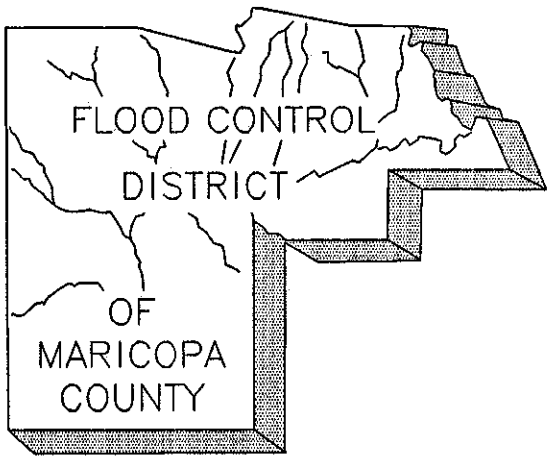
LUKE WASH FLOOD INSURANCE STUDY

Between the Gila River Floodplain and the Southern Pacific Railroad



HYDROLOGIC ANALYSIS

Technical Data Notebook Section 3

CVL

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FLOOD INSURANCE STUDY

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FCDMC CONTRACT #90-68

TECHNICAL DATA NOTEBOOK
SECTION 3
HYDROLOGIC ANALYSIS

November 30, 1992

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LUKE WASH
FLOOD INSURANCE STUDY

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3.0 Introduction

3.0.1 Scope of Study

Coe & Van Loo Consultants, Inc., (CVL) has contracted with the Flood Control District of Maricopa County (FCDMC) to perform a Flood Insurance Study (FIS) for a portion of Luke Wash located in Maricopa County, Arizona.

The project consists of topographic mapping and floodplain delineation of approximately 9 miles of Luke Wash and its tributaries from the Gila River Floodplain to the Southern Pacific Railroad. In addition, topographic mapping has been produced and ponding limits established on the upstream side of the Arlington Canal. CVL developed the hydrology for the entire watershed contributing to the Gila River between the Hassayampa River and Centennial Wash watershed boundaries using the Corps of Engineer's HEC-1 computer model. Backwater analysis will be conducted using the HEC-2 computer model to determine floodplain delineation for the 100-year peak flood.

The specific scope of this report is to analyze and document the hydrology for Luke Wash. The study area evaluated is the watershed of Luke Wash from its headwaters to the Gila River floodplain. The hydrologic computations documented in this report are in accordance with the methodology documented in the FCDMC's *Hydrologic Design Manual* (Ref. 1).

3.0.2 Description of Watershed

Hydrology is being analyzed for approximately 64 square miles of watershed that contributes stormwater runoff to the Gila River between the Hassayampa River and Centennial Wash watersheds. Approximately 54.1 square miles of this watershed contributes to Luke Wash, with the remaining 9.9 square miles draining directly to the Gila River. The Luke Wash watershed extends over 19 miles to the north with the upper limit at the Central Arizona Project

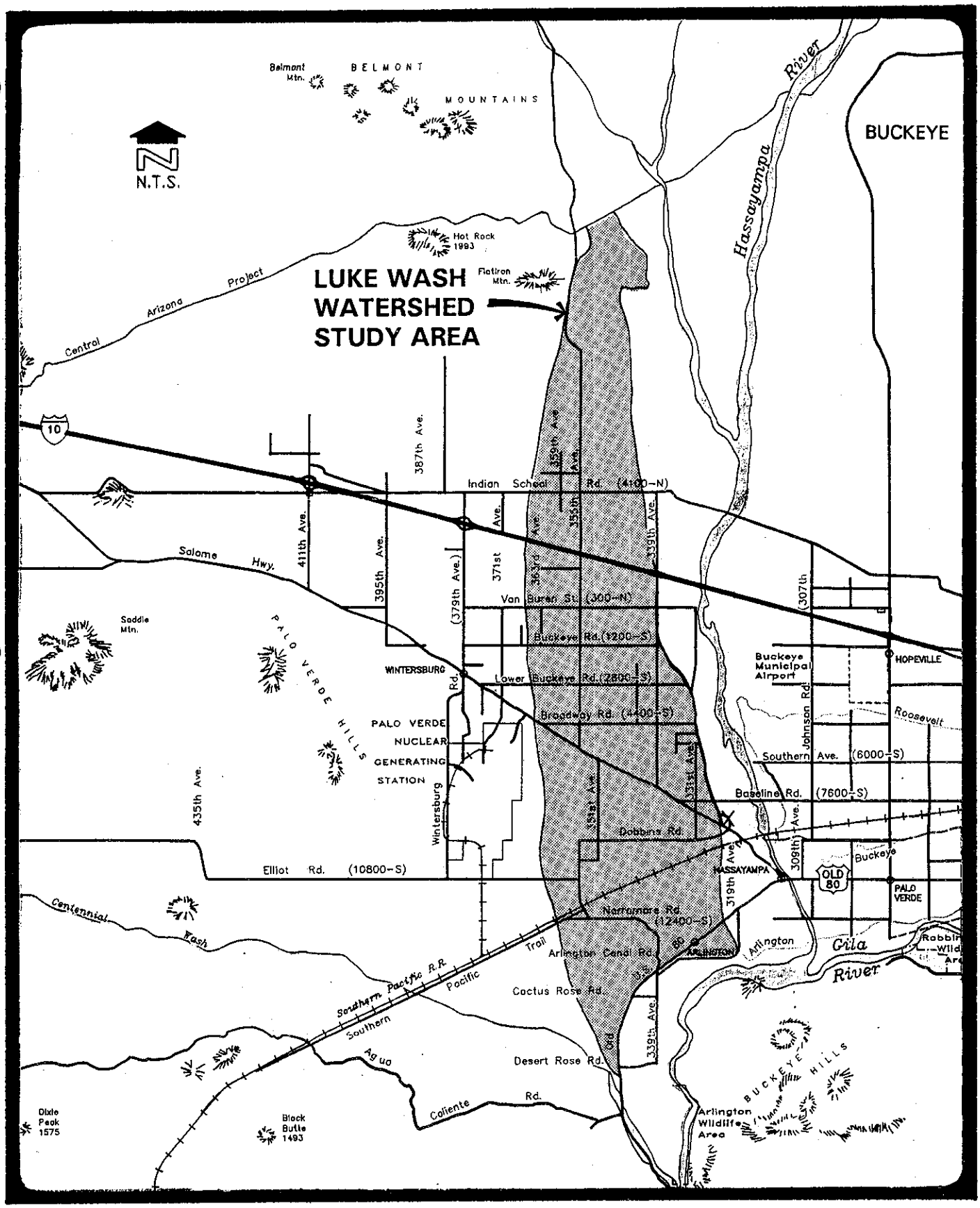
Canal. Numerous roads cross the watershed, including Interstate 10, the Salome Highway, and Old U.S. Highway 80. In addition, the Southern Pacific Railroad and the Arlington Canal cross the watershed. Refer to the vicinity map (page 3) for a better understanding of the location of the Luke Wash Watershed Study Area.

Several sub-watersheds or tributaries contribute stormwater runoff to Luke Wash, including Phillips Wash, Dickey Wash and several unnamed washes. These washes cross through numerous culverts under Interstate 10. Luke Wash is formed by the confluence of Phillips Wash and Dickey Wash at Lower Buckeye Road. As Luke Wash continues south, it combines with numerous tributaries, crosses Salome Highway and the Southern Pacific Railroad. Several bridges allow Luke Wash and its tributaries to cross the railroad, and continue south toward concrete box culvert crossings at Old U.S. Highway 80. Further south, the Arlington Canal is siphoned to allow Luke Wash to cross. This crossing is not large enough and much of the flow will overflow the canal.

The terrain within the watershed generally slopes to the south at about 0.5 percent. However, a few small mountains occur within the watershed that may have slopes in excess of 50%. The majority of the watershed is in its natural desert condition, with few man made disturbances. Included in these disturbances are: roads, railroads, irrigation canals, agricultural areas, and low density residential housing. The soils within the watershed range from highly permeable sandy loam to less permeable clays and rock outcroppings.

3.0.3 Previous Studies and Reports

Luke Wash has not previously been analyzed for a Flood Insurance Study, and is not delineated on the current Flood Insurance Rate Maps for Maricopa County and Incorporated Areas. Hydrology is not available for the entire Luke Wash watershed. However, the portion



LUKE WASH

Between Gila River Floodplain &
Southern Pacific Railroad

FLOOD INSURANCE STUDY

VICINITY MAP

COE & VAN LOO

of the watershed north of Interstate 10 has been modeled recently for the FCDMC using the HEC-1 computer program and the FCDMC's methodologies. This hydrologic model was prepared for the Jackrabbit Wash Floodplain Delineation Study by Burgess & Niple, Inc. Portions of the Jackrabbit Wash HEC-1 model will be utilized as a base for the Luke Wash Hydrology.

3.1 Method Description

3.1.1 Hydrologic Model

A computerized rainfall/runoff model was developed for the Luke Wash watershed using the U.S. Army Corps of Engineers (CORPS) Flood Hydrograph Package, HEC-1 (Ref. 3). HEC-1 uses numerical parameters to describe the amount of temporal distribution of rainfall, the runoff characteristics of the watershed, and the hydraulic properties of channels and washes that collect and convey the direct runoff to concentration points. The computer output provides runoff hydrographs at user selected locations. A network of sub-basins and connecting channels was configured that simulates the natural drainage patterns of the watershed. See the Drainage Area Map & HEC-1 Schematic (Plate 1).

The September 1990 HEC-1 computer program was used to model the Luke Wash Watershed. The HEC-1 version 4.0, as implemented by Dodson and Associates, Inc. in their April 1991 version of ProHEC-1 was used for this study.

3.1.2 Study Criteria

The criteria and guidelines to be used in this study were set forth by the FCDMC prior to the commencement of work. The CORPS HEC-1 computer program was used to model the Luke Wash watershed, for the 100-year storm. Storm durations of 6 and 24 hours were

evaluated to determine which duration storm results in the higher magnitude peak discharge. The Phoenix Valley S-Graph, the Green-Ampt Loss Rate, and the Normal Depth/Modified Puls Channel Routing options were used in the HEC-1 model for the Luke Wash watershed. The Maricopa County Unit Hydrograph Procedure 2 (MCUHP2) computer program, as provided by the FCDMC was used to generate the basic HEC-1 input file. The portion of the watershed north of Interstate 10 has been modeled recently for the FCDMC in the Jackrabbit Wash Floodplain Delineation Study by Burgess & Niple, Inc. That portion of the HEC-1 model was copied directly from that report. The assumptions, procedures, and methodologies used to develop the remainder of the HEC-1 data input sets are discussed in the following sections.

3.2 Parameter Estimation

3.2.1 Drainage Area Boundaries

The study watershed encompasses approximately 64 square miles, extending from the Arlington Canal to the Central Arizona Project canal. The sub-basin boundaries were initially delineated using USGS topographic maps and aerial photographs. Due to the lack of current and more detailed topographic mapping for the watershed, detailed field investigations were performed. The initial delineations were then verified or modified based on the field investigations.

The sub-basins were delineated such that concentration points were provided at meaningful locations, (i.e., roads, confluences, etc). The sub-basin areas were limited to a maximum of 5 square miles; however, most of the sub-basins have areas much less than that. Refer to the Drainage Area Map & HEC-1 Schematic (Plate 1).

3.2.2 Physical Parameters

3.2.2.1 Unit Hydrograph Procedure

The majority of the watershed is in a natural desert condition with relatively flat slopes, and the sub-basins are typically long and narrow with virtually no urbanization. There are a few sub-basins within mountainous areas which result in lower initial abstraction values. There are so few of these mountainous areas in the watershed that the Phoenix Valley S-Graph was considered more appropriate. Therefore, this watershed has been modeled using the Phoenix Valley S-Graph, as implemented by the MCUHP2 computer program supplied by the FCDMC.

The MCUHP2 computer program was developed by the FCDMC to produce the unit hydrographs for each sub-basin of the HEC-1 input file. The program produces the base HEC-1 input file for the sub-basin hydrograph generation. This is accomplished by entering the sub-basin characteristics and the Green-Ampt parameters into the MCUHP2 input program. Routing data, hydrographs combine data, and comment data is then added to the base HEC-1 input file to produce a complete HEC-1 input file.

3.2.2.2 Loss Rate Estimation

Precipitation loss rates have been computed using the Green-Ampt Infiltration Equation option in HEC-1. The Green-Ampt parameters XKSAT (hydraulic conductivity at natural saturation), PSIF (wetting front capillary suction), and DTHETA (volumetric soil moisture deficit at the start of rainfall) have been determined for each sub-basin. The area of each soil unit within each sub-basin will be computed, using maps from the Soil Conservation Service's *Soil Survey of Aguila-Carefree Area* and the *Soil Survey of Maricopa County, Arizona Central Part*, then a log area-weighted set of Green-Ampt parameters for each sub-basin was calculated.

Given the Green-Ampt parameters based strictly on soil characteristics, the XKSAT and DTHETA parameters were then adjusted to account for vegetative cover and/or land use. To account for the impact of vegetative cover, the XKSAT parameter for each sub-basin has been adjusted based on guidelines given in the FCDMC's *Hydrologic Design Manual*, aerial photographs, and field observations. The DTHETA parameter is influenced by land use. DTHETA (dry) was used in natural desert areas, due to the arid nature of the land. DTHETA (normal) was used for the residential and low density residential areas, since there is intermittent moisture due to watering landscaping. The DTHETA (wet) was used for agricultural land use areas based on the assumption that there is often recent irrigation in these areas. The DTHETA parameter has been calculated as an area-weighted average based on the land use.

The percent vegetative cover within a sub-basin has been area weighted based on field reconnaissance and aerial photography (stereo photography and Rupp aerial photography). The percent vegetative cover for the natural desert ranges from 20% to 35%, and the vegetation tends to be more dense at the lower end of the watershed than at the upper end. The percent vegetative cover for the farmed fields have been averaged to be about 60%. The crops within the watershed are typically alfalfa or cotton. Alfalfa is a perennial crop that is harvested by mowing, and therefore is present all year long. Alfalfa has a cover density of about 85%. Cotton is planted in the spring, attains about 95% cover density in the summer, and is defoliated in the fall. Throughout the year, this would average to a cover density of about 35%.

$$\left(\frac{3 \text{ month x } 95\% + 3 \text{ months x } 45\% + 6 \text{ months x } 0\%}{12 \text{ months}}\right) = 35\%$$

Assuming that the crops throughout the watershed are distributed 50% alfalfa and 50% cotton, this would give an average cover density of about 60% $\left(\frac{85\% + 35\%}{2}\right) = 60\%$.

The "percent impervious" parameter (RTIMP) specifies the percentage of a sub-basin that is impervious. The "percent impervious" has been computed for each sub-basin, as a function of natural rock features and land use. The percentage of impervious rock outcrops within each sub-basin have been estimated from data provided in the SCS Soil Surveys for each soil unit. Based on conversations with the Corps of Engineers, the Arizona Department of Water Resources, and other sources, it was determined that a rock outcropping does not act as continuous imperviousness. Therefore, based on these conversations, field observations, and judgment, a factor of 0.7 was used to convert the "percentage of impervious rock outcrops" into the "percent impervious" for each sub-basin for responding to natural rock features. Similarly, the Very Low Density Residential Housing (rural ranch houses) are scattered sparsely throughout the watershed, and do not act as continuous imperviousness. Therefore, the impervious area from these areas have also been multiplied by a factor of 0.7 to estimate a "percent impervious" for each sub-basin.

The surface retention loss parameter (IA) is a function of land use and/or surface vegetative cover. IA values for each sub-basin have been calculated using guidelines given in the FCDMC's *Hydrologic Design Manual.* The IA values for natural desert areas have been weighted to reflect flat slopes, hill slopes, or mountain slopes. Then the IA value has been area weighted to reflect the land use in the sub-basin.

The loss rate estimation parameters have been calculated using a computer spreadsheet program provided by the FCDMC. The program uses the soil types, land use, vegetative cover, and percent impervious to weight the Green/Ampt parameters. See Section I in the appendix for loss rate parameters.

3.2.2.3 Lag Time

Lag time flow routes have been determined using USGS topographic quadrangles, and from the field investigations. Lag times were calculated for each sub-basin using the following empirical equation per FCDMC's *Hydrologic Design Manual* (Reference 1, page 79)

$$Lag = C\left(\frac{LLca}{S^p}\right)^m$$

where Lag = sub-basin lag time in hours
L = length of the longest watercourse in miles
Lca = length along the watercourse to a point opposite the centroid in miles
S = watercourse slope in feet per mile
C = 24 K_n, per Corps of Engineers HEC-1 (reference 3)
K_n = estimated mean Manning's "n" for all channels within the sub-basin
m = 0.38, per Corps of Engineers HEC-1 (reference 3)
p = 0.5, per Hydrologic Design Manual (reference 1)

L, Lca, and S were determined for each sub-basin based on the U.S.G.S. quadrangle maps (see the Flow Routing Map, Plate 3). The Kn values range from 0.06 to 0.08 and were estimated based on aerial photography and extensive field visits. Refer to the appendix Section II for lag time calculation data.

3.2.2.4 Channel Routing

In this study, the Normal Depth Channel/Modified Puls method was used for all flow routings. Channel geometries, slopes, and Manning's roughness coefficients were estimated from available mapping, aerial photography, and from observations made during the field investigations. The routing reach length and average slope were based on the available topographic mapping and are shown on the Flow Routing Map (Plate 3). The remaining channel parameters were estimated to represent an average cross section for the reach.

The number of steps to be used in the channel routing (NSTPS) HEC-1 calculations was determined based on the guidelines given in the HEC-1 manual. The equation for determining the NSTPS is as follows:

$$\text{NSTPS} = \frac{\text{Reach Length (ft)/Average Velocity (fps)}}{\text{Computational Time Interval (min) x 60 (sec/min)}}$$

The average velocity was initially estimated using manning's equation. After the initial HEC-1 runs, the reach length was divided by the difference in time to peak (due to the channel route) to better estimate the average velocity. After a few iterations, the results converged on a reasonable average velocity. See sample average velocity calculations in appendix Section III.

Transmission losses have been evaluated for the channel routes. The infiltration rates are based on the adjacent soils' XKSAT values per the SCS map unit along the channel reach. The loss rate for each routing was determined by calculating an average XKSAT value for the reach length. The XKSAT value for each routing was estimated by area weighting the SCS map units along the reach. This was done by visually examining the SCS soils maps along the routing reach, while considering the average flow width. The infiltration rates were input into the HEC-1 model on the RL card. The channel routing infiltration loss data and a sample calculation are included in the appendix, Section III.

