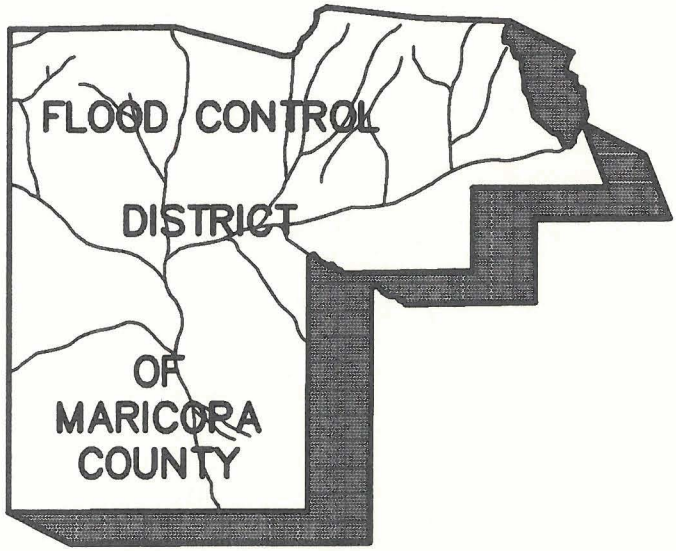
SCATTER WASH WATERSHED

VOLUME 1.4

ARIZONA CANAL DIVERSION CHANNEL AREA DRAINAGE MASTER STUDY

ACDC/ADMS PHASE 1



HYDROLOGY REPORT

FEBRUARY 1995

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SCATTER WASH WATERSHED

Volume 1.4

Arizona Canal Diversion Channel
Area Drainage Master Study
ACDC/ADMS Phase I

HYDROLOGY REPORT

February, 1995

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SCATTER WASH WATERSHED
HYDROLOGY REPORT

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1.0 SYNOPSIS

Kaminski-Hubbard Engineering, Inc. (KHE) was retained by the Flood Control District of Maricopa County (FCDMC) to prepare a comprehensive hydrologic analysis of Scatter Wash for both existing and future conditions as a part of the Arizona Canal Diversion Channel (ACDC) Area Drainage Master Study (ADMS). Scatter Wash drains approximately 14.3 square miles of rapidly developing desert land north of Beardsley Road extending northeasterly to the Union Hills. The study reach includes such drainage control structures as the Central Arizona Project (CAP) Canal, Interstate 17 (I-17), and the Outer Loop Highway (OLH) improvements as indicated in the Vicinity Map.

Within the study reach, various drainage improvements associated with the construction of the OLH have altered the flow paths described in previous reports. Also, minor corrections to basin delineations and flow path determinations have resulted from recent urbanization and more detailed topographic mapping. Future drainage improvements within the study reach include drainage improvements for the Deer Valley Municipal Airport and construction of the Outer Loop Highway.

This report presents the hydrologic analysis developed for Scatter Wash upstream of its confluence with Skunk Creek. Table 1 summarizes the computed peak discharges for existing conditions resulting from a 24-hour duration storm at specific locations along and in the vicinity of Scatter Wash. Table 2 presents the computed peak discharges for future conditions corresponding to a 24-hour duration storm.

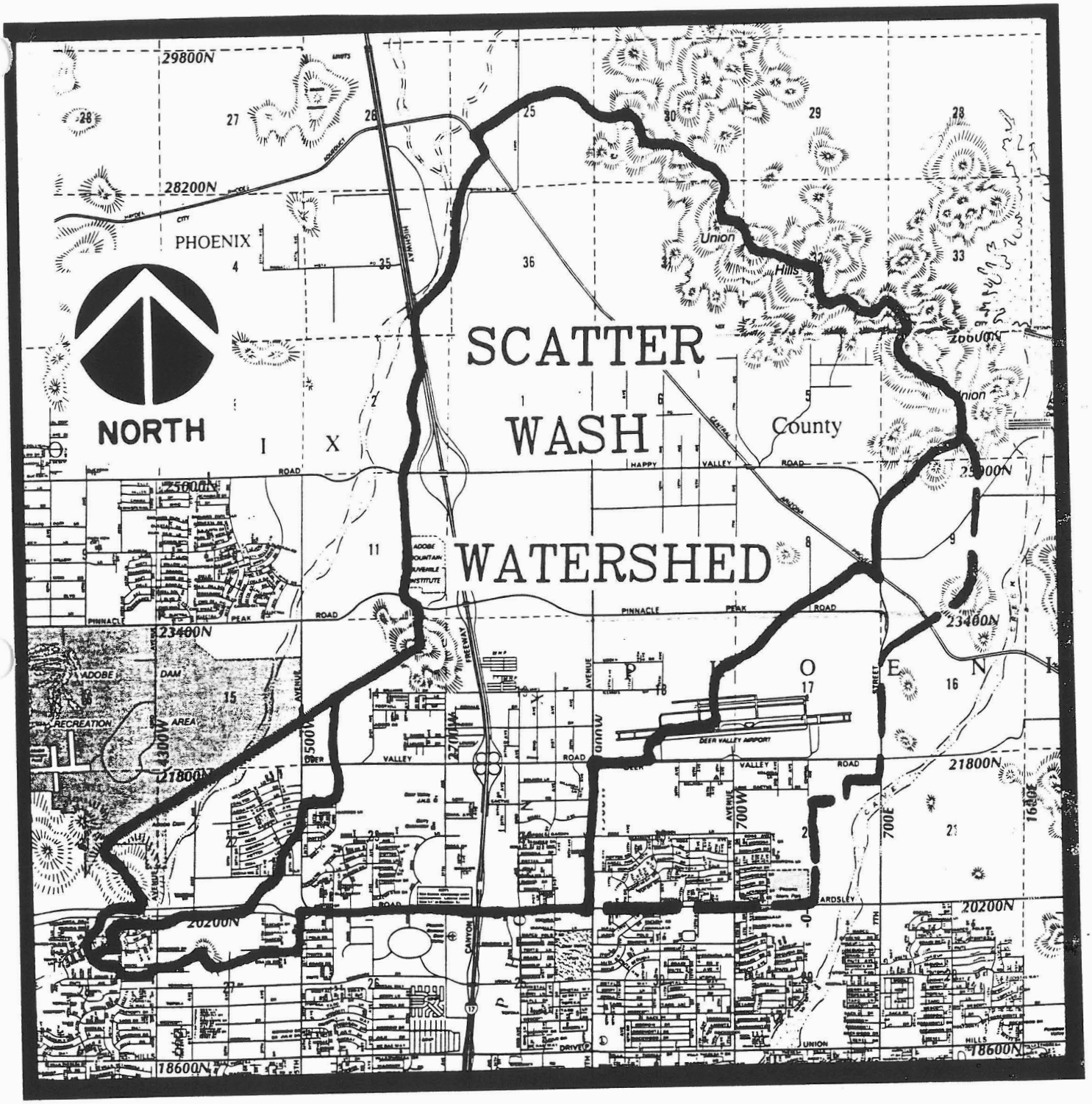

FIGURE 1 - VICINITY MAP

TABLE 1

24-Hour Peak Discharge
(Existing Conditions)

Location	Drainage Area (Sq. Mi.)	2-Yr. (cfs)	10-Yr. (cfs)	100-Yr. (cfs)	Sub-Basin I.D.
North Branch Scatter Wash At I-17	8.9	156	856	2642	HC322
Deer Valley Road T.I.	10.7	46	235	674	HC332
Scatter Wash At Deer Valley Road	1.2	313	1247	2411	HC334
Detention Basin "C"	1.3	225	528	1001	HC344U
Scatter Wash At OLH	13.9	647	1466	2760	HC345
Scatter Wash Above Confluence w/Skunk Creek	14.3	613	1452	2756	HC346
Skunk Creek below Confluence w/Scatter Wash	15.6	672	2988	4715	HCSKB

TABLE 2

24-Hour Peak Discharge
(Future Conditions)

Location	Drainage Area (Sq. Mi.)	2-Yr. (cfs)	10-Yr. (cfs)	100-Yr. (cfs)	Sub-Basin I.D.
North Branch Scatter Wash At I-17	8.9	867	1878	2904	HC318
Deer Valley Road T.I.	10.8	157	380	876	HC331
Scatter Wash At Deer Valley Road	1.2	1511	2242	2548	HC329
Detention Basin "C"	4.5	492	813	1328	HC345
Scatter Wash At OLH	17.3	1600	2583	3205	HC346
Scatter Wash Above Confluence w/Skunk Creek	17.7	1571	2582	3120	HC347
Skunk Creek below Confluence w/Scatter Wash	18.9	1623	4045	4916	HCSKB

2.0 INTRODUCTION

A hydrologic analysis of Scatter Wash for both existing and future conditions was prepared by Kaminski-Hubbard Engineering, Inc. (KHE) for the Flood Control District of Maricopa County (FCDMC) as part of the Arizona Canal Diversion Channel (ACDC) Area Drainage Master Study, Phase I. The study area of the Scatter Wash watershed extends from its confluence with Skunk Creek on the south to the Union Hills on the north.

A previous hydrologic analysis of Scatter Wash and Skunk Creek between the ACDC and Union Hills was performed by Coe & Van Loo for the FCDMC in November, 1990 (Ref. 5). This analysis served as a basis for comparison of peak discharges for the existing conditions hydrology. However, more detailed topographic mapping, different methodologies in computations, increased urbanization and OLH construction have resulted in revisions to this hydrologic analysis.

The future sub-basin delineations for our study have incorporated hydrologic and concept drainage plans for the OLH as presented by DeLeuw, Cather & Company in November, 1989 (Ref. 10). In addition, drainage improvements for the Deer Valley Municipal Airport as presented by Baker Engineers and Wood/Patel & Associates in January, 1993 (Ref. 2), were incorporated in the future conditions hydrologic analysis. However, the KHE sub-basin delineations have combined smaller sub-basins from the above two studies into larger sub-basins. Careful attention was placed on maintaining hydrologic consistency when combining the smaller sub-basins into larger sub-basins.

The purpose of this report is to present the revised hydrology for Scatter Wash based on the FCDMC hydrologic design criteria, increased urbanization, and construction of detention facilities. This report also documents the assumptions and methodology for the hydrologic analyses of Scatter Wash.

3.0 STUDY PARAMETERS

3.1 Study Area

The Scatter Wash watershed is located in the rapidly developing area of Northwest Phoenix as outlined on Figure 1. Scatter Wash has a watershed area of approximately 14.3 square miles for the existing conditions and 17.7 square miles for the future conditions above its confluence with Skunk Creek located southwest of Beardsley Road and 43rd Avenue. The watershed extends northeasterly from the confluence to the Union Hills ridgeline. Adobe Dam, located along the northwest limit of the study area, collects upstream stormwater runoff in Skunk Creek. The outflow from the dam has been considered in this study as base flow into the Scatter Wash watershed.

The Scatter Wash watershed is generally comprised of poorly defined channels on fairly uniform, gentle slopes. These areas are found below the Central Arizona Project (CAP) Canal to the Scatter Wash-Skunk Creek confluence. The well defined channels are found in the upper part of the watershed along the Union Hills.

Significant features which affect drainage patterns within the watershed are: CAP Canal, which parallels the Union Hills; I-17 which limits the westward outflow, and Outer Loop Highway (OLH) Interceptor Channel, which parallels Beardsley Road from I-17 to Scatter Wash. Typically, runoff proceeds southwesterly from the Union Hills to the confluence, except along the east side of I-17 where flow is north to south, and north of Beardsley Road where flow is east to west from I-17 to Scatter Wash.

Currently, the OLH is under construction within the study area following the alignment of Beardsley Road. In conjunction with this project, detention basins were constructed at the northeast corner of I-17 and Rose Garden Lane (Detention Basins "D") and the northeast corner of 35th Avenue and Beardsley Road (Detention Basin "C"). Detention Basin "C" was built in conjunction with the OLH Interceptor Drain to convey stormwater runoff westerly to Scatter Wash.

The watershed of north Williams Drive is predominantly undeveloped desert valley and hills with single family residences on large parcels of land located above and below the CAP Canal. Currently, industrial and commercial development is primarily adjacent to I-17 and Deer Valley Road. The majority of residential development has occurred west of 27th Avenue in the southwest portion of the study area.

3.2 Mapping

The available mapping utilized in this study are as follows:

1. **FCDMC Mapping:** The Scatter Wash watershed was flown as part of this study for the purpose of obtaining 1 inch = 400 foot contour and aerial mapping. The contour interval is 2 feet. These maps were flown between July 1990 and August 1991. These maps were used to establish the sub-basin drainage delineation, flow patterns, and storage volume calculations for detention facilities. The aerial maps were also utilized to provide land use information for existing conditions.

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

3. **City of Phoenix Storm Drain Maps:** These maps are at a scale of 1 inch = 400 feet and provide a schematic location of storm drains and culverts in the area.

4. **City of Phoenix Zoning Maps:** These maps are at a scale of 1 inch = 400 feet and provide zoning designations and boundaries in the area.

5. **As-Built Plans:** As-built plans for drainage structures associated with the CAP Canal, I-17, and OLH improvements were used for flow routing purposes.

6. **Field Reconnaissance:** - Field investigations were undertaken to verify hydrologic information obtained from aerial and topographic mapping. Areas of new development or developments under construction and existing on-site retention areas were identified. All major drainage structures along the CAP Canal, I-17, and OLH were identified. The flow paths of all major mile and half-mile streets were identified. Some drainage patterns were documented for local streets.

7. **General Plan For Phoenix:** This general plan was used to determine the extent of future development. Areas of future parks, open spaces, and traffic corridors were considered during the future hydrologic analysis.

3.3 Study Criteria

The following criteria and guidelines were set forth by the FCDMC prior to and during the drainage study:

1. Hydrology calculations will be completed for the 2-, 10-, and 100-year storms.

2. Storm durations of 6- and 24-hours will be evaluated for all three storms.

3. The U.S. Army Corps of Engineers (COE) HEC-1 computer program will be used for hydrograph computations.

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

5. The S-graph method will be utilized.

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

7. The S-graph basin lag equation as documented in the FCDMC's Hydrologic Design Manual (Ref. 15) will be utilized. The estimated mean Manning's "n" for all channels within a sub-basin will be determined using the U.S. Geological Survey Method (Ref. 29).

8. The Maricopa County Unit Hydrograph Procedure 2 (MCUHP 2) computer program, as provided by the FCDMC, will be used to convert an S-graph into a unit-graph and generate the necessary basin HEC-1 input file with the appropriate rainfall pattern distribution.

9. Rainfall distributions and depth area relations for the 6-hour storm duration will be based on NOAA HYDRO-40 (Ref. 27) and COE (Ref. 23) data, as presented in the FCDMC's Hydrologic Design Manual (Ref. 15). This data is included in the MCUHP 2 program to develop areal reduction for the watershed.

10. The SCS Type II rainfall distribution will be used for the 24-hour storm, with corresponding depth-area ratios based on NOAA HYDRO-40 (Ref. 27). This data is included in the MCUHP 2 Program.

11. The CAP Canal embankment detains runoff from the upstream and limits the amount of runoff crossing the canal via pipe culverts. Stage-storage data for the impoundment area above the CAP canal was obtained from 1 inch to = 400 foot topographic mapping. The reservoir storage routing method in HEC-1 will be used to determine a stage-discharge relationship for each pipe crossing.

12. Adobe Dam was designed to detain the 100-year storm runoff volume from the upstream watershed. For the purpose of this hydrologic analysis, it was assumed that the low level outlet was discharging at the 10- and 100-year design rate of 1370 cfs and 1730 cfs, respectively (Ref. 23).

13. Transmission losses will be estimated based on existing field data or literature. Existing field data or literature was not available to estimate infiltration losses. Based on the watershed topography and this study's detail for the watershed roughness coefficient (Manning's "n"), not including transmission losses has little impact on the flow peaks and volumes.

14. Existing and future flow rates will be developed.

4.0 HYDROLOGY

4.1 General

The Scatter Wash watershed was modeled using the COE HEC-1 computer program. The May, 1991, version of HEC-1 was used for this study. The S-graph method was used to represent runoff characteristics for the watershed and converted to a Unit-Graph using the FCDMC's MCUHP 2 Program for input into the HEC-1 computer model. The HEC-1 modeling also included allowance for Green-Ampt infiltration losses, Muskingum-Cunge channel routing, storage routing, and combining and diversion of sub-basin hydrographs. This section describes the assumptions and methodologies used to develop the HEC-1 computer model for the Scatter Wash watershed.

4.2 Previous Hydrologic Investigations

Previous hydrologic investigations of the watershed were reviewed for historical, as well as, hydrologic information which could be used in our analysis. Particular attention was given to sub-basin delineation, storm frequency and duration, routing methods, location of concentration points, future construction of drainage structures, and treatment of impoundment areas behind the CAP Canal, I-17 and OLH. A brief summary of previous investigations performed for the wash watershed are presented below.

Northwest Storm Drainage Study, Volumes I & II (Ref. 1)

In 1977, a City of Phoenix storm drainage study was prepared by Arthur Beard Engineers, Inc. for the area bounded by I-17 on the east, the Arizona Canal on the south and southwest, and Skunk Creek on the west and northwest. This study also included the watershed contributing to Scatter Wash east of I-17. The Soil Conservation Service (SCS) TR-20 computer model was used to evaluate the 1-, 2- 10- and 50-year, 24-hour storms. The report was vague in treating both CAP Canal and I-17 impoundment areas. It appears flow was routed through I-17 culverts without accounting for detention or diversion affects.

Scatter Wash Drainage And Storm Drain Study Conceptual Plan, Volumes I & II (Ref. 19)

A comprehensive analysis of detention routing behind the Pinnacle Peak Road embankment culvert east of I-17 and the North Branch of Scatter Wash culvert at I-17 was preformed by Greiner, Inc. for the City of Phoenix. This report also included split flow calculations for I-17 culverts at the South Branch of Scatter Wash, Williams Drive, Adobe Drive, and Louise Drive. There have been no major drainage improvements in the vicinity of these culverts since this study was performed in 1989. Therefore, the reservoir storage and split flow parameters for the I-17 culverts between Pinnacle Peak Road and Deer Valley Road were obtained from the Greiner report, verified by KHE, and used in this study.

Drainage Report, Scatter Wash Hydrology And Outer Loop Highway Interceptor Drain, 39th Avenue To 7th Street (Ref. 10)

Currently, the OLH is under construction following the alignment of Beardsley Road. A hydrologic analysis and design concept report was completed by Greiner Engineering Sciences, Inc. in August, 1986. CRS Sirrine was retained by ADOT to prepare construction documents for the I-17/Outer Loop Interchange, which included the revision of the original hydrology to reflect flows contributing to an Interceptor Drain proposed from 15th Avenue to I-17 (Ref. No. 8). Based on the above two reports and the Scatter Wash hydrology refined by Greiner in 1989 (Ref. No. 19), a report was prepared by DeLeuw, Cather & Company to synthesize the latest and most detailed watershed models for Scatter Wash and the Interceptor Drain for OLH improvements.

Hydrology Report, Skunk Creek Between Arizona Canal Diversion Channel & Central Arizona Project (Ref. 5)

A recent FCDMC hydrologic study was prepared by Coe & Van Loo Consulting Engineers, Inc. for Skunk Creek between the ACDC and CAP. The results from this study were recommended for use in the hydraulic analysis portion of the Flood Insurance Study for Skunk Creek, downstream of Adobe Dam. This analysis also included the Scatter Wash area upstream of its confluence with Skunk Creek. However, future conditions associated with the construction of OLH improvements were not within the Scope of Work. The hydrologic analysis was in accordance with the methodologies presented in the FCDMC's Hydrologic Design Manual (Ref. 14).

Deer Valley Municipal Airport Master Storm Drainage Plan (Ref. 2)

A comprehensive hydrologic study was prepared by Baker Engineers and Wood/Patel & Associates, Inc. for the Deer Valley Municipal Airport. The results from this study were incorporated into the future conditions hydrologic analysis. This study provided criteria for reservoir routing within the airport and outfall locations within the Scatter Wash watershed.

4.3 Parameter Estimation

4.3.1 Drainage Area Boundaries

Existing Conditions

The sub-basin boundaries were delineated using 1 inch = 400 feet topographic and aerial mapping, which was flown as a part of this study. Particular attention was given to existing drainage structures and their effects on flow characteristics of the watershed area at the CAP Canal, I-17 alignment and OLH improvements. In-house drainage delineation was also supplemented by as-built drawings of major collector streets, freeways, and drainage structures.

The initial delineation was then verified or revised based on field investigations. This field investigation included driving major mile and half-mile streets to distinguish flow patterns and possible flow split locations. These flow patterns were recorded and later referred to in determining lag times for each sub-basin. The field investigations also included the determination of on-site retention locations within the watershed. Observations were also made to determine non-contributing areas within the watershed that occur during the 2- and 10-year storm analysis.

The sub-basins were delineated so that concentration points were provided at major street intersections, impoundment areas and stream confluences. Concentration points were also located such that comparisons could be made to previous investigations. The sub-basin areas were limited to a maximum of two square miles; however, most of the sub-basins had areas less than one square mile.

Future Conditions

The future sub-basin delineations were modified for the Scatter Wash watershed based on criteria established for construction of the OLH Interceptor Drain. The Interceptor Drain will collect and convey stormwater runoff westerly from Central Avenue to Scatter Wash for the future conditions. Due to the number of sub-basins delineated for the OLH reports, careful attention was placed on maintaining hydrologic consistency when combining the smaller sub-basins into larger sub-basins.

4.3.2 Rainfall Parameters

Rainfall Distributions

The rainfall distribution used for the 6-hour storm duration are as documented in the FCDMC's Hydrologic Design Manual (Ref. 15) and contained in the MCUHP 2 Program. The SCS Type II distribution was used for the 24-hour storm. The rainfall distributions are presented in Tables 6 and 7 in Section I of the Appendix.

Precipitation Data

The point precipitation values used in this analysis were obtained from isopluvial maps for Maricopa County as published in the FCDMC's Hydrology Design Manual (Ref. 15). The point precipitation values are presented in Table 4 in Section I of the Appendix.

Areal Reduction Factors

The point precipitation values used for this study were adjusted to account for the reduction in precipitation depth over a very large area. Reduction factors for the 6-hour duration storms were obtained from the FDCMC's Hydrologic Design Manual (Ref. 15). This information was also included in the FCDMC's MCUHP 2 Program. The 24-hour storm reduction factors were obtained from the NOAA Technical Memorandum NWS HYDRO-40 (Ref. 27). These factors are presented in Table 5 in Section I of the Appendix.

4.3.3 Physical Parameters

Loss Rate Estimation

The Green-Ampt loss rate method in HEC-1 was used to estimate rainfall losses. This method involves a two phase process in simulating rainfall losses. The first phase involves no infiltration of rainfall until the accumulated rainfall equals the initial loss (IA). Recommended IA values are presented in Table 4.1 in the Hydrology Design Manual (Ref. 15).

The second phase is the infiltration of rainfall into the soil immediately after IA is completely satisfied. The three Green-Ampt infiltration parameters as coded in HEC-1 are: hydraulic conductivity at natural saturation (XKSAT); wetting front capillary suction (PSIF); and volumetric soil moisture deficit at the start of rainfall (DTHETA).

The Green-Ampt parameters were determined using a spreadsheet provided by the FCDMC, Watershed Management Branch. The XKSAT values were determined by the FCDMC for all map units contained in the SCS Soil Surveys (Ref.'s 24 & 25) using log averaging of major and minor soil XKSAT values. These map units along with their corresponding XKSAT and percent rock outcrop values are presented in lookup tables within the Green-Ampt Spreadsheet.

The area of each soil unit within each sub-basin was determined and used as input into the Green-Amp Loss Parameter spreadsheet. These area calculations were determined using ARC INFO GIS. The spreadsheet subsequently computed average sub-basin XKSAT values using log averaging methods. Next, values for PSIF and each DTHETA condition (i.e. dry, normal, wet) were interpolated using the computed XKSAT. These tables were contained within the spreadsheet and were similar to Table 4.2 (Ref. 15).

The Green-Ampt parameters computed above were based strictly on soil characteristics and adjustments were necessary to account for vegetative cover and land use. These guidelines are presented in the FCDMC's Hydrologic Design Manual (Ref. 15) and are incorporated in the Green-Ampt Loss Parameter Spreadsheet. The area of each land use within each sub-basin was also determined and used as input into the spreadsheet. Again, these area calculations were performed using ARC INFO GIS.

The "percent impervious" for each sub-basin was computed as a function of both natural rock outcrop and land use. The percentage of impervious rock outcrop within each sub-basin was estimated from soil unit data provided in the SCS Soil Surveys (Ref.'s 24 and 25). A factor of 0.6 was used to convert the "percentage of rock outcrops" to the "percent impervious" for each sub-basin.

Next, the impervious areas associates with various land use categories were determined for each sub-basin. The City of Phoenix zoning designations were classified into land use categories based on aerial mapping are presented in Table 8 in Section II of the Appendix.

The total "percent impervious" value for each sub-basin was computed as a summation of the above two "percent impervious" values. The computation was also incorporated into the Green-Ampt Loss Parameter spreadsheet. The average Green-Ampt parameters for each sub-basin are presented on Tables 9 and 10 in Section II of the Appendix.

Estimation Of Lag Time

The S-graph method required the estimation of the basin lag parameter. The following empirical equation was used to compute basin lag as a function of watershed characteristics (Ref.'s 15 & 16).

$$Lag = 24K_n\left(\frac{L\,L_{ca}^{0.38}}{S^{0.5}}\right)$$

where

Lag	=	basin lag, in hours.
L	=	length of the longest watercourse, in miles.
L_{ca}	=	length along the watercourse to a point opposite the basin centroid, in miles.
S	=	watercourse slope, in feet/mile.
Kn	=	estimated mean Manning's roughness coefficient for all channels within a basin.

The length of the longest watercourse within each sub-basin and its corresponding slope were determined using 1 inch = 400 feet topographic mapping and from street flow patterns observed from field investigations. The centroid of each sub-basin was determined using ARC INFO GIS and located along the watercourse to determine L_{ca}.

A major disadvantage of the Lag equation is that the roughness coefficient must be selected which is very subjective and introduces significant uncertainty into the lag prediction. Also, the roughness coefficient is not necessarily a constant for each sub-basin for all rainfall depths and requires some adjustment to account for the different storm frequencies. Therefore, Manning's roughness coefficients were estimated for each sub-basin using the guidelines established in Reference 29.

Five categories were developed to reflect the diversity in sub-basin runoff characteristics. These categories are mountain area, hillslope area, valley area, urbanized hillslope area, and urbanized valley area. Manning roughness coefficients were computed for the 2-, 10-, and 100-year storm frequency for each category. Based on land use information, a representative roughness coefficient was computed for each sub-basin using linear area averaging. The existing conditions hydrologic sub-basin characteristics are presented on Tables 11, 12 and 13 in Section III of the Appendix. The future conditions hydrologic sub-basin characteristics are presented on Tables 15, 16 and 17 in Section III of the Appendix.

4.3.4 Routing Parameters

Channel Routing

For this study, the Muskingum-Cunge method was used to route a hydrograph through a downstream sub-basin. However, one limitation of the Muskingum-Cunge application in HEC-1 is that the method begins to diverge from the full unsteady flow solution when very rapidly rising hydrographs are routed through very flat slopes (Ref. 22). This limitation of the Muskingum-Cunge method does not allow for routing of large constant input hydrographs, such as base flow from Adobe Dam. Therefore, this channel routing was accomplished using the Normal Depth Storage method.

Channel cross-section information, slopes, and Manning's roughness coefficients were estimated using topographic mapping and observations made during the field investigation. Channel routing flow paths are presented on Plates 4 and 8, and channel routing work sheets are presented in Section IV of the Appendix.

Reservoir Routing

There are a total of eleven reservoir routing operations modeled in the existing conditions and a total of 34 reservoir routing operations modeled in the future conditions Scatter Wash watershed. The hydrologic analysis utilized the Modified Puls Method. Four of these operations are for detention facilities associated with the CAP Canal drainage structures. Reservoir volumes were determined using 1 inch = 400 feet topographic mapping. Field surveys at these drainage structures were performed to include spot elevations for overflow weir calculations and pipe inverts for low-level spillway calculations. Five reservoir routing operations were modeled using results from previous investigations (Ref.'s 6, 7 & 10). Volume calculations are presented in Section IV of the Appendix.

One special conditions occurred at CAP Structure No.'s 4 and 5 where one upstream watershed was routed through both outlets. This was accomplished by routing the upstream hydrograph through the detention basin using a cumulative cross-sectional area for both culverts in the "SL" record. The remaining outflow was then separated into their respective downstream sub-basins using the flow diversion card. The flow rates for the diversion card were developed using HEC No. 5 procedures (Ref. 28). This special condition was incorporated in both the existing and future conditions as presented in Section IV of the Appendix.

The storage volumes for detention facilities located at the northeast corner of Pinnacle Peak Road and 19th Avenue, and the Deer Valley Road Traffic Interchange (TI) were also determined from topographic mapping and field surveys for both the existing and future conditions. These volume calculations are presented in Section IV of the Appendix.

As a part of the OLH improvements, two of four detention basins have been constructed to reduce the peak discharge that eventually outfalls into Scatter Wash upstream of the OLH. One basin, Detention Basin "D", is located north of Rose Garden Lane just east of I-17. Outflow from this basin is conveyed by a 36-inch pipe to the Interceptor Drain that parallels the OLH. This outflow eventually drains into Detention Basin "C", which is located at the northeast corner of Beardsley Road and 35th Avenue. The above two basins were not completed at the time of aerial mapping. Therefore, the reservoir routing parameters were obtained from the report prepared by DeLeuw Cather & Company (Ref. 10) and modeled in both the existing and future conditions analysis. Detention Basin "A" will be located at 15th Avenue and the OLH. Outflow from this basin will also be conveyed by a 36-inch pipe to the Interceptor Drain. Eventually this flow enters Detention Basin "B" located at 21st Avenue and the OLH. This detention facility will also be drained by a 36-inch pipe to the Interceptor Drain connected to Detention Basin "C". The future conditions hydrologic model included reservoir routing operations for Detention Basin "A" and Detention Basin "B" since these facilities have been scheduled to be constructed by the year 2000.

The Beardsley Road and I-17 T.I. was evaluated as a reservoir routing operation in the existing condition hydrologic analysis. This was required by the Federal Emergency Management Agency after review of our existing hydrology prepared for the Scatter Wash watershed. The results of this analysis indicated that flows were exiting the interchange through the Interceptor Drain only and not through overland flow southwesterly.

The remaining reservoir routing operations included in the future conditions hydrologic analysis were taken from the report prepared by Baker Engineers and Wood/Patel & Associates (Ref. 2).

4.4 Special Considerations

4.4.1 Flow Splits

The watershed downstream of the CAP was relatively flat, with slopes averaging 0.5%. Runoff typically "sheet flows" across the watershed in a southwesterly direction. Most streets have no curb and gutter and/or are constructed on grade, thus having little affect on the drainage pattern. Due to these conditions, flow splits occur whenever the capacity at a drainage way (i.e. street, etc.) is exceeded. Additionally, splits may also occur when the capacity of a culvert is not adequate to convey the upstream runoff in areas of very low topographic relief.

Sub-basin boundaries were carefully selected in order to reduce the number of potential flow split locations. In most cases, the effect of flow splits on the runoff characteristics were minimal because the split flow would eventually converge at the next downstream concentration point. The flow split analysis for this study was limited to areas that pass additional runoff into downstream areas that may drastically alter flow characteristics or may divert flow out of the Scatter Wash watershed.

Several flow splits occur along the east side of I-17 between Pinnacle Peak Road and Deer Valley Road due to the inadequate capacity of culvert crossings during large storms. Greiner, Inc. developed a comprehensive evaluation of these culverts using culvert capacity charts and the weir flow equation (Ref. 19). Based on this analysis, they developed rating curves that were incorporated into a HEC-1 model that previous consultants have used (Ref.'s 5, 6 & 10). Since no drainage improvements have been completed in this area, these flow split results have been incorporated into this study.

A flow split was analyzed at the intersection of 19th Avenue and Deer Valley Road to determine the magnitude of flows continuing west along Deer Valley Road and south along 19th Avenue. The flow continuing south along 19th Avenue leave the Scatter Wash watershed for existing conditions. Based on this analysis, a rating curve was developed and is presented in Section V of the Appendix.

The remaining flow heading west along Deer Valley Road was also analyzed for flow splitting. Flows for the southern half of Deer Valley Road were included as contributing to Detention Basin "D". The flow split calculations are given in Section V of the Appendix.

4.4.2 Storm Drain Pipes/Interceptor Drain

A 96-inch Interceptor Drain was recently constructed along Beardsley Road from I-17 to approximately 350 feet west of 29th Avenue for future conveyance of storm runoff from the Cave Creek drainage boundary to I-17. Currently, the Interceptor Drain conveys the low level outflow from Detention Basin "D". Eventually, an 84-inch interceptor drain will be constructed from I-17 to the future site of Detention Basin "B" at the northwest corner of Beardsley Road and 19th Avenue.

The 96-inch interceptor drain discharges into a gunite lined trapezoidal channel with an 8-foot bottom and 2 to 1 side slopes. This channel conveys the discharge to Detention Basin "C". The inlet to Basin "C" is such that 250 cfs would continue west in the trapezoidal channel and the remaining flow would enter the basin through a side flow weir. Detention Basin "C" is drained by a 36-inch low level outlet that discharges into the above mentioned gunite lined trapezoidal channel just west of 35th Avenue.

4.4.3 On-Site Retention And Non-Contributing Areas

Existing Conditions

The City of Phoenix requires that all developments retain the 100-year 2-hour duration storm volume which falls on-site. Based on field investigations within the watershed, a majority of lots had no on-site retention or minimal retention at best. However, a few commercial, industrial and multi-family sites constructed within the last few years had complied with the on-site retention requirements. As directed by the FCDMC, the on-site retention volumes were estimated for sites found to have well constructed retention areas based on our field investigations.

The topographic mapping flown for this study was not sufficient to estimate the retention volume for parcels found to have well constructed retention areas. Parcels having questionable on-site retention were eliminated from consideration. On-site retention volume calculations performed prior to September, 1985, within the City of Phoenix, were made using a 10-year, 2-hour duration storm. Some of these pre-1985 parcels may have been included as having sufficient retention area to require volume calculations. Therefore, instead of separating out retention areas completed before 1985 from those completed after 1985, all existing condition on-site retention volumes were estimated for the 10-year, 2-hour duration storm. The volume calculations were performed using the procedures outlined in the Drainage Design Manual (Ref. 15).

The total estimated retention volume within each sub-basin was subtracted from the front of the hydrographs by diverting the estimated volume. The remaining hydrograph was then routed through the downstream sub-basin. These computations are presented in Section V of the Appendix.

Non-contributing areas for all storm frequencies were located within the watershed using topographic mapping and verified based on field investigation. Each sub-basin was analyzed to determine how much area would contribute for two-year and 10-year storm frequency. Sub-basins having vacant land use were treated as providing 100-year, 2-hour retention in the future condition model and were treated as non-contributing areas. These computations are presented in Section V of the Appendix.

5.0 RESULTS AND CONCLUSIONS

The HEC-1 computer model was used to compute the 2-, 10-, and 100-year peak discharges for Scatter Wash above its confluence with Skunk Creek. This hydrologic analysis has been a synthesis of new topographic mapping observations, ongoing construction improvements, increased urbanization and previous hydrologic investigations. The results of sub-basin peak discharges for the above storm frequencies are presented in Tables 14 and 18 for both the 6-hour and 24-hour events.

The CAP Canal embankment was found to sufficiently detain the 100-peak discharge from the upstream watershed. Outflow from the corresponding detention basin pipe culverts was routed downstream and did not significantly contribute to the downstream peak discharges.

The I-17 culverts located between Deer Valley Road and Pinnacle Peak Road do not have the capacity to convey the 100-year peak discharge as previously concluded in the Greiner Report (Ref. 18). This lack of capacity results in extensive ponding along the east side of I-17. The culvert overflows are eventually detained in the Deer Valley Road T.I. The break out flow from the Deer Valley Road T.I. for the 100-year 24-hour storm was found to be 311 cfs according to our hydrologic analysis. This analysis included new storage volume computations for the Deer Valley Road T.I. based on current topographic mapping.

As indicated in Table 3, the computed 100-year 24-hour discharges along Scatter Wash were slightly lower than the previous Coe & Van Loo values (Ref. 5). The difference between values are attributed to the unit-hydrograph method, method of Green-Ampt loss rate computations, more refined topographic mapping, increased urbanization, and OLH improvements. However, with all the above considerations, the peak discharges are quite comparable.

TABLE 3

Comparison Of 100-Year Peak Discharges In Scatter Wash w/Previous Studies

Location	KHE - 1992 Exist. Condition		CVL - 1990 Exist. Condition		DCCO - 1989 Exist. Condition	
	DA (sq.mi.)	Q(cfs)	DA (sq. mi.)	Q(cfs)	DA (sq. mi.)	Q(cfs)
North Branch Scatter Wash At I-17	8.9	2642	8.8	2709	8.7	3210
Deer Valley Road T.I.	10.8	674	11.1	854	11.0	1458
Scatter Wash At Deer Valley Road	---	2411	---	---	---	3723
Detention Basin "C"	4.5	1001	2.0	1877	---	---
Scatter Wash At OLH	17.3	2760	13.6	3178	13.5	4375
Scatter Wash Above Confluence w/Skunk Creek	17.7	2756	14.0	3200	---	
Skunk Creek below Confluence w/Scatter Wash	18.9	4715	15.0	5056		

TABLE 4

Sub-Basin I.D. Cross Reference Nos. For Existing & Future Conditions

Existing Conditions	Future Conditions	Existing Conditions	Future Conditions	Existing Conditions	Future Conditions
255*	335	322	318	338**	336
310	310	323	322	339*	334
311	311	325	325	340**	337
312	312	326	326	341**	339
314	317	327 & 331	328	342**	338 & 340
315	313	328**	332	343	341
316	314	329, 336 & 337**	333	344	345
317	315	330	327	345	346
318	319	332	331	346	347
319	316	333	323 & 324	347	348
320	320	334	329	348	349
321	321	335	330	349	342 & 343

* Cave Creek Watershed ** Skunk Creek Watershed

NOTE: **Existing Condition Sub-Basins 325, 344 and 349 boundaries have been modified based on proposed Deer Valley Airport improvements and the Outer Loop/I-17 Traffic Interchange**

6.0 REFERENCES

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APPENDIX

SECTION I	Rainfall and Physical Hydrologic Parameters
SECTION II	Green-Ampt & Land Use Parameters
SECTION III	Hydrologic Sub-Basin Characteristics
SECTION IV	Hydrograph Routing Parameters
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SECTION I

Rainfall & Physical Hydrologic Parameters

TABLE 7

6-HOUR STORM RAINFALL DISTRIBUTIONS
(Furnished by FCDMC's Maricopa County Unit Hydrograph Procedure 2)
Cumulative Rainfall Table

Storm Time (Hours)	Watershed (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 8

24-HOUR STORM RAINFALL DISTRIBUTIONS
(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

SECTION II

Green-Ampt & Land Use Parameters

TABLE 9

Percent Impervious Estimates
For Zoning/Land Use Classifications

Zoning Unit	Zoning Description	Land Use Description	Land Use Unit	Percent Impervious
S-1 S-2 RE-43	Ranch or Farm Res. Ranch Or Farm Commercial Single Family, 1 acre min.	Very Low Density Residential	V.L.D.R. or VLO Res	15
RE-35 RE-24 R1-18 R1-14	Single Family, 35000 S.F. min. Single Family, 24000 S.F. min Single Family, 18000 S.F. min Single Family, 14000 S.F. min.	Low Density Residential	L.D.R. or LO RES	25
RI-10 RI-8 RI-6 R-0	Single Family, 10000 S.F. min. Single Family, 8000 S.F. min Single Family, 6000 S.F. min Residential Office	Medium Density Residential	M.D.R. or MED RES	45
R-2 R-3 R-3A R-4 R-4A R-5 CP/BP R-H	Multi-Family, 4000 S.F. per unit Multi-Family, 3000 S.F. per unit Multi Family Multi-Family, 1500 S.F. per unit Multi-Family, 1000 S.F. per unit Multi-Family, 1000 S.F. per unit Business Park Resort District	Multiple Family Residential	M.F.R. or. MF RES	65
C-1 C-2 C-3 C-O H-R CP/GCP	Neighborhood Commercial Intermediate Commercial General Commercial Commercial Office/Restricted Comm. High Rise District General Commerce Park	Commercial	COMM or COMM.	90
IND PARK A-1 A-2	Industrial Park Light Industrial Heavy Industrial	Industrial	IND or INDUST.	75
PAD	Planned Area Development	Variable	---	Variable
PSC	Planned Shopping Center	Planned Shopping Center	PSC or PLND.SHP	85
P-1	Parking (Open)	Parking	PARKING	Variable
P-2	Parking (Structure)	Parking	PARKING	85
MISCELLANEOUS CATEGORIES: Evaluated On A Case By Case Basis				
		Desert Cover	DESERT	0
		Undeveloped Parcel	VACANT or OPEN	0
		Golf Course	GC	0
		Park	PARK	0
		School	SCHOOL	Variable
		Airport	AIRPORT	Variable

Green-Ampt Parameters
(Existing Condition)

TABLE 10

Average Green-Ampt Parameters
(Existing Conditions)

Sub-Basin	IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)
310	0.15	0.25	8.60	0.07	2.50
311	0.15	0.33	7.78	0.10	6.53
312	0.35	0.28	8.28	0.08	0.00
314	0.34	0.37	4.43	0.26	2.78
315	0.15	0.30	8.05	0.09	6.65
316	0.25	0.37	7.14	0.14	0.00
317	0.15	0.35	7.50	0.12	9.37
318	0.15	0.33	7.78	0.11	7.49
319	0.25	0.39	5.98	0.20	0.00
320	0.15	0.35	7.50	0.12	7.45
321	0.30	0.35	3.77	0.35	1.42
322	0.33	0.34	3.77	0.35	7.52
323	0.10	0.25	4.24	0.43	25.12
325	0.27	0.33	3.87	0.37	7.02
326	0.31	0.34	4.14	0.43	12.87
327	0.19	0.29	3.61	0.31	47.32
330	0.19	0.27	3.77	0.33	36.43
331	0.14	0.17	8.28	0.08	68.37
332	0.16	0.19	8.20	0.05	48.74
333	0.31	0.35	5.98	0.20	10.71
334	0.16	0.23	8.28	0.08	32.97
335	0.21	0.22	8.60	0.07	14.96
343	0.18	0.18	10.10	0.03	47.01
344	0.26	0.16	9.40	0.02	24.47
345	0.19	0.30	5.67	0.21	35.40
346	0.23	0.31	5.67	0.21	24.66
347	0.22	0.33	3.71	0.34	20.32
348	0.20	0.31	3.68	0.77	21.67
349	0.19	0.10	12.40	0.01	34.46

LOSS PARAMETERS FOR SUBBASIN: 310

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
44	0.369	54.44	0.03	-0.829	0.00	0.00
52	0.142	20.86	0.16	-0.166	20.00	4.17
110	0.113	16.61	0.13	-0.147	0.00	0.00
98	0.044	6.47	0.37	-0.028	0.00	0.00
12	0.011	1.62	0.01	-0.032	0.00	0.00
TOTAL =	0.679 SQ.MI.		XKSAT =	0.06	%ROCK=	4.17

DTHETA		PSIF	
Dry =	0.25	=	8.6
Normal =	0.15		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.679	DESERT	100.00	DRY	25.00	0.00	0.00	0.15	0.150
0.679	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.00	AVG. =	0.150
					% =	0.00		

PERCENT OF SUBBASIN DRY = 100.00 %
NORMAL = 0.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.250

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.070

IMPERVIOUS AREA:

URBAN @	100 %	effective =	0.00
ROCK OUTCROP @	60 %	effective =	2.50
	% EFFECTIVE IMP. =		2.50

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
310	0.679	1.360	0.640	282.00	0.150	0.250	8.60	0.070	2.50

LOSS PARAMETERS FOR SUBBASIN: 311

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
52	0.277	48.64	0.16	-0.387	20.00	9.73
44	0.218	38.36	0.03	-0.584	0.00	0.00
110	0.041	7.22	0.13	-0.064	0.00	0.00
100	0.033	5.78	0.4	-0.023	20.00	1.16

TOTAL = 0.569 SQ.MI. XKSAT = 0.09 %ROCK= 10.88

DTHETA

Dry = 0.33
Normal = 0.15
Wet = 0

PSIF

= 7.78

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.569	DESERT	100.00	DRY	25.00	0.00	0.00	0.15	0.150
0.569	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.00	AVG. =	0.150
					% =	0.00		

PERCENT OF SUBBASIN DRY = 100.00 %
NORMAL = 0.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.330

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.105

IMPERVIOUS AREA: URBAN @ 100 % effective = 0.00
ROCK OUTCROP @ 60 % effective = 6.53

% EFFECTIVE IMP. = 6.53

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
311	0.569	1.520	0.710	260.00	0.150	0.330	7.78	0.105	6.53

LOSS PARAMETERS FOR SUBBASIN: 312

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
12	0.412	30.57	0.01	-0.611	0.00	0.00
TPB	0.345	25.57	0.12	-0.235	0.00	0.00
Es	0.216	16.03	0.25	-0.097	0.00	0.00
77	0.073	5.38	0.05	-0.070	0.00	0.00
RbA	0.067	5.00	0.26	-0.029	0.00	0.00
44	0.060	4.45	0.03	-0.068	0.00	0.00
TSC	0.059	4.40	0.14	-0.038	0.00	0.00
98	0.057	4.22	0.37	-0.018	0.00	0.00
PT	0.043	3.18	0.4	-0.013	0.00	0.00
2	0.011	0.85	0.41	-0.003	0.00	0.00
3	0.005	0.35	0.58	-0.001	0.00	0.00

TOTAL = 1.348 SQ.MI. XKSAT = 0.07 %ROCK= 0.00

DTHETA

Dry = 0.28
Normal = 0.15
Wet = 0

PSIF

= 8.28

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
1.348	DESERT	100.00	DRY	25.00	0.00	0.00	0.35	0.350
1.348	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.00	AVG. =	0.350
					% =	0.00		

PERCENT OF SUBBASIN
DRY = 100.00 %
NORMAL = 0.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.280

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.082

IMPERVIOUS AREA:
URBAN @ 100 % effective = 0.00
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
312	1.348	2.170	0.910	36.00	0.350	0.280	8.28	0.082	0.00

LOSS PARAMETERS FOR SUBBASIN: 314

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Es	0.462	54.65	0.25	-0.329	0.00	0.00
TPB	0.230	27.16	0.12	-0.250	0.00	0.00
PT	0.085	10.01	0.4	-0.040	0.00	0.00
124	0.042	4.93	0.39	-0.020	0.00	0.00
112	0.013	1.52	0.39	-0.006	0.00	0.00
98	0.010	1.16	0.37	-0.005	0.00	0.00
GYD	0.005	0.57	0.26	-0.003	0.00	0.00

TOTAL = 0.846 SQ.MI. XKSAT = 0.22 %ROCK= 0.00

DTHETA		PSIF	
Dry =	0.37	=	4.43
Normal =	0.25		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.808	DESERT	95.53	DRY	25.00	0.00	0.00	0.35	0.334
0.008	V.L.D.R	0.96	NORMAL	25.00	15.00	0.00	0.10	0.001
0.030	IND	3.51	NORMAL	20.00	75.00	0.02	0.10	0.004
0.846	=TOTAL AREA	OK	AVERAGE =	24.82	TOTAL =	0.02	AVG. =	0.339
					% =	2.78		

PERCENT OF SUBBASIN DRY = 95.53 %
NORMAL = 4.47 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.365

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.256

IMPERVIOUS AREA: URBAN @ 100 % effective = 2.78
ROCK OUTCROP @ 60 % effective = 0.00
% EFFECTIVE IMP. = 2.78

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
314	0.846	1.810	0.710	41.00	0.339	0.365	4.43	0.256	2.78

LOSS PARAMETERS FOR SUBBASIN: 315

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
44	0.236	46.45	0.03	-0.707	0.00	0.00
52	0.206	40.48	0.16	-0.322	20.00	8.10
98	0.021	4.09	0.37	-0.018	0.00	0.00
103	0.021	4.04	0.1	-0.040	65.00	2.63
21	0.016	3.12	0.38	-0.013	0.00	0.00
100	0.009	1.82	0.4	-0.007	20.00	0.36

TOTAL = 0.508 SQ.MI. XKSAT = 0.08 %ROCK= 11.09

DTHETA

Dry = 0.3
Normal = 0.15
Wet = 0

PSIF

= 8.05

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.508	DESERT	100.00	DRY	25.00	0.00	0.00	0.15	0.150
0.508	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.00	AVG. =	0.150
					% =	0.00		

PERCENT OF SUBBASIN DRY = 100.00 %
NORMAL = 0.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.300

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.093

IMPERVIOUS AREA:

URBAN @	100 %	effective =	0.00
ROCK OUTCROP @	60 %	effective =	6.65
	% EFFECTIVE IMP. =		6.65

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
315	0.508	1.160	0.370	287.00	0.150	0.300	8.05	0.093	6.65

LOSS PARAMETERS FOR SUBBASIN: 316

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Es	0.240	35.66	0.25	-0.215	0.00	0.00
44	0.196	29.25	0.03	-0.445	0.00	0.00
TSC	0.132	19.72	0.14	-0.168	0.00	0.00
112	0.046	6.80	0.39	-0.028	0.00	0.00
77	0.021	3.13	0.05	-0.041	0.00	0.00
TPB	0.017	2.58	0.12	-0.024	0.00	0.00
RbA	0.017	2.52	0.26	-0.015	0.00	0.00
98	0.002	0.34	0.37	-0.001	0.00	0.00

TOTAL = 0.672 SQ.MI. XKSAT = 0.12 %ROCK= 0.00

DTHETA		PSIF	
Dry =	0.37	=	7.14
Normal =	0.19		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.672	DESERT	100.00	DRY	25.00	0.00	0.00	0.25	0.250
0.672	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.00	AVG. =	0.250
					% =	0.00		

PERCENT OF SUBBASIN DRY = 100.00 %
NORMAL = 0.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.370

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.140

IMPERVIOUS AREA: URBAN @ 100 % effective = 0.00
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
316	0.672	1.360	0.860	55.00	0.250	0.370	7.14	0.140	0.00

LOSS PARAMETERS FOR SUBBASIN: 317

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
52	0.472	67.06	0.16	-0.534	20.00	13.41
44	0.208	29.50	0.03	-0.449	0.00	0.00
103	0.024	3.38	0.1	-0.034	65.00	2.20
98	0.000	0.06	0.37	-0.000	0.00	0.00

TOTAL = 0.704 SQ.MI. XKSAT = 0.10 %ROCK= 15.61

DTHETA		PSIF	
Dry =	0.35	=	7.5
Normal =	0.15		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.704	DESERT	100.00	DRY	25.00	0.00	0.00	0.15	0.150
0.704	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.00	AVG. =	0.150
					% =	0.00		

PERCENT OF SUBBASIN DRY = 100.00 %
NORMAL = 0.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.350

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.117

IMPERVIOUS AREA: URBAN @ 100 % effective = 0.00
ROCK OUTCROP @ 60 % effective = 9.37
% EFFECTIVE IMP. = 9.37

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
317	0.704	1.540	0.580	300.00	0.150	0.350	7.50	0.117	9.37

LOSS PARAMETERS FOR SUBBASIN: 318

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
52	0.338	62.40	0.16	-0.497	20.00	12.48
44	0.195	35.89	0.03	-0.547	0.00	0.00
98	0.009	1.71	0.37	-0.007	0.00	0.00
TOTAL =	0.542 SQ.MI.		XKSAT =	0.09	%ROCK=	12.48

DTHETA

Dry = 0.33
Normal = 0.15
Wet = 0

PSIF

= 7.78

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.542	DESERT	100.00	DRY	25.00	0.00	0.00	0.15	0.150
0.542	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.00	AVG. =	0.150
					% =	0.00		

PERCENT OF SUBBASIN
DRY = 100.00 %
NORMAL = 0.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.330

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.105

IMPERVIOUS AREA:
URBAN @ 100 % effective = 0.00
ROCK OUTCROP @ 60 % effective = 7.49
% EFFECTIVE IMP. = 7.49

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
318	0.542	1.940	1.090	288.00	0.150	0.330	7.78	0.105	7.49

LOSS PARAMETERS FOR SUBBASIN: 319

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
98	0.123	36.44	0.37	-0.157	0.00	0.00
44	0.098	29.03	0.03	-0.442	0.00	0.00
Es	0.050	14.89	0.25	-0.090	0.00	0.00
112	0.035	10.41	0.39	-0.043	0.00	0.00
124	0.031	9.24	0.39	-0.038	0.00	0.00
TOTAL =	0.339 SQ.MI.		XKSAT =	0.17	%ROCK=	0.00

DTHETA		PSIF	
Dry =	0.39	=	5.98
Normal =	0.25		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.339	DESERT	100.00	DRY	25.00	0.00	0.00	0.25	0.250
0.339	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.00	AVG. =	0.250
					% =	0.00		

PERCENT OF SUBBASIN
DRY = 100.00 %
NORMAL = 0.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.390

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.198

IMPERVIOUS AREA:
URBAN @ 100 % effective = 0.00
ROCK OUTCROP @ 60 % effective = 0.00
% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
319	0.339	0.990	0.510	63.00	0.250	0.390	5.98	0.198	0.00

LOSS PARAMETERS FOR SUBBASIN: 320

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
52	0.509	46.03	0.16	-0.366	20.00	9.21
44	0.420	37.93	0.03	-0.578	0.00	0.00
98	0.154	13.93	0.37	-0.060	0.00	0.00
112	0.010	0.93	0.39	-0.004	0.00	0.00
50	0.010	0.88	0.26	-0.005	0.00	0.00
75	0.003	0.30	0.23	-0.002	0.00	0.00
TOTAL =	1.106 SQ.MI.		XKSAT =	0.10	%ROCK=	9.21

DTHETA

Dry =	0.35
Normal =	0.15
Wet =	0

PSIF

= 7.5

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
1.078	DESERT	97.43	DRY	25.00	0.00	0.00	0.15	0.146
0.028	IND	2.57	NORMAL	20.00	75.00	0.02	0.10	0.003
1.107	=TOTAL AREA	OK	AVERAGE =	24.87	TOTAL =	0.02	AVG. =	0.149
					% =	1.93		

PERCENT OF SUBBASIN

DRY =	97.43 %
NORMAL =	2.57 %
WET =	0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.345

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.116

IMPERVIOUS AREA:

URBAN @	100 %	effective =	1.93
ROCK OUTCROP @	60 %	effective =	5.52
% EFFECTIVE IMP. =			7.45

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
320	1.106	1.740	0.720	218.00	0.149	0.345	7.50	0.116	7.45

LOSS PARAMETERS FOR SUBBASIN: 321

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.456	40.69	0.39	-0.166	0.00	0.00
98	0.231	20.65	0.37	-0.089	0.00	0.00
Es	0.163	14.53	0.25	-0.087	0.00	0.00
18	0.096	8.57	0.33	-0.041	15.00	1.29
113	0.078	6.94	0.39	-0.028	0.00	0.00
124	0.043	3.84	0.39	-0.016	0.00	0.00
Vf	0.041	3.68	0.01	-0.074	0.00	0.00
44	0.012	1.10	0.03	-0.017	0.00	0.00
TOTAL =	1.121 SQ.MI.		XKSAT =	0.30	%ROCK=	1.29

DTHETA		PSIF	
Dry =	0.35	=	3.77
Normal =	0.25		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
1.111	DESERT	99.13	DRY	25.00	0.00	0.00	0.30	0.297
0.010	IND	0.87	NORMAL	20.00	75.00	0.01	0.10	0.001
1.121	=TOTAL AREA	OK	AVERAGE =	24.96	TOTAL =	0.01	AVG. =	0.298
					% =	0.65		

PERCENT OF SUBBASIN DRY = 99.13 %
NORMAL = 0.87 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.349

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.349

IMPERVIOUS AREA: URBAN @ 100 % effective = 0.65
ROCK OUTCROP @ 60 % effective = 0.77

% EFFECTIVE IMP. = 1.42

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
321	1.121	2.270	1.240	57.00	0.298	0.349	3.77	0.349	1.42

LOSS PARAMETERS FOR SUBBASIN: 322

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.271	78.45	0.39	-0.321	0.00	0.00
Es	0.055	15.85	0.25	-0.095	0.00	0.00
Vf	0.019	5.54	0.01	-0.111	0.00	0.00
GYD	0.001	0.16	0.26	-0.001	0.00	0.00

TOTAL = 0.345 SQ.MI. XKSAT = 0.30 %ROCK= 0.00

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 3.77

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.315	DESERT	91.10	DRY	25.00	0.00	0.00	0.35	0.319
0.011	IND	3.25	NORMAL	20.00	75.00	0.01	0.10	0.003
0.020	COMM	5.65	NORMAL	20.00	90.00	0.02	0.10	0.006
0.345	=TOTAL AREA	OK	AVERAGE =	24.55	TOTAL =	0.03	AVG. =	0.328
					% =	7.52		

PERCENT OF SUBBASIN
DRY = 91.10 %
NORMAL = 8.90 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.341

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.348

IMPERVIOUS AREA:
URBAN @ 100 % effective = 7.52
ROCK OUTCROP @ 60 % effective = 0.00
% EFFECTIVE IMP. = 7.52

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
322	0.345	1.150	0.440	36.00	0.328	0.341	3.77	0.348	7.52

LOSS PARAMETERS FOR SUBBASIN: 323

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.108	98.62	0.39	-0.403	0.00	0.00
18	0.002	1.38	0.33	-0.007	15.00	0.21
TOTAL =	0.110 SQ.MI.		XKSAT =	0.39	%ROCK=	0.21

DTHETA		PSIF	
Dry =	0.35	=	4.24
Normal =	0.25		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.110	IND	100.00	NORMAL	20.00	25.00	0.03	0.10	0.100
0.110	=TOTAL AREA	OK	AVERAGE =	20.00	TOTAL =	0.03	AVG. =	0.100
					% =	25.00		

PERCENT OF SUBBASIN

DRY =	0.00 %
NORMAL =	100.00 %
WET =	0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.250

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.433

IMPERVIOUS AREA:

URBAN @	100 %	effective =	25.00
ROCK OUTCROP @	60 %	effective =	0.12
	% EFFECTIVE IMP. =		25.12

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
323	0.110	0.920	0.340	61.00	0.100	0.250	4.24	0.433	25.12

LOSS PARAMETERS FOR SUBBASIN: 325

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.246	48.95	0.39	-0.200	0.00	0.00
75	0.108	21.55	0.23	-0.138	0.00	0.00
18	0.068	13.61	0.33	-0.066	15.00	2.04
50	0.058	11.49	0.26	-0.067	0.00	0.00
98	0.022	4.40	0.37	-0.019	0.00	0.00
TOTAL =	0.502 SQ.MI.		XKSAT =	0.32	%ROCK=	2.04

DTHETA		PSIF	
Dry =	0.35	=	3.87
Normal =	0.25		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.416	DESERT	82.88	DRY	25.00	0.00	0.00	0.30	0.249
0.071	IND1	14.08	NORMAL	25.00	25.00	0.02	0.10	0.014
0.015	IND2	3.04	NORMAL	20.00	75.00	0.01	0.10	0.003
0.502	=TOTAL AREA	OK	AVERAGE =	24.85	TOTAL =	0.03	AVG. =	0.266
					% =	5.80		

PERCENT OF SUBBASIN
DRY = 82.88 %
NORMAL = 17.12 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.333

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.372

IMPERVIOUS AREA:
URBAN @ 100 % effective = 5.80
ROCK OUTCROP @ 60 % effective = 1.22
% EFFECTIVE IMP. = 7.02

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
325	0.502	1.710	0.650	60.00	0.266	0.333	3.87	0.372	7.02

LOSS PARAMETERS FOR SUBBASIN: 326

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.456	91.62	0.39	-0.375	0.00	0.00
75	0.042	8.38	0.23	-0.053	0.00	0.00
TOTAL =	0.498 SQ.MI.		XKSAT =	0.37	%ROCK=	0.00

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 4.14

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.421	DESERT	84.62	DRY	25.00	0.00	0.00	0.35	0.296
0.032	IND	6.51	NORMAL	20.00	75.00	0.02	0.10	0.007
0.044	COMM	8.87	NORMAL	20.00	90.00	0.04	0.10	0.009
0.498	=TOTAL AREA	OK	AVERAGE =	24.23	TOTAL =	0.06	AVG. =	0.312
					% =	12.87		

PERCENT OF SUBBASIN
DRY = 84.62 %
NORMAL = 15.38 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.335

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.428

IMPERVIOUS AREA:
URBAN @ 100 % effective = 12.87
ROCK OUTCROP @ 60 % effective = 0.00
% EFFECTIVE IMP. = 12.87

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
326	0.498	2.010	0.900	37.00	0.312	0.335	4.14	0.428	12.87

LOSS PARAMETERS FOR SUBBASIN: 327

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.189	87.46	0.39	-0.358	0.00	0.00
Th	0.014	6.63	0.04	-0.093	0.00	0.00
Vf	0.013	5.91	0.01	-0.118	0.00	0.00
TOTAL =	0.216 SQ.MI.		XKSAT =	0.27	%ROCK=	0.00

DTHETA

Dry =	0.35
Normal =	0.25
Wet =	0

PSIF

= 3.61

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.080	DESERT	37.08	DRY	25.00	0.00	0.00	0.35	0.130
0.134	IND	62.08	NORMAL	20.00	75.00	0.10	0.10	0.062
0.002	COMM	0.84	NORMAL	20.00	90.00	0.00	0.10	0.001
0.216	=TOTAL AREA	OK	AVERAGE =	21.85	TOTAL =	0.10	AVG. =	0.193
					% =	47.32		

PERCENT OF SUBBASIN

DRY =	37.08 %
NORMAL =	62.92 %
WET =	0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.287

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.305

IMPERVIOUS AREA:

URBAN @	100 % effective =	47.32
ROCK OUTCROP @	60 % effective =	0.00
	% EFFECTIVE IMP. =	47.32

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
327	0.216	1.210	0.530	38.00	0.193	0.287	3.61	0.305	47.32

LOSS PARAMETERS FOR SUBBASIN: 330

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.268	86.48	0.39	-0.354	0.00	0.00
Mp	0.015	4.86	0.25	-0.029	0.00	0.00
Vf	0.014	4.56	0.01	-0.091	0.00	0.00
Mr	0.008	2.60	0.05	-0.034	0.00	0.00
Th	0.005	1.50	0.04	-0.021	0.00	0.00

TOTAL = 0.310 SQ.MI. XKSAT = 0.30 %ROCK= 0.00

DTHETA		PSIF	
Dry =	0.35	=	3.77
Normal =	0.25		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.069	OPEN	22.29	DRY	25.00	0.00	0.00	0.35	0.078
0.225	AIRPORT	72.83	NORMAL	15.00	45.00	0.10	0.15	0.109
0.015	IND	4.88	NORMAL	20.00	75.00	0.01	0.10	0.005

0.310 =TOTAL AREA OK AVERAGE = 17.47 TOTAL = 0.11 AVG. = 0.192
% = 36.43

PERCENT OF SUBBASIN DRY = 22.29 %
NORMAL = 77.71 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.272

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.325

IMPERVIOUS AREA: URBAN @ 100 % effective = 36.43
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 36.43

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
330	0.310	1.670	0.870	28.00	0.192	0.272	3.77	0.325	36.43

0‡‡0

LOSS PARAMETERS FOR SUBBASIN: 331

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Th	0.127	57.69	0.04	-0.806	0.00	0.00
112	0.060	27.02	0.39	-0.110	0.00	0.00
Vf	0.022	10.05	0.01	-0.201	0.00	0.00
Tg	0.007	3.23	0.04	-0.045	0.00	0.00
Mp	0.003	1.23	0.25	-0.007	0.00	0.00
TfA	0.002	0.78	0.37	-0.003	0.00	0.00

TOTAL = 0.220 SQ.MI. XKSAT = 0.07 %ROCK= 0.00

DTHETA		PSIF	
Dry =	0.28	=	8.28
Normal =	0.15		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.036	DESERT	16.42	DRY	25.00	0.00	0.00	0.35	0.057
0.101	IND	45.65	NORMAL	20.00	75.00	0.08	0.10	0.046
0.084	COMM	37.93	NORMAL	20.00	90.00	0.08	0.10	0.038
0.220	=TOTAL AREA	OK	AVERAGE =	20.82	TOTAL =	0.15	AVG. =	0.141
					% =	68.37		

PERCENT OF SUBBASIN DRY = 16.42 %
NORMAL = 83.58 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.171

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.078

IMPERVIOUS AREA: URBAN @ 100 % effective = 68.37
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 68.37

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
331	0.220	1.250	0.320	35.00	0.141	0.171	8.28	0.078	68.37

LOSS PARAMETERS FOR SUBBASIN: 332

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Th	0.046	49.26	0.04	-0.689	0.00	0.00
Vf	0.032	33.68	0.01	-0.674	0.00	0.00
Mp	0.009	9.79	0.25	-0.059	0.00	0.00
112	0.005	5.29	0.39	-0.022	0.00	0.00
TfA	0.002	1.98	0.37	-0.009	0.00	0.00
TOTAL =	0.094 SQ.MI.		XKSAT =	0.04	%ROCK=	0.00

DTHETA		PSIF	
Dry =	0.25	=	8.2
Normal =	0.15		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.037	DESERT	39.09	DRY	25.00	0.00	0.00	0.25	0.098
0.023	M.F.R.	24.14	NORMAL	25.00	65.00	0.01	0.10	0.024
0.000	IND	0.30	NORMAL	20.00	75.00	0.00	0.10	0.000
0.034	COMM	36.47	NORMAL	20.00	90.00	0.03	0.10	0.036
0.094	=TOTAL AREA	OK	AVERAGE =	23.16	TOTAL =	0.05	AVG. =	0.159
					% =	48.74		

PERCENT OF SUBBASIN
DRY = 39.09 %
NORMAL = 60.91 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.189

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.046

IMPERVIOUS AREA:
URBAN @ 100 % effective = 48.74
ROCK OUTCROP @ 60 % effective = 0.00
% EFFECTIVE IMP. = 48.74

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
332	0.094	0.400	0.070	65.00	0.159	0.189	8.20	0.046	48.74

LOSS PARAMETERS FOR SUBBASIN: 333

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Tu	0.135	25.32	0.25	-0.152	0.00	0.00
RS	0.087	16.24	0.4	-0.065	65.00	10.56
PT	0.079	14.76	0.4	-0.059	0.00	0.00
Vf	0.075	13.98	0.01	-0.280	0.00	0.00
TPB	0.058	10.97	0.12	-0.101	0.00	0.00
GYD	0.031	5.77	0.26	-0.034	0.00	0.00
LcA	0.027	5.13	0.25	-0.031	0.00	0.00
PeA	0.021	3.86	0.37	-0.017	0.00	0.00
TSC	0.015	2.86	0.14	-0.024	0.00	0.00
112	0.006	1.11	0.39	-0.005	0.00	0.00

TOTAL = 0.533 SQ.MI. XKSAT = 0.17 %ROCK= 10.56

DTHETA

Dry = 0.39
Normal = 0.25
Wet = 0

PSIF

= 5.98

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.397	DESERT	74.38	DRY	25.00	0.00	0.00	0.35	0.260
0.133	V.L.D.R	24.86	NORMAL	25.00	15.00	0.02	0.20	0.050
0.001	IND	0.27	NORMAL	20.00	75.00	0.00	0.10	0.000
0.003	COMM	0.49	NORMAL	20.00	90.00	0.00	0.10	0.000
0.533	=TOTAL AREA	OK	AVERAGE =	24.96	TOTAL =	0.02	AVG. =	0.311
					% =	4.37		

PERCENT OF SUBBASIN
DRY = 74.38 %
NORMAL = 25.62 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.354

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.198

IMPERVIOUS AREA:
URBAN @ 100 % effective = 4.37
ROCK OUTCROP @ 60 % effective = 6.33

% EFFECTIVE IMP. = 10.71

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
333	0.533	2.340	0.960	27.00	0.311	0.354	5.98	0.198	10.71

LOSS PARAMETERS FOR SUBBASIN: 334

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Vf	0.239	36.38	0.01	-0.728	0.00	0.00
112	0.095	14.54	0.39	-0.059	0.00	0.00
RS	0.093	14.09	0.4	-0.056	65.00	9.16
TPB	0.065	9.97	0.12	-0.092	0.00	0.00
LcA	0.046	6.94	0.25	-0.042	0.00	0.00
Th	0.043	6.62	0.04	-0.093	0.00	0.00
Mr	0.017	2.63	0.05	-0.034	0.00	0.00
AfA	0.017	2.53	0.38	-0.011	0.00	0.00
RaA	0.013	1.99	0.39	-0.008	0.00	0.00
RbA	0.007	1.09	0.26	-0.006	0.00	0.00
Tw	0.007	1.05	0.05	-0.014	0.00	0.00
AdA	0.005	0.81	0.4	-0.003	0.00	0.00
Tu	0.005	0.69	0.25	-0.004	0.00	0.00
GxA	0.002	0.35	0.23	-0.002	0.00	0.00
PeA	0.002	0.26	0.37	-0.001	0.00	0.00
TfB	0.000	0.06	0.36	-0.000	0.00	0.00

