12.80	505.	178.	178.	6.12		
HYDROGRAPH AT	530D	68.	6.87	68.	53.	53.	6.12		
4 COMBINED AT	535C	4425.	14.13	3590.	2427.	2427.	19.90		
ROUTED TO	540R	4422.	14.20	3589.	2424.	2424.	19.90	1258.02	14.20
HYDROGRAPH AT	545S	195.	12.67	44.	15.	15.	.30		
2 COMBINED AT	550C	4449.	14.20	3619.	2436.	2436.	20.20		
ROUTED TO	555R	4440.	14.33	3616.	2430.	2430.	20.20	1241.80	14.33
HYDROGRAPH AT	560S	157.	12.27	30.	10.	10.	.19		
DIVERSION TO	570D	12.	11.67	8.	4.	4.	.19		
HYDROGRAPH AT	565D	145.	12.27	22.	7.	7.	.19		
ROUTED TO	575R	97.	12.60	22.	7.	7.	.19	.62	12.60
HYDROGRAPH AT	580S	685.	12.40	152.	53.	53.	.91		
3 COMBINED AT	585C	4492.	14.27	3720.	2481.	2481.	21.30		
ROUTED TO	590R	4488.	14.33	3718.	2477.	2477.	21.30	1226.31	14.33
HYDROGRAPH AT	595S	108.	13.07	42.	14.	14.	.30		
HYDROGRAPH AT	600S	512.	13.00	136.	43.	43.	1.03		
ROUTED TO	605R	505.	13.07	136.	43.	43.	1.03	1.47	13.07

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 / F — Divide Hydrograph into F and G

PEAK DISCHARGES IN SKUNK CREEK (cfs)

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	855C	2,200	2,800	3,500	4,200	4,300	4,800	14.13
67th Avenue	585C	2,200	2,500	3,400	4,000	4,000	4,500	14.27
Below 55th Avenue Channel	535C	2,200	2,500	3,400	3,700	4,000	4,400	14.13
Below Confluence with Scatter Wash	360C	2,100	2,400	3,400	3,800	4,000	4,300	14.00
Above Confluence with Scatter Wash	345C	1,400	1,500	1,800	1,900	1,900	2,000	13.13
Below Adobe Dam	320R	1,370	1,370	1,650	1,650	1,730	1,730	NA

PEAK DISCHARGES IN SCATTER WASH (cfs)

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	800	1,000	1,700	2,100	2,300	2,500	14.13