3.2.2.5 Reservoir Routing

Reservoir routing was modeled in several locations; the culvert crossing of Interstate 10, the culvert crossings of Old U.S. Highway 80, and the ponding behind the Arlington Canal.

The culvert crossings of Interstate 10 were modeled based on inlet control to the culverts using the HDS-5 culvert capacity charts (Ref. 10). The culvert data was obtained from the as-built highway construction plans from the Arizona Department of Transportation (ADOT).

Where several culverts occurred within one sub-basin, the capacity of all of the culverts were combined to approximate the outflow rating curve. At the average depth where flow occurs over the Interstate, weir flow calculations were used to approximate the overflow, and this was added to the rating curve. Detailed topographic mapping is not available in the area, therefore ponding areas were approximated from existing topography on the USGS 7½ minute Quadrangle and the as-built highway construction plans.

The wash crossings of the Southern Pacific Railroad are typically very large and will not cause significant ponding behind them. However, Luke Wash has a very large watershed, and a much smaller bridge opening than the rest. It was determined that the ponding behind Luke Wash at the railroad will break out to the west in the 100-year storm and combine with the tributary to the west. The combined flow acts as one ponding area with two bridge outlets. However, it is felt that the railroad embankment and bridge will wash out prior to the peak flow. Therefore, the ponding behind the railroad was not modeled.

Numerous culverts cross Old U.S. Highway 80 within the watershed. Since as-built plans are not available for this highway, field survey was done to evaluate the culverts. These culvert crossings were then modeled based on inlet control using the HDS-5 culvert capacity charts (Ref. 10). Where several culverts occurred within one sub-basin, the capacity of all of the culverts were combined to approximate the outflow rating curve. At the average depth where flow occurred over the highway, weir flow calculations were used to approximate the overflow, and added to the rating curve. Where detailed (200 scale) topographic mapping was available, it was used to evaluate the ponding limits. For the area beyond the mapping limits, the 400 scale topographic mapping from the Gila River Flood Insurance Study was used.

The ponding and reservoir routing behind the Arlington Canal was evaluated for the entire watershed, based on the aerial topography produced for this study and the Gila River

Flood Insurance Study. The outflow rating curves were based on weir flow over the canal, and manning's flow where Luke Wash crosses a canal siphon. The canal bank was used for weir flow calculations based on spot elevations from the 200 scale mapping, supplemented by survey field data. The ponding limits were delineated based on the 200 scale mapping where it was available. Beyond the mapping limits, the 400 scale topographic mapping from the Gila River FIS was used. Refer to the appendix Section IV for sample calculations of the ponding situations described here.

3.2.3 Statistical Parameters

The statistical parameters used in this analysis were obtained from the FCDMC's *Hydrologic Design Manual.* These parameters include the rainfall distribution, precipitation data, and aerial reduction factors. Historical data has been collected and analyzed by numerous agencies. The results of that extensive research and analysis were compiled to produce the *Hydrologic Design Manual.* Refer to the Manual for the background of the statistical parameters.

3.2.4 Precipitation Parameters

3.2.4.1 Rainfall Distributions

The rainfall distributions to be used for the 6-hour storms are based on distributions documented in the FCDMC's *Hydrologic Design Manual* as implemented by the Maricopa County Unit Hydrograph Procedure 2 (MCUHP2). The SCS Type II distribution will be used for the 24-hour storm (See the appendix Section V, Tables 11 & 12).

3.2.4.2 Precipitation Data

The point precipitation values to be used in this study were obtained from isopluvial maps for Maricopa County published in the FCDMC's *Hydrologic Design Manual*. The Luke Wash watershed was drawn on each isopluvial map and the precipitation was approximated at the centroid of the watershed. The point precipitation values are given in Table 13 and copies of the isopluvial maps are included in the appendix Section VI.

3.2.4.3 Aerial Reduction Factors

The point precipitation values to be used in this study were adjusted with aerial reduction factors to account for the natural spatial variability of rainfall. Reduction factors for the 6-hour duration storms were obtained from curves documented in the FCDMC's *Hydrologic Design Manual*. This data is based on depth-area reduction curves developed by the U.S. Army Corps of Engineers, for the historic storm of 1954 over the Queen Creek area. The 24-hour storm reduction factors were obtained from the *NOAA Technical Memorandum NWS HYDRO-40* (Ref. 4). These factors are given in the appendix Section VII, Table 14.

3.2.4.4 Computational Time Step Interval

The computational time step interval was chosen to be long enough such that the total storm would be covered by the 300 time increments, and short enough that it was not longer than the shortest lag time. Since the shortest lag time is approximately 12 minutes, a time step interval of 5 minutes was chosen. With 300 time increments, the computations would cover 25 hours. This is sufficient for the 6 hour and 24 hour storms.

3.2.5 Gage Data

There are no gage stations within this watershed. Therefore, a gage station analysis was not performed.

3.3 Calibration

Since there is no gage station data available within this watershed, calibration of the HEC-1 model was made using general statistical gage data. The FCDMC's Flood Frequency Analysis of USGS Gage Data Collected in Maricopa County was utilized to check for reasonableness of the HEC-1 model. Representative 100-year discharges for Luke Wash and its tributaries, as calculated in the HEC-1 model, were plotted on Peak Discharges versus Drainage Area Curves for the Maricopa County Area. The storm duration (6-hour or 24-hour) that produced the higher peak flow, at each selected location, was plotted on the curve. These plots indicated that the HEC-1 results seem to be of a reasonable magnitude. Refer to the Appendix Section VIII for these curves.

3.4 Special Problems and Solutions

Numerous hydrologic modeling challenges arose during the HEC-1 model preparation. As these challenges arose, the situation was assessed, and several potential solution were evaluated. These potential solutions were discussed with the FCDMC, until a solution was agreed upon.

3.4.1 Downstream Limit of the Hydrology Model

At the southwest end of the watershed, the Arlington Canal is parallel to the Old U.S. Highway 80, with a small sliver of land between them. Ponding will occur behind the culverts under Old U.S. Highway 80 and also behind the Arlington Canal. Numerous discussions were

held with the FCDMC to determine whether the hydrology model should have its downstream limit at the Old U.S. Highway 80 or at the Arlington Canal. In addition, it was also discussed whether reservoir routing should be modeled behind the Old U.S. Highway 80, the Arlington Canal, or both. It was determined that the area between the highway and the canal was very small as compared to the adjacent sub-basins. Therefore, this area would be ignored and the sub-basin would end at the Old U.S. Highway 80. It was also determined that the ponding behind the Old U.S. Highway 80 and the Arlington Canal could have an impact on flows. Therefore, the HEC-1 model accounts for ponding behind both.

3.4.2 Multiple Culvert Crossings

Within the watershed, numerous culverts cross Interstate 10 and the Old U.S. Highway 80. Often times, these culverts are close together with very small watersheds contributing to each culvert. Based on the resolution of the hydrology method, it was not reasonable to break out a sub-basin for each culvert, therefore many culverts were often grouped together within one sub-basin. The capacity of each culvert was calculated and added together to produce an outflow rating curve for the sub-basin. This methodology was agreed upon by the FCDMC to approximate the effects of ponding behind the culverts.

3.4.3 Southern Pacific Railroad Crossings

There are several wash crossings of the Southern Pacific Railroad within the watershed. The majority of these crossings are typically very large and will not cause significant ponding behind them. However, Luke Wash has a very large watershed and a much smaller bridge opening than the rest. Therefore, this crossing was evaluated in detail. As described in Section 3.2.2.5, this ponding combines with the ponding from the next wash crossing to the west. The

combined flow creates one ponding area with two bridge outlets and one overflow area over the railroad. Three options were evaluated to model Luke Wash at the Southern Pacific Railroad:

a) Model ponding behind the railroad with both bridge outlets and weir flow over the top of rail.

b) Model ponding behind the railroad with both bridge outlets and weir flow over the railroad bed.

c) Do not model ponding (reservoir routing) behind the railroad at all.

Based on the evaluations, it was felt that as the flow overtopped the railroad bed, it would wash out the ballast. Representatives of the FCDMC requested that the ponding behind the railroad not be modeled, to provide a conservative model.

3.4.4 Luke Wash Crossing at Old U.S. Highway 80

The culverts under Old U.S. Highway 80 at Luke Wash are not large enough to pass the 100-year flow. Consequently, flow will break out to the east and combine with the east main tributary. The combined flow creates one large ponding area with two bridge outlets and a single overflow area over the highway. The outflow rating curves for the two bridges were calculated separately and then added together, along with the overflow, to get the overall outflow rating curve.

3.4.5 HEC-1 Warnings

When the HEC-1 models are run at an output level of 1 or 3 on the IO card, warning messages appear concerning some hydrograph routing. These messages indicate that the Modified Puls routing may be numerically unstable for outflows within a certain range, and that the routed hydrograph should be examined for oscillations or outflow greater than peak inflows.

The majority of these messages appeared at locations where the routed peak discharge value fell outside the limits of the warning range. However, some of the messages were due to the following reasons:

1. Some routing reaches have a configuration such that the numeric calculations could be unstable.
2. Some reservoir routing has insufficient outflow for stable calculations.

The following steps were taken to ensure that the final results are reasonable and stable:

1. The routed peak discharge value was evaluated to see if it fell within the limits of the warning range.
2. The outflow peak was checked against the inflow peak to be sure that the flow did not increase.
3. Outflow hydrographs for critical routing reaches were examined for oscillations at critical times.

3.5 Final Results

The HEC-1 hydrologic simulation model was used to complete 100-year discharges for Luke Wash and its tributaries. In addition, the model encompassed the entire watershed, contributing to the Gila River between the Hassayampa River and Centennial Wash watershed boundaries. The 100-year discharges corresponding to both the 6-hour and 24-hour events were evaluated in the study. The results of the study are summarized in Tables 1 and 2.

The Luke Wash watershed is long and narrow, extending over 19 miles to the north. Therefore, as expected for Luke Wash, the 24-hour event produces a higher peak discharge than the 6-hour event. However, some of the sub-basins and smaller tributaries to Luke Wash produce a higher peak discharge from the 6-hour event. It is also true that, for the smaller sub-

basins that contribute directly to the Gila River, the 6-hour event produces a higher peak discharge than the 24-hour event.

It is recommended that the peak discharge for the 6-hour and 24-hour events be compared at a specific concentration point and the higher discharge be used in the floodplain delineation analysis. Tables 1 and 2 show a summary of peak discharges at locations of interest along Luke Wash and its tributaries.

Table 1
100-Year Peak Discharges On Luke Wash

		6 Hour		24 Hour	
Location	HEC-1 ID	Discharge (cfs)	Time to Peak (hrs)	Discharge (cfs)	Time to Peak (hrs)
Below the Arlington Canal	RES513	4673	8.42	7633	15.83
Above the Arlington Canal	C510	4715	8.33	7664	15.75
Below Old U.S. Highway 80	C495	4758	8.17	7814	15.58
Above Old U.S. Highway 80	C486	4790	7.83	7948	15.42
Above Confluence w/East Main Tributary	C375	4231	8.00	6551	15.50
At Confluence w/Minor Tributary	C360	4391	7.42	6674	15.08

Table 2
100-Year Peak Discharges on Tributaries

Location	HEC-1 ID	6 Hour Discharge (cfs)	6 Hour Time to Peak (hrs)	24 Hour Discharge (cfs)	24 Hour Time to Peak (hrs)
East Main Tributary Above Old U.S. Highway 80	C485	2345	6.75	2631	14.58
East Main Tributary Below Confluence w/East Sub Tributary	C470	2466	6.42	2723	14.33
East Main Tributary Above Confluence w/East Sub Tributary	C440	2424	6.50	2619	14.33
East Main Tributary Below South Pacific Railroad	C425	2645	5.67	2749	13.58
East Sub Tributary Above Confluence w/East Main Tributary	C460	752	5.08	618	13.08
East Sub Tributary 4000' Above Confluence w/East Main Tributary	S445	871	4.67	660	12.50
Minor Tributary Above Confluence w/Luke Wash	C355	590	4.67	483	12.67
Minor Tributary Below Southern Pacific Railroad	S340	657	4.50	439	12.33

3.6 Final Modeling Results

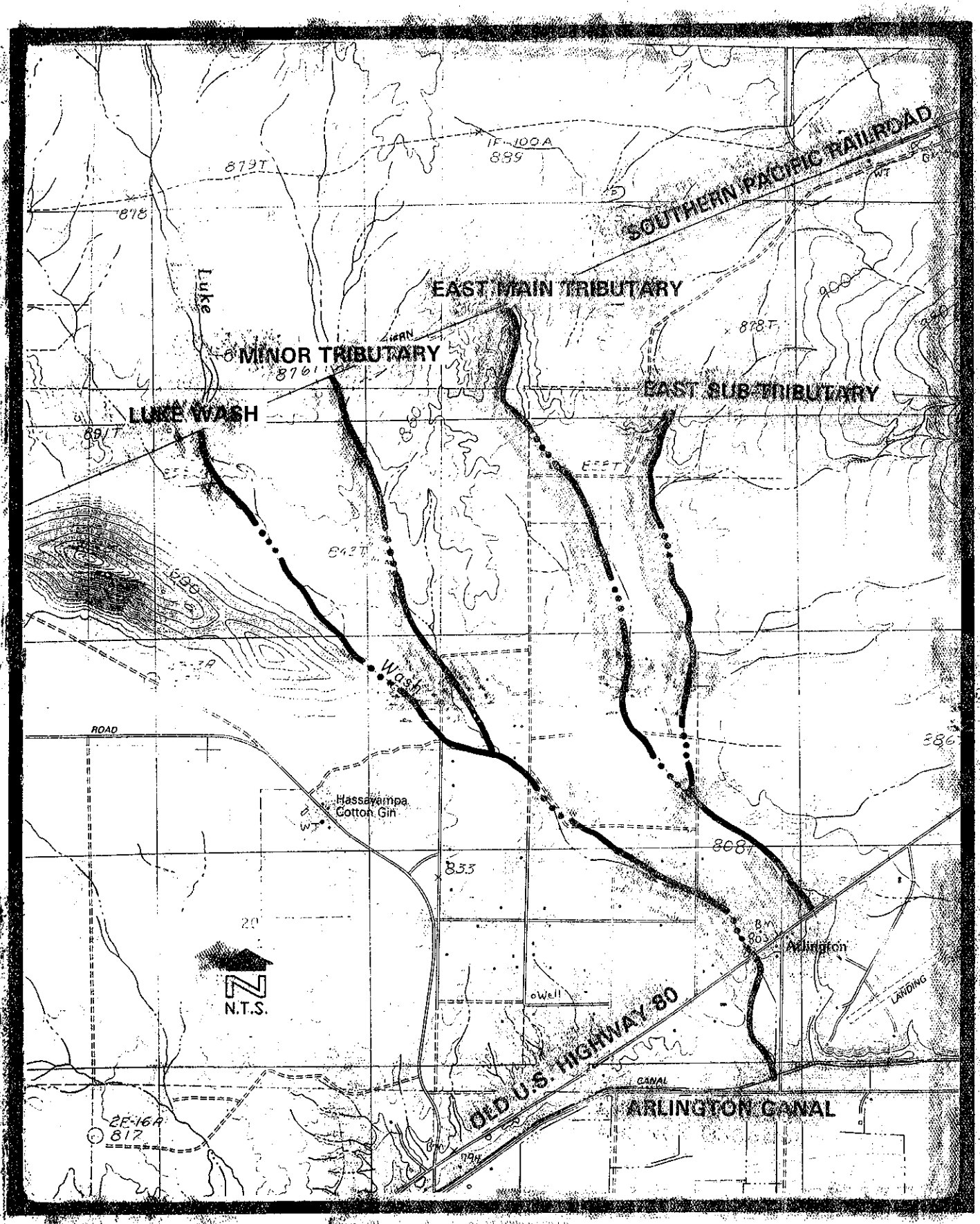
The enclosed floppy diskettes contain the 100-year/6-hour and 100-year/24-hour HEC-1 input and output files. The HEC-1 input and output files are named as follows:

100-year/6 hour input - LUKE 6

100-year/6 hour output - LUKE 6.0

100-year/24 hour input - LUKE 24

100-year/24 hour output - LUKE 24.0



LUKE WASH
Between Gila River Floodplain &
Southern Pacific Railroad
FLOOD INSURANCE STUDY

STUDY AREA LOCATION MAP

3.7 References

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Section I LOSS RATE PARAMETERS ESTIMATION