TOTAL = 0.657 SQ.MI. XKSAT = 0.07 %ROCK= 9.16

DTHETA

Dry = 0.28
Normal = 0.15
Wet = 0

PSIF

= 8.28

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.402	DESERT	61.15	DRY	25.00	0.00	0.00	0.20	0.122
0.189	M.F.R.	28.84	NORMAL	25.00	65.00	0.12	0.10	0.029
0.012	IND	1.86	NORMAL	20.00	75.00	0.01	0.10	0.002
0.054	COMM	8.15	NORMAL	20.00	90.00	0.05	0.10	0.008
0.657	=TOTAL AREA	OK	AVERAGE =	24.50	TOTAL =	0.18	AVG. =	0.161
					% =	27.48		

PERCENT OF SUBBASIN DRY = 61.15 %
NORMAL = 38.85 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.229

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.081

IMPERVIOUS AREA: URBAN @ 100 % effective = 27.48
ROCK OUTCROP @ 60 % effective = 5.50

% EFFECTIVE IMP. = 32.97

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
334	0.657	1.010	0.510	272.00	0.161	0.229	8.28	0.081	32.97

LOSS PARAMETERS FOR SUBBASIN: 335

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Vf	0.103	22.22	0.01	-0.444	0.00	0.00
Mr	0.092	19.87	0.05	-0.259	0.00	0.00
RbA	0.053	11.46	0.26	-0.067	0.00	0.00
Th	0.052	11.15	0.04	-0.156	0.00	0.00
Tg	0.040	8.73	0.04	-0.122	0.00	0.00
Tw	0.039	8.48	0.05	-0.110	0.00	0.00
AfA	0.023	5.00	0.38	-0.021	0.00	0.00
Tu	0.023	4.93	0.25	-0.030	0.00	0.00
GxA	0.020	4.27	0.23	-0.027	0.00	0.00
LcA	0.014	3.03	0.25	-0.018	0.00	0.00
TfB	0.003	0.71	0.36	-0.003	0.00	0.00
Mp	0.001	0.15	0.25	-0.001	0.00	0.00

TOTAL = 0.463 SQ.MI. XKSAT = 0.06 %ROCK= 0.00

DTHETA		PSIF	
Dry =	0.25	=	8.6
Normal =	0.15		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.326	DESERT	70.46	DRY	25.00	0.00	0.00	0.25	0.176
0.111	M.D.R.	23.98	NORMAL	25.00	45.00	0.05	0.10	0.024
0.026	IND	5.56	NORMAL	20.00	75.00	0.02	0.10	0.006
0.463	=TOTAL AREA	OK	AVERAGE =	24.72	TOTAL =	0.07	AVG. =	0.206
					% =	14.96		

PERCENT OF SUBBASIN DRY = 70.46 %
NORMAL = 29.54 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.220

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.070

IMPERVIOUS AREA:

URBAN @	100 %	effective =	14.96
ROCK OUTCROP @	60 %	effective =	0.00
	% EFFECTIVE IMP. =		14.96

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
335	0.463	1.110	0.560	38.00	0.206	0.220	8.60	0.070	14.96

LOSS PARAMETERS FOR SUBBASIN: 343

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Vf	0.202	63.33	0.01	-1.267	0.00	0.00
Mp	0.067	21.07	0.25	-0.127	0.00	0.00
Tg	0.045	14.13	0.04	-0.198	0.00	0.00
TfA	0.005	1.47	0.37	-0.006	0.00	0.00

TOTAL = 0.320 SQ.MI. XKSAT = 0.03 %ROCK= 0.00

DTHETA

Dry = 0.25
Normal = 0.13
Wet = 0

PSIF

= 10.1

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.130	DESERT	40.56	DRY	25.00	0.00	0.00	0.30	0.122
0.048	M.F.R.	14.89	NORMAL	25.00	65.00	0.03	0.10	0.015
0.059	IND	18.45	NORMAL	20.00	75.00	0.04	0.10	0.018
0.083	COMM	26.10	NORMAL	20.00	90.00	0.08	0.10	0.026
0.320	=TOTAL AREA	OK	AVERAGE =	22.77	TOTAL =	0.15	AVG. =	0.181
					% =	47.01		

PERCENT OF SUBBASIN
DRY = 40.56 %
NORMAL = 59.44 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.179

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.034

IMPERVIOUS AREA:
URBAN @ 100 % effective = 47.01
ROCK OUTCROP @ 60 % effective = 0.00
% EFFECTIVE IMP. = 47.01

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
343	0.320	1.070	0.550	24.00	0.181	0.179	10.10	0.034	47.01

LOSS PARAMETERS FOR SUBBASIN: 344

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Vf	0.294	53.07	0.01	-1.061	0.00	0.00
Mr	0.198	35.69	0.05	-0.464	0.00	0.00
Tg	0.041	7.48	0.04	-0.105	0.00	0.00
Mp	0.013	2.27	0.25	-0.014	0.00	0.00
Tw	0.007	1.29	0.05	-0.017	0.00	0.00
Th	0.001	0.16	0.04	-0.002	0.00	0.00
TfA	0.000	0.04	0.37	-0.000	0.00	0.00
TOTAL =	0.554 SQ.MI.		XKSAT =	0.02	%ROCK=	0.00

DTHETA

Dry = 0.2
Normal = 0.1
Wet = 0

PSIF

= 9.4

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.345	DESERT	62.34	DRY	25.00	0.00	0.00	0.35	0.218
0.042	M.D.R.	7.61	NORMAL	25.00	45.00	0.02	0.10	0.008
0.114	M.F.R.	20.61	NORMAL	25.00	65.00	0.07	0.10	0.021
0.031	IND	5.66	NORMAL	20.00	75.00	0.02	0.10	0.006
0.021	COMM	3.78	NORMAL	20.00	90.00	0.02	0.10	0.004
0.554	=TOTAL AREA	OK	AVERAGE =	24.53	TOTAL =	0.14	AVG. =	0.256
					% =	24.47		

PERCENT OF SUBBASIN
DRY = 62.34 %
NORMAL = 37.66 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.162

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.023

IMPERVIOUS AREA:
URBAN @ 100 % effective = 24.47
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 24.47

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
344	0.554	1.690	0.980	27.00	0.256	0.162	9.40	0.023	24.47

LOSS PARAMETERS FOR SUBBASIN: 345

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Mp	0.032	10.94	0.25	-0.066	0.00	0.00
RbA	0.032	10.80	0.26	-0.063	0.00	0.00
Mr	0.029	9.64	0.05	-0.125	0.00	0.00
TfA	0.027	9.18	0.37	-0.040	0.00	0.00
LcA	0.027	9.12	0.25	-0.055	0.00	0.00
Tu	0.026	8.91	0.25	-0.054	0.00	0.00
GxA	0.025	8.49	0.23	-0.054	0.00	0.00
Pb	0.021	7.25	0.38	-0.030	0.00	0.00
Ae	0.020	6.67	0.39	-0.027	0.00	0.00
Th	0.018	6.20	0.04	-0.087	0.00	0.00
AfA	0.014	4.76	0.38	-0.020	0.00	0.00
TrB	0.009	3.16	0.13	-0.028	0.00	0.00
Vf	0.009	2.95	0.01	-0.059	0.00	0.00
Tw	0.006	1.93	0.05	-0.025	0.00	0.00

TOTAL = 0.296 SQ.MI. XKSAT = 0.18 %ROCK= 0.00

DTHETA		PSIF	
Dry =	0.39	=	5.67
Normal =	0.25		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.111	DESERT	37.45	DRY	25.00	0.00	0.00	0.35	0.131
0.093	M.D.R.	31.47	NORMAL	25.00	45.00	0.04	0.10	0.031
0.061	M.F.R.	20.71	NORMAL	25.00	65.00	0.04	0.10	0.021
0.031	P.A.D.	10.37	NORMAL	25.00	75.00	0.02	0.10	0.010
0.296	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.10	AVG. =	0.194
					% =	35.40		

PERCENT OF SUBBASIN DRY = 37.45 %
NORMAL = 62.55 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.302

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.210

IMPERVIOUS AREA: URBAN @ 100 % effective = 35.40
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 35.40

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
345	0.296	1.110	0.670	32.00	0.194	0.302	5.67	0.210	35.40

LOSS PARAMETERS FOR SUBBASIN: 346

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Ae	0.166	41.52	0.39	-0.170	0.00	0.00
Th	0.112	27.91	0.04	-0.390	0.00	0.00
Es	0.042	10.41	0.25	-0.063	0.00	0.00
GxB	0.028	6.88	0.24	-0.043	0.00	0.00
RS	0.017	4.33	0.4	-0.017	65.00	2.81
GgA	0.013	3.34	0.25	-0.020	0.00	0.00
Mr	0.009	2.23	0.05	-0.029	0.00	0.00
RbB	0.007	1.68	0.25	-0.010	0.00	0.00
AdA	0.004	0.89	0.4	-0.004	0.00	0.00
LcA	0.002	0.50	0.25	-0.003	0.00	0.00
RbA	0.001	0.19	0.26	-0.001	0.00	0.00
TD	0.000	0.12	1.2	0.000	0.00	0.00

TOTAL = 0.401 SQ.MI. XKSAT = 0.18 %ROCK= 2.81

DTHETA		PSIF	
Dry =	0.39	=	5.67
Normal =	0.25		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.181	DESERT	45.05	DRY	25.00	0.00	0.00	0.35	0.158
0.115	L.D.R.	28.64	NORMAL	25.00	25.00	0.03	0.15	0.043
0.026	M.D.R.	6.47	NORMAL	25.00	45.00	0.01	0.10	0.006
0.080	M.F.R.	19.84	NORMAL	25.00	65.00	0.05	0.10	0.020
0.401	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.09	AVG. =	0.227
					% =	22.97		

PERCENT OF SUBBASIN DRY = 45.05 %
NORMAL = 54.95 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.313

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.210

IMPERVIOUS AREA: URBAN @ 100 % effective = 22.97
ROCK OUTCROP @ 60 % effective = 1.69

% EFFECTIVE IMP. = 24.66

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
346	0.401	1.510	0.820	27.00	0.227	0.313	5.67	0.210	24.66

LOSS PARAMETERS FOR SUBBASIN: 347

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
RbA	0.175	15.79	0.26	-0.092	0.00	0.00
LcA	0.148	13.39	0.25	-0.081	0.00	0.00
AfA	0.144	12.99	0.38	-0.055	0.00	0.00
GxB	0.131	11.84	0.24	-0.073	0.00	0.00
Tu	0.123	11.17	0.25	-0.067	0.00	0.00
GxA	0.088	7.94	0.23	-0.051	0.00	0.00
RS	0.086	7.81	0.4	-0.031	65.00	5.08
Ae	0.064	5.79	0.39	-0.024	0.00	0.00
GgA	0.033	3.02	0.25	-0.018	0.00	0.00
Mp	0.029	2.65	0.25	-0.016	0.00	0.00
TD	0.028	2.52	1.2	0.002	0.00	0.00
PeA	0.027	2.46	0.37	-0.011	0.00	0.00
Vf	0.010	0.92	0.01	-0.018	0.00	0.00
Aa	0.010	0.91	0.26	-0.005	0.00	0.00
RbB	0.009	0.80	0.25	-0.005	0.00	0.00

TOTAL = 1.105 SQ.MI. XKSAT = 0.29 %ROCK= 5.08

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 3.71

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.842	DESERT	76.15	DRY	25.00	0.00	0.00	0.25	0.190
0.011	PARK	1.03	NORMAL	90.00	15.00	0.00	0.20	0.002
0.252	P.A.D.	22.82	NORMAL	25.00	75.00	0.19	0.10	0.023
1.105	=TOTAL AREA	OK	AVERAGE =	25.67	TOTAL =	0.19	AVG. =	0.215
					% =	17.27		

PERCENT OF SUBBASIN
DRY = 76.15 %
NORMAL = 23.85 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.326

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.340

IMPERVIOUS AREA:
URBAN @ 100 % effective = 17.27
ROCK OUTCROP @ 60 % effective = 3.05

% EFFECTIVE IMP. = 20.32

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
347	1.105	1.710	0.730	35.00	0.215	0.326	3.71	0.340	20.32

LOSS PARAMETERS FOR SUBBASIN: 348

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
TD	0.025	50.98	1.2	0.040	0.00	0.00
Ae	0.019	39.00	0.39	-0.159	0.00	0.00
Tu	0.003	6.35	0.25	-0.038	0.00	0.00
LcA	0.002	3.67	0.25	-0.022	0.00	0.00

TOTAL = 0.048 SQ.MI. XKSAT = 0.66 %ROCK= 0.00

DTHETA

Dry = 0.35
Normal = 0.27
Wet = 0

PSIF

= 3.68

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.024	DESERT	50.11	DRY	25.00	0.00	0.00	0.30	0.150
0.003	L.D.R.	6.00	NORMAL	25.00	25.00	0.00	0.10	0.006
0.020	M.D.R.	41.79	NORMAL	25.00	45.00	0.01	0.10	0.042
0.001	M.F.R.	2.10	NORMAL	25.00	65.00	0.00	0.10	0.002
0.048	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.01	AVG. =	0.200
					% =	21.67		

PERCENT OF SUBBASIN DRY = 50.11 %
NORMAL = 49.89 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.310

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.769

IMPERVIOUS AREA: URBAN @ 100 % effective = 21.67
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 21.67

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
348	0.048	0.590	0.410	27.00	0.200	0.310	3.68	0.769	21.67

LOSS PARAMETERS FOR SUBBASIN: 349

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Vf	0.291	78.11	0.01	-1.562	0.00	0.00
Tg	0.056	15.06	0.04	-0.211	0.00	0.00
Mp	0.012	3.30	0.25	-0.020	0.00	0.00
Mr	0.010	2.75	0.05	-0.036	0.00	0.00
Tw	0.003	0.78	0.05	-0.010	0.00	0.00
TOTAL =	0.372 SQ.MI.		XKSAT =	0.01	%ROCK=	0.00

DTHETA

Dry = 0.15
Normal = 0.05
Wet = 0

PSIF

= 12.4

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.173	DESERT	46.53	DRY	25.00	0.00	0.00	0.30	0.140
0.061	M.D.R.	16.45	NORMAL	25.00	45.00	0.03	0.10	0.016
0.031	M.F.R.	8.37	NORMAL	25.00	65.00	0.02	0.10	0.008
0.034	P.A.D.	9.11	NORMAL	25.00	75.00	0.03	0.10	0.009
0.070	IND	18.69	NORMAL	20.00	75.00	0.05	0.10	0.019
0.003	COMM	0.85	NORMAL	20.00	90.00	0.00	0.10	0.001
0.372	=TOTAL AREA	OK	AVERAGE =	24.02	TOTAL =	0.13	AVG. =	0.193
					% =	34.46		

PERCENT OF SUBBASIN
DRY = 46.53 %
NORMAL = 53.47 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.097

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.012

IMPERVIOUS AREA:
URBAN @ 100 % effective = 34.46
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 34.46

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
349	0.372	1.030	0.680	27.00	0.193	0.097	12.40	0.012	34.46

Green-Ampt Parameters
(Future Condition)

TABLE 11

Average Green-Ampt Parameters
(Future Conditions)

Sub-Basin	IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)
310	0.12	0.19	8.60	0.07	29.92
311	0.13	0.23	7.78	0.11	22.38
312	0.10	0.15	8.28	0.08	58.81
313	0.12	0.22	8.05	0.09	29.81
314	0.10	0.19	7.14	0.14	45.49
315	0.13	0.29	7.50	0.12	14.19
316	0.10	0.25	5.98	0.20	45.00
317	0.10	0.25	4.43	0.25	65.32
318	0.10	0.25	3.77	0.33	76.90
319	0.14	0.28	7.78	0.10	11.38
320	0.13	0.27	7.50	0.12	12.76
321	0.12	0.26	3.77	0.35	49.76
322	0.10	0.25	4.24	0.43	25.12
323	0.10	0.25	5.98	0.19	89.64
324	0.17	0.26	6.29	0.18	57.43
325	0.11	0.26	3.87	0.36	71.46
326	0.10	0.25	4.14	0.41	74.52
327	0.10	0.13	10.10	0.03	75.00
328	0.10	0.13	10.10	0.03	79.32
329	0.11	0.15	8.28	0.08	62.07
330	0.11	0.16	8.60	0.07	59.40
331	0.10	0.15	8.20	0.05	83.94
332	0.12	0.29	4.12	0.27	14.21
333	0.10	0.15	8.20	0.04	72.68
334	0.10	0.25	3.50	0.28	75.19
335	0.13	0.25	3.50	0.33	46.77
336	0.10	0.15	7.50	0.11	74.99
337	0.10	0.25	5.05	0.22	74.81
338	0.12	0.26	3.55	0.30	50.87

TABLE 11

Average Green-Ampt Parameters
(Future Conditions)

Sub-Basin	IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)
339	0.10	0.21	6.96	0.14	75.00
340	0.10	0.19	7.14	0.14	57.22
341	0.10	0.13	10.10	0.03	77.42
342	0.14	0.12	9.40	0.02	62.72
343	0.10	0.05	12.40	0.01	67.87
345	0.11	0.10	9.40	0.02	72.01
346	0.13	0.27	5.67	0.21	50.42
347	0.15	0.28	5.67	0.21	40.95
348	0.12	0.26	3.71	0.35	54.64
349	0.16	0.29	3.68	0.76	38.13

LOSS PARAMETERS FOR SUBBASIN: 310F

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
44	0.369	54.44	0.03	-0.829	0.00	0.00
52	0.142	20.86	0.16	-0.166	20.00	4.17
110	0.113	16.61	0.13	-0.147	0.00	0.00
98	0.044	6.47	0.37	-0.028	0.00	0.00
12	0.011	1.62	0.01	-0.032	0.00	0.00
TOTAL =	0.679 SQ.MI.		XKSAT =	0.06	%ROCK=	4.17

DTHETA		PSIF	
Dry =	0.25	=	8.6
Normal =	0.15		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.148	DESERT	21.81	DRY	25.00	0.00	0.00	0.15	0.033
0.128	MOUNTAIN	18.92	DRY	25.00	0.00	0.00	0.15	0.028
0.377	M.U.	55.54	NORMAL	25.00	45.00	0.17	0.10	0.056
0.025	M.F.R.	3.73	NORMAL	25.00	65.00	0.02	0.10	0.004
0.679	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.19	AVG. =	0.120
					% =	27.42		

PERCENT OF SUBBASIN

DRY = 40.73 %
NORMAL = 59.27 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.191

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.070

IMPERVIOUS AREA:

URBAN @ 100 % effective = 27.42
ROCK OUTCROP @ 60 % effective = 2.50

% EFFECTIVE IMP. = 29.92

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
310F	0.679	1.360	0.640	282.00	0.120	0.191	8.60	0.070	29.92

LOSS PARAMETERS FOR SUBBASIN: 311F

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
52	0.277	48.64	0.16	-0.387	20.00	9.73
44	0.218	38.36	0.03	-0.584	0.00	0.00
110	0.041	7.22	0.13	-0.064	0.00	0.00
100	0.033	5.78	0.4	-0.023	20.00	1.16
TOTAL =	0.569 SQ.MI.		XKSAT =	0.09	%ROCK=	10.88

DTHETA

Dry =	0.33
Normal =	0.15
Wet =	0

PSIF

= 7.78

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.089	DESERT	15.64	DRY	25.00	0.00	0.00	0.15	0.023
0.172	MOUNTAIN	30.26	DRY	25.00	0.00	0.00	0.15	0.045
0.161	V.L.D.R	28.31	NORMAL	25.00	15.00	0.02	0.10	0.028
0.147	M.U.	25.78	NORMAL	25.00	45.00	0.07	0.10	0.026
0.569	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.09	AVG. =	0.123
					% =	15.85		

PERCENT OF SUBBASIN

DRY =	45.91 %
NORMAL =	54.09 %
WET =	0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.233

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.105

IMPERVIOUS AREA:

URBAN @	100 %	effective =	15.85
ROCK OUTCROP @	60 %	effective =	6.53
	% EFFECTIVE IMP. =		22.38

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
311F	0.569	1.520	0.710	260.00	0.123	0.233	7.78	0.105	22.38

LOSS PARAMETERS FOR SUBBASIN: 312F

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
12	0.412	30.57	0.01	-0.611	0.00	0.00
TPB	0.345	25.57	0.12	-0.235	0.00	0.00
Es	0.216	16.03	0.25	-0.097	0.00	0.00
77	0.073	5.38	0.05	-0.070	0.00	0.00
RbA	0.067	5.00	0.26	-0.029	0.00	0.00
44	0.060	4.45	0.03	-0.068	0.00	0.00
TSC	0.059	4.40	0.14	-0.038	0.00	0.00
98	0.057	4.22	0.37	-0.018	0.00	0.00
PT	0.043	3.18	0.4	-0.013	0.00	0.00
2	0.011	0.85	0.41	-0.003	0.00	0.00
3	0.005	0.35	0.58	-0.001	0.00	0.00

TOTAL = 1.348 SQ.MI. XKSAT = 0.07 %ROCK= 0.00

DTHETA

Dry = 0.28
Normal = 0.15
Wet = 0

PSIF

= 8.28

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.004	DESERT	0.31	DRY	25.00	0.00	0.00	0.35	0.001
0.872	M.U.	64.70	NORMAL	25.00	45.00	0.39	0.10	0.065
0.097	M.F.R.	7.18	NORMAL	25.00	65.00	0.06	0.10	0.007
0.375	COMM	27.80	NORMAL	20.00	90.00	0.34	0.10	0.028
1.348	=TOTAL AREA	OK	AVERAGE =	23.61	TOTAL = % =	0.79 58.81	AVG. =	0.101

PERCENT OF SUBBASIN

DRY = 0.31 %
NORMAL = 99.69 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.150

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.080

IMPERVIOUS AREA:

URBAN @ 100 % effective = 58.81
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 58.81

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
312F	1.348	2.170	0.910	36.00	0.101	0.150	8.28	0.080	58.81

LOSS PARAMETERS FOR SUBBASIN: 313F

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
44	0.236	46.45	0.03	-0.707	0.00	0.00
52	0.206	40.48	0.16	-0.322	20.00	8.10
98	0.021	4.09	0.37	-0.018	0.00	0.00
103	0.021	4.04	0.1	-0.040	65.00	2.63
21	0.016	3.12	0.38	-0.013	0.00	0.00
100	0.009	1.82	0.4	-0.007	20.00	0.36

TOTAL = 0.508 SQ.MI. XKSAT = 0.08 %ROCK= 11.09

DTHETA		PSIF	
Dry =	0.3	=	8.05
Normal =	0.15		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.118	DESERT	23.21	DRY	25.00	0.00	0.00	0.15	0.035
0.117	MOUNTAIN	23.06	DRY	25.00	0.00	0.00	0.15	0.035
0.017	V.L.D.R	3.39	NORMAL	25.00	15.00	0.00	0.10	0.003
0.256	M.U.	50.34	NORMAL	25.00	45.00	0.12	0.10	0.050
0.508	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.12	AVG. =	0.123
					% =	23.16		

PERCENT OF SUBBASIN DRY = 46.27 %
NORMAL = 53.73 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.219

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.093

IMPERVIOUS AREA: URBAN @ 100 % effective = 23.16
ROCK OUTCROP @ 60 % effective = 6.65
% EFFECTIVE IMP. = 29.81

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
313F	0.508	1.160	0.370	287.00	0.123	0.219	8.05	0.093	29.81

LOSS PARAMETERS FOR SUBBASIN: 314F

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Es	0.240	35.66	0.25	-0.215	0.00	0.00
44	0.196	29.25	0.03	-0.445	0.00	0.00
TSC	0.132	19.72	0.14	-0.168	0.00	0.00
112	0.046	6.80	0.39	-0.028	0.00	0.00
77	0.021	3.13	0.05	-0.041	0.00	0.00
TPB	0.017	2.58	0.12	-0.024	0.00	0.00
RbA	0.017	2.52	0.26	-0.015	0.00	0.00
98	0.002	0.34	0.37	-0.001	0.00	0.00

TOTAL = 0.672 SQ.MI. XKSAT = 0.12 %ROCK= 0.00

DTHETA

Dry = 0.37
Normal = 0.19
Wet = 0

PSIF

= 7.14

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.392	M.D.R.	58.39	NORMAL	25.00	45.00	0.18	0.10	0.058
0.272	M.U.	40.52	NORMAL	25.00	45.00	0.12	0.10	0.041
0.007	COMM	1.09	NORMAL	20.00	90.00	0.01	0.10	0.001
0.672	=TOTAL AREA	OK	AVERAGE =	24.95	TOTAL =	0.31	AVG. =	0.100
					% =	45.49		

PERCENT OF SUBBASIN DRY = 0.00 %
NORMAL = 100.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.190

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.140

IMPERVIOUS AREA: URBAN @ 100 % effective = 45.49
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 45.49

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
314F	0.672	1.360	0.860	55.00	0.100	0.190	7.14	0.140	45.49

LOSS PARAMETERS FOR SUBBASIN: 315F

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
52	0.472	67.06	0.16	-0.534	20.00	13.41
44	0.208	29.56	0.03	-0.450	0.00	0.00
103	0.024	3.38	0.1	-0.034	65.00	2.20

TOTAL = 0.704 SQ.MI. XKSAT = 0.10 %ROCK= 15.61

DTHETA

Dry = 0.35
Normal = 0.15
Wet = 0

PSIF

= 7.5

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.069	DESERT	9.82	DRY	25.00	0.00	0.00	0.15	0.015
0.409	MOUNTAIN	58.05	DRY	25.00	0.00	0.00	0.15	0.087
0.226	V.L.D.R	32.13	NORMAL	25.00	15.00	0.03	0.10	0.032
0.704	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.03	AVG. =	0.134
					% =	4.82		

PERCENT OF SUBBASIN
DRY = 67.87 %
NORMAL = 32.13 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.286

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.117

IMPERVIOUS AREA:
URBAN @ 100 % effective = 4.82
ROCK OUTCROP @ 60 % effective = 9.37
% EFFECTIVE IMP. = 14.19

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
315F	0.704	1.540	0.580	300.00	0.134	0.286	7.50	0.117	14.19

LOSS PARAMETERS FOR SUBBASIN: 316F

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
98	0.123	36.44	0.37	-0.157	0.00	0.00
44	0.098	29.03	0.03	-0.442	0.00	0.00
Es	0.050	14.89	0.25	-0.090	0.00	0.00
112	0.035	10.41	0.39	-0.043	0.00	0.00
124	0.031	9.24	0.39	-0.038	0.00	0.00

TOTAL = 0.339 SQ.MI. XKSAT = 0.17 %ROCK= 0.00

DTHETA

Dry = 0.39
Normal = 0.25
Wet = 0

PSIF

= 5.98

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.339	M.D.R.	100.00	NORMAL	25.00	45.00	0.15	0.10	0.100
0.339	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL = % =	0.15 45.00	AVG. =	0.100

PERCENT OF SUBBASIN DRY = 0.00 %
NORMAL = 100.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.250

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.198

IMPERVIOUS AREA: URBAN @ 100 % effective = 45.00
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 45.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
316F	0.339	0.990	0.510	63.00	0.100	0.250	5.98	0.198	45.00

LOSS PARAMETERS FOR SUBBASIN: 317F

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Es	0.462	54.65	0.25	-0.329	0.00	0.00
TPB	0.230	27.16	0.12	-0.250	0.00	0.00
PT	0.085	10.01	0.4	-0.040	0.00	0.00
124	0.042	4.93	0.39	-0.020	0.00	0.00
112	0.013	1.52	0.39	-0.006	0.00	0.00
98	0.010	1.16	0.37	-0.005	0.00	0.00
GYD	0.005	0.57	0.26	-0.003	0.00	0.00
TOTAL =	0.846 SQ.MI.		XKSAT =	0.22	%ROCK=	0.00

DTHETA

Dry = 0.37
Normal = 0.25
Wet = 0

PSIF

= 4.43

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.169	M.D.R.	19.97	NORMAL	25.00	45.00	0.08	0.10	0.020
0.347	M.F.R.	40.97	NORMAL	25.00	65.00	0.23	0.10	0.041
0.308	IND	36.36	NORMAL	20.00	75.00	0.23	0.10	0.036
0.023	COMM	2.70	NORMAL	20.00	90.00	0.02	0.10	0.003
0.846	=TOTAL AREA	OK	AVERAGE =	23.05	TOTAL =	0.55	AVG. =	0.100
					% =	65.32		

PERCENT OF SUBBASIN

DRY = 0.00 %
NORMAL = 100.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.250

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.252

IMPERVIOUS AREA:

URBAN @ 100 % effective = 65.32
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 65.32

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
317F	0.846	1.810	0.580	41.00	0.100	0.250	4.43	0.252	65.32

LOSS PARAMETERS FOR SUBBASIN: 318F

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.271	78.45	0.39	-0.321	0.00	0.00
Es	0.055	15.85	0.25	-0.095	0.00	0.00
Vf	0.019	5.54	0.01	-0.111	0.00	0.00
GYD	0.001	0.16	0.26	-0.001	0.00	0.00

TOTAL = 0.345 SQ.MI. XKSAT = 0.30 %ROCK= 0.00

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 3.77

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.017	M.F.R.	4.83	NORMAL	25.00	65.00	0.01	0.10	0.005
0.274	IND	79.30	NORMAL	20.00	75.00	0.21	0.10	0.079
0.055	COMM	15.87	NORMAL	20.00	90.00	0.05	0.10	0.016
0.345	=TOTAL AREA	OK	AVERAGE =	20.24	TOTAL = % =	0.27 76.90	AVG. =	0.100

PERCENT OF SUBBASIN
DRY = 0.00 %
NORMAL = 100.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.250

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.334

IMPERVIOUS AREA:
URBAN @ 100 % effective = 76.90
ROCK OUTCROP @ 60 % effective = 0.00
% EFFECTIVE IMP. = 76.90

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
318F	0.345	1.150	0.440	36.00	0.100	0.250	3.77	0.334	76.90

LOSS PARAMETERS FOR SUBBASIN: 319F

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
52	0.338	62.40	0.16	-0.497	20.00	12.48
44	0.195	35.89	0.03	-0.547	0.00	0.00
98	0.009	1.71	0.37	-0.007	0.00	0.00
TOTAL =	0.542 SQ.MI.		XKSAT =	0.09	%ROCK=	12.48

DTHETA		PSIF	
Dry =	0.33	=	7.78
Normal =	0.15		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.043	DESERT	7.91	DRY	25.00	0.00	0.00	0.15	0.012
0.359	MOUNTAIN	66.13	DRY	25.00	0.00	0.00	0.15	0.099
0.141	V.L.D.R	25.95	NORMAL	25.00	15.00	0.02	0.10	0.026
0.542	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.02	AVG. =	0.137
					% =	3.89		

PERCENT OF SUBBASIN DRY = 74.05 %
NORMAL = 25.95 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.283

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.105

IMPERVIOUS AREA:

URBAN @	100 %	effective =	3.89
ROCK OUTCROP @	60 %	effective =	7.49
	% EFFECTIVE IMP. =		11.38

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
319F	0.542	1.940	1.090	288.00	0.137	0.283	7.78	0.105	11.38

LOSS PARAMETERS FOR SUBBASIN: 320F

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
52	0.509	46.03	0.16	-0.366	20.00	9.21
44	0.420	37.93	0.03	-0.578	0.00	0.00
98	0.154	13.93	0.37	-0.060	0.00	0.00
112	0.010	0.93	0.39	-0.004	0.00	0.00
50	0.010	0.88	0.26	-0.005	0.00	0.00
75	0.003	0.30	0.23	-0.002	0.00	0.00

TOTAL = 1.106 SQ.MI. XKSAT = 0.10 %ROCK= 9.21

DTHETA

Dry = 0.35
Normal = 0.15
Wet = 0

PSIF

= 7.5

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.151	DESERT	13.62	DRY	25.00	0.00	0.00	0.15	0.020
0.516	MOUNTAIN	46.67	DRY	25.00	0.00	0.00	0.15	0.070
0.416	V.L.D.R.	37.57	NORMAL	25.00	15.00	0.06	0.10	0.038
0.024	IND	2.13	NORMAL	20.00	75.00	0.02	0.10	0.002
1.106	=TOTAL AREA	OK	AVERAGE =	24.89	TOTAL =	0.08	AVG. =	0.130
					% =	7.24		

PERCENT OF SUBBASIN
DRY = 60.29 %
NORMAL = 39.71 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.271

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.116

IMPERVIOUS AREA:
URBAN @ 100 % effective = 7.24
ROCK OUTCROP @ 60 % effective = 5.52
% EFFECTIVE IMP. = 12.76

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
320F	1.106	1.740	0.720	218.00	0.130	0.271	7.50	0.116	12.76

LOSS PARAMETERS FOR SUBBASIN: 321F

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.456	40.69	0.39	-0.166	0.00	0.00
98	0.231	20.65	0.37	-0.089	0.00	0.00
Es	0.163	14.53	0.25	-0.087	0.00	0.00
118	0.096	8.57	0.33	-0.041	15.00	1.29
113	0.078	6.94	0.39	-0.028	0.00	0.00
124	0.043	3.84	0.39	-0.016	0.00	0.00
Vf	0.041	3.68	0.01	-0.074	0.00	0.00
44	0.012	1.10	0.03	-0.017	0.00	0.00
TOTAL =	1.121 SQ.MI.		XKSAT =	0.30	%ROCK=	1.29

DTHETA		PSIF	
Dry =	0.35	=	3.77
Normal =	0.25		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.086	DESERT	7.67	DRY	25.00	0.00	0.00	0.30	0.023
0.757	M.D.R.	67.50	NORMAL	25.00	45.00	0.34	0.10	0.068
0.001	M.F.R.	0.09	NORMAL	25.00	65.00	0.00	0.10	0.000
0.277	IND	24.73	NORMAL	20.00	75.00	0.21	0.10	0.025
1.121	=TOTAL AREA	OK	AVERAGE =	23.76	TOTAL =	0.55	AVG. =	0.115
					% =	48.99		

PERCENT OF SUBBASIN DRY = 7.67 %
NORMAL = 92.33 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.258

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.345

IMPERVIOUS AREA: URBAN @ 100 % effective = 48.99
ROCK OUTCROP @ 60 % effective = 0.77

% EFFECTIVE IMP. = 49.76

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
321F	1.121	2.270	1.240	57.00	0.115	0.258	3.77	0.345	49.76

LOSS PARAMETERS FOR SUBBASIN: 322F

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.108	98.62	0.39	-0.403	0.00	0.00
18	0.002	1.38	0.33	-0.007	15.00	0.21
TOTAL =	0.110 SQ.MI.		XKSAT =	0.39	%ROCK=	0.21

DTHETA

Dry =	0.35
Normal =	0.25
Wet =	0

PSIF

= 4.24

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.110	IND	100.00	NORMAL	20.00	25.00	0.03	0.10	0.100
0.110	=TOTAL AREA	OK	AVERAGE =	20.00	TOTAL = % =	0.03 25.00	AVG. =	0.100

PERCENT OF SUBBASIN

DRY =	0.00 %
NORMAL =	100.00 %
WET =	0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.250

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.433

IMPERVIOUS AREA:

URBAN @	100 %	effective =	25.00
ROCK OUTCROP @	60 %	effective =	0.12
	% EFFECTIVE IMP. =		25.12

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
322F	0.110	0.920	0.340	61.00	0.100	0.250	4.24	0.433	25.12

LOSS PARAMETERS FOR SUBBASIN: 323F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Tu	0.135	36.23	0.25	-0.218	0.00	0.00
Pt	0.079	21.12	0.4	-0.084	0.00	0.00
TPB	0.059	15.70	0.12	-0.145	0.00	0.00
Vf	0.044	11.89	0.01	-0.238	0.00	0.00
PeA	0.021	5.53	0.37	-0.024	0.00	0.00
GYD	0.018	4.88	0.26	-0.029	0.00	0.00
TSC	0.015	4.08	0.14	-0.035	0.00	0.00
LcA	0.002	0.56	0.25	-0.003	0.00	0.00

TOTAL = 0.373 SQ.MI. XKSAT = 0.17 %ROCK= 0.00

DTHETA		PSIF	
Dry =	0.39	=	5.98
Normal =	0.25		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.002	DESERT	0.40	DRY	25.00	0.00	0.00	0.35	0.001
0.371	COMM	99.60	NORMAL	20.00	90.00	0.33	0.10	0.100
0.373	=TOTAL AREA	OK	AVERAGE =	20.02	TOTAL =	0.33	AVG. =	0.101
					% =	89.64		

PERCENT OF SUBBASIN DRY = 0.40 %
NORMAL = 99.60 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.251

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.189

IMPERVIOUS AREA: URBAN @ 100 % effective = 89.64
ROCK OUTCROP @ 60 % effective = 0.00
% EFFECTIVE IMP. = 89.64

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
323F	0.373	1.760	0.690	27.00	0.101	0.251	5.98	0.189	89.64

LOSS PARAMETERS FOR SUBBASIN: 324F

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
RS	0.087	53.99	0.4	-0.215	65.00	35.09
Vf	0.030	18.83	0.01	-0.377	0.00	0.00
GYD	0.025	15.71	0.26	-0.092	0.00	0.00
LcA	0.013	7.79	0.25	-0.047	0.00	0.00
112	0.006	3.68	0.03	-0.056	0.00	0.00

TOTAL = 0.160 SQ.MI. XKSAT = 0.16 %ROCK= 35.09

DTHETA

Dry = 0.4
Normal = 0.25
Wet = 0

PSIF

= 6.29

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.006	DESERT	3.56	DRY	25.00	0.00	0.00	0.35	0.012
0.090	V.L.D.R.	56.03	NORMAL	25.00	0.00	0.00	0.20	0.112
0.065	COMM	40.41	NORMAL	20.00	90.00	0.06	0.10	0.040
0.160	=TOTAL AREA	OK	AVERAGE =	22.98	TOTAL =	0.06	AVG. =	0.165
					% =	36.37		

PERCENT OF SUBBASIN
DRY = 3.56 %
NORMAL = 96.44 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.255

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.183

IMPERVIOUS AREA:
URBAN @ 100 % effective = 36.37
ROCK OUTCROP @ 60 % effective = 21.06
% EFFECTIVE IMP. = 57.43

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
324F	0.160	0.750	0.460	290.00	0.165	0.255	6.29	0.183	57.43

LOSS PARAMETERS FOR SUBBASIN: 325F

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.271	47.65	0.39	-0.195	0.00	0.00
75	0.139	24.42	0.23	-0.156	0.00	0.00
18	0.068	12.02	0.33	-0.058	15.00	1.80
50	0.058	10.15	0.26	-0.059	0.00	0.00
98	0.022	3.89	0.37	-0.017	0.00	0.00
113	0.011	1.87	0.39	-0.008	0.00	0.00
TOTAL =	0.568 SQ.MI.		XKSAT =	0.32	%ROCK=	1.80

DTHETA

Dry =	0.35
Normal =	0.25
Wet =	0

PSIF

= 3.87

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.035	DESERT	6.16	DRY	25.00	0.00	0.00	0.30	0.018
0.533	IND	93.84	NORMAL	20.00	75.00	0.40	0.10	0.094
0.568	=TOTAL AREA	OK	AVERAGE =	20.31	TOTAL =	0.40	AVG. =	0.112
					% =	70.38		

PERCENT OF SUBBASIN

DRY =	6.16 %
NORMAL =	93.84 %
WET =	0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.256

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.356

IMPERVIOUS AREA:

URBAN @	100 %	effective =	70.38
ROCK OUTCROP @	60 %	effective =	1.08
	% EFFECTIVE IMP. =		71.46

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
325F	0.568	1.710	0.650	60.00	0.112	0.256	3.87	0.356	71.46

LOSS PARAMETERS FOR SUBBASIN: 326F

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.456	91.62	0.39	-0.375	0.00	0.00
75	0.042	8.38	0.23	-0.053	0.00	0.00
TOTAL =	0.498 SQ.MI.		XKSAT =	0.37	%ROCK=	0.00

DTHETA

Dry =	0.35
Normal =	0.25
Wet =	0

PSIF

= 4.14

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.042	M.F.R.	8.52	NORMAL	25.00	65.00	0.03	0.10	0.009
0.443	IND	88.99	NORMAL	20.00	75.00	0.33	0.10	0.089
0.012	COMM	2.49	NORMAL	20.00	90.00	0.01	0.10	0.002
0.498	=TOTAL AREA	OK	AVERAGE =	20.43	TOTAL =	0.37	AVG. =	0.100
					% =	74.52		

PERCENT OF SUBBASIN

DRY =	0.00 %
NORMAL =	100.00 %
WET =	0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.250

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.412

IMPERVIOUS AREA:

URBAN @	100 %	effective =	74.52
ROCK OUTCROP @	60 %	effective =	0.00
% EFFECTIVE IMP. =			74.52

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
326F	0.498	2.010	0.900	37.00	0.100	0.250	4.14	0.412	74.52

LOSS PARAMETERS FOR SUBBASIN: 327F

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.311	82.87	0.03	-1.262	0.00	0.00
Th	0.023	6.00	0.04	-0.084	0.00	0.00
Mp	0.017	4.51	0.25	-0.027	0.00	0.00
Vf	0.015	3.87	0.01	-0.077	0.00	0.00
Mr	0.010	2.75	0.05	-0.036	0.00	0.00
TOTAL =	0.375 SQ.MI.		XKSAT =	0.03	%ROCK=	0.00

DTHETA

Dry = 0.25
Normal = 0.13
Wet = 0

PSIF

= 10.1

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.375	IND	100.00	NORMAL	20.00	75.00	0.28	0.10	0.100
0.375	=TOTAL AREA	OK	AVERAGE =	20.00	TOTAL = % =	0.28 75.00	AVG. =	0.100

PERCENT OF SUBBASIN
DRY = 0.00 %
NORMAL = 100.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.130

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.033

IMPERVIOUS AREA:
URBAN @ 100 % effective = 75.00
ROCK OUTCROP @ 60 % effective = 0.00
% EFFECTIVE IMP. = 75.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
327F	0.375	1.510	0.660	29.00	0.100	0.130	10.10	0.033	75.00

LOSS PARAMETERS FOR SUBBASIN: 328F

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.223	56.81	0.03	-0.865	0.00	0.00
TH	0.124	31.45	0.04	-0.440	0.00	0.00
VF	0.035	8.81	0.01	-0.176	0.00	0.00
TG	0.007	1.81	0.04	-0.025	0.00	0.00
MP	0.003	0.69	0.25	-0.004	0.00	0.00
TFA	0.002	0.43	0.37	-0.002	0.00	0.00

TOTAL = 0.393 SQ.MI. XKSAT = 0.03 %ROCK= 0.00

DTHETA

Dry = 0.25
Normal = 0.13
Wet = 0

PSIF

= 10.1

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.280	IND	71.19	NORMAL	20.00	75.00	0.21	0.10	0.071
0.113	COMM	28.81	NORMAL	20.00	90.00	0.10	0.10	0.029
0.393	=TOTAL AREA	OK	AVERAGE =	20.00	TOTAL =	0.31	AVG. =	0.100
					% =	79.32		

PERCENT OF SUBBASIN
DRY = 0.00 %
NORMAL = 100.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.130

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.033

IMPERVIOUS AREA:
URBAN @ 100 % effective = 79.32
ROCK OUTCROP @ 60 % effective = 0.00
% EFFECTIVE IMP. = 79.32

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
328F	0.393	1.380	0.520	32.00	0.100	0.130	10.10	0.033	79.32

LOSS PARAMETERS FOR SUBBASIN: 329F

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Vf	0.239	36.38	0.01	-0.728	0.00	0.00
112	0.095	14.54	0.39	-0.059	0.00	0.00
RS	0.093	14.09	0.4	-0.056	65.00	9.16
TPB	0.065	9.97	0.12	-0.092	0.00	0.00
LcA	0.046	6.94	0.25	-0.042	0.00	0.00
Th	0.043	6.62	0.04	-0.093	0.00	0.00
Mr	0.017	2.63	0.05	-0.034	0.00	0.00
AfA	0.017	2.53	0.38	-0.011	0.00	0.00
RaA	0.013	1.99	0.39	-0.008	0.00	0.00
RbA	0.007	1.09	0.26	-0.006	0.00	0.00
Tw	0.007	1.05	0.05	-0.014	0.00	0.00
AdA	0.005	0.81	0.4	-0.003	0.00	0.00
Tu	0.005	0.69	0.25	-0.004	0.00	0.00
GxA	0.002	0.35	0.23	-0.002	0.00	0.00
PeA	0.002	0.26	0.37	-0.001	0.00	0.00
TfB	0.000	0.06	0.36	-0.000	0.00	0.00

TOTAL = 0.657 SQ.MI. XKSAT = 0.07 %ROCK= 9.16

DTHETA

Dry = 0.28
Normal = 0.15
Wet = 0

PSIF

= 8.28

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.012	DESERT	1.84	DRY	25.00	0.00	0.00	0.20	0.004
0.145	MOUNTAIN	22.07	DRY	25.00	0.00	0.00	0.20	0.044
0.146	M.F.R.	22.24	NORMAL	25.00	65.00	0.09	0.10	0.022
0.278	IND	42.29	NORMAL	20.00	75.00	0.21	0.10	0.042
0.076	COMM	11.55	NORMAL	20.00	90.00	0.07	0.10	0.012
0.657	=TOTAL AREA	OK	AVERAGE =	22.31	TOTAL =	0.37	AVG. =	0.124
					% =	56.57		

PERCENT OF SUBBASIN
DRY = 1.84 %
NORMAL = 98.16 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.152

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.079

IMPERVIOUS AREA:	URBAN @	100 % effective =	56.57
	ROCK OUTCROP @	60 % effective =	5.50
		% EFFECTIVE IMP. =	62.07

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
329F	0.657	1.010	0.510	272.00	0.124	0.152	8.28	0.079	62.07

LOSS PARAMETERS FOR SUBBASIN: 330F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Vf	0.103	22.22	0.01	-0.444	0.00	0.00
Mr	0.092	19.87	0.05	-0.259	0.00	0.00
RbA	0.053	11.46	0.26	-0.067	0.00	0.00
Th	0.052	11.15	0.04	-0.156	0.00	0.00
Tg	0.040	8.73	0.04	-0.122	0.00	0.00
Tw	0.039	8.48	0.05	-0.110	0.00	0.00
AfA	0.023	5.00	0.38	-0.021	0.00	0.00
Tu	0.023	4.93	0.25	-0.030	0.00	0.00
GxA	0.020	4.27	0.23	-0.027	0.00	0.00
LcA	0.014	3.03	0.25	-0.018	0.00	0.00
TfB	0.003	0.71	0.36	-0.003	0.00	0.00
Mp	0.001	0.15	0.25	-0.001	0.00	0.00

TOTAL = 0.463 SQ.MI. XKSAT = 0.06 %ROCK= 0.00

DTHETA

Dry = 0.25
Normal = 0.15
Wet = 0

PSIF

= 8.6

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.039	DESERT	8.36	DRY	25.00	0.00	0.00	0.25	0.021
0.049	M.D.R.	10.56	NORMAL	25.00	45.00	0.02	0.10	0.011
0.190	M.F.R.	41.01	NORMAL	25.00	65.00	0.12	0.10	0.041
0.085	IND	18.27	NORMAL	20.00	75.00	0.06	0.10	0.018
0.002	COMM	0.45	NORMAL	20.00	90.00	0.00	0.10	0.000
0.099	SCHOOL	21.36	NORMAL	25.00	65.00	0.06	0.10	0.021
0.463	=TOTAL AREA	OK	AVERAGE =	24.06	TOTAL =	0.28	AVG. =	0.113
					% =	59.40		

PERCENT OF SUBBASIN

DRY = 8.36 %
NORMAL = 91.64 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.158

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.069

IMPERVIOUS AREA:

URBAN @ 100 % effective = 59.40
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 59.40

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
330F	0.463	1.150	0.650	31.00	0.113	0.158	8.60	0.069	59.40

LOSS PARAMETERS FOR SUBBASIN: 331F

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Th	0.046	49.26	0.04	-0.689	0.00	0.00
Vf	0.032	33.68	0.01	-0.674	0.00	0.00
Mp	0.009	9.79	0.25	-0.059	0.00	0.00
112	0.005	5.29	0.39	-0.022	0.00	0.00
TfA	0.002	1.98	0.37	-0.009	0.00	0.00

TOTAL = 0.094 SQ.MI. XKSAT = 0.04 %ROCK= 0.00

DTHETA		PSIF	
Dry =	0.25	=	8.2
Normal =	0.15		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.023	M.F.R.	24.20	NORMAL	25.00	65.00	0.01	0.10	0.024
0.071	COMM	75.79	NORMAL	20.00	90.00	0.06	0.10	0.076
0.094	=TOTAL AREA	OK	AVERAGE =	21.21	TOTAL =	0.08	AVG. =	0.100
					% =	83.94		

PERCENT OF SUBBASIN DRY = 0.01 %
NORMAL = 99.99 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.150

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.045

IMPERVIOUS AREA: URBAN @ 100 % effective = 83.94
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 83.94

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
331F	0.094	0.400	0.070	65.00	0.100	0.150	8.20	0.045	83.94

LOSS PARAMETERS FOR SUBBASIN: 332F

Soil Survey Used AGUILA

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
98	0.182	31.88	0.37	-0.138	0.00	0.00
52	0.106	18.55	0.16	-0.148	20.00	3.71
75	0.093	16.26	0.23	-0.104	0.00	0.00
18	0.081	14.17	0.33	-0.068	15.00	2.13
44	0.046	8.02	0.03	-0.122	0.00	0.00
50	0.032	5.64	0.26	-0.033	0.00	0.00
109	0.022	3.93	0.35	-0.018	35.00	1.38
3	0.008	1.48	0.58	-0.004	0.00	0.00
55	0.000	0.07	0.27	-0.000	0.00	0.00

TOTAL = 0.572 SQ.MI. XKSAT = 0.23 %ROCK= 7.21

DTHETA		PSIF	
Dry =	0.36	=	4.12
Normal =	0.25		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.040	DESERT	7.01	DRY	25.00	0.00	0.00	0.15	0.011
0.155	MOUNTAIN	27.07	DRY	25.00	0.00	0.00	0.15	0.041
0.377	V.L.D.R	65.91	NORMAL	25.00	15.00	0.06	0.10	0.066
0.572	=TOTAL AREA	OK	AVERAGE =	25.00	TOTAL =	0.06	AVG. =	0.117
					% =	9.89		

PERCENT OF SUBBASIN DRY = 34.09 %
NORMAL = 65.91 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.287

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.268

IMPERVIOUS AREA: URBAN @ 100 % effective = 9.89
ROCK OUTCROP @ 60 % effective = 4.33

% EFFECTIVE IMP. = 14.21

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
332F	0.572	1.140	0.430	226.00	0.117	0.287	4.12	0.268	14.21

LOSS PARAMETERS FOR SUBBASIN: 333F

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.534	54.37	0.03	-0.828	0.00	0.00
113	0.178	18.12	0.03	-0.276	0.00	0.00
Te	0.170	17.28	0.25	-0.104	0.00	0.00
109	0.058	5.94	0.03	-0.091	0.00	0.00
75	0.013	1.31	0.03	-0.020	0.00	0.00
TfA	0.012	1.17	0.37	-0.005	0.00	0.00
50	0.010	1.02	0.03	-0.016	0.00	0.00
108	0.008	0.78	0.03	-0.012	0.00	0.00
TOTAL =	0.982 SQ.MI.		XKSAT =	0.04	%ROCK=	0.00

DTHETA

Dry = 0.25
Normal = 0.15
Wet = 0

PSIF

= 8.2

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.030	MOUNTAIN	3.10	DRY	25.00	0.00	0.00	0.15	0.005
0.952	IND	96.90	NORMAL	20.00	75.00	0.71	0.10	0.097
0.982	=TOTAL AREA	OK	AVERAGE =	20.15	TOTAL =	0.71	AVG. =	0.102
					% =	72.68		

PERCENT OF SUBBASIN
DRY = 3.10 %
NORMAL = 96.90 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.153

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.044

IMPERVIOUS AREA:
URBAN @ 100 % effective = 72.68
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 72.68

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
333F	0.982	2.230	1.160	68.00	0.102	0.153	8.20	0.044	72.68

LOSS PARAMETERS FOR SUBBASIN: 334F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Te	0.202	57.59	0.25	-0.347	0.00	0.00
Es	0.053	15.10	0.25	-0.091	0.00	0.00
Gr	0.040	11.30	0.23	-0.072	0.00	0.00
GgA	0.027	7.65	0.25	-0.046	0.00	0.00
TfA	0.018	5.22	0.37	-0.023	0.00	0.00
Co	0.011	3.14	0.29	-0.017	20.00	0.63
TOTAL =	0.350 SQ.MI.		XKSAT =	0.25	%ROCK=	0.63

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 3.5

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.001	M.D.R.	0.40	NORMAL	25.00	45.00	0.00	0.10	0.000
0.002	M.F.R.	0.63	NORMAL	25.00	65.00	0.00	0.10	0.001
0.347	IND	98.97	NORMAL	20.00	75.00	0.26	0.10	0.099
0.351	=TOTAL AREA	OK	AVERAGE =	20.05	TOTAL =	0.26	AVG. =	0.100
					% =	74.82		

PERCENT OF SUBBASIN

DRY = 0.00 %
NORMAL = 100.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.250

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.278

IMPERVIOUS AREA:

URBAN @ 100 % effective = 74.82
ROCK OUTCROP @ 60 % effective = 0.38

% EFFECTIVE IMP. = 75.19

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
334F	0.350	1.430	0.870	24.00	0.100	0.250	3.50	0.278	75.19

LOSS PARAMETERS FOR SUBBASIN: 335F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Es	0.120	43.90	0.25	-0.264	0.00	0.00
GgA	0.067	24.58	0.25	-0.148	0.00	0.00
Gr	0.048	17.42	0.23	-0.111	0.00	0.00
Mp	0.022	8.11	0.25	-0.049	0.00	0.00
TfA	0.015	5.48	0.37	-0.024	0.00	0.00
Te	0.001	0.51	0.25	-0.003	0.00	0.00

TOTAL = 0.274 SQ.MI. XKSAT = 0.25 %ROCK= 0.00

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 3.5

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.062	M.D.R.	22.72	NORMAL	25.00	45.00	0.03	0.10	0.023
0.090	M.F.R.	32.94	NORMAL	25.00	65.00	0.06	0.10	0.033
0.029	COMM/ROW	10.70	NORMAL	20.00	90.00	0.03	0.10	0.011
0.023	SCHOOL	8.47	NORMAL	20.00	65.00	0.02	0.10	0.008
0.069	PARK	25.16	NORMAL	90.00	0.00	0.00	0.20	0.050
0.274	=TOTAL AREA	OK	AVERAGE =	40.40	TOTAL =	0.13	AVG. =	0.125
					% =	46.77		

PERCENT OF SUBBASIN

DRY = 0.00 %
NORMAL = 100.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.250

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.334

IMPERVIOUS AREA:

URBAN @ 100 % effective = 46.77
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 46.77

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
335F	0.274	0.970	0.470	28.00	0.125	0.250	3.50	0.334	46.77

LOSS PARAMETERS FOR SUBBASIN: 336F

Soil Survey Used AGUILA & CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
112	0.038	34.39	0.03	-0.524	0.00	0.00
Te	0.035	31.86	0.25	-0.192	0.00	0.00
Mr	0.016	14.62	0.05	-0.190	0.00	0.00
Mp	0.015	13.45	0.25	-0.081	0.00	0.00
TfA	0.006	5.69	0.37	-0.025	0.00	0.00
TOTAL =	0.111 SQ.MI.		XKSAT =	0.10	%ROCK=	0.00

DTHETA

Dry =	0.35
Normal =	0.15
Wet =	0

PSIF

= 7.5

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.111	IND	99.99	NORMAL	20.00	75.00	0.08	0.10	0.100
0.111	=TOTAL AREA	OK	AVERAGE =	20.00	TOTAL = % =	0.08 74.99	AVG. =	0.100

PERCENT OF SUBBASIN

DRY = 0.01 %
NORMAL = 99.99 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.150

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.111

IMPERVIOUS AREA:

URBAN @ 100 % effective = 74.99
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 74.99

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
336F	0.111	0.630	0.350	25.00	0.100	0.150	7.50	0.111	74.99

LOSS PARAMETERS FOR SUBBASIN: 337F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Te	0.134	51.22	0.25	-0.308	0.00	0.00
TfA	0.052	19.84	0.37	-0.086	0.00	0.00
Mr	0.051	19.38	0.05	-0.252	0.00	0.00
Mp	0.013	5.01	0.25	-0.030	0.00	0.00
Es	0.012	4.55	0.25	-0.027	0.00	0.00

TOTAL = 0.262 SQ.MI. XKSAT = 0.20 %ROCK= 0.00

DTHETA

Dry =	0.38
Normal =	0.25
Wet =	0

PSIF

= 5.05

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.002	M.D.R.	0.61	NORMAL	25.00	45.00	0.00	0.10	0.001
0.260	IND	99.38	NORMAL	20.00	75.00	0.20	0.10	0.099
0.262	=TOTAL AREA	OK	AVERAGE =	20.03	TOTAL = % =	0.20 74.81	AVG. =	0.100

PERCENT OF SUBBASIN

DRY =	0.00 %
NORMAL =	100.00 %
WET =	0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.250

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.222

IMPERVIOUS AREA:

URBAN @	100 %	effective =	74.81
ROCK OUTCROP @	60 %	effective =	0.00
	% EFFECTIVE IMP. =		74.81

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
337F	0.262	0.800	0.560	31.00	0.100	0.250	5.05	0.222	74.81

LOSS PARAMETERS FOR SUBBASIN: 338F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Mp	0.080	36.88	0.25	-0.222	0.00	0.00
Es	0.059	27.45	0.25	-0.165	0.00	0.00
TfA	0.033	15.25	0.37	-0.066	0.00	0.00
Gr	0.032	14.65	0.23	-0.093	0.00	0.00
Te	0.013	5.78	0.25	-0.035	0.00	0.00

TOTAL = 0.216 SQ.MI. XKSAT = 0.26 %ROCK= 0.00

DTHETA		PSIF	
Dry =	0.35	=	3.55
Normal =	0.25		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.013	BASIN	6.02	DRY	25.00	0.00	0.00	0.35	0.021
0.162	M.D.R.	74.90	NORMAL	25.00	45.00	0.07	0.10	0.075
0.041	COMM/ROW	19.07	NORMAL	20.00	90.00	0.04	0.10	0.019
0.216	=TOTAL AREA	OK	AVERAGE =	24.05	TOTAL =	0.11	AVG. =	0.115
					% =	50.87		

PERCENT OF SUBBASIN DRY = 6.02 %
NORMAL = 93.98 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.256

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.300

IMPERVIOUS AREA:

URBAN @	100 %	effective =	50.87
ROCK OUTCROP @	60 %	effective =	0.00
% EFFECTIVE IMP. =			50.87

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
338F	0.216	1.410	0.540	27.00	0.115	0.256	3.55	0.300	50.87

LOSS PARAMETERS FOR SUBBASIN: 339F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Mp	0.122	53.06	0.25	-0.319	0.00	0.00
Mr	0.052	22.59	0.05	-0.294	0.00	0.00
Te	0.030	12.98	0.25	-0.078	0.00	0.00
Vf	0.017	7.21	0.01	-0.144	0.00	0.00
Tg	0.007	2.98	0.04	-0.042	0.00	0.00
TfA	0.003	1.18	0.37	-0.005	0.00	0.00
TOTAL =	0.229 SQ.MI.		XKSAT =	0.13	%ROCK=	0.00

DTHETA

Dry = 0.38
Normal = 0.21
Wet = 0

PSIF

= 6.96

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.229	IND	100.00	NORMAL	20.00	75.00	0.17	0.10	0.100
0.229	=TOTAL AREA	OK	AVERAGE =	20.00	TOTAL = % =	0.17 75.00	AVG. =	0.100

PERCENT OF SUBBASIN

DRY = 0.00 %
NORMAL = 100.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.210

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.144

IMPERVIOUS AREA:

URBAN @ 100 % effective = 75.00
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 75.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
339F	0.229	0.890	0.670	26.00	0.100	0.210	6.96	0.144	75.00

LOSS PARAMETERS FOR SUBBASIN: 340F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Te	0.084	31.10	0.25	-0.187	0.00	0.00
Mr	0.054	20.04	0.05	-0.261	0.00	0.00
TfA	0.052	19.16	0.37	-0.083	0.00	0.00
Vf	0.034	12.43	0.01	-0.249	0.00	0.00
Mp	0.030	10.98	0.25	-0.066	0.00	0.00
Es	0.009	3.33	0.25	-0.020	0.00	0.00
Tw	0.008	2.96	0.05	-0.038	0.00	0.00
TOTAL =	0.270 SQ.MI.		XKSAT =	0.12	%ROCK=	0.00

DTHETA

Dry = 0.37
Normal = 0.19
Wet = 0

PSIF

= 7.14

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.184	M.D.R.	68.27	NORMAL	25.00	45.00	0.08	0.10	0.068
0.037	IND	13.74	NORMAL	20.00	75.00	0.03	0.10	0.014
0.049	COMM/ROW	17.99	NORMAL	20.00	90.00	0.04	0.10	0.018
0.270	=TOTAL AREA	OK	AVERAGE =	23.41	TOTAL =	0.15	AVG. =	0.100
					% =	57.22		

PERCENT OF SUBBASIN

DRY = 0.00 %
NORMAL = 100.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.190

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.138

IMPERVIOUS AREA:

URBAN @ 100 % effective = 57.22
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 57.22

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
340F	0.270	1.060	0.450	27.00	0.100	0.190	7.14	0.138	57.22

LOSS PARAMETERS FOR SUBBASIN: 341F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Vf	0.202	63.33	0.01	-1.267	0.00	0.00
Mp	0.067	21.07	0.25	-0.127	0.00	0.00
Tg	0.045	14.13	0.04	-0.198	0.00	0.00
TfA	0.005	1.47	0.37	-0.006	0.00	0.00
TOTAL =	0.320 SQ.MI.		XKSAT =	0.03	%ROCK=	0.00

DTHETA

Dry = 0.25
Normal = 0.13
Wet = 0

PSIF

= 10.1

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.048	M.F.R.	14.90	NORMAL	25.00	65.00	0.03	0.10	0.015
0.189	IND	59.02	NORMAL	20.00	75.00	0.14	0.10	0.059
0.083	COMM/ROW	26.08	NORMAL	20.00	90.00	0.07	0.10	0.026
0.319	=TOTAL AREA	OK	AVERAGE =	20.75	TOTAL =	0.25	AVG. =	0.100
					% =	77.42		

PERCENT OF SUBBASIN
DRY = 0.00 %
NORMAL = 100.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.130

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.034

IMPERVIOUS AREA:
URBAN @ 100 % effective = 77.42
ROCK OUTCROP @ 60 % effective = 0.00
% EFFECTIVE IMP. = 77.42

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
341F	0.320	1.070	0.550	24.00	0.100	0.130	10.10	0.034	77.42

LOSS PARAMETERS FOR SUBBASIN: 342F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Vf	0.073	57.30	0.01	-1.146	0.00	0.00
Tg	0.034	26.77	0.04	-0.374	0.00	0.00
Mp	0.012	9.42	0.25	-0.057	0.00	0.00
Mr	0.006	4.32	0.05	-0.056	0.00	0.00
Tw	0.003	2.20	0.05	-0.029	0.00	0.00
TOTAL =	0.127 SQ.MI.		XKSAT =	0.02	%ROCK=	0.00

DTHETA		PSIF	
Dry =	0.2	=	9.4
Normal =	0.1		
Wet =	0		

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.025	BASIN	19.48	DRY	25.00	0.00	0.00	0.30	0.058
0.001	M.D.R.	0.79	NORMAL	25.00	45.00	0.00	0.10	0.001
0.002	M.F.R.	1.65	NORMAL	25.00	65.00	0.00	0.10	0.002
0.076	IND	59.86	NORMAL	20.00	75.00	0.06	0.10	0.060
0.023	COMM/ROW	18.22	NORMAL	20.00	90.00	0.02	0.10	0.018
0.127	=TOTAL AREA	OK	AVERAGE =	21.10	TOTAL =	0.08	AVG. =	0.139
					% =	62.72		

PERCENT OF SUBBASIN DRY = 19.48 %
NORMAL = 80.52 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.119

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.022

IMPERVIOUS AREA: URBAN @ 100 % effective = 62.72
ROCK OUTCROP @ 60 % effective = 0.00
% EFFECTIVE IMP. = 62.72

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
342F	0.127	0.670	0.350	27.00	0.139	0.119	9.40	0.022	62.72

LOSS PARAMETERS FOR SUBBASIN: 343F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Vf	0.223	87.88	0.01	-1.758	0.00	0.00
Tg	0.022	8.65	0.04	-0.121	0.00	0.00
Mr	0.007	2.64	0.05	-0.034	0.00	0.00
Mp	0.002	0.83	0.25	-0.005	0.00	0.00
TOTAL =	0.254 SQ.MI.		XKSAT =	0.01	%ROCK=	0.00

DTHETA

Dry = 0.15
Normal = 0.05
Wet = 0

PSIF

= 12.4

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.060	M.D.R.	23.59	NORMAL	25.00	45.00	0.03	0.10	0.024
0.060	M.F.R.	23.75	NORMAL	25.00	65.00	0.04	0.10	0.024
0.094	IND	37.12	NORMAL	20.00	75.00	0.07	0.10	0.037
0.040	ROW	15.53	NORMAL	20.00	90.00	0.04	0.10	0.016
0.254	=TOTAL AREA	OK	AVERAGE =	22.37	TOTAL =	0.17	AVG. =	0.100
					% =	67.87		

PERCENT OF SUBBASIN
DRY = 0.00 %
NORMAL = 100.00 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.050

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.011

IMPERVIOUS AREA:
URBAN @ 100 % effective = 67.87
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 67.87

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
343F	0.254	0.860	0.400	21.00	0.100	0.050	12.40	0.011	67.87

LOSS PARAMETERS FOR SUBBASIN: 345F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Vf	0.287	54.14	0.01	-1.083	0.00	0.00
Mr	0.188	35.51	0.05	-0.462	0.00	0.00
Tg	0.042	7.83	0.04	-0.110	0.00	0.00
Tw	0.007	1.34	0.05	-0.017	0.00	0.00
Mp	0.005	0.96	0.25	-0.006	0.00	0.00
Th	0.001	0.17	0.04	-0.002	0.00	0.00
TfA	0.000	0.04	0.37	-0.000	0.00	0.00
TOTAL =	0.530 SQ.MI.		XKSAT =	0.02	%ROCK=	0.00

DTHETA

Dry = 0.2
Normal = 0.1
Wet = 0

PSIF

= 9.4

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.011	BASIN	2.04	DRY	25.00	0.00	0.00	0.35	0.007
0.027	M.D.R.	5.15	NORMAL	25.00	45.00	0.01	0.10	0.005
0.170	M.F.R.	31.97	NORMAL	25.00	65.00	0.11	0.10	0.032
0.188	IND	35.51	NORMAL	20.00	75.00	0.14	0.10	0.036
0.123	COMM	23.25	NORMAL	20.00	90.00	0.11	0.10	0.023
0.011	SCHOOL	2.07	NORMAL	20.00	65.00	0.01	0.10	0.002
0.530	=TOTAL AREA	OK	AVERAGE =	21.96	TOTAL =	0.38	AVG. =	0.105
					% =	72.01		

PERCENT OF SUBBASIN
DRY = 2.04 %
NORMAL = 97.96 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.102

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.023

IMPERVIOUS AREA:
URBAN @ 100 % effective = 72.01
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 72.01

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
345F	0.530	1.760	1.020	26.00	0.105	0.102	9.40	0.023	72.01

LOSS PARAMETERS FOR SUBBASIN: 346F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Mp	0.032	10.94	0.25	-0.066	0.00	0.00
RbA	0.032	10.80	0.26	-0.063	0.00	0.00
Mr	0.029	9.64	0.05	-0.125	0.00	0.00
TfA	0.027	9.18	0.37	-0.040	0.00	0.00
LcA	0.027	9.12	0.25	-0.055	0.00	0.00
Tu	0.026	8.91	0.25	-0.054	0.00	0.00
GxA	0.025	8.49	0.23	-0.054	0.00	0.00
Pb	0.021	7.25	0.38	-0.030	0.00	0.00
Ae	0.020	6.67	0.39	-0.027	0.00	0.00
Th	0.018	6.20	0.04	-0.087	0.00	0.00
AfA	0.014	4.76	0.38	-0.020	0.00	0.00
TrB	0.009	3.16	0.13	-0.028	0.00	0.00
Vf	0.009	2.95	0.01	-0.059	0.00	0.00
Tw	0.006	1.93	0.05	-0.025	0.00	0.00