DRAINAGE AREA MAP & HEC-1 SCHEMATIC

PLATE 1

REDUCED SCALE, FULL SCALE MAP IN POCKET

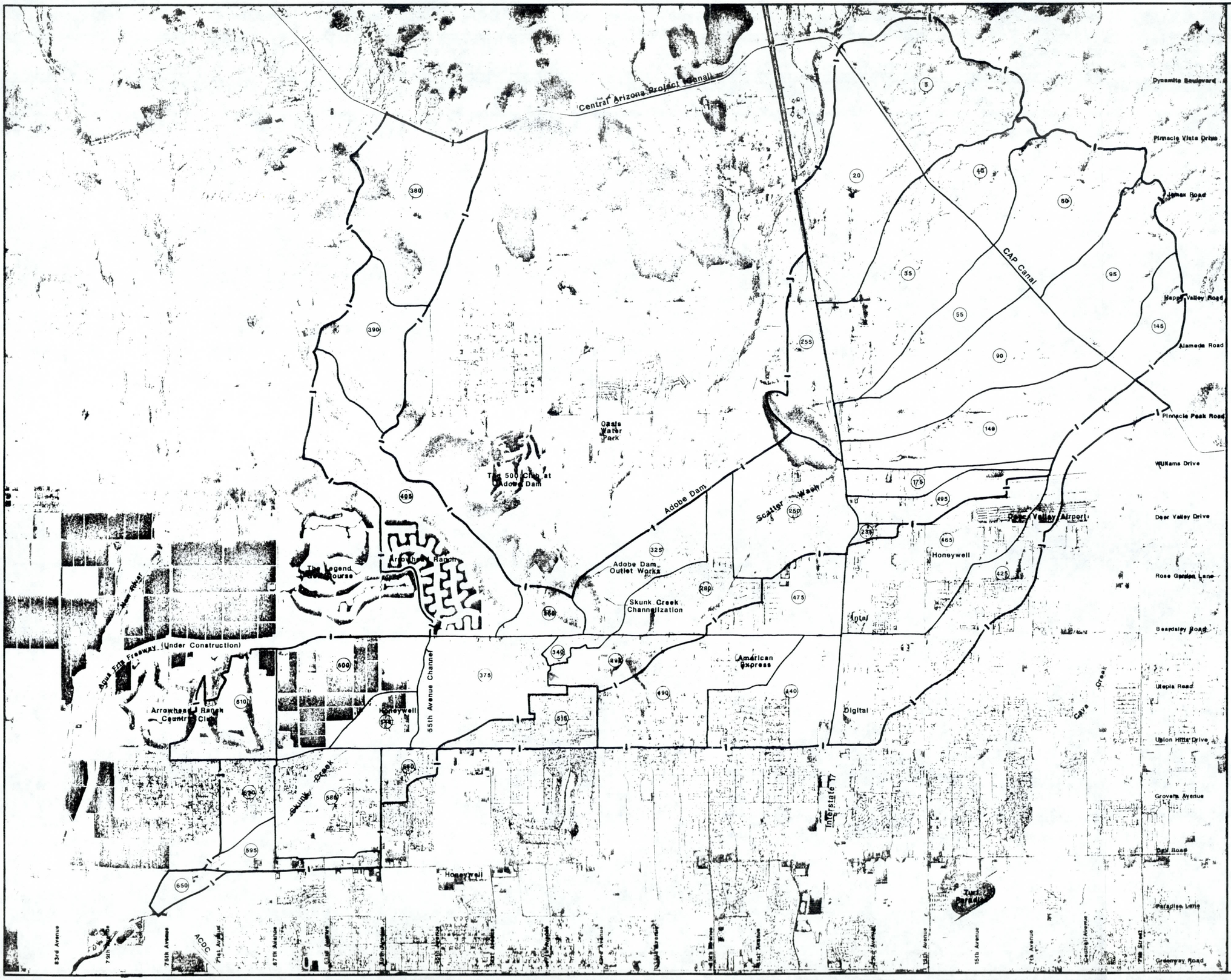
COE & VAN LOO
PLANNING • ENGINEERING
LANDSCAPE ARCHITECTURE

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

REDUCED SCALE, FULL SCALE MAP IN POCKET

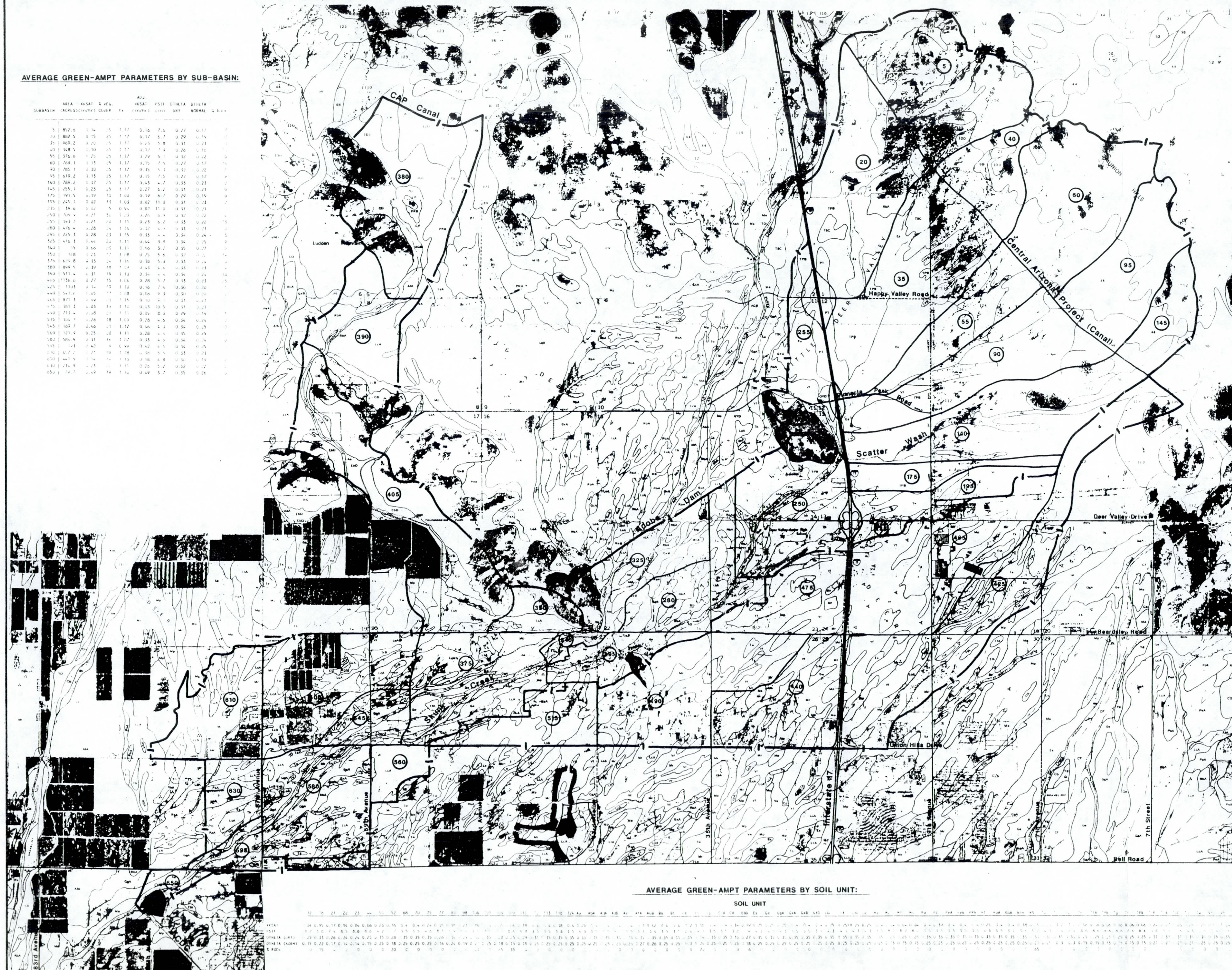
COE & VAN LOO
PLANNING • ENGINEERING
LANDSCAPE ARCHITECTURE

0 2000 6000
1000 4000

NORTH

AVERAGE GREEN-AMPT PARAMETERS BY SUB-BASIN:

SUBBASIN	AREA (ACRES)	XKSAT (in/hr)	% VEG. COVER	Cv	ADJ. XKSAT (in/hr)	PSIF (in)	DTHETA DRY	DTHETA NORMAL	% ROCK
5	852.6	0.14	25	1.17	0.16	7.6	0.27	0.17	[illegible]
20	882.5	0.15	25	1.17	0.17	6.7	0.29	0.19	[illegible]
35	969.2	0.20	25	1.17	0.23	5.8	0.31	0.21	[illegible]
40	348.5	0.10	25	1.17	0.12	7.9	0.26	0.16	[illegible]
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	[illegible]
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	0.02	13	1.03	0.02	11.0	0.31	0.23	2
235	39.6	0.02	5	0.94	0.02	11.0	0.31	0.21	
250	705.9	0.21	30	1.23	0.26	6.9	0.32	0.22	4