Table 3 Green and Ampt Input Parameters

Table 4 Sub-Basin Input Parameters

Table 5 Soil Map Unit Descriptions

Loss Parameters by Sub-Basin

TABLE 3
GREEN-AMPT INPUT PARAMETERS

LOSS PARAMETER SUMMARY FOR SUBBASINS USING THE S-GRAPH METHOD

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S70	2.40	0.350	0.350	3.71	0.322	0.00	111.1
S95	0.23	0.350	0.350	4.30	0.444	0.00	32.6
S110	2.78	0.350	0.346	3.66	0.311	0.39	98.8
S130	0.31	0.350	0.350	3.66	0.311	0.00	51
S136	1.26	0.355	0.339	3.50	0.286	0.00	79.8
S140	1.52	0.367	0.311	3.61	0.313	0.00	73.7
S155	0.82	0.350	0.350	3.71	0.328	0.00	53.8
S160	1.18	0.350	0.350	3.71	0.322	0.00	94.4
S175	0.58	0.350	0.350	3.82	0.354	0.00	47.1
S185	0.74	0.350	0.350	3.61	0.306	0.00	74.3
S200	1.34	0.350	0.350	3.71	0.331	0.00	80.7
S235	0.26	0.350	0.350	3.66	0.311	0.00	39
S255	0.34	0.350	0.350	3.61	0.300	0.00	35.6
S265	3.20	0.350	0.348	3.50	0.283	0.16	86.4
S280	2.30	0.350	0.360	3.81	0.272	0.00	76.3
S295	3.51	0.350	0.380	5.05	0.226	1.41	116.2
S310	1.28	0.350	0.350	3.50	0.283	0.00	68.2
S330	0.62	0.330	0.350	3.87	0.373	11.58	59
S340	0.46	0.350	0.350	3.61	0.300	0.00	37.3
S350	0.33	0.350	0.350	3.71	0.322	0.00	45.7
S370	0.31	0.407	0.218	3.66	0.367	0.00	46.8
S385	2.39	0.355	0.334	3.50	0.286	0.47	100.5
S390	1.80	0.379	0.282	3.71	0.352	0.00	110.1
S400	0.66	0.350	0.350	3.82	0.351	0.00	54.7
S420	3.03	0.350	0.350	3.66	0.317	0.00	83.9
S435	0.93	0.350	0.350	3.71	0.331	0.24	77.4
S445	0.90	0.290	0.350	4.08	0.400	1.83	47.3
S455	0.45	0.330	0.350	4.03	0.388	0.97	42.5
S480	0.28	0.350	0.350	3.98	0.385	1.49	28.1
S490	0.26	0.300	0.350	4.24	0.433	1.82	28.7
S505	0.15	0.399	0.235	3.66	0.372	0.00	32.6
S508	0.42	0.362	0.319	3.98	0.424	0.70	48.2
S515	0.26	0.290	0.350	4.24	0.433	1.10	20.8
S518	0.74	0.353	0.343	4.19	0.458	0.00	38.3
S521	0.16	0.350	0.350	3.92	0.395	0.00	24.1
S525	0.36	0.353	0.331	3.61	0.329	1.23	34.8
S530	0.32	0.356	0.336	3.61	0.327	0.00	37.2
S535	2.71	0.350	0.350	3.50	0.278	0.00	90.9
S545	1.53	0.340	0.350	3.55	0.294	5.44	66.8
S555	1.31	0.350	0.400	6.60	0.166	0.00	82.8
S570	0.72	0.350	0.390	5.98	0.207	0.00	52.8
S580	0.05	0.350	0.380	5.05	0.251	0.00	14
S585	1.25	0.350	0.380	5.05	0.244	0.00	72.4
S590	0.24	0.350	0.350	3.55	0.317	0.00	32.6
S600	0.21	0.350	0.350	3.55	0.317	0.00	16.2

TABLE 4

SUB-BASIN INPUT PARAMETERS

SUB-BASIN I.D.	AREA (Sq. Mi.)	LAND USE		VEGETATION COVER (%)	IA
		TYPE	AREA (Sq. Mi.)		
S70	2.40	Desert	2.40	20	.35
S95	0.23	Desert	0.23	20	.35
S110	2.78	Desert VLDR	2.67 0.10	20	.35
S130	0.31	Desert	0.31	20	.35
S136	1.26	Desert Row Crop	1.22 0.04	22	.36
S140	1.52	Desert Row Crop	1.35 0.17	20	.37
S155	0.82	Desert	0.82	22	.35
S160	1.18	Desert	1.18	20	.35
S175	0.58	Desert	0.58	23	.35
S185	0.74	Desert	0.74	22	.35
S200	1.33	Desert	1.33	23	.35
S235	0.26	Desert	0.26	20	.35
S255	0.34	Desert	0.34	20	.35
S265	3.19	Desert VLDR	3.14 0.05	22	.35
S280	2.30	Desert	2.30	22	.35
S295	3.51	Desert	3.51	22	.35
S310	1.28	Desert	1.28	22	.35
S330	0.62	Desert	0.62	25	.33
S340	0.46	Desert	0.46	20	.35
S350	0.33	Desert	0.33	20	.35
S370	0.31	Desert Row Crop	0.19 0.12	25	.41
S385	2.39	Desert Row Crop VLDR	2.20 0.08 0.11	22	.36
S390	1.80	Desert Row Crop	1.45 0.35	22	.38

TABLE 4

SUB-BASIN INPUT PARAMETERS

SUB-BASIN I.D.	AREA (Sq. Mi.)	LAND USE		VEGETATION COVER (%)	IA
		TYPE	AREA (Sq. Mi.)		
S400	0.66	Desert	0.66	22	.35
S420	3.04	Desert	3.04	22	.35
S435	0.93	Desert	0.93	23	.35
S445	0.90	Desert	0.90	20	.29
S455	0.45	Desert	0.45	20	.33
S480	0.28	Desert	0.28	22	.35
S490	0.26	Desert	0.26	20	.30
S505	0.15	Desert Row Crop	0.10 0.05	30	.40
S508	0.42	Desert Row Crop VLDR	0.38 0.03 0.01	30	.36
S515	0.26	Desert	0.26	20	.29
S518	.75	Desert Row Crop	0.73 0.02	28	.35
S521	0.16	Desert	0.16	28	.35
S525	0.36	Desert Row Crop VLDR	0.31 0.01 0.04	30	.35
S530	0.32	Desert Row Crop	0.31 0.01	28	.36
S535	2.71	Desert	2.71	20	.35
S545	1.53	Desert	1.53	22	.34
S555	1.30	Desert	1.30	20	.35
S570	0.72	Desert	0.72	30	.35
S580	0.05	Desert	0.05	33	.35
S585	1.25	Desert	1.25	30	.35
S590	0.24	Desert	0.24	30	.35
S600	0.21	Desert	0.21	30	.35

TABLE 5

SOIL MAP UNIT DESCRIPTIONS

Map Unit No.	Soil Name
011	BRIOS-CARRIZO COMPLEX
020	CHUCKAWALLA-GUNSIGHT COMPLEX
056	GILMAN LOAMS
069	GUNSIGHT-CIPRIANO COMPLEX
071	GUNSIGHT-RILLITO COMPLEX
072	LEHMANS-ROCK OUTCROP COMPLEX
100	QUILOTOSA-VAIVA-ROCK OUTCROP COMPLEX
102	RILLITO GRAVELLY LOAM
117	TREMANT-GUNSIGHT-RILLITO COMPLEX
123	VAIVA VERY GRAVELLY LOAM
AbA	ANTHO SANDY LOAM
Ac	ANTHO SANDY LOAM
AdA	ANTHO GRAVELLY SANDY LOAM
Ae	ANTHO-BRIOS SANDY LOAMS
AGB	ANTHO-CARRIZO COMPLEX
AL	ANTHO ASSOCIATION
AM	ANTHO-VALENCIA ASSOCIATION
CA2	CALCIORTHIDS AND TORRIORTHENTS, ERODED
Cg	CASA GRANDE SANDY LOAM
Ch	CASA GRANDE LOAM
Ck	CASA GRANDE COMPLEX
Cm	CASA GRANDE-LAVEEN COMPLEX, ALKALI
CO	CHERIONI-ROCK OUTCROP COMPLEX
Cp	COOLIDGE SANDY LOAM
CV	COOLIDGE-LAVEEN ASSOCIATION
Dn	DUNE LAND
Es	ESTRELLA LOAM
Et	ESTRELLA LOAM, SALINE-ALKALI
Ge	GILMAN FINE SANDY LOAM
Gf	GILMAN FINE SANDY LOAM, SALINE-ALKALI
GgA	GILMAN LOAM
Gh	GILMAN LOAM, SALINE-ALKALI
GM	GILMAN-ANTHO ASSOCIATION
Gp	GILMAN LOAM, CLAYEY SUBSOIL VARIANT, MODERATELY SALINE
GWD	GUNSIGHT-PINAL COMPLEX

TABLE 5

SOIL MAP UNIT DESCRIPTIONS

Map Unit No.	Soil Name
GxA	GUNSIGHT-RILLITO COMPLEX
GxB	GUNSIGHT-RILLITO COMPLEX
GYD	GUNSIGHT-RILLITO COMPLEX
HAB	HARQUA COMPLEX
HAC	HARQUA COMPLEX
HLC	HARQUA-GUNSIGHT COMPLEX
HM	HARQUA-LAVEEN COMPLEX
HrB	HARQUA-RILLITO COMPLEX
La	LA PALMA VERY FINE SANDY LOAM
Lb	LAVEEN SANDY LOAM
LcA	LAVEEN LOAM
Ld	LAVEEN LOAM, SALINE-ALKALI
Ma	MARIPO SANDY LOAM
Pb	PERRYVILLE LOAM, SALINE-ALKALI
PeA	PERRYVILLE GRAVELLY LOAM
PeB	PERRYVILLE GRAVELLY LOAM
PRB	PERRYVILLE-RILLITO COMPLEX
PsB	PINAL LOAM
PT	PINAL GRAVELLY LOAM
RaA	RILLITO SANDY LOAM
RbA	RILLITO LOAM
RbB	RILLITO LOAM
RhB	RILLITO-HARQUA COMPLEX
RpE	RILLITO-PERRYVILLE COMPLEX
RS	ROCK OUTCROP - CHERIONI COMPLEX
Tc	TORRIORTHENTS
Va	VALENCIA SANDY LOAM

LOSS PARAMETERS FOR SUBBASIN: S70

Soil Survey Used CENTRAL ,AGUILA

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
RHB	290	18.88	0.23	-0.121	0.00	0.00
AE	261	16.99	0.39	-0.069	0.00	0.00
GYD	252	16.41	0.26	-0.096	0.00	0.00
GXB	192	12.50	0.24	-0.077	0.00	0.00
LA	68	4.43	0.26	-0.026	0.00	0.00
71	67	4.36	0.36	-0.019	0.00	0.00
PRB	62	4.04	0.28	-0.022	0.00	0.00
PB	57	3.71	0.38	-0.016	0.00	0.00
102	50	3.26	0.4	-0.013	0.00	0.00
HM	39	2.54	0.15	-0.021	0.00	0.00
AGB	39	2.54	0.4	-0.010	0.00	0.00
LCA	34	2.21	0.25	-0.013	0.00	0.00
AC	31	2.02	0.39	-0.008	0.00	0.00
6	31	2.02	0.62	-0.004	0.00	0.00
RPE	22	1.43	0.29	-0.008	0.00	0.00
RBA	15	0.98	0.26	-0.006	0.00	0.00
PEA	13	0.85	0.37	-0.004	0.00	0.00
1	6	0.39	0.41	-0.002	0.00	0.00
CM	3	0.20	0.26	-0.001	0.00	0.00
LB	2	0.13	0.4	-0.001	0.00	0.00
RAA	1	0.07	0.39	-0.000	0.00	0.00
LD	1	0.07	0.25	-0.000	0.00	0.00

TOTAL = 1536 (ACRES) XKSAT = 0.29 %ROCK= 0.00

DTHETA		PSIF
Dry =	0.35	= 3.71
Normal =	0.25	
Wet =	0	

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
1536	DESERT	100.00	DRY	20.00	0.00	0.00	0.35	0.350
1536	=TOTAL AREA OK		AVERAGE =	20.00	TOTAL = % =	0.00 0.00	AVG. =	0.350

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. = 0.322

IMPERVIOUS AREA:

URBAN @	70 %	effective =	0.00
ROCK OUTCROP @	70 %	effective =	0.00
% EFFECTIVE IMP. =			0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S70	2.40	0.350	0.350	3.71	0.322	0.00	111.1

LOSS PARAMETERS FOR SUBBASIN: S110

Soil Survey Used CENTRAL , AGUILA

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
GYD	767	43.16	0.26	-0.253	0.00	0.00
PRB	328	18.46	0.28	-0.102	0.00	0.00
AL	171	9.62	0.4	-0.038	0.00	0.00
TB	79	4.45	0.4	-0.018	0.00	0.00
71	76	4.28	0.36	-0.019	0.00	0.00
CM	63	3.55	0.26	-0.021	0.00	0.00
TC	60	3.38	0.4	-0.013	0.00	0.00
HAB	59	3.32	0.07	-0.038	0.00	0.00
102	50	2.81	0.4	-0.011	0.00	0.00
LB	38	2.14	0.4	-0.009	0.00	0.00
AGB	19	1.07	0.4	-0.004	0.00	0.00
AC	17	0.96	0.39	-0.004	0.00	0.00
HLC	15	0.84	0.14	-0.007	0.00	0.00
VA	13	0.73	0.39	-0.003	0.00	0.00
LCA	10	0.56	0.25	-0.003	0.00	0.00
RBA	7	0.39	0.26	-0.002	0.00	0.00
1	4	0.23	0.41	-0.001	0.00	0.00
ADA	1	0.06	0.4	-0.000	0.00	0.00

TOTAL = 1777 (ACRES) XKSAT = 0.28 %ROCK= 0.00

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 3.66

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
1711	DESERT	96.29	DRY	20.00	0.00	0.00	0.35	0.337
66	V.L.D.R	3.71	NORMAL	20.00	15.00	9.90	0.35	0.013
1777	=TOTAL AREA OK		AVERAGE =	20.00	TOTAL =	9.90	AVG. =	0.350
					% =	0.56		

PERCENT OF SUBBASIN DRY = 96.29 %
NORMAL = 3.71 %
WET = 0.00 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.346

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.311

IMPERVIOUS AREA: URBAN @ 70 % effective = 0.39
ROCK OUTCROP @ 70 % effective = 0.00
% EFFECTIVE IMP. = 0.39

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S110	2.78	0.350	0.346	3.66	0.311	0.39	98.8

LOSS PARAMETERS FOR SUBBASIN: S136

Soil Survey Used CENTRAL , AGUILA

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
GYD	313	38.69	0.26	-0.226	0.00	0.00
AL	259	32.01	0.4	-0.127	0.00	0.00
HLC	63	7.79	0.14	-0.066	0.00	0.00
PRB	59	7.29	0.28	-0.040	0.00	0.00
RBB	40	4.94	0.25	-0.030	0.00	0.00
102	37	4.57	0.03	-0.070	0.00	0.00
ADA	12	1.48	0.4	-0.006	0.00	0.00
PB	11	1.36	0.38	-0.006	0.00	0.00
1	8	0.99	0.03	-0.015	0.00	0.00
71	7	0.87	0.03	-0.013	0.00	0.00

TOTAL = 809 (ACRES) XKSAT = 0.25 %ROCK= 0.00

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 3.5

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
784	DESERT	96.91	DRY	22.00	0.00	0.00	0.35	0.339
25	ROW CROP	3.09	WET	60.00	0.00	0.00	0.50	0.015
809	=TOTAL AREA OK		AVERAGE =	23.17	TOTAL =	0.00	AVG. =	0.355
					% =	0.00		

PERCENT OF SUBBASIN DRY = 96.91 %
NORMAL = 0.00 %
WET = 3.09 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.339

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.286

IMPERVIOUS AREA: URBAN @ 70 % effective = 0.00
ROCK OUTCROP @ 70 % effective = 0.00
% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S136	1.26	0.355	0.339	3.50	0.286	0.00	79.8

LOSS PARAMETERS FOR SUBBASIN: S155

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
GYD	277	52.96	0.26	-0.310	0.00	0.00
AGB	95	18.16	0.4	-0.072	0.00	0.00
PRB	68	13.00	0.28	-0.072	0.00	0.00
CK	52	9.94	0.3	-0.052	0.00	0.00
AC	31	5.93	0.39	-0.024	0.00	0.00
TOTAL =	523 (ACRES)		XKSAT =	0.29	%ROCK=	0.00

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 3.71

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
523	DESERT	100.00	DRY	22.00	0.00	0.00	0.35	0.350
523	=TOTAL AREA OK		AVERAGE =	22.00	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 = 0.350

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.328

IMPERVIOUS AREA:

URBAN @ 70 % effective = 0.00
ROCK OUTCROP @ 70 % effective = 0.00

% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S155	0.82	0.350	0.350	3.71	0.328	0.00	53.8

LOSS PARAMETERS FOR SUBBASIN: S175

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
GYD	151	40.59	0.26	-0.237	0.00	0.00
AGB	64	17.20	0.4	-0.068	0.00	0.00
CK	62	16.67	0.3	-0.087	0.00	0.00
AC	54	14.52	0.39	-0.059	0.00	0.00
PRB	34	9.14	0.28	-0.051	0.00	0.00
GH	7	1.88	0.24	-0.012	0.00	0.00
TOTAL =	372 (ACRES)		XKSAT =	0.31	%ROCK=	0.00

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 3.82

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
372	DESERT	100.00	DRY	23.00	0.00	0.00	0.35	0.350
372	=TOTAL AREA OK		AVERAGE =	23.00	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 = 0.350

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.354

IMPERVIOUS AREA:

URBAN @	70 %	effective =	0.00
ROCK OUTCROP @	70 %	effective =	0.00
	% EFFECTIVE IMP. =		0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S175	0.58	0.350	0.350	3.82	0.354	0.00	47.1

LOSS PARAMETERS FOR SUBBASIN: S200

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
GYD	436	50.99	0.26	-0.298	0.00	0.00
AC	147	17.19	0.39	-0.070	0.00	0.00
AGB	82	9.59	0.4	-0.038	0.00	0.00
GH	80	9.36	0.24	-0.058	0.00	0.00
CK	56	6.55	0.3	-0.034	0.00	0.00
PRB	28	3.27	0.28	-0.018	0.00	0.00
HLC	23	2.69	0.14	-0.023	0.00	0.00
AM	3	0.35	0.39	-0.001	0.00	0.00

TOTAL = 855 (ACRES) XKSAT = 0.29 %ROCK= 0.00

DTHETA		PSIF
Dry =	0.35	= 3.71
Normal =	0.25	
Wet =	0	

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
855	DESERT	100.00	DRY	23.00	0.00	0.00	0.35	0.350
855	=TOTAL AREA OK		AVERAGE =	23.00	TOTAL = % =	0.00 0.00	AVG. =	0.350

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. = 0.331

IMPERVIOUS AREA: URBAN @ 70 % effective = 0.00
ROCK OUTCROP @ 70 % effective = 0.00
% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S200	1.34	0.350	0.350	3.71	0.331	0.00	80.7

LOSS PARAMETERS FOR SUBBASIN: S255

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
GXA	53	24.09	0.23	-0.154	0.00	0.00
RBA	34	15.45	0.26	-0.090	0.00	0.00
PEA	34	15.45	0.37	-0.067	0.00	0.00
RHB	31	14.09	0.23	-0.090	0.00	0.00
AE	26	11.82	0.39	-0.048	0.00	0.00
LCA	21	9.55	0.25	-0.057	0.00	0.00
GXB	21	9.55	0.24	-0.059	0.00	0.00
TOTAL =	220 (ACRES)		XKSAT =	0.27	%ROCK=	0.00

DTHETA		PSIF	
Dry =	0.35	=	3.61
Normal =	0.25		
Wet =	0		

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
220	DESERT	100.00	DRY	20.00	0.00	0.00	0.35	0.350
220	=TOTAL AREA OK		AVERAGE =	20.00	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 = 0.350