TOTAL = 0.296 SQ.MI. XKSAT = 0.18 %ROCK= 0.00

DTHETA

Dry = 0.39
Normal = 0.25
Wet = 0

PSIF

= 5.67

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.034	BASIN/DRNGWY	11.62	DRY	25.00	0.00	0.00	0.35	0.041
0.140	M.D.R.	47.43	NORMAL	25.00	45.00	0.06	0.10	0.047
0.092	M.F.R.	31.11	NORMAL	25.00	65.00	0.06	0.10	0.031
0.029	ROW	9.83	NORMAL	20.00	90.00	0.03	0.10	0.010
0.296	=TOTAL AREA	OK	AVERAGE =	24.51	TOTAL =	0.15	AVG. =	0.129
					% =	50.42		

PERCENT OF SUBBASIN DRY = 11.62 %
NORMAL = 88.38 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.266

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.209

IMPERVIOUS AREA:
URBAN @ 100 % effective = 50.42
ROCK OUTCROP @ 60 % effective = 0.00

% EFFECTIVE IMP. = 50.42

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
346F	0.296	1.150	0.740	35.00	0.129	0.266	5.67	0.209	50.42

LOSS PARAMETERS FOR SUBBASIN: 347F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
Ae	0.166	41.52	0.39	-0.170	0.00	0.00
Th	0.112	27.91	0.04	-0.390	0.00	0.00
Es	0.042	10.41	0.25	-0.063	0.00	0.00
GxB	0.028	6.88	0.24	-0.043	0.00	0.00
RS	0.017	4.33	0.4	-0.017	65.00	2.81
GgA	0.013	3.34	0.25	-0.020	0.00	0.00
Mr	0.009	2.23	0.05	-0.029	0.00	0.00
RbB	0.007	1.68	0.25	-0.010	0.00	0.00
AdA	0.004	0.89	0.4	-0.004	0.00	0.00
LcA	0.002	0.50	0.25	-0.003	0.00	0.00
RbA	0.001	0.19	0.26	-0.001	0.00	0.00
TD	0.000	0.12	1.2	0.000	0.00	0.00

TOTAL = 0.401 SQ.MI. XKSAT = 0.18 %ROCK= 2.81

DTHETA

Dry = 0.39
Normal = 0.25
Wet = 0

PSIF

= 5.67

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.073	DESERT	18.18	DRY	25.00	0.00	0.00	0.35	0.064
0.166	M.D.R.	41.41	NORMAL	25.00	45.00	0.07	0.10	0.041
0.106	M.F.R.	26.34	NORMAL	25.00	65.00	0.07	0.10	0.026
0.016	ROW	3.89	NORMAL	20.00	90.00	0.01	0.10	0.004
0.025	SCHOOL	6.14	NORMAL	20.00	0.00	0.00	0.10	0.006
0.016	PARK	4.04	NORMAL	90.00	0.00	0.00	0.20	0.008
0.401	=TOTAL AREA	OK	AVERAGE =	27.13	TOTAL = % =	0.16 39.26	AVG. =	0.150

PERCENT OF SUBBASIN DRY = 18.18 %
NORMAL = 81.82 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.275

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.214

IMPERVIOUS AREA:

URBAN @	100 %	effective =	39.26
ROCK OUTCROP @	60 %	effective =	1.69
	% EFFECTIVE IMP. =		40.95

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
347F	0.401	1.540	0.890	27.00	0.150	0.275	5.67	0.214	40.95

LOSS PARAMETERS FOR SUBBASIN: 348F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
RbA	0.175	15.79	0.26	-0.092	0.00	0.00
LcA	0.148	13.39	0.25	-0.081	0.00	0.00
AfA	0.144	12.99	0.38	-0.055	0.00	0.00
GxB	0.131	11.84	0.24	-0.073	0.00	0.00
Tu	0.123	11.17	0.25	-0.067	0.00	0.00
GxA	0.088	7.94	0.23	-0.051	0.00	0.00
RS	0.086	7.81	0.4	-0.031	65.00	5.08
Ae	0.064	5.79	0.39	-0.024	0.00	0.00
GgA	0.033	3.02	0.25	-0.018	0.00	0.00
Mp	0.029	2.65	0.25	-0.016	0.00	0.00
TD	0.028	2.52	1.2	0.002	0.00	0.00
PeA	0.027	2.46	0.37	-0.011	0.00	0.00
Vf	0.010	0.92	0.01	-0.018	0.00	0.00
Aa	0.010	0.91	0.26	-0.005	0.00	0.00
RbB	0.009	0.80	0.25	-0.005	0.00	0.00

TOTAL = 1.105 SQ.MI. XKSAT = 0.29 %ROCK= 5.08

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 3.71

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.111	DESERT	10.04	DRY	25.00	0.00	0.00	0.25	0.025
0.068	PARK/OPEN	6.12	NORMAL	90.00	15.00	0.01	0.20	0.012
0.373	M.D.R.	33.72	NORMAL	25.00	45.00	0.17	0.10	0.034
0.308	M.F.R.	27.85	NORMAL	25.00	65.00	0.20	0.10	0.028
0.195	IND	17.62	NORMAL	20.00	75.00	0.15	0.10	0.018
0.052	ROW	4.66	NORMAL	20.00	90.00	0.05	0.10	0.005
1.105	=TOTAL AREA	OK	AVERAGE =	27.86	TOTAL =	0.57	AVG. =	0.121
					% =	51.60		

PERCENT OF SUBBASIN

DRY = 10.04 %
NORMAL = 89.96 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.260

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.347

IMPERVIOUS AREA:	URBAN @	100 % effective =	51.60
	ROCK OUTCROP @	60 % effective =	3.05
		% EFFECTIVE IMP. =	54.64

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
348F	1.105	2.230	0.830	30.00	0.121	0.260	3.71	0.347	54.64

LOSS PARAMETERS FOR SUBBASIN: 349F

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA SQ.MI.	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
TD	0.025	50.98	1.2	0.040	0.00	0.00
Ae	0.019	39.00	0.39	-0.159	0.00	0.00
Tu	0.003	6.35	0.25	-0.038	0.00	0.00
LcA	0.002	3.67	0.25	-0.022	0.00	0.00

TOTAL = 0.048 SQ.MI. XKSAT = 0.66 %ROCK= 0.00

DTHETA

Dry = 0.35
Normal = 0.27
Wet = 0

PSIF

= 3.68

LAND USE

AREA SQ.MI.	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea SQ.MI.	IA in.	Wgtd.IA in.
0.015	DESERT	31.26	DRY	25.00	0.00	0.00	0.30	0.094
0.023	M.D.R.	47.00	NORMAL	25.00	45.00	0.01	0.10	0.047
0.005	M.F.R.	10.35	NORMAL	25.00	65.00	0.00	0.10	0.010
0.006	ROW	11.39	NORMAL	20.00	90.00	0.00	0.10	0.011
0.048	=TOTAL AREA	OK	AVERAGE =	24.43	TOTAL =	0.02	AVG. =	0.163
					% =	38.13		

PERCENT OF SUBBASIN
DRY = 31.26 %
NORMAL = 68.74 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.295

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.765

IMPERVIOUS AREA:
URBAN @ 100 % effective = 38.13
ROCK OUTCROP @ 60 % effective = 0.00
% EFFECTIVE IMP. = 38.13

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	LENGTH miles	Lca miles	SLOPE ft/mile	IA inches	DTHETA	PSIF	XKSAT	RTIMP %
349F	0.048	0.590	0.410	27.00	0.163	0.295	3.68	0.765	38.13

SECTION III

Hydrologic Sub-Basin Characteristics

Hydrologic Sub-Basin Characteristics
(Existing Condition)

TABLE 12

Existing Hydrologic Sub-basin Characteristics
2-year Storm

Sub-Basin	Area (Sq. Mile)	Length (miles)	Lca (miles)	Slope (ft/mile)	Kn	LAG (hours)
310	0.679	1.36	0.64	282	0.068	0.530
311	0.569	1.52	0.71	260	0.068	0.584
312	1.348	2.17	0.91	36	0.055	0.865
314	0.846	1.81	0.71	41	0.055	0.717
315	0.508	1.16	0.37	287	0.068	0.404
316	0.672	1.36	0.86	55	0.055	0.654
317	0.704	1.54	0.58	300	0.068	0.529
318	0.542	1.94	1.09	288	0.068	0.740
319	0.339	0.99	0.51	63	0.060	0.505
320	1.106	1.74	0.72	218	0.068	0.639
321	1.121	2.27	1.24	57	0.055	0.907
322	0.345	1.15	0.44	36	0.052	0.488
323	0.110	0.92	0.34	61	0.055	0.389
325	0.431	1.71	0.65	60	0.054	0.620
326	0.498	2.01	0.90	37	0.051	0.772
327	0.166	1.21	0.53	38	0.039	0.396
330	0.294	1.67	0.87	28	0.039	0.573
331	0.168	1.25	0.32	35	0.034	0.293
332	0.078	0.40	0.07	65	0.037	0.103
333	0.162	0.79	0.33	290	0.060	0.294
334	0.574	1.01	0.51	272	0.045	0.289
335	0.340	1.11	0.56	38	0.046	0.462
343	0.205	1.07	0.55	24	0.037	0.397
344	0.418	1.39	0.98	27	0.044	0.684
345	0.216	1.11	0.67	32	0.037	0.411
346	0.401	1.51	0.82	27	0.047	0.654
347	1.031	1.71	0.73	35	0.049	0.651
348	0.034	0.59	0.41	27	0.042	0.314
349	0.221	1.03	0.68	27	0.039	0.437

TABLE 13

Existing Hydrologic Sub-basin Characteristics
10-year Storm

Sub-Basin	Area (Sq. Mile)	Length (miles)	Lca (miles)	Slope (ft/mile)	Kn	LAG (hours)
310	0.679	1.36	0.64	282	0.063	0.491
311	0.569	1.52	0.71	260	0.063	0.541
312	1.348	2.17	0.91	36	0.045	0.708
314	0.846	1.81	0.71	41	0.045	0.587
315	0.508	1.16	0.37	287	0.063	0.374
316	0.672	1.36	0.86	55	0.045	0.535
317	0.704	1.54	0.58	300	0.063	0.490
318	0.542	1.94	1.09	288	0.063	0.685
319	0.339	0.99	0.51	63	0.053	0.447
320	1.106	1.74	0.72	218	0.063	0.592
321	1.121	2.27	1.24	57	0.045	0.742
322	0.345	1.15	0.44	36	0.043	0.403
323	0.110	0.92	0.34	61	0.044	0.311
325	0.502	1.71	0.65	60	0.044	0.505
326	0.498	2.01	0.90	37	0.043	0.651
327	0.216	1.21	0.53	38	0.036	0.366
330	0.310	1.67	0.87	28	0.029	0.426
331	0.220	1.25	0.32	35	0.032	0.276
332	0.094	0.40	0.07	65	0.033	0.100
333	0.533	2.34	0.96	27	0.045	0.785
334	0.657	1.01	0.51	272	0.039	0.251
335	0.463	1.11	0.56	38	0.039	0.391
343	0.320	1.07	0.55	24	0.033	0.354
344	0.554	1.69	0.98	27	0.037	0.575
345	0.296	1.11	0.67	32	0.033	0.366
346	0.401	1.51	0.82	27	0.040	0.557
347	1.105	1.71	0.73	35	0.041	0.545
348	0.048	0.59	0.41	27	0.036	0.269
349	0.372	1.03	0.68	27	0.034	0.381

TABLE 14

Existing Hydrologic Sub-basin Characteristics
100-year Storm

Sub-Basin	Area (Sq. Mile)	Length (miles)	Lca (miles)	Slope (ft/mile)	Kn	LAG (hours)
310	0.679	1.36	0.64	282	0.053	0.413
311	0.569	1.52	0.71	260	0.053	0.455
312	1.348	2.17	0.91	36	0.038	0.598
314	0.846	1.81	0.71	41	0.038	0.495
315	0.508	1.16	0.37	287	0.053	0.315
316	0.672	1.36	0.86	55	0.038	0.452
317	0.704	1.54	0.58	300	0.053	0.412
318	0.542	1.94	1.09	288	0.053	0.576
319	0.339	0.99	0.51	63	0.045	0.379
320	1.106	1.74	0.72	218	0.053	0.498
321	1.121	2.27	1.24	57	0.038	0.627
322	0.345	1.15	0.44	36	0.036	0.338
323	0.110	0.92	0.34	61	0.038	0.269
325	0.502	1.71	0.65	60	0.037	0.425
326	0.498	2.01	0.90	37	0.036	0.545
327	0.216	1.21	0.53	38	0.030	0.305
330	0.310	1.67	0.87	28	0.024	0.352
331	0.220	1.25	0.32	35	0.027	0.233
332	0.094	0.40	0.07	65	0.027	0.100
333	0.533	2.34	0.96	27	0.038	0.663
334	0.657	1.01	0.51	272	0.033	0.212
335	0.463	1.11	0.56	38	0.033	0.331
343	0.320	1.07	0.55	24	0.027	0.290
344	0.554	1.69	0.98	27	0.031	0.482
345	0.296	1.11	0.67	32	0.027	0.300
346	0.401	1.51	0.82	27	0.033	0.459
347	1.105	1.71	0.73	35	0.035	0.465
348	0.048	0.59	0.41	27	0.030	0.224
349	0.372	1.03	0.68	27	0.028	0.314

TABLE 15

Summary Of Sub-Basin Peak Discharges (CFS)
Existing Conditions

Sub-Basin	2-Year		10-Year		100-Year	
	6-Hr.	24-Hr.	6-Hr.	24-Hr.	6-Hr.	24-Hr.
310	119	178	375	464	757	924
311	45	94	249	320	572	696
312	38	127	488	618	1230	1413
314	10	12	164	293	655	829
315	69	126	276	375	579	751
316	0	32	200	301	599	755
317	52	113	308	411	715	894
318	39	78	210	262	502	578
319	0	5	84	145	293	393
320	69	155	440	569	1060	1264
321	6	6	133	286	703	886
322	12	14	75	143	291	400
323	14	16	42	67	110	148
325	13	14	92	178	385	515
326	24	25	68	131	322	420
327	39	50	123	164	250	321
330	48	58	149	201	329	417
331	74	95	180	227	305	380
332	37	46	82	101	136	165
333	9	12	118	177	391	459
334	178	254	478	625	870	1103
335	76	107	290	374	556	703
343	82	102	246	305	429	533
344	129	147	369	417	663	754
345	37	52	154	212	333	433
346	28	36	154	206	383	467
347	90	99	342	505	961	1199
348	4	5	9	14	34	50
349	96	115	295	359	501	616

LAG TIME CALCULATIONS FOR: SCATTER WASH WATERSHED
STORM FREQUENCY - 2 YEAR

SUBBASIN	S-GRAPH BF FITED	24	Km	L (miles)	Lca (miles)	S (ft/mile)	S^1/2	LAG (hours)	LAG (min.)
310	PV	24	0.068	1.36	0.44	282	16.79	0.530	31.80
311	PV	24	0.060	1.52	0.71	260	16.12	0.584	35.04
312	PV	24	0.055	0.17	0.91	34	6.00	0.865	51.92
314	PV	24	0.055	1.61	0.71	41	6.40	0.717	43.02
315	PV	24	0.068	1.16	0.37	287	16.94	0.404	24.23
316	PV	24	0.055	1.36	0.86	55	7.42	0.654	39.26
317	PV	24	0.068	1.54	0.58	300	17.32	0.529	31.74
318	PV	24	0.068	1.94	1.09	288	16.97	0.740	44.38
319	PV	24	0.06	0.99	0.51	63	7.94	0.505	30.33
320	PV	24	0.068	1.74	0.72	218	14.76	0.639	38.35
321	PV	24	0.055	2.27	1.24	57	7.55	0.907	54.44
322	PV	24	0.052	1.15	0.44	36	6.00	0.488	29.26
323	PV	24	0.055	0.92	0.34	61	7.81	0.389	23.32
325	PV	24	0.054	1.71	0.65	60	7.75	0.620	37.18
326	PV	24	0.051	2.01	0.9	37	6.08	0.772	46.32
327	PV	24	0.039	1.21	0.53	38	6.16	0.396	23.77
331	PV	24	0.034	1.25	0.32	35	5.92	0.293	17.59
332	PV	24	0.037	0.4	0.07	65	8.06	0.103	6.19
333	PV	24	0.06	0.79	0.33	290	17.03	0.294	17.65
334	PV	24	0.045	1.01	0.51	272	16.49	0.289	17.36
335	PV	24	0.046	1.11	0.56	38	6.16	0.462	27.70
343	PV	24	0.037	1.07	0.55	24	4.90	0.397	23.81
344	PV	24	0.044	1.69	0.98	27	5.20	0.684	41.03
345	PV	24	0.037	1.11	0.67	32	5.66	0.411	24.64
346	PV	24	0.047	1.51	0.82	27	5.20	0.654	39.24
347	PV	24	0.049	1.71	0.73	35	5.92	0.651	39.06
348	PV	24	0.042	0.59	0.41	27	5.20	0.314	18.86
349	PV	24	0.039	1.03	0.68	27	5.20	0.437	26.22

Revision To Sub-Basin 333:

Drainage Area North of Pinnacle Peak Rd. was found to be non-contributing for the 2-Year storm Frequency. Therefore, the following parameters were used to compute the peak discharge:

$L = 0.79$ miles

$L_{ca} = 0.33$ miles

$S = 390$ ft/mi.

$S_{adj} = 290$ ft/mi. (Figure 5.4, Hydrology Manual)

LAG TIME CALCULATIONS FOR: SCATTER WASH WATERSHED
STORM FREQUENCY - 1Ø YEAR

SUBBASIN	S-GRAPH SELECTED	24	Kn	L (miles)	Lca (miles)	S (ft/mile)	S^1/2	LAG (hours)	LAG (min.)
31Ø	PV	24	Ø.Ø63	1.36	Ø.64	282	16.79	Ø.491	29.46
311	PV	24	Ø.Ø63	1.52	Ø.71	26Ø	16.12	Ø.541	32.47
312	PV	24	Ø.Ø45	2.17	Ø.91	36	6.ØØ	Ø.7Ø8	42.48
314	PV	24	Ø.Ø45	1.81	Ø.71	41	6.4Ø	Ø.587	35.2Ø
315	PV	24	Ø.Ø63	1.16	Ø.37	287	16.94	Ø.374	22.44
316	PV	24	Ø.Ø45	1.36	Ø.86	55	7.42	Ø.535	32.12
317	PV	24	Ø.Ø63	1.54	Ø.58	3ØØ	17.32	Ø.49Ø	29.4Ø
318	PV	24	Ø.Ø63	1.94	1.Ø9	288	16.97	Ø.685	41.12
319	PV	24	Ø.Ø53	Ø.99	Ø.51	63	7.94	Ø.447	26.79
32Ø	PV	24	Ø.Ø63	1.74	Ø.72	218	14.76	Ø.592	35.53
321	PV	24	Ø.Ø45	2.27	1.24	57	7.55	Ø.742	44.54
322	PV	24	Ø.Ø43	1.15	Ø.44	36	6.ØØ	Ø.4Ø3	24.19
323	PV	24	Ø.Ø44	Ø.92	Ø.34	61	7.81	Ø.311	18.66
325	PV	24	Ø.Ø44	1.71	Ø.65	6Ø	7.75	Ø.5Ø5	3Ø.3Ø
326	PV	24	Ø.Ø43	2.Ø1	Ø.9	37	6.Ø8	Ø.651	39.Ø6
327	PV	24	Ø.Ø36	1.21	Ø.53	38	6.16	Ø.366	21.94
331	PV	24	Ø.Ø32	1.25	Ø.32	35	5.92	Ø.276	16.55
332	PV	24	Ø.Ø33	Ø.4	Ø.Ø7	65	8.Ø6	Ø.Ø92	5.53
333	PV	24	Ø.Ø45	2.34	Ø.96	27	5.2Ø	Ø.785	47.12
334	PV	24	Ø.Ø39	1.Ø1	Ø.51	272	16.49	Ø.251	15.Ø4
335	PV	24	Ø.Ø39	1.11	Ø.56	38	6.16	Ø.391	23.49
343	PV	24	Ø.Ø33	1.Ø7	Ø.55	24	4.9Ø	Ø.354	21.24
344	PV	24	Ø.Ø37	1.69	Ø.98	27	5.2Ø	Ø.575	34.5Ø
345	PV	24	Ø.Ø33	1.11	Ø.67	32	5.66	Ø.366	21.98
346	PV	24	Ø.Ø4	1.51	Ø.82	27	5.2Ø	Ø.557	33.4Ø
347	PV	24	Ø.Ø41	1.71	Ø.73	35	5.92	Ø.545	32.69
348	PV	24	Ø.Ø36	Ø.59	Ø.41	27	5.2Ø	Ø.269	16.16
349	PV	24	Ø.Ø34	1.Ø3	Ø.68	27	5.2Ø	Ø.381	22.86

LAG TIME CALCULATIONS FOR: SCATTER WASH WATERSHED
STORM FREQUENCY - 1ØØ YEAR

SUBBASIN	S-GRAPH SELECTED	24	Kn	L (miles)	Lca (miles)	S (ft/mile)	S^1/2	LAG (hours)	LAG (min.)
31Ø	PV	24	Ø.Ø53	1.36	Ø.64	282	16.79	Ø.413	24.78
311	PV	24	Ø.Ø53	1.52	Ø.71	26Ø	16.12	Ø.455	27.31
312	PV	24	Ø.Ø38	2.17	Ø.91	36	6.ØØ	Ø.598	35.87
314	PV	24	Ø.Ø38	1.81	Ø.71	41	6.4Ø	Ø.495	29.72
315	PV	24	Ø.Ø53	1.16	Ø.37	287	16.94	Ø.315	18.88
316	PV	24	Ø.Ø38	1.36	Ø.86	55	7.42	Ø.452	27.12
317	PV	24	Ø.Ø53	1.54	Ø.58	3ØØ	17.32	Ø.412	24.74
318	PV	24	Ø.Ø53	1.94	1.Ø9	288	16.97	Ø.576	34.59
319	PV	24	Ø.Ø45	Ø.99	Ø.51	63	7.94	Ø.379	22.75
32Ø	PV	24	Ø.Ø53	1.74	Ø.72	218	14.76	Ø.498	29.89
321	PV	24	Ø.Ø38	2.27	1.24	57	7.55	Ø.627	37.61
322	PV	24	Ø.Ø36	1.15	Ø.44	36	6.ØØ	Ø.338	2Ø.26
323	PV	24	Ø.Ø38	Ø.92	Ø.34	61	7.81	Ø.269	16.11
325	PV	24	Ø.Ø37	1.71	Ø.65	6Ø	7.75	Ø.425	25.48
326	PV	24	Ø.Ø36	2.Ø1	Ø.9	37	6.Ø8	Ø.545	32.7Ø
327	PV	24	Ø.Ø3	1.21	Ø.53	38	6.16	Ø.3Ø5	18.28
331	PV	24	Ø.Ø27	1.25	Ø.32	35	5.92	Ø.233	13.97
332	PV	24	Ø.Ø27	Ø.4	Ø.Ø7	65	8.Ø6	Ø.Ø75	4.52
333	PV	24	Ø.Ø38	2.34	Ø.96	27	5.2Ø	Ø.663	39.79
334	PV	24	Ø.Ø33	1.Ø1	Ø.51	272	16.49	Ø.212	12.73
335	PV	24	Ø.Ø33	1.11	Ø.56	38	6.16	Ø.331	19.87
343	PV	24	Ø.Ø27	1.Ø7	Ø.55	24	4.9Ø	Ø.29Ø	17.38
344	PV	24	Ø.Ø31	1.69	Ø.98	27	5.2Ø	Ø.482	28.91
345	PV	24	Ø.Ø27	1.11	Ø.67	32	5.66	Ø.3ØØ	17.98
346	PV	24	Ø.Ø33	1.51	Ø.82	27	5.2Ø	Ø.459	27.55
347	PV	24	Ø.Ø35	1.71	Ø.73	35	5.92	Ø.465	27.9Ø
348	PV	24	Ø.Ø3	Ø.59	Ø.41	27	5.2Ø	Ø.224	13.47
349	PV	24	Ø.Ø28	1.Ø3	Ø.68	27	5.2Ø	Ø.314	18.83

Hydrologic Sub-Basin Characteristics
(Future Condition)

TABLE 16

Future Hydrlogic Sub-basin Characteristics
2-Year Storm

Sub-Basin	Area (Sq. Mile)	Length (Miles)	Lca (Miles)	Slope (FT/Mile)	Kn	LAG (Hours)
310	0.679	1.36	0.64	282	0.048	22.45
311	0.569	1.52	0.71	260	0.050	25.77
312	0.771	2.17	0.91	36	0.025	23.60
313	0.508	1.16	0.37	287	0.050	17.81
314	0.308	1.36	0.86	55	0.025	17.84
315	0.704	1.54	0.58	300	0.057	26.60
316	0.339	0.99	0.51	63	0.035	17.69
317	0.208	1.81	0.58	41	0.025	18.11
318	0.021	1.15	0.44	36	0.025	14.07
319	0.542	1.94	1.09	288	0.059	38.50
320	1.106	1.74	0.72	218	0.055	31.02
321	1.842	2.27	1.24	57	0.027	26.72
322	0.110	0.92	0.34	61	0.025	10.60
323	0.373	1.76	0.69	27	0.025	20.72
324	0.160	0.75	0.46	290	0.046	15.05
325	0.151	1.71	0.65	60	0.026	17.90
326	0.088	2.01	0.90	37	0.025	22.71
327	0.339	1.51	0.66	29	0.025	18.96
328	0.361	1.38	0.52	32	0.025	16.43
329	0.372	1.01	0.51	272	0.034	13.12
330	0.203	1.15	0.65	31	0.028	18.80
331	0.094	0.40	0.07	65	0.025	4.19
332	0.572	1.14	0.43	226	0.046	18.04
333	0.913	2.23	1.16	68	0.026	24.10
334	0.124	1.43	0.87	24	0.025	21.38
335	0.179	0.97	0.47	28	0.025	14.18
336	0.111	0.63	0.35	25	0.025	10.99
337	0.130	0.80	0.56	31	0.025	13.82

TABLE 16

Future Hydrlogic Sub-basin Characteristics
2-Year Storm

Sub-Basin	Area (Sq. Mile)	Length (Miles)	Lca (Miles)	Slope (FT/Mile)	Kn	LAG (Hours)
338	0.197	1.41	0.54	27	0.027	18.74
339	0.124	0.89	0.67	26	0.025	15.93
340	0.231	1.06	0.45	27	0.025	14.53
341	0.153	1.07	0.55	24	0.025	16.09
342	0.054	0.67	0.35	27	0.031	13.75
343	0.201	0.86	0.40	21	0.025	13.46
345	0.258	1.76	1.02	26	0.026	25.18
346	0.296	1.15	0.74	35	0.028	19.30
347	0.401	1.54	0.89	27	0.030	26.03
348	0.961	2.23	0.83	30	0.028	26.70
349	0.048	0.59	0.41	27	0.034	15.26

TABLE 17

Future Hydrologic Sub-Basin Characteristics
10-Year Storm

Sub-Basin	Area (Sq. Mile)	Length (Miles)	Lca (Miles)	Slope (FT.\Mile)	Kn	LAG (Hours)
310	0.679	1.36	0.64	282	0.045	21.04
311	0.569	1.52	0.71	260	0.046	23.71
312	0.771	2.17	0.91	36	0.025	23.60
313	0.508	1.16	0.37	287	0.046	16.39
314	0.308	1.36	0.86	55	0.025	17.84
315	0.704	1.54	0.58	300	0.053	24.74
316	0.339	0.99	0.51	63	0.032	16.18
317	0.208	1.81	0.58	41	0.025	18.11
318	0.021	1.15	0.44	36	0.025	14.07
319	0.542	1.94	1.09	288	0.055	35.89
320	1.106	1.74	0.72	218	0.051	28.76
321	0.842	2.27	1.24	57	0.026	25.73
322	0.110	0.92	0.34	61	0.025	10.60
323	0.373	1.76	0.69	27	0.025	20.72
324	0.160	0.75	0.46	290	0.042	13.74
325	0.151	1.71	0.65	60	0.026	17.90
326	0.088	2.01	0.90	37	0.025	22.71
327	0.339	1.51	0.66	29	0.025	18.96
328	0.361	1.38	0.52	32	0.025	16.43
329	0.372	1.01	0.51	272	0.032	12.34
330	0.203	1.15	0.65	31	0.027	18.13
331	0.094	0.40	0.07	65	0.025	4.19
332	0.572	1.14	0.43	226	0.043	16.86
333	0.913	2.23	1.16	68	0.026	24.10
334	0.124	1.43	0.87	24	0.025	21.38
335	0.179	0.97	0.47	28	0.025	14.18
336	0.111	0.63	0.35	25	0.025	10.99
337	0.130	0.80	0.56	31	0.025	13.82

TABLE 17

Future Hydrologic Sub-Basin Characteristics
10-Year Storm

Sub-Basin	Area (Sq. Mile)	Length (Miles)	Lca (Miles)	Slope (FT.\Mile)	Kn	LAG (Hours)
338	0.197	1.41	0.54	27	0.026	18.05
339	0.124	0.89	0.67	26	0.025	15.93
340	0.231	1.06	0.45	27	0.025	14.53
341	0.153	1.07	0.55	24	0.025	16.09
342	0.054	0.67	0.35	27	0.029	12.87
343	0.201	0.86	0.40	21	0.025	13.46
345	0.258	1.76	1.02	26	0.025	24.21
346	0.296	1.15	0.74	35	0.027	18.61
347	0.401	1.54	0.89	27	0.029	25.17
348	0.961	2.23	0.83	30	0.027	25.74
349	0.048	0.59	0.41	27	0.031	13.92

TABLE 18

Future Hydrologic Sub-Basin Characteristics
100-Year Storm

Sub-Basin	Area (Sq. Mile)	Length (Miles)	Lca (Miles)	Slope (FT./Mile)	Kn	LAG (Hours)
310	0.679	1.36	0.64	282	0.039	18.24
311	0.569	1.52	0.71	260	0.040	20.61
312	1.348	2.17	0.91	36	0.020	18.88
313	0.508	1.16	0.37	287	0.040	14.25
314	0.672	1.36	0.86	55	0.020	14.28
315	0.704	1.54	0.58	300	0.045	21.00
316	0.339	0.99	0.51	63	0.029	14.66
317	0.846	1.81	0.58	41	0.020	14.49
318	0.345	1.15	0.44	36	0.020	11.25
319	0.542	1.94	1.09	288	0.047	30.67
320	1.106	1.74	0.72	218	0.043	24.25
321	1.121	2.27	1.24	57	0.021	20.79
322	0.110	0.92	0.34	61	0.020	8.48
323	0.373	1.76	0.69	27	0.020	16.58
324	0.160	0.75	0.46	290	0.035	11.45
325	0.568	1.71	0.65	60	0.021	14.46
326	0.498	2.01	0.90	37	0.020	18.17
327	0.375	1.51	0.66	29	0.020	15.17
328	0.393	1.38	0.52	32	0.020	13.14
329	0.657	1.01	0.51	272	0.026	10.03
330	0.463	1.15	0.65	31	0.022	14.77
331	0.094	0.40	0.07	65	0.020	3.35
332	0.572	1.14	0.43	226	0.037	14.51
333	0.982	2.23	1.16	68	0.021	19.47
334	0.350	1.43	0.87	24	0.020	17.11
335	0.274	0.97	0.47	28	0.020	11.34
336	0.111	0.63	0.35	25	0.020	8.80
337	0.262	0.80	0.56	31	0.020	11.05

TABLE 18

Future Hydrologic Sub-Basin Characteristics
100-Year Storm

Sub-Basin	Area (Sq. Mile)	Length (Miles)	Lca (Miles)	Slope (FT./Mile)	Kn	LAG (Hours)
338	0.216	1.41	0.54	27	0.021	14.58
339	0.229	0.89	0.67	26	0.020	12.74
340	0.270	1.06	0.45	27	0.020	11.62
341	0.320	1.07	0.55	24	0.020	12.87
342	0.127	0.67	0.35	27	0.024	10.65
343	0.254	0.86	0.40	21	0.020	10.77
345	0.530	1.76	1.02	26	0.020	19.37
346	0.296	1.15	0.74	35	0.022	15.16
347	0.401	1.54	0.89	27	0.023	19.96
348	1.105	2.23	0.83	30	0.022	20.98
349	0.048	0.59	0.41	27	0.026	11.67

TABLE 19

Summary Of Sub-Basin Peak Discharges (CFS)
Future Conditions

Sub-Basin	2-Year		10-Year		100-Year	
	6-Hr.	24-Hr.	6-Hr.	24-Hr.	6-Hr.	24-Hr.
310	211	299	451	591	825	1071
311	116	184	320	431	637	822
312	518	675	968	1199	1696	2156
313	142	212	335	459	626	822
314	206	307	455	605	836	1090
315	87	171	343	475	744	971
316	83	131	208	291	401	528
317	284	400	582	767	1056	1369
318	138	185	259	337	456	581
319	57	107	229	295	522	626
320	133	253	516	689	1142	1447
321	259	338	590	773	1207	1554
322	15	19	47	72	114	154
323	165	210	288	358	491	621
324	49	72	109	148	204	263
325	204	269	388	513	706	914
326	178	221	322	413	595	769
327	175	227	301	379	506	638
328	190	247	325	411	542	685
329	287	387	529	686	893	1140
330	189	255	351	455	607	778
331	50	62	84	103	135	164
332	43	113	252	392	594	814
333	427	534	744	902	1265	1584
334	131	173	248	312	447	563
335	67	103	166	230	329	430
336	52	69	92	118	154	193
337	104	143	200	260	348	445

TABLE 19

Summary Of Sub-Basin Peak Discharges (CFS)
Future Conditions

Sub-Basin	2-Year		10-Year		100-Year	
	6-Hr.	24-Hr.	6-Hr.	24-Hr.	6-Hr.	24-Hr.
338	56	83	132	181	255	336
339	95	129	177	228	282	391
340	97	139	199	261	354	455
341	155	201	265	335	441	558
342	62	82	107	137	439	223
343	130	168	219	276	358	451
345	238	290	407	492	689	861
346	76	112	181	247	352	460
347	77	113	206	275	434	568
348	300	359	602	785	1208	1545
349	9	12	16	22	41	59

LAG TIME CALCULATIONS FOR: SCATTER WASH FUTURE HYDROLOGY
2 YEAR FREQUENCY STORM

SUBBASIN	S-GRAPH SELECTED	24	Kn	L (miles)	Lca (miles)	S (ft/mile)	S^1/2	LAG (hours)	LAG (min.)
310	PV	24	0.048	1.36	0.64	282	16.79	0.374	22.45
311	PV	24	0.050	1.52	0.71	260	16.12	0.429	25.77
312	PV	24	0.025	2.17	0.91	36	6.00	0.393	23.60
313	PV	24	0.050	1.16	0.37	287	16.94	0.297	17.81
314	PV	24	0.025	1.36	0.86	55	7.42	0.297	17.84
315	PV	24	0.057	1.54	0.58	300	17.32	0.443	26.60
316	PV	24	0.035	0.99	0.51	63	7.94	0.295	17.69
317	PV	24	0.025	1.81	0.58	41	6.40	0.302	18.11
318	PV	24	0.025	1.15	0.44	36	6.00	0.234	14.07
319	PV	24	0.059	1.94	1.09	288	16.97	0.642	38.50
320	PV	24	0.055	1.74	0.72	218	14.76	0.517	31.02
321	PV	24	0.027	2.27	1.24	57	7.55	0.445	26.72
322	PV	24	0.025	0.92	0.34	61	7.81	0.177	10.60
323	PV	24	0.025	1.76	0.69	27	5.20	0.345	20.72
324	PV	24	0.046	0.75	0.46	290	17.03	0.251	15.05
325	PV	24	0.026	1.71	0.65	60	7.75	0.298	17.90
326	PV	24	0.025	2.01	0.9	37	6.08	0.378	22.71
327	PV	24	0.025	1.51	0.66	29	5.39	0.316	18.96
328	PV	24	0.025	1.38	0.52	32	5.66	0.274	16.43
329	PV	24	0.034	1.01	0.51	272	16.49	0.219	13.12
330	PV	24	0.028	1.15	0.65	31	5.57	0.313	18.80
331	PV	24	0.025	0.4	0.07	65	8.06	0.070	4.19
332	PV	24	0.046	1.14	0.43	226	15.03	0.301	18.04
333	PV	24	0.026	2.23	1.16	68	8.25	0.402	24.10
334	PV	24	0.025	1.43	0.87	24	4.90	0.356	21.38
335	PV	24	0.025	0.97	0.47	28	5.29	0.236	14.18
336	PV	24	0.025	0.63	0.35	25	5.00	0.183	10.99
337	PV	24	0.025	0.8	0.56	31	5.57	0.230	13.82
338	PV	24	0.027	1.41	0.54	27	5.20	0.312	18.74
339	PV	24	0.025	0.89	0.67	26	5.10	0.265	15.93
340	PV	24	0.025	1.06	0.45	27	5.20	0.242	14.53
341	PV	24	0.025	1.07	0.55	24	4.90	0.268	16.09
342	PV	24	0.031	0.67	0.35	27	5.20	0.229	13.75
343	PV	24	0.025	0.86	0.4	21	4.58	0.224	13.46
345	PV	24	0.026	1.76	1.02	26	5.10	0.420	25.18
346	PV	24	0.028	1.15	0.74	35	5.92	0.322	19.30
347	PV	24	0.03	1.54	0.89	27	5.20	0.434	26.03
348	PV	24	0.028	2.23	0.83	30	5.48	0.445	26.70
349	PV	24	0.034	0.59	0.41	27	5.20	0.254	15.26

LAG TIME CALCULATIONS FOR: SCATTER WASH FUTURE HYDROLOGY
10-YEAR FREQUENCY STORM

SUBBASIN	S-GRAPH SELECTED	24	Kn	L (miles)	Lca (miles)	S (ft/mile)	S^1/2	LAG (hours)	LAG (min.)
310	PV	24	0.045	1.36	0.64	282	16.79	0.351	21.04
311	PV	24	0.046	1.52	0.71	260	16.12	0.395	23.71
312	PV	24	0.025	2.17	0.91	36	6.00	0.393	23.60
313	PV	24	0.046	1.16	0.37	287	16.94	0.273	16.39
314	PV	24	0.025	1.36	0.86	55	7.42	0.297	17.84
315	PV	24	0.053	1.54	0.58	300	17.32	0.412	24.74
316	PV	24	0.032	0.99	0.51	63	7.94	0.270	16.18
317	PV	24	0.025	1.81	0.58	41	6.40	0.302	18.11
318	PV	24	0.025	1.15	0.44	36	6.00	0.234	14.07
319	PV	24	0.055	1.94	1.09	288	16.97	0.598	35.89
320	PV	24	0.051	1.74	0.72	218	14.76	0.479	28.76
321	PV	24	0.026	2.27	1.24	57	7.55	0.429	25.73
322	PV	24	0.025	0.92	0.34	61	7.81	0.177	10.60
323	PV	24	0.025	1.76	0.69	27	5.20	0.345	20.72
324	PV	24	0.042	0.75	0.46	290	17.03	0.229	13.74
325	PV	24	0.026	1.71	0.65	60	7.75	0.298	17.90
326	PV	24	0.025	2.01	0.9	37	6.08	0.378	22.71
327	PV	24	0.025	1.51	0.66	29	5.39	0.316	18.96
328	PV	24	0.025	1.38	0.52	32	5.66	0.274	16.43
329	PV	24	0.032	1.01	0.51	272	16.49	0.206	12.34
330	PV	24	0.027	1.15	0.65	31	5.57	0.302	18.13
331	PV	24	0.025	0.4	0.07	65	8.06	0.070	4.19
332	PV	24	0.043	1.14	0.43	226	15.03	0.281	16.86
333	PV	24	0.026	2.23	1.16	68	8.25	0.402	24.10
334	PV	24	0.025	1.43	0.87	24	4.90	0.356	21.38
335	PV	24	0.025	0.97	0.47	28	5.29	0.236	14.18
336	PV	24	0.025	0.63	0.35	25	5.00	0.183	10.99
337	PV	24	0.025	0.8	0.56	31	5.57	0.230	13.82
338	PV	24	0.026	1.41	0.54	27	5.20	0.301	18.05
339	PV	24	0.025	0.89	0.67	26	5.10	0.265	15.93
340	PV	24	0.025	1.06	0.45	27	5.20	0.242	14.53
341	PV	24	0.025	1.07	0.55	24	4.90	0.268	16.09
342	PV	24	0.029	0.67	0.35	27	5.20	0.214	12.87
343	PV	24	0.025	0.86	0.4	21	4.58	0.224	13.46
345	PV	24	0.025	1.76	1.02	26	5.10	0.404	24.21
346	PV	24	0.027	1.15	0.74	35	5.92	0.310	18.61
347	PV	24	0.029	1.54	0.89	27	5.20	0.419	25.17
348	PV	24	0.027	2.23	0.83	30	5.48	0.429	25.74
349	PV	24	0.031	0.59	0.41	27	5.20	0.232	13.92

LAG TIME CALCULATIONS FOR: SCATTER WASH FUTURE HYDROLOGY
100-YEAR FREQUENCY STORM

SUBBASIN	S-GRAPH SELECTED	24	Kn	L (miles)	Lca (miles)	S (ft/mile)	S^1/2	LAG (hours)	LAG (min.)
310	PV	24	0.039	1.36	0.64	282	16.79	0.304	18.24
311	PV	24	0.040	1.52	0.71	260	16.12	0.344	20.61
312	PV	24	0.020	2.17	0.91	36	6.00	0.315	18.88
313	PV	24	0.040	1.16	0.37	287	16.94	0.238	14.25
314	PV	24	0.020	1.36	0.86	55	7.42	0.238	14.28
315	PV	24	0.045	1.54	0.58	300	17.32	0.350	21.00
316	PV	24	0.029	0.99	0.51	63	7.94	0.244	14.66
317	PV	24	0.020	1.81	0.58	41	6.40	0.241	14.49
318	PV	24	0.020	1.15	0.44	36	6.00	0.188	11.25
319	PV	24	0.047	1.94	1.09	288	16.97	0.511	30.67
320	PV	24	0.043	1.74	0.72	218	14.76	0.404	24.25
321	PV	24	0.021	2.27	1.24	57	7.55	0.346	20.79
322	PV	24	0.020	0.92	0.34	61	7.81	0.141	8.48
323	PV	24	0.020	1.76	0.69	27	5.20	0.276	16.58
324	PV	24	0.035	0.75	0.46	290	17.03	0.191	11.45
325	PV	24	0.021	1.71	0.65	60	7.75	0.241	14.46
326	PV	24	0.02	2.01	0.9	37	6.08	0.303	18.17
327	PV	24	0.02	1.51	0.66	29	5.39	0.253	15.17
328	PV	24	0.02	1.38	0.52	32	5.66	0.219	13.14
329	PV	24	0.026	1.01	0.51	272	16.49	0.167	10.03
330	PV	24	0.022	1.15	0.65	31	5.57	0.246	14.77
331	PV	24	0.02	0.4	0.07	65	8.06	0.056	3.35
332	PV	24	0.037	1.14	0.43	226	15.03	0.242	14.51
333	PV	24	0.021	2.23	1.16	68	8.25	0.324	19.47
334	PV	24	0.02	1.43	0.87	24	4.90	0.285	17.11
335	PV	24	0.02	0.97	0.47	28	5.29	0.189	11.34
336	PV	24	0.02	0.63	0.35	25	5.00	0.147	8.80
337	PV	24	0.02	0.8	0.56	31	5.57	0.184	11.05
338	PV	24	0.021	1.41	0.54	27	5.20	0.243	14.58
339	PV	24	0.02	0.89	0.67	26	5.10	0.212	12.74
340	PV	24	0.02	1.06	0.45	27	5.20	0.194	11.62
341	PV	24	0.02	1.07	0.55	24	4.90	0.215	12.87
342	PV	24	0.024	0.67	0.35	27	5.20	0.177	10.65
343	PV	24	0.02	0.86	0.4	21	4.58	0.179	10.77
345	PV	24	0.02	1.76	1.02	26	5.10	0.323	19.37
346	PV	24	0.022	1.15	0.74	35	5.92	0.253	15.16
347	PV	24	0.023	1.54	0.89	27	5.20	0.333	19.96
348	PV	24	0.022	2.23	0.83	30	5.48	0.350	20.98
349	PV	24	0.026	0.59	0.41	27	5.20	0.195	11.67

SECTION IV

Hydrograph Routing Parameters

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 10-30-91	Job No. 0146
	Checked by	Date	Sheet No.
	For HEC-1 I.D. 311RR		

1. STAGE - STORAGE VALUES FOR C.A.P. STRUCTURE NO. 1

Stage (Ft.)	Interval (Ft.)	Area (Ac.)	Volume (Ac.-Ft.)	Storage Volume (Ac.-Ft.)
1512		0		0
	2		2.17	
1514		2.17		2.17
	2		9.44	
1516		7.27		11.61
	2		23.76	
1518		16.49		35.37
	2		45.73	
1520		29.24		81.10
	2		75.26	
1522		46.02		156.36

LOW LEVEL OUTLET

Diameter = 42 in.
Coefficient of Discharge = 0.6
Centerline Elevation = 15.62
Exponent of Head = 0.5
Area = 9.62 ft^2

SPILLWAY

Crest Elevation = 20.00
Length = 200 ft.
Weir Coefficient = 3.0
Exponent of Head = 1.5

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 10-30-91	Job No. 0146
	Checked by	Date	Sheet No.
	For HEC-1 I.D. 315RR		

2. STAGE-STORAGE VALUES FOR C.A.P. STRUCTURE NO. 2

Stage (Ft.)	Interval (Ft.)	Area (Ac.)	Volume (Ac.-Ft.)	Storage Volume (Ac.-Ft.)
1513		0		0
	1		0.25	
1514		0.49		0.25
	2		2.71	
1516		2.22		2.96
	2		7.21	
1518		4.99		10.17
	2		15.09	
1520		10.10		25.26
	2		26.38	
1522		16.28		51.64

LOW LEVEL OUTLET

Diameter = 29 in.
Area = 4.59 ft^2
Coefficient of Discharge = 0.6
Centerline Elevation = 14.84
Exponent of Head = 0.5

SPILLWAY

Crest Elevation = 21.00
Length = 50 ft.
Weir Coefficient = 3.0
Exponent of Head = 1.5

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 10-30-91	Job No. 0146
	Checked by	Date	Sheet No.
	For HEC-1 I.D. 317RR		

3. STAGE - STORAGE VALUES FOR C.A.P. STRUCTURE NO. 3

Stage (Ft.)	Interval (Ft.)	Area (Ac.)	Volume (Ac.-Ft.)	Storage Volume (Ac.-Ft.)
1513		0		0
	1		1.31	
1514		2.62		1.31
	2		11.87	
1516		9.25		13.18
	2		28.15	
1518		18.90		41.33
	2		49.11	
1520		30.21		90.44
	2		69.20	
1522		38.99		159.64

LOW LEVEL OUTLET

Diameter = 42 in.
Area = 9.62 ft^2
Coefficient of Discharge = 0.6
Centerline Elevation = 15.42
Exponent of Head = 0.5

SPILLWAY

Crest Elevation = 21.00
Length = 50 ft
Weir Coefficient = 3.0
Exponent of Head = 1.5

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 10-30-91	Job No. 0146
	Checked by	Date	Sheet No.
	For		

4. STAGE-STORAGE VALUES FOR C.A.P. STRUCTURE NO. 4

Stage (Ft.)	Interval (Ft.)	Area (Ac.)	Volume (Ac.-Ft.)	Storage Volume (Ac.-Ft.)
1513		0		0
	1		0.58	
1514		1.16		0.58
	2		7.45	
1516		6.29		8.03
	2		20.18	
1518		13.89		28.21
	2		26.25	
1520		26.36		54.46
	2		67.20	
1522		40.84		121.66

LOW LEVEL OUTLET

Diameter = 36 in.
Area = 7.07 ft.²
Coefficient of Discharge = 0.6
Centerline Elevation = 14.76
Exponent of Head = 0.5

SPILLWAY

Crest Elevation = 20.00
Length = 50 ft.
Weir Coefficient = 3.0
Exponent of Head = 1.5

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 1-8-92	Job No. 0146
	Checked by	Date	Sheet No.
	For HEC-1 ID 320RR		

4(a). STAGE-STORAGE VALUES FOR C.A.P. STRUCTURES NO. 4 & 5

Stage (Ft.)	Interval (Ft.)	Area (Ac.)	Volume (Ac.-Ft.)	Storage Volume (Ac.-Ft.)
1513		0		0
	1		0.58	
1514		1.16		0.58
	2		11.84	
1516		10.68		12.42
	2		36.30	
1518		25.62		48.72
	2		70.73	
1520		45.11		119.45
	2		110.88	
1522		65.77		230.33

LOW-LEVEL OUTLET

Diameter = 36 in. & 29 in.
Area = 11.66 ft²
Coefficient of Discharge = 0.6
Centerline Elevation = 14.80
Exponent Head = 0.5

SPILLWAY

Crest Elevation = 20
Length = 200 ft
Weir Coefficient = 3.0
Exponent of Head = 1.5

Discharge Relationship ~ HEC-1 ID 320RE

	ELEV.	15	16	18	20	22	24
Str. #4	$Q_{36''}$	0	8	35	60	76	90
Str. #5	$Q_{29''}$	0	5	28	42	52	60
	Q_{TOT}	0	13	63	102	128	150

Q's based on HEC-5

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 10-30-91	Job No. 0146
	Checked by	Date	Sheet No.
	For		

5. STAGE - STORAGE VALUES FOR C.A.P. STRUCTURE NO. 5

Stage (Ft.)	Interval (Ft.)	Area (Ac.)	Volume (Ac.-Ft.)	Storage Volume (Ac.-Ft.)
1514		0		0
	2		4.39	
1516		4.39		4.39
	2		16.12	
1518		11.73		20.51
	2		30.48	
1520		18.75		50.99
	2		43.68	
1522		24.93		94.67

LOW LEVEL OUTLET

Diameter = 29 in.
Area = 4.59 ft²
Coefficient of Discharge = 0.6
Centerline Elevation = 15.00
Exponent of Head = 0.5

SPILLWAY

Crest Elevation = 20.20
Length = 150 ft.
Weir Coefficient = 3.0
Exponent of Head = 1.5

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 1-8-92	Job No. 0146
	Checked by	Date	Sheet No.
	For HEC-1 I.D. 323RR		

STAGE-STORAGE VALUES FOR DETENTION BASIN AT THE NORTHEAST CORNER OF 19TH AVE. & PINNACLE PEAK RD.

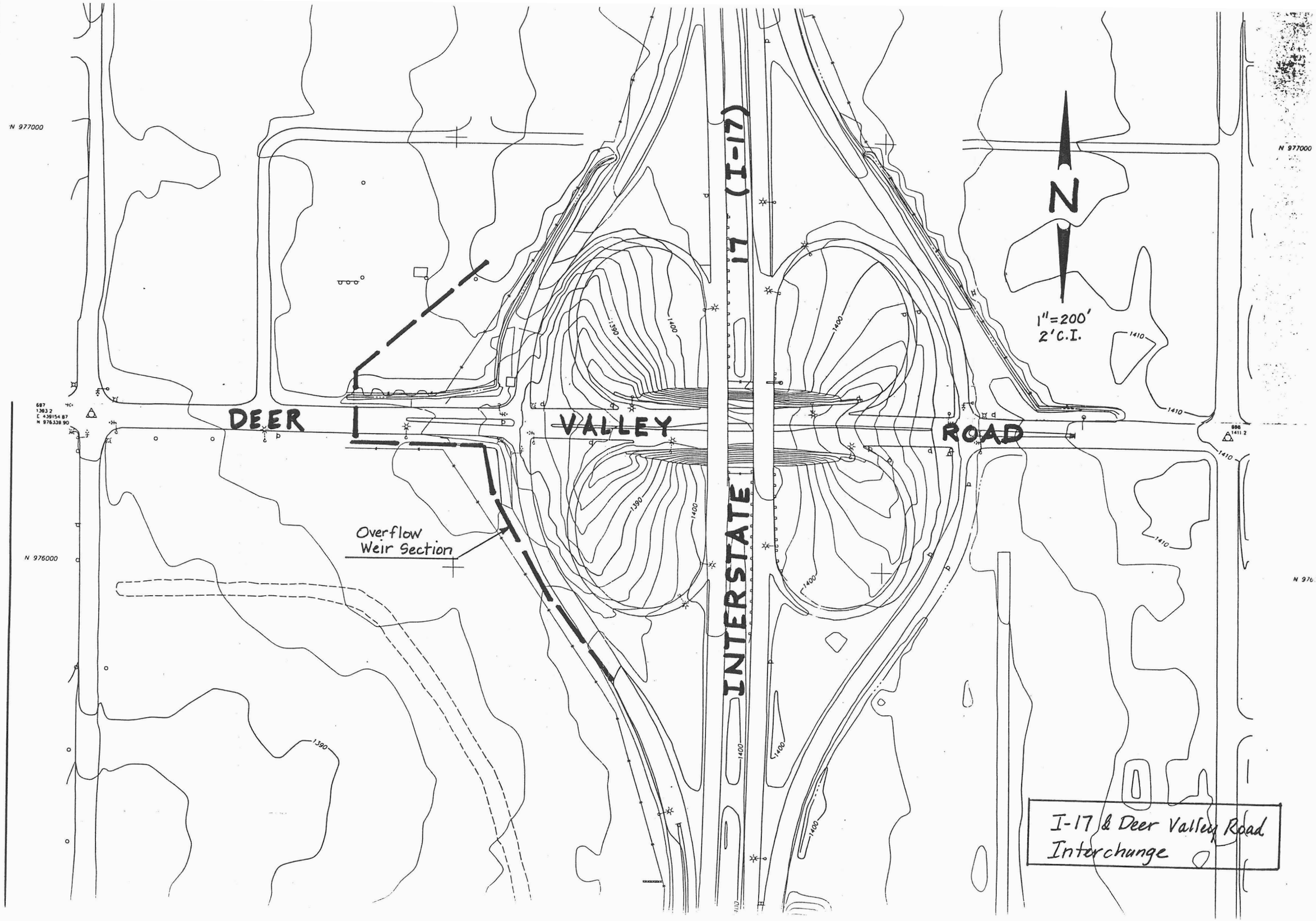
Stage (Ft.)	Planimeter Reading (in^2)	Average Reading (in^2)	Area (Ac.)	Volume (Ac-Ft)	Storage Volume (Ac-Ft.)
1436.10	ϕ	ϕ	ϕ		ϕ
				0.51	
1438	0.15 0.30 0.44	0.147	0.54		0.51
				3.34	
1440	0.77 1.53 2.29	0.763	2.80		3.85
				8.90	
1442	1.65 3.31 4.98	1.660	6.10		12.75
				16.58	
1444	2.86 5.70 8.56	2.853	10.48		29.33
				28.49	
1446	4.92 9.80 14.71	4.903	18.01		57.82

LOW LEVEL OUTLET

Diameter = 3 - 16" x 25" CMP Arch
Area = 3 x 2.2 ft^2 = 6.6 ft^2
Centerline Elevation = 1437.65
Coefficient of Discharge = 0.6
Exponent of Head = 0.5

SPILLWAY

Crest Elevation = 1445
Length = 100
Weir Coefficient = 3.0
Exponent of Head = 1.5


N 977000
N 977000
N 976000
N 976
DEER
VALLEY
ROAD
INTERSTATE 17 (I-17)
N
1"=200'
2'C.I.
Overflow
Weir Section
1390
1400
1410
I-17 & Deer Valley Road
Interchange

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 2-11-94	Job No. 146
	Checked by	Date	Sheet No.
	For		

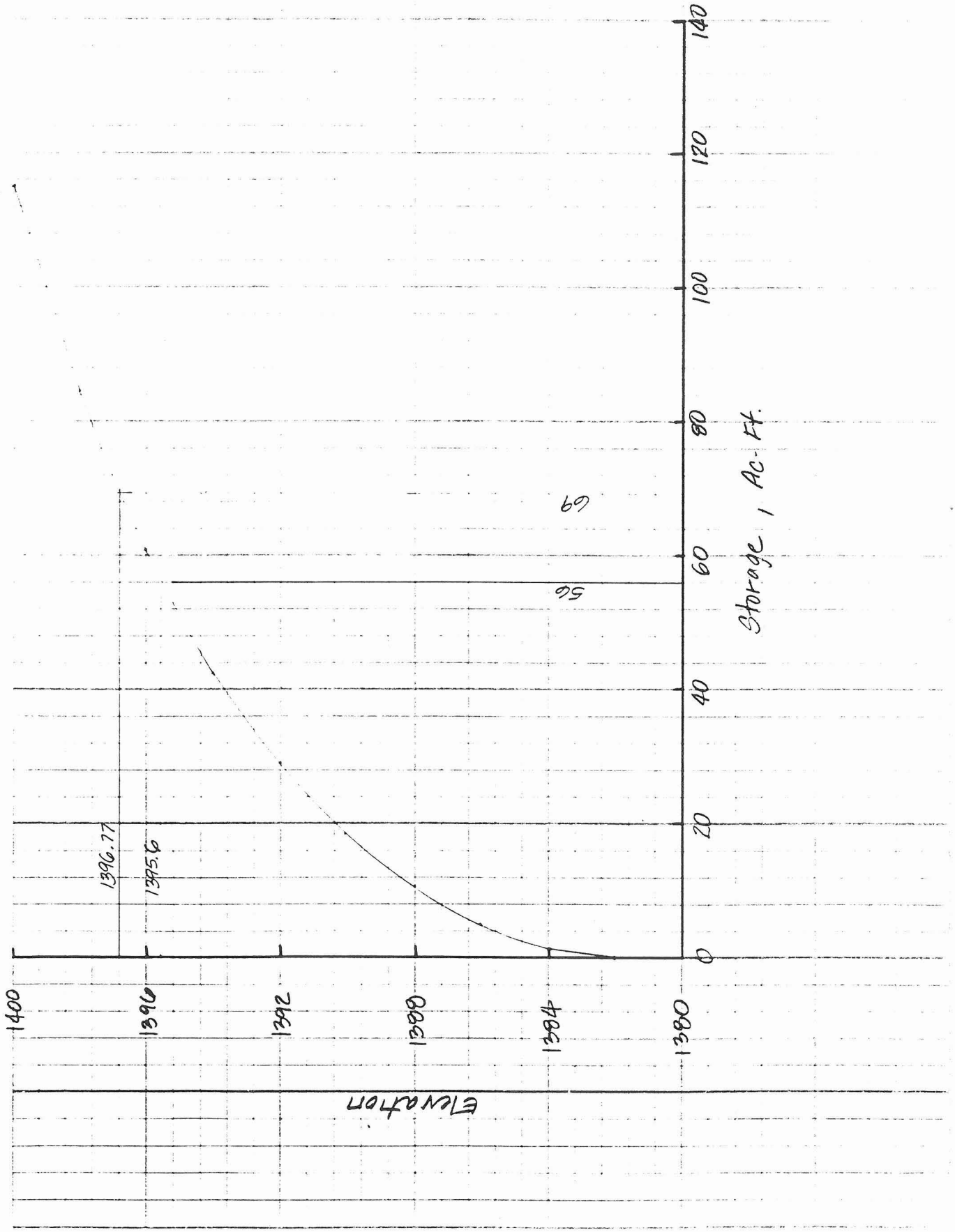
Reservoir Routing @ I-17 & Deer Valley Road

1"=200' contour mapping

Stage (Ft)	Planimeter Reading (in^2)	Average Reading (in^2)	Area (Ac.)	Volume (Ac-Ft)	Storage Volume (Ac-Ft)	Outflow Discharge (cfs)
1382	0	0	0	1.39	0	0
1384	1.52 3.04 4.54	1.513	1.390	3.71	1.39	0
1386	2.53 5.07 7.58	2.527	2.320	5.64	5.10	0
1388	3.60 7.22 10.85	3.617	3.320	7.81	10.74	0
1390	4.89 9.79 14.68	4.893	4.493	10.36	18.55	0
1392	6.39 12.78 19.18	6.393	5.871	13.57	28.91	0
1394	8.40 16.77 25.16	8.387	7.701	18.24	42.48	0
1395.6					Interpolated 56	1
1396	11.48 22.97 34.45	11.483	10.54	23.80	60.72	56
1396.77					Interpolated 69	1,428
1398	14.45 28.89 43.32	14.44	13.26	30.30	84.52	7,646
1400	18.58 37.15 55.68	18.56	17.04		114.82	26,741

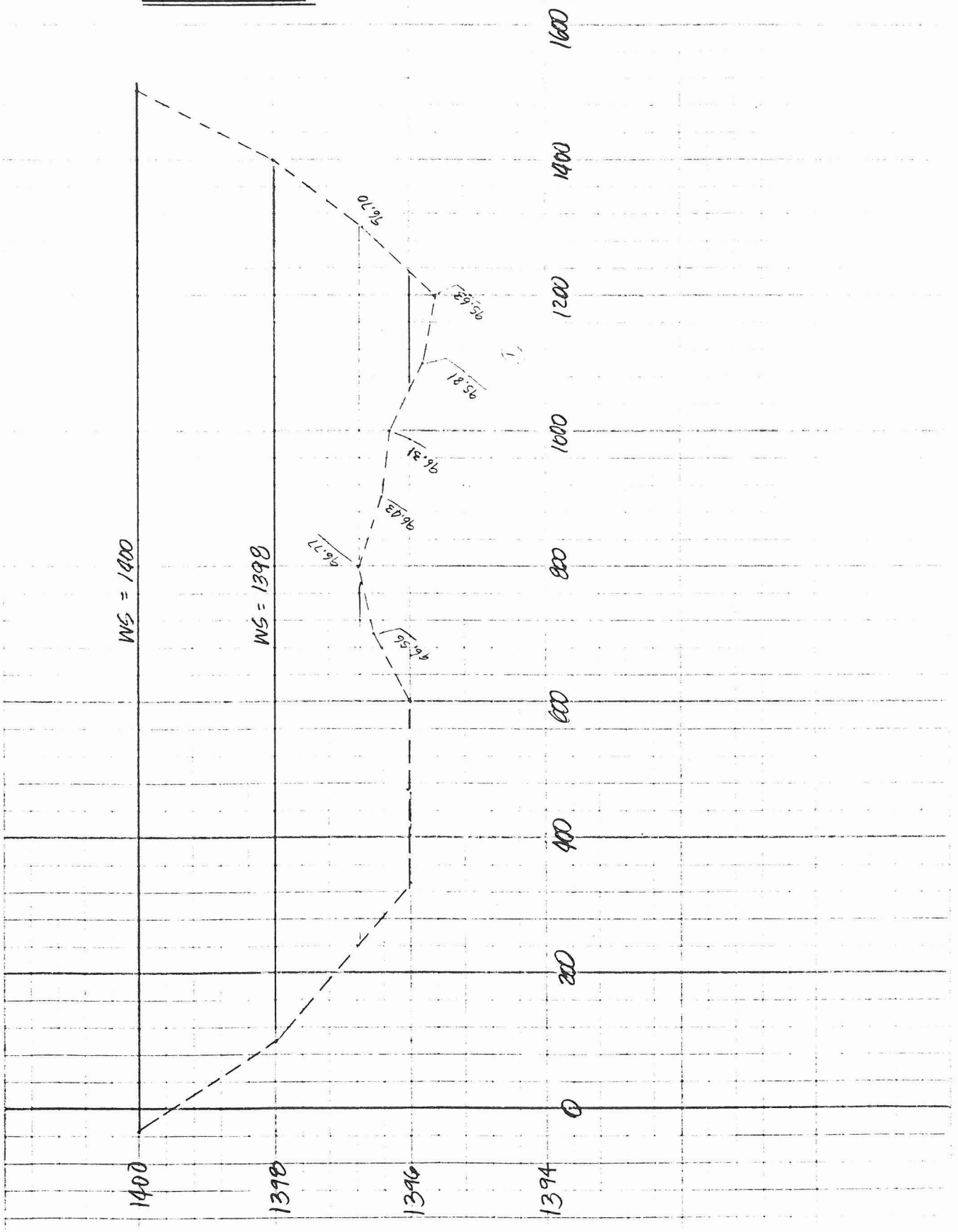
KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 2-11-94	Job No. 146
	Checked by	Date	Sheet No.
	For		

Stage / Storage Curve I-17 & Deer Valley Rd. T.I.



KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 8-11-94	Job No. 146
	Checked by	Date	Sheet No.
	For		

Overflow Spillway Section For I-17 & Deer Valley Road T.I.



KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 2-11-99	Job No. 146
	Checked by	Date	Sheet No.
	For		

Overflow Spillway Calculations

Elev. = 1396

$$Q = (3.0)\left[(40)(0.19/2)^{1.5} + (100)\left(\frac{0.19+0.37}{2}\right)^{1.5} + (35)(0.37/2)^{1.5}\right]$$

$= 56$ CFS

Elev. = 1396.77

$$Q_1 = (3.0)\left[(100)(0.34/2)^{1.5} + (100)\left(\frac{0.34+0.46}{2}\right)^{1.5} + (100)\left(\frac{0.46+0.96}{2}\right)^{1.5} + (100)\left(\frac{0.96+1.14}{2}\right)^{1.5} + (100)(1.07/2)^{1.5}\right]$$

$= 717$ CFS

$$Q_2 = (3.0)\left[(85)(0.77/2)^{1.5} + (265)(0.77)^{1.5} + (100)\left(\frac{0.77+0.21}{2}\right)^{1.5} + (100)(0.21/2)^{1.5}\right]$$

$= 711$ CFS.

Total $Q = 717 + 711 = 1{,}428$ CFS

Elev. = 1398

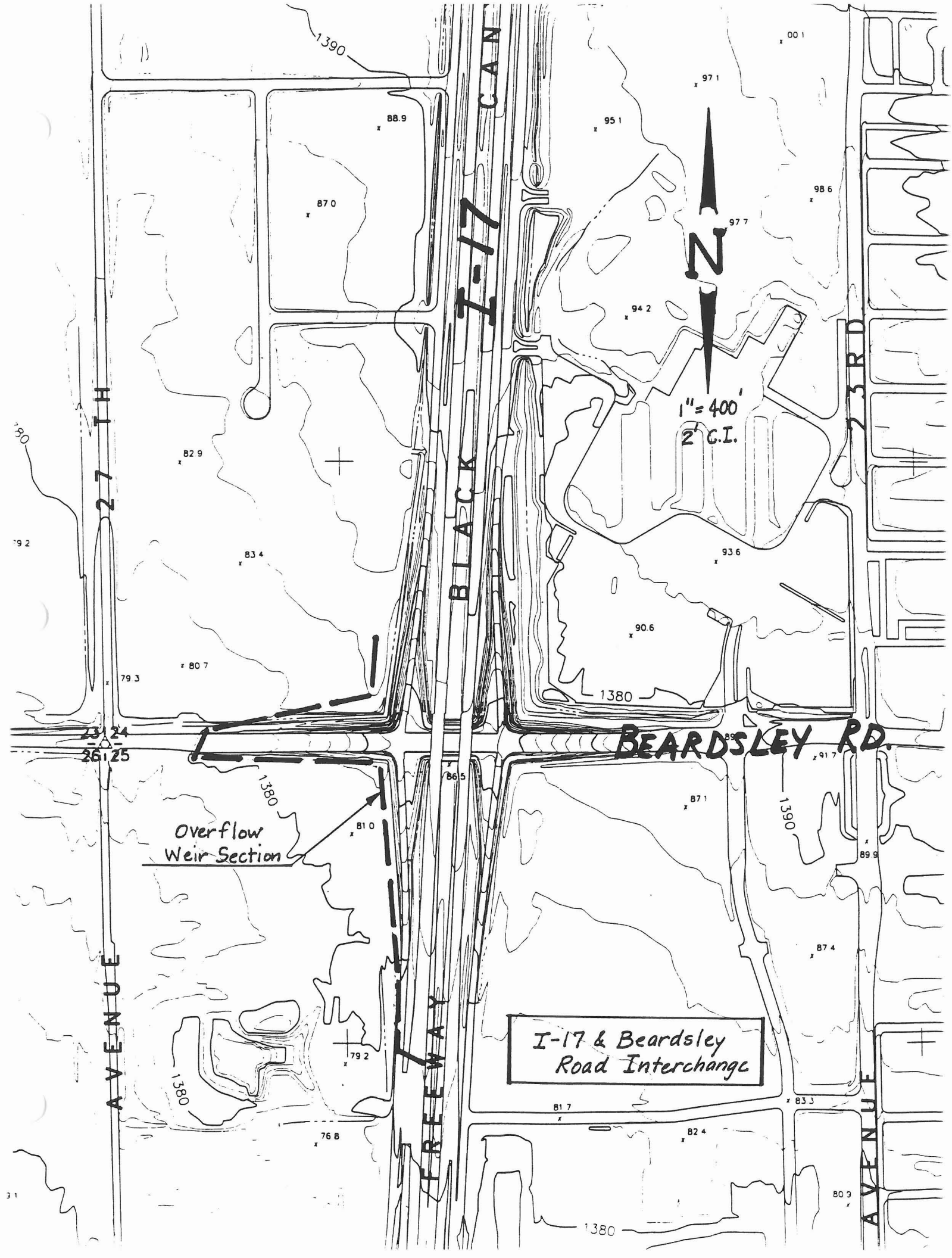
$$Q = (3.0)\left[(230)(2/2)^{1.5} + (265)(2)^{1.5} + (100)\left(\frac{2+1.44}{2}\right)^{1.5} + (100)\left(\frac{1.44+1.23}{2}\right)^{1.5} + (200)\left(\frac{1.23+1.69}{2}\right)^{1.5} + (200)\left(\frac{1.69+2.37}{2}\right)^{1.5} + (200)(2.37/2)^{1.5}\right]$$

$= 7{,}646$ CFS

Elev. = 1400

$$Q = (3.0)\left[(130)(2/2)^{1.5} + (230)\left(\frac{2+4}{2}\right)^{1.5} + (265)(4)^{1.5} + (100)\left(\frac{4+3.44}{2}\right)^{1.5} + (100)\left(\frac{3.44+3.23}{2}\right)^{1.5} + (200)\left(\frac{3.23+3.69}{2}\right)^{1.5} + (200)\left(\frac{3.69+4.37}{2}\right)^{1.5} + (200)\left(\frac{4.37+2}{2}\right)^{1.5} + (100)(2/2)^{1.5}\right]$$

$= 26{,}741.$ CFS


I-17
BLACK CAN
FREEWAY
27TH AVENUE
23RD AVENUE
BEARDSLEY RD.
N
1" = 400'
2' C.I.
Overflow Weir Section
I-17 & Beardsley Road Interchange
1390
1380
23 24
26 25
00.1
97.1
95.1
98.6
97.7
94.2
93.6
90.6
88.9
87.0
82.9
83.4
80.7
79.3
79.2
91.7
89.9
87.1
87.4
86.5
81.0
79.2
76.8
81.7
82.4
83.3
80.3

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 9-2-94	Job No. 146
	Checked by	Date	Sheet No. 1
	For Reservoir Route @ I-17 & Beardsley Rd.		