255	343.7	0.21	20	1.11	0.23	6.2	0.33	0.22	13
280	476.4	0.28	24	1.16	0.32	4.7	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	128	0.23	17	1.08	0.25	5.6	0.32	[illegible]	[illegible]
375	629.8	0.33	24	1.16	0.38	5.3	0.33	0.24	[illegible]
380	899.5	0.39	18	1.09	0.43	4.6	0.33	0.23	[illegible]
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	[illegible]
440	541.6	0.05	17	1.08	0.06	9.3	0.30	0.20	[illegible]
465	871.3	0.09	23	1.15	0.10	9.1	0.31	0.21	[illegible]
475	381.3	0.03	19	1.10	0.03	10.5	0.31	0.21	[illegible]
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	[illegible]
545	189.7	0.46	21	1.12	0.46	4.0	0.34	0.25	[illegible]
560	121.9	0.25	20	1.11	0.28	4.4	0.35	0.25	[illegible]
580	584.9	0.31	16	1.07	0.33	4.5	0.34	0.24	0
595	143	0.42	9	0.99	0.42	4.5	0.34	0.25	
600	657.2	[illegible]	79	1.78	0.38	5.5	0.33	0.23	[illegible]
610	441.5	0.14	[illegible]	1.33	0.18	6.8	0.30	0.19	0
630	214.9	0.23	[illegible]	1.11	0.26	5.2	0.32	0.22	[illegible]
650	79.7	0.49	19	1.10	0.49	3.7	0.35	0.26	0