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.300

IMPERVIOUS AREA:

URBAN @	70 %	effective =	0.00
ROCK OUTCROP @	70 %	effective =	0.00
	% EFFECTIVE IMP. =		0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S255	0.34	0.350	0.350	3.61	0.300	0.00	35.6

LOSS PARAMETERS FOR SUBBASIN: S280

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
RHB	394	26.75	0.23	-0.171	0.00	0.00
GWD	189	12.83	0.35	-0.059	0.00	0.00
RPE	157	10.66	0.29	-0.057	0.00	0.00
GH	105	7.13	0.24	-0.044	0.00	0.00
GGA	88	5.97	0.25	-0.036	0.00	0.00
ABA	85	5.77	0.38	-0.024	0.00	0.00
HRB	79	4.75	0.12	-0.044	0.00	0.00
HAB	73	4.96	0.07	-0.057	0.00	0.00
LD	67	4.55	0.25	-0.027	0.00	0.00
HLC	56	3.80	0.14	-0.032	0.00	0.00
AC	52	3.53	0.39	-0.014	0.00	0.00
ET	35	2.38	0.25	-0.014	0.00	0.00
VB	27	1.22	0.12	-0.011	0.00	0.00
CM	22	1.49	0.26	-0.009	0.00	0.00
CG	14	0.95	0.24	-0.006	0.00	0.00
LB	12	0.81	0.4	-0.003	0.00	0.00
GE	5	0.34	0.26	-0.002	0.00	0.00
HM	4	0.27	0.15	-0.002	0.00	0.00

TOTAL = 1473 (ACRES) XKSAT = 0.24 %ROCK= 0.00

DTHETA

Dry = 0.36
Normal = 0.25
Wet = 0

PSIF

= 3.81

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
1473	DESERT	100.00	DRY	22.00	0.00	0.00	0.35	0.350
1473	=TOTAL AREA OK		AVERAGE =	22.00	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 = 0.360

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.272

IMPERVIOUS AREA: URBAN @ 70 % effective = 0.00
ROCK OUTCROP @ 70 % effective = 0.00
% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S280	2.30	0.350	0.360	3.81	0.272	0.00	76.3

LOSS PARAMETERS FOR SUBBASIN: S310

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
GYD	398	48.60	0.26	-0.284	0.00	0.00
AC	94	11.48	0.39	-0.047	0.00	0.00
CK	81	9.89	0.3	-0.052	0.00	0.00
GH	77	9.40	0.24	-0.058	0.00	0.00
HAB	59	7.20	0.07	-0.083	0.00	0.00
HLC	35	4.27	0.14	-0.036	0.00	0.00
CG	32	3.91	0.24	-0.024	0.00	0.00
RAA	24	2.93	0.39	-0.012	0.00	0.00
CM	13	1.59	0.26	-0.009	0.00	0.00
VB	6	0.73	0.39	-0.003	0.00	0.00

TOTAL = 819 (ACRES) XKSAT = 0.25 %ROCK= 0.00

DTHETA		PSIF
Dry =	0.35	= 3.5
Normal =	0.25	
Wet =	0	

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
819	DESERT	100.00	DRY	22.00	0.00	0.00	0.35	0.350
819	=TOTAL AREA OK		AVERAGE =	22.00	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 = 0.350

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.283

IMPERVIOUS AREA: URBAN @ 70 % effective = 0.00
ROCK OUTCROP @ 70 % effective = 0.00

% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S310	1.28	0.350	0.350	3.50	0.283	0.00	68.2

LOSS PARAMETERS FOR SUBBASIN: S340

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
GYD	221	74.92	0.26	-0.438	0.00	0.00
AC	50	16.95	0.39	-0.069	0.00	0.00
HLC	14	4.75	0.14	-0.041	0.00	0.00
GWD	10	3.39	0.35	-0.015	0.00	0.00

TOTAL = 295 (ACRES) XKSAT = 0.27 %ROCK= 0.00

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 3.61

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
295	DESERT	100.00	DRY	20.00	0.00	0.00	0.35	0.350
295	=TOTAL AREA OK		AVERAGE =	20.00	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 = 0.350

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.300

IMPERVIOUS AREA: URBAN @ 70 % effective = 0.00
ROCK OUTCROP @ 70 % effective = 0.00

% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S340	0.46	0.350	0.350	3.61	0.300	0.00	37.3

LOSS PARAMETERS FOR SUBBASIN: S370

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
GGA	44	22.45	0.25	-0.135	0.00	0.00
ABA	44	22.45	0.38	-0.094	0.00	0.00
PRB	42	21.43	0.28	-0.118	0.00	0.00
GYD	35	17.86	0.26	-0.104	0.00	0.00
GH	31	15.82	0.24	-0.098	0.00	0.00

TOTAL = 196 (ACRES) XKSAT = 0.28 %ROCK= 0.00

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0.

PSIF

= 3.66

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
122	DESERT	62.24	DRY	25.00	0.00	0.00	0.35	0.218
74	ROW CROP	37.76	WET	60.00	0.00	0.00	0.50	0.189
196	=TOTAL AREA OK		AVERAGE =	38.21	TOTAL =	0.00	AVG. =	0.407
					% =	0.00		

PERCENT OF SUBBASIN DRY = 62.24 %
NORMAL = 0.00 %
WET = 37.76 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.218

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.367

IMPERVIOUS AREA: URBAN @ 70 % effective = 0.00
ROCK OUTCROP @ 70 % effective = 0.00

% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S370	0.31	0.407	0.218	3.66	0.367	0.00	46.8

LOSS PARAMETERS FOR SUBBASIN: S390

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
GYD	240	20.85	0.26	-0.122	0.00	0.00
AC	213	18.51	0.39	-0.076	0.00	0.00
PRB	116	10.08	0.28	-0.056	0.00	0.00
PEA	73	6.34	0.37	-0.027	0.00	0.00
CH	61	5.30	0.24	-0.033	0.00	0.00
ABA	61	5.30	0.38	-0.022	0.00	0.00
VB	54	4.69	0.39	-0.019	0.00	0.00
HAB	52	4.52	0.07	-0.052	0.00	0.00
RHB	49	4.26	0.23	-0.027	0.00	0.00
CM	46	4.00	0.26	-0.023	0.00	0.00
RAA	26	2.26	0.39	-0.009	0.00	0.00
LCA	25	2.17	0.25	-0.013	0.00	0.00
GH	22	1.91	0.24	-0.012	0.00	0.00
LB	22	1.91	0.4	-0.008	0.00	0.00
GWD	18	1.56	0.35	-0.007	0.00	0.00
LD	17	1.48	0.25	-0.009	0.00	0.00
GXA	15	1.30	0.23	-0.008	0.00	0.00
PB	11	0.96	0.38	-0.004	0.00	0.00
CP	10	0.87	0.4	-0.003	0.00	0.00
CG	10	0.87	0.24	-0.005	0.00	0.00
VA	5	0.43	0.39	-0.002	0.00	0.00
AL	4	0.35	0.4	-0.001	0.00	0.00
PT	1	0.09	0.4	-0.000	0.00	0.00

TOTAL = 1151 (ACRES) XKSAT = 0.29 %ROCK= 0.00

DTHETA		PSIF	
Dry =	0.35	=	3.71
Normal =	0.25		
Wet =	0		

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
926	DESERT	80.45	DRY	22.00	0.00	0.00	0.35	0.282
225	ROW CROP	19.55	WET	60.00	0.00	0.00	0.50	0.098
1151	=TOTAL AREA OK		AVERAGE =	29.43	TOTAL =	0.00	AVG. =	0.379
					% =	0.00		

PERCENT OF SUBBASIN DRY = 80.45 %
NORMAL = 0.00 %
WET = 19.55 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.282

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.352

IMPERVIOUS AREA: URBAN @ 70 % effective = 0.00
ROCK OUTCROP @ 70 % effective = 0.00
% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S390	1.80	0.379	0.282	3.71	0.352	0.00	110.1

LOSS PARAMETERS FOR SUBBASIN: S420

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
GYD	541	27.87	0.26	-0.163	0.00	0.00
PRB	268	13.81	0.28	-0.076	0.00	0.00
LCA	253	13.03	0.25	-0.078	0.00	0.00
CV	204	10.51	0.39	-0.043	0.00	0.00
AM	180	9.27	0.39	-0.038	0.00	0.00
GGA	176	9.07	0.25	-0.055	0.00	0.00
GH	143	7.37	0.24	-0.046	0.00	0.00
PEA	71	3.66	0.37	-0.016	0.00	0.00
AC	37	1.91	0.39	-0.008	0.00	0.00
CM	27	1.39	0.26	-0.008	0.00	0.00
HLC	24	1.24	0.14	-0.011	0.00	0.00
CH	12	0.62	0.24	-0.004	0.00	0.00
VB	3	0.15	0.39	-0.001	0.00	0.00
PT	2	0.10	0.4	-0.000	0.00	0.00

TOTAL = 1941 (ACRES) XKSAT = 0.28 %ROCK= 0.00

DTHETA		PSIF	
Dry =	0.35	=	3.66
Normal =	0.25		
Wet =	0		

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
1941	DESERT	100.00	DRY	22.00	0.00	0.00	0.35	0.350
1941	=TOTAL AREA OK		AVERAGE =	22.00	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 = 0.350

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.317

IMPERVIOUS AREA:

URBAN @	70	% effective =	0.00
ROCK OUTCROP @	70	% effective =	0.00
		% EFFECTIVE IMP. =	0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S420	3.03	0.350	0.350	3.66	0.317	0.00	83.9

LOSS PARAMETERS FOR SUBBASIN: S445

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
PT	393	68.59	0.4	-0.273	0.00	0.00
PRB	67	11.69	0.28	-0.065	0.00	0.00
CO	49	8.55	0.29	-0.046	20.00	1.71
GGA	21	3.66	0.25	-0.022	0.00	0.00
CA2	18	3.14	0.38	-0.013	0.00	0.00
GYD	11	1.92	0.26	-0.011	0.00	0.00
RS	8	1.40	0.4	-0.006	65.00	0.91
GM	6	1.05	0.29	-0.006	0.00	0.00

TOTAL = 573 (ACRES) XKSAT = 0.36 %ROCK= 2.62

DTHETA		PSIF	
Dry =	0.35	=	4.08
Normal =	0.25		
Wet =	0		

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
573	DESERT	100.00	DRY	20.00	0.00	0.00	0.29	0.290
573	=TOTAL AREA OK		AVERAGE =	20.00	TOTAL =	0.00	AVG. =	0.290
					% =	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. = 0.400

IMPERVIOUS AREA:

URBAN @	70 %	effective =	0.00
ROCK OUTCROP @	70 %	effective =	1.83
	% EFFECTIVE IMP. =		1.83

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S445	0.90	0.290	0.350	4.08	0.400	1.83	47.3

LOSS PARAMETERS FOR SUBBASIN: S480

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
PT	84	46.93	0.4	-0.187	0.00	0.00
GGA	39	21.79	0.25	-0.131	0.00	0.00
CO	19	10.61	0.29	-0.057	20.00	2.12
CA2	17	9.50	0.38	-0.040	0.00	0.00
GH	11	6.15	0.24	-0.038	0.00	0.00
ABA	9	5.03	0.38	-0.021	0.00	0.00

TOTAL = 179 (ACRES) XKSAT = 0.34 %ROCK= 2.12

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 3.98

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
179	DESERT	100.00	DRY	22.00	0.00	0.00	0.35	0.350
179	=TOTAL AREA OK		AVERAGE =	22.00	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 = 0.350

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.385

IMPERVIOUS AREA: URBAN @ 70 % effective = 0.00
ROCK OUTCROP @ 70 % effective = 1.49

% EFFECTIVE IMP. = 1.49

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S480	0.28	0.350	0.350	3.98	0.385	1.49	28.1

LOSS PARAMETERS FOR SUBBASIN: S505

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
PRB	77	79.38	0.28	-0.439	0.00	0.00
GYD	20	20.62	0.26	-0.121	0.00	0.00
TOTAL =	97 (ACRES)		XKSAT =	0.28	%ROCK=	0.00

DTHETA		PSIF
Dry =	0.35	= 3.66
Normal =	0.25	
Wet =	0	

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
65	DESERT	67.01	DRY	30.00	0.00	0.00	0.35	0.235
32	ROW CROP	32.99	WET	60.00	0.00	0.00	0.50	0.165
97	=TOTAL AREA OK		AVERAGE =	39.90	TOTAL =	0.00	AVG. =	0.399
					% =	0.00		

PERCENT OF SUBBASIN DRY = 67.01 %
NORMAL = 0.00 %
WET = 32.99 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.235

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.372

IMPERVIOUS AREA: URBAN @ 70 % effective = 0.00
ROCK OUTCROP @ 70 % effective = 0.00
% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S505	0.15	0.399	0.235	3.66	0.372	0.00	32.6

LOSS PARAMETERS FOR SUBBASIN: S515

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
PT	152	92.12	0.4	-0.367	0.00	0.00
CO	13	7.88	0.29	-0.042	20.00	1.58
TOTAL =	165 (ACRES)		XKSAT =	0.39	%ROCK=	1.58

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

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
165	DESERT	100.00	DRY	20.00	0.00	0.00	0.29	0.290
165	=TOTAL AREA OK		AVERAGE =	20.00	TOTAL =	0.00	AVG. =	0.290
					% =	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. = 0.433

IMPERVIOUS AREA:

URBAN @	70 %	effective =	0.00
ROCK OUTCROP @	70 %	effective =	1.10
	% EFFECTIVE IMP. =		1.10

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S515	0.26	0.290	0.350	4.24	0.433	1.10	20.8

LOSS PARAMETERS FOR SUBBASIN: S521

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
PRB	48	47.06	0.28	-0.260	0.00	0.00
PT	35	34.31	0.4	-0.137	0.00	0.00
CA2	16	15.69	0.38	-0.066	0.00	0.00
GGA	3	2.94	0.25	-0.018	0.00	0.00

TOTAL = 102 (ACRES) XKSAT = 0.33 %ROCK= 0.00

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 3.92

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
102	DESERT	100.00	DRY	28.00	0.00	0.00	0.35	0.350
102	=TOTAL AREA OK		AVERAGE =	28.00	TOTAL = % =	0.00 0.00	AVG. =	0.350

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. = 0.395

IMPERVIOUS AREA: URBAN @ 70 % effective = 0.00
ROCK OUTCROP @ 70 % effective = 0.00
% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S521	0.16	0.350	0.350	3.92	0.395	0.00	24.1

LOSS PARAMETERS FOR SUBBASIN: S530

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
GXB	102	50.25	0.24	-0.311	0.00	0.00
AL	39	19.21	0.4	-0.076	0.00	0.00
PRB	36	17.73	0.28	-0.098	0.00	0.00
GYD	11	5.42	0.26	-0.032	0.00	0.00
GH	10	4.93	0.24	-0.031	0.00	0.00
GXA	5	2.46	0.23	-0.016	0.00	0.00

TOTAL = 203 (ACRES) XKSAT = 0.27 %ROCK= 0.00

DTHETA		PSIF	
Dry =	0.35	=	3.61
Normal =	0.25		
Wet =	0		

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
195	DESERT	96.06	DRY	28.00	0.00	0.00	0.35	0.336
8	ROW CROP	3.94	WET	60.00	0.00	0.00	0.50	0.020
203	=TOTAL AREA OK		AVERAGE =	29.26	TOTAL =	0.00	AVG. =	0.356
					% =	0.00		

PERCENT OF SUBBASIN DRY = 96.06 %
NORMAL = 0.00 %
WET = 3.94 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.336

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.327

IMPERVIOUS AREA: URBAN @ 70 % effective = 0.00
ROCK OUTCROP @ 70 % effective = 0.00
% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S530	0.32	0.356	0.336	3.61	0.327	0.00	37.2

LOSS PARAMETERS FOR SUBBASIN: S545

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
CM	283	28.85	0.26	-0.169	0.00	0.00
HAB	128	13.05	0.07	-0.151	0.00	0.00
CK	124	12.64	0.3	-0.066	0.00	0.00
RS	104	10.60	0.4	-0.042	65.00	6.89
GM	60	6.12	0.29	-0.033	0.00	0.00
AC	54	5.50	0.39	-0.023	0.00	0.00
DN	46	4.69	1.2	0.004	0.00	0.00
PRB	45	4.59	0.28	-0.025	0.00	0.00
CO	43	4.38	0.29	-0.024	20.00	0.88
GXB	31	3.16	0.24	-0.020	0.00	0.00
GH	17	1.73	0.24	-0.011	0.00	0.00
GYD	17	1.73	0.26	-0.010	0.00	0.00
CH	16	1.63	0.24	-0.010	0.00	0.00
LB	9	0.92	0.4	-0.004	0.00	0.00
LCA	4	0.41	0.25	-0.002	0.00	0.00
TOTAL =	981 (ACRES)		XKSAT =	0.26	%ROCK=	7.77

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 3.55

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
981	DESERT	100.00	DRY	22.00	0.00	0.00	0.34	0.340
981	=TOTAL AREA OK		AVERAGE =	22.00	TOTAL =	0.00	AVG. =	0.340
					% =	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. = 0.294

IMPERVIOUS AREA:

URBAN @ 70 % effective = 0.00
ROCK OUTCROP @ 70 % effective = 5.44

% EFFECTIVE IMP. = 5.44

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S545	1.53	0.340	0.350	3.55	0.294	5.44	66.8

LOSS PARAMETERS FOR SUBBASIN: S570

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
HAB	127	27.61	0.07	-0.319	0.00	0.00
GM	96	20.87	0.29	-0.112	0.00	0.00
HLC	94	20.43	0.14	-0.174	0.00	0.00
GXB	74	16.09	0.24	-0.100	0.00	0.00
CH	40	8.70	0.24	-0.054	0.00	0.00
DN	27	5.87	1.2	0.005	0.00	0.00
GYD	2	0.43	0.26	-0.003	0.00	0.00
TOTAL =	460 (ACRES)		XKSAT =	0.17	%ROCK=	0.00

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

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
460	DESERT	100.00	DRY	30.00	0.00	0.00	0.35	0.350
460	=TOTAL AREA OK		AVERAGE =	30.00	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 = 0.390

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.207

IMPERVIOUS AREA:

URBAN @	70 % effective =	0.00
ROCK OUTCROP @	70 % effective =	0.00
	% EFFECTIVE IMP. =	0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S570	0.72	0.350	0.390	5.98	0.207	0.00	52.8