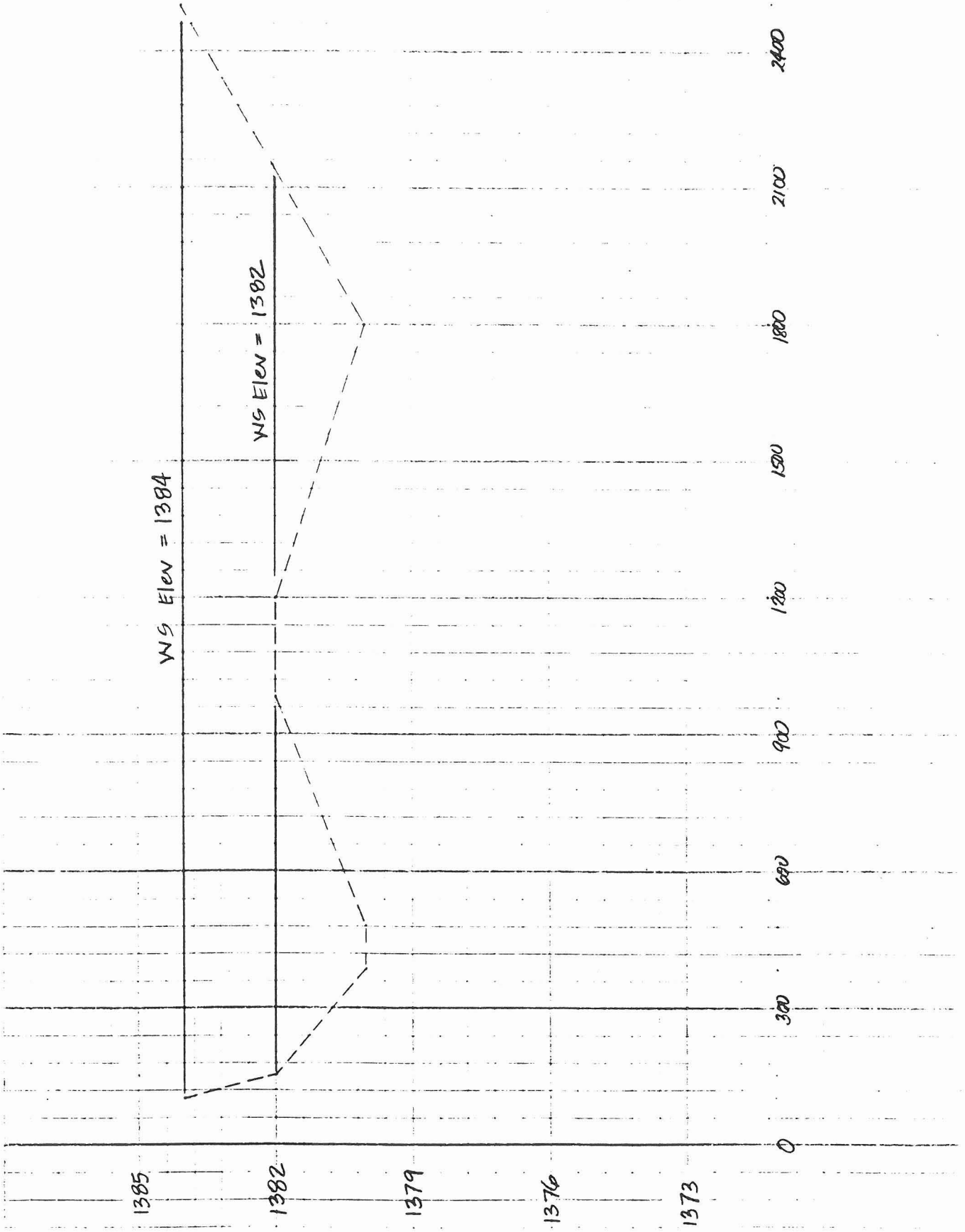
RESERVOIR ROUTING AT I-17 & BEARDSLEY ROAD

1" = 400'
Contour Mapping

Stage (Ft)	Planimeter Reading (in^2)	Average Reading (in^2)	Area (Ac.)	Volume (Ac-Ft)	Storage Volume (Ac-Ft)	Outflow Discharge (cfs)
1367	0	0	0	0.50	0	0
1368	0.27 0.55 0.82	0.273	1.004	2.98	0.50	0
1370	0.53 1.07 1.61	0.537	1.971	4.85	3.48	0
1372	0.79 1.58 2.35	0.783	2.877	14.72	8.33	0
1376	1.19 2.41 3.66	1.220	4.481	22.97	23.05	0
1380	1.90 3.81 5.72	1.907	7.003	16.24	46.02	0
1382	2.52 5.00 7.54	2.513	9.232	19.88	62.26	5,804
1384	2.92 5.80 8.70	2.900	10.652		82.14	31,500

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 9-2-94	Job No. 146
	Checked by	Date	Sheet No. 2
	For Reservoir Route @ I-17 & Beardsley Rd.		

OVERFLOW SPILLWAY SECTION AT I-17 & BEARDSLEY RD.



KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLE	Date 9-2-96	Job No. 146
	Checked by	Date	Sheet No. 3
	For Reservoir Route @ I-17 & Beardsley Rd.		

Overflow Spillway Calculations

WS Elev. = 1382

$$Q = (3.0)\left[(230)\left(\frac{2}{2}\right)^{1.5} + (90)(2)^{1.5} + (500)\left(\frac{2}{2}\right)^{1.5} + (600)\left(\frac{2}{2}\right)^{1.5} + (350)\left(\frac{2}{2}\right)^{1.5}\right]$$

$$= 5{,}804 \text{ cfs}$$

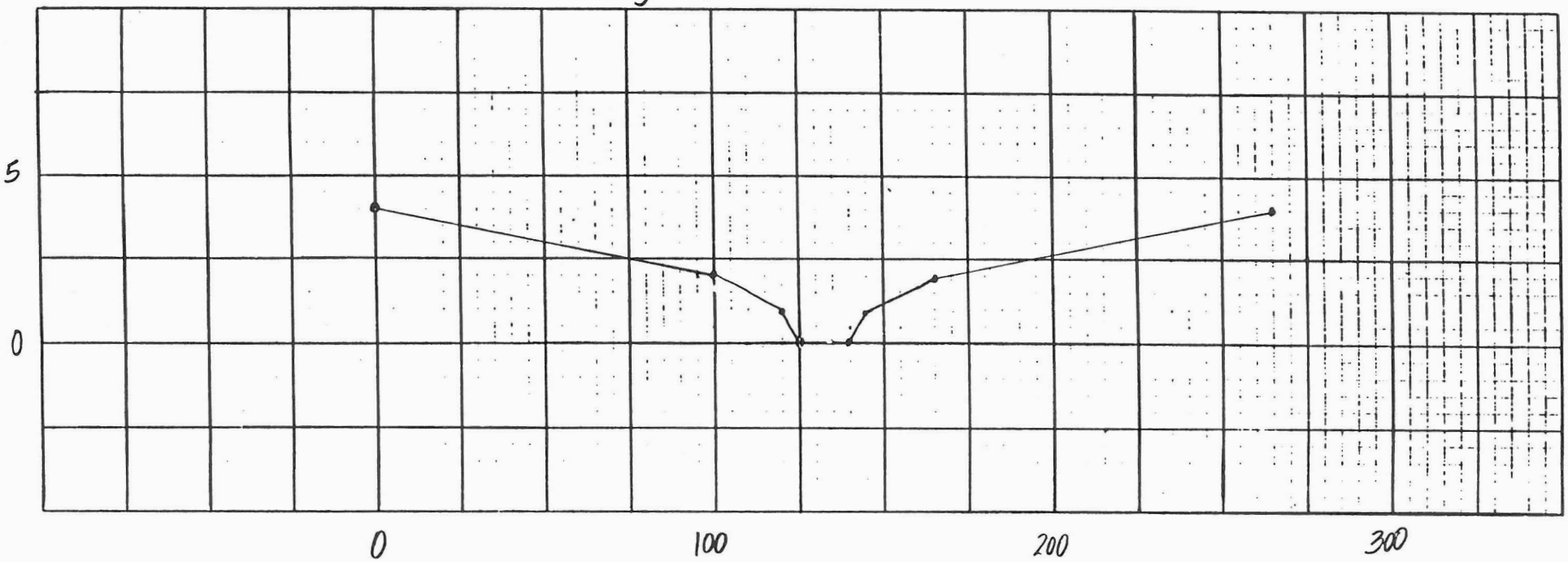
WS Elev. = 1384

$$Q = (3.0)\left[(50)\left(\frac{2}{2}\right)^{1.5} + (230)\left(\frac{2+4}{2}\right)^{1.5} + (90)(4)^{1.5} + (500)\left(\frac{4+2}{2}\right)^{1.5} + (230)(2)^{1.5} + (600)\left(\frac{2+4}{2}\right)^{1.5} + (350)\left(\frac{4+2}{2}\right)^{1.5} + (350)\left(\frac{2}{2}\right)^{1.5}\right]$$

$$= 31{,}500 \text{ cfs}$$

ROUTE IDENTIFICATION NUMBER RM311

Route 311RR through 312



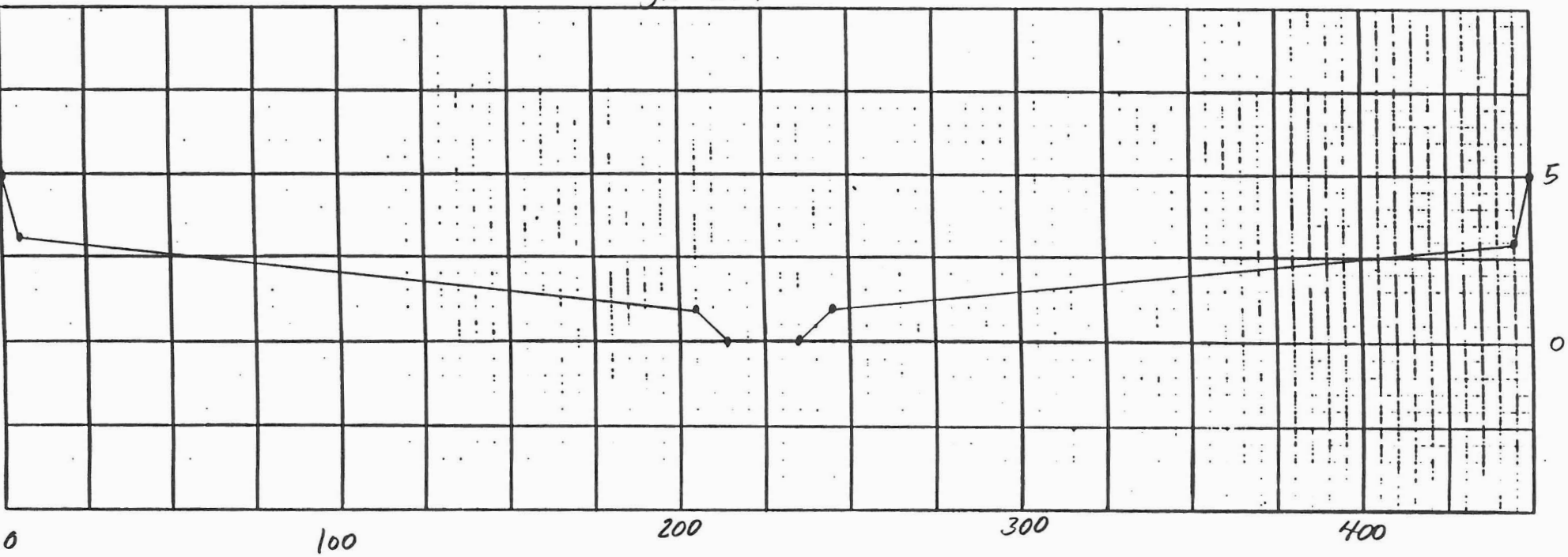
RD ~~BS~~								
RC	0.05	0.04	0.05	8800	0.0085			
RX	0	100	120	125	140	145	165	265
RY	4	2	1	0	0	1	2	4

CALCULATED BY: D.L.B.

1-3-92

ROUTE IDENTIFICATION NUMBER RM312

Route 312C through 314



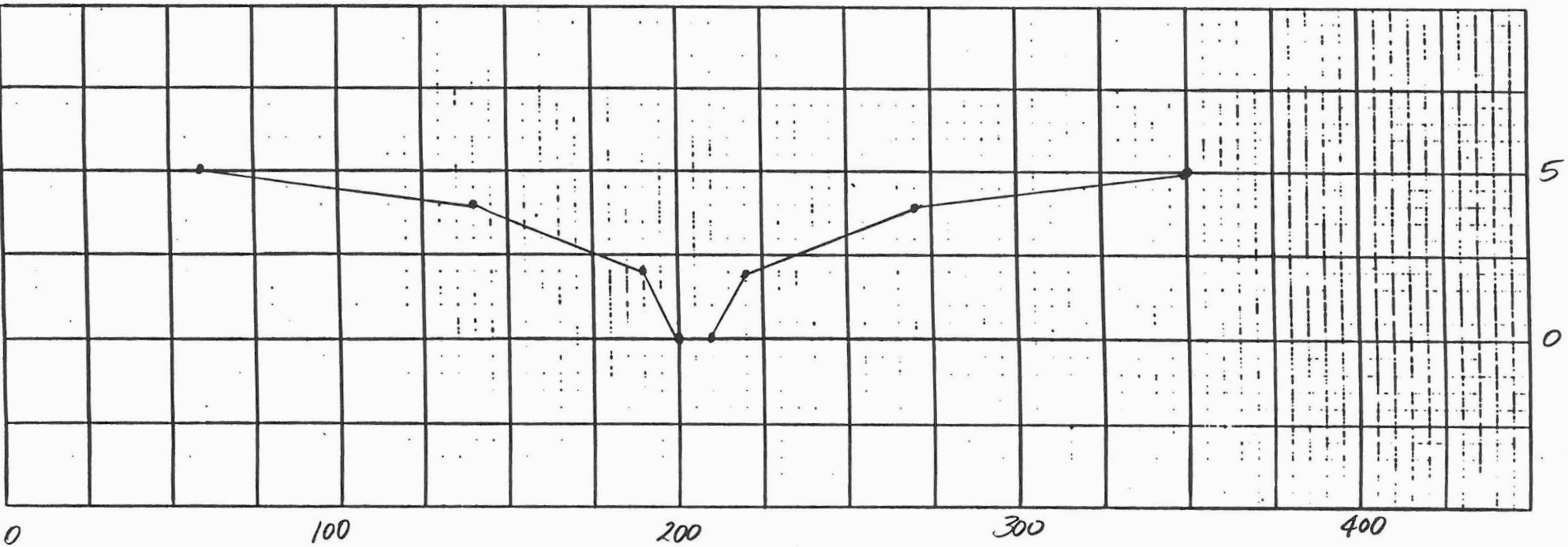
~~RS~~ RD								
RC	0.05	0.04	0.05	4640	0.0060			
RX	0	5	205	215	235	245	445	450
RY	5	3	1	0	0	1	3	5

CALCULATED BY: Per Coe & Van Loo, Route 30

1-3-92

ROUTE IDENTIFICATION NUMBER RM315

Route 315 through 316



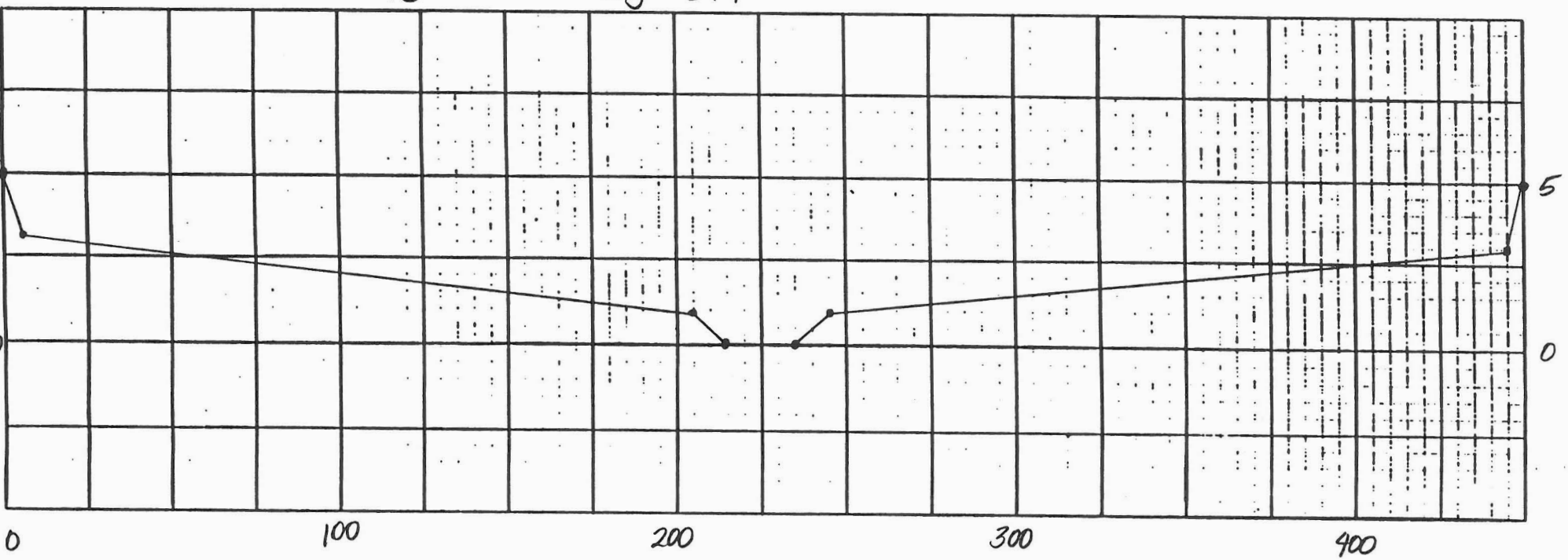
RD ~~BS~~								
RC	0.05	0.04	0.05	7480	0.0099			
RX	60	140	190	200	210	220	270	350
RY	5	4	2	0	0	2	4	5

CALCULATED BY: DLB

1-3-92

ROUTE IDENTIFICATION NUMBER RM316

Route 316C through 314



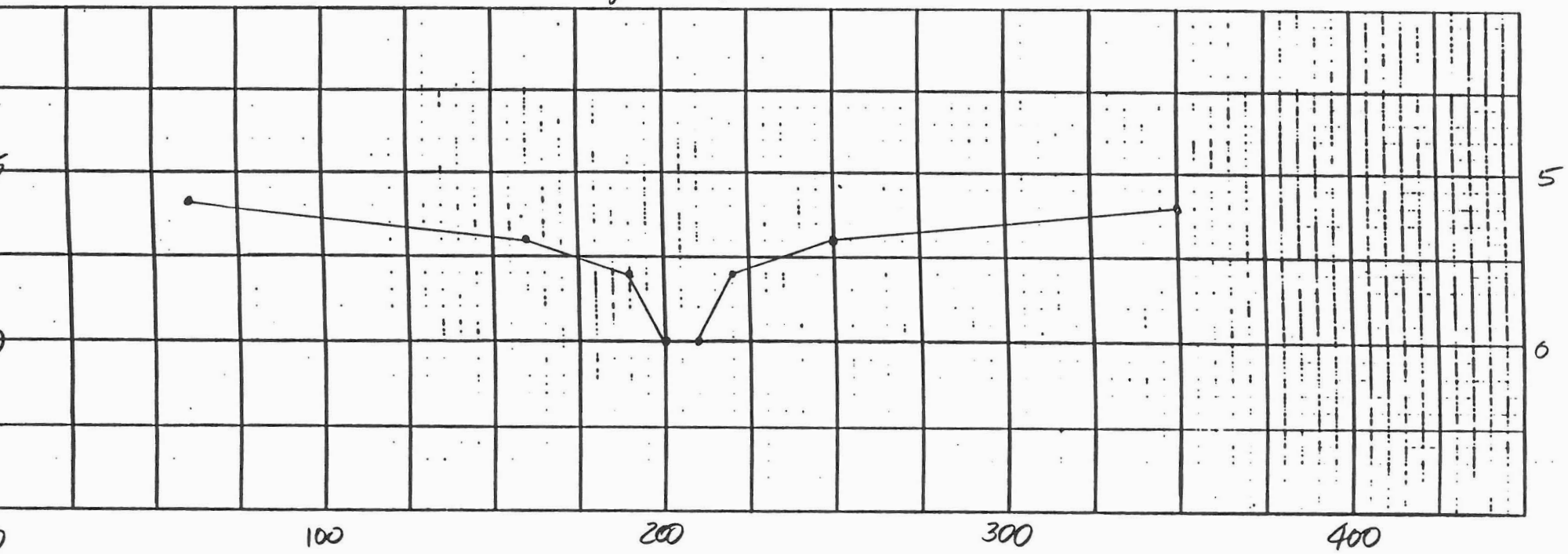
RD ~~BS~~								
RC	0.05	0.04	0.05	4720	0.0059			
RX	0	5	205	215	235	245	445	450
RY	5	3	1	0	0	1	3	5

CALCULATED BY: Per Coe & Van Loo, Route 30

1-3-92

ROUTE IDENTIFICATION NUMBER RM317

Route 317C through 319



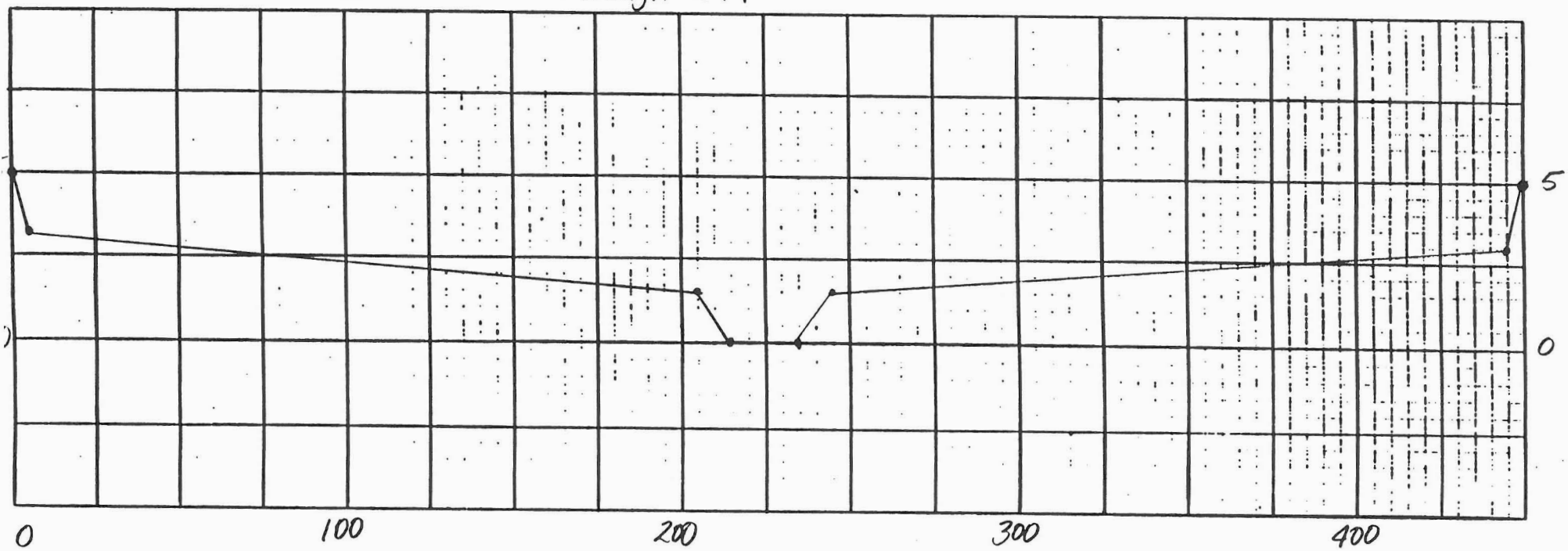
RD ~~RS~~								
RC	0.05	0.04	0.05	5000	0.0116			
RX	60	160	190	200	210	220	250	350
RY	4	3	2	0	0	2	3	4

CALCULATED BY: DLB

1-3-92

ROUTE IDENTIFICATION NUMBER RM 319

Route 319C through 314



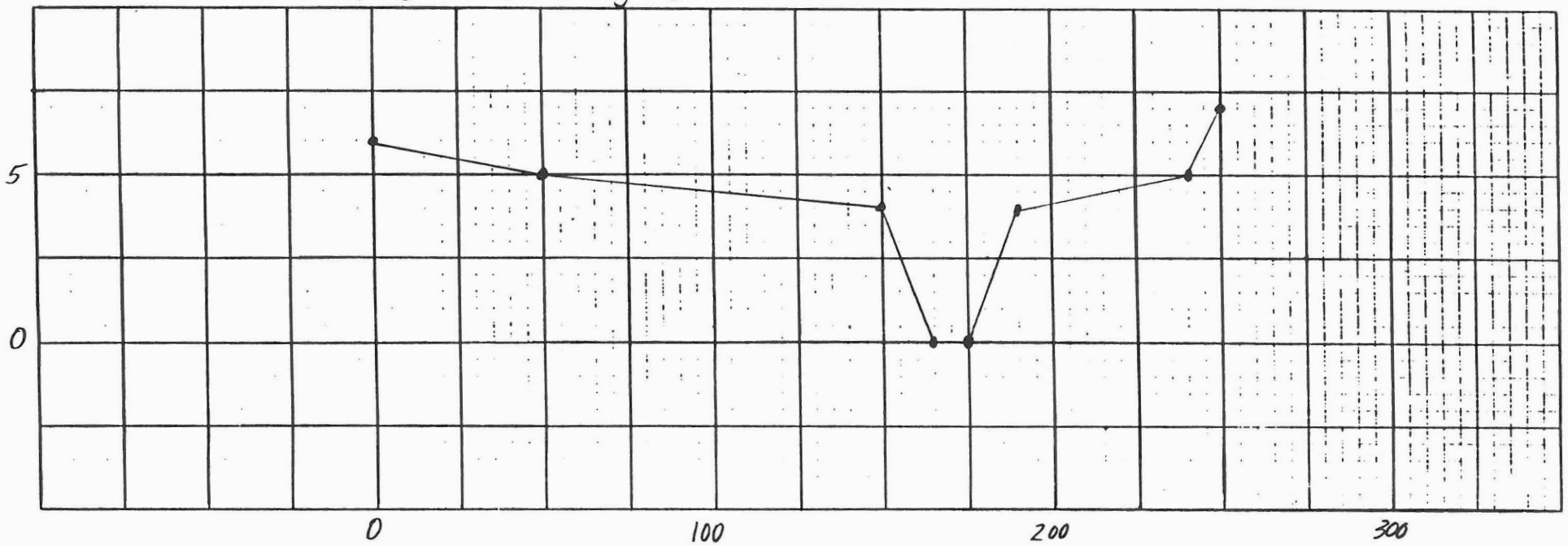
RD ~~RS~~								
RC	0.05	0.04	0.05	6360	0.0066			
RX	0	5	205	215	235	245	445	450
RY	5	3	1.5	0	0	1.5	3	5

CALCULATED BY: DLB

1-3-92

ROUTE IDENTIFICATION NUMBER RM314

Route 314C through 322



RD ~~BS~~								
RC	0.05	0.04	0.05	1920	0.0026			
RX	6	5	4	0	0	4	5	7
RY	0	50	150	165	175	190	240	250

CALCULATED BY: DLD

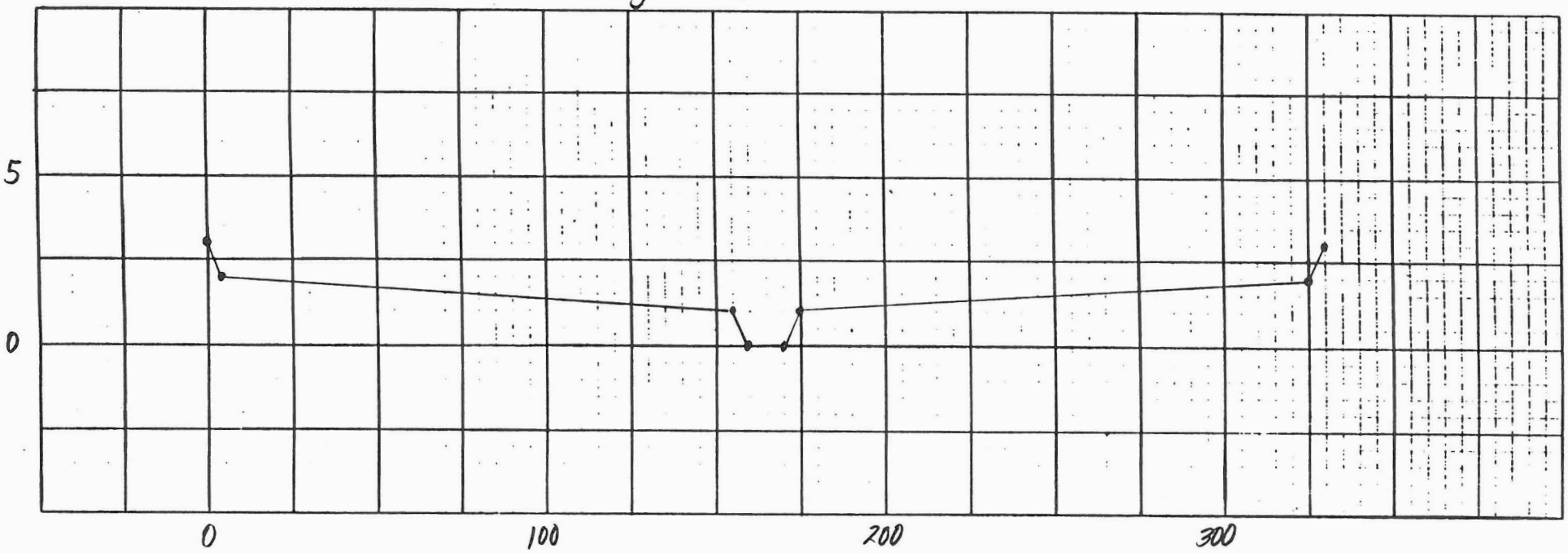
8-6-91

✓ 1-3-92

* Taken From Coe & Van Loo Report For Skunk Creek (Route # 85).

ROUTE IDENTIFICATION NUMBER RM 320

Route 320C through 321



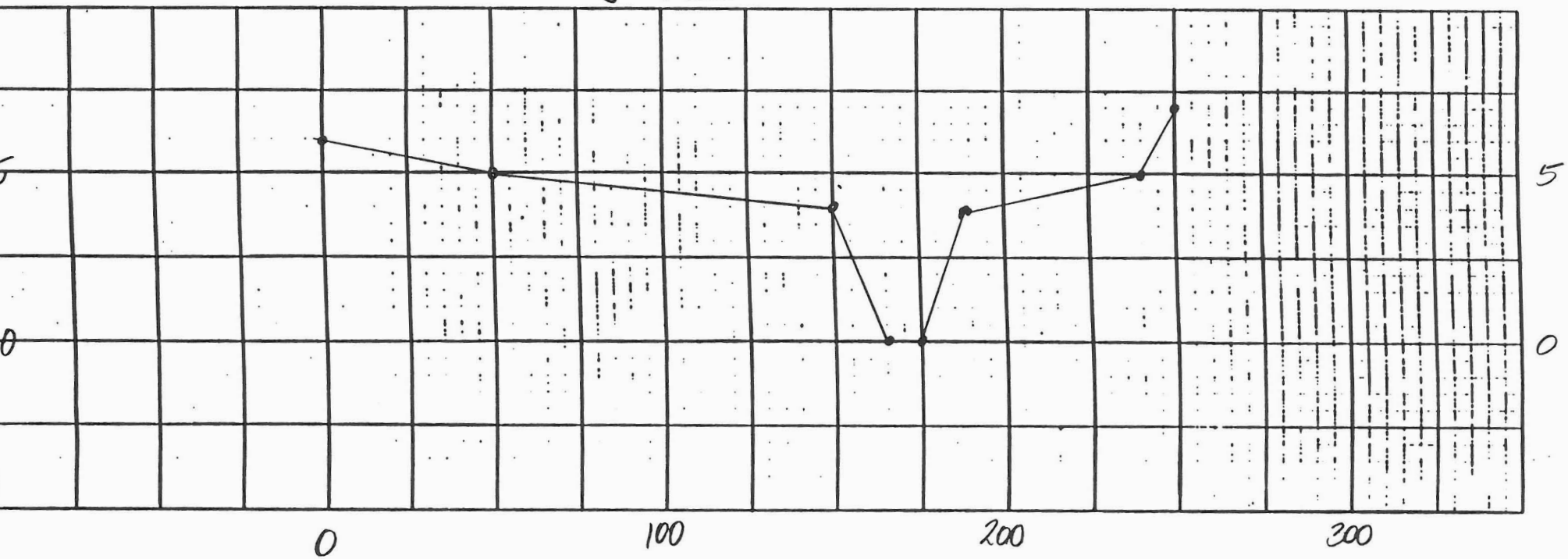
RD BS								
RC	0.05	0.04	0.05	11,160	0.0085			
RX	0	5	155	160	170	175	325	330
RY	3	2	1	0	0	1	2	3

CALCULATED BY: DLB
8-6-91
✓ 1-3-92

* Taken From Coe & Van Loo Report For Skunk Creek (Route # 105)

ROUTE IDENTIFICATION NUMBER RM321

Route 321 through 322



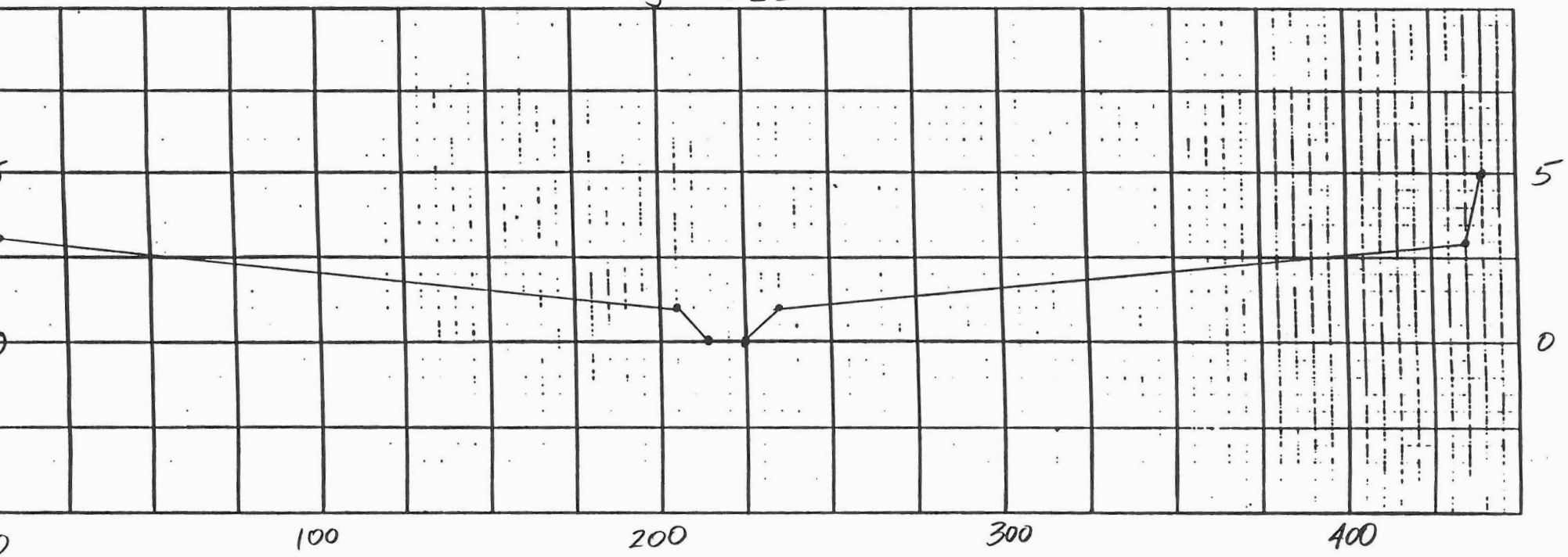
RD ~~BS~~								
RC	0.05	0.04	0.05	2760	0.0051			
RX	6	5	4	0	0	4	5	7
RY	0	50	150	165	175	190	240	250

CALCULATED BY: DLB

Per Coe & VanLao, Route 85
1-3-92

ROUTE IDENTIFICATION NUMBER RM323

Route 323 through 322



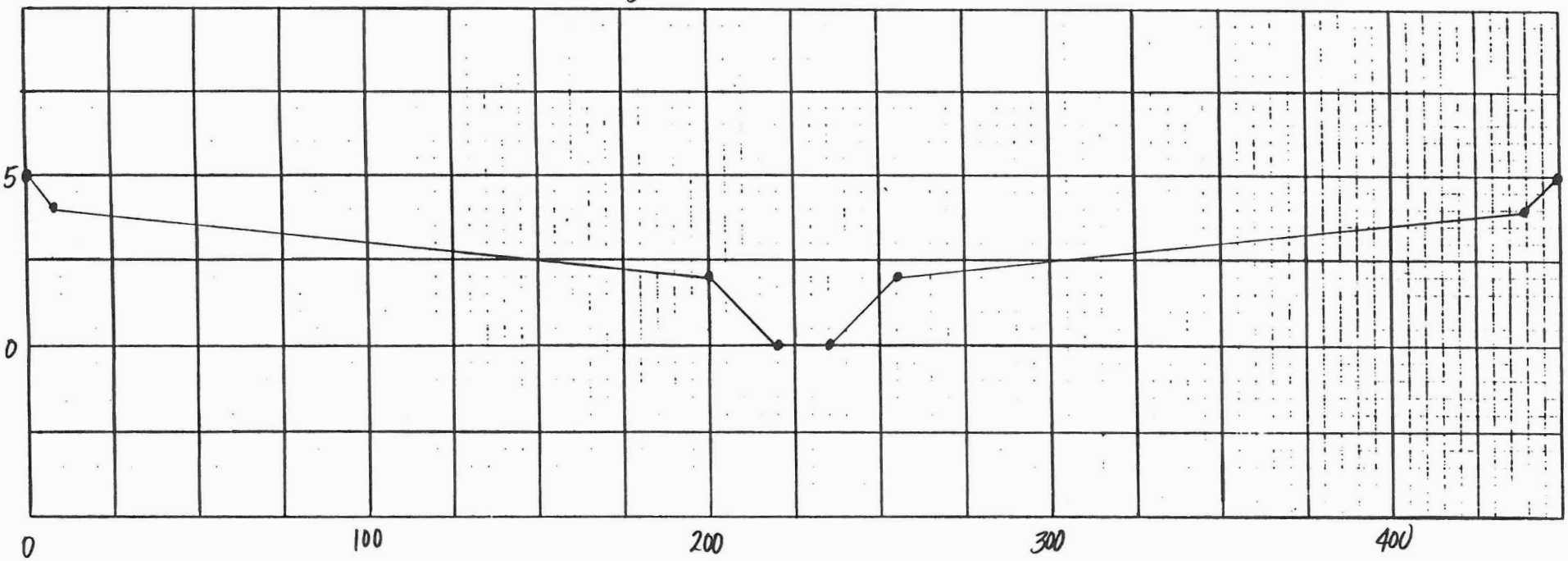
RD ~~BS~~								
RC	0.05	0.04	0.05	5200	0.0063			
RX	0	5	205	215	225	235	435	440
RY	5	3	1	0	0	1	3	5

CALCULATED BY: DLB

1-3-92

ROUTE IDENTIFICATION NUMBER RM320

Route 320 C through 325



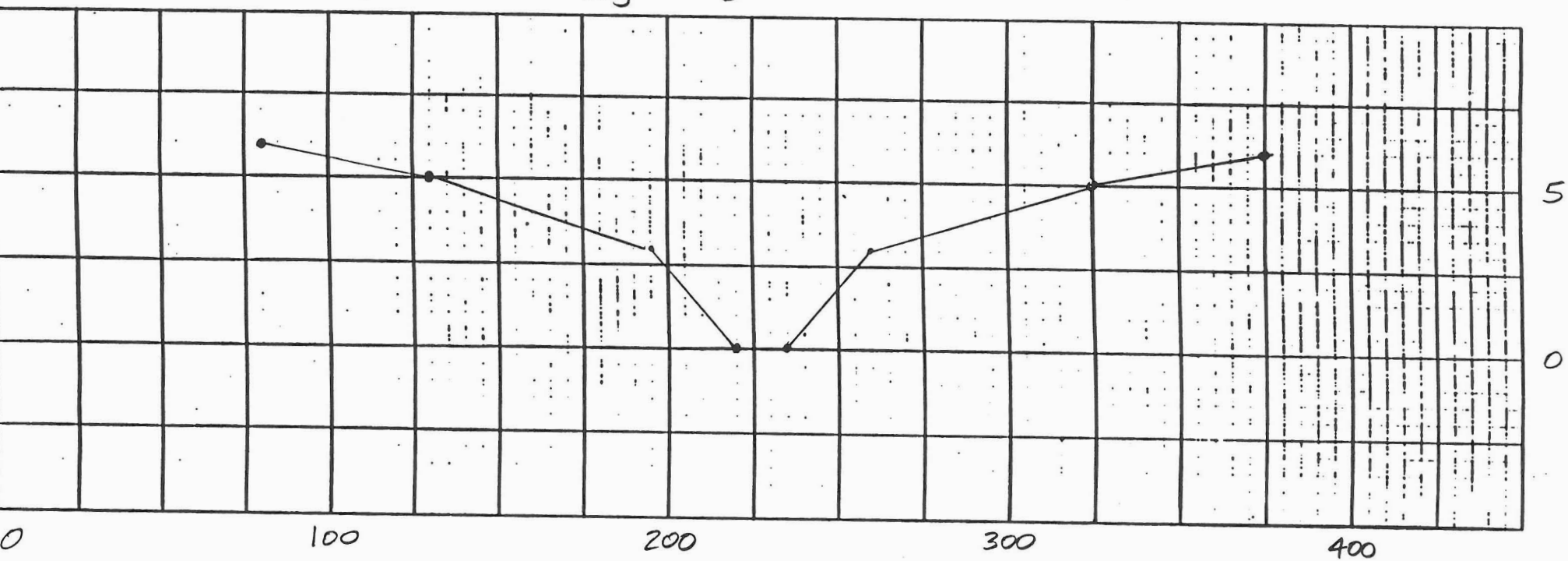
~~DS~~ RD								
RC	0.05	0.04	0.05	8560	0.0082			
RX	0	10	200	220	235	255	440	450
RY	5	4	2	0	0	2	4	5

CALCULATED BY: DLB

✓ 8-6-91
1-3-92

ROUTE IDENTIFICATION NUMBER RM 325

Route 325 through 326



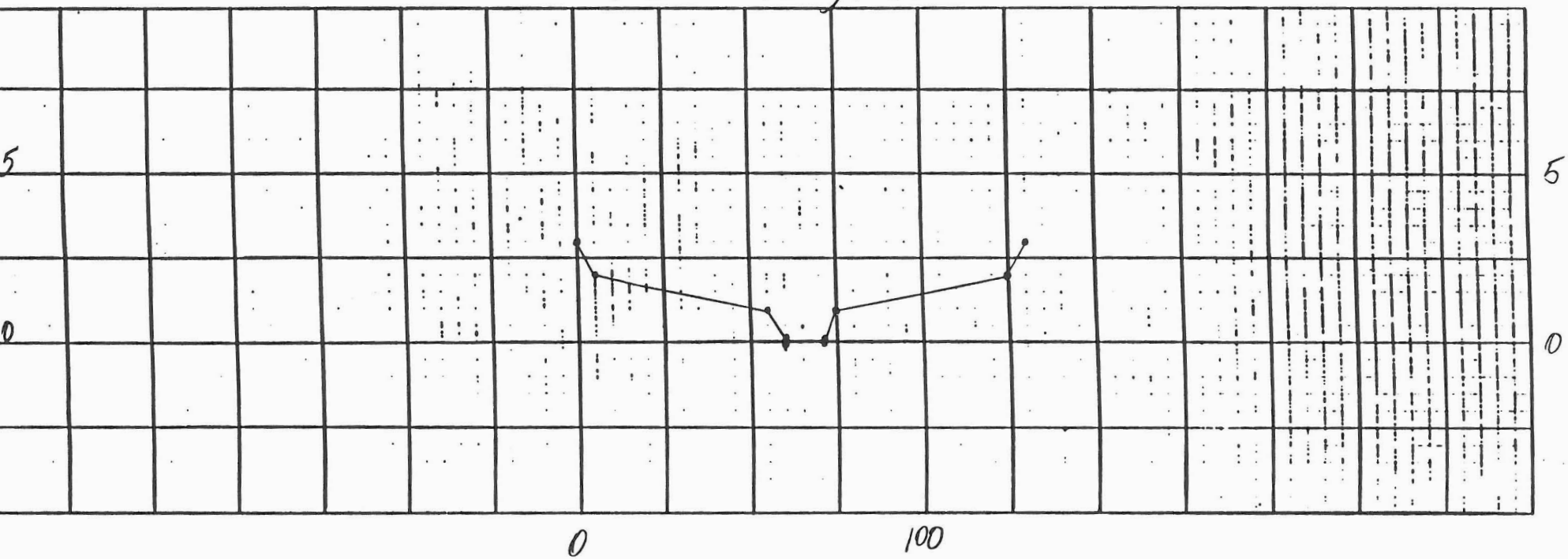
RD								
~~RS~~								
RC	0.05	0.04	0.05	6200	0.0068			
RX	80	130	195	220	235	260	325	375
RY	6	5	3	0	0	3	5	6

CALCULATED BY: DLB

1-3-92

ROUTE IDENTIFICATION NUMBER RM332

Route Overflow From 332 through 335



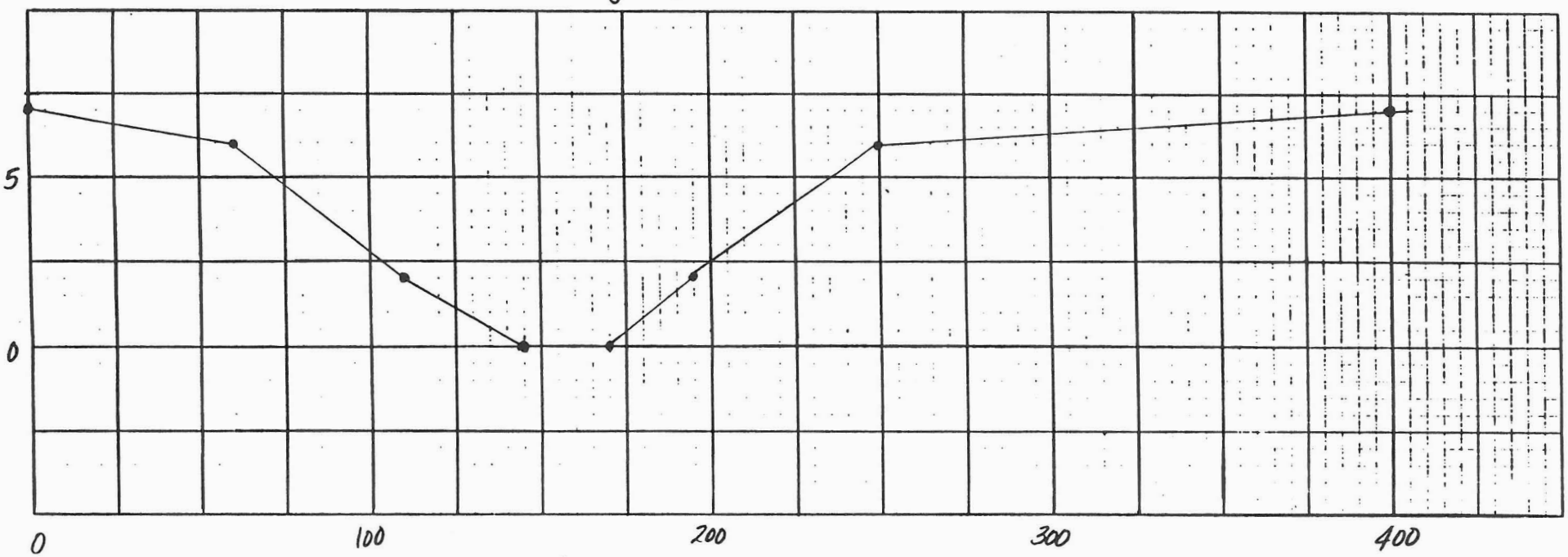
~~RC~~ RD								
RC	0.045	0.040	0.045	5760	0.0068			
RX	0	5	55	60	70	75	125	130
RY	3	2	1	0	0	1	2	3

CALCULATED BY: DLB 1-6-92

Per Coe & Van Loo, Route 240

ROUTE IDENTIFICATION NUMBER RM 333

Route 333C through 334



Scatter Wash - North of Deer Valley Rd.

RD								
~~BG~~								
RC	0.055	0.045	0.055	5160	0.0056			
RX	0	60	110	145	170	195	250	400
RY	7	6	2	0	0	2	6	7

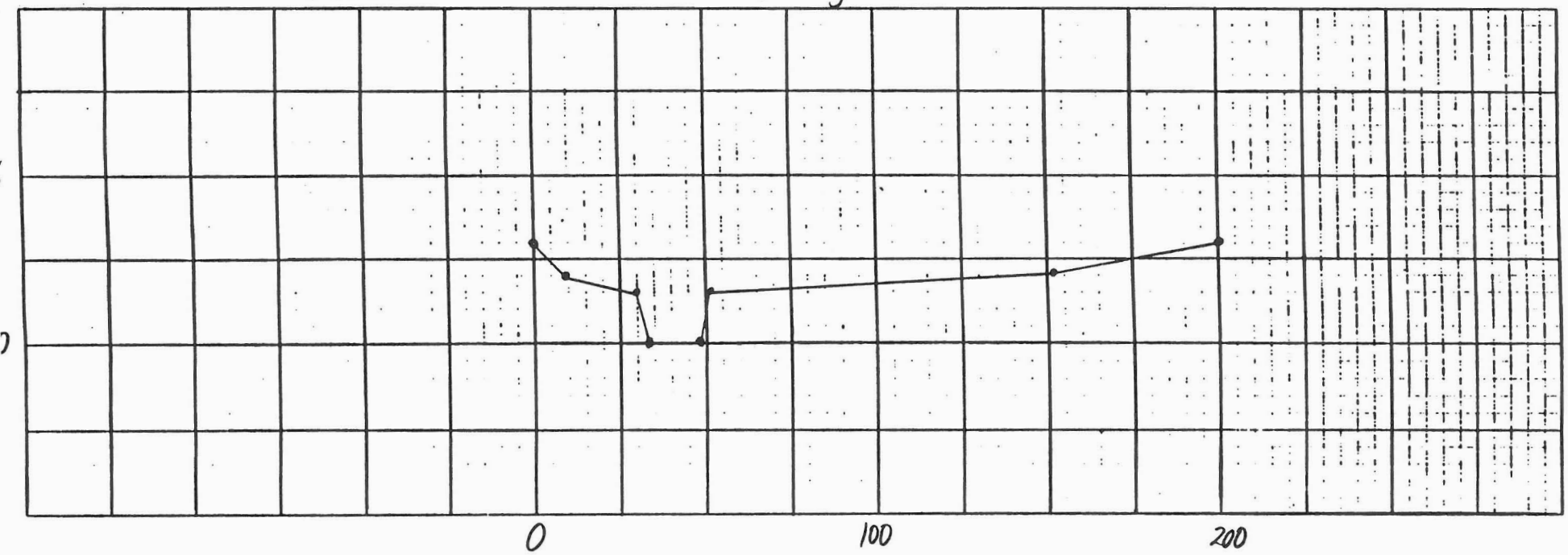
CALCULATED BY: DLB

8-7-91

✓ 1-3-92

ROUTE IDENTIFICATION NUMBER RM 327

Route Diversion From 327 through 334



RD ~~RS~~								
RC	0.05	0.04	0.05	5100	0.0073			
RX	0	10	30	33	48	51	151	200
RY	3.0	2.0	1.5	0	0	1.5	2.0	3.0

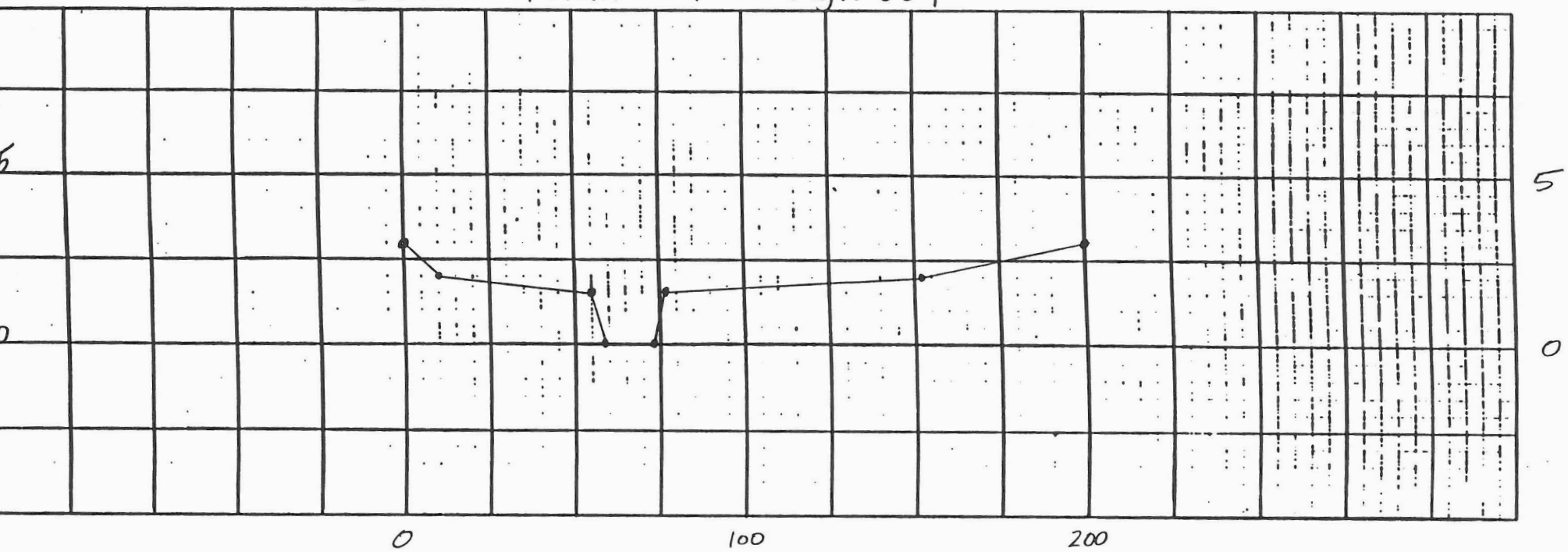
CALCULATED BY: DLB

8-7-91

✓ 1-3-92

ROUTE IDENTIFICATION NUMBER RM 331

Route Diversion from 331 through 334



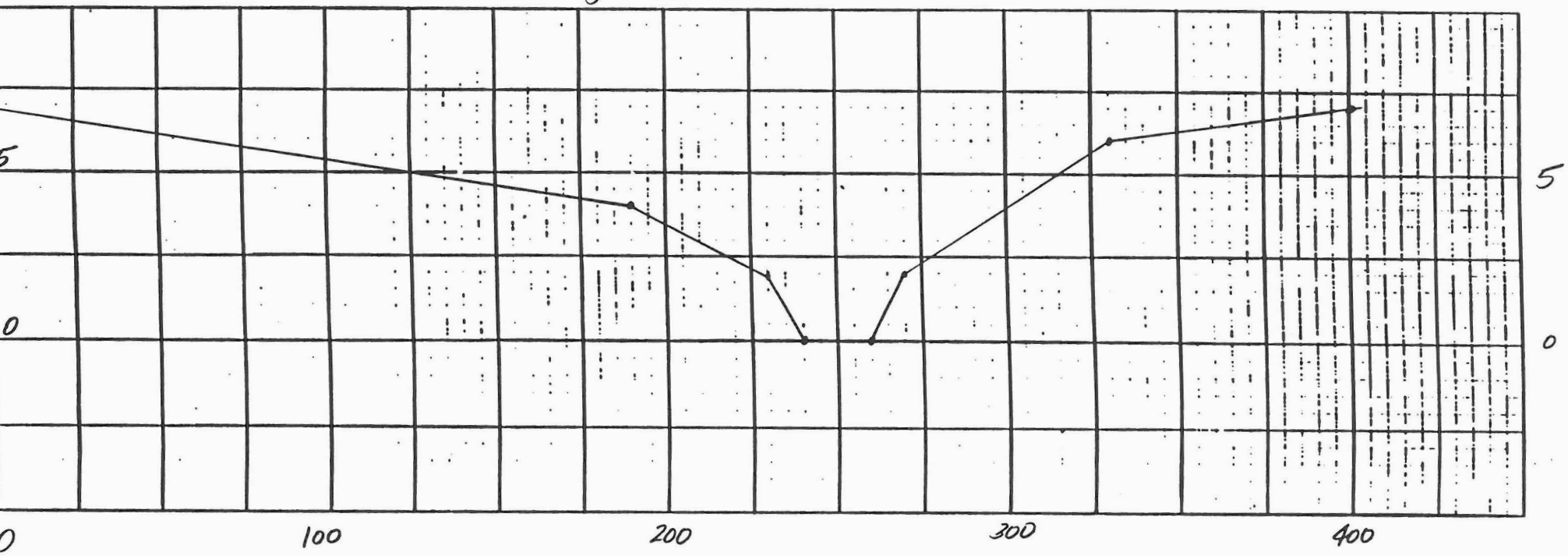
RD ~~BS~~								
RC	0.03	0.045	0.045	5000	0.0070			
RX	0	10	30	33	48	51	151	200
RY	3	2	1.5	0	0	1.5	2	3

CALCULATED BY: DLB

1-3-92

ROUTE IDENTIFICATION NUMBER RM 334

Route 334C through 335



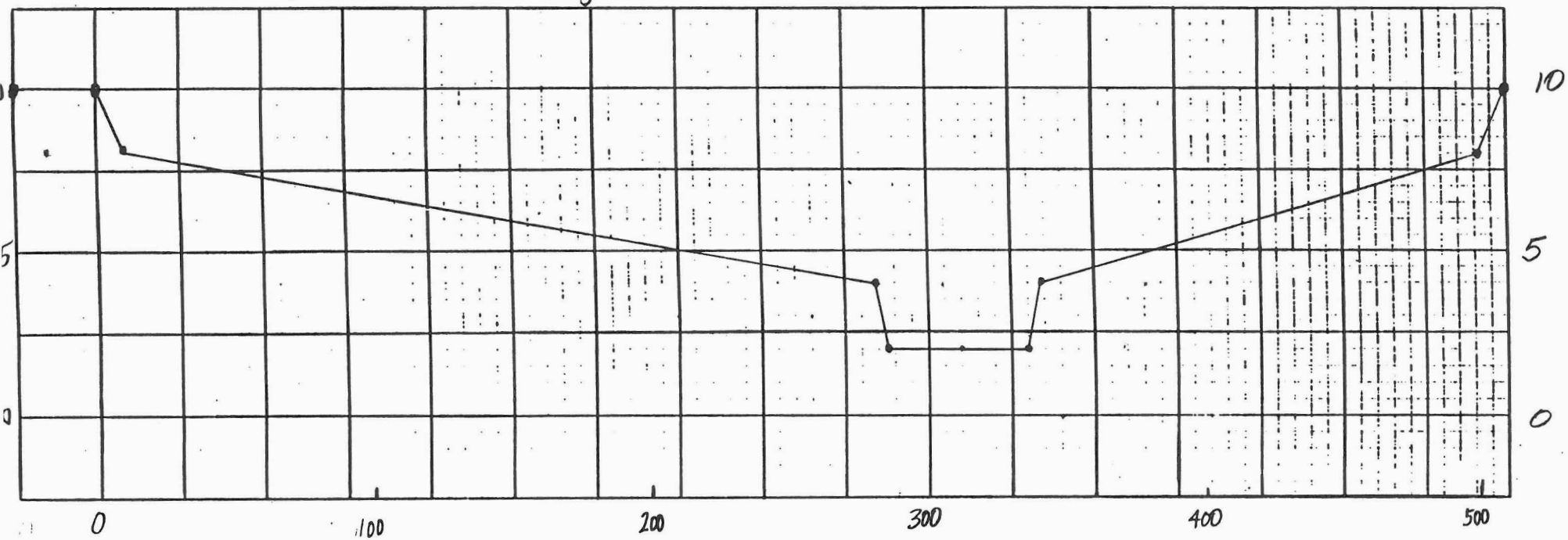
~~RS~~ RD								
RC	0.050	0.045	0.050	2980	0.0044			
RX	0	190	230	240	260	270	330	400
RY	7	4	2	0	0	2	6	7

CALCULATED BY: DLB

1-6-92

ROUTE IDENTIFICATION NUMBER RM335

Route 335C through 345



Scatter Wash - North of Beardsley Rd.