AVERAGE GREEN-AMPT PARAMETERS BY SOIL UNIT:

SOIL UNIT

	12	18	21	22	23	44	50	52	68	70	75	77	93	98	100	101	103	109	110	[illegible]	113	118	124
XKSAT	[illegible]	0.95	0.17	0.04	0.04	0.06	0.26	0.16	0.4	0.4	0.24	0.25	0.58	0.21	[illegible]	[illegible]	[illegible]	[illegible]	0.18	[illegible]	[illegible]	0.58	0.4
PSIF	8.7	3.8	7.4	8.5	8.8	8.6	4.2	[illegible]	3.5	3.5	4.6	8.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8.6	6.8	3.5	3.5	3.8	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	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.25	0.29	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	[illegible]	0.25	0.18	0.15	0.19	0.25	0.25	0.25	0.25
% ROCK	0	15	[illegible]	[illegible]	0	0	0	20	0	0	0	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	35	[illegible]	[illegible]	0	0	[illegible]

	Ag	AbA	AdA	AdB	Ar	AtA	AgB	Bs	Bt	[illegible]	[illegible]	[illegible]	[illegible]	CV	EbD	Es	Ge	GgA	GxA	GxB	GyD	Ld	[illegible]	[illegible]	[illegible]	[illegible]	Ms	MP	Ms	Pa	Pt	PeA	PeB	PRB	Pt	RaA	RbA	[illegible]	RS	[illegible]	[illegible]	[illegible]	[illegible]	TfA	TfB	Tg	[illegible]	TPB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	VF	VF	Vk
XKSAT	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
PSIF	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DTHETA (DRY)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
DTHETA (NORM)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
% ROCK	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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
- Soil Unit Boundary
- Soil Unit Boundary
  - Reference: USDA, Soil Conservation Service, Soil Survey of Maricopa County, Arizona, Central Part
- Soil Unit Identification
  - Reference: USDA, Soil Conservation Service, Soil Survey of Aquila-Carefree Area, Parts of Maricopa and Pinal Counties, Arizona