LOSS PARAMETERS FOR SUBBASIN: S585

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
HLC	266	33.38	0.14	-0.285	0.00	0.00
CH	251	31.49	0.24	-0.195	0.00	0.00
GM	100	12.55	0.29	-0.067	0.00	0.00
CG	60	7.53	0.24	-0.047	0.00	0.00
HAC	47	5.90	0.05	-0.077	0.00	0.00
GYO	44	5.52	0.26	-0.032	0.00	0.00
DN	22	2.76	1.2	0.002	0.00	0.00
LB	5	0.63	0.4	-0.002	0.00	0.00
CP	2	0.25	0.4	-0.001	0.00	0.00
TOTAL =	797 (ACRES)		XKSAT =	0.20	%ROCK=	0.00

DTHETA

Dry = 0.38
Normal = 0.25
Wet = 0

PSIF

= 5.05

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
797	DESERT	100.00	DRY	30.00	0.00	0.00	0.35	0.350
797	=TOTAL AREA OK		AVERAGE =	30.00	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 = 0.380

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.244

IMPERVIOUS AREA: URBAN @ 70 % effective = 0.00
ROCK OUTCROP @ 70 % effective = 0.00
% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S585	1.25	0.350	0.380	5.05	0.244	0.00	72.4

LOSS PARAMETERS FOR SUBBASIN: S600

Soil Survey Used CENTRAL

XKSAT

Map Unit	AREA (ACRES)	% Area	XKSAT	log(XKSAT) *(% Area)	% ROCK OUTCROP	% Area * %R.O.
GYD	99	72.26	0.26	-0.423	0.00	0.00
GXB	20	14.60	0.24	-0.090	0.00	0.00
GGA	14	10.22	0.25	-0.062	0.00	0.00
CM	2	1.46	0.26	-0.009	0.00	0.00
GF	2	1.46	0.24	-0.009	0.00	0.00

TOTAL = 137 (ACRES) XKSAT = 0.26 %ROCK= 0.00

DTHETA

Dry = 0.35
Normal = 0.25
Wet = 0

PSIF

= 3.55

LAND USE

AREA (ACRES)	LAND USE type	% Area	DTHETA condition	% veg. cover	% Imp. Inc.ROW	ImpArea (ACRES)	IA in.	Wgtd. IA in.
137	DESERT	100.00	DRY	30.00	0.00	0.00	0.35	0.350
137	=TOTAL AREA OK		AVERAGE =	30.00	TOTAL = % =	0.00 0.00	AVG. =	0.350

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. = 0.317

IMPERVIOUS AREA: URBAN @ 70 % effective = 0.00
ROCK OUTCROP @ 70 % effective = 0.00
% EFFECTIVE IMP. = 0.00

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	AREA sq.mi.	IA inches	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG min
S600	0.21	0.350	0.350	3.55	0.317	0.00	16.2

Section II LAG TIME ESTIMATION

Table 6 Lag Time Input Parameters

Table 7 Lag Time Calculations

TABLE 6

LAG TIME INPUT PARAMETERS

SUB-BASIN I.D.	Kn	L FLOW PATH LENGTH (Mi.)	Lca LENGTH TO CENTROID (Mi.)	ELEVATION AT TOP OF WATERSHED	ELEVATION AT BOTTOM OF WATERSHED	SLOPE (Ft./Mi.)
S70	.060	4.09	2.46	1100	988	27
S95	.060	0.89	0.44	1115	1092	26
S110	.060	3.75	2.08	1101	989	30
S130	.065	1.38	0.76	1000	963	27
S136	.062	3.01	1.40	1104	1007	32
S140	.062	2.78	1.23	1053	963	32
S155	.065	1.86	0.76	1006	937	37
S160	.065	3.43	1.55	1033	937	27
S175	.068	1.42	0.68	971	908	44
S185	.068	2.36	1.14	982	908	31
S200	.068	2.58	1.36	941	853	34
S235	.060	1.40	0.49	1140	1097	31
S255	.060	1.21	0.46	1132	1092	33
S265	.060	3.30	1.63	1097	1002	29
S280	.065	2.69	1.17	1030	953	29
S295	.068	4.05	2.05	990	878	28
S310	.068	2.27	0.85	910	853	25
S330	.070	1.70	0.76	870	823	28
S340	.068	1.14	0.47	912	859	46
S350	.068	1.29	0.66	874	823	40
S370	.070	1.14	0.66	836	800	32
S385	.065	3.79	1.80	1030	908	32
S390	.065	4.17	2.08	1040	908	32
S400	.065	1.82	0.80	987	921	36
S420	.065	3.03	1.42	951	851	33
S435	.070	2.84	1.14	940	822	42
S445	.073	1.70	0.66	965	822	84

TABLE 6

LAG TIME INPUT PARAMETERS

SUB-BASIN I.D.	Kn	L FLOW PATH LENGTH (Mi.)	Lca LENGTH TO CENTROID (Mi.)	ELEVATION AT TOP OF WATERSHED	ELEVATION AT BOTTOM OF WATERSHED	SLOPE (Ft./Mi.)
S455	.073	1.50	0.66	980	808	115
S480	.073	0.89	0.38	906	800	119
S490	.068	1.25	0.49	1172	875	238
S505	.078	0.89	0.27	835	800	39
S508	.078	1.40	0.66	890	788	73
S515	.073	0.74	0.27	1050	901	201
S518	.073	1.29	0.53	911	789	95
S520	.075	0.63	0.32	858	789	110
S525	.073	1.00	0.40	840	786	54
S530	.075	1.08	0.40	841	786	51
S535	.068	3.07	1.44	950	860	29
S545	.070	2.05	0.95	872	805	33
S555	.068	2.69	1.33	889	805	31
S570	.080	1.42	0.55	838	786	37
S580	.073	0.40	0.10	815	789	65
S585	.075	2.20	0.94	862	785	35
S590	.075	0.83	0.36	825	784	49
S600	.075	0.42	0.13	812	785	64

TABLE 7

LAG TIME CALCULATIONS FOR: LUKE WASH FIS

SUBBASIN	S-GRAPH SELECTED	24	Kh	L (miles)	Lca (miles)	S (ft/mile)	S^1/2	LAG (hours)	LAG (min.)
S70	V	24	0.06	4.09	2.46	27	5.20	1.851	111.1
S95	V	24	0.06	0.89	0.44	26	5.10	0.543	32.6
S110	V	24	0.06	3.75	2.08	30	5.48	1.647	98.8
S130	V	24	0.065	1.38	0.76	27	5.20	0.849	51.0
S136	V	24	0.062	3.01	1.4	32	5.66	1.330	79.8
S140	V	24	0.062	2.78	1.23	32	5.66	1.229	73.7
S155	V	24	0.065	1.86	0.76	37	6.08	0.896	53.8
S160	V	24	0.065	3.43	1.55	27	5.20	1.574	94.4
S175	V	24	0.068	1.42	0.68	44	6.63	0.785	47.1
S185	V	24	0.068	2.36	1.14	31	5.57	1.238	74.3
S200	V	24	0.068	2.58	1.36	34	5.83	1.346	80.7
S235	V	24	0.06	1.4	0.49	31	5.57	0.650	39.0
S255	V	24	0.06	1.21	0.46	33	5.74	0.593	35.6
S265	V	24	0.06	3.3	1.63	29	5.39	1.439	86.4
S280	V	24	0.065	2.69	1.17	29	5.39	1.272	76.3
S295	V	24	0.068	4.05	2.05	28	5.29	1.937	116.2
S310	V	24	0.068	2.27	0.85	25	5.00	1.137	68.2
S330	V	24	0.07	1.7	0.76	28	5.29	0.983	59.0
S340	V	24	0.068	1.14	0.47	46	6.78	0.622	37.3
S350	V	24	0.068	1.29	0.66	40	6.32	0.762	45.7
S370	V	24	0.07	1.14	0.66	32	5.66	0.781	46.8
S385	V	24	0.065	3.79	1.8	32	5.66	1.675	100.5
S390	V	24	0.065	4.17	2.08	32	5.66	1.835	110.1
S400	V	24	0.065	1.82	0.8	36	6.00	0.911	54.6
S420	V	24	0.065	3.03	1.42	33	5.74	1.398	83.9
S435	V	24	0.07	2.84	1.14	42	6.48	1.291	77.4
S445	V	24	0.073	1.7	0.66	84	9.17	0.789	47.3
S455	V	24	0.073	1.5	0.66	115	10.72	0.709	42.5
S480	V	24	0.073	0.89	0.38	119	10.91	0.468	28.1
S490	V	24	0.068	1.25	0.49	238	15.43	0.479	28.7
S505	V	24	0.078	0.89	0.27	39	6.24	0.543	32.6
S508	V	24	0.078	1.4	0.66	73	8.54	0.804	48.2
S515	V	24	0.073	0.74	0.27	201	14.18	0.347	20.8
S518	V	24	0.073	1.29	0.53	95	9.75	0.638	38.3
S521	V	24	0.075	0.63	0.32	110	10.49	0.401	24.1
S525	V	24	0.073	1	0.4	54	7.35	0.580	34.8
S530	V	24	0.075	1.08	0.4	51	7.14	0.620	37.2
S535	V	24	0.068	3.07	1.44	29	5.39	1.514	90.8
S545	V	24	0.07	2.05	0.95	33	5.74	1.114	66.8
S555	V	24	0.068	2.69	1.33	31	5.57	1.380	82.8
S570	V	24	0.08	1.42	0.55	37	6.08	0.880	52.8
S580	V	24	0.073	0.4	0.1	65	8.06	0.233	14.0
S585	V	24	0.075	2.2	0.94	35	5.92	1.207	72.4
S590	V	24	0.075	0.83	0.36	49	7.00	0.543	32.6
S600	V	24	0.075	0.42	0.13	64	8.00	0.271	16.2

Section III CHANNEL ROUTING PARAMETERS

Channel Routing Computation Sheets

Table 8 Routing Reach Physical Data

Table 9 Channel Routing/NSTPS Calculations

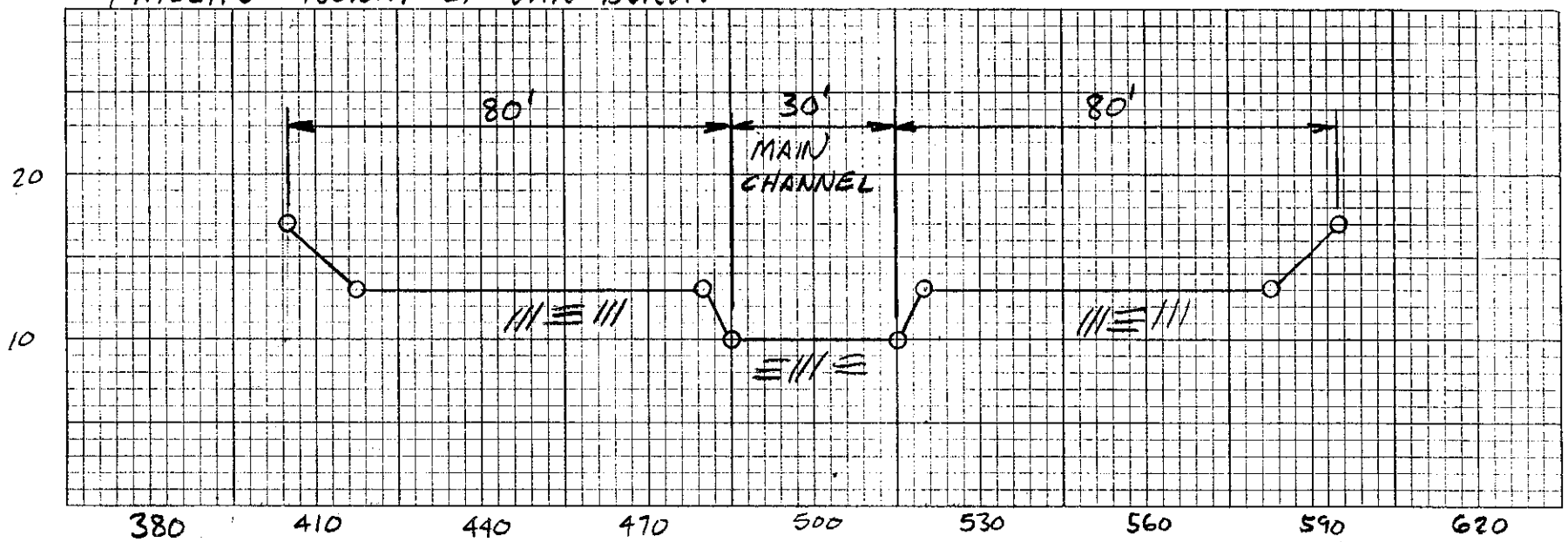
Table 10 Channel Routing Infiltration Loss Data

Channel Routing Infiltration Loss Sample Calculations

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 65

PHILLIPS NORTH OF VAN BUREN



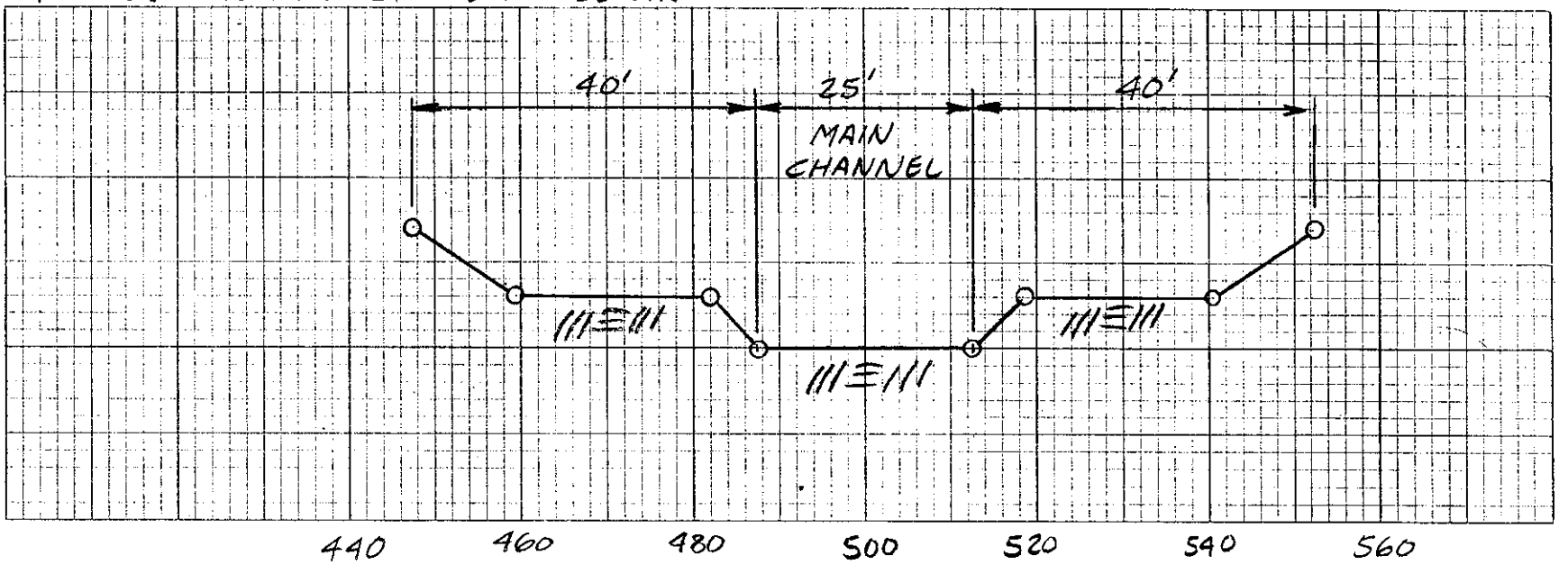
RL			0.39	10				
RS	3	Flow	-1					
RC	.060	.040	.060	7,700	0.00506'/1			
RX	405	417	479	485	515	521	583	595
RY	17	13	13	10	10	13	13	17

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 103

DICKEY NORTH OF VAN BUREN



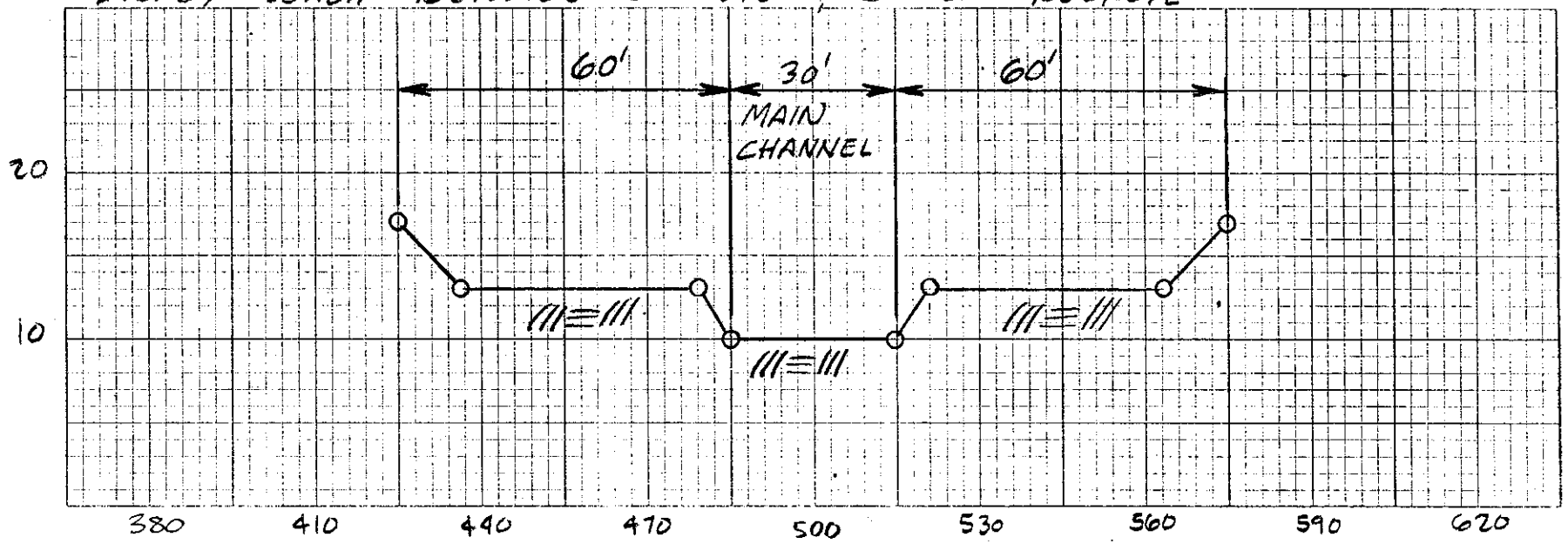
RL			0.40	10				
RS	5	Flow	-1					
RC	.060	.040	.060	6500	0.00462'/,			
RX	447.5	459.5	481.5	487.5	512.5	518.5	540.5	552.5
RY	17	13	13	10	10	13	13	17