RD ~~RS~~								
RC	0.05	0.04	0.05	4240	0.0061			
RX	0	10	280	285	335	340	500	510
RY	10	8	4	2	2	4	8	10

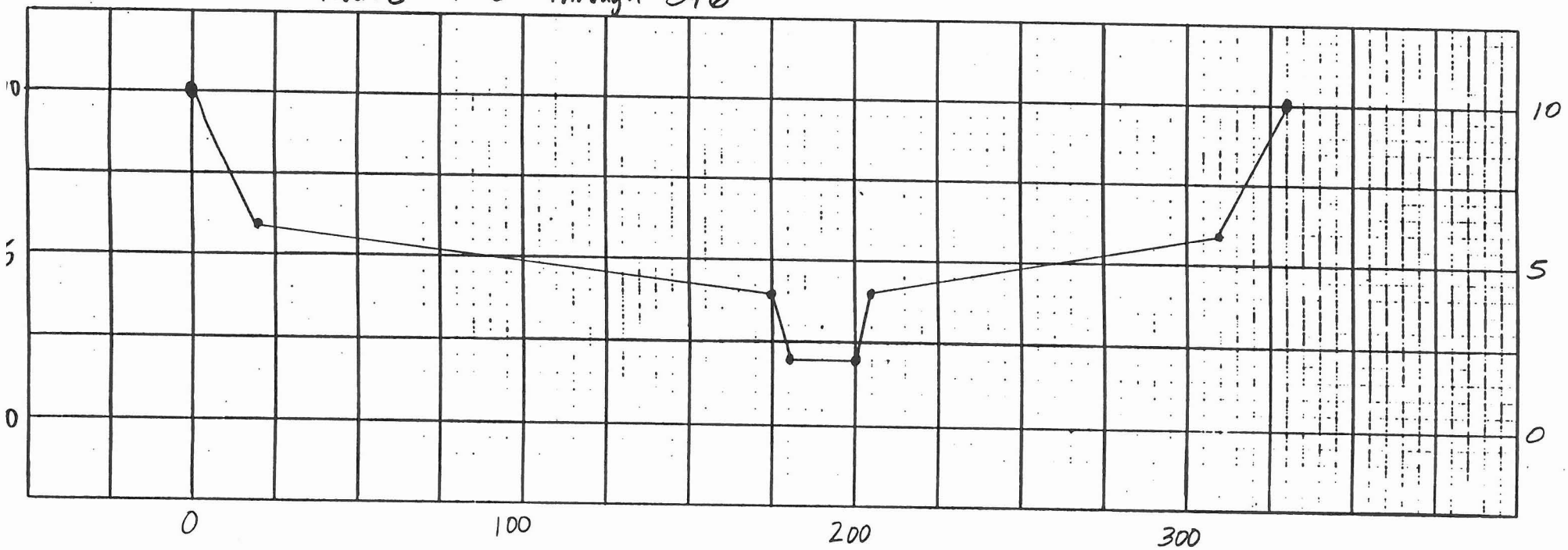
CALCULATED BY: DLB

8-8-91

✓1-6-92

ROUTE IDENTIFICATION NUMBER RM345

Route 345C through 346



RD								
~~RG~~								
RC	0.055	0.045	0.055	6200	0.0045			
RX	0	20	175	180	200	205	310	330
RY	10	6	4	2	2	4	6	10

CALCULATED BY: DLB

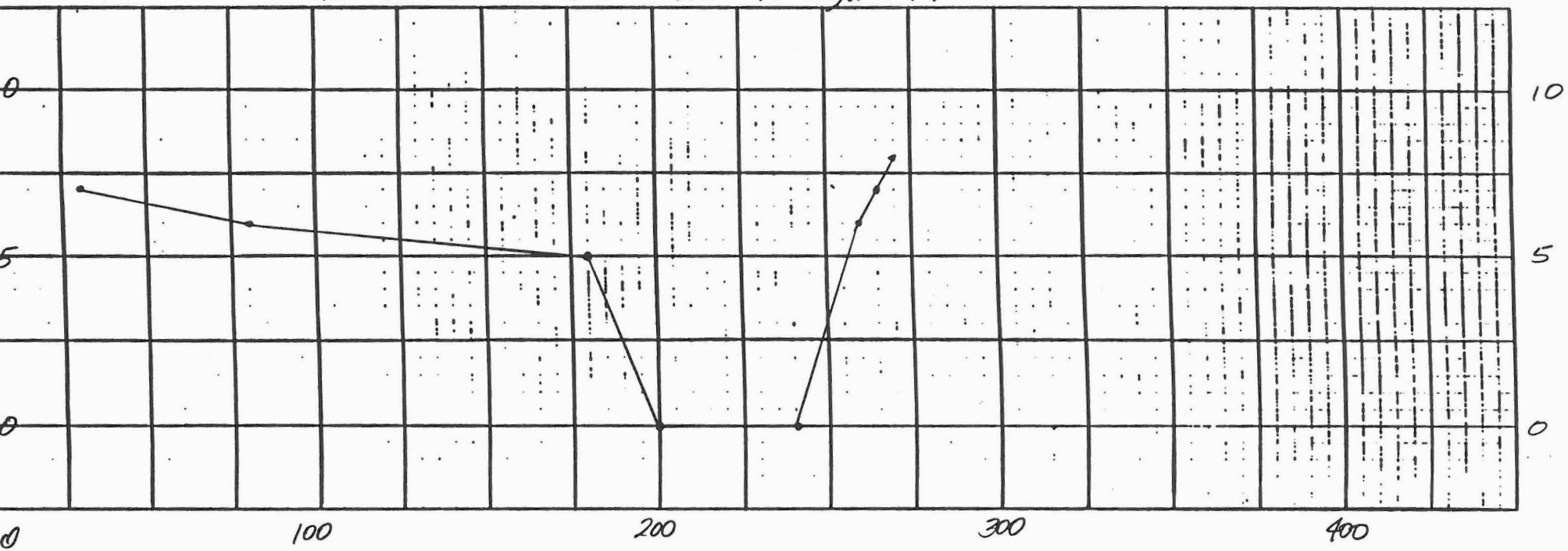
8-8-91

✓ 1-6-92

COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER RM AD1

Route Adobe Dam Outflow through 347



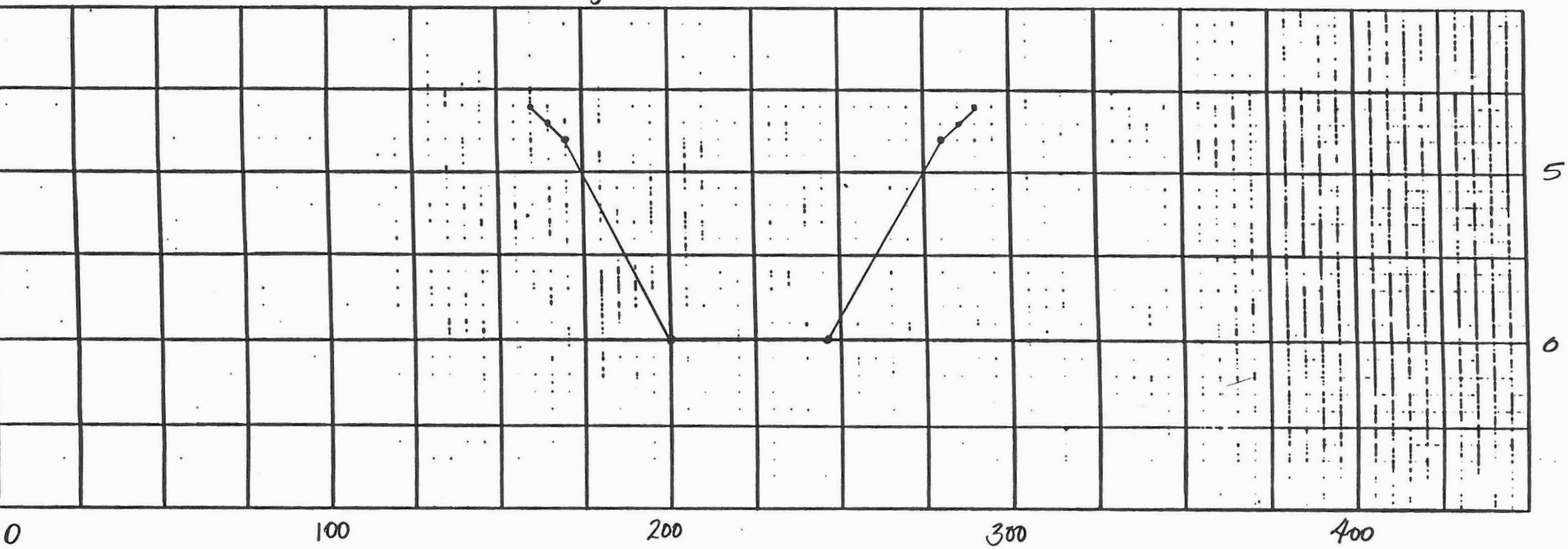
RS	5	FLOW	-1					
RC	0.055	0.045	0.055	3240	0.0040			
RX	30	80	180	200	240	260	265	270
RY	7	6	5	0	0	6	7	8

CALCULATED BY: DLB

1-6-92

ROUTE IDENTIFICATION NUMBER RM347

Route 347C through 348



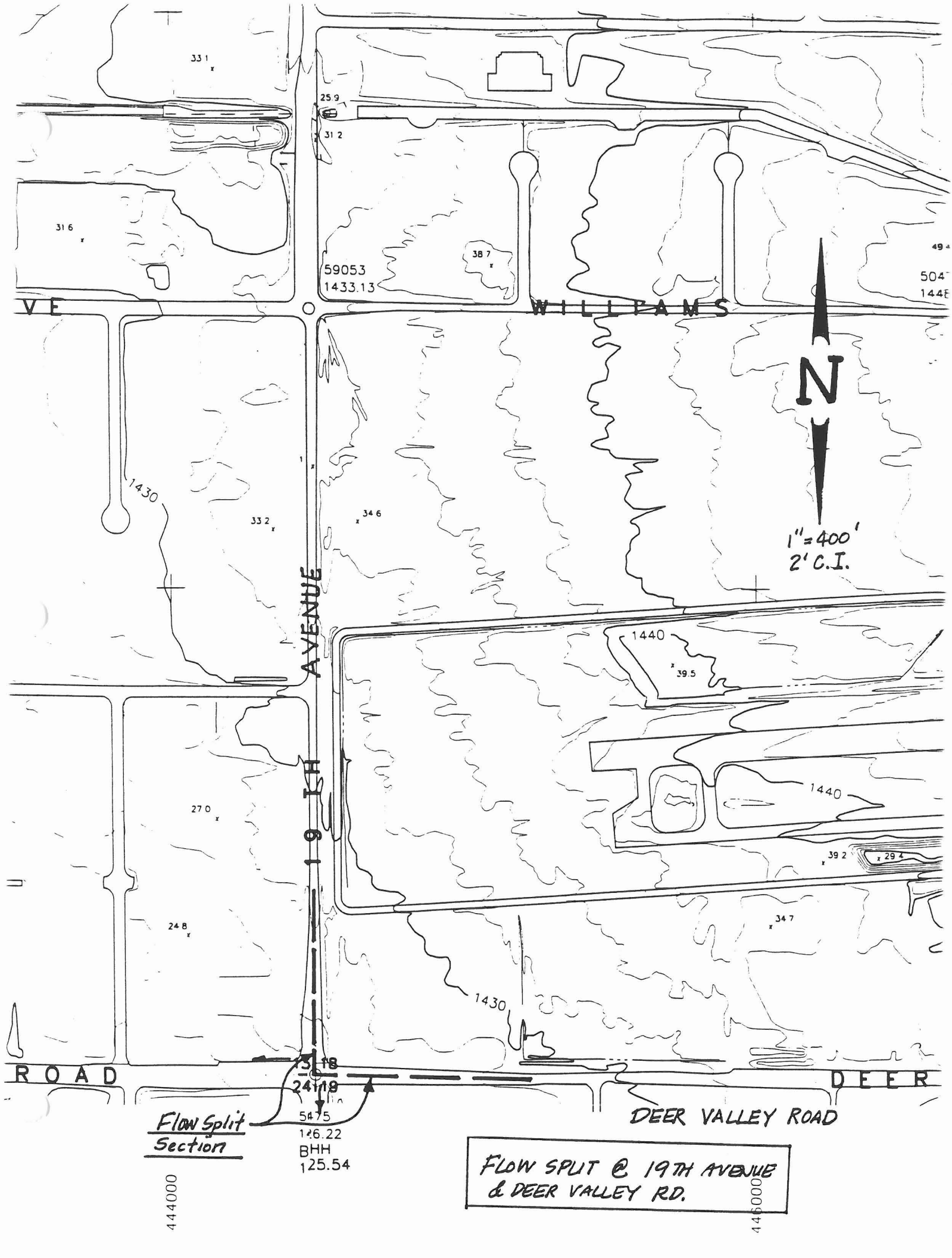
RD								
~~RS~~								
RC	0.05	0.04	0.05	3120	0.0051			
RX	160	165	170	200	245	280	285	290
RY	7	6.5	6	0	0	6	6.5	7

CALCULATED BY: DLB

1-6-92

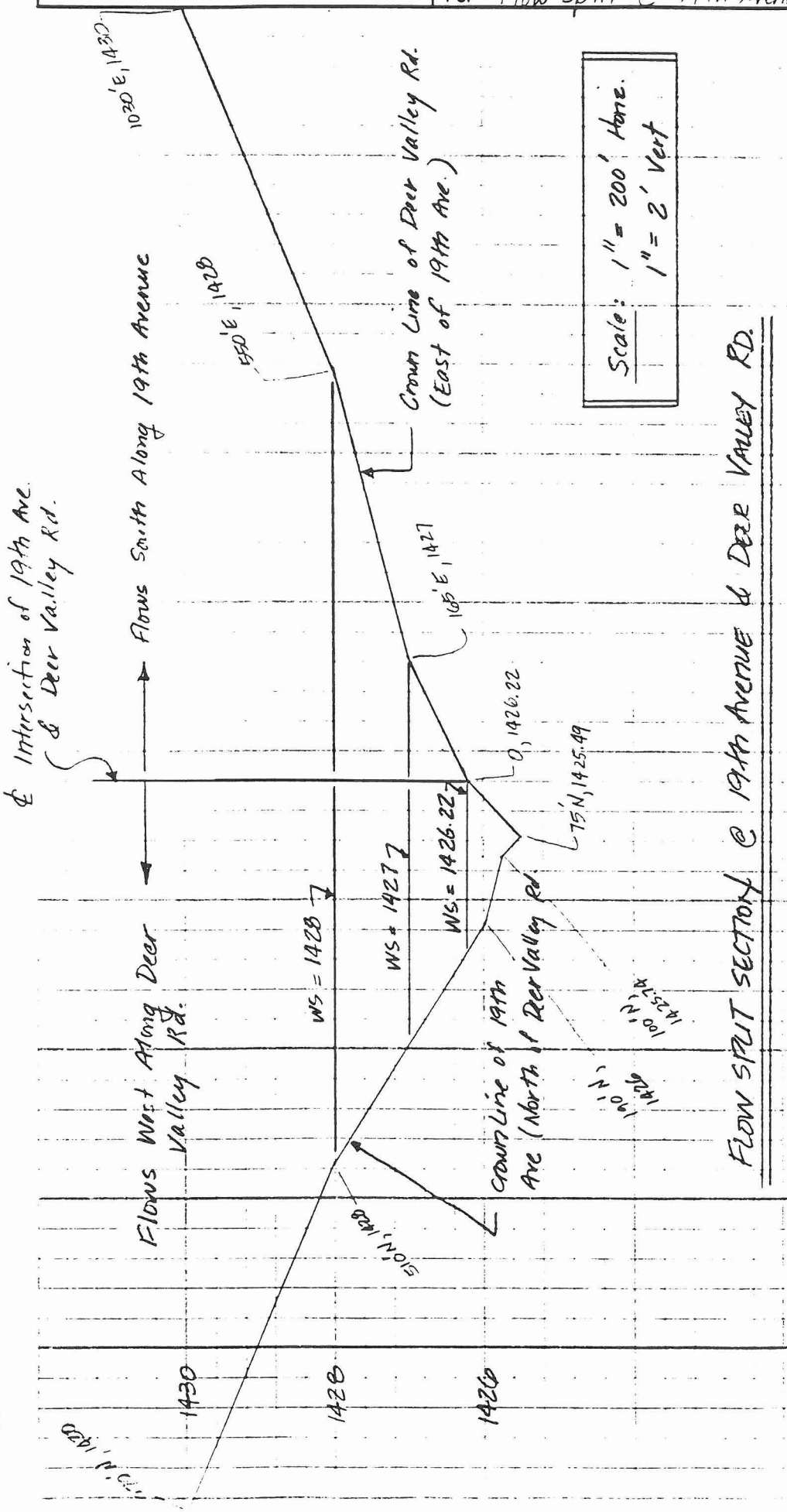
SECTION V

Divert & Onsite Retention Parameters



FLOW SPLIT @ 19TH AVENUE & DEER VALLEY RD.

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date	Job No. 146
	Checked by	Date	Sheet No. 1
	For Flow Split @ 19th Avenue & Deer Valley Rd.		



FLOW SPLIT SECTION @ 19th AVENUE & DEER VALLEY RD.

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 9-7-94	Job No. 146
	Checked by	Date	Sheet No. 2
	For Flow Split @ 19th Avenue & Deer Valley Rd.		

19th Avenue & Deer Valley Road Flow split Calculations

$Q = CLH^{1.5}$ use $C = 3.0$

(1) WS Elev. = 1426.22

$$Q = \Sigma CLH^{1.5} = (3.0)\left[(35)\left(\frac{0.22}{2}\right)^{1.5} + (90)\left(\frac{0.22+0.48}{2}\right)^{1.5} + (25)\left(\frac{0.48+0.73}{2}\right)^{1.5} + (75)\left(\frac{0.73+0}{2}\right)^{1.5}\right]$$

$Q = 145$ cfs (Flow West on Deer Valley Rd.)

$Q = 0$ cfs (Flow South on 19th Avenue)

(2) WS Elev. = 1427

$$Q = (3.0)\left[(160)\left(\frac{1}{2}\right)^{1.5} + (90)\left(\frac{1+1.26}{2}\right)^{1.5} + (25)\left(\frac{1.26+1.51}{2}\right)^{1.5} + (75)\left(\frac{1.51+0.78}{2}\right)^{1.5}\right]$$

$Q = 297$ cfs (Flow West)

$$Q = (3.0)\left[(165)\left(\frac{0.78}{2}\right)^{1.5}\right]$$

$Q = 121$ cfs (Flow South)

(3) WS Elev = 1428

$$Q = (3.0)\left[(320)\left(\frac{2}{2}\right)^{1.5} + (90)\left(\frac{2+2.26}{2}\right)^{1.5} + (25)\left(\frac{2.26+2.51}{2}\right)^{1.5} + (75)\left(\frac{2.51+1.78}{2}\right)^{1.5}\right]$$

$Q = 2782$ cfs (Flow West)

$$Q = (3.0)\left[(165)\left(\frac{1.78+1.00}{2}\right)^{1.5} + (385)\left(\frac{1}{2}\right)^{1.5}\right]$$

$Q = 1220$ cfs (Flow South)

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 7-7-94	Job No. 146
	Checked by	Date	Sheet No. 3
	For Flow Split @ 19th Avenue & Deer Valley Rd.		

(4) WS Elev = 1427.5

$$Q = (3.0)\left[(240)\left(\frac{1.5}{2}\right)^{1.5} + (90)\left(\frac{1.5+1.76}{2}\right)^{1.5} + (25)\left(\frac{1.76+2.01}{2}\right)^{1.5} + (75)\left(\frac{2.01+1.28}{2}\right)^{1.5}\right]$$

$Q = 1698$ CFS (Flow West)

$$Q = (3.0)\left[(165)\left(\frac{1.28+0.50}{2}\right)^{1.5} + (357.5)\left(\frac{0.50}{2}\right)^{1.5}\right]$$

$Q = 550$ CFS

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 9-9-94	Job No. 146
	Checked by	Date	Sheet No. 1
	For Crown Overtopping - Deer Valley Rd.		

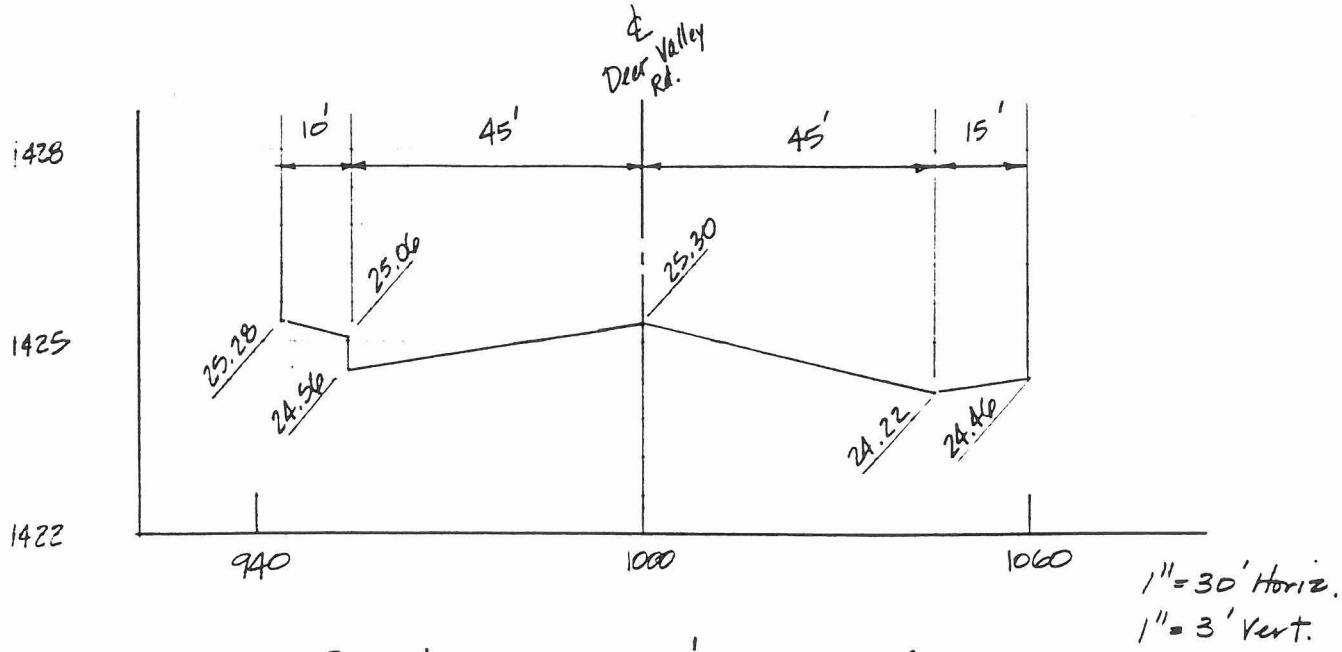
FLOW SPLIT ALONG DEER VALLEY ROAD WEST OF 19TH AVENUE

A flow split was analyzed at the intersection of 19th Avenue and Deer Valley Road to determine the magnitude of flows continuing west along Deer Valley Road and South along 19th Avenue from Sub-Basin No. 330. The flow proceeding south along 19th Avenue leaves the Scatter Wash watershed.

The flow continuing west along Deer Valley Road was analyzed for flow splitting because the half street capacity was found to be approximately 55cfs. This flow split was analyzed inorder to determine the magnitude of storm runoff reaching the I-17 and Deer Valley Road Interchange.

A cross-section approximately 200 feet west of 19th Avenue was developed from field surveys to determine the magnitude of flow splits. The cross-section was assumed to be no wider than the street right-of-way, where the sides were extended vertically. Flows north of the Deer Valley Rd. crownline were assumed to continue westerly towards the I-17 interchange. Flows south of the crown line would turn south and proceed to Detention Basin D located within Sub-Basin No. 343.

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 9-9-94	Job No. 146
	Checked by	Date	Sheet No. 2
	For Crown Overtopping - Deer Valley Rd.		



DEER VALLEY RD. 200' WEST OF 19TH AVENUE

Channel Slope = 0.0050 '/ft
Mannings n = 0.016

WS ELEV = 1425.30 (Also Half Street Capacity before Crown Overtopping)

Area = ½(0.24)(10) + ½(0.74)(45) = 17.85 ft²
P = 55.5 ft
R = A/P = 0.32 ft

$$Q = \frac{1.486}{0.016}(17.85)(0.32)^{2/3}(0.0050)^{1/2} = \underline{55 \text{ cfs}}$$

WS Elev = 1425.80

Flow West Area = 17.85 + (0.5)(55) = 45.35 ft²
P = 56.0 ft
R = 0.81 ft

$$Q = \frac{1.486}{0.016}(45.35)(0.81)^{2/3}(0.0050)^{1/2} = \underline{259 \text{ cfs}}$$

Flow South Area = ½(45)(1.08) + ½(15)(0.24) + (15)(0.84) + (60)(0.5) = 68.70 ft
P = 60 + 1.34 = 61.34 ft
R = 1.12 ft

$$Q = \frac{1.486}{0.016}(68.70)(1.12)^{2/3}(0.0050)^{1/2} = \underline{487 \text{ cfs}}$$

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 9-9-94	Job No. 146
	Checked by	Date	Sheet No. 3
	For Crown Overtopping - Deer Valley Rd.		

WS Elev = 1426.40

Flow West

$$Area = 17.85 + (0.1)(55) = 23.35 \text{ ft}^2$$
$$P = 55.6 \text{ ft}$$
$$R = 0.42 \text{ ft}$$
$$Q = \frac{1.486}{0.016}(23.35)(0.42)^{2/3}(0.0050)^{1/2} = \underline{87 \text{ CFS}}$$

Flow South

$$Area = \tfrac{1}{2}(45)(1.08) + \tfrac{1}{2}(15)(0.24) + (15)(0.84) + (60)(0.1)$$
$$= 44.70 \text{ ft}^2$$
$$P = 60.1 \text{ ft}$$
$$R = 0.74 \text{ ft}$$
$$Q = \frac{1.486}{0.016}(44.70)(0.74)^{2/3}(0.0050)^{1/2} = \underline{241 \text{ CFS}}$$

Total Flow, Q_I	0	55	328	746
Diverted Flow South	0	0	241	487

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 4-9-92	Job No. 0146
	Checked by	Date	Sheet No. 1
	For		

Estimated Manning's Roughness Coefficients

1. Mountain Area

(a) 100-Year Storm

n_b = 0.030 (Coarse Sand)
n_1 = 0.008 (Moderate)
n_2 = — —
n_3 = 0.015 (Medium)
n = 0.053

(b) 10-Year Storm

n_b = 0.030
n_1 = 0.008
n_2 = — —
n_3 = 0.025
n = 0.063

(c) 2-Year Storm

n_b = 0.030
n_1 = 0.008
n_2 = — —
n_3 = 0.030
n = 0.068

2. Hillslope Area

(a) 100-Year Storm

n_b = 0.030 (Coarse Sand)
n_1 = 0.005 (Minor)
n_2 = — —
n_3 = 0.010 (Medium)
n = 0.045

(b) 10-Year Storm

n_b = 0.030
n_1 = 0.005
n_2 = — —
n_3 = 0.018
n = 0.053

(c) 2-Year Storm

n_b = 0.030
n_1 = 0.005
n_2 = — —
n_3 = 0.025
n = 0.060

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 4-9-92	Job No. 0146
	Checked by	Date	Sheet No. 2
	For		

Estimated Manning's Roughness Coefficients (Cont'd.)

3. Valley Area

(a) 100-Year Storm

n_b = 0.025 (Sand & Gravel)
n_1 = 0.005 (Moderate)
n_2 = --
n_3 = 0.008 (Small)
n = 0.038

(b) 10-Year Storm

n_b = 0.025
n_1 = 0.005
n_2 = --
n_3 = 0.015 (Medium)
n = 0.045

(c) 2-Year Storm

n_b = 0.025
n_1 = 0.005
n_2 = --
n_3 = 0.025
n = 0.055

4. Urbanized Hillslope Area — Flow is 40% Hillslope & 60% streets

(a) 100-Year Storm

Hillslope	Street
n_b = 0.030	n_b = 0.018
n_1 = 0.005	n_1 = --
n_2 = --	n_2 = --
n_3 = 0.010	n_3 = --
n = 0.045	n = 0.018

$$n = (0.40)(0.045) + (0.60)(0.018) = 0.029$$

(b) 10-Year Storm

Hillslope	Street
n_b = 0.030	n_b = 0.018
n_1 = 0.005	n_1 = -
n_2 = --	n_2 = -
n_3 = 0.018	n_3 = -
n = 0.053	n = 0.018

$$n = (0.40)(0.053) + (0.60)(0.018) = 0.032$$

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Estimated Mannings's Roughness Coefficient (Cont'd)

4. (c) 2-Year Storm

Mountain	Street
$n_b = 0.030$	$n_b = 0.018$
$n_1 = 0.005$	$n_1 = -$
$n_2 = --$	$n_2 = -$
$n_3 = 0.025$	$n_3 = -$
$n = 0.060$	$n = 0.018$

$$n = (0.40)(0.060) + (0.60)(0.018) = 0.035$$

5. Urbanized Valley Area

Assume 85% street Flow and 15% Outside of Roadway Prism.

(a) 100-Year Storm

Street	Outside street
$n_b = 0.018$	$n_b = 0.025$
$n_1 = -$	$n_1 = 0.003$
$n_2 = -$	$n_2 = 0.004$
$n_3 = -$	$n_3 = -$
$n = 0.018$	$n = 0.032$

$$n = (0.85)(0.018) + (0.15)(0.032) = 0.020$$

(b) 10-Year Storm

$n = 0.025$

(c) 2-Year Storm

$n = 0.025$

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2-YEAR STORM - EXISTING CONDITION SW3 LAG. WK3

Sub-Basin 310 $K_n = 0.068$ (Mountain Area)

Sub-Basin 311 $K_n = 0.068$ (Mountain Area)

Sub-Basin 312 $K_n = 0.055$ (Alluvial Area)

Sub-Basin 314 $K_n = 0.055$ (Alluvial Area)

Even though there is 4.5% Very Low Density Residential and Industrial Areas combined, they predominately have runoff characteristics of an alluvial area.

Sub-Basin 315 $K_n = 0.068$ (Mountain Area)

Sub-Basin 316 $K_n = 0.055$ (Alluvial Area)

Sub-Basin 317 $K_n = 0.068$ (Mountain Area)

Sub-Basin 318 $K_n = 0.068$ (Mountain Area)

Sub-Basin 319 $K_n = 0.060$ (Hillslope Area)

Sub-Basin 320 $K_n = 0.068$ (Mountain Area)

Sub-Basin 321 $K_n = 0.055$ (Alluvial Area)

Sub-Basin 322 91.1% Alluvial & 8.9% Urban Alluvial

$$K_n = (0.911)(0.055) + (0.089)(0.025) = 0.052$$

Sub-Basin 323 $K_n = 0.055$ (Predominately Alluvial Area)

Sub-Basin 325 97% Alluvial & 3% Urban Alluvial

$$K_n = (0.970)(0.055) + (0.030)(0.025) = 0.054$$

Sub-Basin 326 84.6% Alluvial & 15.4% Urban Alluvial (use $n = 0.030$)

$$K_n = (0.846)(0.055) + (0.154)(0.030) = 0.051$$

Sub-Basin 327 37.1% Alluvial & 62.9% Urban Alluvial (use $n = 0.030$)

$$K_n = (0.371)(0.055) + (0.629)(0.030) = 0.039$$

Sub-Basin 330 22.3% Alluvial, 72.8% Airport (use $n = 0.035$) & 4.9% Urban Alluvial

$$K_n = (0.223)(0.055) + (0.728)(0.035) + (0.049)(0.025) = 0.039$$

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2-YEAR STORM (Cont'd) - EXISTING CONDITION

Sub-Basin 331 16.4% Alluvial & 83.6% Urban Alluvial (use n=0.030)

$K_n = (0.164)(0.055) + (0.836)(0.030) = 0.034$

Sub-Basin 332 39.1% Alluvial & 60.9% Urban Alluvial

$K_n = (0.391)(0.055) + (0.609)(0.025) = 0.037$

Sub-Basin 333 $K_n = 0.060$ (Hillslope Area)

Sub-Basin 334 61.2% Alluvial & 38.8% Urban Alluvial (Use n=0.030)

$K_n = (0.612)(0.055) + (0.388)(0.030) = 0.045$

Sub-Basin 335 70.5% Alluvial & 29.5% Urban Alluvial

$K_n = (0.705)(0.055) + (0.295)(0.025) = 0.046$

Sub-Basin 343 40.6% Alluvial & 59.4% Urban Alluvial

$K_n = (0.406)(0.055) + (0.594)(0.025) = 0.037$

Sub-Basin 344 62.3% Alluvial & 37.7% Urban Alluvial

$K_n = (0.623)(0.055) + (0.377)(0.025) = 0.044$

Sub-Basin 345 37.5% Alluvial & 62.5% Urban Alluvial

$K_n = (0.375)(0.055) + (0.521)(0.025) + (0.104)(0.030) = 0.037$

Sub-Basin 346 73.7% Alluvial (includes LDR) & 26.3% Urban Alluvial

$K_n = (0.737)(0.055) + (0.263)(0.025) = 0.047$

Sub-Basin 347 76.2% Alluvial & 23.8% Urban Alluvial (use n=0.030)

$K_n = (0.762)(0.055) + (0.238)(0.030) = 0.049$

Sub-Basin 348 56.1% Alluvial (Includes LDR) & 43.9% Urban Alluvial

$K_n = (0.561)(0.055) + (0.439)(0.025) = 0.042$

Sub-Basin 349 46.5% Alluvial & 53.5% Urban Alluvial

$K_n = (0.465)(0.055) + (0.535)(0.025) = 0.039$

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10-YEAR STORM -EXISTING CONDITION SW4LAG.WK3

Sub-Basin 310 $K_n = 0.063$

Sub-Basin 311 $K_n = 0.063$

Sub-Basin 312 $K_n = 0.045$

Sub-Basin 314 $K_n = 0.045$

Sub-Basin 315 $K_n = 0.063$

Sub-Basin 316 $K_n = 0.045$

Sub-Basin 317 $K_n = 0.063$

Sub-Basin 318 $K_n = 0.063$

Sub-Basin 319 $K_n = 0.053$

Sub-Basin 320 $K_n = 0.063$

Sub-Basin 321 $K_n = 0.045$

Sub-Basin 322

$$K_n = (0.911)(0.045) + (0.089)(0.025) = 0.043$$

Sub-Basin 323 $K_n = 0.045$

Sub-Basin 325

$$K_n = (0.970)(0.045) + (0.030)(0.025) = 0.044$$

Sub-Basin 326

$$K_n = (0.846)(0.045) + (0.154)(0.030) = 0.043$$

Sub-Basin 327

$$K_n = (0.371)(0.045) + (0.629)(0.030) = 0.036$$

Sub-Basin 330

$$K_n = (0.223)(0.045) + (0.728)(0.025) + (0.049)(0.025) = 0.029$$

Sub-Basin 331

$$K_n = (0.164)(0.045) + (0.836)(0.030) = 0.032$$

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10-YEAR STORM (Cont'd) - EXISTING CONDITION

Sub-Basin 332

$K_n = (0.391)(0.045) + (0.609)(0.025) = 0.033$

Sub-Basin 333 $K_n = 0.045$ (Alluvial)

Sub-Basin 334

$K_n = (0.612)(0.045) + (0.388)(0.030) = 0.039$

Sub-Basin 335

$K_n = (0.705)(0.045) + (0.295)(0.025) = 0.039$

Sub-Basin 343

$K_n = (0.406)(0.045) + (0.594)(0.025) = 0.033$

Sub-Basin 344

$K_n = (0.623)(0.045) + (0.377)(0.025) = 0.037$

Sub-Basin 345

$K_n = (0.375)(0.045) + (0.521)(0.025) + (0.104)(0.030) = 0.033$

Sub-Basin 346

$K_n = (0.737)(0.045) + (0.263)(0.025) = 0.040$

Sub-Basin 347

$K_n = (0.762)(0.045) + (0.238)(0.030) = 0.041$

Sub-Basin 348

$K_n = (0.561)(0.045) + (0.439)(0.025) = 0.036$

Sub-Basin 349

$K_n = (0.465)(0.045) + (0.535)(0.025) = 0.034$

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100-YEAR STORM - EXISTING CONDITION SW5LAG.WK3

Sub-Basin 310 $K_n = 0.053$

Sub-Basin 311 $K_n = 0.053$

Sub-Basin 312 $K_n = 0.038$

Sub-Basin 314 $K_n = 0.038$

Sub-Basin 315 $K_n = 0.053$

Sub-Basin 316 $K_n = 0.038$

Sub-Basin 317 $K_n = 0.053$

Sub-Basin 318 $K_n = 0.053$

Sub-Basin 319 $K_n = 0.045$

Sub-Basin 320 $K_n = 0.053$

Sub-Basin 321 $K_n = 0.038$

Sub-Basin 322

$$K_n = (0.911)(0.038) + (0.089)(0.020) = 0.036$$

Sub-Basin 323 $K_n = 0.038$

Sub-Basin 325

$$K_n = (0.970)(0.038) + (0.030)(0.020) = 0.037$$

Sub-Basin 326

$$K_n = (0.846)(0.038) + (0.154)(0.025) = 0.036$$

Sub-Basin 327

$$K_n = (0.371)(0.038) + (0.629)(0.025) = 0.030$$

Sub-Basin 330

$$K_n = (0.223)(0.038) + (0.728)(0.020) + (0.049)(0.020) = 0.024$$

Sub-Basin 331

$$K_n = (0.164)(0.038) + (0.836)(0.025) = 0.027$$

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100-YEAR STORM (Cont'd.) -EXISTING CONDITION

Sub-Basin 332

$K_n = (0.391)(0.038) + (0.609)(0.020) = 0.027$

Sub-Basin 333 $K_n = 0.038$

Sub-Basin 334

$K_n = (0.612)(0.038) + (0.388)(0.025) = 0.033$

Sub-Basin 335

$K_n = (0.705)(0.038) + (0.295)(0.020) = 0.033$

Sub-Basin 343

$K_n = (0.406)(0.038) + (0.594)(0.020) = 0.027$

Sub-Basin 344

$K_n = (0.623)(0.038) + (0.377)(0.020) = 0.031$

Sub-Basin 345

$K_n = (0.375)(0.038) + (0.521)(0.020) + (0.104)(0.025) = 0.027$

Sub-Basin 346

$K_n = (0.737)(0.038) + (0.263)(0.020) = 0.033$

Sub-Basin 347

$K_n = (0.762)(0.038) + (0.238)(0.025) = 0.035$

Sub-Basin 348

$K_n = (0.561)(0.038) + (0.439)(0.020) = 0.030$

Sub-Basin 349

$K_n = (0.465)(0.038) + (0.535)(0.020) = 0.028$

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MEAN MANNING "n" CALCULATIONS SCATTER WASH - FUTURE CONDITIONS

2-Year Storm

Sub-Basin 310 40.7% Desert/Mountain & 59.3% Urban Hillslope

$k_n = (0.407)(0.068) + (0.593)(0.035) = \underline{0.048}$

Sub-Basin 311 45.9% Desert/Mountain & 54.1% Urban Hillslope

$k_n = (0.459)(0.068) + (0.541)(0.035) = \underline{0.050}$

Sub-Basin 312 0.3% Desert/Valley & 99.7% Urban Valley

$k_n = (0.003)(0.055) + (0.997)(0.025) = \underline{0.025}$

Sub-Basin 313 46.3% Desert/Mountain & 53.7% Urban Hillslope

$k_n = (0.463)(0.068) + (0.537)(0.035) = \underline{0.050}$

Sub-Basin 314 100% Urban Valley

$k_n = \underline{0.025}$

Sub-Basin 315 67.9% Desert/Mountain & 32.1% Urban Hillslope

$k_n = (0.679)(0.068) + (0.321)(0.035) = \underline{0.057}$

Sub-Basin 316 100% Urban Hillslope

$k_n = \underline{0.035}$

Sub-Basin 317 100% Urban Valley

$k_n = \underline{0.025}$

Sub-Basin 318 100% Urban Valley

$k_n = \underline{0.025}$

Sub-Basin 319 74.0% Desert/Mountain & 26.0% Urban Hillslope

$k_n = (0.740)(0.068) + (0.260)(0.035) = \underline{0.059}$

Sub-Basin 320 60.3% Desert/Mountain & 39.7% Urban Hillslope

$k_n = (0.603)(0.068) + (0.397)(0.035) = \underline{0.055}$

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MEAN MANNING "n" CALCULATIONS SCATTER WASH - FUTURE CONDITIONS

2-Year Storm

Sub-Basin 321 7.7% Desert/Valley & 82.3% Urban Valley

$k_n = (0.077)(0.055) + (0.923)(0.025) = \underline{0.027}$

Sub-Basin 322 100% Urban Valley

$k_n = \underline{0.025}$

Sub-Basin 323 0.4% Desert/Valley & 99.6% Urban Valley

$k_n = (0.004)(0.055) + (0.996)(0.025) = \underline{0.025}$

Sub-Basin 324 59.6% Desert/Hillslope & 40.4% Urban Valley

$k_n = (0.596)(0.060) + (0.404)(0.025) = \underline{0.046}$

Sub-Basin 325 6.2% Desert/Valley & 93.8% Urban Valley

$k_n = (0.062)(0.055) + (0.938)(0.025) = \underline{0.026}$

Sub-Basin 326 100% Urban Valley

$k_n = \underline{0.025}$

Sub-Basin 327 100% Urban Valley

$k_n = \underline{0.025}$

Sub-Basin 328 100% Urban Valley

$k_n = \underline{0.025}$

Sub-Basin 329 14.0% Desert/Mountain, 9.9% Desert/Valley & 76.1% Urban Valley

$k_n = (0.140)(0.068) + (0.099)(0.055) + (0.761)(0.025) = \underline{0.034}$

Sub-Basin 330 8.4% Desert/Valley & 91.7% Urban Valley

$k_n = (0.084)(0.055) + (0.917)(0.025) = \underline{0.028}$

Sub-Basin 331 100% Urban Valley

$k_n = \underline{0.025}$

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MEAN MANNING "n" CALCULATIONS SCATTER WASH – FUTURE CONDITIONS

2-Year Storm

Sub-Basin 332 34.1% Desert/Mountain & 65.9% Urban Hillslope

$k_n = (0.341)(0.068) + (0.659)(0.035) = \underline{0.046}$

Sub-Basin 333 3.1% Desert/Mountain & 96.9% Urban Valley

$k_n = (0.031)(0.068) + (0.969)(0.025) = \underline{0.026}$

Sub-Basin 334 100% Urban Valley

$k_n = \underline{0.025}$

Sub-Basin 335 100% Urban Valley

$k_n = \underline{0.025}$

Sub-Basin 336 100% Urban Valley

$k_n = \underline{0.025}$

Sub-Basin 337 100% Urban Valley

$k_n = \underline{0.025}$

Sub-Basin 338 6.0% Desert/Valley & 94.0% Urban Valley

$k_n = (0.060)(0.055) + (0.940)(0.025) = \underline{0.027}$

Sub-Basin 339 100% Urban Valley

$k_n = \underline{0.025}$

Sub-Basin 340 100% Urban Valley

$k_n = \underline{0.025}$

Sub-Basin 341 100% Urban Valley

$k_n = \underline{0.025}$

Sub-Basin 342 19.5% Desert/Valley & 80.5% Urban Valley

$k_n = (0.195)(0.055) + (0.805)(0.025) = \underline{0.031}$

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MEAN MANNING "n" CALCULATIONS SCATTER WASH – FUTURE CONDITIONS

2-Year Storm

Sub-Basin 343 100% Urban Valley

$k_n = \underline{0.025}$

Sub-Basin 345 2.0% Desert/Valley & 98.0% Urban Valley

$k_n = (0.020)(0.055) + (0.980)(0.025) = \underline{0.026}$

Sub-Basin 346 11.6% Desert/Valley & 88.4% Urban Valley

$k_n = (0.116)(0.055) + (0.884)(0.025) = \underline{0.028}$

Sub-Basin 347 18.2% Desert/Valley & 81.8% Urban Valley

$k_n = (0.182)(0.055) + (0.818)(0.025) = \underline{0.030}$

Sub-Basin 348 10.0% Desert/Valley & 90.0% Urban Valley

$k_n = (0.100)(0.055) + (0.900)(0.025) = \underline{0.028}$

Sub-Basin 349 31.3% Desert/Valley & 68.7% Urban Valley

$k_n = (0.313)(0.055) + (0.687)(0.025) = \underline{0.034}$

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MEAN MANNING "n" CALCULATIONS SCATTER WASH - FUTURE CONDITIONS

Sub-Basin	10-Year	100-Year
310	$K_n = 0.045$	$K_n = 0.039$
311	$K_n = 0.046$	$K_n = 0.040$
312	$K_n = 0.025$	$K_n = 0.020$
313	$K_n = 0.046$	$K_n = 0.040$
314	$K_n = 0.025$	$K_n = 0.020$
315	$K_n = 0.053$	$K_n = 0.045$
316	$K_n = 0.032$	$K_n = 0.029$
317	$K_n = 0.025$	$K_n = 0.020$
318	$K_n = 0.025$	$K_n = 0.020$
319	$K_n = 0.055$	$K_n = 0.047$
320	$K_n = 0.051$	$K_n = 0.043$
321	$K_n = 0.026$	$K_n = 0.021$
322	$K_n = 0.025$	$K_n = 0.020$
323	$K_n = 0.025$	$K_n = 0.020$
324	$K_n = 0.042$	$K_n = 0.035$
325	$K_n = 0.026$	$K_n = 0.021$
326	$K_n = 0.025$	$K_n = 0.020$
327	$K_n = 0.025$	$K_n = 0.020$
328	$K_n = 0.025$	$K_n = 0.020$
329	$K_n = 0.032$	$K_n = 0.026$
330	$K_n = 0.027$	$K_n = 0.022$
331	$K_n = 0.025$	$K_n = 0.020$

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MEAN MANNING "n" CALCULATIONS SCATTER WASH - FUTURE CONDITIONS

Sub-Basin	10-Year	100-Year
332	$K_n = 0.043$	$K_n = 0.037$
333	$K_n = 0.026$	$K_n = 0.021$
334	$K_n = 0.025$	$K_n = 0.020$
335	$K_n = 0.025$	$K_n = 0.020$
336	$K_n = 0.025$	$K_n = 0.020$
337	$K_n = 0.025$	$K_n = 0.020$
338	$K_n = 0.026$	$K_n = 0.021$
339	$K_n = 0.025$	$K_n = 0.020$
340	$K_n = 0.025$	$K_n = 0.020$
341	$K_n = 0.025$	$K_n = 0.020$
342	$K_n = 0.029$	$K_n = 0.024$
343	$K_n = 0.025$	$K_n = 0.020$
345	$K_n = 0.025$	$K_n = 0.020$
346	$K_n = 0.027$	$K_n = 0.022$
347	$K_n = 0.029$	$K_n = 0.023$
348	$K_n = 0.027$	$K_n = 0.022$
349	$K_n = 0.031$	$K_n = 0.026$

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ONSITE RETENTION FOR SCATTER WASH WATERSHED - EXISTING CONDITION

Assume retention volume on parcels in question to be based on 10-year 2-hour storm.

Determine the 10-year 2-hour intensity from page 32 of the City of Phoenix "Storm Drain Design Manual", Sept. 1985:

$i = 0.80$ in/hr

Determine Peak Discharge using $Q = CIA$ (Rational Method)

storage Volume $= 7200\,Q\ (ft^3) = \frac{7200}{43560}\,Q$ (Ac-Ft.)

Sub-Basin	Land Use	C	Area (Ac)	Peak Q (CFS)	Volume (Ac Ft)	Total Volume (Ac-Ft)
310	Vacant	Reservoir Routing			—	—
311	Vacant	Reservoir Routing			—	—
312	Vacant				—	—
314	—	No Onsite Retention			—	—
315	Vacant	Reservoir Routing			—	—
316	—	No Onsite Retention			—	—
317	Vacant	Reservoir Routing			—	—
318	Vacant	Reservoir Routing			—	—
319	Vacant				—	—
320	INDUST.	0.75	18.20	10.92	1.80	1.80
Note: The retention area was considered insignificant during the 2-Year storm						
321	Vacant				—	—
322	COMM	0.70	12.49	6.99	1.16	1.16
Note: The retention area was considered insignificant during the 2-Year storm						
323	—	Reservoir Routing			—	—
325	—	No Onsite Retention			—	—
Note: See Contributing area Calculations.						
330	(Retention Basin)				1.94	1.94

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ONSITE RETENTION FOR SCATTER WASH - CONT'D - EXISTING CONDITION

Sub-Basin	Land Use	C	Area (AC)	Peak Q (CFS)	Volume (AC-FT)	Total Volume (AC-FT)
326	COMM	0.70	28.25	15.82	2.61	
	INDUST	0.75	20.73	12.44	2.06	4.67
	Note: The comm. retention area was considered insignificant during the 2-Year storm					
327	VACANT	0.35	4.30	1.21	0.20	
	INDUST	0.85	12.18	8.28	1.37	
	COMM	0.90	1.16	0.84	0.14	1.71
331	INDUST	0.90	2.21	1.59	0.26	
	COMM	0.90	11.38	8.20	1.35	1.61
332	MF RES	0.65	4.45	2.31	0.38	0.38
333	—	NO ONSITE RETENTION			—	—
334	COMM	0.90	5.21	3.75	0.62	
	INDUST	0.90	1.40	1.01	0.17	0.79
335	SCHOOL	0.45	63.31	22.79	3.77	
	INDUST	0.90	8.80	6.34	1.05	4.82
343	COMM	0.90	14.57	10.49	1.73	
	INDUST	0.90	32.52	23.42	3.87	
	MF RES	0.65	10.16	5.29	0.87	6.47
349	INDUST	0.90	44.54	32.07	5.30	
	COMM	0.90	2.03	1.46	0.24	
	PAD	0.65	21.71	11.29	1.87	7.41
344	COMM	0.90	13.40	9.65	1.60	
	MF RES	0.90	4.42	3.18	0.52	
	MF RES	0.65	12.86	6.69	1.11	
	INDUST	0.90	20.07	14.45	2.39	
	SCHOOL	0.65	4.61	2.40	0.40	6.03
345	—	NO ONSITE RETENTION			—	—
	Note: See contributing area calculations.					
346	Subtract 0.02367 sq.mi. as non-contributing for 2-Year					
347	—				—	—
	Note: See contributing area calculations.					
348	—				—	—
	Note: See contributing area calculations.					

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by DLB	Date 4-1-92	Job No. 0146
	Checked by	Date	Sheet No. 1
	For EXISTING CONDITIONS		

CONTRIBUTING AREA FOR SCATTER WASH - 2 YEAR STORM

The following assumptions were made:

(1) Underveloped areas and desert areas contribute 100%.
(2) 100% of Land Use Impervious Areas contribute with remaining pervious areas as non-contributing with the exceptions of those areas in which storage volumes were computed.

Sub-Basin 310 Contributing Area = 0.679 sq. mi.

Sub-Basin 311 Contributing Area = 0.569 sq. mi.

Sub-Basin 312 Contributing Area = 1.348 sq. mi.

Sub-Basin 314 Contributing Area = 0.846 sq. mi.

Sub-Basin 315 Contributing Area = 0.508 sq. mi.

Sub-Basin 316 Contributing Area = 0.672 sq. mi.

Sub-Basin 317 Contributing Area = 0.704 sq. mi.

Sub-Basin 318 Contributing Area = 0.542 sq. mi.

Sub-Basin 319 Contributing Area = 0.339 sq. mi.

Sub-Basin 320 Contributing Area = 1.106 sq. mi.

Sub-Basin 321 Contributing Area = 1.121 sq. mi.

Sub-Basin 322 Contributing Area = 0.345 sq. mi.

Sub-Basin 323 Contributing Area = 0.110 sq. mi.

Sub-Basin 325

Contributing Area = 0.502 - 0.071 = 0.431 sq. mi.
where 0.071 sq. mi. = IND 1 from Green & Ampt spreadsheet

Sub-Basin 326 Contributing Area = 0.498 - 0.032 = 0.466 sq. mi

Sub-Basin 327

Contributing Area = 0.216 - 0.019 - (0.25)(0.115) - 0.002 = 0.166 sq mi.

Sub-Basin 330 Contributing Area = 0.069 + 0.225 = 0.294 sq. mi.

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	Checked by	Date	Sheet No. 2
	For EXISTING CONDITIONS		

CONTRIBUTING AREA FOR SCATTERWASH - 2 YEAR STORM (CONT'D)

Sub-Basin 331

$$\text{Contributing Area} = 0.220 - \underset{\text{IND}}{\overset{\text{SV}}{0.003}} - (0.25)(0.098) - \underset{\text{COMM}}{\overset{\text{SV}}{0.018}} - (0.10)(0.066)$$
$$= 0.168 \text{ sq. mi.}$$

Sub-Basin 332

$$\text{Contributing Area} = 0.094 - \underset{\text{MFR}}{\overset{\text{SV}}{0.007}} - (0.35)(0.016) - (0.10)(0.034)$$
$$= 0.078 \text{ sq. mi.}$$

Sub-Basin 333

$$\text{Contributing Area} = \left(\frac{56.62}{2}\right)(400)^2\left(\frac{1}{5280}\right)^2 = 0.162 \text{ sq. mi.}$$

Sub-Basin 334

$$\text{Contributing Area} = 0.657 - (0.35)(0.189) - 0.002 - (0.25)(0.010) - 0.008 - (0.10)(0.046)$$
$$= 0.574 \text{ sq. mi.}$$

Sub-Basin 335

$$\text{Contributing Area} = 0.463 - 0.099 - (0.55)(0.012) - 0.014 - (0.25)(0.012)$$
$$= 0.340 \text{ sq. mi.}$$

Sub-Basin 343

$$\text{Contributing Area} = 0.320 - 0.016 - (0.35)(0.032) - 0.059 - 0.023 - 0.10(0.060)$$
$$= 0.205 \text{ sq. mi.}$$

Sub-Basin 344

$$\text{Contributing Area} = 0.554 - 0.007 - (0.55)(0.035) - 0.027 - (0.35)(0.087) - 0.031 - 0.021$$
$$= 0.418 \text{ sq. mi.}$$

Sub-Basin 345

$$\text{Contributing Area} = 0.296 - (0.55)(0.093) - (0.35)(0.061) - (0.25)(0.031)$$
$$= 0.216 \text{ sq. mi.}$$

where the residential land use pervious areas are considered non contributing

Sub-Basin 346

$$\text{Contributing Area} = 0.181 + (0.115 - 0.024)(0.25) + (0.45)(0.026) + (0.65)(0.080)$$
$$= 0.267 \text{ sq. mi.}$$

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	Checked by	Date	Sheet No. 3
	For EXISTING CONDITIONS		

CONTRIBUTING AREA FOR SCATTER WASH - 2 YEAR STORM (CONT'D)

Sub-Basin 347

Contributing Area = 0.842 + (0.75)(0.252) = 1.031 sq. mi.
where the residential land use pervious areas are considered non contributing.

Sub-Basin 348

Contributing Area = 0.024 + (0.25)(0.003) + (0.45)(0.020) + (0.65)(0.001)
= 0.034 sq. mi.
where the residential land use pervious areas are considered non contributing.

Sub-Basin 349

Contributing Area = 0.372 - (0.55)(0.061) - (0.35)(0.031) - 0.034 - 0.070 - 0.003
= 0.221 sq. mi.

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by L. Thomas	Date 2/95	Job No. 0146
	Checked by	Date	Sheet No. 1
	For ACDC ADMS		

ONSITE RETENTION FOR SCATTER WASH WATERSHED - FUTURE CONDITION

CALCULATE: 100-Year 2-Hour Volume, P = 2.60 in

$$\forall = C\left(\frac{P}{12}\right)A$$

Sub-Basin	Land Use	C	Area (Ac)	Vol. (Ac·Ft)
312	MF	0.60	61.943	8.053
312	Comm	0.80	239.903	41.583
312	Public	0.80	67.571	11.712
			Σ = 0.577 sq.mi.	Σ = 61.348
314	MF	0.60	113.429	14.746
314	Comm	0.80	4.703	0.815
314	Public	0.80	114.935	19.922
			Σ = 0.364 sq.mi	Σ 35.483
317	Ind.	0.75	196.857	31.989
317	MF	0.60	211.204	27.457
317	Comm	0.80	0.141	0.024
			Σ = 0.638 sq.mi	Σ = 59.470
318	MF	0.60	10.675	1.388
318	Ind.	0.75	175.314	28.489
318	Comm.	0.80	21.299	3.692
			Σ = 0.324 sq.mi.	Σ = 33.569
321	Ind.	0.75	178.013	28.927
321	MF	0.60	0.641	0.083
			Σ = 0.279 sq.mi.	Σ = 29.010
325	Ind.	0.75	266.904	43.372
			Σ = 0.417 sq.mi	
326	Comm.	0.80	4.283	0.742
326	Ind.	0.75	257.887	41.907
			Σ = 0.410 sq.mi	Σ = 42.649
327	Ind.	0.75	23.355	3.795
			= 0.036 sq.mi.	
328	Comm.	0.80	11.276	1.955
328	Ind.	0.75	9.297	1.510
			Σ = 0.032 sq.mi	Σ = 3.465

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by L. Thomas	Date 2/95	Job No. 0146
	Checked by	Date	Sheet No. 2
	For ACDC ADMS		

ONSITE RETENTION FOR SCATTER WASH WATERSHED - FUTURE CONDITIONS

Sub-Basin	Land Use	C	Area (AC)	Vol. (AC·FT)
329	Comm.	0.80	8.947	1.551
329	MF	0.60	27.684	3.599
329	Ind.	0.75	145.782	23.690
			Σ=0.285 sq.mi.	Σ=28.840
330	MF	0.60	121.260	15.765
330	Ind.	0.75	45.223	7.349
			Σ=0.260 sq.mi.	Σ=23.114
333	Ind.	0.75	44.379	7.212
			=0.069 sq.mi.	
334	MF	0.60	1.390	0.181
334	Ind.	0.75	143.570	23.330
			Σ=0.227 sq.mi.	Σ=23.511
335	MF	0.60	53.359	6.937
335	Park	0.25	7.337	0.397
			Σ=0.095 sq.mi	Σ=7.334
337	Ind.	0.75	84.705	13.765
			=0.132 sq.mi.	
338	Comm	0.80	11.722	2.032
338	MF	0.60	0.303	0.039
			Σ=0.019 sq.mi.	Σ=2.071
339	Ind.	0.75	67.510	10.970
			=0.105 sq.mi	
340	Ind.	0.75	5.150	0.837
340	Comm.	0.80	19.652	3.406
			Σ=0.039 sq.mi.	Σ=4.243
341	Comm.	0.80	7.417	1.286
341	Ind.	0.75	82.901	13.471
341	MF	0.60	16.349	2.125
			Σ=	Σ=16.882
342	Comm.	0.80	4.484	0.777
342	Ind.	0.75	42.338	6.880
			Σ=	Σ=7.657
343	Ind.	0.75	33.771	5.488

KAMINSKI HUBBARD engineering inc. • Surveying • Civil • Hydrology	Made by L. Thomas	Date 2/95	Job No. 0146
	Checked by	Date	Sheet No. 3
	For ACDC ADMS		

ONSITE RETENTION FOR SCATTER WASH WATERSHED - FUTURE CONDITIONS

Sub-Basin	Land Use	C	Area (Ac)	Vol. (Ac-Ft)
345	Ind.	0.75	115.762	18.811
345	MF	0.60	42.098	5.473
345	Comm.	0.80	16.009	2.775
			Σ = 0.115 sq. mi.	Σ = 27.059
348	Ind.	0.75	92.432 = 0.144 sq. mi.	15.020
360	MF	0.60	34.181	4.444
360	Comm.	0.80	49.776	8.628
			Σ = 0.131 sq. mi.	Σ = 13.072
364	Ind.	0.75	152.371	24.760
364	Comm.	0.80	16.591	2.876
			Σ = 0.264 sq. mi.	Σ = 27.636

SECTION VI

HEC-1 Hydrology Results, 100-Year 24-Hour Storm (Existing Conditions)