SOIL CLASSIFICATION MAP

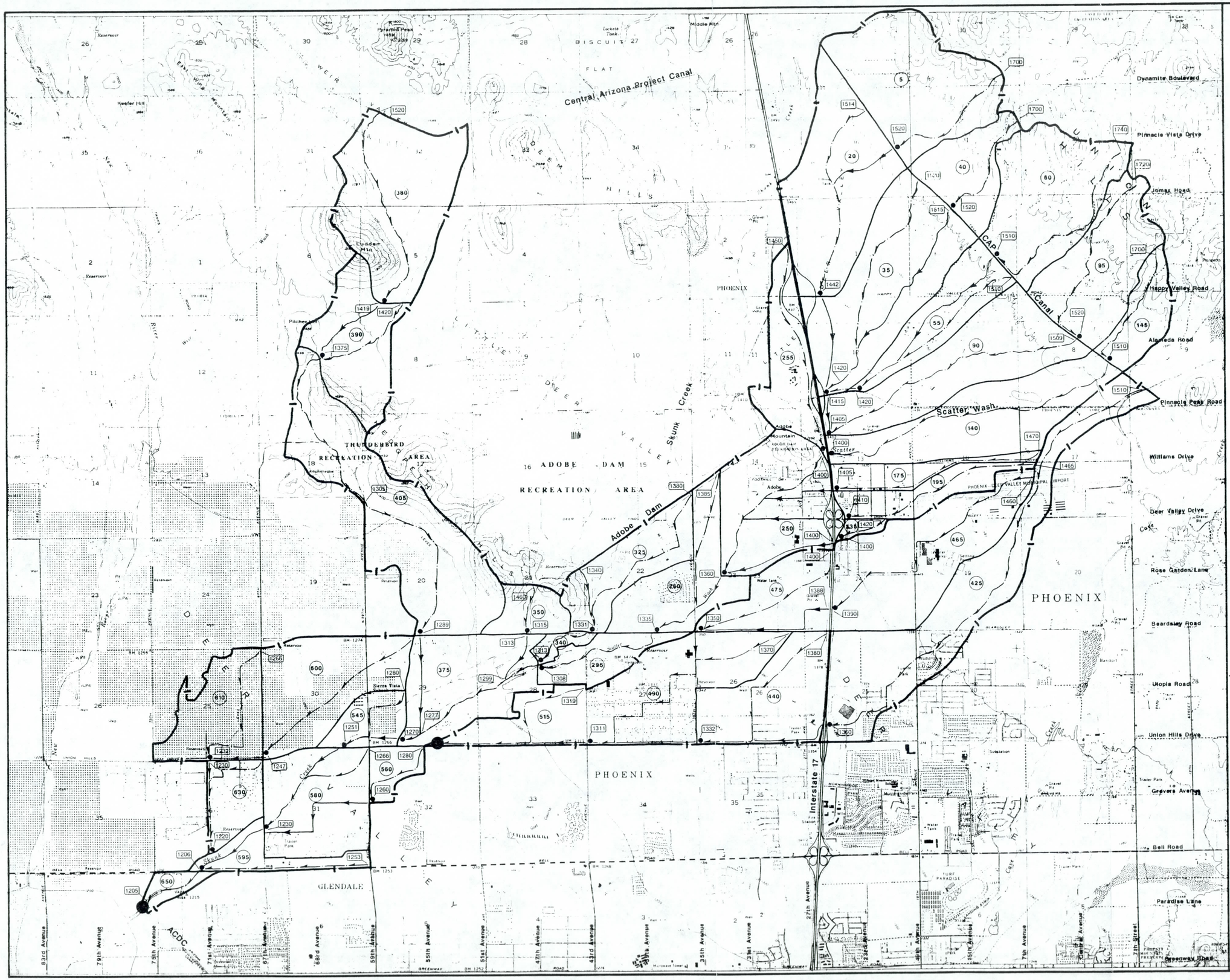
PLATE 3

REDUCED SCALE, FULL SCALE MAP IN POCKET

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

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

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	2,200	2,600	3,500	4,200	4,300	4,800	14.13
67th Avenue	585C	2,200	2,500	3,400	4,000	4,000	4,500	14.27
Below 55th Avenue Channel	535C	2,200	2,500	3,400	3,900	4,000	4,400	14.13
Below Confluence with Scatter Wash	360C	2,100	2,400	3,400	3,800	4,000	4,300	14.00
Above Confluence with Scatter Wash	345C	1,400	1,500	1,800	1,900	1,900	2,000	13.13
Below Adobe Dam	320R	1,370	1,370	1,650	1,650	1,730	1,730	NA

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	800	1,000	1,700	2,100	2,300	2,500	14.13