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 108

DICKEY WASH BETWEEN BUCKEYE & LOWER BUCKEYE

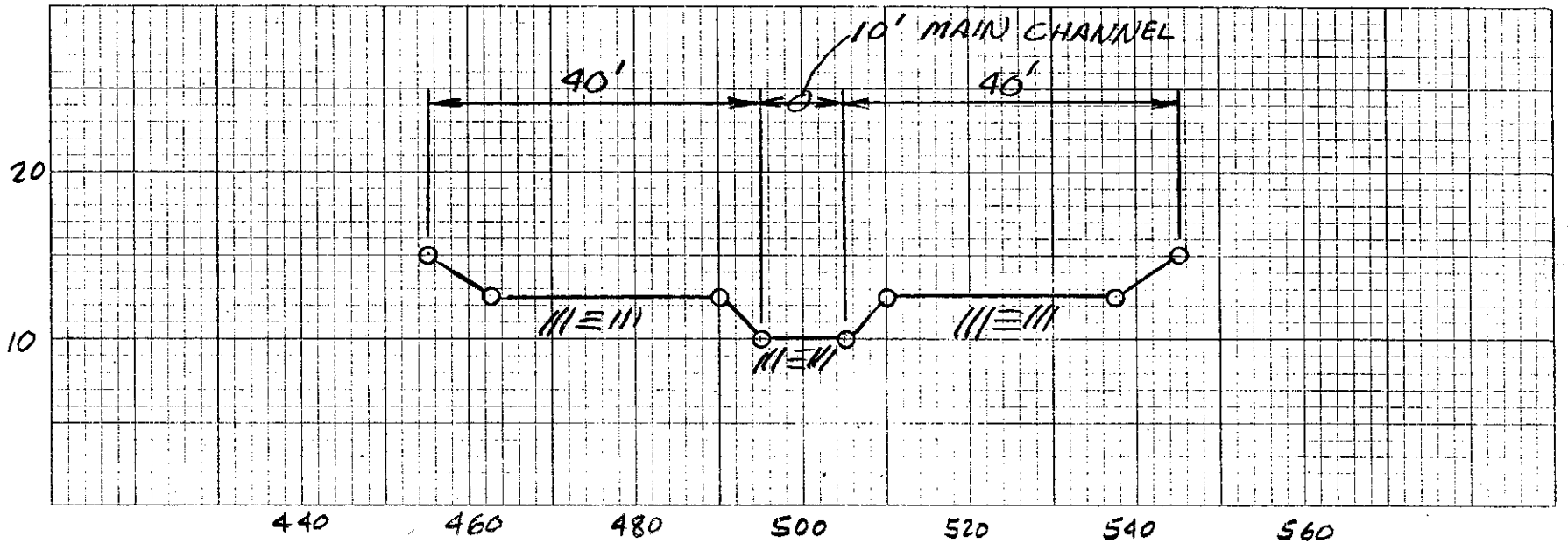


RL			0.40	10				
RS	7	Flow	-1					
RC	.060	.040	.060	6000	0.00433%			
RX	425	432	479	485	515	521	563	575
RY	17	13	13	10	10	13	13	17

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 138



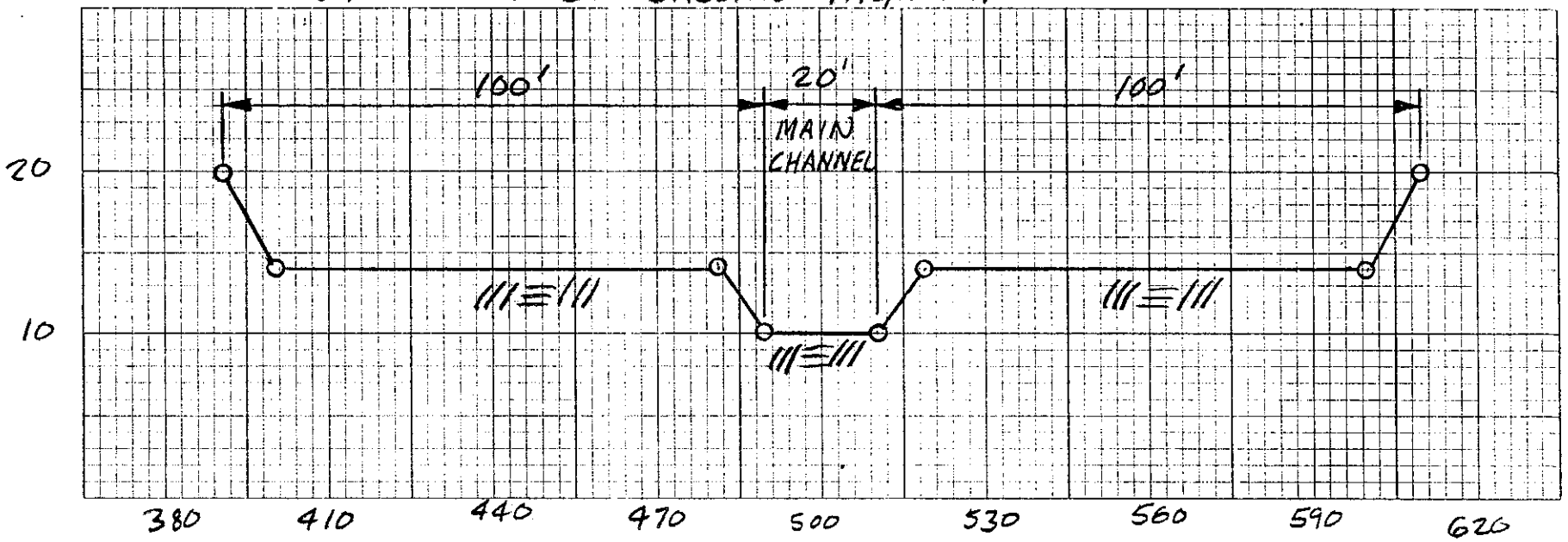
RL			0.40	10				
RS	5	Flow	-1					
RC	.065	.040	.065	8500	0.00518 1/1			
RX	455	462.5	490	495	505	510	537.5	545
RY	15	12.5	12.5	10	10	12.5	12.5	15

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 170

LUKE WASH SOUTH OF SALOME HIGHWAY



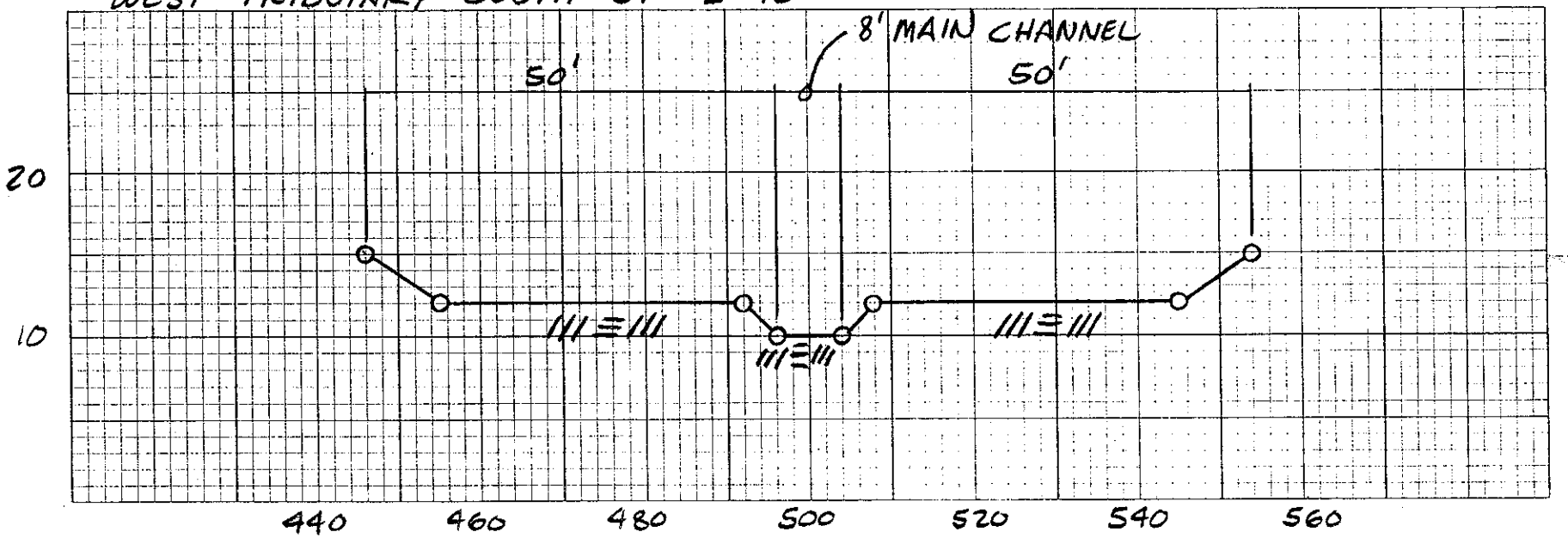
RL			0.40	10				
RS	3	Flow	-1					
RC	.070	.040	.070	5500	0.00527 1/1			
RX	390	402	482	490	510	518	598	610
RY	20	14	14	10	10	14	14	20

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 230

WEST TRIBUTARY SOUTH OF I-10



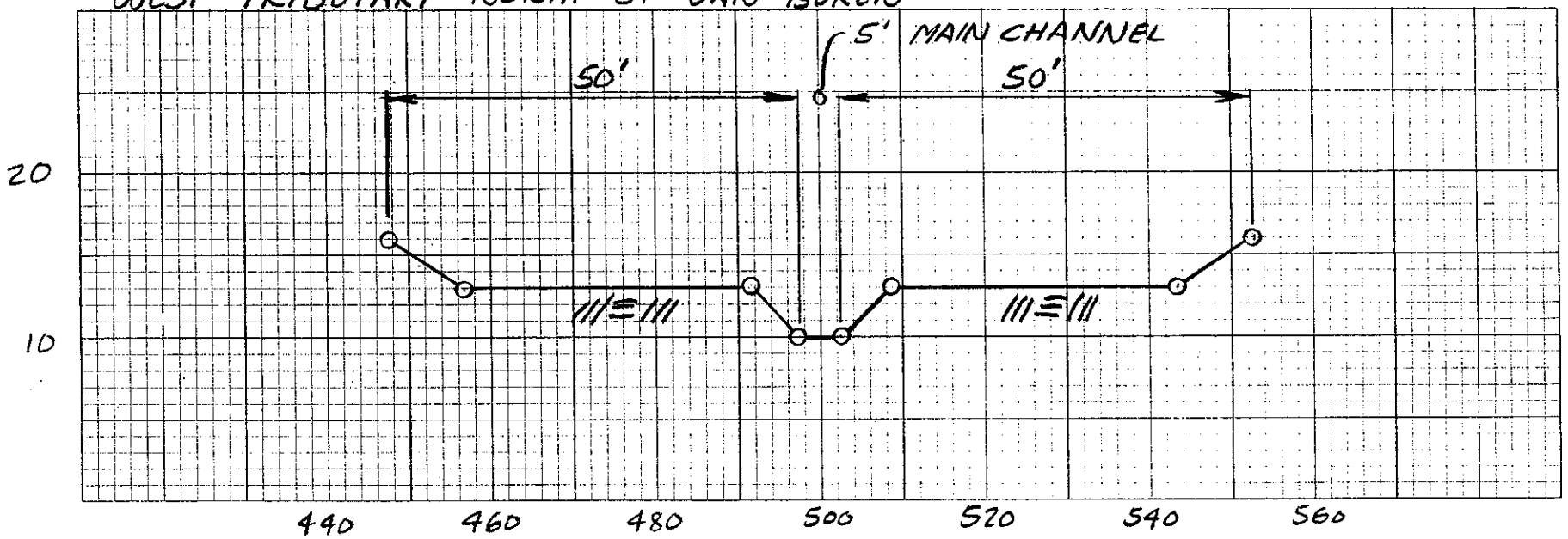
RL			0.38	10				
RS	3	Flow	-1					
RC	.060	.045	.060	4200	0.00429 1/1			
RX	446	455	492	496	504	508	545	554
RY	15	12	12	10	16	12	12	15

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 248

WEST TRIBUTARY NORTH OF VAN BUREN



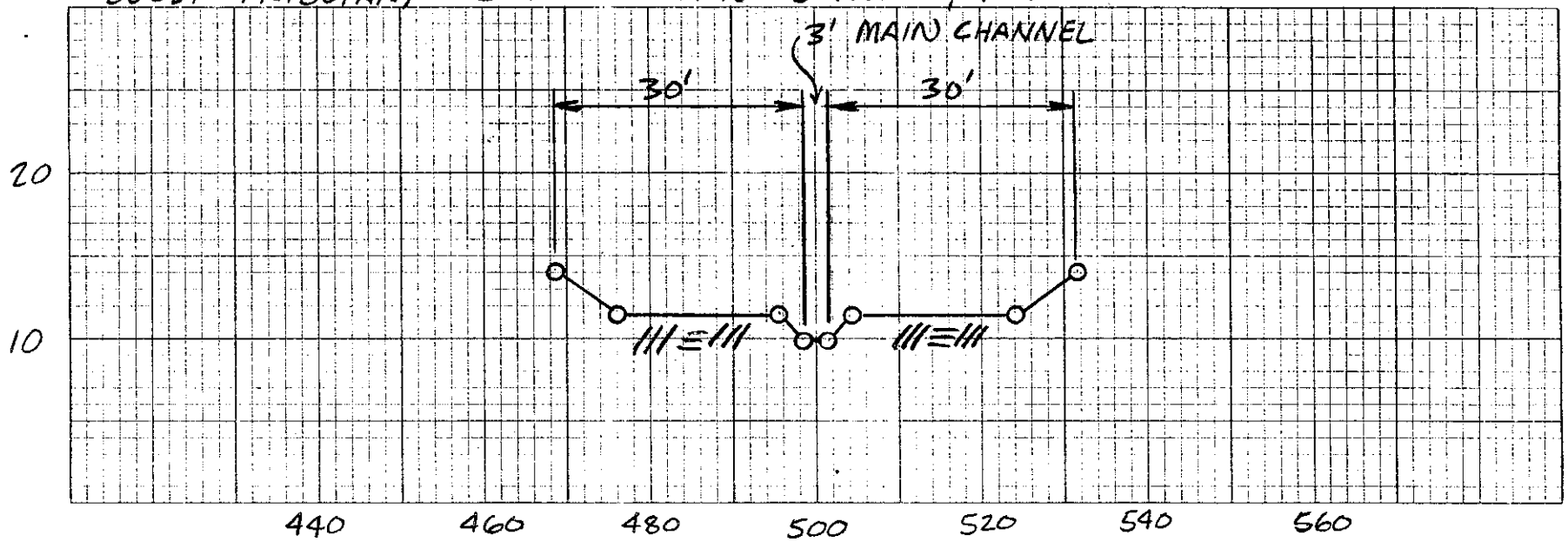
RL			0.38	10				
RS	3	Flow	-1					
RC	.060	.045	.060	5400	0.00611 1/1			
RX	447.5	456.5	491.5	497.5	502.5	508.5	543.5	552.5
RY	16	13	13	10	10	13	13	16

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 258

WEST TRIBUTARY BETWEEN VAN BUREN & I-10



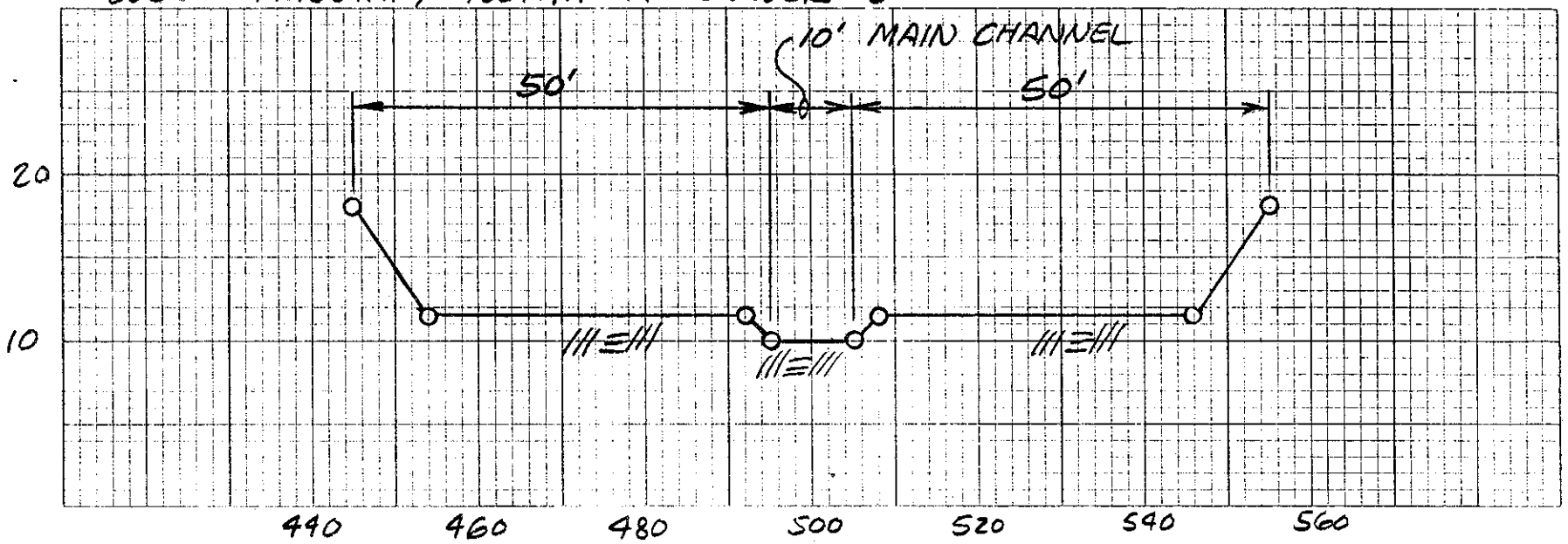
RL			0.25	10				
RS	9	Flow	-1					
RC	.060	.045	.060	8800	0.00602 1/1			
RX	468.5	476	495.5	498.5	501.5	504.5	524	531.5
RY	14	11.5	11.5	10	10	11.5	11.5	14