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
              MAY   1991               *
           VERSION 4.0.1E              *
*                                       *
*  RUN DATE  02/15/95  TIME  16:41:43   *
*                                       *
*****************************************
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*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
*****************************************
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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
```

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    ACDC AREA DRAINAGE MASTER STUDY
  2           ID    SCATTER WASH WATERSHED
  3           ID    FILENAME:  SCW324.DAT     KHE JOB NO. 0146
  4           ID    100-YEAR 24-HOUR DURATION STORM
  5           ID    SCS TYPE-II DISTRIBUTION WAS USED
              *
              *  APRIL 11, 1992
              *
              *  Based on FCDMC comments dated March 17,1992 we adjusted the Mannings "n"
              *  coefficient to reflect weighted averaging in lieu of log averaging.
              *  We also changed the S-graph from Phoenix Mountain to Phoenix Valley.
              *
              *  REVISED:  JULY 6, 1994   Revised to address FEMA comments in a letter dated
              *                           November 15, 1993.
              *
              *  REVISED:  SEPTEMBER 12, 1994   Revised to address FEMA comments in a tele-
              *                                 phone conversation on August 10, 1994.
              *
              *  FINAL HEC-1 INPUT FILE - OCTOBER 24, 1994
              *
              *
              *DIAGRAM
  6           IT       4 10OCT92    1200    1000
  7           IO       5

  8           KK    310S
  9           KM   RUNOFF GENERATED ON SUB-BASIN 310
 10           KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 11           KM    L= 1.36 mi.  Lca= 0.64 mi.  S= 282 ft/mi.  Kn= .053  LAG= 24.78 min.
 12           KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 13           BA    .679
 14           IN      30
 15           KM   RAINFALL DEPTH OF 4.00 WAS SPACIALLY REDUCED AS SHOWN BY THE PB RECORD
 16           KM   AN AREAL REDUCTION COEFFICIENT OF .925 WAS USED
 17           PB    3.70
 18           KM   THE FOLLOWING PC RECORD USED A 24-HOUR SCS TYPE II RAINFALL
 19           PC    .000    .005    .011    .016    .022    .028    .035    .041    .048    .056
 20           PC    .063    .071    .080    .089    .098    .109    .120    .133    .147    .163
 21           PC    .181    .204    .235    .283    .663    .735    .772    .799    .820    .838
 22           PC    .854    .868    .880    .891    .902    .912    .921    .929    .937    .945
 23           PC    .952    .959    .965    .972    .978    .984    .989    .995   1.000
 24           LG     .15     .25    8.60     .07    2.50
 25           UI     92.    221.    428.    550.    708.   1065.    985.    751.    583.    442.
 26           UI    263.    158.    118.     83.     28.     28.     28.     28.      0.      0.
 27           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 28           KK    311S
 29           KM   RUNOFF GENERATED ON SUB-BASIN 311
 30           KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 31           KM    L= 1.52 mi.  Lca= 0.71 mi.  S=  260 ft/mi.  Kn= .053  LAG= 27.31 min.
 32           KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 33           BA    .569
 34           LG     .15     .33    7.78    .105    6.53
 35           UI     70.    139.    300.    389.    483.    643.    867.    677.    543.    429.
 36           UI    334.    211.    122.    102.     70.     34.     22.     22.     22.     22.
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  37          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
  38          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  39          KK   HC311
  40          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 310 & 311
  41          HC       2

  42          KK   311RR
              * KO     1
  43          KM   ROUTE FLOW THROUGH DETENTION BEHIND C.A.P. STRUCTURE NO. 1
  44          RS       1    ELEV      12
  45          SV       0     2.2    11.6    35.4    81.1   156.4
  46          SE      12      14      16      18      20      22
  47          SL   15.62    9.62     0.6     0.5
  48          SS      20     200     3.0     1.5

  49          KK   RM311
  50          KM   MUSKINGUM-CUNGE ROUTE IN CHANNEL FROM DETENTION THROUGH SUB-BASIN 312
  51          KM           1) Reach Length = 8800 ft.
  52          RD
  53          RC     .05     .04     .05    8800   .0085
  54          RX       0     100     120     125     140     145     165     265
  55          RY       4       2       1       0       0       1       2       4

  56          KK    312S
  57          KM   RUNOFF GENERATED ON SUB-BASIN 312
  58          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  59          KM    L= 2.17 mi.  Lca= 0.91 mi.  S= 36 ft/mi.  Kn= .038  LAG= 35.87 min.
  60          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  61          BA   1.348
  62          LG     .35     .28    8.28    .082    0.00
  63          UI    127.    127.    419.    572.    694.    807.    963.   1277.   1587.   1311.
  64          UI   1086.    926.    770.    636.    497.    303.    220.    207.    127.    127.
  65          UI     43.     39.     39.     39.     39.     39.      0.      0.      0.      0.
  66          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  67          KK   HC312
  68          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 312 WITH ROUTED FLOW FROM 311
  69          HC       2

  70          KK   RM312
  71          KM   MUSKINGUM-CUNGE ROUTE IN CHANNEL FROM SUB-BASIN 312 THROUGH 314
  72          KM           1) Reach Length = 4640 ft.
  73          RD
  74          RC     .05     .04     .05    4640   .0060
  75          RX       0       5     205     215     235     245     445     450
  76          RY       5       3       1       0       0       1       3       5

  77          KK    315S
  78          KM   RUNOFF GENERATED ON SUB-BASIN 315
  79          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  80          KM    L= 1.16 mi.  Lca= 0.37 mi.  S= 287 ft/mi.  Kn= .053  LAG= 18.88 min.
  81          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  82          BA    .508
  83          LG     .15     .30    8.05    .093    6.65
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 84           UI     91.    332.    515.    724.   1076.    791.    567.    379.    178.    118.
 85           UI     63.     28.     28.     28.      0.      0.      0.      0.      0.      0.
 86           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 87           KK   315RR
              * KO     1
 88           KM   ROUTE FLOW THROUGH DETENTION BEHIND C.A.P. STRUCTURE NO.2
 89           RS      1    ELEV      13
 90           SV      0     0.3     3.0    10.2    25.3    51.6
 91           SE     13      14      16      18      20      22
 92           SL  14.84    4.59     0.6     0.5
 93           SS     21      50     3.0     1.5

 94           KK   RM315
 95           KM   MUSKINGUM-CUNGE ROUTE IN CHANNEL FROM DETENTION THROUGH SUB-BASIN 316
 96           KM           1) Reach Length = 7480 ft.
 97           RD
 98           RC    .05     .04     .05    7480   .0099
 99           RX     60     140     190     200     210     220     270     350
100           RY      5       4       2       0       0       2       4       5

101           KK    316S
102           KM   RUNOFF GENERATED ON SUB-BASIN 316
103           KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
104           KM    L= 1.36 mi.  Lca= 0.86 mi.  S= 55 ft/mi.  Kn= .038  LAG= 27.12 min.
105           KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
106           BA    .672
107           LG     .25     .37    7.14     .14     .00
108           UI     83.    167.    359.    466.    578.    781.   1024.    795.    637.    501.
109           UI    389.    237.    144.    116.     83.     35.     26.     26.     26.     26.
110           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
111           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

112           KK   HC316
113           KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 316 WITH ROUTED FLOW FROM 315
114           HC      2

115           KK   RM316
116           KM   MUSKINGUM-CUNGE ROUTE IN CHANNEL FROM SUB-BASIN 316 THROUGH 314
117           KM           1) Reach Length = 4720 ft.
118           RD
119           RC    .05     .04     .05    4720   .0059
120           RX      0       5     205     215     235     245     445     450
121           RY      5       3       1       0       0       1       3       5

122           KK    317S
123           KM   RUNOFF GENERATED ON SUB-BASIN 317
124           KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
125           KM    L= 1.54 mi.  Lca= 0.58 mi.  S= 300 ft/mi.  Kn= .053  LAG= 24.74 min.
126           KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
127           BA    .704
128           LG     .15     .35    7.50    .117    9.37
129           UI     96.    230.    445.    572.    737.   1109.   1019.    778.    603.    456.
130           UI    270.    164.    121.     84.     29.     29.     29.     29.      0.      0.
131           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 132          KK    318S
 133          KM   RUNOFF GENERATED ON SUB-BASIN 318
 134          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 135          KM    L= 1.94 mi.  Lca= 1.09 mi.  S= 288 ft/mi.  Kn= .053  LAG= 34.59 min.
 136          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 137          BA    .542
 138          LG     .15     .33    7.78    .105    7.49
 139          UI     53.     54.    185.    246.    296.    350.    421.    576.    651.    507.
 140          UI    428.    355.    295.    240.    168.     94.     88.     65.     53.     28.
 141          UI     16.     16.     16.     16.     16.      0.      0.      0.      0.      0.
 142          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 143          KK   HC317
 144          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 317 & 318
 145          HC       2

 146          KK   317RR
              * KO     1
 147          KM   ROUTE FLOW THROUGH DETENTION BEHIND C.A.P. STRUCTURE NO.3
 148          RS       1    ELEV      13
 149          SV       0     1.3    13.2    41.3    90.4   159.6
 150          SE      13      14      16      18      20      22
 151          SL   15.42    9.62     0.6     0.5
 152          SS      21      50     3.0     1.5

 153          KK   RM317
 154          KM   MUSKINGUM-CUNGE ROUTE IN CHANNEL FROM DETENTION THROUGH SUB-BASIN 319
 155          KM            1) Reach Length = 5000 ft.
 156          RD
 157          RC     .05     .04     .05    5000   .0116
 158          RX      60     160     190     200     210     220     250     350
 159          RY       4       3       2       0       0       2       3       4

 160          KK    319S
 161          KM   RUNOFF GENERATED ON SUB-BASIN 319
 162          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 163          KM    L= 0.99 mi.  Lca= 0.51 mi.  S= 63 ft/mi.  Kn= .045  LAG= 22.75 min.
 164          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 165          BA    .339
 166          LG     .25     .39    5.98    .198     .00
 167          UI     50.    138.    250.    323.    447.    606.    451.    346.    259.    160.
 168          UI     86.     63.     40.     15.     15.     15.      0.      0.      0.      0.
 169          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 170          KK   HC319
 171          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 319 WITH ROUTED FLOW FROM 317
 172          HC       2

 173          KK   RM319
 174          KM   MUSKINGUM-CUNGE ROUTE IN CHANNEL FROM SUB-BASIN 319 THROUGH 314
 175          KM            1) Reach Length = 6360 ft.
 176          RD
 177          RC     .05     .04     .05    6360   .0066
 178          RX       0       5     205     215     235     245     445     450
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 179          RY       5       3     1.5       0       0     1.5       3       5

 180          KK    314S
 181          KM   RUNOFF GENERATED ON SUB-BASIN 314
 182          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 183          KM    L= 1.81 mi.  Lca= 0.71 mi.  S= 41 ft/mi.  Kn= .038  LAG= 29.72 min.
 184          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 185          BA    .846
 186          LG    .339    .365    4.43    .256    2.78
 187          UI     96.    160.    379.    501.    606.    751.   1073.   1118.    858.    705.
 188          UI    564.    449.    293.    168.    152.     96.     70.     29.     29.     29.
 189          UI     29.     29.      0.      0.      0.      0.      0.      0.      0.      0.
 190          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 191          KK   HC314
 192          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 314 WITH ROUTED FLOWS FROM 312, 316 & 319
 193          HC       4

 194          KK   314RR
              * KO     1
 195          KM   ROUTE FLOW THROUGH PINNACLE PEAK ROAD CULVERTS
 196          KM   SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
 197          KM            Prepared for the City of Phoenix Engineering Dept., Floodplain
 198          KM            Management, ST-886366, September 1989, by Greiner, Inc.
 199          RS       1    ELEV      11
 200          SV       0     .05     1.2     9.1    35.6      65    94.5     139
 201          SE      11      12      14      16      18      19      20      21
 202          SQ       0      54     254     528     936    2344    5278   10401

 203          KK   RM314
 204          KM   MUSKINGUM-CUNGE ROUTE OUTFLOW FROM SUB-BASIN 314 THROUGH 322
 205          KM            1) Reach Length = 1920 ft.
 206          RD
 207          RC     .05     .04     .05    1920   .0026
 208          RX       0      50     150     165     175     190     240     250
 209          RY       6       5       4       0       0       4       5       7

 210          KK    320S
 211          KM   RUNOFF GENERATED ON SUB-BASIN 320
 212          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 213          KM    L= 1.74 mi.  Lca= 0.72 mi.  S= 218 ft/mi.  Kn= .053  LAG= 29.89 min.
 214          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 215          BA   1.106
 216          LG    .149    .345    7.50    .116    7.45
 217          UI    125.    205.    491.    649.    783.    968.   1374.   1472.   1125.    928.
 218          UI    743.    595.    399.    220.    204.    125.     99.     38.     38.     38.
 219          UI     38.     38.      0.      0.      0.      0.      0.      0.      0.      0.
 220          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 221          KK   DT320
 222          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 1.8 AC-FT FROM SUB-BASIN 320
 223          KM                                              (Hydrograph identified as OR320)
 224          KM                                            2) Balance of runoff continues on.
 225          KM                                              (Hydrograph identified as DT320)
 226          DT   OR320     1.8
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 227          DI        0   10000
 228          DQ        0   10000

 229          KK   320RR
              * KO      1
 230          KM   ROUTE FLOW THROUGH DETENTION BEHIND C.A.P. STRUCTURES NO. 4 & 5
 231          RS        1    ELEV      13
 232          SV        0     0.6    12.4    48.7   119.5   230.3
 233          SE       13      14      16      18      20      22
 234          SL    14.80   11.66     0.6     0.5
 235          SS       20     200     3.0     1.5

 236          KK   320RE
 237          KM   DIVERT OUTFLOW FROM STRUCTURE NO.5 INTO SUB-BASIN 325
 238          KM   REMAINING OUTFLOW INTO SUB-BASIN 321 IS FROM STRUCTURE NO.4
 239          DT    325D
 240          DI        0      13      63     102     128     150
 241          DQ        0       5      28      42      52      60

 242          KK   RM320
 243          KM   MUSKINGUM-CUNGE ROUTE OUTFLOW FROM DETENTION FOR SUB-BASIN 320 THROUGH 321
 244          KM            1) Reach Length = 11,160 ft.
 245          RD
 246          RC     .05     .04     .05   11160   .0085
 247          RX        0       5     155     160     170     175     325     330
 248          RY        3       2       1       0       0       1       2       3

 249          KK    321S
 250          KM   RUNOFF GENERATED ON SUB-BASIN 321
 251          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 252          KM    L= 2.27 mi.  Lca= 1.24 mi.  S= 57 ft/mi.  Kn= .038  LAG= 37.61 min.
 253          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 254          BA   1.121
 255          LG    .298    .349    3.77    .349    1.42
 256          UI    100.    100.    302.    436.    531.    614.    726.    887.   1220.   1164.
 257          UI    934.    805.    675.    570.    481.    344.    213.    172.    156.    100.
 258          UI    100.     32.     31.     31.     31.     31.     31.     31.      0.      0.
 259          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 260          KK   HC321
 261          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 321 WITH ROUTED FLOW FROM 320
 262          HC        2

 263          KK   RM321
 264          KM   MUSKINGUM-CUNGE ROUTE IN CHANNEL FROM SUB-BASIN 321 THROUGH 322
 265          KM            1) Reach Length = 2760 ft.
 266          RD
 267          RC     .05     .04     .05    2760   .0051
 268          RX        0      50     150     165     175     190     240     250
 269          RY        6       5       4       0       0       4       5       7
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 270          KK    323S
 271          KM   RUNOFF GENERATED ON SUB-BASIN 323
 272          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 273          KM    L= 0.92 mi.  Lca= 0.34 mi.  S= 61 ft/mi.  Kn= .038  LAG= 16.11 min.
 274          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 275          BA     .11
 276          LG     .10     .25    4.24    .433   25.12
 277          UI     27.     99.    150.    249.    218.    147.     90.     39.     24.      7.
 278          UI      7.      7.      0.      0.      0.      0.      0.      0.      0.      0.
 279          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 280          KK   323RR
              * KO     1
 281          KM   ROUTE FLOW THROUGH ON-SITE DETENTION
 282          RS       1    ELEV    36.1
 283          SV       0     0.5     3.9    12.8    29.3    57.8
 284          SE    36.1      38      40      42      44      46
 285          SL   37.65     6.6     0.6     0.5
 286          SS      45     100     3.0     1.5

 287          KK   RM323
 288          KM   MUSKINGUM-CUNGE ROUTE OUTFLOW FROM DETENTION THROUGH SUB-BASIN 322
 289          KM            1) Reach Length = 5200 ft.
 290          RD
 291          RC     .05     .04     .05    5200   .0063
 292          RX       0       5     205     215     225     235     435     440
 293          RY       5       3       1       0       0       1       3       5

 294          KK    322S
 295          KM   RUNOFF GENERATED ON SUB-BASIN 322
 296          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 297          KM    L= 1.15 mi.  Lca= 0.44 mi.  S= 36 ft/mi.  Kn= .036  LAG= 20.26 min.
 298          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 299          BA    .345
 300          LG    .328    .341    3.77    .348    7.52
 301          UI     57.    190.    310.    415.    653.    571.    418.    303.    177.     97.
 302          UI     63.     31.     18.     18.     18.      0.      0.      0.      0.      0.
 303          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 304          KK   DT322
 305          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 1.2 AC-FT FROM SUB-BASIN 322
 306          KM                                             (Hydrograph identified as OR322)
 307          KM                                           2) Balance of runoff continues on.
 308          KM                                             (Hydrograph identified as DT322)
 309          DT   OR322     1.2
 310          DI       0   10000
 311          DQ       0   10000

 312          KK   HC322
 313          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 322 WITH ROUTED FLOW FROM 314, 321 & 323
 314          HC       4
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 315          KK   322RR
 316          KM   ROUTE FLOW THROUGH DETENTION BEHIND 2 - 8 x 7 RCBC AT I-17
 317          KM   SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
 318          KM            Prepared for the City of Phoenix Engineering Dept., Floodplain
 319          KM            Management, ST-886366, September 1989, by Greiner, Inc.
 320          RS       1    STOR      -1
 321          SV       0    .001     .22     1.16     8.44      17      30      49      67      76
 322          SE     3.8       4       6        8       10      11      12      13    13.7      14
 323          SQ       0       1     176      414      680     880    1091    1593    2678    3746

 324          KK   322RE
 325          KM   DIVERT OVERFLOWS SOUTH TO SINGLE CULVERT AT MH PARK, AND WEST ONTO I-17.
 326          KM   DQ IS DISCHARGE THROUGH 2-8x7 CULVERT (MAX. 1312 CFS); DI IS TOTAL DISCHARGE.
 327          KM   SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
 328          KM            Prepared for the City of Phoenix Engineering Dept., Floodplain
 329          KM            Management, ST-886366, September 1989, by Greiner, Inc.
 330          DT   333D1
 331          DI       1     880    1091    1593    2678    3746
 332          DQ       1     880    1060    1184    1296    1312

 333          KK    326D
 334          KM   SEPARATE OUT WEST OVERFLOWS ONTO THE FRONTAGE ROAD AND MAINLINE I-17.
 335          KM   THESE FLOWS HEAD SOUTH AND EVENTUALLY ENTER THE DEER VALLEY ROAD INTERCHANGE.
 336          KM   REMAINING FLOWS CONTINUE SOUTH TO 6x7 BOX CULVERT ON SCATTER WASH AT I-17.
 337          KM   SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
 338          KM            Prepared for the City of Phoenix Engineering Dept., Floodplain
 339          KM            Management, ST-886366, September 1989, by Greiner, Inc.
 340          DT    332D
 341          DI      31     409    1382    2434
 342          DQ       0       0     215     840

 343          KK   325RD
 344          KM   RETRIEVE FLOW FROM C.A.P. STRUCTURE NO.5
 345          DR    325D

 346          KK   RM320
 347          KM   MUSKINGUM-CUNGE ROUTE OUTFLOW FROM STRUCTURE NO.5 THROUGH 325.
 348          KM            1) Reach Length = 8560 ft.
 349          RD
 350          RC     .05     .04     .05    8560   .0082
 351          RX       0      10     200     220     235     255     440     450
 352          RY       5       4       2       0       0       2       4       5

 353          KK    325S
 354          KM   RUNOFF GENERATED ON SUB-BASIN 325
 355          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 356          KM    L= 1.71 mi.  Lca= 0.65 mi.  S= 60 ft/mi.  Kn= .037  LAG= 25.48 min.
 357          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 358          BA    .502
 359          LG    .266    .333    3.87    .372    7.02
 360          UI     66.    151.    300.    388.    491.    718.    756.    566.    445.    343.
 361          UI    234.    121.    100.     66.     32.     20.     20.     20.     20.      0.
 362          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 363          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 364          KK   HC325
 365          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 325 WITH ROUTED FLOW FROM 320
 366          HC       2

 367          KK   RM325
 368          KM   MUSKINGUM-CUNGE ROUTE IN CHANNEL FROM SUB-BASIN 325 THROUGH 326
 369          KM            1) Reach Length = 6200 ft.
 370          RD
 371          RC     .05     .04     .05    6200   .0068
 372          RX      80     130     195     220     235     260     325     375
 373          RY       6       5       3       0       0       3       5       6

 374          KK    326S
 375          KM   RUNOFF GENERATED ON SUB-BASIN 326
 376          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 377          KM    L= 2.01 mi.  Lca= 0.90 mi.  S= 37 ft/mi.  Kn= .036  LAG= 32.70 min.
 378          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 379          BA    .498
 380          LG    .312    .335    4.14    .428   12.87
 381          UI     51.     65.    186.    252.    299.    361.    452.    635.    555.    446.
 382          UI    374.    305.    250.    176.    102.     86.     64.     51.     26.     16.
 383          UI     16.     16.     16.     16.      0.      0.      0.      0.      0.      0.
 384          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 385          KK   DT326
 386          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 4.7 AC-FT FROM SUB-BASIN 326
 387          KM                                               (Hydrograph identified as OR326)
 388          KM                                            2) Balance of runoff continues on.
 389          KM                                               (Hydrograph identified as DT326)
 390          DT   OR326     4.7
 391          DI       0   10000
 392          DQ       0   10000

 393          KK   HC326
 394          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 326 WITH ROUTED FLOW FROM 325 AND
 395          KM   OVERFLOW FROM 322.
 396          HC       3

 397          KK   326RE
 398          KM   DIVERT FLOW ACROSS I-17 THROUGH 6x7 RCBC (MAX. Q = 510 CFS)
 399          KM   SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
 400          KM            Prepared for the City of Phoenix Engineering Dept., Floodplain
 401          KM            Management, ST-886366, September 1989, by Greiner, Inc.
 402          DT   333D2
 403          DI       0       1     510     511    1000    2000
 404          DQ       0       1     510     510     510     510

 405          KK    327S
 406          KM   RUNOFF GENERATED ON SUB-BASIN 327
 407          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 408          KM    L= 1.21 mi.  Lca= 0.53 mi.  S= 38 ft/mi.  Kn= .030  LAG= 18.28 min.
 409          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 410          BA    .216
 411          LG    .193    .287    3.61    .305   47.32
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 412          UI     40.    152.    232.    336.    466.    328.    231.    143.     68.     44.
 413          UI     18.     12.     12.      0.      0.      0.      0.      0.      0.      0.
 414          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 415          KK   DT327
 416          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 1.7 AC-FT FROM SUB-BASIN 327
 417          KM                                               (Hydrograph identified as OR327)
 418          KM                                             2) Balance of runoff continues on.
 419          KM                                               (Hydrograph identified as DT327)
 420          DT   OR327     1.7
 421          DI       0   10000
 422          DQ       0   10000

 423          KK   HC327
 424          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 327 WITH OVERFLOW FROM 326
 425          HC       2

 426          KK   327RE
 427          KM   DIVERT FLOW ACROSS I-17 THROUGH 65"x40" CMP AT ADOBE DR.
 428          KM   SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
 429          KM            Prepared for the City of Phoenix Engineering Dept., Floodplain
 430          KM            Management, ST-886366, September 1989, by Greiner, Inc.
 431          DT   334D1
 432          DI       0     115     116    1000    3000
 433          DQ       1     115     115     115     115

 434          KK    330S
 435          KM   RUNOFF GENERATED ON SUB-BASIN 330
 436          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 437          KM    L= 1.67 mi.  Lca= 0.87 mi.  S= 28 ft/mi  Kn= .024  LAG= 21.15 min.
 438          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 439          BA    .310
 440          LG    .192    .272    3.77    .325   36.43
 441          UI     49.    153.    259.    341.    517.    541.    390.    288.    197.     96.
 442          UI     69.     43.     15.     15.     15.      0.      0.      0.      0.      0.
 443          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 444          KK   DT330
 445          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 1.9 AC-FT FROM SUB-BASIN 330
 446          KM                                               (Hydrograph identified as OR330)
 447          KM                                             2) Balance of runoff continues on.
 448          KM                                               (Hydrograph identified as DT330)
 449          DT   OR330     1.9
 450          DI       0   10000
 451          DQ       0   10000

 452          KK   330R1
 453          KM   DIVERT FLOW SOUTH ALONG 19TH AVENUE AT DEER VALLEY RD.
 454          DT    341D
 455          DI       0     145     418    2248    4002
 456          DQ       0       0     121     550    1220
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 457          KK   330R2
 458          KM   DIVERT FLOW SOUTH INTO SUB-BASIN 343.  THIS DIVERT IS USED TO SIMULATE
 459          KM   THE CROWN OVERTOPPING OF DEER VALLEY RD.
 460          DT    343D
 461          DI       0      55     328     746
 462          DQ       0       0     241     487

 463          KK   RM330
 464          KM   MUSKINGUM-CUNGE ROUTE OVERFLOW FROM SUB-BASIN 330 THROUGH 331
 465          KM           1) Reach Length = 3850 ft.
 466          RD
 467          RC    .020    .020    .030    3850   .0057
 468          RX       0      .5    45.5    45.5    50.5    55.5    60.5    60.5
 469          RY       5       3     2.3     2.8     2.8       3       4       5

 470          KK    331S
 471          KM   RUNOFF GENERATED ON SUB-BASIN 331
 472          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 473          KM    L= 1.25 mi.  Lca= 0.32 mi.  S= 35 ft/mi.  Kn= .027  LAG= 13.97 min.
 474          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 475          BA     .22
 476          LG    .141    .171    8.28    .078   68.37
 477          UI     77.    256.    409.    596.    384.    228.     94.     46.     16.     16.
 478          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 479          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 480          KK   DT331
 481          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 1.6 AC-FT FROM SUB-BASIN 331
 482          KM                                              (Hydrograph identified as OR331)
 483          KM                                            2) Balance of runoff continues on.
 484          KM                                              (Hydrograph identified as DT331)
 485          DT   OR331     1.6
 486          DI       0   10000
 487          DQ       0   10000

 488          KK   HC331
 489          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 331 WITH OVERFLOW FROM 327 & 330.
 490          HC       3

 491          KK   331RE
 492          KM   DIVERT FLOW ACROSS I-17 THROUGH 6x3 RCBC AT LOUISE DR.
 493          KM   DI REPRESENTS TOTAL FLOW TO DEPRESSED INTERCHANGE AT DEER VALLEY RD.
 494          KM   SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
 495          KM            Prepared for the City of Phoenix Engineering Dept., Floodplain
 496          KM            Management, ST-886366, September 1989, by Greiner, Inc.
 497          DT   334D2
 498          DI       0       1     156     157    1000    3000
 499          DQ       0       1     156     156     156     156
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 500          KK    R332
 501          KM   RETRIEVE HYDROGRAPH OF OVERFLOW FROM SUB-BASIN 322 ONTO I-17 MEDIAN
 502          DR    332D

 503          KK    332S
 504          KM   RUNOFF GENERATED ON SUB-BASIN 332
 505          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 506          KM    L= 0.40 mi.  Lca= 0.07 mi.  S= 65 ft/mi.  Kn= .027  LAG= 6.00 min.
 507          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 508          BA    .094
 509          LG    .159    .189    8.20    .046   48.74
 510          UI    190.    497.    185.     29.      0.      0.      0.      0.      0.      0.
 511          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 512          KK   DT332
 513          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 0.4 AC-FT FROM SUB-BASIN 332
 514          KM                                              (Hydrograph identified as OR332)
 515          KM                                            2) Balance of runoff continues on.
 516          KM                                              (Hydrograph identified as DT332)
 517          DT   OR332     0.4
 518          DI       0   10000
 519          DQ       0   10000

 520          KK   HC332
 521          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 332 WITH OVERFLOWS FROM SUB-BASIN 322
 522          KM   AND 331 (TOTAL FLOW INTO DEER VALLEY RD. INTERCHANGE)
 523          HC       3

 524          KK   332RR
 525          KM   ROUTE FLOW THROUGH DEPRESSED SECTION AT DEER VALLEY RD. INTERCHANGE TO
 526          KM   WEST SIDE OF I-17.
              * KO     1
 527          RS       1    ELEV      82
 528          SV       0     1.4    10.7    28.9    42.5      56      69    84.5   114.8
 529          SE      82      84      88      92      94    95.6    96.8      98     100
 530          SQ       0       0       0       0       0       1    1428    7646   26741

 531          KK   RM332
 532          KM   MUSKINGUM-CUNGE ROUTE OUTFLOW FROM DEER VALLEY RD. INTERCHANGE
 533          KM   THROUGH SUB-BASIN 335.
 534          KM            1) Reach Length = 5760 ft.
 535          RD
 536          RC    .045     .04    .045    5760   .0068
 537          RX       0       5      55      60      70      75     125     130
 538          RY       3       2       1       0       0       1       2       3

 539          KK    R322
 540          KM   RETRIEVE HYDROGRAPH FOR NORTH BRANCH OF SCATTER WASH
 541          KM   (ALSO KNOWN AS FLOW THROUGH 2-8x7 RCBC)
 542          DR   333D1
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 543          KK   R326
 544          KM   RETRIEVE HYDROGRAPH FOR SOUTH BRANCH OF SCATTER WASH
 545          KM   (ALSO KNOWN AS FLOW THROUGH 6x7 RCBC)
 546          DR   333D2

 547          KK   333S
 548          KM   RUNOFF GENERATED ON SUB-BASIN 333
 549          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 550          KM    L= 2.34 min.  Lca= 0.96 mi.  S= 27 ft/mi.  Kn= .038  LAG= 39.79 min.
 551          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 552          BA   .533
 553          LG   .311    .354    5.98    .198   10.71
 554          UI    45.     45.    119.    187.    229.    264.    307.    360.    476.    574.
 555          UI   471.    395.    345.    289.    247.    208.    150.     93.     77.     73.
 556          UI    45.     45.     21.     14.     14.     14.     14.     14.     14.      0.
 557          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 558          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 559          KK   HC333
 560          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 333 WITH DIVERTED FLOWS FROM 322 & 326.
 561          HC      3

 562          KK   RM333
 563          KM   MUSKINGUM-CUNGE ROUTE OVERFLOW FROM SUB-BASIN 333 THROUGH 334
 564          KM           1) Reach Length = 5160 ft.
 565          RD
 566          RC   .055    .045    .055    5160   .0056
 567          RX      0      60     110     145     170     195     250     400
 568          RY      7       6       2       0       0       2       6       7

 569          KK   R327
 570          KM   RETRIEVE HYDROGRAPH FOR DIVERTED FLOW FROM SUB-BASIN 327
 571          DR   334D1

 572          KK   RM327
 573          KM   MUSKINGUM-CUNGE ROUTE DIVERTED FLOW THROUGH SUB-BASIN 334
 574          KM           1) Reach Length = 5100 ft.
 575          RD
 576          RC    .05     .04     .05    5100   .0073
 577          RX      0      10      30      33      48      51     151     200
 578          RY      3       2     1.5       0       0     1.5       2       3

 579          KK   R331
 580          KM   RETRIEVE HYDROGRAPH FOR DIVERTED FLOW FROM SUB-BASIN 331
 581          DR   334D2

 582          KK   RM331
 583          KM   MUSKINGUM-CUNGE ROUTE DIVERTED FLOW THROUGH SUB-BASIN 334
 584          KM           1) Reach Length = 5000 ft.
 585          RD
 586          RC    .03    .045    .045    5000   .0070
 587          RX      0      10      30      33      48      51     151     200
 588          RY      3       2     1.5       0       0     1.5       2       3
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 589          KK    334S
 590          KM   RUNOFF GENERATED ON SUB-BASIN 334
 591          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 592          KM    L= 1.01 mi.  Lca= 0.51 mi.  S= 272 ft/mi.  Kn= .033  LAG= 12.73 min.
 593          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 594          BA    .657
 595          LG    .161    .229    8.28    .081   32.97
 596          UI    285.    902.   1587.   1729.   1031.    462.    217.     67.     53.      0.
 597          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 598          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 599          KK   DT334
 600          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 0.8 AC-FT FROM SUB-BASIN 334
 601          KM                                             (Hydrograph identified as OR334)
 602          KM                                            2) Balance of runoff continues on.
 603          KM                                             (Hydrograph identified as DT334)
 604          DT   OR334     0.8
 605          DI       0   10000
 606          DQ       0   10000

 607          KK   HC334
 608          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 334 WITH ROUTED FLOWS FROM 327, 331 & 333
 609          HC       4

 610          KK   RM334
 611          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 334 THROUGH 335
 612          KM            1) Reach Length = 2980 ft.
 613          RD
 614          RC     .05    .045     .05    2980   .0044
 615          RX       0     190     230     240     260     270     330     400
 616          RY       7       4       2       0       0       2       6       7

 617          KK    335S
 618          KM   RUNOFF GENERATED ON SUB-BASIN 335
 619          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 620          KM    L= 1.11 mi.  Lca= 0.56 mi.  S= 38 ft/mi.  Kn= .033  LAG= 19.87 min.
 621          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 622          BA    .463
 623          LG    .206     .22    8.60     .07   14.96
 624          UI     78.    267.    430.    581.    914.    751.    550.    394.    210.    130.
 625          UI     78.     30.     24.     24.      0.      0.      0.      0.      0.      0.
 626          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 627          KK   DT335
 628          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 4.8 AC-FT FROM SUB-BASIN 335
 629          KM                                             (Hydrograph identified as OR335)
 630          KM                                            2) Balance of runoff continues on.
 631          KM                                             (Hydrograph identified as DT335)
 632          DT   OR335     4.8
 633          DI       0   10000
 634          DQ       0   10000
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 635          KK   HC335
 636          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 335 WITH ROUTED FLOWS FROM 332 & 334
 637          HC       3

 638          KK   RM335
 639          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 335 THROUGH 345
 640          KM            1) Reach Length = 4240 ft.
 641          RD
 642          RC     .05     .04     .05    4240   .0061
 643          RX       0      10     280     285     335     340     500     510
 644          RY      10       8       4       2       2       4       8      10

 645          KK   330R2
 646          KM   RETRIEVE DIVERTED FLOW FROM DEER VALLEY RD.
 647          DR    343D

 648          KK    343S
 649          KM   RUNOFF GENERATED ON SUB-BASIN 343
 650          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 651          KM    L= 1.07 mi.  Lca= 0.55 mi.  S= 24 ft/mi.  Kn= .027  LAG= 17.38 min.
 652          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 653          BA     .32
 654          LG    .181    .179   10.10    .034   47.01
 655          UI     62.    252.    378.    580.    686.    464.    319.    158.     91.     50.
 656          UI     19.     19.      0.      0.      0.      0.      0.      0.      0.      0.
 657          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 658          KK   DT343
 659          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 6.5 AC-FT FROM SUB-BASIN 343
 660          KM                                              (Hydrograph identified as OR343)
 661          KM                                            2) Balance of runoff continues on.
 662          KM                                              (Hydrograph identified as DT343)
 663          DT   OR343     6.5
 664          DI       0   10000
 665          DQ       0   10000

 666          KK   HC343
 667          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 343 WITH OVERFLOW FROM DEER VALLEY RD.
 668          HC       2

 669          KK   343RR
 670          KM   ROUTE FLOW THROUGH DETENTION BASIN D AT ROSE GARDEN LANE
 671          KM   SOURCE:  Drainage Report, Scatter Wash Hydrology and Outer Loop Highway
 672          KM            Interceptor Drain, 39th Avenue to 7th Street, November 1989.
 673          KM            Prepared by DeLeuw Cather & Co.
              * KO     1
 674          RS       1    STOR       0
 675          SV       0      .7    25.4      30    34.6
 676          SE    1381  1382.5    1396    1398    1400
 677          SL    1381    2.41     0.6     0.5
 678          SS    1397     100     3.0     1.5
```

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


679           KK   RM343
680           KM   MUSKINGUM-CUNGE ROUTE FLOW FROM DETENTION BASIN D SOUTH
681           KM            1) Reach Length = 2273 ft.
682           RD    2273   .0078    .014            CIRC       3

683           KK    349S
684           KM   RUNOFF GENERATED ON SUB-BASIN 349
685           KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
686           KM    L= 1.03 mi.  Lca= 0.68 mi.  S= 27 ft/mi.  Kn= .028  LAG= 18.83 min.
687           KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
688           BA    .372
689           LG    .193    .097   12.40    .012   34.46
690           UI     67.    244.    379.    534.    790.    578.    414.    275.    129.     85.
691           UI     45.     20.     20.     20.      0.      0.      0.      0.      0.      0.
692           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

693           KK   DT349
694           KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 7.4 AC-FT FROM SUB-BASIN 349
695           KM                                              (Hydrograph identified as OR349)
696           KM                                            2) Balance of runoff continues on.
697           KM                                              (Hydrograph identified as DT349)
698           DT   OR349     7.4
699           DI       0   10000
700           DQ       0   10000

701           KK   349RR
702           KM   ROUTE FLOW THROUGH SMALL DETENTION BASIN AT INTEL
703           KM   SOURCE:  Drainage Report, Scatter Wash Hydrology and Outer Loop Highway
704           KM            Interceptor Drain, 39th Avenue to 7th Street, November 1989.
705           KM            Prepared by DeLeuw Cather & Co.
              * KO     1
706           RS       1    STOR       0
707           SV       0     .35     1.9    3.07    4.56    6.00
708           SE    1383    1384    1386    1388    1390    1392
709           SL    1383    7.07     0.6     0.5
710           SS    1390     100     3.0     1.5

711           KK   349RE
712           KM   DIVERT OUTFLOW INTO BEARDSLEY RD. INTERCHANGE.  REMAINING FLOW CONTINUES TO
713           KM   SCATTER WASH AND REFLECTS DISCHARGE FROM INTEL BASIN LOW LEVEL OUTLET.
714           DT   BEARD
715           DI       0      90      91     100     200     500    1000
716           DQ       0       0       1      10     110     410     910

717           KK   HC349
718           KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 349 WITH ROUTED DETENTION BASIN D OVERFL
719           HC       2

720           KK  RM344A
721           KM   MUSKINGUM-CUNGE ROUTE FLOW WEST THROUGH 96-IN. PIPE
722           KM            1) Reach Length = 3244 ft.
723           RD    3244   .0012    .014            CIRC       8
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 724          KK  RM344B
 725          KM   MUSKINGUM-CUNGE ROUTE FLOW WEST THROUGH TRAPEZOIDAL CHANNEL
 726          KM            1) Reach Length = 3550 ft.
 727          RD    3150   .0044    .014            TRAP       8       2

 728          KK    344S
 729          KM   RUNOFF GENERATED ON SUB-BASIN 344
 730          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 731          KM    L= 1.69 mi.  Lca= 0.98 mi.  S= 27 ft/mi.  Kn= .031  LAG= 28.91 min.
 732          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 733          BA    .554
 734          LG    .256    .162    9.40    .023   24.47
 735          UI     65.    114.    262.    344.    418.    527.    769.    704.    551.    447.
 736          UI    356.    275.    153.    110.     85.     65.     27.     20.     20.     20.
 737          UI     20.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 738          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 739          KK   DT344
 740          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 6.0 AC-FT FROM SUB-BASIN 344
 741          KM                                              (Hydrograph identified as OR344)
 742          KM                                            2) Balance of runoff continues on.
 743          KM                                              (Hydrograph identified as DT344)
 744          DT   OR344     6.0
 745          DI       0   10000
 746          DQ       0   10000

 747          KK  HC344U
 748          KM   COMBINE HYDROGRAPHS UPSTREAM OF DETENTION BASIN C FROM SUB-BASIN 344 WITH
 749          KM   ROUTED OUTFLOW FROM DETENTION BASIN AT INTEL
 750          HC       2

 751          KK     344
 752          KM   DIVERT FLOW TO DETENTION BASIN C
 753          KM   SOURCE:  Drainage Report, Scatter Wash Hydrology and Outer Loop Highway
 754          KM            Interceptor Drain, 39th Avenue to 7th Street, November 1989.
 755          KM            Prepared by DeLeuw Cather & Co.
 756          DT   344RE
 757          DI       0     150     250     251     750
 758          DQ       0     150     250     250     250

 759          KK   344RR
 760          KM   ROUTE FLOW THROUGH DETENTION BASIN C (33-IN. ORIFICE)
 761          KM   SOURCE:  Drainage Report, Scatter Wash Hydrology and Outer Loop Highway
 762          KM            Interceptor Drain, 39th Avenue to 7th Street, November 1989.
 763          KM            Prepared by DeLeuw Cather & Co.
              * KO     1
 764          RS       1    STOR       0
 765          SA    2.15    2.24    2.32    2.52    2.71    2.91    3.12    3.67
 766          SE    1338    1339    1340    1342    1344    1346    1348    1353
 767          SL    1339    5.94     0.6     0.5
 768          SS    1352      40     2.7     1.5
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 769          KK  R344RE
 770          KM   RETRIEVE DETENTION BASIN BYPASS FLOW
 771          DR   344RE

 772          KK  HC344D
 773          KM   COMBINE HYDROGRAPHS DOWNSTREAM OF DETENTION BASIN C
 774          HC       2

 775          KK   RM344
 776          KM   MUSKINGUM-CUNGE ROUTE OUTFLOW FROM DETENTION BASIN C THROUGH SUB-BASIN 345
 777          KM            1) Reach Length = 2160 ft.
 778          RD    2160   .0044    .014            TRAP       8       2

 779          KK    345S
 780          KM   RUNOFF GENERATED ON SUB-BASIN 345
 781          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 782          KM    L= 1.11 mi.  Lca= 0.67 mi.  S= 32 ft/mi.  Kn= .027  LAG= 17.98 min.
 783          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 784          BA    .296
 785          LG    .194    .302    5.67     .21   35.40
 786          UI     55.    216.    328.    489.    636.    443.    310.    178.     94.     56.
 787          UI     19.     17.     17.      0.      0.      0.      0.      0.      0.      0.
 788          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 789          KK   HC345
 790          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 345 WITH ROUTED HYDROGRAPHS FROM 335 & 344
 791          HC       3

 792          KK   RM345
 793          KM   MUSKINGUM-CUNGE ROUTE FROM SUB-BASIN 345 THROUGH 346
 794          KM            1) Reach Length = 6200 ft.
 795          RD
 796          RC    .055    .045    .055    6200   .0045
 797          RX       0      20     175     180     200     205     310     330
 798          RY      10       6       4       2       2       4       6      10

 799          KK    346S
 800          KM   RUNOFF GENERATED ON SUB-BASIN 346
 801          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 802          KM    L= 1.51 mi.  Lca= 0.82 mi.  S= 27 ft/mi.  Kn= .033  LAG= 27.55 min.
 803          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 804          BA    .401
 805          LG    .227    .313    5.67     .21   24.66
 806          UI     49.     95.    207.    269.    333.    435.    607.    479.    384.    304.
 807          UI    239.    157.     85.     74.     49.     28.     15.     15.     15.     15.
 808          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 809          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 810          KK   HC346
 811          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 346 WITH ROUTED FLOW FROM 345
 812          HC       2
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 813          KK     AD1
 814          KM   ADOBE DAM LOW LEVEL SPILLWAY OUTFLOW; ASSUME CONSTANT OUTFLOW OF
 815          KM   1730 CFS FOR 100-YEAR STORM.
 816          KM   SOURCE:  F.I.S., Maricopa County, Arizona and Incorporated Areas, FEMA.
 817          BA     0.1
 818          IN     120
 819          QI    1730    1730    1730    1730    1730    1730    1730    1730    1730    1730
 820          QI    1730    1730    1730    1730    1730    1730    1730    1730    1730    1730

 821          KK   RMAD1
 822          KM   NORMAL DEPTH STORAGE ROUTE ADOBE DAM OUTFLOW THROUGH SUB-BASIN 347
 823          KM            1) Reach Length = 3240 ft.
 824          RS       5    FLOW      -1
 825          RC    .055    .045    .055    3240   .0040
 826          RX      30      80     180     200     240     260     265     270
 827          RY       7       6       5       0       0       6       7       8

 828          KK    347S
 829          KM   RUNOFF GENERATED ON SUB-BASIN 347
 830          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 831          KM    L= 1.71 mi.  Lca= 0.73 mi.  S= 35 ft/mi.  Kn= .035  LAG= 27.90 min.
 832          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 833          BA   1.105
 834          LG    .215    .326    3.71     .34   20.32
 835          UI    133.    254.    560.    728.    898.   1163.   1650.   1344.   1074.    853.
 836          UI    675.    467.    252.    219.    133.     96.     41.     41.     41.     41.
 837          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 838          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 839          KK   HC347
 840          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 347 WITH ROUTED OUTFLOW FROM ADOBE DAM
 841          HC       2

 842          KK   RM347
 843          KM   MUSKINGUM-CUNGE ROUTE FROM SUB-BASIN 347 THROUGH 348
 844          KM            1) Reach Length = 3120 ft.
 845          RD
 846          RC     .05     .04     .05    3120   .0051
 847          RX     160     165     170     200     245     280     285     290
 848          RY       7     6.5       6       0       0       6     6.5       7

 849          KK    348S
 850          KM   RUNOFF GENERATED ON SUB-BASIN 348
 851          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 852          KM    L= 0.59 mi.  Lca= 0.41 mi.  S= 27 ft/mi.  Kn= .030  LAG= 13.47 min.
 853          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 854          BA    .048
 855          LG     .20     .31    3.68    .769   21.67
 856          UI     18.     60.     99.    130.     81.     43.     18.      8.      4.      4.
 857          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 858          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 859          KK   HC348
 860          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 348 WITH ROUTED FLOW FROM 347
 861          HC       2

 862          KK   HCSKB
 863          KM   COMBINE HYDROGRAPHS FROM SKUNK CREEK WITH SCATTER WASH
 864          HC       2
 865          ZW    A=SKUNK CREEK  B=HCSKB  C=FLOW  F=SCATTER WASH

 866          KK    R330
 867          KM   RETRIEVE DIVERTED HYDROGRAPH FROM DEER VALLEY ROAD AND 19TH AVENUE.   THIS
 868          KM   HYDROGRAPH WILL BE STORED IN FILENAME:  CCW324.DSS FOR RETRIEVAL AS PART OF
 869          KM   THE WATERSHED CONTRIBUTING TO SKUNK CREEK.
 870          DR    341D
 871          ZW    A=SKUNK CREEK  B=R330  C=FLOW  F=SCATTER WASH

 872          KK  RBEARD
 873          KM   RETRIEVE DIVERTED FLOW INTO BEARDSLEY ROAD - I-17 INTERCHANGE
 874          DR   BEARD

 875          KK  349RR2
 876          KM   ROUTE FLOW THROUGH BEARDSLEY ROAD & I-17 INTERCHANGE
              * KO     1
 877          RS       1    STOR       0
 878          SV       0      .5     3.5     8.3    23.1    46.0    62.3    82.1
 879          SE    1367    1368    1370    1372    1376    1380    1382    1384
 880          SQ       0       0       0       0       0       0    5804   31500
 881          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

 NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

  8        310S
              .
              .
 28           .        311S
              .           .
              .           .
 39       HC311............
              V
              V
 42       311RR
              V
              V
 49       RM311
              .
              .
 56           .        312S
              .           .
              .           .
 67       HC312............
              V
              V
 70       RM312
              .
              .
 77           .        315S
              .           V
              .           V
 87           .       315RR
              .           V
              .           V
 94           .       RM315
              .           .
              .           .
101           .           .       316S
              .           .          .
              .           .          .
112           .       HC316............
              .           V
              .           V
115           .       RM316
              .           .
              .           .
122           .           .       317S
              .           .          .
              .           .          .
132           .           .          .       318S
              .           .          .          .
              .           .          .          .
 3            .           .      HC317............
              .           .          V
              .           .          V
146           .           .      317RR
              .           .          V
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          .          .          V
153       .          .       RM317
          .          .          .
          .          .          .
50        .          .          .        319S
          .          .          .          .
          .          .          .          .
170       .          .       HC319............
          .          .          V
          .          .          V
173       .          .       RM319
          .          .          .
          .          .          .
180       .          .          .        314S
          .          .          .          .
          .          .          .          .
191    HC314.................................
          V
          V
194    314RR
          V
          V
203    RM314
          .
          .
210       .       320S
          .          .
          .          .
226       .          .-------->   OR320
1         .      DT320
          .          V
          .          V
229       .      320RR
          .          .
          .          .
239       .          .-------->    325D
236       .      320RE
          .          V
          .          V
242       .      RM320
          .          .
          .          .
249       .          .       321S
          .          .          .
          .          .          .
260       .      HC321............
          .          V
          .          V
263       .      RM321
          .          .
          .          .
270       .          .       323S
          .          .          V
          .          .          V
0         .          .      323RR
          .          .          V
          .          .          V
287       .          .      RM323
          .          .          .
          .          .          .
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294          .           .           .        322S
             .           .           .           .
             .           .           .           .
09           .           .           .           .-------->   OR322
04           .           .           .       DT322
             .           .           .           .
             .           .           .           .
312       HC322.................................
             V
             V
315       322RR
             .
             .
330          .-------->   333D1
324       322RE
             .
             .
340          .-------->    332D
333        326D
             .
             .
345          .           .<-------    325D
343          .       325RD
             .           V
             .           V
346          .       RM320
             .           .
             .           .
353          .           .        325S
             .           .           .
             .           .           .
364          .       HC325............
             .           V
             .           V
367          .       RM325
             .           .
             .           .
374          .           .        326S
             .           .           .
             .           .           .
390          .           .           .-------->   OR326
385          .           .       DT326
             .           .           .
             .           .           .
393       HC326........................
             .
             .
402          .-------->   333D2
397       326RE
             .
             .
405          .        327S
             .           .
             .           .
0            .           .-------->   OR327
5            .       DT327
             .           .
             .           .
423       HC327............
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          .          .
546       .          .          .<-------   333D2
543       .          .       R326
          .          .          .
          .          .          .
547       .          .          .       333S
          .          .          .          .
          .          .          .          .
559       .      HC333......................
          .          V
          .          V
562       .      RM333
          .          .
          .          .
571       .          .          .<-------   334D1
569       .          .       R327
          .          .          V
          .          .          V
572       .          .      RM327
          .          .          .
          .          .          .
581       .          .          .          .<-------   334D2
579       .          .          .       R331
          .          .          .          V
          .          .          .          V
582       .          .          .      RM331
          .          .          .          .
          .          .          .          .
589       .          .          .          .       334S
          .          .          .          .          .
          .          .          .          .          .
604       .          .          .          .          .------->   OR334
599       .          .          .          .      DT334
          .          .          .          .          .
          .          .          .          .          .
607       .      HC334...................................
          .          V
          .          V
610       .      RM334
          .          .
          .          .
617       .          .       335S
          .          .          .
          .          .          .
632       .          .          .------->   OR335
627       .          .      DT335
          .          .          .
          .          .          .
635     HC335......................
          V
          V
638     RM335
          .
          .
 7        .          .<-------    343D
 5        .      330R2
          .          .
          .          .
648       .          .       343S
          .          .          .
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                .
431             .-------->   334D1
426         327RE
                .
                .
434             .        330S
                .           .
                .           .
449             .           .-------->   OR330
444             .       DT330
                .           .
                .           .
454             .           .-------->    341D
452             .       330R1
                .           .
                .           .
460             .           .-------->    343D
457             .       330R2
                .           V
                .           V
463             .       RM330
                .           .
                .           .
470             .           .        331S
                .           .           .
                .           .           .
485             .           .           .-------->   OR331
480             .           .       DT331
                .           .           .
                .           .           .
    8       HC331.......................
                .
                .
497             .-------->   334D2
491         331RE
                .
                .
502             .           .<-------    332D
500             .        R332
                .           .
                .           .
503             .           .        332S
                .           .           .
                .           .           .
517             .           .           .-------->   OR332
512             .           .       DT332
                .           .           .
                .           .           .
520         HC332.......................
                V
                V
524         332RR
                V
                V
531         RM332
                .
                .
542             .           .<-------   333D1
539             .        R322
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          .          .          .
663       .          .          .-------->   OR343
658       .          .      DT343
          .          .          .
          .          .          .
666       .      HC343............
          .          V
          .          V
669       .      343RR
          .          V
          .          V
679       .      RM343
          .          .
          .          .
683       .          .       349S
          .          .          .
          .          .          .
698       .          .          .-------->   OR349
693       .          .      DT349
          .          .          V
          .          .          V
701       .          .      349RR
          .          .          .
          .          .          .
714       .          .          .-------->   BEARD
711       .          .      349RE
          .          .          .
          .          .          .
 17       .      HC349............
          .          V
          .          V
720       .     RM344A
          .          V
          .          V
724       .     RM344B
          .          .
          .          .
728       .          .       344S
          .          .          .
          .          .          .
744       .          .          .-------->   OR344
739       .          .      DT344
          .          .          .
          .          .          .
747       .     HC344U............
          .          .
          .          .
756       .          .-------->   344RE
751       .        344
          .          V
          .          V
759       .      344RR
          .          .
          .          .
  1       .          .          .<--------   344RE
769       .          .     R344RE
          .          .          .
          .          .          .
772       .     HC344D............
          .          V
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            .          V
775         .       RM344
            .          .
            .          .
79          .          .       345S
            .          .          .
            .          .          .
789      HC345.......................
            V
            V
792      RM345
            .
            .
799         .       346S
            .          .
            .          .
810      HC346............
            .
            .
813         .        AD1
            .          V
            .          V
821         .      RMAD1
            .          .
            .          .
828         .          .       347S
            .          .          .
            .          .          .
839         .      HC347............
            .          V
            .          V
842         .      RM347
            .          .
            .          .
849         .          .       348S
            .          .          .
            .          .          .
859         .      HC348............
            .          .
            .          .
862      HCSKB............
            .
            .
870         .          .<-------    341D
866         .       R330
            .          .
            .          .
874         .          .          .<-------   BEARD
872         .          .     RBEARD
            .          .          V
            .          .          V
875         .          .     349RR2
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
              MAY   1991               *
           VERSION 4.0.1E              *
*                                       *
*  RUN DATE  02/15/95  TIME  16:41:43   *
*                                       *
*****************************************
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*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
*****************************************
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                    ACDC AREA DRAINAGE MASTER STUDY
                    SCATTER WASH WATERSHED
                    FILENAME:  SCW324.DAT     KHE JOB NO. 0146
                    100-YEAR 24-HOUR DURATION STORM
                    SCS TYPE-II DISTRIBUTION WAS USED

  7 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     10OCT92  STARTING DATE
                      ITIME        1200  STARTING TIME
                         NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     13OCT92  ENDING DATE
                     NDTIME        0636  ENDING TIME
                      ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL    0.07 HOURS
                      TOTAL TIME BASE   66.60 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
  -----DSS---ZOPEN:  Existing File Opened,  File: CCW324.DSS
                     Unit:  71;  DSS Version: 6-FT
-----DSS---ZWRITE Unit  71; Vers.    7:  /SKUNK CREEK/HCSKB/FLOW/10OCT1992/4MIN/SCATTER WASH/
-----DSS---ZWRITE Unit  71; Vers.    7:  /SKUNK CREEK/HCSKB/FLOW/11OCT1992/4MIN/SCATTER WASH/
-----DSS---ZWRITE Unit  71; Vers.    7:  /SKUNK CREEK/HCSKB/FLOW/12OCT1992/4MIN/SCATTER WASH/
-----DSS---ZWRITE Unit  71; Vers.    2:  /SKUNK CREEK/HCSKB/FLOW/13OCT1992/4MIN/SCATTER WASH/
-----DSS---ZWRITE Unit  71; Vers.    5:  /SKUNK CREEK/R330/FLOW/10OCT1992/4MIN/SCATTER WASH/
-----DSS---ZWRITE Unit  71; Vers.    5:  /SKUNK CREEK/R330/FLOW/11OCT1992/4MIN/SCATTER WASH/
-----DSS---ZWRITE Unit  71; Vers.    5:  /SKUNK CREEK/R330/FLOW/12OCT1992/4MIN/SCATTER WASH/
  --DSS---ZWRITE Unit  71; Vers.    3:  /SKUNK CREEK/R330/FLOW/13OCT1992/4MIN/SCATTER WASH/
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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	310S	924.	12.13	114.	29.	10.	0.68		
HYDROGRAPH AT	311S	696.	12.20	85.	22.	8.	0.57		
2 COMBINED AT	HC311	1614.	12.20	199.	51.	18.	1.25		
ROUTED TO	311RR	144.	13.00	97.	46.	17.	1.25	20.18	13.00
ROUTED TO	RM311	143.	13.53	97.	46.	17.	1.25		
HYDROGRAPH AT	312S	1413.	12.33	199.	50.	18.	1.35		
2 COMBINED AT	HC312	1413.	12.33	280.	96.	35.	2.60		
ROUTED TO	RM312	1388.	12.73	279.	96.	35.	2.60		
HYDROGRAPH AT	315S	751.	12.07	79.	21.	7.	0.51		
ROUTED TO	315RR	53.	12.80	49.	20.	7.	0.51	20.70	12.80
ROUTED TO	RM315	59.	12.60	49.	20.	7.	0.51		
HYDROGRAPH AT	316S	755.	12.20	84.	21.	8.	0.67		
2 COMBINED AT	HC316	755.	12.20	127.	41.	15.	1.18		
ROUTED TO	RM316	726.	12.67	126.	41.	15.	1.18		
HYDROGRAPH AT	317S	894.	12.13	105.	28.	10.	0.70		
HYDROGRAPH AT	318S	578.	12.33	82.	22.	8.	0.54		
2 COMBINED AT	HC317	1428.	12.20	187.	50.	18.	1.25		
ROUTED TO	317RR	96.	13.13	89.	45.	16.	1.25	19.74	13.13
ROUTED TO	RM317	96.	13.33	89.	45.	16.	1.25		
HYDROGRAPH AT	319S	393.	12.13	38.	10.	3.	0.34		
2 COMBINED AT	HC319	393.	12.13	118.	55.	20.	1.59		
ROUTED TO	RM319	371.	12.80	116.	55.	20.	1.59		
HYDROGRAPH AT	314S	829.	12.27	98.	25.	9.	0.85		
4 COMBINED AT	HC314	2689.	12.67	603.	217.	78.	6.21		
ROUTED TO	314RR	2168.	12.93	602.	217.	78.	6.21	18.87	12.93
ROUTED TO	RM314	2121.	13.00	602.	217.	78.	6.21		

HYDROGRAPH AT	320S	1264.	12.27	163.	43.	16.	1.11		
DIVERSION TO	OR320	4.	12.27	3.	1.	0.	1.11		
HYDROGRAPH AT	DT320	1264.	12.27	163.	42.	15.	1.11		
ROUTED TO	320RR	109.	13.07	100.	40.	14.	1.11	18.58	13.07
DIVERSION TO	325D	45.	13.07	41.	17.	6.	1.11		
HYDROGRAPH AT	320RE	64.	13.07	59.	23.	8.	1.11		
ROUTED TO	RM320	66.	13.13	59.	23.	8.	1.11		
HYDROGRAPH AT	321S	886.	12.40	120.	31.	11.	1.12		
2 COMBINED AT	HC321	886.	12.40	166.	54.	19.	2.23		
ROUTED TO	RM321	873.	12.60	166.	54.	19.	2.23		
HYDROGRAPH AT	323S	148.	12.07	16.	5.	2.	0.11		
ROUTED TO	323RR	50.	12.33	16.	5.	2.	0.11	40.12	12.33
ROUTED TO	RM323	50.	12.87	16.	5.	2.	0.11		
HYDROGRAPH AT	322S	400.	12.07	41.	11.	4.	0.34		
DIVERSION TO	OR322	4.	12.07	2.	1.	0.	0.34		
HYDROGRAPH AT	DT322	400.	12.07	40.	10.	4.	0.34		
4 COMBINED AT	HC322	2467.	13.00	817.	286.	103.	8.89		
ROUTED TO	322RR	2183.	13.20	817.	286.	103.	8.89	13.38	13.20
DIVERSION TO	333D1	1245.	13.20	690.	254.	92.	8.89		
HYDROGRAPH AT	322RE	938.	13.20	127.	32.	11.	8.89		
DIVERSION TO	332D	117.	13.20	9.	2.	1.	8.89		
HYDROGRAPH AT	326D	821.	13.20	118.	30.	11.	8.89		
HYDROGRAPH AT	325RD	45.	13.07	41.	17.	6.	0.00		
ROUTED TO	RM320	48.	13.27	41.	17.	6.	0.00		
HYDROGRAPH AT	325S	515.	12.20	58.	16.	6.	0.50		
2 COMBINED AT	HC325	515.	12.20	89.	32.	12.	0.50		
ROUTED TO	RM325	511.	12.47	88.	32.	12.	0.50		
HYDROGRAPH AT	326S	420.	12.33	59.	16.	6.	0.50		
DIVERSION TO	OR326	103.	12.33	8.	2.	1.	0.50		
HYDROGRAPH AT	DT326	420.	12.33	54.	14.	5.	0.50		

3 COMBINED AT	HC326	937.	13.13	259.	76.	27.	9.89		
DIVERSION TO	333D2	510.	13.13	196.	60.	22.	9.89		
HYDROGRAPH AT	326RE	427.	13.13	63.	16.	6.	9.89		
HYDROGRAPH AT	327S	321.	12.07	42.	13.	5.	0.22		
DIVERSION TO	OR327	4.	12.07	3.	1.	0.	0.22		
HYDROGRAPH AT	DT327	321.	12.07	42.	13.	5.	0.22		
2 COMBINED AT	HC327	509.	12.40	105.	28.	10.	10.10		
DIVERSION TO	334D1	115.	12.40	44.	13.	5.	10.10		
HYDROGRAPH AT	327RE	394.	12.40	61.	15.	5.	10.10		
HYDROGRAPH AT	330S	417.	12.13	54.	17.	6.	0.31		
DIVERSION TO	OR330	5.	12.13	4.	1.	0.	0.31		
HYDROGRAPH AT	DT330	417.	12.13	54.	16.	6.	0.31		
DIVERSION TO	341D	121.	12.13	9.	2.	1.	0.31		
HYDROGRAPH AT	330R1	296.	12.13	45.	14.	5.	0.31		
DIVERSION TO	343D	213.	12.13	21.	5.	2.	0.31		
HYDROGRAPH AT	330R2	83.	12.13	25.	8.	3.	0.31		
ROUTED TO	RM330	84.	12.27	25.	8.	3.	0.31		
HYDROGRAPH AT	331S	380.	12.00	54.	18.	6.	0.22		
DIVERSION TO	OR331	6.	12.00	3.	1.	0.	0.22		
HYDROGRAPH AT	DT331	380.	12.00	54.	17.	6.	0.22		
3 COMBINED AT	HC331	653.	12.07	140.	41.	15.	10.63		
DIVERSION TO	334D2	156.	12.07	68.	23.	8.	10.63		
HYDROGRAPH AT	331RE	497.	12.07	71.	18.	6.	10.63		
HYDROGRAPH AT	R332	117.	13.20	9.	2.	1.	0.00		
HYDROGRAPH AT	332S	165.	12.00	22.	7.	2.	0.09		
DIVERSION TO	OR332	2.	12.00	1.	0.	0.	0.09		
HYDROGRAPH AT	DT332	165.	12.00	22.	7.	2.	0.09		
3 COMBINED AT	HC332	640.	12.00	103.	27.	10.	10.73		
ROUTED TO	332RR	1.	23.60	1.	1.	1.	10.73	95.18	24.07
ROUTED TO	RM332	1.	16.87	1.	1.	0.	10.73		

HYDROGRAPH AT	R322	1245.	13.20	690.	254.	92.	0.00		
HYDROGRAPH AT	R326	510.	12.27	196.	60.	22.	0.00		
HYDROGRAPH AT	333S	459.	12.40	70.	19.	7.	0.53		
3 COMBINED AT	HC333	1964.	12.60	953.	332.	120.	0.53		
ROUTED TO	RM333	1952.	12.80	950.	333.	120.	0.53		
HYDROGRAPH AT	R327	115.	11.80	44.	13.	5.	0.00		
ROUTED TO	RM327	122.	12.13	44.	13.	5.	0.00		
HYDROGRAPH AT	R331	156.	11.73	68.	23.	8.	0.00		
ROUTED TO	RM331	156.	12.80	68.	23.	8.	0.00		
HYDROGRAPH AT	334S	1103.	12.00	131.	39.	14.	0.66		
DIVERSION TO	OR334	6.	12.00	2.	0.	0.	0.66		
HYDROGRAPH AT	DT334	1103.	12.00	131.	39.	14.	0.66		
4 COMBINED AT	HC334	2316.	12.73	1155.	405.	147.	1.19		
ROUTED TO	RM334	2304.	12.87	1154.	405.	147.	1.19		
HYDROGRAPH AT	335S	703.	12.07	85.	23.	8.	0.46		
DIVERSION TO	OR335	75.	12.07	8.	2.	1.	0.46		
HYDROGRAPH AT	DT335	703.	12.07	81.	21.	7.	0.46		
3 COMBINED AT	HC335	2370.	12.87	1231.	426.	155.	12.38		
ROUTED TO	RM335	2362.	13.07	1230.	426.	155.	12.38		
HYDROGRAPH AT	330R2	213.	12.13	21.	5.	2.	0.00		
HYDROGRAPH AT	343S	533.	12.07	77.	24.	9.	0.32		
DIVERSION TO	OR343	28.	12.07	10.	3.	1.	0.32		
HYDROGRAPH AT	DT343	533.	12.07	75.	20.	7.	0.32		
2 COMBINED AT	HC343	745.	12.07	96.	26.	9.	0.32		
ROUTED TO	343RR	356.	12.40	61.	26.	9.	0.32	1398.02	12.40
ROUTED TO	RM343	344.	12.40	61.	26.	9.	0.32		
HYDROGRAPH AT	349S	616.	12.07	98.	30.	11.	0.37		
DIVERSION TO	OR349	37.	12.07	12.	4.	1.	0.37		
HYDROGRAPH AT	DT349	616.	12.07	95.	26.	9.	0.37		
ROUTED TO	349RR	618.	12.07	95.	26.	9.	0.37	1391.44	12.07

DIVERSION TO	BEARD	528.	11.87	44.	11.	4.	0.37		
HYDROGRAPH AT	349RE	90.	11.87	51.	15.	6.	0.37		
2 COMBINED AT	HC349	434.	12.40	108.	41.	15.	0.69		
ROUTED TO	RM344A	353.	12.53	107.	41.	15.	0.69		
ROUTED TO	RM344B	352.	12.60	107.	41.	15.	0.69		
HYDROGRAPH AT	344S	754.	12.20	133.	38.	14.	0.55		
DIVERSION TO	OR344	35.	12.20	9.	3.	1.	0.55		
HYDROGRAPH AT	DT344	754.	12.20	131.	35.	12.	0.55		
2 COMBINED AT	HC344U	878.	12.27	236.	75.	27.	1.25		
DIVERSION TO	344RE	250.	12.27	151.	54.	19.	1.25		
HYDROGRAPH AT	344	628.	12.27	85.	21.	8.	1.25		
ROUTED TO	344RR	97.	13.00	72.	20.	7.	1.25	1350.65	13.00
HYDROGRAPH AT	R344RE	250.	11.73	151.	54.	19.	0.00		
2 COMBINED AT	HC344D	347.	13.00	217.	74.	27.	1.25		
ROUTED TO	RM344	347.	13.07	217.	74.	27.	1.25		
HYDROGRAPH AT	345S	433.	12.07	53.	16.	6.	0.30		
3 COMBINED AT	HC345	2729.	13.07	1486.	516.	188.	13.92		
ROUTED TO	RM345	2714.	13.47	1484.	516.	188.	13.92		
HYDROGRAPH AT	346S	467.	12.20	63.	19.	7.	0.40		
2 COMBINED AT	HC346	2729.	13.47	1524.	534.	195.	14.32		
HYDROGRAPH AT	AD1	1730.	0.07	1730.	1730.	1730.	0.10		
ROUTED TO	RMAD1	1730.	0.07	1730.	1730.	1730.	0.10	5.40	0.00
HYDROGRAPH AT	347S	1199.	12.20	159.	46.	17.	1.11		
2 COMBINED AT	HC347	2929.	12.20	1889.	1776.	1747.	1.21		
ROUTED TO	RM347	2916.	12.33	1889.	1776.	1747.	1.21		
HYDROGRAPH AT	348S	50.	12.00	5.	2.	1.	0.05		
2 COMBINED AT	HC348	2932.	12.27	1895.	1778.	1747.	1.25		
2 COMBINED AT	HCSKB	4673.	12.67	3409.	2309.	1942.	15.58		
HYDROGRAPH AT	R330	121.	12.13	9.	2.	1.	0.00		
HYDROGRAPH AT	RBEARD	528.	12.07	44.	11.	4.	0.00		

ROUTED TO	349RR2	0.	0.07	0.	0.	0.	0.00	1375.63	12.93

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
RM311	MANE	3.60	142.90	813.60	1.39	4.00	142.80	812.00	1.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9199E+02 EXCESS=0.0000E+00 OUTFLOW=0.9223E+02 BASIN STORAGE=0.1947E-02 PERCENT ERROR= -0.3

RM312	MANE	2.60	1388.80	764.40	1.38	4.00	1387.91	764.00	1.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1907E+03 EXCESS=0.0000E+00 OUTFLOW=0.1908E+03 BASIN STORAGE=0.9810E-03 PERCENT ERROR= 0.0

RM315	MANE	4.00	58.82	756.00	1.47	4.00	58.82	756.00	1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3984E+02 EXCESS=0.0000E+00 OUTFLOW=0.3996E+02 BASIN STORAGE=0.1380E-02 PERCENT ERROR= -0.3

RM316	MANE	2.20	728.75	759.00	1.30	4.00	726.13	760.00	1.30

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8174E+02 EXCESS=0.0000E+00 OUTFLOW=0.8185E+02 BASIN STORAGE=0.1123E-02 PERCENT ERROR= -0.1

RM317	MANE	4.00	96.22	800.00	1.35	4.00	96.22	800.00	1.35

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8934E+02 EXCESS=0.0000E+00 OUTFLOW=0.8944E+02 BASIN STORAGE=0.9094E-03 PERCENT ERROR= -0.1

RM319	MANE	2.00	370.61	768.00	1.28	4.00	370.61	768.00	1.29

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1084E+03 EXCESS=0.0000E+00 OUTFLOW=0.1086E+03 BASIN STORAGE=0.1272E-02 PERCENT ERROR= -0.1

RM314	MANE	4.00	2121.46	780.00	1.30	4.00	2121.46	780.00	1.30

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4311E+03 EXCESS=0.0000E+00 OUTFLOW=0.4314E+03 BASIN STORAGE=0.5820E-03 PERCENT ERROR= 0.0

RM320	MANE	3.80	68.94	786.60	0.78	4.00	65.62	788.00	0.78

INUITY SUMMARY (AC-FT) - INFLOW=0.4571E+02 EXCESS=0.0000E+00 OUTFLOW=0.4601E+02 BASIN STORAGE=0.2853E-02 PERCENT ERROR= -0.7

RM321	MANE	4.00	873.31	756.00	0.90	4.00	873.31	756.00	0.90

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1066E+03 EXCESS=0.0000E+00 OUTFLOW=0.1065E+03 BASIN STORAGE=0.5488E-03 PERCENT ERROR=   0.1

          RM323  MANE        4.00     50.06    772.00      1.59      4.00     50.06    772.00       1.59

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9316E+01 EXCESS=0.0000E+00 OUTFLOW=0.9346E+01 BASIN STORAGE=0.1845E-02 PERCENT ERROR=  -0.3

          RM320  MANE        3.80     62.04    794.20     -1.00      4.00     48.15    796.00      -1.00

          RM325  MANE        4.00    511.07    748.00      2.40      4.00    511.07    748.00       2.40

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6415E+02 EXCESS=0.0000E+00 OUTFLOW=0.6427E+02 BASIN STORAGE=0.1160E-02 PERCENT ERROR=  -0.2

          RM330  MANE        4.00     84.46    736.00      1.02      4.00     84.46    736.00       1.02

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1680E+02 EXCESS=0.0000E+00 OUTFLOW=0.1682E+02 BASIN STORAGE=0.1197E-02 PERCENT ERROR=  -0.1

          RM332  MANE        4.00      0.79   1012.00      0.00      4.00      0.79   1012.00       0.00

INUITY SUMMARY (AC-FT) - INFLOW=0.2919E+01 EXCESS=0.0000E+00 OUTFLOW=0.2747E+01 BASIN STORAGE=0.8886E-01 PERCENT ERROR=   2.8

          RM333  MANE        4.00   1951.83    768.00     23.30      4.00   1951.83    768.00      23.30

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6622E+03 EXCESS=0.0000E+00 OUTFLOW=0.6624E+03 BASIN STORAGE=0.1098E-02 PERCENT ERROR=   0.0

          RM327  MANE        4.00    121.52    728.00     -1.00      4.00    121.52    728.00      -1.00

          RM331  MANE        4.00    156.00    824.00     -1.00      4.00    156.00    824.00      -1.00

          RM334  MANE        4.00   2304.44    772.00     12.77      4.00   2304.44    772.00      12.77

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8108E+03 EXCESS=0.0000E+00 OUTFLOW=0.8105E+03 BASIN STORAGE=0.6659E-03 PERCENT ERROR=   0.0

          RM335  MANE        4.00   2362.18    784.00      1.29      4.00   2362.18    784.00       1.29

TINUITY SUMMARY (AC-FT) - INFLOW=0.8545E+03 EXCESS=0.0000E+00 OUTFLOW=0.8544E+03 BASIN STORAGE=0.3511E-01 PERCENT ERROR=   0.0

          RM343  MANE        2.53    355.74    744.99      2.97      4.00    344.04    744.00       2.97
```

```
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5068E+02 EXCESS=0.0000E+00 OUTFLOW=0.5064E+02 BASIN STORAGE=0.3094E-03 PERCENT ERROR=   0.1

          RM344A  MANE        4.00    352.57    752.00      2.19      4.00    352.57    752.00        2.19

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8109E+02 EXCESS=0.0000E+00 OUTFLOW=0.8071E+02 BASIN STORAGE=0.9098E-03 PERCENT ERROR=   0.5

          RM344B  MANE        4.00    352.06    756.00      2.19      4.00    352.06    756.00        2.19

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8071E+02 EXCESS=0.0000E+00 OUTFLOW=0.8072E+02 BASIN STORAGE=0.1855E-02 PERCENT ERROR=   0.0

           RM344  MANE        3.17    347.18    782.77      2.22      4.00    347.13    784.00        2.22

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1473E+03 EXCESS=0.0000E+00 OUTFLOW=0.1473E+03 BASIN STORAGE=0.1144E-02 PERCENT ERROR=   0.0

           RM345  MANE        4.00   2713.73    808.00      1.39      4.00   2713.73    808.00        1.39

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1034E+04 EXCESS=0.0000E+00 OUTFLOW=0.1034E+04 BASIN STORAGE=0.6909E-01 PERCENT ERROR=  -0.1

           RM347  MANE        4.00   2916.45    740.00    149.60      4.00   2916.45    740.00      149.60

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9624E+04 EXCESS=0.0000E+00 OUTFLOW=0.9624E+04 BASIN STORAGE=0.0000E+00 PERCENT ERROR=   0.0


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


  -----DSS---ZCLOSE Unit:  71,   File: CCW324.DSS
            Pointer Utilization:  0.27
            Number of Records:     81
            File Size:    177.4  Kbytes
            Percent Inactive:   0.0
```

SECTION VII

HEC-1 Hydrology Results, 100-Year 24-Hour Storm (Future Conditions)

```
*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
              MAY   1991               *
           VERSION 4.0.1E              *
*                                       *
*  RUN DATE  04/25/95  TIME  15:10:11   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*        DAVIS, CALIFORNIA 95616        *
*           (916) 551-1748              *
*                                       *
*****************************************
```

```
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

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

  1           ID        ACDC AREA DRAINAGE MASTER STUDY
  2           ID        FILENAME SW243F.DAT      KHE JOB NO. 0146
  3           ID        SCATTER WASH WATERSHED - FUTURE CONDITIONS
  4           ID        100-YEAR 24-HOUR DURATION STORM
  5           ID        SCS TYPE-II DISTRIBUTION WAS USED
              *
              *  REVISED:  APRIL 24, 1995     Revised to address FCDMC comments.
              *
              *  REVISED:  JANUARY 17, 1995   Revised to address FEMA comments.
              *
              *DIAGRAM
  6           IT       4 10OCT92    1200    1000
  7           IO       5

  8           KK    310S
  9           KM    RUNOFF GENERATED ON SUB-BASIN 310
 10           KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 11           KM    L=  1.36 mi. Lca=  0.64 mi.  S= 282 ft/mi.   Kn= .039  LAG= 18.24 min.
 12           KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 13           BA    .679
 14           IN      30
 15           KM    RAINFALL DEPTH OF 4.00 WAS SPACIALLY REDUCED AS SHOWN BY THE PB RECORD
 16           KM    AN AREAL REDUCTION COEFFICIENT OF .913 WAS USED
 17           PB    3.65
 18           KM    THE FOLLOWING PC RECORD USED A 24-HOUR SCS TYPE II RAINFALL
 19           PC    .000    .005    .011    .016    .022    .028    .035    .041    .048    .056
 20           PC    .063    .071    .080    .089    .098    .109    .120    .133    .147    .163
 21           PC    .181    .204    .235    .283    .663    .735    .772    .799    .820    .838
 22           PC    .854    .868    .880    .891    .902    .912    .921    .929    .937    .945
 23           PC    .952    .959    .965    .972    .978    .984    .989    .995   1.000
 24           LG    .120    .191    8.60    .070   29.92
 25           UI    125.    480.    732.   1066.   1466.   1028.    724.    443.    214.    137.
 26           UI     55.     38.     38.      0.      0.      0.      0.      0.      0.      0.

 27           KK    311S
 28           KM    RUNOFF GENERATED ON SUB-BASIN 311
 29           KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 30           KM    L=  1.52 mi. Lca=  0.71 mi.  S= 260 ft/mi.   Kn= .040  LAG= 20.61 min.
 31           KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 32           KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 33           BA    .569
 34           LG    .123    .233    7.78    .105   22.38
 35           UI     93.    300.    495.    660.   1031.    960.    700.    512.    325.    160.
 36           UI    113.     62.     29.     29.     29.      0.      0.      0.      0.      0.

 37           KK   HC311
 38           KM    COMBINE HYDROGRAPHS FROM SUB-BASINS 310 & 311
 39           HC       2

 40           KK   311RR
 41           KM    ROUTE FLOW THROUGH DETENTION BEHIND C.A.P. STRUCTURE NO. 1
 42           RS       1    ELEV      12
 43           SV       0     2.2    11.6    35.4    81.1   156.4
 44           SE      12      14      16      18      20      22
 45           SL   15.62    9.62     0.6     0.5
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  46          SS      20     200     3.0     1.5

  47          KK   RM312
  48          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM DETENTION THROUGH SUB-BASIN 312
  49          KM            1) Reach Length = 8800 ft.
  50          RD
  51          RC     .05     .04     .05    8800  0.0085
  52          RX       0     100     120     125     140     145     165     265
  53          RY       4       2       1       0       0       1       2       4

  54          KK    312S
  55          KM    RUNOFF GENERATED ON SUB-BASIN 312
  56          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  57          KM    L=  2.17 mi. Lca=  0.91 mi.  S= 36 ft/mi.   Kn= .020  LAG= 18.88 min.
  58          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  59          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  60          BA   1.348
  61          LG    .101    .150    8.28    .080   58.81
  62          UI    240.    880.   1367.   1920.   2856.   2098.   1504.   1004.    471.    313.
  63          UI    166.     74.     74.     74.      0.      0.      0.      0.      0.      0.
  64          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  65          KK   DT312
  66          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 61.35 AC-FT FROM SUB-BASIN 312
  67          KM                                             (Hydrograph identified as OR312)
  68          KM                                            2) Balance of runoff continues on.
  69          KM                                             (Hydrograph identified as DT312)
  70          DT   OR312   61.35
  71          DI       0   10000
  72          DQ       0   10000

  73          KK   HC312
  74          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 312 WITH ROUTED FLOW FROM 311
  75          HC       2

  76          KK   RM317
  77          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 312 THROUGH SUB-BASIN 317
  78          KM            1) Reach Length = 4640 ft.
  79          RD
  80          RC     .05     .04     .05    4640  0.0060
  81          RX       0       5     205     215     235     245     445     450
  82          RY       5       3       1       0       0       1       3       5

  83          KK    313S
  84          KM    RUNOFF GENERATED ON SUB-BASIN 313
  85          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  86          KM    L=  1.16 mi. Lca=  0.37 mi.  S= 287 ft/mi.   Kn= .040  LAG= 14.24 min.
  87          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  88          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  89          BA    .508
  90          LG    .123    .219    8.05    .093   29.81
  91          UI    170.    570.    898.   1363.    903.    556.    232.    128.     37.     37.
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 92           KK   313RR
 93           KM    ROUTE FLOW THROUGH DETENTION BEHIND C.A.P. STRUCTURE NO. 2
 94           RS       1    ELEV      13
 95           SV       0     0.3     3.0    10.2    25.3    51.6
 96           SE      13      14      16      18      20      22
 97           SL   14.84    4.59     0.6     0.5
 98           SS      21      50     3.0     1.5

 99           KK   RM314
100           KM   MUSKINGUM-CUNGE ROUTE FLOW FROM DETENTION THROUGH SUB-BASIN 314
101           KM           1) Reach Length = 7480 ft.
102           RD
103           RC     .05     .04     .05    7480  0.0099
104           RX      60     140     190     200     210     220     270     350
105           RY       5       4       2       0       0       2       4       5

106           KK    314S
107           KM    RUNOFF GENERATED ON SUB-BASIN 314
108           KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
109           KM    L=  1.36 mi. Lca=  0.86 mi.  S= 55 ft/mi.   Kn= .020  LAG= 14.28 min.
110           KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
111           BA    .672
112           LG    .100    .190    7.14    .140   45.49
113           UI    223.    752.   1182.   1800.   1197.    740.    308.    173.     49.     49.

114           KK   DT314
115           KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 35.48 AC-FT FROM SUB-BASIN 314
116           KM                                              (Hydrograph identified as OR314)
117           KM                                             2) Balance of runoff continues on.
118           KM                                              (Hydrograph identified as DT314)
119           DT   OR314   35.48
120           DI       0   10000
121           DQ       0   10000

122           KK   HC314
123           KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 314 WITH ROUTED FLOW FROM 313
124           HC       2

125           KK   RM317
126           KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 314 THROUGH SUB-BASIN 317
127           KM           1) Reach Length = 4720 ft.
128           RD
129           RC     .05     .04     .05    4720  0.0059
130           RX       0       5     205     215     235     245     445     450
131           RY       5       3       1       0       0       1       3       5

132           KK    315S
133           KM    RUNOFF GENERATED ON SUB-BASIN 315
134           KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
135           KM    L=  1.54 mi. Lca=  0.58 mi.  S= 300 ft/mi.   Kn= .045  LAG= 21.00 min.
136           KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
137           BA    .704
138           LG    .134    .286    7.50    .117   14.19
139           UI    113.    353.    594.    786.   1203.   1217.    882.    648.    436.    211.
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 140          UI    151.     92.     35.     35.     35.      0.      0.      0.      0.      0.

 141          KK    319S
 142          KM    RUNOFF GENERATED ON SUB-BASIN 319
 143          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 144          KM    L=  1.94 mi. Lca=  1.09 mi.  S= 288 ft/mi.   Kn= .047  LAG= 30.67 min.
 145          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 146          BA    .542
 147          LG    .137    .283    7.78    .105   11.38
 148          UI     60.     92.    229.    305.    365.    449.    612.    734.    563.    466.
 149          UI    375.    303.    222.    126.    100.     74.     60.     24.     18.     18.
 150          UI     18.     18.      0.      0.      0.      0.      0.      0.      0.      0.