DRAINAGE AREA MAP & HEC-1 SCHEMATIC

PLATE 1

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

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
Cave Creek
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
Turf Paradise
Interstate 17
The Legend Golf Course
Arrowhead Ranch
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
5
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140
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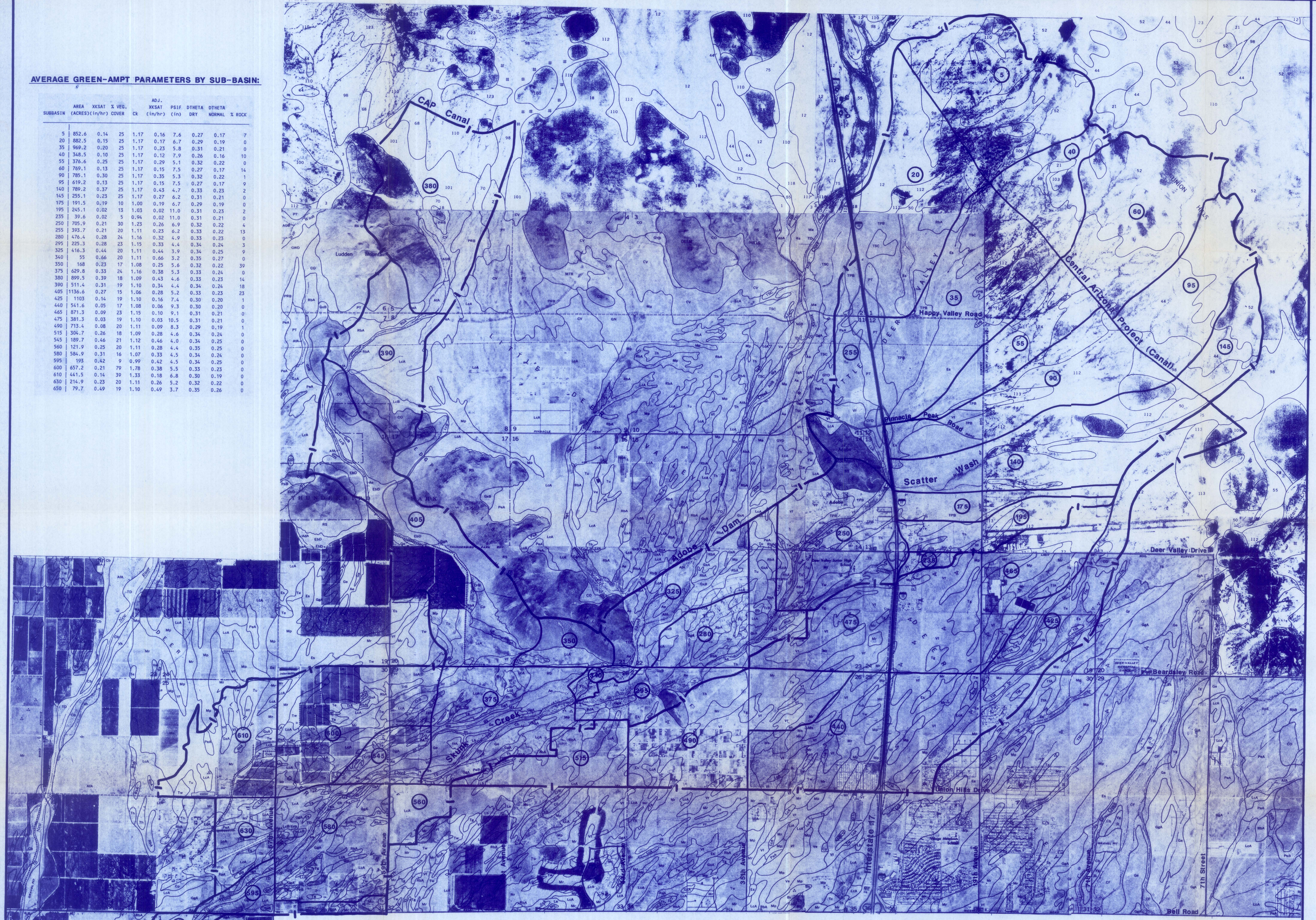
235
455
425
475
280
325
250
255
380
390
405
350
340
375
490
440
515
560
580
595
650
600
610
630
540
295
1990-05-03

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 (in/hr)	% VEG. COVER	Ck	ADJ. XKSAT (in/hr)	PSIF (in)	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	0.02	13	1.03	0.02	11.0	0.31	0.23	2
235	39.6	0.02	5	0.94	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	0.99	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

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	AdB
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	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	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	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	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	0

	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	Pa	Pb
XKSAT	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	0.4	0.39
PSIF	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	3.5	3.5
DTHETA (DRY)	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	0.35	0.35
DTHETA (NORM)	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	0.25	0.25
% ROCK	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	0	0

	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	0.4	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	4.3	3.5	3.5	3.6	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	0.31	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	0.21	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	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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 Aquila-Carefree Area, Parts of Maricopa and Pinal Counties, Arizona

SOIL CLASSIFICATION MAP

PLATE 3

CVL
COE & VAN LOO
PLANNING • ENGINEERING
LANDSCAPE ARCHITECTURE

0 2000 6000
1000 4000

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

COE & VAN LOO
PLANNING • ENGINEERING
LANDSCAPE ARCHITECTURE

0 2000 6000
1000 4000

NORTH

1990-05-04