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 273

WEST TRIBUTARY NORTH OF LOWER BUCKEYE



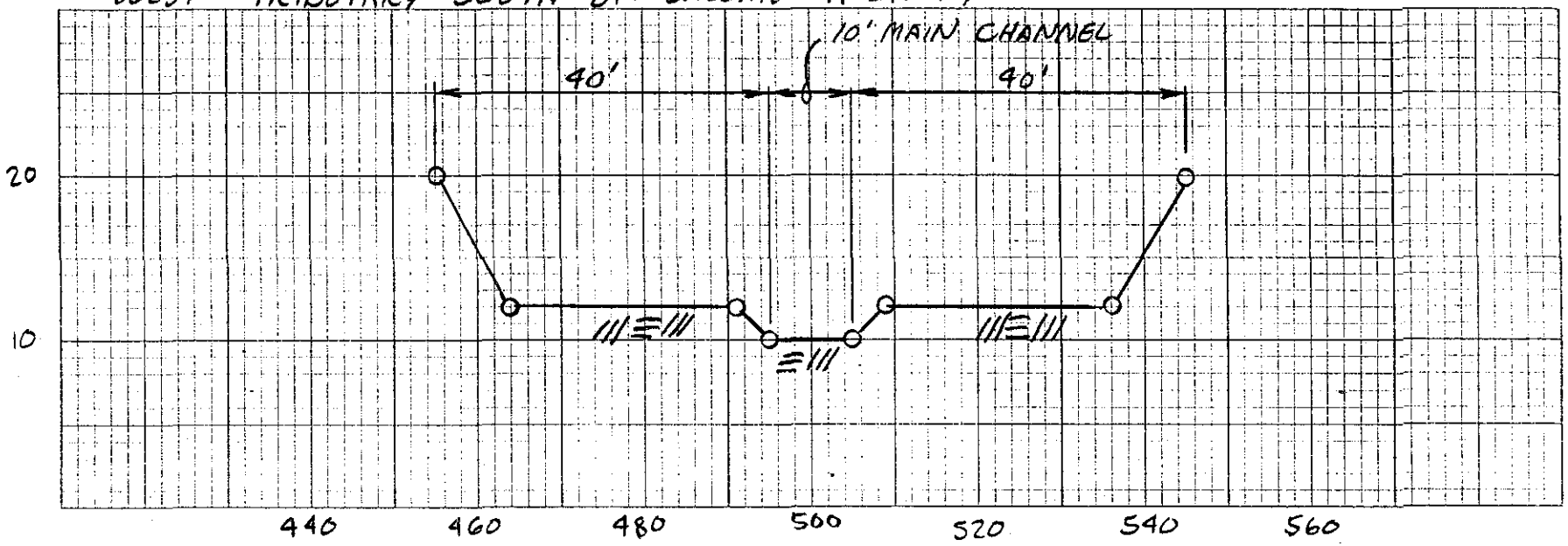
RL			0.25	10				
RS	1	Flow	-1					
RC	.065	.045	.065	3700	0.00459 1/1			
RX	445	454	492	495	505	508	546	555
RY	18	11.5	11.5	10	10	11.5	11.5	18

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 288

WEST TRIBUTARY SOUTH OF SALOME HIGHWAY



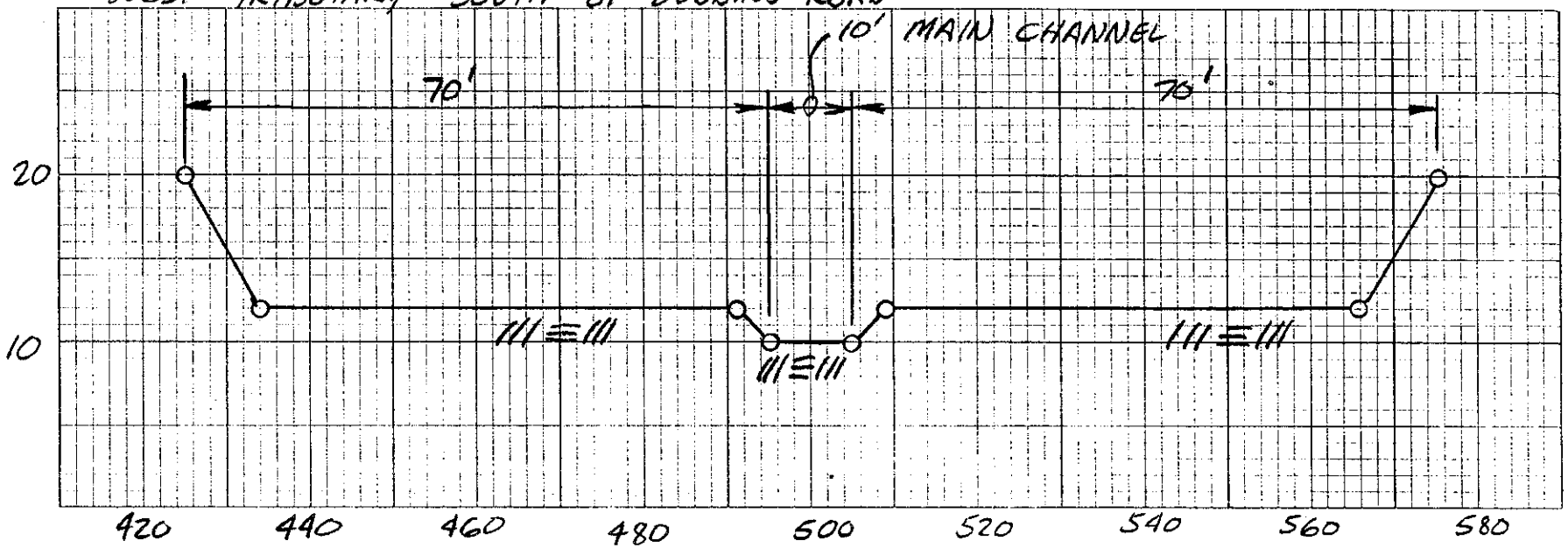
RL			0.24	10				
RS	6	Flow	-1					
RC	.070	.040	.070	11,000	0.00436'/'			
RX	455	464	491	495	505	509	536	545
RY	20	12	12	10	10	12	12	20

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 305

WEST TRIBUTARY SOUTH OF DOBBINS ROAD



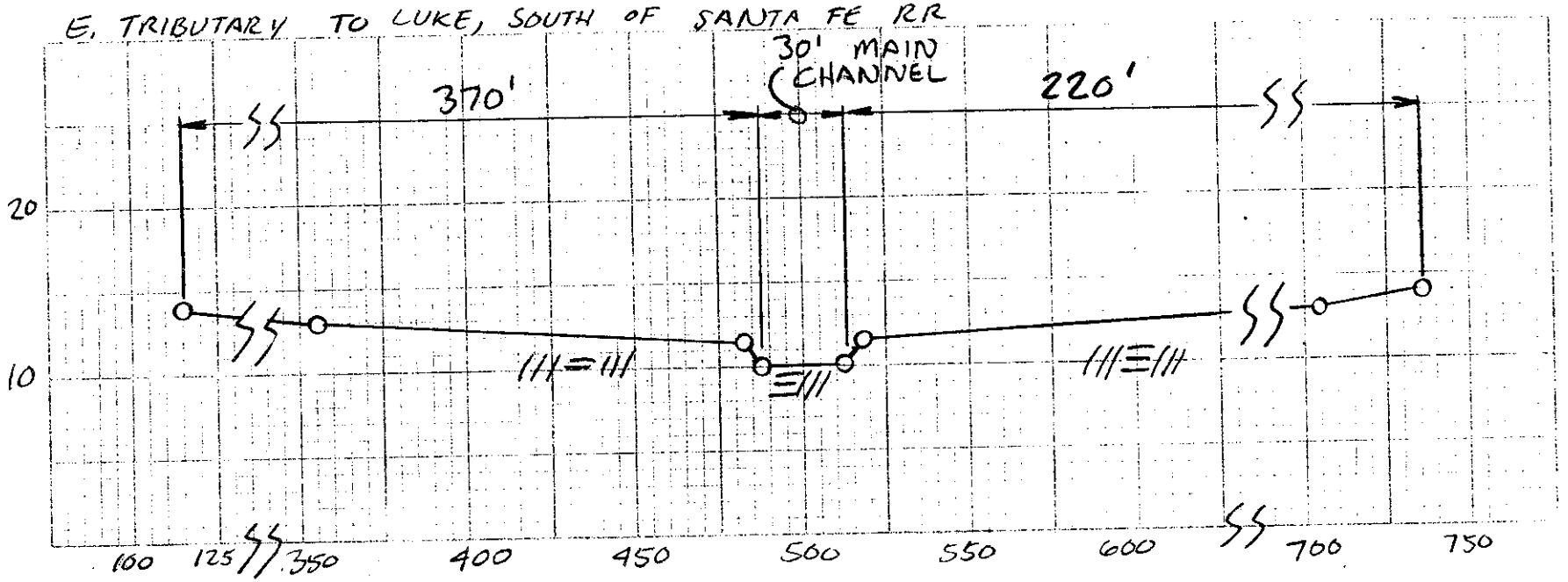
RL			0.29	10				
RS	3	Flow	-1					
RC	.070	.050	.070	6500	0.00385'/'			
RX	425	434	491	495	505	509	566	575
RY	20	12	12	10	10	12	12	20

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 345

E. TRIBUTARY TO LUKE, SOUTH OF SANTA FE RR



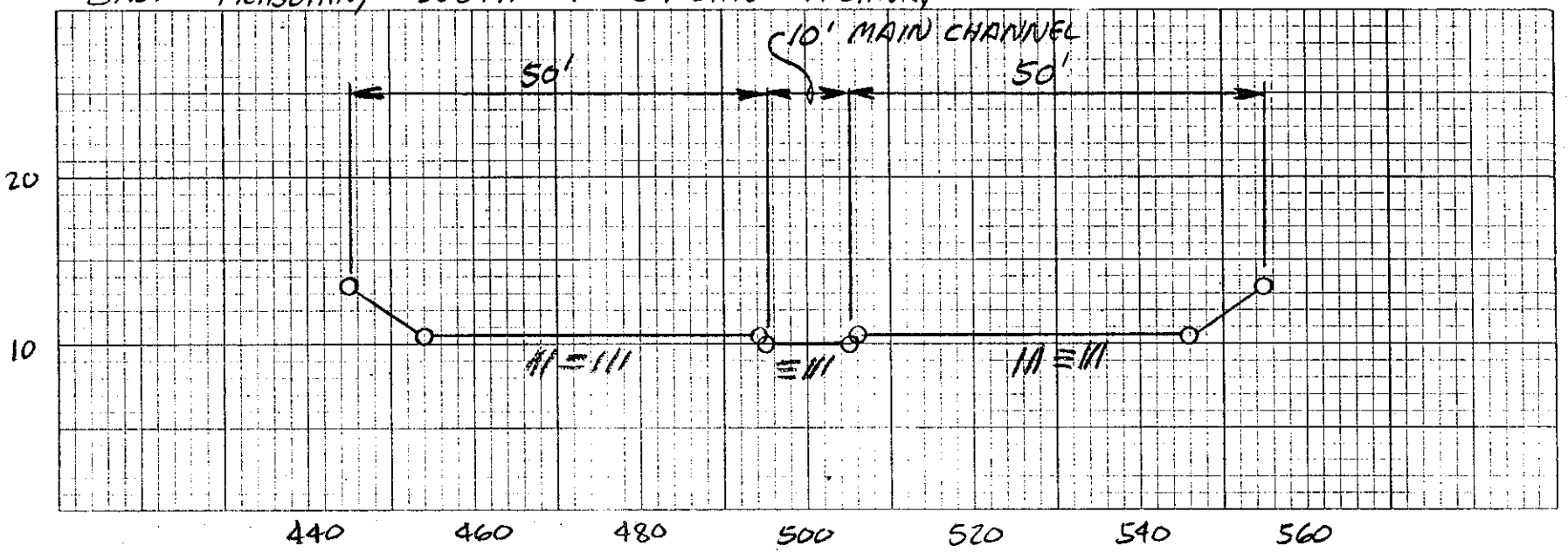
RL			0.35	10				
RS	9	Flow	-1					
RC	.070	.045	.070	6300	0.00571'			
RX	115	355	482	485	515	518	705	735
RY	14	13	11.5	10	10	11.5	13	14

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 405

EAST TRIBUTARY SOUTH OF SALOMÉ HIGHWAY



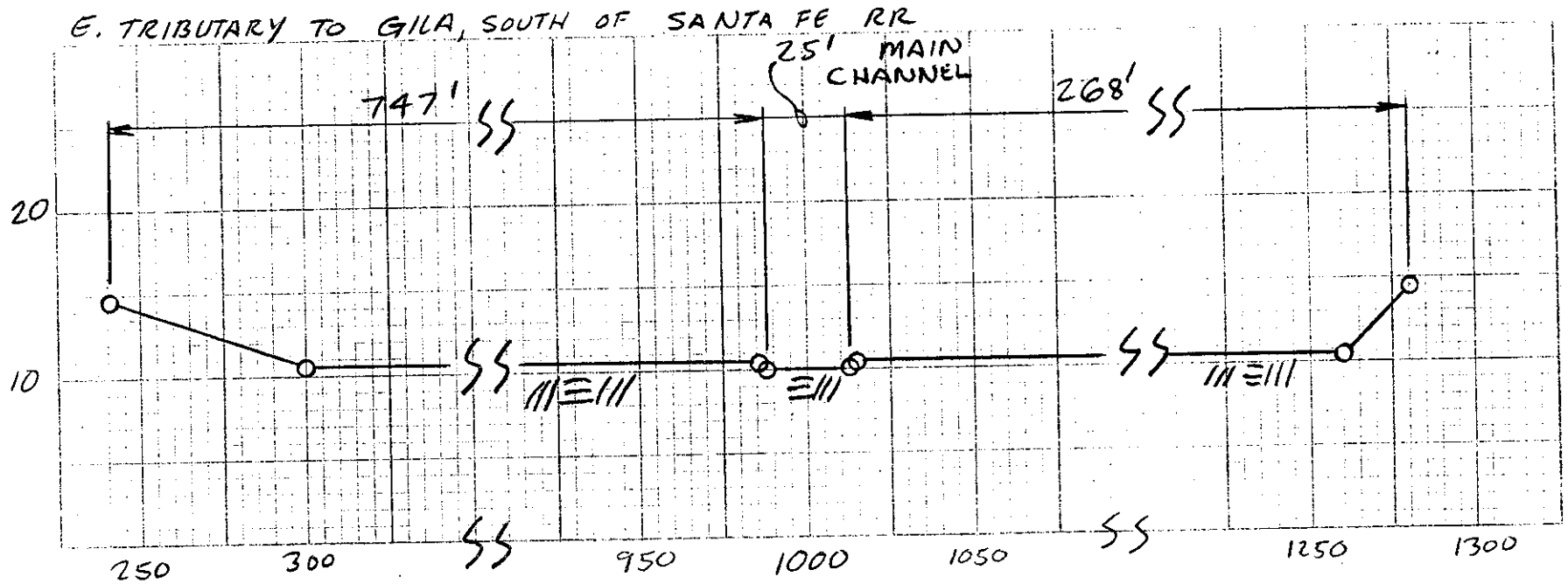
RL			0.30	10				
RS	4	Flow	-1					
RC	.065	.035	.065	4000	0.00325 1/1			
RX	445	454	493	495	505	507	546	555
RY	13.5	10.5	10.5	10	10	10.5	10.5	13.5

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 430

E. TRIBUTARY TO GILA, SOUTH OF SANTA FE RR



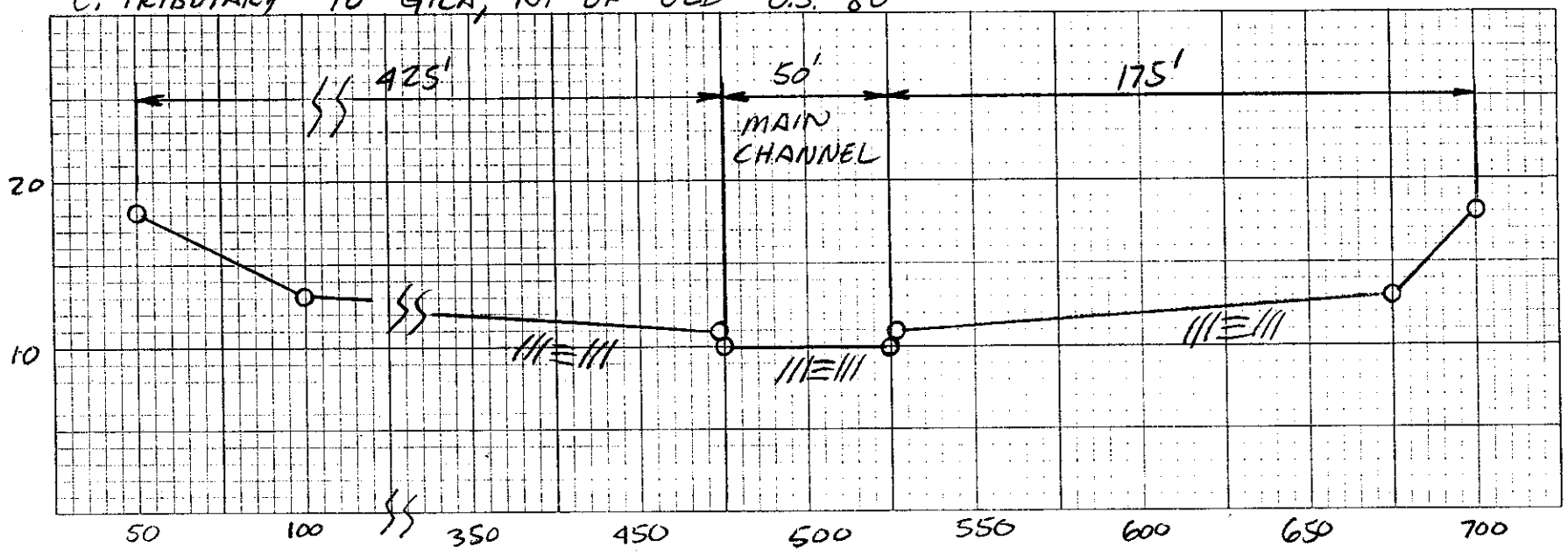
RL			0.27	10				
RS	9	Flow	-1					
RC	.070	.040	.070	8300	0.00518 1/1			
RX	240.5	300	985.5	987.5	1012.5	1014.5	1260	1280.5
RY	14.5	10.5	10.5	10	10	10.5	10.5	14.5