 151          KK   HC315
 152          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 315 & 319
 153          HC       2

 154          KK   315RR
 155          KM    ROUTE FLOW THROUGH DETENTION BEHIND C.A.P. STRUCTURE NO. 3
 156          RS       1    ELEV      13
 157          SV       0     1.3    13.2    41.3    90.4   159.6
 158          SE      13      14      16      18      20      22
 159          SL   15.42    9.62     0.6     0.5
 160          SS      21      50     3.0     1.5

 161          KK   RM316
 162          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM DETENTION THROUGH SUB-BASIN 316
 163          KM            1) Reach Length = 5000 ft.
 164          RD
 165          RC     .05     .04     .05    5000  0.0116
 166          RX       0      60     160     200     210     220     250     350
 167          RY       4       3       2       0       0       2       3       4

 168          KK    316S
 169          KM    RUNOFF GENERATED ON SUB-BASIN 316
 170          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 171          KM    L=  0.99 mi. Lca=  0.51 mi.  S= 63 ft/mi.   Kn= .029  LAG= 14.66 min.
 172          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 173          BA    .339
 174          LG    .130    .250    5.98    .198   45.00
 175          UI    106.    362.    561.    890.    618.    396.    173.     95.     34.     24.
 176          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 177          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 178          KK   HC316
 179          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 316 WITH ROUTED FLOW FROM 315
 180          HC       2

 181          KK   RM317
 182          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 316 THROUGH SUB-BASIN 317
 183          KM            1) Reach Length = 6360 ft.
 184          RD
 185          RC     .05     .04     .05    6360  0.0066
 186          RX       0       5     205     215     235     245     445     450
 187          RY       5       3     1.5       0       0     1.5       3       5
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 188          KK    317S
 189          KM    RUNOFF GENERATED ON SUB-BASIN 317
 190          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 191          KM    L=  1.81 mi. Lca=  0.58 mi.  S= 41 ft/mi.   Kn= .020  LAG= 14.49 min.
 192          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 193          BA    .846
 194          LG    .100    .250    4.43    .252   65.32
 195          UI    272.    922.   1436.   2245.   1528.    969.    405.    230.     74.     60.

 196          KK   DT317
 197          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 59.47 AC-FT FROM SUB-BASIN 317
 198          KM                                              (Hydrograph identified as OR317)
 199          KM                                             2) Balance of runoff continues on.
 200          KM                                              (Hydrograph identified as DT317)
 201          DT   OR317   59.47
 202          DI       0   10000
 203          DQ       0   10000

 204          KK   HC317
 205          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 317 WITH ROUTED FLOWS FROM 312,314 & 316
 206          HC       4

 207          KK   317RR
 208          KM    ROUTE FLOW PINNACLE PEAK ROAD CULVERTS
 209          KM    SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
 210          KM             Prepared for the City of Phoenix Engineering Dept., Floodplain
 211          KM             Management, ST-886366, September 1989,by Greiner, Inc.
 212          RS       1    ELEV      11
 213          SV       0     .05     1.2     9.1    35.6      65    94.5     139
 214          SE      11      12      14      16      18      19      20      21
 215          SQ       0      54     254     528     936    2344    5278   10401

 216          KK   RM318
 217          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 317 THROUGH SUB-BASIN 318
 218          KM            1) Reach Length = 1920 ft.
 219          RD
 220          RC     .05     .04     .05    1920  0.0026
 221          RX       0      50     150     165     175     190     240     250
 222          RY      10       5       4       0       0       4       5      10

 223          KK    318S
 224          KM    RUNOFF GENERATED ON SUB-BASIN 318
 225          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 226          KM    L=  1.15 mi. Lca=  0.44 mi.  S= 36 ft/mi.   Kn= .020  LAG= 11.25 min.
 227          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 228          BA    .345
 229          LG    .100    .250    3.77    .334   76.90
 230          UI    195.    596.   1090.    803.    410.    149.     52.     32.      0.      0.
```

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

 231          KK   DT318
 232          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 1.20 AC-FT FROM SUB-BASIN 318
 233          KM                                             (Hydrograph identified as OR318)
 234          KM                                            2) Balance of runoff continues on.
 235          KM                                             (Hydrograph identified as DT318)
 236          DT   OR318    1.20
 237          DI       0   10000
 238          DQ       0   10000

 239          KK   DT318
 240          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 33.57 AC-FT FROM SUB-BASIN 318
 241          KM                                             (Hydrograph identified as OR318)
 242          KM                                            2) Balance of runoff continues on.
 243          KM                                             (Hydrograph identified as DT318)
 244          DT   OR318   33.57
 245          DI       0   10000
 246          DQ       0   10000

 247          KK    320S
 248          KM    RUNOFF GENERATED ON SUB-BASIN 320
 249          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 250          KM    L=  1.74 mi. Lca=  0.72 mi.  S= 218 ft/mi.   Kn= .043  LAG= 24.25 min.
 251          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 252          BA   1.106
 253          LG    .130    .271    7.50    .116   12.76
 254          UI    154.    381.    724.    933.   1215.   1830.   1563.   1202.    921.    689.
 255          UI    367.    258.    169.    106.     47.     47.     47.     47.      0.      0.

 256          KK   DT320
 257          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 1.80 AC-FT FROM SUB-BASIN 320
 258          KM                                             (Hydrograph identified as OR320)
 259          KM                                            2) Balance of runoff continues on.
 260          KM                                             (Hydrograph identified as DT320)
 261          DT   OR320    1.80
 262          DI       0   10000
 263          DQ       0   10000

 264          KK   320RR
 265          KM    ROUTE FLOW THROUGH DETENTION BEHIND C.A.P. STRUCTURES NO. 4 & 5
 266          RS       1    ELEV      13
 267          SV       0     0.6    12.4    48.7   119.5   230.3
 268          SE      13      14      16      18      20      22
 269          SL   14.80   11.66     0.6     0.5
 270          SS      20     200     3.0     1.5

 271          KK   320RE
 272          KM   DIVERT OUTFLOW FROM STRUCTURE NO. 5 INTO SUB-BASIN 325
 273          KM   REMAINING OUTFLOW INTO SUB-BASIN 321 IS FROM STRUCTURE NO. 4
 274          DT    325D
 275          DI       0      13      63     102     128     150
 276          DQ       0       5      28      42      52      60
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 277          KK   RM321
 278          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 320 THROUGH SUB-BASIN 321
 279          KM           1) Reach Length = 11,160 ft.
 280          RD
 281          RC     .05     .04     .05   11160  0.0085
 282          RX       0       5     155     160     170     175     325     330
 283          RY       3       2       1       0       0       1       2       3

 284          KK    321S
 285          KM    RUNOFF GENERATED ON SUB-BASIN 321
 286          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 287          KM    L=  2.27 mi. Lca=  1.24 mi.  S= 57 ft/mi.   Kn= .021  LAG= 20.79 min.
 288          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 289          BA    1.121
 290          LG    .115    .258    3.77    .345   49.76
 291          UI    182.    577.    962.   1277.   1981.   1911.   1392.   1019.    671.    319.
 292          UI    231.    134.     56.     56.     56.      0.      0.      0.      0.      0.

 293          KK   DT321
 294          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 29.01 AC-FT FROM SUB-BASIN 321
 295          KM                                             (Hydrograph identified as OR321)
 296          KM                                            2) Balance of runoff continues on.
 297          KM                                             (Hydrograph identified as DT321)
 298          DT   OR321   29.01
 299          DI       0   10000
 300          DQ       0   10000

 301          KK   HC321
 302          KM    COMBINE HYDROGRAPHS FROM SUB-BASIN 321 WITH ROUTED FLOW FROM 320
 303          HC       2

 304          KK   RM318
 305          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 321 THROUGH SUB-BASIN 318
 306          KM           1) Reach Length = 2760 ft.
 307          RD
 308          RC     .05     .04     .05    2760  0.0051
 309          RX       0      50     150     165     175     190     240     250
 310          RY       6       5       4       0       0       4       5       7

 311          KK    322S
 312          KM    RUNOFF GENERATED ON SUB-BASIN 322
 313          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 314          KM    L=  0.92 mi. Lca=  0.34 mi.  S= 61 ft/mi.   Kn= .020  LAG= 8.48 min.
 315          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 316          BA    .110
 317          LG    .100    .250    4.24    .433   25.12
 318          UI    114.    351.    387.    152.    43.     13.      0.      0.      0.      0.

 319          KK   322RR
 320          KM    ROUTE FLOW THROUGH ON-SITE DETENTION
 321          RS       1    ELEV    36.1
 322          SV       0     .05     3.9    12.8    29.3    57.8
 323          SE    36.1      38      40      42      44      46
 324          SL   37.65     6.6     0.6     0.5
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 325          SS      45     100     3.0     1.5
              *
              * MUSKINGUM-CUNGE ROUTING METHOD DOES NOT WORK WHEN FLOW = 0 cfs.
              *
              * KK RM318
              * KM MUSKINGUM-CUNGE ROUTE OUTFLOW FROM DETENTION THROUGH SUB-BASIN 318
              * KM          1) Reach Length = 5200 ft.
              * RD
              * RC   .05     .04     .05    5200  0.0063
              * RX     0       5     205     215     225     235     435     440
              * RY     5       3       1       0       0       1       3       5

 326          KK   HC318
 327          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 318 WITH ROUTED FLOW FROM 317, 321 & 322
 328          HC       4

 329          KK   318RR
 330          KM    ROUTE FLOW THROUGH DETENTION BEHIND C.A.P. STRUCTURES NO. 4 & 5
 331          KM    SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
 332          KM             Prepared for the City of Phoenix Engineering Dept., Floodplain
 333          KM             Management, ST-886366, September 1989,by Greiner, Inc.
 334          RS       1    STOR      -1
 335          SV       0   0.001     .22    1.16    8.44      17      30      49      67      76
 336          SE     3.8       4       6       8      10      11      12      13    13.7      14
 337          SQ       0       1     176     414     680     880    1091    1593    2678    3746

 338          KK   318RE
 339          KM   DIVERT OVERFLOWS SOUTH TO SINGLE CULVERT AT MH PARK, AND WEST ONTO I-17
 340          KM   DQ IS DISCHARGE THROUGH 2-8x7 CULVERT (MAX. 1312 CFS); DI IS TOTAL DISCHARGE.
 341          KM    SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
 342          KM             Prepared for the City of Phoenix Engineering Dept., Floodplain
 343          KM             Management, ST-886366, September 1989,by Greiner, Inc.
 344          DT   324D1
 345          DI       1     880    1091    1593    2678    3746
 346          DQ       1     880    1060    1184    1296    1312

 347          KK  326RE1
 348          KM   SEPARATE OUT WEST OVERFLOWS ONTO THE FRONTAGE ROAD AND MAINLINE I-17.
 349          KM   THESE FLOWS HEAD SOUTH AND EVENTUALLY ENTER THE DEER VALLEY ROAD INTERCHANGE.
 350          KM   REMAINING FLOWS CONTINUE SOUTH TO 6x7 BOX CULVERT IN SCATTER WASH AT I-17.
 351          KM    SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
 352          KM             Prepared for the City of Phoenix Engineering Dept., Floodplain
 353          KM             Management, ST-886366, September 1989,by Greiner, Inc.
 354          DT    331D
 355          DI      31     409    1382    2434
 356          DQ       0       0     215     840

 357          KK   320RD
 358          KM   RETRIEVE FLOW FROM C.A.P. STRUCTURE NO. 5
 359          DR    325D
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 360          KK   RM325
 361          KM   MUSKINGUM-CUNGE ROUTE OUTFLOW FROM STRUCTURE NO. 5 THROUGH SUB-BASIN 325
 362          KM            1) Reach Length = 8560 ft.
 363          RD
 364          RC     .05     .04     .05    8560  0.0082
 365          RX       0      10     200     220     235     255     440     450
 366          RY       5       4       2       0       0       2       4       5

 367          KK    325S
 368          KM    RUNOFF GENERATED ON SUB-BASIN 325
 369          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 370          KM    L=  1.71 mi. Lca=  0.65 mi.  S= 60 ft/mi.   Kn= .021  LAG= 14.46 min.
 371          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 372          BA    .568
 373          LG    .112    .256    3.87    .356   71.46
 374          UI    183.    621.    969.   1510.   1023.    647.    270.    154.     48.     41.

 375          KK   DT325
 376          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 43.37 AC-FT FROM SUB-BASIN 325
 377          KM                                              (Hydrograph identified as OR325)
 378          KM                                             2) Balance of runoff continues on.
 379          KM                                              (Hydrograph identified as DT325)
 380          DT   OR325   43.37
 381          DI       0   10000
 382          DQ       0   10000

 383          KK   HC325
 384          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 325 WITH ROUTED FLOW FROM 320
 385          HC       2

 386          KK   RM326
 387          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 325 THROUGH SUB-BASIN 326
 388          KM            1) Reach Length = 6200 ft.
 389          RD
 390          RC     .05     .04     .05    6200  0.0068
 391          RX      80     130     195     220     235     260     325     375
 392          RY       6       5       3       0       0       3       5       6

 393          KK    326S
 394          KM    RUNOFF GENERATED ON SUB-BASIN 326
 395          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 396          KM    L=  2.01 mi. Lca=  0.90 mi.  S= 37 ft/mi.   Kn= .020  LAG= 18.17 min.
 397          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 398          BA    .498
 399          LG    .100    .250    4.14    .412   74.52
 400          UI     92.    355.    541.    793.    1074    751.    529.    318.    157.     99.
 401          UI     38.     28.     28.      0.      0.      0.      0.      0.      0.      0.

 402          KK   DT326
 403          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 4.70 AC-FT FROM SUB-BASIN 326
 404          KM                                              (Hydrograph identified as OR326)
 405          KM                                             2) Balance of runoff continues on.
 406          KM                                              (Hydrograph identified as DT326)
 407          DT   OR326    4.70
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 408          DI       0   10000
 409          DQ       0   10000

 410          KK   DT326
 411          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 42.65 AC-FT FROM SUB-BASIN 326
 412          KM                                              (Hydrograph identified as OR326)
 413          KM                                             2) Balance of runoff continues on.
 414          KM                                              (Hydrograph identified as DT326)
 415          DT   OR326   42.65
 416          DI       0   10000
 417          DQ       0   10000

 418          KK   HC326
 419          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 326 WITH ROUTED FLOW FROM 325 AND
 420          KM   OVERFLOW FROM 318
 421          HC       3

 422          KK  326RE2
 423          KM   DIVERT FLOW ACROSS I-17 THROUGH 6x7 RCBC (MAX. Q = 510 CFS)
 424          KM    SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
 425          KM             Prepared for the City of Phoenix Engineering Dept., Floodplain
 426          KM             Management, ST-886366, September 1989,by Greiner, Inc.
 427          DT   324D2
 428          DI       0       1     510     511    1000    2000
 429          DQ       0       1     510     510     510     510

 430          KK  328RE1
 431          KM   DIVERT FLOW ACROSS I-17 THROUGH 65"x40" CMP AT ADOBE DR.
 432          KM    SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
 433          KM             Prepared for the City of Phoenix Engineering Dept., Floodplain
 434          KM             Management, ST-886366, September 1989,by Greiner, Inc.
 435          DT   329D1
 436          DI       0     115     116    1000    3000
 437          DQ       0     115     115     115     115

 438          KK    327S
 439          KM    RUNOFF GENERATED ON SUB-BASIN 327
 440          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 441          KM    L=  1.51 mi. Lca=  0.66 mi.  S= 29 ft/mi.   Kn= .020  LAG= 15.17 min.
 442          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 443          BA    .375
 444          LG    .100    .130   10.10    .033   75.00
 445          UI    108.    377.    575.    946.    705.    464.    227.    117.     53.     26.
 446          UI     26.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 447          KK   DT327
 448          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 1.90 AC-FT FROM SUB-BASIN 327
 449          KM                                              (Hydrograph identified as OR327)
 450          KM                                             2) Balance of runoff continues on.
 451          KM                                              (Hydrograph identified as DT327)
 452          DT   OR327    1.90
 453          DI       0   10000
 454          DQ       0   10000
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

455           KK   DT327
456           KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 3.80 AC-FT FROM SUB-BASIN 327
457           KM                                              (Hydrograph identified as OR327)
458           KM                                             2) Balance of runoff continues on.
459           KM                                              (Hydrograph identified as DT327)
460           DT   OR327    3.80
461           DI       0   10000
462           DQ       0   10000

463           KK  327RRA
464           KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
465           KM        SOURCE:  Deer Valley Municipal Airport
466           KM                 Master Storm Drainage Plan
467           RS       1    ELEV    1450
468           SA   0.057    0.35    0.69    0.69    0.69
469           SE    1450    1452  1452.5    1453    1455
470           SQ       0    17.6      28      83    1000

471           KK  327RRB
472           KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
473           KM        SOURCE:  Deer Valley Municipal Airport
474           KM                 Master Storm Drainage Plan
475           RS       1    ELEV    1444
476           SA     .13     .55     .55     .55
477           SE    1444    1446  1446.5  1448.5
478           SQ       0      12     121    1000

479           KK  327RRC
480           KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
481           KM        SOURCE:  Deer Valley Municipal Airport
482           KM                 Master Storm Drainage Plan
483           RS       1    ELEV    1434
484           SA       0     3.9     4.2     4.4     4.4     4.4
485           SE    1432    1433    1434    1435    1436    1438
486           SQ       0       6      18      35     350    1000

487           KK  327RRD
488           KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
489           KM        SOURCE:  Deer Valley Municipal Airport
490           KM                 Master Storm Drainage Plan
491           RS       1    ELEV    1438
492           SA      08     .70     .70     .70
493           SE    1438  1438.9  1439.4  1441.4
494           SQ       0       3     159    1000

495           KK  327RRE
496           KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
497           KM        SOURCE:  Deer Valley Municipal Airport
498           KM                 Master Storm Drainage Plan
499           RS       1    ELEV    1436
500           SA    .057     .73     .73     .73
501           SE    1436    1438  1438.5  1440.5
502           SQ       0       7     273    1000
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 503          KK   327R1
 504          KM   DIVERT FLOW SOUTH ALONG 19TH AVENUE AT DEER VALLEY RD.
 505          DT    339D
 506          DI       0     145     418    2248    4002
 507          DQ       0       0     121     550    1220

 508          KK   327R2
 509          KM   DIVERT FLOW SOUTH INTO SUB-BASIN 341.  THIS DIVERT IS USED TO SIMULATE
 510          KM   THE CROWN OVERTOPPING OF DEER VALLEY RD.
 511          DT    341D
 512          DI       0      55     328     746
 513          DQ       0       0     241     487

 514          KK   RM328
 515          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 327 THROUGH SUB-BASIN 328
 516          KM           1) Reach Length = 3850 ft.
 517          RD
 518          RC     .05     .04     .05    3850  0.0057
 519          RX       0      .5    45.5    45.5    50.5    55.5    60.5    60.5
 520          RY       5       3     2.3     2.8     2.8       3       4       5

 521          KK    328S
 522          KM    RUNOFF GENERATED ON SUB-BASIN 328
 523          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 524          KM    L=  1.38 mi. Lca=  0.52 mi.  S= 32 ft/mi.   Kn= .020  LAG= 13.14 min.
 525          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 526          BA    .393
 527          LG    .100    .130   10.10    .033   79.32
 528          UI    158.    510.    863.   1060.    642.    320.    141.     55.     31.      0.

 529          KK   DT328
 530          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 3.30 AC-FT FROM SUB-BASIN 328
 531          KM                                              (Hydrograph identified as OR328)
 532          KM                                            2) Balance of runoff continues on.
 533          KM                                              (Hydrograph identified as DT328)
 534          DT   OR328    3.30
 535          DI       0   10000
 536          DQ       0   10000

 537          KK   DT328
 538          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 3.47 AC-FT FROM SUB-BASIN 328
 539          KM                                              (Hydrograph identified as OR328)
 540          KM                                            2) Balance of runoff continues on.
 541          KM                                              (Hydrograph identified as DT328)
 542          DT   OR328    3.47
 543          DI       0   10000
 544          DQ       0   10000

 545          KK   HC328
 546          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 328 WITH OVERFLOW FROM 326 & 327
 547          HC       3
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 548          KK  328RE2
 549          KM   DIVERT FLOW ACROSS I-17 THROUGH 6x3 RCBC AT LOUISE DR.
 550          KM   DI REPRESENTS TOTAL FLOW TO DEPRESSED INTERCHANGE AT DEER VALLEY RD.
 551          KM    SOURCE:  Scatter Wash Drainage and Storm Drain Study - Conceptual Plan
 552          KM             Prepared for the City of Phoenix Engineering Dept., Floodplain
 553          KM             Management, ST-886366, September 1989,by Greiner, Inc.
 554          DT   329D2
 555          DI       0       1     156     157    1000    3000
 556          DQ       0       1     156     156     156     156

 557          KK    R318
 558          KM   RETRIEVE FLOWS DIVERTED AT 318
 559          DR    331D

 560          KK    331S
 561          KM    RUNOFF GENERATED ON SUB-BASIN 331
 562          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 563          KM    L=  0.40 mi. Lca=  0.07 mi.  S= 65 ft/mi.   Kn= .020  LAG= 3.35 min.
 564          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 565          BA    .094
 566          LG    .100    .150    8.20    .045   83.94
 567          UI    604.    291.      0.      0.      0.      0.      0.      0.      0.      0.
 568          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 569          KK   HC331
 570          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 331 WITH OVERFLOWS FROM SUB-BASIN 318
 571          KM   AND 328 (TOTAL FLOW INTO DEER VALLEY RD. INTERCHANGE)
 572          HC       3

 573          KK   331RR
 574          KM   ROUTE FLOW THROUGH DEPRESSED SECTION AT DEER VALLEY RD. INTERCHANGE TO
 575          KM   WEST SIDE OF I-17.
 576          RS       1    ELEV      82
 577          SV       0     1.4    10.7    28.9    42.5      56      69    84.5   114.8
 578          SE      82      84      88      92      94    95.6    96.8      98     100
 579          SQ       0       0       0       0       0       1    1428    7646   26741

 580          KK   RM330
 581          KM   MUSKINGUM-CUNGE ROUTE OUTFLOW FROM DEER VALLEY RD. INTERCHANGE
 582          KM   THROUGH SUB-BASIN 330.
 583          KM            1) Reach Length = 5760 ft.
 584          RD
 585          RC    .045     .04    .045    5760  0.0068
 586          RX       0       5      55      60      70      75     125     130
 587          RY      10       2       1       0       0       1       2      10

 588          KK    R318
 589          KM   RETRIEVE HYDROGRAPH FOR NORTH BRANCH OF SCATTER WASH
 590          KM   (ALSO KNOWN AS FLOW THROUGH 2-8x7 RCBC)
 591          DR   324D1
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 592          KK    R326
 593          KM   RETRIEVE HYDROGRAPH FOR SOUTH BRANCH OF SCATTER WASH
 594          KM   (ALSO KNOWN AS FLOW THROUGH 6x7 RCBC)
 595          DR   324D2

 596          KK    323S
 597          KM    RUNOFF GENERATED ON SUB-BASIN 323
 598          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 599          KM    L=  1.76 mi. Lca=  0.69 mi.  S= 27 ft/mi.   Kn= .020  LAG= 16.58 min.
 600          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 601          BA    .373
 602          LG    .101    .251    5.98    .189   89.64
 603          UI     84.    320.    481.    784.    761.    517.    332.    148.     91.     37.
 604          UI     23.     23.      0.      0.      0.      0.      0.      0.      0.      0.

 605          KK   RM324
 606          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 323 THROUGH SUB-BASIN 324
 607          KM           1) Reach Length = 2980 ft.
 608          RD    2980   .0064     .04            TRAP      20       4

 609          KK    324S
 610          KM    RUNOFF GENERATED ON SUB-BASIN 324
 611          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 612          KM    L=  0.75 mi. Lca=  0.46 mi.  S= 290 ft/mi.   Kn= .035  LAG= 11.45 min.
 613          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 614          BA    .160
 615          LG    .165    .255    6.29    .183   57.43
 616          UI     87.    267.    492.    378.    203.     72.     27.     14.      0.      0.

 617          KK   HC324
 618          KM   COMBINE HYDROGRAPHS FROM NORTH & SOUTH BRANCH OF SCATTER WASH, SUB-BASIN 323
 619          KM          & SUB-BASIN 324
 620          HC       4

 621          KK   RM329
 622          KM   MUSKINGUM-CUNGE ROUTE OVERFLOW FROM SUB-BASIN 324 THROUGH 329
 623          KM           1) Reach Length = 5160 ft.
 624          RD
 625          RC    .055    .045    .055    5160   .0056
 626          RX       0      60     110     145     170     195     250     400
 627          RY       7       6       2       0       0       2       6       7

 628          KK    R326
 629          KM   RETRIEVE HYDROGRAPH FOR DIVERTED FLOW FROM SUB-BASIN 326
 630          DR   329D1
              *
              *  MUSKINGUM-CUNGE METHOD CAUSES DOES NOT WORK FOR THIS ROUTING OPERATION.
              *
              * KK RM329
              * KM MUSKINGUM-CUNGE ROUTE DIVERTED FLOW THROUGH SUB-BASIN 329
              * KM          1) Reach Length = 5100 ft.
              * RD
              * RC   .05     .04     .05    5100   .0073
              * RX     0      10      30      33      48      51     151     200
              * RY     3       2     1.5       0       0     1.5       2       3
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 631          KK    R328
 632          KM   RETRIEVE HYDROGRAPH FOR DIVERTED FLOW FROM SUB-BASIN 328
 633          DR   329D2

 634          KK   RM329
 635          KM   MUSKINGUM-CUNGE ROUTE DIVERTED FLOW THROUGH SUB-BASIN 329
 636          KM            1) Reach Length = 5000 ft.
 637          RD
 638          RC     .03    .045    .045    5000   .0070
 639          RX       0      10      30      33      48      51     151     200
 640          RY       3       2     1.5       0       0     1.5       2       3

 641          KK    329S
 642          KM    RUNOFF GENERATED ON SUB-BASIN 329
 643          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 644          KM    L=  1.01 mi. Lca=  0.51 mi.  S= 272 ft/mi.   Kn= .026  LAG= 10.03 min.
 645          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 646          BA    .657
 647          LG    .124    .152    8.28    .079   62.07
 648          UI    480.   1407.   2348.   1359.    500.    165.     68.      0.      0.      0.

 649          KK   DT329
 650          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 0.80 AC-FT FROM SUB-BASIN 329
 651          KM                                              (Hydrograph identified as OR329)
 652          KM                                            2) Balance of runoff continues on.
 653          KM                                              (Hydrograph identified as DT329)
 654          DT   OR329    0.80
 655          DI       0   10000
 656          DQ       0   10000

 657          KK   DT329
 658          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 28.84 AC-FT FROM SUB-BASIN 329
 659          KM                                              (Hydrograph identified as OR329)
 660          KM                                            2) Balance of runoff continues on.
 661          KM                                              (Hydrograph identified as DT329)
 662          DT   OR329   28.84
 663          DI       0   10000
 664          DQ       0   10000

 665          KK   HC329
 666          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 318 WITH FLOWS FROM 324, 326, 328 & 329
 667          HC       4

 668          KK   RM330
 669          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 329 THROUGH SUB-BASIN 330
 670          KM            1) Reach Length = 2980 ft.
 671          RD
 672          RC     .05    .045     .05    2980  0.0044
 673          RX       0     190     230     240     260     270     330     400
 674          RY       7       4       2       0       0       2       6       7
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 675          KK    330S
 676          KM    RUNOFF GENERATED ON SUB-BASIN 330
 677          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 678          KM    L=  1.15 mi. Lca=  0.65 mi.  S= 31 ft/mi.   Kn= .022  LAG= 14.77 min.
 679          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 680          BA    .463
 681          LG    .113    .158    8.60    .069   59.40
 682          UI    142.    487.    753.   1207.    850.    548.    245.    133.     51.     32.
 683          UI     32.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 684          KK   DT330
 685          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 4.80 AC-FT FROM SUB-BASIN 330
 686          KM                                             (Hydrograph identified as OR330)
 687          KM                                            2) Balance of runoff continues on.
 688          KM                                             (Hydrograph identified as DT330)
 689          DT   OR330    4.80
 690          DI       0   10000
 691          DQ       0   10000

 692          KK   DT330
 693          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 23.11 AC-FT FROM SUB-BASIN 330
 694          KM                                             (Hydrograph identified as OR330)
 695          KM                                            2) Balance of runoff continues on.
 696          KM                                             (Hydrograph identified as DT330)
 697          DT   OR330   23.11
 698          DI       0   10000
 699          DQ       0   10000

 700          KK   HC330
 701          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 330 WITH FLOWS FROM 329 & 331
 702          HC       3

 703          KK   RM346
 704          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 330 THROUGH SUB-BASIN 346
 705          KM           1) Reach Length = 4240 ft.
 706          RD
 707          RC     .05     .04     .05    4240  0.0061
 708          RX       0      10     280     285     335     340     500     510
 709          RY      10       8       4       2       2       4       8      10

 710          KK    332S
 711          KM    RUNOFF GENERATED ON SUB-BASIN 332
 712          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 713          KM    L=  1.14 mi. Lca=  0.43 mi.  S= 226 ft/mi.   Kn= .037  LAG= 14.51 min.
 714          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 715          BA    .572
 716          LG    .117    .287    4.12    .268   14.21
 717          UI    183.    622.    967.   1517.   1034.    657.    275.    156.     51.     41.
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 718          KK   332RR
 719          KM   ROUTE FLOW THROUGH DETENTION BEHIND C.A.P. STRUCTURE NO. 6
 720          RS       1    ELEV      15
 721          SV       0     0.2    10.6    43.5   102.8
 722          SE      15      16      18      20      22
 723          SL   16.43    4.59     0.6     0.5
 724          SS    20.4     115     3.0     1.5

 725          KK   RM333
 726          KM   MUSKINGUM-CUNGE ROUTE FLOW IN CHANNEL FROM DETENTION THROUGH SUB-BASIN 333
 727          KM            1) Reach Length = 9200 ft.
 728          RD    9200  0.0072   0.035            TRAP      12       2

 729          KK    333S
 730          KM    RUNOFF GENERATED ON SUB-BASIN 333
 731          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 732          KM    L=  2.23 mi. Lca=  1.16 mi.  S= 68 ft/mi.   Kn= .021  LAG= 19.47 min.
 733          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 734          BA    .982
 735          LG    .102    .153    8.20    .044   72.68
 736          UI    170.    594.    944.   1295.   2006.   1565.   1141.    801.    395.    255.
 737          UI    156.     52.     52.     52.      0.      0.      0.      0.      0.      0.
 738          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 739          KK   DT333
 740          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 7.21 AC-FT FROM SUB-BASIN 333
 741          KM                                              (Hydrograph identified as OR333)
 742          KM                                             2) Balance of runoff continues on.
 743          KM                                              (Hydrograph identified as DT333)
 744          DT   OR333    7.21
 745          DI       0   10000
 746          DQ       0   10000

 747          KK   HC333
 748          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 332 AND SUB-BASIN 333
 749          HC       2

 750          KK  333RRA
 751          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 752          KM        SOURCE:  Deer Valley Municipal Airport
 753          KM                 Master Storm Drainage Plan
 754          RS       1    ELEV  1463.7
 755          SA     .92    1.27    1.27    1.27
 756          SE  1463.7  1467.3    1468    1470
 757          SQ       0      22     678    2000

 758          KK  333RRB
 759          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 760          KM        SOURCE:  Deer Valley Municipal Airport
 761          KM                 Master Storm Drainage Plan
 762          RS       1    ELEV    1468
 763          SA     .87    2.42   3.338   3.338   3.339
 764          SE    1462    1470    1471    1473  1473.5
 765          SQ       0      20     206    1200    1600
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 766          KK  333RRC
 767          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 768          KM        SOURCE:  Deer Valley Municipal Airport
 769          KM                 Master Storm Drainage Plan
 770          RS       1    ELEV    1458
 771          SA     .27    1.13    2.06   2.555   2.555   2.555   2.555
 772          SE    1458    1460    1461  1461.5    1462    1464  1464.5
 773          SQ       0    12.5    20.2      28      78    1200    1600

 774          KK  333RRD
 775          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 776          KM        SOURCE:  Deer Valley Municipal Airport
 777          KM                 Master Storm Drainage Plan
 778          RS       1    ELEV    1452
 779          SA     .57    1.75     2.2    2.57    2.57    2.57
 780          SE    1452    1454    1456  1457.7  1459.7    1460
 781          SQ       0      36     100     140    1200    1600

 782          KK  333RRE
 783          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 784          KM        SOURCE:  Deer Valley Municipal Airport
 785          KM                 Master Storm Drainage Plan
 786          RS       1    ELEV    1450
 787          SA    .477    .882    1.24   1.469   1.469   1.469
 788          SE    1450    1452    1454    1455    1457  1457.5
 789          SQ       0    66.5   127.5     162    1200    1600

 790          KK  333RRF
 791          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 792          KM        SOURCE:  Deer Valley Municipal Airport
 793          KM                 Master Storm Drainage Plan
 794          RS       1    ELEV    1470
 795          SA       0     .21     .33     .33     .33
 796          SE    1470    1472  1472.2    1475  1475.5
 797          SQ       0       7       8    1200    1600

 798          KK  333RRG
 799          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 800          KM        SOURCE:  Deer Valley Municipal Airport
 801          KM                 Master Storm Drainage Plan
 802          RS       1    ELEV    1466
 803          SA    .016     .65     .65     .65     .65
 804          SE    1466  1467.8  1468.3  1470.3  1470.5
 805          SQ       0    12.2      45    1200    1600

 806          KK  333RRH
 807          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 808          KM        SOURCE:  Deer Valley Municipal Airport
 809          KM                 Master Storm Drainage Plan
 810          RS       1    ELEV    1460
 811          SA       0      .3     .63      .7      .7      .7      .7
 812          SE    1460    1462  1462.5  1462.6  1463.0    1465  1465.5
 813          SQ       0       7       8      10      51    1200    1600
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 814          KK  333RRI
 815          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 816          KM        SOURCE:  Deer Valley Municipal Airport
 817          KM                 Master Storm Drainage Plan
 818          RS       1    ELEV    1456
 819          SA    .092     .54     .90     .90     .90
 820          SE    1456    1458  1458.5  1460.5    1461
 821          SQ       0      25    40.4    1200    1600

 822          KK  333RRJ
 823          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 824          KM        SOURCE:  Deer Valley Municipal Airport
 825          KM                 Master Storm Drainage Plan
 826          RS       1    ELEV    1456
 827          SA     .06     .16     .28     .28     .28
 828          SE    1456    1457  1457.5  1459.5    1460
 829          SQ       0     8.4      23    1200    1600

 830          KK  333RRK
 831          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 832          KM        SOURCE:  Deer Valley Municipal Airport
 833          KM                 Master Storm Drainage Plan
 834          RS       1    ELEV  1452.8
 835          SA       0     .73    1.66    1.66    1.66    1.66
 836          SE  1452.8    1454  1454.8  1455.3  1457.3  1457.5
 837          SQ       0      14      28     169    1200    1600

 838          KK  333RRL
 839          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 840          KM        SOURCE:  Deer Valley Municipal Airport
 841          KM                 Master Storm Drainage Plan
 842          RS       1    ELEV    1444
 843          SA     .01     .08     .26     .70     .70     .70
 844          SE    1444    1446    1448  1448.5  1453.5    1455
 845          SL  1444.0    37.7      .6      .5
 846          SS  1448.4      20     3.0     1.5

 847          KK  333RRM
 848          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 849          KM        SOURCE:  Deer Valley Municipal Airport
 850          KM                 Master Storm Drainage Plan
 851          RS       1    ELEV  1446.0
 852          SA    .028     .39     .49     .54     .54     .54
 853          SE    1446    1448  1448.5  1449.5  1451.5    1452
 854          SQ       0      36     114     567    1200    1600

 855          KK   RM337
 856          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 333 THROUGH SUB-BASIN 337
 857          KM            1) Reach Length = 5450 ft.
 858          RD    5450  0.0046   0.045            TRAP      20       2
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 859          KK    334S
 860          KM    RUNOFF GENERATED ON SUB-BASIN 334
 861          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 862          KM    L=  1.43 mi. Lca=  0.87 mi.  S= 24 ft/mi.   Kn= .020  LAG= 17.11 min.
 863          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 864          BA    .350
 865          LG    .100    .250    3.50    .278   75.19
 866          UI     71.    284.    426.    666.    741.    500.    339.    160.     95.     48.
 867          UI     21.     21.      0.      0.      0.      0.      0.      0.      0.      0.

 868          KK   DT334
 869          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 23.51 AC-FT FROM SUB-BASIN 334
 870          KM                                              (Hydrograph identified as OR334)
 871          KM                                             2) Balance of runoff continues on.
 872          KM                                              (Hydrograph identified as DT334)
 873          DT   OR334   23.51
 874          DI       0   10000
 875          DQ       0   10000

 876          KK   334RE
 877          KM   DIVERT FLOW FROM SUB-BASIN 334 TO 337
 878          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
 879          KM             And Outer Loop Highway Interceptor Drain
 880          DT    337D
 881          DI       0     100     500    1000    2000
 882          DQ       0       0      84     222     514

 883          KK   RM335
 884          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 334 THROUGH SUB-BASIN 335
 885          KM            1) Reach Length = 2615 ft.
 886          RD
 887          RC     .03     .02     .03    2615  0.0046
 888          RX     100     100     105     105     140     140     145     145
 889          RY     5.0     0.5     0.5     0.0     0.0     0.5     0.5     5.0

 890          KK    335S
 891          KM    RUNOFF GENERATED ON SUB-BASIN 335
 892          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 893          KM    L=  0.97 mi. Lca=  0.47 mi.  S= 28 ft/mi.   Kn= .020  LAG= 11.34 min.
 894          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 895          BA    .274
 896          LG    .125    .250    3.50    .334   46.77
 897          UI    153.    466.    855.    642.    335.    120.     44.     25.      0.      0.

 898          KK   DT335
 899          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 7.33 AC-FT FROM SUB-BASIN 335
 900          KM                                              (Hydrograph identified as OR335)
 901          KM                                             2) Balance of runoff continues on.
 902          KM                                              (Hydrograph identified as DT335)
 903          DT   OR335    7.33
 904          DI       0   10000
 905          DQ       0   10000
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 906          KK   HC335
 907          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 334 AND SUB-BASIN 339
 908          HC       2

 909          KK   RM338
 910          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 335 THROUGH SUB-BASIN 338
 911          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
 912          KM             And Outer Loop Highway Interceptor Drain
 913          KM            1) Reach Length = 2615 ft.
 914          RD    2695  0.0037   0.018            TRAP      16       0

 915          KK    338S
 916          KM    RUNOFF GENERATED ON SUB-BASIN 338
 917          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 918          KM    L=  1.41 mi. Lca=  0.54 mi.  S= 27 ft/mi.   Kn= .021  LAG= 14.58 min.
 919          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 920          BA    .216
 921          LG    .115    .256    3.55    .300   50.87
 922          UI     68.    233.    361.    570.    392.    250.    107.     60.     20.     15.

 923          KK   DT338
 924          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 2.07 AC-FT FROM SUB-BASIN 338
 925          KM                                              (Hydrograph identified as OR338)
 926          KM                                             2) Balance of runoff continues on.
 927          KM                                              (Hydrograph identified as DT338)
 928          DT   OR338    2.07
 929          DI       0   10000
 930          DQ       0   10000

 931          KK   HC338
 932          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 335 AND SUB-BASIN 338
 933          HC       2

 934          KK   338RR
 935          KM   ROUTE FLOWS THROUGH DETENTION BASIN A
 936          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
 937          KM             And Outer Loop Highway Interceptor Drain
 938          RS       1    STOR      -1       0
 939          SV       0     2.7   113.6     125
 940          SE    1392  1393.2    1412    1414
 941          SL    1392    2.64     0.6     0.5
 942          SS    1412     100     3.0     1.5

 943          KK   338RE
 944          KM   DIVERT TOTAL FLOW FOR FUTURE RETRIEVAL
 945          DT    342D
 946          DI       0     100     500    1000    2000
 947          DQ       0     100     500    1000    2000
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 948          KK    336S
 949          KM    RUNOFF GENERATED ON SUB-BASIN 336
 950          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 951          KM    L=  0.63 mi. Lca=  0.35 mi.  S= 25 ft/mi.   Kn= .020  LAG= 8.80 min.
 952          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 953          BA    .111
 954          LG    .100    .150    7.50    .111   74.99
 955          UI    106.    322.    402.    172.     52.     13.      0.      0.      0.      0.
 956          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 957          KK  336RRA
 958          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 959          KM        SOURCE:  Deer Valley Municipal Airport
 960          KM                 Master Storm Drainage Plan
 961          RS      1    ELEV    1451
 962          SA      0     .09     .46     .46     .46
 963          SE   1451    1452    1454  1454.5  1455.0
 964          SQ      0     3.4    12.2      15     293

 965          KK  336RRB
 966          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 967          KM        SOURCE:  Deer Valley Municipal Airport
 968          KM                 Master Storm Drainage Plan
 969          RS      1    ELEV    1451
 970          SA      0     .37     .37     .37     .37
 971          SE   1451  1451.5    1452  1452.5    1454
 972          SQ      0      14      69     250    1000

 973          KK  336RRC
 974          KM    ROUTE FLOW THROUGH DEER VALLEY AIRPORT RESERVOIR
 975          KM        SOURCE:  Deer Valley Municipal Airport
 976          KM                 Master Storm Drainage Plan
 977          RS      1    ELEV  1429.4
 978          SA      0     .25     .62    1.19    1.46    1.46    1.46
 979          SE  1429.4    1430    1432    1438    1439  1439.2  1439.7
 980          SQ      0     2.5      17      45      49      50     253

 981          KK   RM337
 982          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 336 THROUGH SUB-BASIN 337
 983          KM           1) Reach Length = 2960 ft.
 984          RD    2960  0.0051   0.030            TRAP       0      50

 985          KK    337S
 986          KM    RUNOFF GENERATED ON SUB-BASIN 337
 987          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 988          KM    L=  0.80 mi. Lca=  0.56 mi.  S= 31 ft/mi.   Kn= .020  LAG= 11.05 min.
 989          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 990          BA    .262
 991          LG    .100    .250    5.05    .222   74.81
 992          UI    154.    468.    849.    600.    291.    109.     34.     24.      0.      0.
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 993          KK   DT337
 994          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 13.77 AC-FT FROM SUB-BASIN 337
 995          KM                                             (Hydrograph identified as OR337)
 996          KM                                            2) Balance of runoff continues on.
 997          KM                                             (Hydrograph identified as DT337)
 998          DT   OR337   13.77
 999          DI       0   10000
1000          DQ       0   10000

1001          KK    R334
1002          KM   RETRIEVE HYDROGRAPH FROM SUB-BASIN 334
1003          DR    337D

1004          KK   HC337
1005          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 333, 334, 336, & 337
1006          HC       4

1007          KK   337RE
1008          KM   DIVERT FLOW FROM SUB-BASIN 337 TO 340
1009          KM    SOURCE:  Concept Drainage Design Hydrology, I-17 to Cave Creek,
1010          KM             Outer Loop Highway, CRS sirrine, Inc.
1011          DT    340D
1012          DI       0     100     250     350     499     984    1922
1013          DQ       0      12      50      76     112     201     343

1014          KK   RM339
1015          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 337 THROUGH SUB-BASIN 339
1016          KM            1) Reach Length = 2105 ft.
1017          RD    2105  0.0038   0.025            TRAP       8      20

1018          KK    327D
1019          KM   RETRIEVE HYDROGRAPH FROM SUB-BASIN 327D
1020          DR    339D

1021          KK   RM339
1022          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 327 THROUGH SUB-BASIN 339
1023          KM            1) Reach Length = 2645 ft.
1024          RD    2645  0.0042   0.030            TRAP       0      50

1025          KK    339S
1026          KM    RUNOFF GENERATED ON SUB-BASIN 339
1027          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1028          KM    L=  0.89 mi. Lca=  0.67 mi.  S= 26 ft/mi.   Kn= .020  LAG= 12.74 min.
1029          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1030          BA    .229
1031          LG    .100    .210    6.96    .144   75.00
1032          UI     99.    314.    552.    603.    360.    162.     76.     24.     19.      0.

1033          KK   DT339
1034          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 10.97 AC-FT FROM SUB-BASIN 339
1035          KM                                             (Hydrograph identified as OR339)
1036          KM                                            2) Balance of runoff continues on.
1037          KM                                             (Hydrograph identified as DT339)
1038          DT   OR339   10.97
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1039          DI       0   10000
1040          DQ       0   10000

1041          KK   HC339
1042          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 327, 337 & 339
1043          HC       3

1044          KK   RM340
1045          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 339 THROUGH SUB-BASIN 340
1046          KM            1) Reach Length = 2650 ft.
1047          RD    2650  0.0060   0.025            TRAP       0      50

1048          KK    340S
1049          KM    RUNOFF GENERATED ON SUB-BASIN 340
1050          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1051          KM    L=  1.06 mi. Lca=  0.45 mi.  S= 27 ft/mi.   Kn= .020  LAG= 11.62 min.
1052          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1053          BA    .270
1054          LG    .100    .190    7.14    .138   57.22
1055          UI    143.    438.    810.    648.    356.    128.     51.     24.      0.      0.

1056          KK   DT340
1057          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 4.24 AC-FT FROM SUB-BASIN 340
1058          KM                                              (Hydrograph identified as OR340)
1059          KM                                             2) Balance of runoff continues on.
1060          KM                                              (Hydrograph identified as DT340)
1061          DT   OR340    4.24
1062          DI       0   10000
1063          DQ       0   10000

1064          KK    R337
1065          KM   RETRIEVE FLOWS DIVERTED AT 337
1066          DR    340D

1067          KK   HC340
1068          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 337, 339 & 340
1069          HC       4

1070          KK   RM342
1071          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 340 THROUGH SUB-BASIN 342
1072          KM            1) Reach Length = 1300 ft.
1073          RD    1300  0.0023   0.035            TRAP       8       2

1074          KK    R338
1075          KM   RETRIEVE FLOW FROM DETENTION BASIN
1076          DR    342D

1077          KK   RM342
1078          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM DETENTION BASIN A TO DETENTION BASIN B
1079          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
1080          KM             And Outer Loop Highway Interceptor Drain
1081          KM            1) Reach Length = 3795 ft.
1082          RD    3795  0.0045   0.012            CIRC       3
```

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

1083          KK    342S
1084          KM    RUNOFF GENERATED ON SUB-BASIN 342
1085          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1086          KM    L=  0.67 mi. Lca=  0.35 mi.  S= 27 ft/mi.   Kn= .024  LAG= 10.65 min.
1087          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1088          BA    .127
1089          LG    .139    .119    9.40    .022   62.72
1090          UI     81.    243.    430.    280.    123.     48.     12.      0.      0.      0.

1091          KK   DT342
1092          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 7.66 AC-FT FROM SUB-BASIN 342
1093          KM                                              (Hydrograph identified as OR342)
1094          KM                                             2) Balance of runoff continues on.
1095          KM                                              (Hydrograph identified as DT342)
1096          DT   OR342    7.66
1097          DI       0   10000
1098          DQ       0   10000

1099          KK   HC342
1100          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 338, 340 & 342
1101          HC       3

1102          KK   342RR
1103          KM   ROUTE FLOWS THROUGH DETENTION BASIN B
1104          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
1105          KM             And Outer Loop Highway Interceptor Drain
1106          RS       1    STOR      -1       0
1107          SV       0     8.2    29.8    64.1   106.3   168.1   179.8   192.6   212.9   242.0
1108          SV   268.5   315.0
1109          SQ       0      10      20      30      40      54      96     138     180     223
1110          SQ     247     337
1111          SE  1367.6  1369.4  1371.7  1375.2  1379.5  1385.8  1387.0  1388.3  1390.0  1392.3
1112          SE  1394.4  1398.0

1113          KK   342RE
1114          KM   DIVERT FLOW FROM DETENTION BASIN B TO DETENTION BASIN C
1115          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
1116          KM             And Outer Loop Highway Interceptor Drain
1117          DT    345D
1118          DI       0      10      20      30      40      54      96     138     180     223
1119          DI     247     337
1120          DQ       0       0       0       0       0       0      40      80     120     160
1121          DQ     181     267

1122          KK   RM343
1123          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 342 THROUGH SUB-BASIN 343
1124          KM            1) Reach Length = 1400 ft.
1125          RD    1400  0.0055   0.012            TRAP       8       2
```

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

1126          KK   327R2
1127          KM   RETRIEVE DIVERTED FLOW FROM DEER VALLEY RD.
1128          DR    341D

1129          KK    341S
1130          KM    RUNOFF GENERATED ON SUB-BASIN 341
1131          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1132          KM    L=  1.07 mi. Lca=  0.55 mi.  S= 24 ft/mi.   Kn= .020  LAG= 12.87 min.
1133          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1134          BA    .320
1135          LG    .100    .130   10.10    .034   77.42
1136          UI    135.    431.    748.    851.    509.    237.    108.     37.     26.      0.

1137          KK   DT341
1138          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 6.50 AC-FT FROM SUB-BASIN 341
1139          KM                                              (Hydrograph identified as OR341)
1140          KM                                            2) Balance of runoff continues on.
1141          KM                                              (Hydrograph identified as DT341)
1142          DT   OR341    6.50
1143          DI       0   10000
1144          DQ       0   10000

1145          KK   DT341
1146          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 16.88 AC-FT FROM SUB-BASIN 341
1147          KM                                              (Hydrograph identified as OR341)
1148          KM                                            2) Balance of runoff continues on.
1149          KM                                              (Hydrograph identified as DT341)
1150          DT   OR341   16.88
1151          DI       0   10000
1152          DQ       0   10000

1153          KK   HC341
1154          KM   COMBINE HYDROGRAPHS FROM SUB-BASIN 341 WITH OVERFLOW FROM DEER VALLEY RD.
1155          HC       2

1156          KK   341RR
1157          KM   ROUTE FLOWS THROUGH DETENTION BASIN D
1158          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
1159          KM             And Outer Loop Highway Interceptor Drain
1160          RS       1    STOR      -1       0
1161          SV       0     0.7    25.4    30.0    34.6
1162          SE    1381  1382.5  1396.0  1398.0    1400
1163          SL    1381    2.41     0.6     0.5
1164          SS    1397     100     3.0     1.5

1165          KK   RM343
1166          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM DETENTION BASIN D TO SUB-BASIN 343
1167          KM            1) Reach Length = 2500 ft.
1168          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
1169          KM             And Outer Loop Highway Interceptor Drain
1170          RD    2500  0.0046   0.012            CIRC       3
```

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

1171          KK    343S
1172          KM    RUNOFF GENERATED ON SUB-BASIN 343
1173          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1174          KM    L=  0.86 mi. Lca=  0.40 mi.  S= 21 ft/mi.   Kn= .020  LAG= 10.77 min.
1175          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1176          BA    .254
1177          LG    .100    .050   12.40    .011   67.87
1178          UI    159.    475.    849.    567.    257.    100.     25.     24.      0.      0.

1179          KK   DT343
1180          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 5.49 AC-FT FROM SUB-BASIN 343
1181          KM                                              (Hydrograph identified as OR343)
1182          KM                                             2) Balance of runoff continues on.
1183          KM                                              (Hydrograph identified as DT343)
1184          DT   OR343    5.49
1185          DI       0   10000
1186          DQ       0   10000

1187          KK   HC343
1188          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 341, 342 & 343
1189          HC       3

1190          KK   RM345
1191          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 343 THROUGH SUB-BASIN 345
1192          KM           1) Reach Length = 7280 ft.
1193          RD    7280  0.0055   0.012            TRAP       8       2

1194          KK    345S
1195          KM    RUNOFF GENERATED ON SUB-BASIN 345
1196          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1197          KM    L=  1.76 mi. Lca=  1.02 mi.  S= 26 ft/mi.   Kn= .020  LAG= 19.37 min.
1198          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1199          BA    .530
1200          LG    .105    .102    9.40    .023   72.01
1201          UI     92.    325.    514.    707.   1091.    841.    612.    428.    206.    135.
1202          UI     81.     28.     28.     28.      0.      0.      0.      0.      0.      0.

1203          KK   DT345
1204          KM   THROW AWAY 10-YR 2-HR RETENTION VOLUME:  1) 6.00 AC-FT FROM SUB-BASIN 345
1205          KM                                              (Hydrograph identified as OR345)
1206          KM                                             2) Balance of runoff continues on.
1207          KM                                              (Hydrograph identified as DT345)
1208          DT   OR345    6.00
1209          DI       0   10000
1210          DQ       0   10000

1211          KK   DT345
1212          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 27.06 AC-FT FROM SUB-BASIN 345
1213          KM                                              (Hydrograph identified as OR345)
1214          KM                                             2) Balance of runoff continues on.
1215          KM                                              (Hydrograph identified as DT345)
1216          DT   OR345   27.06
1217          DI       0   10000
1218          DQ       0   10000
```

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

1219          KK    R343
1220          KM   RETRIEVE FLOWS DIVERTED AT 343.
1221          DR    345D

1222          KK   RM343
1223          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 342 THROUGH SUB-BASIN 343
1224          KM            1) Reach Length = 1400 ft.
1225          RD    1400  0.0043   0.012            CIRC       5

1226          KK   HC345
1227          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 342, 343 & 345
1228          HC       3

1229          KK   345RR
1230          KM   ROUTE FLOWS THROUGH DETENTION BASIN C
1231          KM    SOURCE:  Drainage Report Scatter Wash Hydrology
1232          KM             And Outer Loop Highway Interceptor Drain
1233          RS       1    STOR      -1       0
1234          SA    2.15    2.24    2.32    2.52    2.71    2.91    3.12    3.67    3.67
1235          SE    1338    1339    1340    1342    1344    1346    1348    1353    1356
1236          SL    1339    5.94     0.6     0.5
1237          SS    1352      40     2.7     1.5

1238          KK   RM346
1239          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 343 THROUGH SUB-BASIN 346
1240          KM            1) Reach Length = 2000 ft.
1241          RD    2000  0.0100   0.012            TRAP       8       2

1242          KK    346S
1243          KM    RUNOFF GENERATED ON SUB-BASIN 346
1244          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1245          KM    L=  1.15 mi. Lca=  0.74 mi.  S= 35 ft/mi.   Kn= .022  LAG= 15.16 min.
1246          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1247          BA    .296
1248          LG    .129    .266    5.67    .209   50.42
1249          UI     85.    298.    455.    747.    556.    366.    178.     92.     42.     20.
1250          UI     20.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1251          KK   HC346
1252          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 330, 345 & 346
1253          HC       3

1254          KK   RM347
1255          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 346 THROUGH SUB-BASIN 347
1256          KM            1) Reach Length = 6685 ft.
1257          RD
1258          RC   0.055   0.045   0.055    6685  0.0042
1259          RX       0      20     175     180     200     205     310     330
1260          RY      10       6       4       2       2       4       6      10
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1261          KK    347S
1262          KM    RUNOFF GENERATED ON SUB-BASIN 347
1263          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1264          KM    L=  1.54 mi. Lca=  0.89 mi.  S= 27 ft/mi.   Kn= .023  LAG= 19.96 min.
1265          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1266          BA    .401
1267          LG    .150    .275    5.67    .214   40.95
1268          UI     68.    229.    369.    498.    785.    653.    479.    345.    186.    114.
1269          UI     68.     28.     21.     21.      0.      0.      0.      0.      0.      0.

1270          KK   HC347
1271          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 346 & SUB-BASINS 347
1272          HC       2

1273          KK     AD1
1274          KM   ADOBE DAM LOW LEVEL SPILLWAY OUTFLOW; ASSUME CONSTANT OUTFLOW OF
1275          KM   1730 CFS FOR 100-YEAR STORM.
1276          KM   SOURCE:  F.I.S., Maricopa County, Arizona and Incorporated Areas, FEMA.
1277          BA     0.1
1278          IN     120
1279          QI    1730    1730    1730    1730    1730    1730    1730    1730    1730    1730
1280          QI    1730    1730    1730    1730    1730    1730    1730    1730    1730    1730

1281          KK   RMAD1
1282          KM   NORMAL DEPTH STORAGE ROUTE ADOBE DAM AND OUTFLOW THROUGH SUB-BASIN 347
1283          KM            1) Reach Length = 3240 ft.
1284          RS       5    FLOW      -1
1285          RC   0.055   0.045   0.055    3240  0.0040
1286          RX      30      80     180     200     240     260     265     270
1287          RY       7       6       5       0       0       6       7       8

1288          KK    348S
1289          KM    RUNOFF GENERATED ON SUB-BASIN 348
1290          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1291          KM    L=  2.23 mi. Lca=  0.83 mi.  S= 30 ft/mi.   Kn= .022  LAG= 20.98 min.
1292          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1293          BA   1.105
1294          LG    .121    .260    3.71    .347   54.64
1295          UI    177.    556.    934.   1236.   1894.   1907.   1384.   1015.    682.    330.
1296          UI    237.    144.     54.     54.     54.      0.      0.      0.      0.      0.

1297          KK   DT348
1298          KM   THROW AWAY 100-YR 2-HR RETENTION VOLUME:  1) 15.02 AC-FT FROM SUB-BASIN 348
1299          KM                                             (Hydrograph identified as OR348)
1300          KM                                            2) Balance of runoff continues on.
1301          KM                                             (Hydrograph identified as DT348)
1302          DT   OR348   15.02
1303          DI       0   10000
1304          DQ       0   10000
```

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

1305          KK   HC348
1306          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 348 WITH ROUTED OUTFLOW FROM ADOBE DAM
1307          HC       2

1308          KK   RM349
1309          KM   MUSKINGUM-CUNGE ROUTE FLOW FROM SUB-BASIN 348 THROUGH SUB-BASIN 349
1310          KM            1) Reach Length = 3120 ft.
1311          RD
1312          RC    0.05    0.04    0.05    3120  0.0051
1313          RX     160     165     170     200     245     280     285     290
1314          RY       7     6.5       6       0       0       6     6.5       7

1315          KK    349S
1316          KM    RUNOFF GENERATED ON SUB-BASIN 349
1317          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1318          KM    L=  0.59 mi. Lca=  0.41 mi.  S= 27 ft/mi.   Kn= .026  LAG= 11.67 min.
1319          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1320          BA    .048
1321          LG    .163    .295    3.68    .765   38.13
1322          UI     25.     77.    143.    116.     64.     23.      9.      4.      0.      0.

1323          KK   HC349
1324          KM   COMBINE HYDROGRAPHS FROM SUB-BASINS 348 WITH SUB-BASIN 349
1325          HC       2

1326          KK   HCSKB
1327          KM   COMBINE HYDROGRAPHS AT CONFLUENCE OF SKUNK CREEK & SCATTER WASH ADOBE DAM
1328          HC       2
1329          ZW    A=SCATTER WASH  B=HCSKB  C=FLOW  F=SKUNK CREEK
1330          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

 NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

  8        310S
              .
              .
 27           .        311S
              .           .
              .           .
 37       HC311............
              V
              V
 40       311RR
              V
              V
 47       RM312
              .
              .
 54           .        312S
              .           .
              .           .
 70           .           .-------->   OR312
 65           .       DT312
              .           .
              .           .
 73       HC312............
              V
              V
 76       RM317
              .
              .
 83           .        313S
              .           V
              .           V
 92           .       313RR
              .           V
              .           V
 99           .       RM314
              .           .
              .           .
106           .           .        314S
              .           .           .
              .           .           .
119           .           .           .-------->   OR314
114           .           .       DT314
              .           .           .
              .           .           .
122           .       HC314............
              .           V
              .           V
125           .       RM317
              .           .
              .           .
132           .           .        315S
              .           .           .
              .           .           .
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141          .          .          .       319S
             .          .          .          .
             .          .          .          .
151          .          .      HC315............
             .          .          V
             .          .          V
154          .          .      315RR
             .          .          V
             .          .          V
161          .          .      RM316
             .          .          .
             .          .          .
168          .          .          .       316S
             .          .          .          .
             .          .          .          .
178          .          .      HC316............
             .          .          V
             .          .          V
181          .          .      RM317
             .          .          .
             .          .          .
188          .          .          .       317S
             .          .          .          .
             .          .          .          .
201          .          .          .          .-------->   OR317
196          .          .          .      DT317
             .          .          .          .
             .          .          .          .
204      HC317.................................
             V
             V
207      317RR
             V
             V
216      RM318
             .
             .
223          .       318S
             .          .
             .          .
236          .          .-------->   OR318
231          .      DT318
             .          .
             .          .
244          .          .-------->   OR318
239          .      DT318
             .          .
             .          .
247          .          .       320S
             .          .          .
             .          .          .
261          .          .          .-------->   OR320
256          .          .      DT320
             .          .          V
             .          .          V
64           .          .      320RR
             .          .          .
             .          .          .
274          .          .          .-------->    325D
271          .          .      320RE
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```
          .          .          V
          .          .          V
277       .          .      RM321
          .          .          .
          .          .          .
284       .          .          .       321S
          .          .          .          .
          .          .          .          .
298       .          .          .          .-------->   OR321
293       .          .          .      DT321
          .          .          .          .
          .          .          .          .
301       .          .      HC321............
          .          .          V
          .          .          V
304       .          .      RM318
          .          .          .
          .          .          .
311       .          .          .       322S
          .          .          .          V
          .          .          .          V
319       .          .          .      322RR
          .          .          .          .
          .          .          .          .
326     HC318.................................
          V
          V
329     318RR
          .
          .
344       .-------->   324D1
338     318RE
          .
          .
354       .-------->    331D
347    326RE1
          .
          .
359       .          .<-------    325D
357       .      320RD
          .          V
          .          V
360       .      RM325
          .          .
          .          .
367       .          .       325S
          .          .          .
          .          .          .
380       .          .          .-------->   OR325
375       .          .      DT325
          .          .          .
          .          .          .
383       .      HC325............
          .          V
          .          V
386       .      RM326
          .          .
          .          .
393       .          .       326S
          .          .          .
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```
          .          .          .
407       .          .          .-------> OR326
402       .          .     DT326
          .          .          .
          .          .          .
415       .          .          .-------> OR326
410       .          .     DT326
          .          .          .
          .          .          .
418    HC326.......................
          .
          .
427       .-------> 324D2
422    326RE2
          .
          .
435       .-------> 329D1
430    328RE1
          .
          .
438       .      327S
          .          .
          .          .
452       .          .-------> OR327
447       .     DT327
          .          .
          .          .
460       .          .-------> OR327
455       .     DT327
          .          V
          .          V
463       .    327RRA
          .          V
          .          V
471       .    327RRB
          .          V
          .          V
479       .    327RRC
          .          V
          .          V
487       .    327RRD
          .          V
          .          V
495       .    327RRE
          .          .
          .          .
505       .          .-------> 339D
503       .     327R1
          .          .
          .          .
511       .          .-------> 341D
508       .     327R2
          .          V
          .          V
514       .     RM328
          .          .
          .          .
521       .          .      328S
          .          .          .
          .          .          .
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```
534          .           .           .-------->   OR328
529          .           .       DT328
             .           .           .
             .           .           .
 42          .           .           .-------->   OR328
537          .           .       DT328
             .           .           .
             .           .           .
545      HC328.......................
             .
             .
554          .-------->   329D2
548     328RE2
             .
             .
559          .           .<-------    331D
557          .        R318
             .           .
             .           .
560          .           .        331S
             .           .           .
             .           .           .
569      HC331.......................
             V
             V
573     331RR
             V
             V
580     RM330
             .
             .
591          .           .<-------   324D1
588          .        R318
             .           .
             .           .
595          .           .           .<-------   324D2
592          .           .        R326
             .           .           .
             .           .           .
596          .           .           .        323S
             .           .           .           V
             .           .           .           V
605          .           .           .       RM324
             .           .           .           .
             .           .           .           .
609          .           .           .           .        324S
             .           .           .           .           .
             .           .           .           .           .
617          .       HC324.................................
             .           V
             .           V
621          .       RM329
             .           .
             .           .
 0           .           .           .<-------   329D1
 28          .           .        R326
             .           .           .
             .           .           .
633          .           .           .           .<-------   329D2
631          .           .           .        R328
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          .          .          .          V
          .          .          .          V
634       .          .          .      RM329
          .          .          .          .
          .          .          .          .
641       .          .          .          .       329S
          .          .          .          .          .
          .          .          .          .          .
654       .          .          .          .          .-------->   OR329
649       .          .          .          .      DT329
          .          .          .          .          .
          .          .          .          .          .
662       .          .          .          .          .-------->   OR329
657       .          .          .          .      DT329
          .          .          .          .          .
          .          .          .          .          .
665       .      HC329.................................
          .          V
          .          V
668       .      RM330
          .          .
          .          .
675       .          .       330S
          .          .          .
          .          .          .
689       .          .          .-------->   OR330
684       .          .      DT330
          .          .          .
          .          .          .
 7        .          .          .-------->   OR330
692       .          .      DT330
          .          .          .
          .          .          .
700     HC330......................
          V
          V
703     RM346
          .
          .
710       .       332S
          .          V
          .          V
718       .      332RR
          .          V
          .          V
725       .      RM333
          .          .
          .          .
729       .          .       333S
          .          .          .
          .          .          .
744       .          .          .-------->   OR333
739       .          .      DT333
          .          .          .
          .          .          .
 47       .      HC333............
          .          V
          .          V
750       .     333RRA
          .          V
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          .          V
758       .     333RRB
          .          V
          .          V
766       .     333RRC
          .          V
          .          V
774       .     333RRD
          .          V
          .          V
782       .     333RRE
          .          V
          .          V
790       .     333RRF
          .          V
          .          V
798       .     333RRG
          .          V
          .          V
806       .     333RRH
          .          V
          .          V
814       .     333RRI
          .          V
          .          V
822       .     333RRJ
          .          V
          .          V
830       .     333RRK
          .          V
          .          V
838       .     333RRL
          .          V
          .          V
847       .     333RRM
          .          V
          .          V
855       .      RM337
          .          .
          .          .
859       .          .        334S
          .          .           .
          .          .           .
873       .          .           .-------->   OR334
868       .          .       DT334
          .          .           .
          .          .           .
880       .          .           .-------->    337D
876       .          .       334RE
          .          .           V
          .          .           V
883       .          .       RM335
          .          .           .
          .          .           .
890       .          .           .        335S
          .          .           .           .
          .          .           .           .
903       .          .           .           .-------->   OR335
898       .          .           .       DT335
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          .         .         .         .
906       .         .      HC335............
          .         .         V
          .         .         V
909       .         .      RM338
          .         .         .
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915       .         .         .       338S
          .         .         .          .
          .         .         .          .
928       .         .         .          .-------->   OR338
923       .         .         .      DT338
          .         .         .          .
          .         .         .          .
931       .         .      HC338............
          .         .         V
          .         .         V
934       .         .      338RR
          .         .         .
          .         .         .
945       .         .         .-------->    342D
943       .         .      338RE
          .         .         .
          .         .         .
948       .         .         .       336S
          .         .         .          V
          .         .         .          V
957       .         .         .     336RRA
          .         .         .          V
          .         .         .          V
965       .         .         .     336RRB
          .         .         .          V
          .         .         .          V
973       .         .         .     336RRC
          .         .         .          V
          .         .         .          V
981       .         .         .      RM337
          .         .         .          .
          .         .         .          .
985       .         .         .          .       337S
          .         .         .          .          .
          .         .         .          .          .
998       .         .         .          .          .-------->   OR337
993       .         .         .          .      DT337
          .         .         .          .          .
          .         .         .          .          .
1003      .         .         .          .          .          .<--------    337D
1001      .         .         .          .          .       R334
          .         .         .          .          .          .
          .         .         .          .          .          .
1004      .         .      HC337.................................
          .         .         .
          .         .         .
011       .         .         .-------->    340D
07        .         .      337RE
          .         .         V
          .         .         V
1014      .         .      RM339
          .         .         .
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1020   .        .        .        .<-------   339D
1018   .        .        .     327D
       .        .        .        V
       .        .        .        V
21     .        .        .     RM339
       .        .        .        .
       .        .        .        .
1025   .        .        .        .      339S
       .        .        .        .        .
       .        .        .        .        .
1038   .        .        .        .        .------->  OR339
1033   .        .        .        .     DT339
       .        .        .        .        .
       .        .        .        .        .
1041   .        .     HC339.......................
       .        .        V
       .        .        V
1044   .        .     RM340
       .        .        .
       .        .        .
1048   .        .        .     340S
       .        .        .        .
       .        .        .        .
1061   .        .        .        .------->  OR340
1056   .        .        .     DT340
       .        .        .        .
       .        .        .        .
1066   .        .        .        .        .<-------   340D
1064   .        .        .        .     R337
       .        .        .        .        .
       .        .        .        .        .
1067   .     HC340..................................
       .        V
       .        V
1070   .     RM342
       .        .
       .        .
1076   .        .        .<-------   342D
1074   .        .     R338
       .        .        V
       .        .        V
1077   .        .     RM342
       .        .        .
       .        .        .
1083   .        .        .     342S
       .        .        .        .
       .        .        .        .
1096   .        .        .        .------->  OR342
1091   .        .        .     DT342
       .        .        .        .
       .        .        .        .
1099   .     HC342......................
       .        V
       .        V
1102   .     342RR
       .        .
       .        .
1117   .        .------->   345D
1113   .     342RE
       .        V
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          .          V
1122      .      RM343
          .          .
          .          .
 28       .          .          .<-------    341D
1126      .          .      327R2
          .          .          .
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1129      .          .          .       341S
          .          .          .          .
          .          .          .          .
1142      .          .          .          .------->   OR341
1137      .          .          .      DT341
          .          .          .          .
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1150      .          .          .          .------->   OR341
1145      .          .          .      DT341
          .          .          .          .
          .          .          .          .
1153      .          .      HC341............
          .          .          V
          .          .          V
1156      .          .      341RR
          .          .          V
          .          .          V
1165      .          .      RM343
          .          .          .
          .          .          .
1171      .          .          .       343S
          .          .          .          .
          .          .          .          .
1184      .          .          .          .------->   OR343
1179      .          .          .      DT343
          .          .          .          .
          .          .          .          .
1187      .      HC343........................
          .          V
          .          V
1190      .      RM345
          .          .
          .          .
1194      .          .       345S
          .          .          .
          .          .          .
1208      .          .          .------->   OR345
1203      .          .      DT345
          .          .          .
          .          .          .
1216      .          .          .------->   OR345
1211      .          .      DT345
          .          .          .
          .          .          .
1221      .          .          .          .<-------    345D
1219      .          .          .       R343
          .          .          .          V
          .          .          .          V
1222      .          .          .      RM343
          .          .          .          .
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1226      .      HC345........................
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                .          V
                .          V
1229            .      345RR
                .          V
                .          V
1238            .      RM346
                .          .
                .          .
1242            .          .       346S
                .          .          .
                .          .          .
1251        HC346........................
                V
                V
1254        RM347
                .
                .
1261            .       347S
                .          .
                .          .
1270        HC347............
                .
                .
1273            .        AD1
                .          V
                .          V
1281            .      RMAD1
                .          .
                .          .
1288            .          .       348S
                .          .          .
                .          .          .
1302            .          .          .-------->   OR348
1297            .          .      DT348
                .          .          .
                .          .          .
1305            .      HC348............
                .          V
                .          V
1308            .      RM349
                .          .
                .          .
1315            .          .       349S
                .          .          .
                .          .          .
1323            .      HC349............
                .          .
                .          .
1326        HCSKB............
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(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY   1991               *
           VERSION 4.0.1E              *
*                                       *
*  RUN DATE  04/25/95  TIME  15:10:11   *
*                                       *
*****************************************
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*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
*****************************************
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                    ACDC AREA DRAINAGE MASTER STUDY
                    FILENAME SW243F.DAT      KHE JOB NO. 0146
                    SCATTER WASH WATERSHED - FUTURE CONDITIONS
                    100-YEAR 24-HOUR DURATION STORM
                    SCS TYPE-II DISTRIBUTION WAS USED

  7 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     10OCT92  STARTING DATE
                 ITIME        1200  STARTING TIME
                    NQ        1000  NUMBER OF HYDROGRAPH ORDINATES
                NDDATE     13OCT92  ENDING DATE
                NDTIME        0636  ENDING TIME
                 ICENT          19  CENTURY MARK

             COMPUTATION INTERVAL    0.07 HOURS
                  TOTAL TIME BASE   66.60 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
  -----DSS---ZOPEN:  Existing File Opened,  File: CCW324F.DSS
                     Unit:  71;  DSS Version: 6-FT
-----DSS---ZWRITE Unit  71; Vers.   12:  /SCATTER WASH/HCSKB/FLOW/10OCT1992/4MIN/SKUNK CREEK/
-----DSS---ZWRITE Unit  71; Vers.   12:  /SCATTER WASH/HCSKB/FLOW/11OCT1992/4MIN/SKUNK CREEK/
-----DSS---ZWRITE Unit  71; Vers.   12:  /SCATTER WASH/HCSKB/FLOW/12OCT1992/4MIN/SKUNK CREEK/
-----DSS---ZWRITE Unit  71; Vers.   12:  /SCATTER WASH/HCSKB/FLOW/13OCT1992/4MIN/SKUNK CREEK/
```

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	310S	1071.	12.07	137.	40.	14.	0.68		
HYDROGRAPH AT	311S	822.	12.07	101.	29.	10.	0.57		
2 COMBINED AT	HC311	1893.	12.07	237.	69.	25.	1.25		
ROUTED TO	311RR	291.	12.73	129.	64.	23.	1.25	20.46	12.73
ROUTED TO	RM312	290.	13.27	129.	64.	23.	1.25		
HYDROGRAPH AT	312S	2156.	12.07	316.	102.	37.	1.35		
DIVERSION TO	OR312	1176.	12.07	101.	31.	11.	1.35		
HYDROGRAPH AT	DT312	2156.	12.07	256.	71.	26.	1.35		
2 COMBINED AT	HC312	2187.	12.07	378.	135.	49.	2.60		
ROUTED TO	RM317	2442.	12.40	377.	135.	49.	2.60		
HYDROGRAPH AT	313S	822.	12.00	97.	29.	10.	0.51		
ROUTED TO	313RR	56.	12.80	52.	28.	10.	0.51	21.02	12.80
ROUTED TO	RM314	55.	13.33	52.	28.	10.	0.51		
HYDROGRAPH AT	314S	1090.	12.00	137.	43.	15.	0.67		
DIVERSION TO	OR314	965.	12.00	63.	18.	6.	0.67		
HYDROGRAPH AT	DT314	1090.	12.00	90.	25.	9.	0.67		
2 COMBINED AT	HC314	1110.	12.00	140.	53.	19.	1.18		
ROUTED TO	RM317	1027.	12.53	138.	53.	19.	1.18		
HYDROGRAPH AT	315S	971.	12.13	112.	31.	11.	0.70		
HYDROGRAPH AT	319S	626.	12.27	85.	23.	8.	0.54		
2 COMBINED AT	HC315	1552.	12.13	197.	54.	19.	1.25		
ROUTED TO	315RR	98.	13.07	92.	49.	18.	1.25	19.95	13.07
ROUTED TO	RM316	99.	13.33	92.	49.	18.	1.25		
HYDROGRAPH AT	316S	528.	12.00	66.	21.	7.	0.34		
2 COMBINED AT	HC316	528.	12.00	142.	68.	25.	1.59		
ROUTED TO	RM317	503.	12.67	141.	68.	25.	1.59		

HYDROGRAPH AT	317S	1369.	12.00	189.	63.	23.	0.85		
DIVERSION TO	OR317	1318.	12.07	103.	30.	11.	0.85		
HYDROGRAPH AT	DT317	1354.	12.07	114.	33.	12.	0.85		
4 COMBINED AT	HC317	3462.	12.53	762.	288.	105.	6.21		
ROUTED TO	317RR	2652.	12.67	758.	288.	105.	6.21	19.10	12.67
ROUTED TO	RM318	2547.	12.80	757.	288.	105.	6.21		
HYDROGRAPH AT	318S	581.	12.00	82.	28.	10.	0.34		
DIVERSION TO	OR318	7.	12.00	2.	1.	0.	0.34		
HYDROGRAPH AT	DT318	581.	12.00	82.	28.	10.	0.34		
DIVERSION TO	OR318	581.	12.20	62.	17.	6.	0.34		
HYDROGRAPH AT	DT318	305.	12.20	34.	11.	4.	0.34		
HYDROGRAPH AT	320S	1447.	12.13	175.	48.	17.	1.11		
DIVERSION TO	OR320	5.	12.13	4.	1.	0.	1.11		
HYDROGRAPH AT	DT320	1447.	12.13	175.	47.	17.	1.11		
ROUTED TO	320RR	111.	12.93	103.	44.	16.	1.11	18.75	12.93
DIVERSION TO	325D	46.	12.93	43.	19.	7.	1.11		
HYDROGRAPH AT	320RE	66.	12.93	61.	26.	9.	1.11		
ROUTED TO	RM321	69.	13.00	61.	26.	9.	1.11		
HYDROGRAPH AT	321S	1554.	12.07	218.	70.	25.	1.12		
DIVERSION TO	OR321	189.	12.07	43.	15.	5.	1.12		
HYDROGRAPH AT	DT321	1554.	12.07	203.	56.	20.	1.12		
2 COMBINED AT	HC321	1554.	12.07	252.	82.	29.	2.23		
ROUTED TO	RM318	1512.	12.27	250.	82.	29.	2.23		
HYDROGRAPH AT	322S	154.	12.00	16.	5.	2.	0.11		
ROUTED TO	322RR	50.	12.20	16.	5.	2.	0.11	40.08	12.20
4 COMBINED AT	HC318	2904.	12.80	1042.	385.	140.	8.89		
ROUTED TO	318RR	2556.	13.00	1041.	385.	140.	8.89	13.62	13.00
DIVERSION TO	324D1	1283.	13.00	849.	337.	122.	8.89		
HYDROGRAPH AT	318RE	1273.	13.00	191.	48.	17.	8.89		
DIVERSION TO	331D	191.	13.00	18.	5.	2.	8.89		

HYDROGRAPH AT	326RE1	1082.	13.00	173.	43.	16.	8.89		
HYDROGRAPH AT	320RD	46.	12.93	43.	19.	7.	0.00		
ROUTED TO	RM325	55.	13.13	43.	19.	7.	0.00		
HYDROGRAPH AT	325S	914.	12.00	130.	44.	16.	0.57		
DIVERSION TO	OR325	880.	12.07	75.	22.	8.	0.57		
HYDROGRAPH AT	DT325	905.	12.07	75.	22.	8.	0.57		
2 COMBINED AT	HC325	905.	12.07	111.	41.	15.	0.57		
ROUTED TO	RM326	765.	12.40	108.	41.	15.	0.57		
HYDROGRAPH AT	326S	769.	12.07	116.	40.	14.	0.50		
DIVERSION TO	OR326	14.	12.07	9.	2.	1.	0.50		
HYDROGRAPH AT	DT326	769.	12.07	116.	37.	13.	0.50		
DIVERSION TO	OR326	769.	12.27	84.	22.	8.	0.50		
HYDROGRAPH AT	DT326	560.	12.27	51.	16.	6.	0.50		
3 COMBINED AT	HC326	1311.	12.93	331.	100.	36.	9.95		
DIVERSION TO	324D2	510.	12.93	221.	72.	26.	9.95		
HYDROGRAPH AT	326RE2	801.	12.93	111.	28.	10.	9.95		
DIVERSION TO	329D1	115.	12.93	24.	6.	2.	9.95		
HYDROGRAPH AT	328RE1	686.	12.93	86.	22.	8.	9.95		
HYDROGRAPH AT	327S	638.	12.00	98.	33.	12.	0.38		
DIVERSION TO	OR327	9.	12.00	4.	1.	0.	0.38		
HYDROGRAPH AT	DT327	638.	12.00	98.	32.	11.	0.38		
DIVERSION TO	OR327	14.	12.00	8.	2.	1.	0.38		
HYDROGRAPH AT	DT327	638.	12.00	98.	30.	11.	0.38		
ROUTED TO	327RRA	638.	12.07	98.	30.	11.	0.38	1454.21	12.07
ROUTED TO	327RRB	639.	12.07	98.	30.	11.	0.38	1447.68	12.07
ROUTED TO	327RRC	543.	12.20	89.	31.	12.	0.38	1436.59	12.20
ROUTED TO	327RRD	539.	12.20	89.	30.	12.	0.38	1440.30	12.20
ROUTED TO	327RRE	537.	12.27	89.	30.	12.	0.38	1439.23	12.27
DIVERSION TO	339D	149.	12.27	13.	3.	1.	0.38		
HYDROGRAPH AT	327R1	388.	12.27	76.	27.	10.	0.38		

DIVERSION TO	341D	276.	12.27	32.	8.	3.	0.38		
HYDROGRAPH AT	327R2	112.	12.27	44.	19.	8.	0.38		
ROUTED TO	RM328	109.	12.60	43.	19.	8.	0.38		
HYDROGRAPH AT	328S	685.	12.00	103.	35.	13.	0.39		
DIVERSION TO	OR328	12.	12.00	7.	2.	1.	0.39		
HYDROGRAPH AT	DT328	685.	12.00	103.	33.	12.	0.39		
DIVERSION TO	OR328	16.	12.00	7.	2.	1.	0.39		
HYDROGRAPH AT	DT328	685.	12.00	103.	31.	11.	0.39		
3 COMBINED AT	HC328	852.	12.40	226.	72.	27.	10.72		
DIVERSION TO	329D2	156.	12.40	95.	39.	15.	10.72		
HYDROGRAPH AT	328RE2	696.	12.40	131.	33.	12.	10.72		
HYDROGRAPH AT	R318	191.	13.00	18.	5.	2.	0.00		
HYDROGRAPH AT	331S	164.	12.00	25.	8.	3.	0.09		
3 COMBINED AT	HC331	876.	12.93	174.	46.	16.	10.82		
ROUTED TO	331RR	758.	13.07	68.	18.	7.	10.82	96.24	13.07
ROUTED TO	RM330	750.	13.40	68.	18.	7.	10.82		
HYDROGRAPH AT	R318	1283.	13.00	849.	337.	122.	0.00		
HYDROGRAPH AT	R326	510.	12.27	221.	72.	26.	0.00		
HYDROGRAPH AT	323S	621.	12.07	97.	34.	12.	0.37		
ROUTED TO	RM324	615.	12.13	97.	34.	12.	0.37		
HYDROGRAPH AT	324S	263.	12.00	34.	11.	4.	0.16		
4 COMBINED AT	HC324	2141.	12.27	1178.	450.	165.	0.53		
ROUTED TO	RM329	2092.	12.60	1176.	450.	165.	0.53		
HYDROGRAPH AT	R326	115.	12.40	24.	6.	2.	0.00		
HYDROGRAPH AT	R328	156.	11.60	95.	39.	15.	0.00		
ROUTED TO	RM329	156.	12.73	94.	39.	15.	0.00		
HYDROGRAPH AT	329S	1140.	12.00	155.	50.	18.	0.66		
DIVERSION TO	OR329	11.	12.00	2.	0.	0.	0.66		
HYDROGRAPH AT	DT329	1140.	12.00	155.	50.	18.	0.66		
DIVERSION TO	OR329	611.	12.00	48.	15.	5.	0.66		

HYDROGRAPH AT	DT329	1140.	12.00	128.	36.	13.	0.66		
4 COMBINED AT	HC329	2548.	12.53	1395.	530.	194.	1.19		
ROUTED TO	RM330	2476.	12.73	1392.	530.	194.	1.19		
HYDROGRAPH AT	330S	778.	12.00	110.	35.	13.	0.46		
DIVERSION TO	OR330	12.	12.00	9.	2.	1.	0.46		
HYDROGRAPH AT	DT330	778.	12.00	110.	33.	12.	0.46		
DIVERSION TO	OR330	683.	12.00	47.	12.	4.	0.46		
HYDROGRAPH AT	DT330	778.	12.00	76.	21.	8.	0.46		
3 COMBINED AT	HC330	3020.	13.40	1534.	569.	209.	12.47		
ROUTED TO	RM346	2945.	13.73	1532.	569.	209.	12.47		
HYDROGRAPH AT	332S	814.	12.00	80.	22.	8.	0.57		
ROUTED TO	332RR	39.	12.60	37.	21.	8.	0.57	19.59	12.60
ROUTED TO	RM333	40.	12.87	37.	21.	8.	0.57		
HYDROGRAPH AT	333S	1584.	12.07	252.	83.	30.	0.98		
DIVERSION TO	OR333	26.	12.07	15.	4.	1.	0.98		
HYDROGRAPH AT	DT333	1584.	12.07	252.	80.	29.	0.98		
2 COMBINED AT	HC333	1586.	12.07	274.	100.	36.	1.55		
ROUTED TO	333RRA	1569.	12.13	274.	99.	36.	1.55	1469.35	12.13
ROUTED TO	333RRB	1544.	12.13	274.	96.	38.	1.55	1473.43	12.13
ROUTED TO	333RRC	1533.	12.20	272.	96.	38.	1.55	1464.42	12.20
ROUTED TO	333RRD	1537.	12.20	268.	96.	38.	1.55	1459.95	12.20
ROUTED TO	333RRE	1527.	12.27	267.	96.	38.	1.55	1457.41	12.27
ROUTED TO	333RRF	1555.	12.27	267.	96.	38.	1.55	1475.44	12.27
ROUTED TO	333RRG	1539.	12.27	267.	96.	38.	1.55	1470.47	12.27
ROUTED TO	333RRH	1535.	12.27	267.	96.	38.	1.55	1465.42	12.27
ROUTED TO	333RRI	1533.	12.27	267.	96.	38.	1.55	1460.92	12.27
ROUTED TO	333RRJ	1533.	12.27	267.	96.	38.	1.55	1459.92	12.27
ROUTED TO	333RRK	1520.	12.33	266.	95.	38.	1.55	1457.46	12.33
ROUTED TO	333RRL	1506.	12.33	266.	95.	38.	1.55	1454.55	12.33
ROUTED TO	333RRM	1501.	12.33	266.	95.	38.	1.55	1451.88	12.33

ROUTED TO	RM337	1426.	12.53	265.	96.	38.	1.55		
HYDROGRAPH AT	334S	563.	12.07	83.	28.	10.	0.35		
DIVERSION TO	OR334	513.	12.07	40.	12.	4.	0.35		
HYDROGRAPH AT	DT334	563.	12.07	57.	17.	6.	0.35		
DIVERSION TO	337D	101.	12.07	5.	1.	0.	0.35		
HYDROGRAPH AT	334RE	462.	12.07	52.	15.	5.	0.35		
ROUTED TO	RM335	449.	12.13	51.	15.	5.	0.35		
HYDROGRAPH AT	335S	430.	12.00	52.	17.	6.	0.27		
DIVERSION TO	OR335	85.	12.00	11.	4.	1.	0.27		
HYDROGRAPH AT	DT335	430.	12.00	48.	13.	5.	0.27		
2 COMBINED AT	HC335	791.	12.13	98.	28.	10.	0.62		
ROUTED TO	RM338	728.	12.20	98.	28.	10.	0.62		
HYDROGRAPH AT	338S	336.	12.00	43.	14.	5.	0.22		
DIVERSION TO	OR338	5.	12.00	4.	1.	0.	0.22		
HYDROGRAPH AT	DT338	336.	12.00	43.	13.	5.	0.22		
2 COMBINED AT	HC338	976.	12.20	138.	41.	15.	0.84		
ROUTED TO	338RR	40.	14.93	39.	33.	15.	0.84	1401.89	15.00
DIVERSION TO	342D	40.	0.07	39.	33.	15.	0.84		
HYDROGRAPH AT	338RE	0.	0.07	0.	0.	0.	0.84		
HYDROGRAPH AT	336S	193.	12.00	27.	9.	3.	0.11		
ROUTED TO	336RRA	194.	11.93	27.	9.	3.	0.11	1454.82	11.93
ROUTED TO	336RRB	195.	11.87	27.	9.	3.	0.11	1452.35	11.87
ROUTED TO	336RRC	47.	12.33	27.	9.	3.	0.11	1438.46	12.33
ROUTED TO	RM337	47.	12.60	27.	9.	3.	0.11		
HYDROGRAPH AT	337S	445.	12.00	63.	21.	8.	0.26		
DIVERSION TO	OR337	302.	12.00	22.	7.	3.	0.26		
HYDROGRAPH AT	DT337	445.	12.00	50.	14.	5.	0.26		
HYDROGRAPH AT	R334	101.	12.07	5.	1.	0.	0.00		
4 COMBINED AT	HC337	537.	12.07	82.	25.	9.	1.21		
DIVERSION TO	340D	119.	12.07	14.	4.	1.	1.21		

HYDROGRAPH AT	337RE	418.	12.07	69.	21.	8.	1.21		
ROUTED TO	RM339	410.	12.13	69.	21.	8.	1.21		
HYDROGRAPH AT	327D	149.	12.27	13.	3.	1.	0.00		
ROUTED TO	RM339	146.	12.47	13.	3.	1.	0.00		
HYDROGRAPH AT	339S	391.	12.00	56.	19.	7.	0.23		
DIVERSION TO	OR339	150.	12.00	17.	6.	2.	0.23		
HYDROGRAPH AT	DT339	391.	12.00	47.	13.	5.	0.23		
3 COMBINED AT	HC339	778.	12.00	129.	38.	14.	1.44		
ROUTED TO	RM340	796.	12.20	129.	38.	14.	1.44		
HYDROGRAPH AT	340S	455.	12.00	59.	19.	7.	0.27		
DIVERSION TO	OR340	10.	12.00	7.	2.	1.	0.27		
HYDROGRAPH AT	DT340	455.	12.00	59.	17.	6.	0.27		
HYDROGRAPH AT	R337	119.	12.07	14.	4.	1.	0.00		
4 COMBINED AT	HC340	1930.	12.53	452.	152.	59.	3.27		
ROUTED TO	RM342	1845.	12.60	451.	152.	59.	3.27		
HYDROGRAPH AT	R338	40.	14.93	39.	33.	15.	0.00		
ROUTED TO	RM342	40.	15.00	39.	33.	15.	0.00		
HYDROGRAPH AT	342S	223.	12.00	33.	11.	4.	0.13		
DIVERSION TO	OR342	171.	12.00	13.	4.	1.	0.13		
HYDROGRAPH AT	DT342	223.	12.00	24.	7.	2.	0.13		
3 COMBINED AT	HC342	1919.	12.60	513.	191.	76.	3.39		
ROUTED TO	342RR	172.	17.73	166.	113.	62.	3.39	1389.67	17.73
DIVERSION TO	345D	112.	17.67	106.	56.	20.	3.39		
HYDROGRAPH AT	342RE	60.	17.67	59.	57.	41.	3.39		
ROUTED TO	RM343	60.	17.73	59.	57.	41.	3.39		
HYDROGRAPH AT	327R2	276.	12.27	32.	8.	3.	0.00		
HYDROGRAPH AT	341S	558.	12.00	84.	28.	10.	0.32		
DIVERSION TO	OR341	16.	12.00	10.	3.	1.	0.32		
HYDROGRAPH AT	DT341	558.	12.00	84.	25.	9.	0.32		
DIVERSION TO	OR341	519.	12.00	34.	9.	3.	0.32		

HYDROGRAPH AT	DT341	558.	12.00	57.	16.	6.	0.32		
2 COMBINED AT	HC341	756.	12.07	89.	24.	9.	0.32		
ROUTED TO	341RR	157.	12.80	52.	24.	9.	0.32	1397.51	12.80
ROUTED TO	RM343	152.	12.87	52.	24.	9.	0.32		
HYDROGRAPH AT	343S	451.	12.00	69.	23.	8.	0.25		
DIVERSION TO	OR343	15.	12.00	9.	3.	1.	0.25		
HYDROGRAPH AT	DT343	451.	12.00	69.	20.	7.	0.25		
3 COMBINED AT	HC343	476.	12.00	160.	97.	57.	3.97		
ROUTED TO	RM345	471.	12.13	160.	97.	57.	3.97		
HYDROGRAPH AT	345S	861.	12.07	141.	47.	17.	0.53		
DIVERSION TO	OR345	16.	12.07	12.	3.	1.	0.53		
HYDROGRAPH AT	DT345	861.	12.07	141.	44.	16.	0.53		
DIVERSION TO	OR345	622.	12.07	55.	14.	5.	0.53		
HYDROGRAPH AT	DT345	861.	12.07	107.	30.	11.	0.53		
HYDROGRAPH AT	R343	112.	17.73	106.	56.	20.	0.00		
ROUTED TO	RM343	112.	17.73	106.	56.	20.	0.00		
3 COMBINED AT	HC345	1328.	12.07	330.	183.	88.	4.50		
ROUTED TO	345RR	485.	12.47	267.	174.	88.	4.50	1354.28	12.47
ROUTED TO	RM346	480.	12.53	267.	174.	88.	4.50		
HYDROGRAPH AT	346S	460.	12.00	60.	19.	7.	0.30		
3 COMBINED AT	HC346	3205.	13.73	1825.	754.	303.	17.26		
ROUTED TO	RM347	3103.	14.07	1818.	754.	303.	17.26		
HYDROGRAPH AT	347S	568.	12.07	74.	23.	8.	0.40		
2 COMBINED AT	HC347	3120.	14.07	1834.	774.	311.	17.66		
HYDROGRAPH AT	AD1	1730.	0.07	1730.	1730.	1730.	0.10		
ROUTED TO	RMAD1	1730.	0.07	1730.	1730.	1730.	0.10	5.40	0.00
HYDROGRAPH AT	348S	1545.	12.07	223.	73.	26.	1.11		
DIVERSION TO	OR348	37.	12.07	24.	8.	3.	1.11		
HYDROGRAPH AT	DT348	1545.	12.07	223.	66.	24.	1.11		
2 COMBINED AT	HC348	3275.	12.07	1953.	1796.	1754.	1.21		

ROUTED TO	RM349	3271.	12.20	1953.	1796.	1754.	1.21
HYDROGRAPH AT	349S	59.	12.00	7.	2.	1.	0.05
2 COMBINED AT	HC349	3302.	12.20	1960.	1798.	1754.	1.25
2 COMBINED AT	HCSKB	4916.	14.07	3738.	2569.	2066.	18.92

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
RM312	MANE	4.00	289.73	796.00	1.90	4.00	289.73	796.00	1.90

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1268E+03 EXCESS=0.0000E+00 OUTFLOW=0.1268E+03 BASIN STORAGE=0.1753E-02 PERCENT ERROR= 0.0

RM317	MANE	4.00	2441.74	744.00	1.93	4.00	2441.74	744.00	1.93

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2672E+03 EXCESS=0.0000E+00 OUTFLOW=0.2672E+03 BASIN STORAGE=0.1100E-02 PERCENT ERROR= 0.0

RM314	MANE	4.00	55.45	800.00	2.04	4.00	55.45	800.00	2.04

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5519E+02 EXCESS=0.0000E+00 OUTFLOW=0.5519E+02 BASIN STORAGE=0.1245E-02 PERCENT ERROR= 0.0

RM317	MANE	4.00	1026.54	752.00	1.66	4.00	1026.54	752.00	1.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1049E+03 EXCESS=0.0000E+00 OUTFLOW=0.1045E+03 BASIN STORAGE=0.1135E-02 PERCENT ERROR= 0.3

RM316	MANE	4.00	98.60	800.00	1.46	4.00	98.60	800.00	1.46

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9703E+02 EXCESS=0.0000E+00 OUTFLOW=0.9715E+02 BASIN STORAGE=0.9749E-03 PERCENT ERROR= -0.1

RM317	MANE	4.00	503.34	760.00	1.63	4.00	503.34	760.00	1.63

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1383E+03 EXCESS=0.0000E+00 OUTFLOW=0.1381E+03 BASIN STORAGE=0.1381E-02 PERCENT ERROR= 0.1

RM318	MANE	4.00	2546.98	768.00	1.74	4.00	2546.98	768.00	1.74

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5753E+03 EXCESS=0.0000E+00 OUTFLOW=0.5756E+03 BASIN STORAGE=0.4541E-03 PERCENT ERROR= -0.1

RM321	MANE	4.00	69.21	780.00	0.87	4.00	69.21	780.00	0.87

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5103E+02 EXCESS=0.0000E+00 OUTFLOW=0.5133E+02 BASIN STORAGE=0.2933E-02 PERCENT ERROR= -0.6

RM318	MANE	2.40	1517.39	736.80	1.36	4.00	1511.55	736.00	1.36

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1620E+03 EXCESS=0.0000E+00 OUTFLOW=0.1618E+03 BASIN STORAGE=0.5069E-03 PERCENT ERROR= 0.1

RM325	MANE	4.00	54.95	788.00	-1.00	4.00	54.95	788.00	-1.00
RM326	MANE	0.80	765.01	744.00	2.68	4.00	765.01	744.00	2.66

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8107E+02 EXCESS=0.0000E+00 OUTFLOW=0.8130E+02 BASIN STORAGE=0.1121E-02 PERCENT ERROR= -0.3

RM328	MANE	4.00	109.35	756.00	2.08	4.00	109.35	756.00	2.08

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4165E+02 EXCESS=0.0000E+00 OUTFLOW=0.4167E+02 BASIN STORAGE=0.5963E-01 PERCENT ERROR= -0.2

RM330	MANE	1.60	763.59	803.20	0.07	4.00	749.86	804.00	0.07

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3784E+02 EXCESS=0.0000E+00 OUTFLOW=0.3794E+02 BASIN STORAGE=0.5820E-01 PERCENT ERROR= -0.4

RM324	MANE	4.00	615.44	728.00	3.39	4.00	615.44	728.00	3.39

TINUITY SUMMARY (AC-FT) - INFLOW=0.6739E+02 EXCESS=0.0000E+00 OUTFLOW=0.6738E+02 BASIN STORAGE=0.6172E-02 PERCENT ERROR= 0.0

RM329	MANE	4.00	2091.67	756.00	31.86	4.00	2091.67	756.00	31.86

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9055E+03 EXCESS=0.0000E+00 OUTFLOW=0.9056E+03 BASIN STORAGE=0.1186E-02 PERCENT ERROR= 0.0

RM329	MANE	4.00	156.00	776.00	-1.00	4.00	156.00	776.00	-1.00
RM330	MANE	4.00	2476.25	764.00	16.85	4.00	2476.25	764.00	16.85

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1070E+04 EXCESS=0.0000E+00 OUTFLOW=0.1069E+04 BASIN STORAGE=0.1925E-01 PERCENT ERROR= 0.0

RM346	MANE	4.00	2944.89	824.00	1.73	4.00	2944.89	824.00	1.73

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1149E+04 EXCESS=0.0000E+00 OUTFLOW=0.1149E+04 BASIN STORAGE=0.6587E-01 PERCENT ERROR= 0.0

RM333	MANE	4.00	39.81	772.00	1.38	4.00	39.81	772.00	1.38

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4200E+02 EXCESS=0.0000E+00 OUTFLOW=0.4201E+02 BASIN STORAGE=0.9946E-02 PERCENT ERROR= 0.0

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RM337  MANE        4.00   1426.35    752.00      2.52      4.00   1426.35    752.00        2.52

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2085E+03 EXCESS=0.0000E+00 OUTFLOW=0.2086E+03 BASIN STORAGE=0.1310E+00 PERCENT ERROR=  -0.1

RM335  MANE        1.40    460.00    726.60      1.62      4.00    449.20    728.00        1.61

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3016E+02 EXCESS=0.0000E+00 OUTFLOW=0.3030E+02 BASIN STORAGE=0.3754E-03 PERCENT ERROR=  -0.4

RM338  MANE        2.83    740.41    730.69      1.68      4.00    727.65    732.00        1.68

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5595E+02 EXCESS=0.0000E+00 OUTFLOW=0.5594E+02 BASIN STORAGE=0.5870E-02 PERCENT ERROR=   0.0

RM337  MANE        4.00     46.97    756.00      3.09      4.00     46.97    756.00        3.09

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1827E+02 EXCESS=0.0000E+00 OUTFLOW=0.1828E+02 BASIN STORAGE=0.3825E-02 PERCENT ERROR=   0.0

RM339  MANE        4.00    409.59    728.00      0.64      4.00    409.59    728.00        0.64

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4145E+02 EXCESS=0.0000E+00 OUTFLOW=0.4149E+02 BASIN STORAGE=0.2340E-02 PERCENT ERROR=  -0.1

RM339  MANE        1.20    146.34    750.00     -1.00      4.00    145.51    748.00       -1.00

RM340  MANE        4.00    796.44    732.00      0.97      4.00    796.44    732.00        0.97

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7447E+02 EXCESS=0.0000E+00 OUTFLOW=0.7455E+02 BASIN STORAGE=0.3153E-02 PERCENT ERROR=  -0.1

RM342  MANE        2.73   1852.28    756.84      1.86      4.00   1845.46    756.00        1.86

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3248E+03 EXCESS=0.0000E+00 OUTFLOW=0.3247E+03 BASIN STORAGE=0.2426E-01 PERCENT ERROR=   0.0

RM342  MANE        4.00     39.79    904.00     -1.00      4.00     39.79    904.00       -1.00

RM343  MANE        2.88     59.61   1066.45      1.25      4.00     59.61   1068.00        1.25

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2273E+03 EXCESS=0.0000E+00 OUTFLOW=0.2271E+03 BASIN STORAGE=0.1849E+00 PERCENT ERROR=   0.0

RM343  MANE        3.58    154.10    770.11      2.83      4.00    152.18    772.00        2.83

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4830E+02 EXCESS=0.0000E+00 OUTFLOW=0.4829E+02 BASIN STORAGE=0.3969E-03 PERCENT ERROR=   0.0
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RM345  MANE        4.00    470.89    728.00      1.49      4.00    470.89    728.00        1.49

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3160E+03 EXCESS=0.0000E+00 OUTFLOW=0.3152E+03 BASIN STORAGE=0.9631E+00 PERCENT ERROR=  -0.1

RM343  MANE        2.06    112.18   1064.96     -1.00      4.00    112.18   1068.00       -1.00

RM346  MANE        1.79    483.18    750.34      2.01      4.00    479.65    752.00        2.01

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4825E+03 EXCESS=0.0000E+00 OUTFLOW=0.4823E+03 BASIN STORAGE=0.2231E+00 PERCENT ERROR=   0.0

RM347  MANE        4.00   3103.27    844.00      1.81      4.00   3103.27    844.00        1.81

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1669E+04 EXCESS=0.0000E+00 OUTFLOW=0.1667E+04 BASIN STORAGE=0.3064E+01 PERCENT ERROR=  -0.1

RM349  MANE        4.00   3270.82    732.00    150.19      4.00   3270.82    732.00      150.19

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9662E+04 EXCESS=0.0000E+00 OUTFLOW=0.9662E+04 BASIN STORAGE=0.0000E+00 PERCENT ERROR=   0.0


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


  -----DSS---ZCLOSE Unit:  71,   File: CCW324F.DSS
            Pointer Utilization:  0.28
            Number of Records:     19
            File Size:     50.3  Kbytes
            Percent Inactive:   0.0
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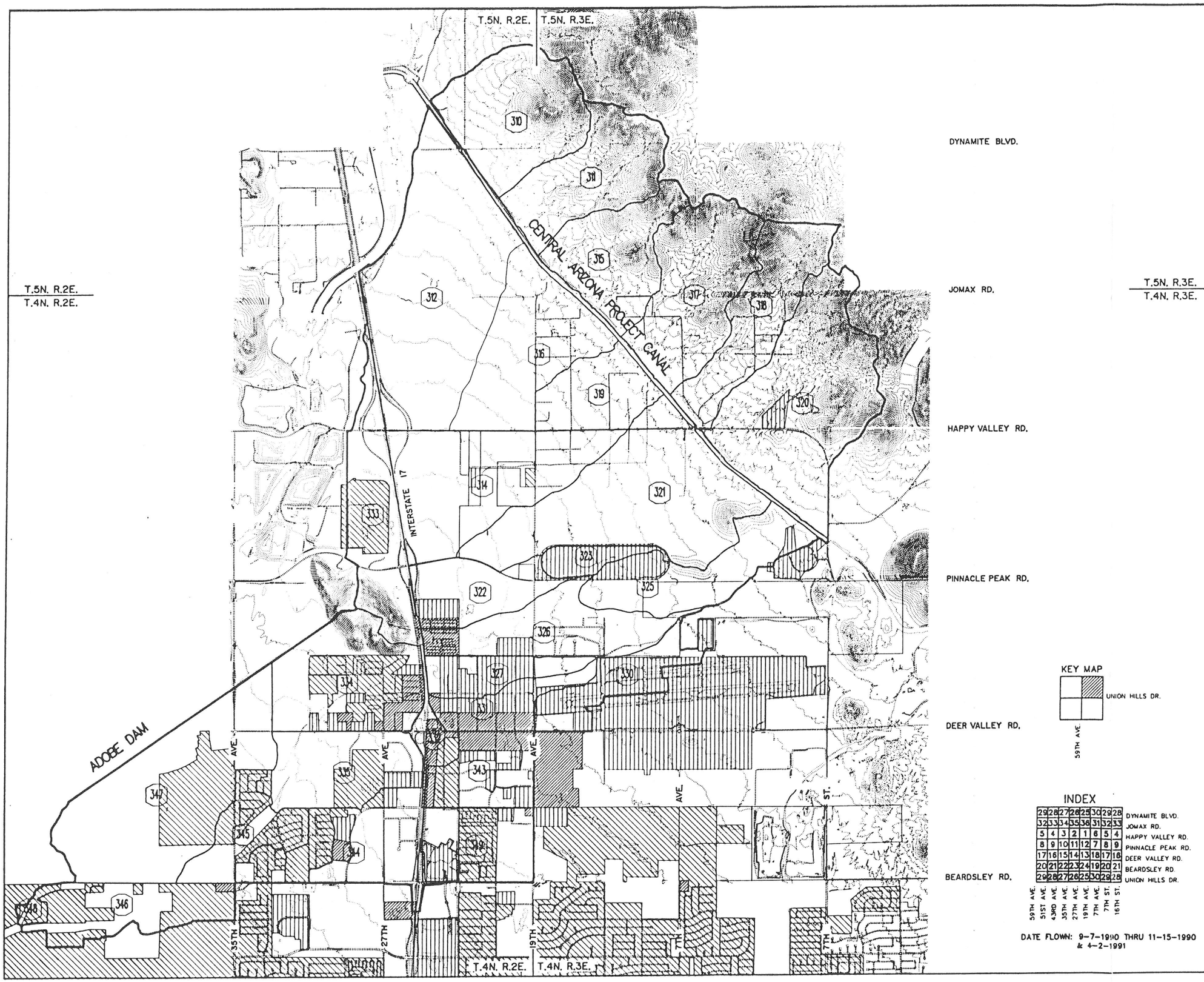
SECTION VIII
Plates 1-8



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ACDC/ADMS PHASE I SCATTER WASH HYDROLOGY STUDY

LEGEND

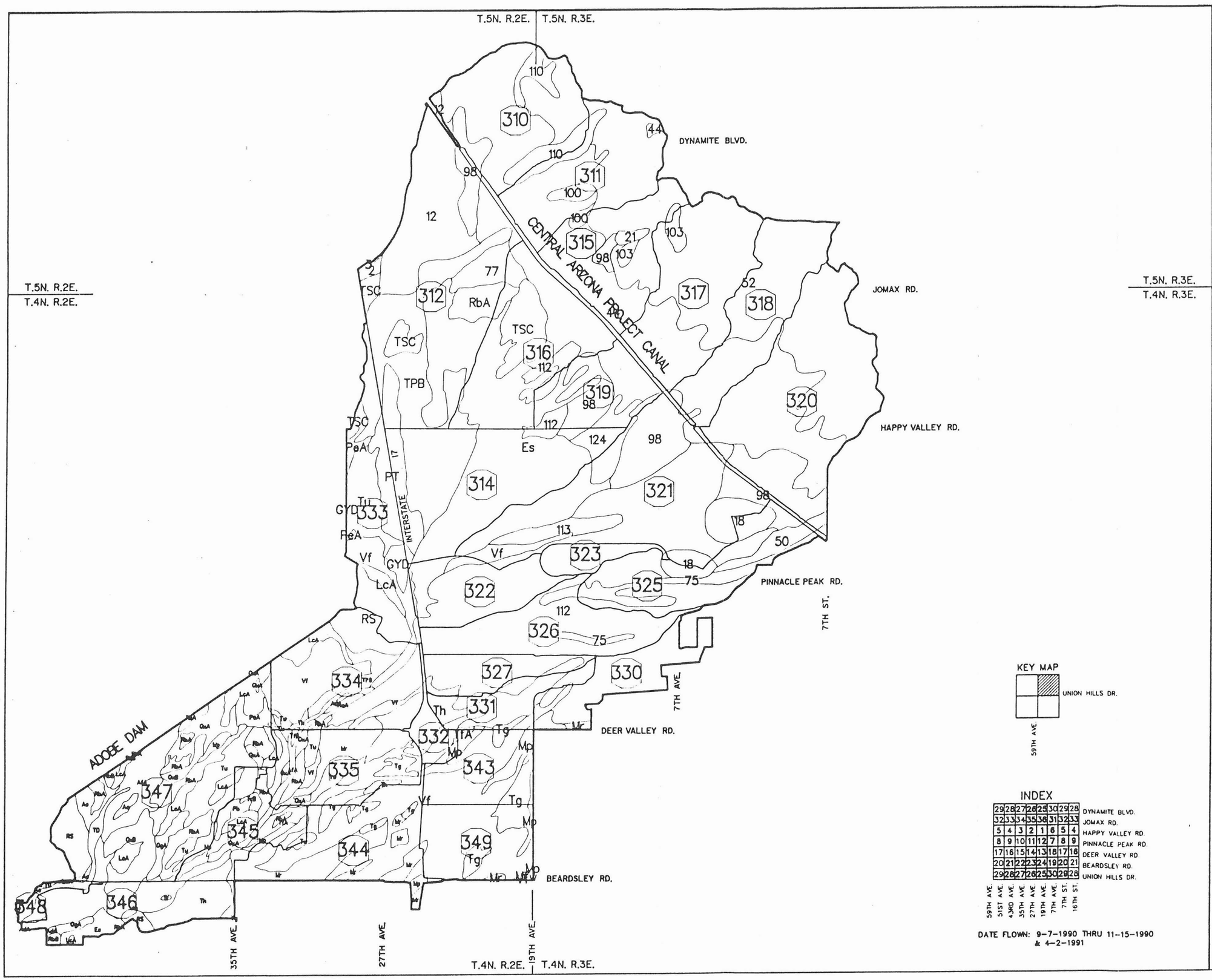
- CONTOURS
- SCATTER WASH BOUNDARY
- ROADS
- SUB BASINS
- SOILS
- Residential Land Use
- Commercial Land Use
- Industrial Land Use
- Vacant Land Use

LAND USE MAP

PLATE 2

MAY 4, 1992

KAMINSKI HUBBARD engineering, inc.
SURVEYING • CIVIL • HYDROLOGY
4550 N. BLACK CANYON HWY. SUITE C
PHOENIX, ARIZONA 85017
(602) 242-5588



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ACDC/ADMS PHASE I SCATTER WASH HYDROLOGY STUDY

LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- 341 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
- 12 Soil Unit Identification
  Reference: USDA, Soil Conservation Service, Soil Survey of Aguila-Carefree Area, Parts of Maricopa and Pinal Counties, Arizona

SOILS MAP

PLATE 3

MAY 4, 1992

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N

SCALE

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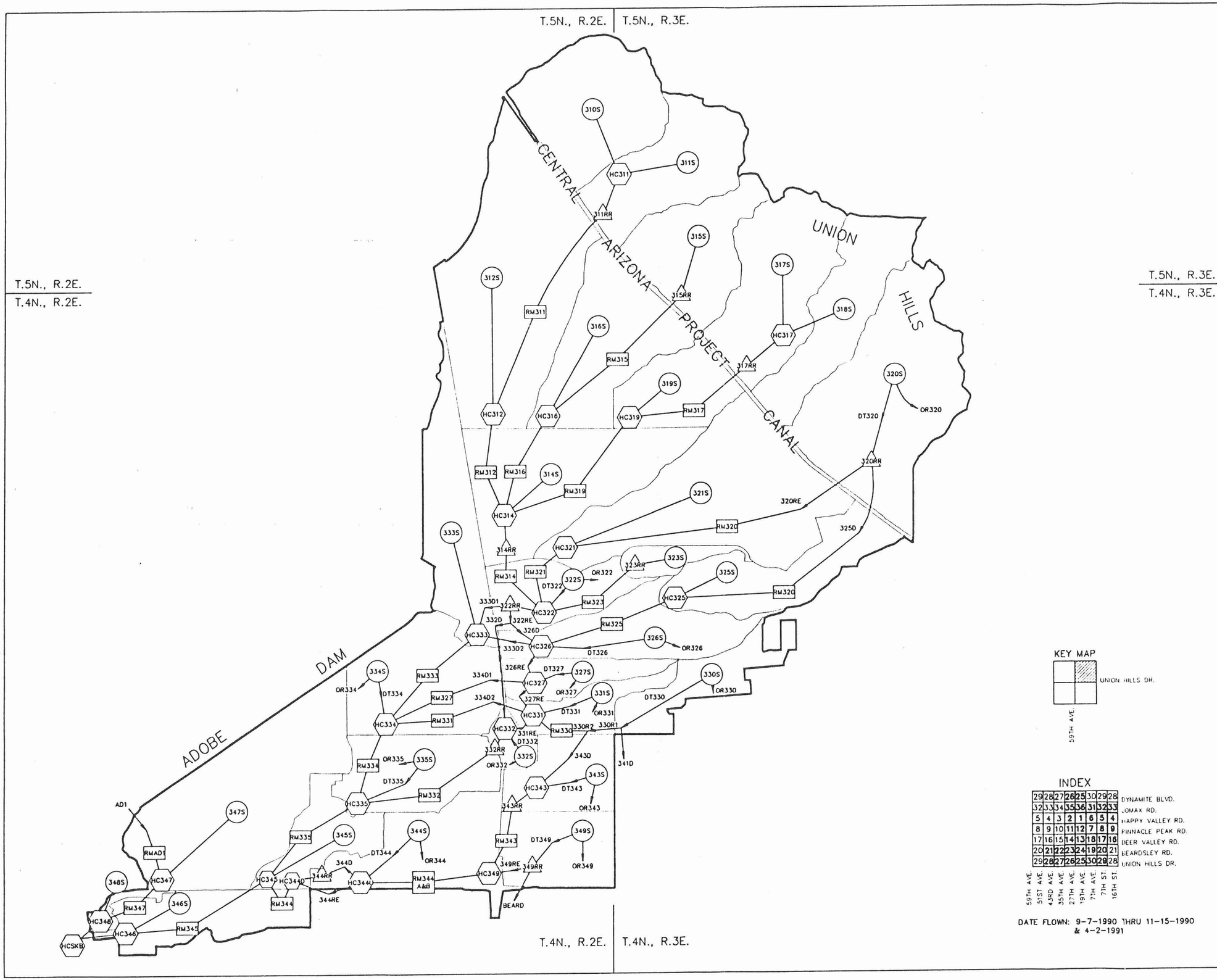

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ACDC/ADMS PHASE 1 SCATTER WASH HYDROLOGY STUDY

LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- (A) Compute Runoff from Sub-Basin A
- (B) Compute Runoff from Sub-Basin B
- (C) Combine Hydrographs
- (D) Route Hydrograph
- (E) Route Hydrograph through Retention Basin E
- (G/F) Divide Hydrograph into F and G

DRAINAGE AREA MAP & HEC-1 SCHEMATIC

PLATE 1
MAY 4, 1992

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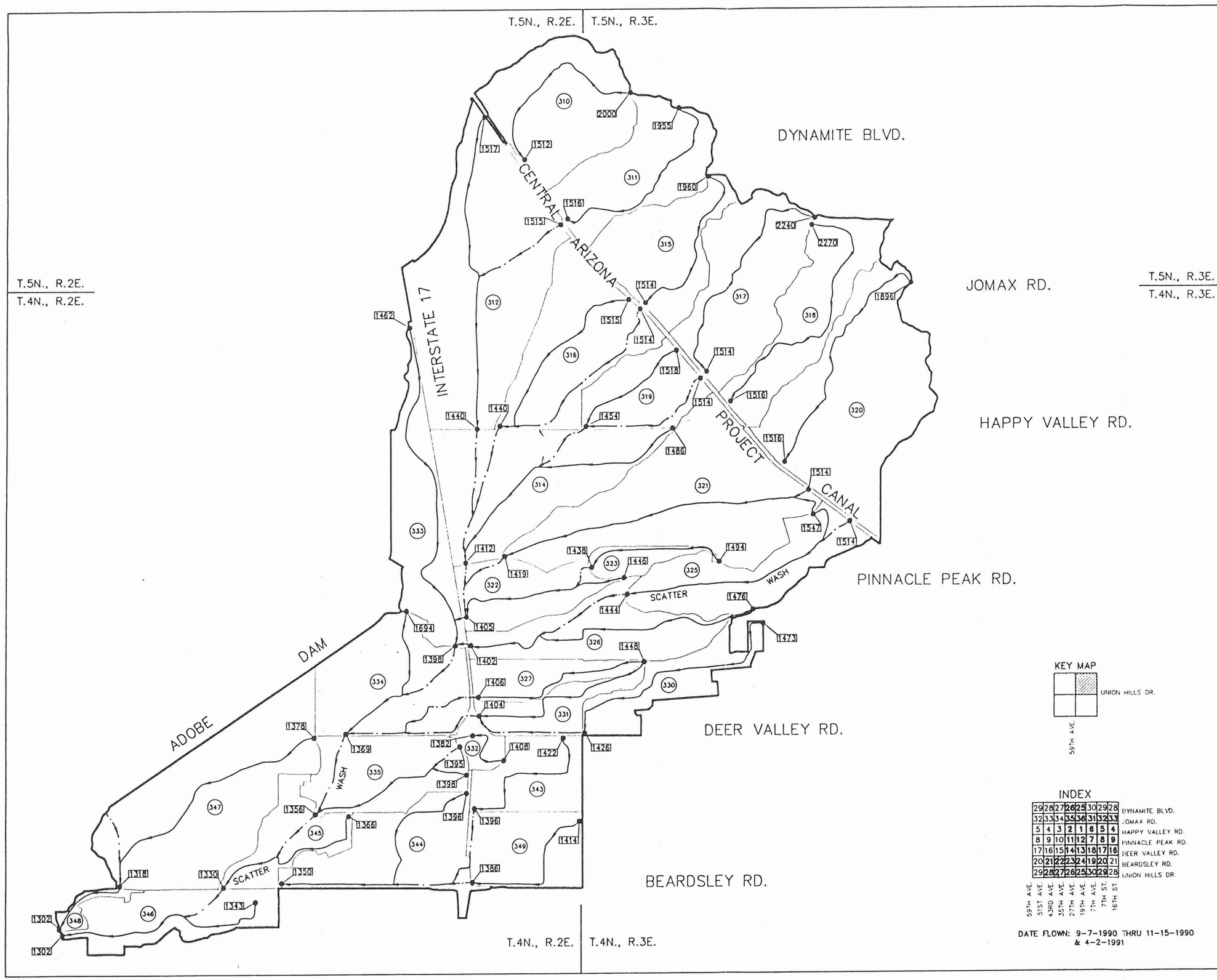

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ACDC/ADMS PHASE 1 SCATTER WASH HYDROLOGY STUDY

LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- (320) Drainage Sub-Basin Number
- Drainage Sub-Basin Concentration Point
- Routing Flow Path
- Length of Longest Watercourse
- [1514] Elevation Along Flow Path

FLOW ROUTING MAP

PLATE 4
MAY 4, 1992

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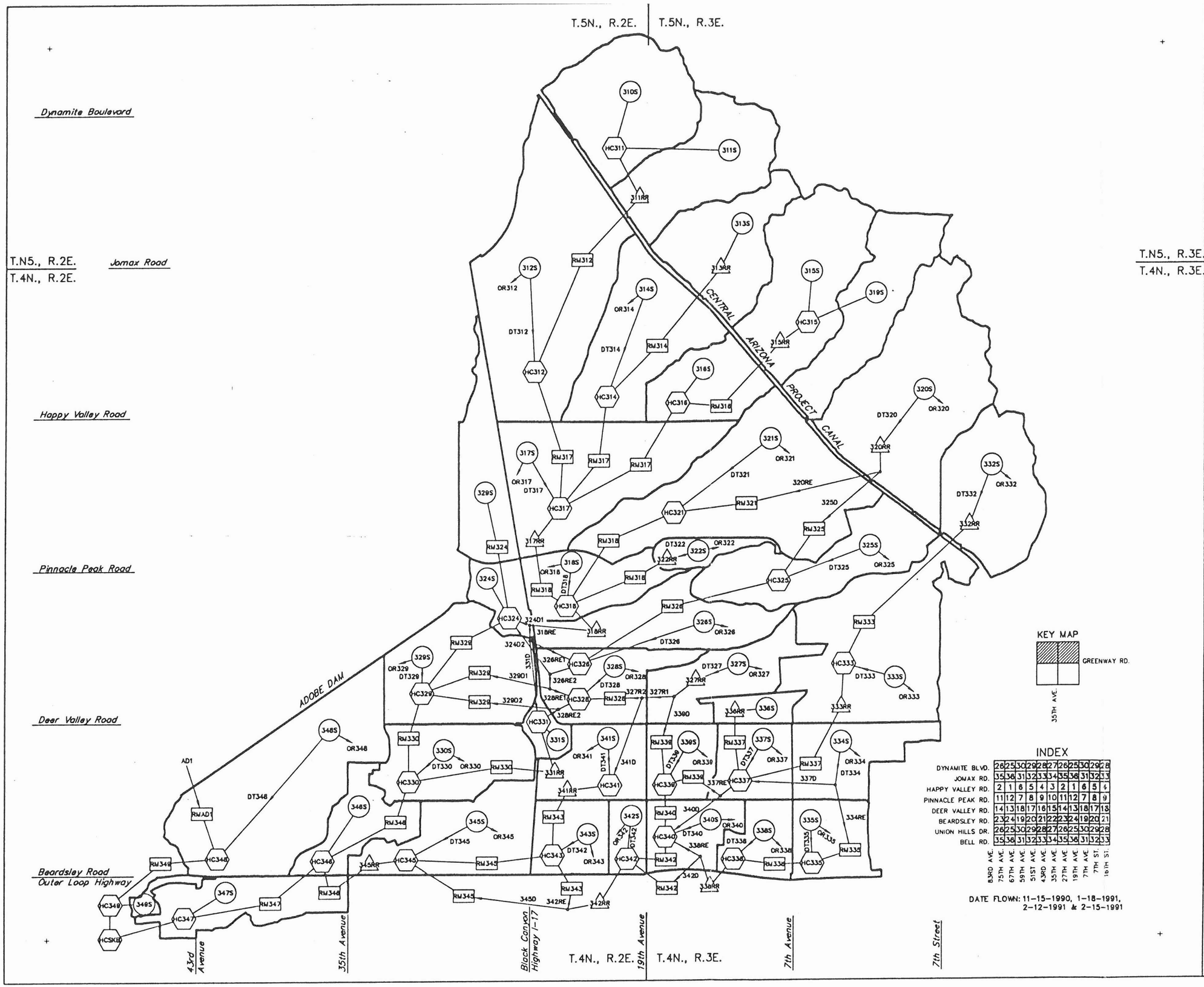
N

SCALE
3/4 1/4 0 1/4 3/4
MILES

CONTOUR INTERVAL 10 FEET



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ACDC/ADMS PHASE 1 SCATTER WASH HYDROLOGY STUDY

LEGEND

- Drainage Basin Boundary
- A — Compute Runoff from Sub-Basin A
- B — Compute Runoff from Sub-Basin B
- C — Combine Hydrographs
- D — Route Hydrograph
- E — Route Hydrograph through Retention Basin E
- G/F — Divide Hydrograph into F and G

DRAINAGE AREA MAP & HEC-1 SCHEMATIC

FUTURE CONDITIONS

PLATE 5
SEPTEMBER 30, 1994

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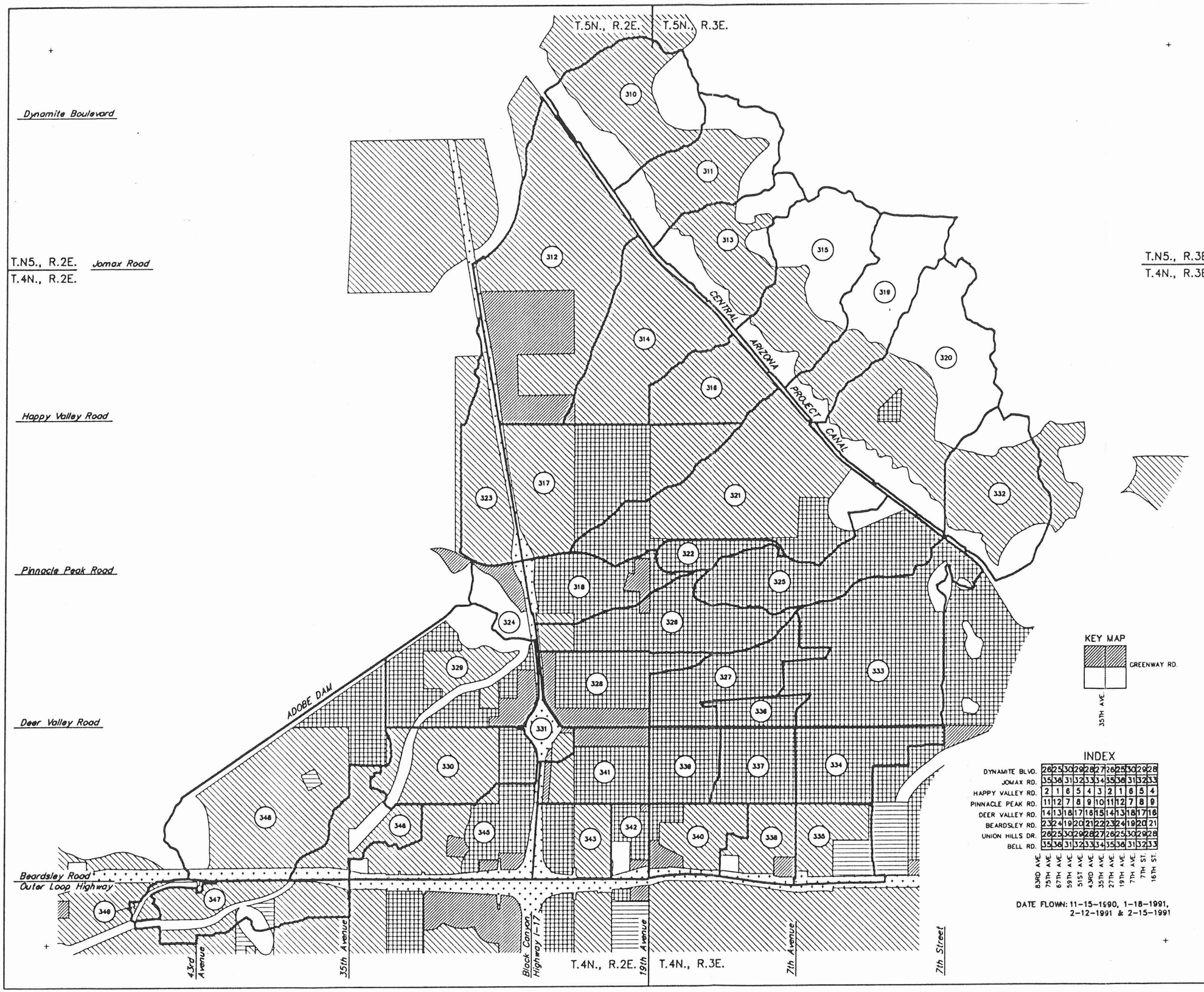
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ACDC/ADMS PHASE 1 SCATTER WASH HYDROLOGY STUDY



KEY MAP

INDEX

	83RD AVE.	75TH AVE.	67TH AVE.	59TH AVE.	51ST AVE.	43RD AVE.	35TH AVE.	27TH AVE.	19TH AVE.	7TH AVE.	7TH ST.	16TH ST.
DYNAMITE BLVD.	26	25	30	29	28	27	26	25	30	29	28	
JOMAX RD.	35	36	31	32	33	34	35	36	31	32	33	
HAPPY VALLEY RD.	2	1	6	5	4	3	2	1	6	5	4	
PINNACLE PEAK RD.	11	12	7	8	9	10	11	12	7	8	9	
DEER VALLEY RD.	14	13	18	17	16	15	14	13	18	17	16	
BEARDSLEY RD.	23	24	19	20	21	22	23	24	19	20	21	
UNION HILLS DR.	26	25	30	29	28	27	26	25	30	29	28	
BELL RD.	35	36	31	32	33	34	35	36	31	32	33	

DATE FLOWN: 11-15-1990, 1-18-1991, 2-12-1991 & 2-15-1991

LEGEND

- Drainage Basin Boundary
- Residential Land Use
- Commercial Land Use
- Golf Course/Park
- Industrial Land Use
- Right-of-Way
- Vacant Land Use
- (140) Drainage Sub-Basin Number

LAND USE MAP
FUTURE CONDITIONS

PLATE 6
SEPTEMBER 30, 1994

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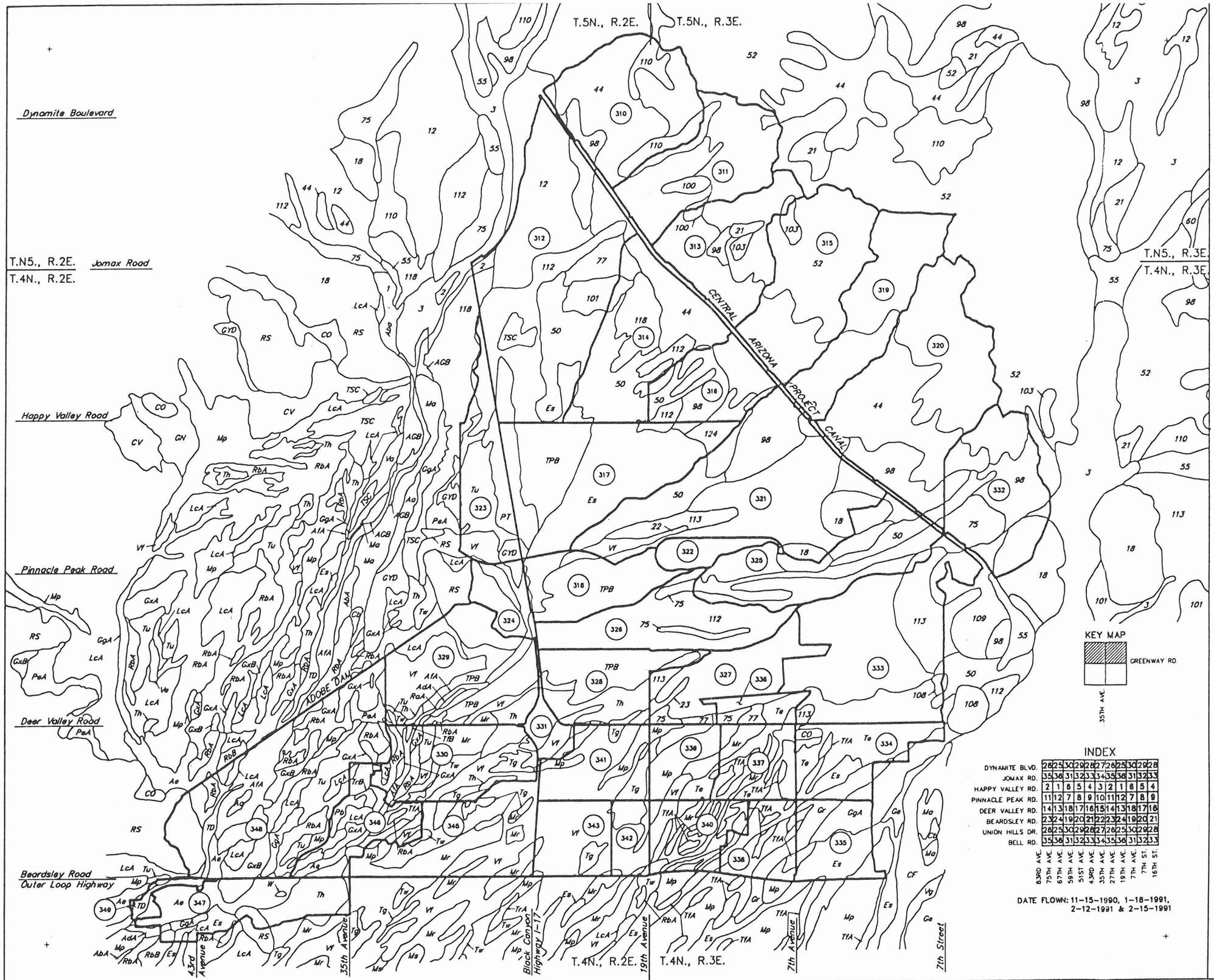
N

SCALE
1500 750 0 1500 3000
FEET

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ACDC/ADMS PHASE 1 SCATTER WASH HYDROLOGY STUDY



LEGEND

———	Drainage Basin Boundary
(140)	Drainage Sub-Basin Number
CrB	Soil Unit Boundary
CO	Soil Unit Identification Reference: USDA, Soil Conservation Service, Soil Survey of Maricopa County, Arizona Central Part
109	Soil Unit Identification Reference: USDA, Soil Conservation Service, Soil Survey of Agua-Caralise Area Parts of Maricopa and Pinal Counties, Arizona

SOILS MAP
FUTURE CONDITIONS

PLATE 7
SEPTEMBER 30, 1994

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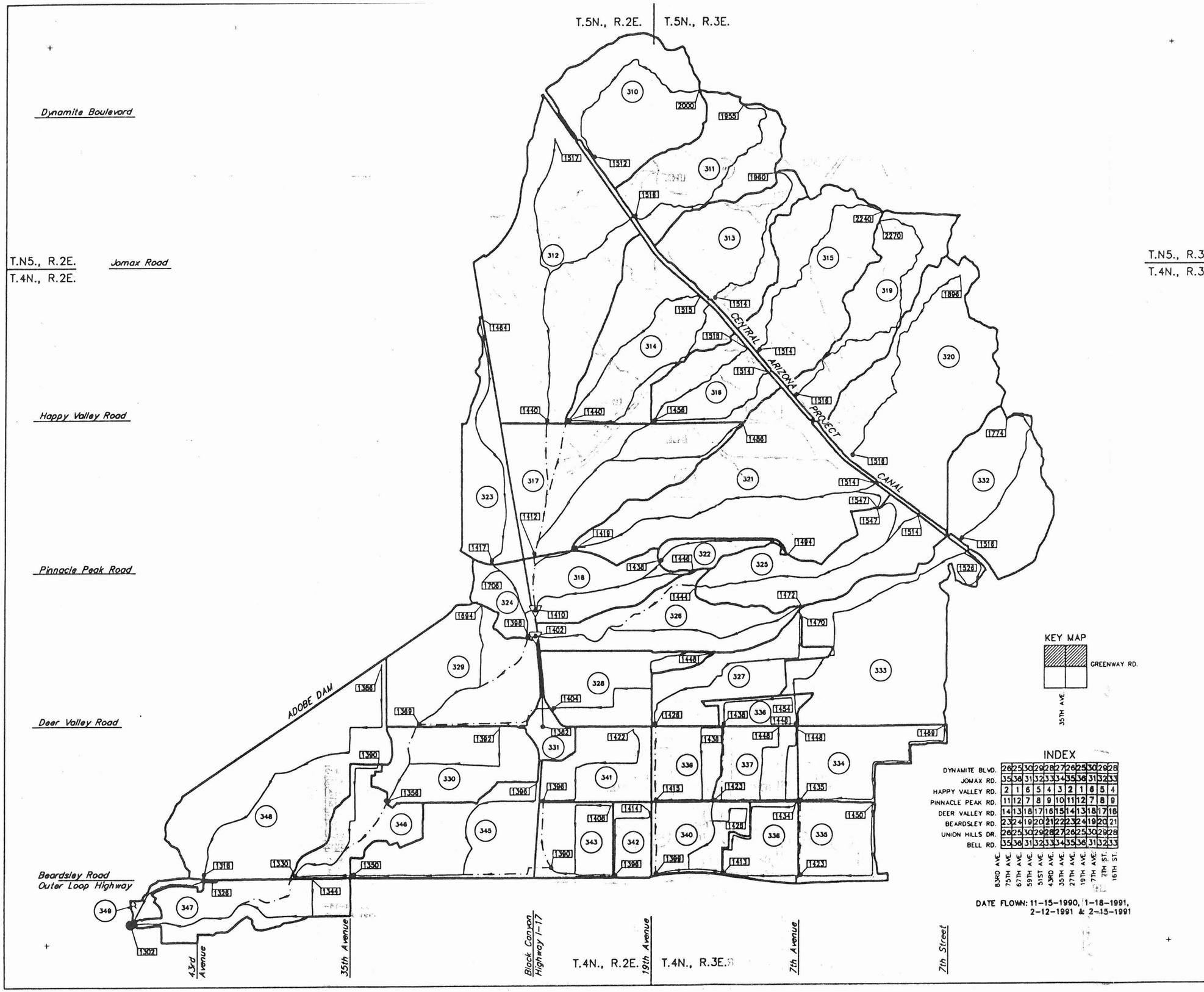

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ACDC/ADMS PHASE 1 SCATTER WASH HYDROLOGY STUDY

LEGEND

- Drainage Basin Boundary
- (140) Drainage Sub-Basin Number
- Major Drainage Basin Concentration Point
- Drainage Sub-Basin Concentration Point
- Flow Diversion Point
- Routing Flow Path
- Length of Longest Watercourse
- [1514] Elevation Along Flow Path

FLOW ROUTING MAP
FUTURE CONDITIONS

PLATE 8
SEPTEMBER 30, 1993

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SECTION IX

HEC-1 Data Files on Computer Diskette