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 475

E. TRIBUTARY TO GILA, N. OF OLD U.S. 80



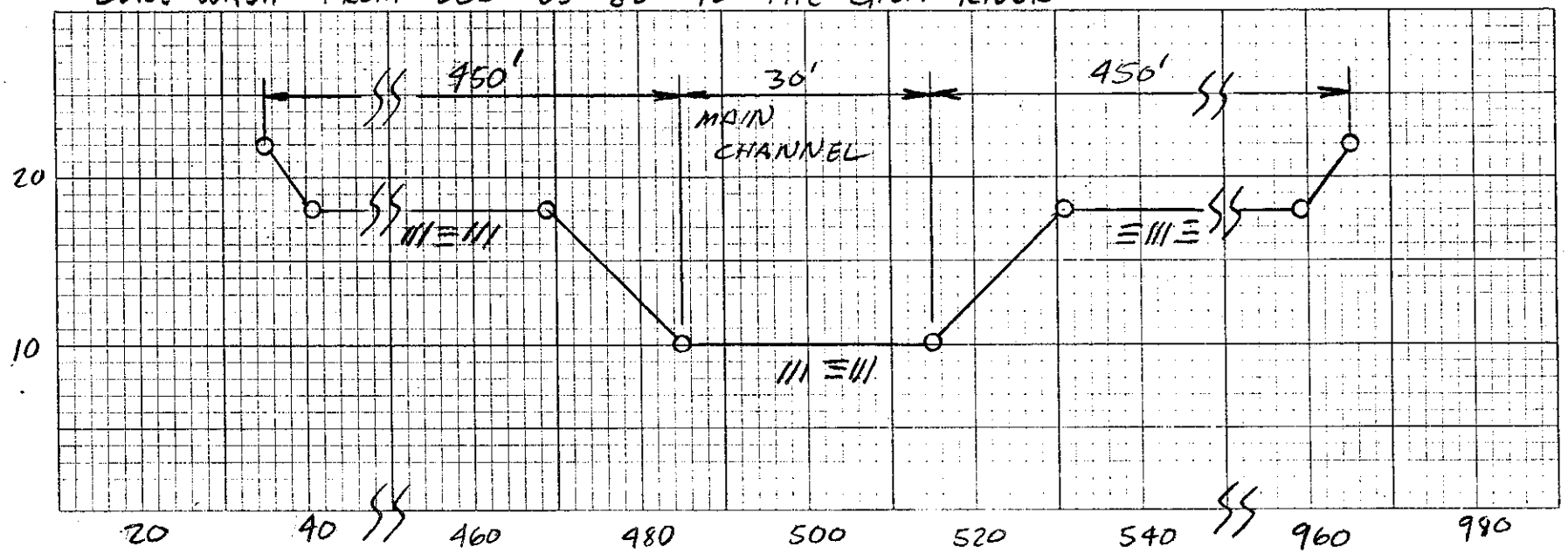
RL			0.26	10				
RS	2	Flow	-1					
RC	.075	.045	.075	2500	0.00320 1/1			
RX	50	100	473	475	525	527	675	700
RY	18	13	11	10	10	11	13	18

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 500

LUKE WASH FROM OLD US 80 TO THE GILA RIVER



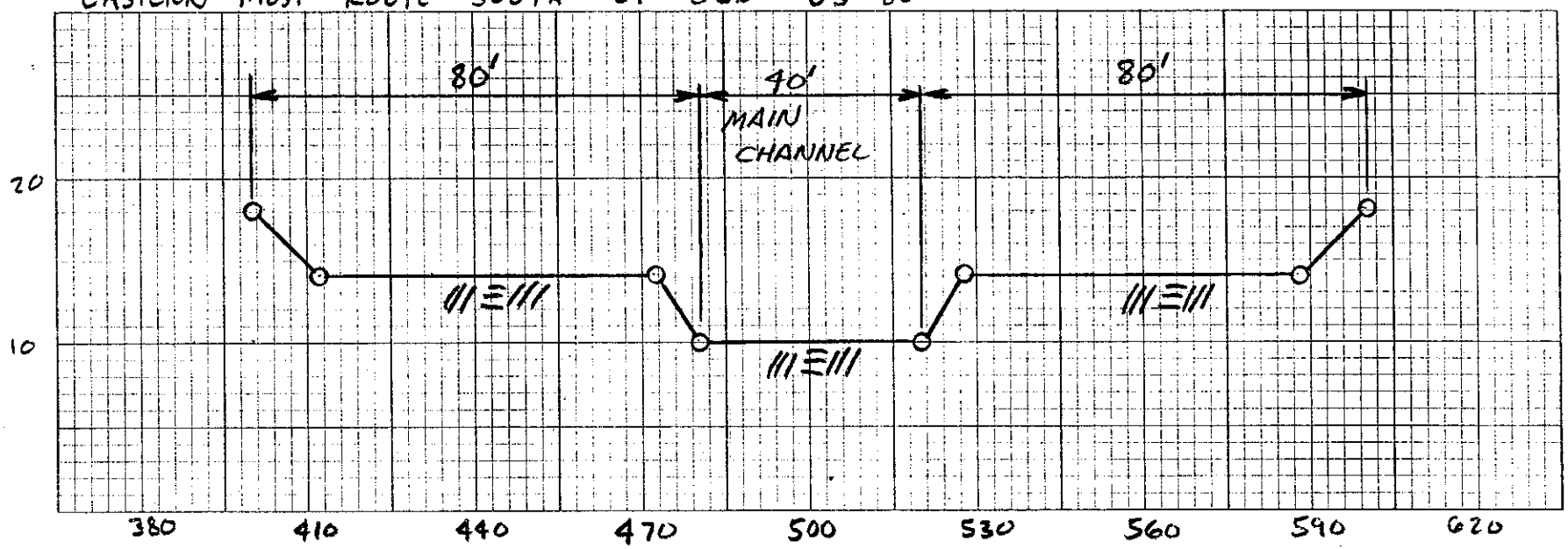
RL			0.36	10				
RS	1	Flow	-1					
RC	.070	.040	.070	1800	0.00667'/'			
RX	35	41	469	485	515	531	959	965
RY	22	18	18	10	10	18	18	22

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 517

EASTERN MOST ROUTE SOUTH OF OLD US 80



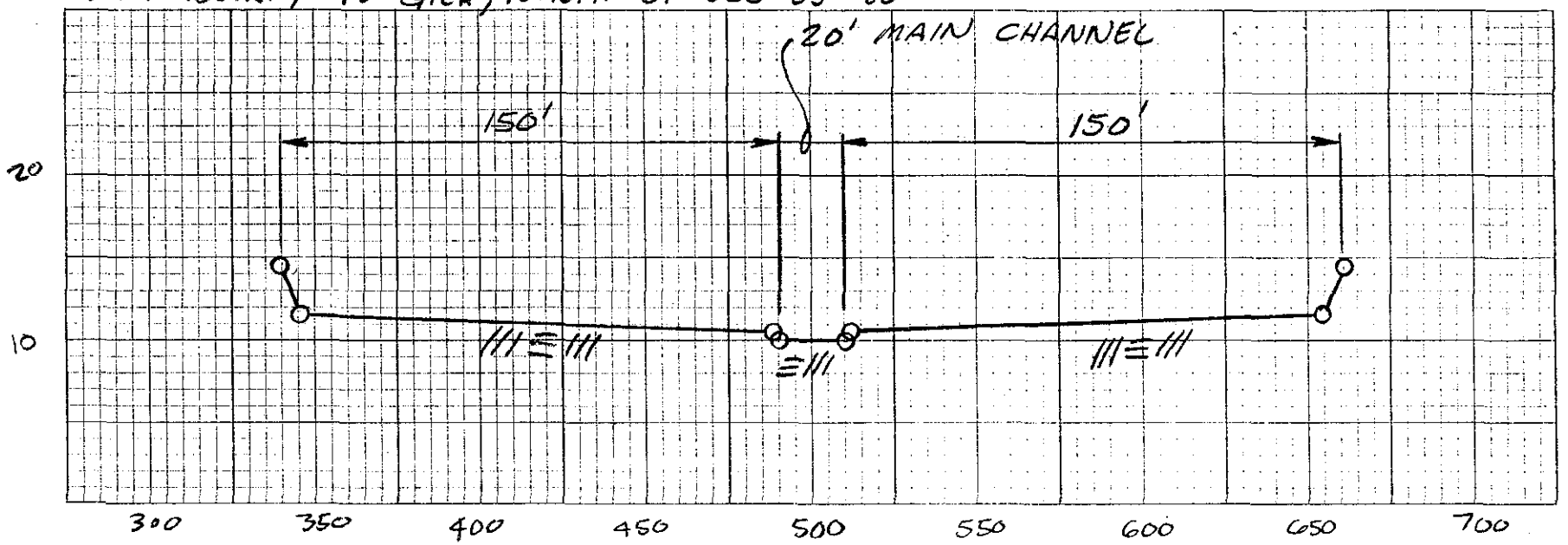
RL			135	10				
RS	3	Flow	-1					
RC	.075	.040	.075	6000	0.01867 1/1			
RX	400	412	472	480	520	528	588	600
RY	18	14	14	10	10	14	14	18

CALCULATED BY: DB

NORMAL DEPTH CHANNEL ROUTE
COMPUTATION SHEET

ROUTE IDENTIFICATION NUMBER 565

W. TRIBUTARY TO GILA, NORTH OF OLD US 80



RL			0.29	10				
RS	5	FLOW	-1					
RC	.080	.050	.080	4200	0.00476'/'			
RX	340	349	488	490	510	512	651	660
RY	14.5	11.5	10.5	10	10	10.5	11.5	14.5

CALCULATED BY: DB

TABLE 8

ROUTING REACH PHYSICAL DATA

REACH	IN SUB-BASIN	n VALUES			LENGTH		ELEVATION		SLOPE (FT/FT)
		LOB	CHAN	ROB	MILES	FEET	TOP	BOTTOM	
R65	S70	.060	.040	.060	1.46	7,700	1,085	1,046	0.005
R68	S70	.060	.040	.060	2.52	13,300	1,046	988	0.004
R103	S110	.060	.040	.060	1.23	6,500	1,070	1,040	0.005
R105	S110	.060	.040	.060	1.10	5,800	1,040	1,015	0.004
R108	S110	.060	.040	.060	1.14	6,000	1,015	989	0.004
R125	S130	.065	.035	.065	1.02	5,400	988	963	0.005
R138	S140	.065	.040	.065	1.61	8,500	1,007	963	0.005
R150	S155	.065	.035	.065	1.14	6,000	963	937	0.004
R170	S175	.070	.040	.070	1.04	5,500	937	908	0.005
R195	S200	.070	.035	.070	2.20	11,600	908	853	0.005
R230	S265	.060	.045	.060	0.80	4,200	1,090	1,072	0.004
R240	S265	.060	.045	.060	0.80	4,200	1,097	1,072	0.006
R248	S265	.060	.045	.060	1.02	5,400	1,072	1,039	0.006
R250	S265	.060	.045	.060	1.44	7,600	1,039	1,002	0.005
R258	S265	.060	.045	.060	1.67	8,800	1,092	1,039	0.006
R260	S265	.060	.045	.060	1.40	7,400	1,039	1,002	0.005
R273	S280	.065	.045	.065	0.70	3,700	1,002	985	0.005
R275	S280	.065	.045	.065	1.46	7,700	985	953	0.004
R288	S295	.070	.040	.070	2.08	11,000	953	905	0.004
R290	S295	.070	.040	.070	1.23	6,500	905	878	0.004
R305	S310	.070	.050	.070	1.23	6,500	878	853	0.004
R325	S330	.070	.045	.070	1.38	7,300	853	823	0.004
R345	S350	.070	.045	.070	1.19	6,300	859	823	0.006
R365	S370	.070	.050	.070	1.00	5,300	823	800	0.004
R405	S420	.065	.035	.065	0.76	4,000	921	908	0.003
R415	S420	.065	.035	.065	1.89	10,000	908	851	0.006
R430	S435	.070	.040	.070	1.57	8,300	851	808	0.005
R450	S455	.075	.045	.075	0.70	3,700	822	808	0.004
R475	S480	.075	.045	.075	0.47	2,500	808	800	0.003
R492	S508	.080	.045	.080	0.91	4,800	890	800	0.019
R500	S508	.070	.040	.070	0.34	1,800	800	788	0.007
R507	S508	.080	.040	.080	0.32	1,700	800	788	0.007
R517	S518	.075	.040	.075	1.14	6,000	905	789	0.019
R540	S545	.070	.040	.070	1.86	9,800	860	805	0.006
R565	S570	.080	.050	.080	0.80	4,200	805	786	0.005

TABLE 9

LUKE WASH F.I.S.
CHANNEL ROUTING NSTPS CALCULATIONS

NSTPS - Number of steps to be used in the storage routing
NSTPS = (reach length / average velocity) / (time interval, NMIN x 60)

ROUTE ID NUMBER	REACH LENGTH (FT)	AVERAGE VELOCITY (FPS)	NMIN (MIN)	NSTPS (CALCULATED)	NSTPS (INTEGER)
65	7700	8.6	5	2.98	3
68	13300	5.5	5	8.06	8
103	6500	4.4	5	4.92	5
105	5800	3.8	5	5.09	5
108	6000	2.9	5	6.90	7
125	5400	6.0	5	3.00	3
138	8500	5.6	5	5.06	5
150	6000	10.4	5	1.92	2
170	5500	6.1	5	3.01	3
195	11600	6.4	5	6.04	6
230	5400	6.0	5	3.00	3
240	4200	2.3	5	6.09	6
248	5400	6.0	5	3.00	3
250	7600	5.1	5	4.97	5
258	8800	3.3	5	8.89	9
260	7400	2.5	5	9.87	10
273	3700	12.8	5	0.96	1
275	7700	6.5	5	3.95	4
288	11000	6.1	5	6.01	6
290	6500	7.2	5	3.01	3
305	6500	7.2	5	3.01	3
325	7300	6.1	5	3.99	4
345	6300	2.3	5	9.13	9
365	5300	2.9	5	6.09	6
405	4000	3.4	5	3.92	4
415	10000	8.4	5	3.97	4
430	8300	3.1	5	8.92	9
450	3700	1.8	5	6.85	7
475	2500	4.1	5	2.03	2
492	4800	5.3	5	3.02	3
500	1800	6.3	5	0.95	1
507	1700	0.9	5	6.30	6
517	6000	6.7	5	2.99	3
540	9800	3.6	5	9.07	9
565	4200	2.8	5	5.00	5

AVERAGE VELOCITY SAMPLE CALCULATION

Average Velocity (FPS) = Reach length (ft)/difference in time to peak (sec)

Route ID = R275
Reach Length = 7700 ft
Difference in time to peak between R273 and R275* = *0.33 hours x 3600 sec/hours = 1188 sec*

Average Velocity = 7,700ft/1188 sec = 6.5 fps

* From runoff summary of HEC-1, section IX

TABLE 10

LUKE WASH
CHANNEL ROUTING INFILTRATION LOSS DATA

ROUTE ID	WITHIN SUB-BASIN ID	SCS SOILS MAP UNIT			WEIGHTED XKSAT (in/hr)	LOSS RATE (cfs/acre)
		ID	PERCENTAGE	XKSAT (in/hr)		
65	70	Ac	100%	0.39	0.39	0.39
68	70	Ae AGB Ac	50% 40% 10%	0.39 0.40 0.39	0.39	0.34
103	110	TB	100%	0.40	0.40	0.40
105	110	TB	100%	0.40	0.40	0.40
108	110	TB AGB	40% 60%	0.40 0.40	0.40	0.40
125	130	AGB	100%	0.40	0.40	0.40
138	140	AGB AL	90% 10%	0.40 0.40	0.40	0.40
150	155	AGB	100%	0.40	0.40	0.40
170	175	AGB	100%	0.40	0.40	0.40
195	200	AGB	100%	0.40	0.40	0.40
230	265	AbA	100%	0.38	0.38	0.38
240	265	GgA AbA	65% 35%	0.25 0.38	0.30	0.30
248	265	AbA	100%	0.38	0.38	0.38
250	265	GgA	100%	0.25	0.25	0.25
258	265	GgA LcA	65% 35%	0.25 0.25	0.25	0.25
260	265	GgA Rhb	80% 20%	0.25 0.25	0.25	0.25
273	280	GgA	100%	0.25	0.25	0.25
275	280	GgA Gh	25% 75%	0.25 0.24	0.24	0.24
288	295	Gh	100%	0.24	0.24	0.24
290	295	Gh	100%	0.24	0.24	0.24
305	310	Gh Ac	70% 30%	0.24 0.39	0.29	0.29
325	330	AGB Ac GgA	5% 55% 40%	0.40 0.39 0.25	0.33	0.33
345	350	Ac GYD PRB GgA	65% 15% 10% 10%	0.39 0.26 0.28 0.25	0.35	0.35

TABLE 10

LUKE WASH
CHANNEL ROUTING INFILTRATION LOSS DATA

ROUTE ID	WITHIN SUB-BASIN ID	SCS SOILS MAP UNIT			WEIGHTED XKSAT (in/hr)	LOSS RATE (cfs/acre)
		ID	PERCENTAGE	XKSAT (in/hr)		
365	370	Gh GgA PRB AbA	10% 30% 30% 30%	0.24 0.25 0.28 0.38	0.30	0.30
405	420	Gh Ac Ch	45% 40% 15%	0.24 0.39 0.24	0.30	0.30
415	420	GgA Gh	80% 20%	0.25 0.24	0.25	0.25
430	435	GgA GYD AbA PRB CA2	67% 10% 10% 10% 3%	0.25 0.26 0.38 0.28 0.38	0.27	0.27
450	455	GgA	100%	0.25	0.25	0.25
475	480	GgA CA2 Gh	80% 10% 10%	0.25 0.38 0.24	0.26	0.26
492	508	PT CA2 GgA	90% 5% 5%	0.40 0.38 0.25	0.39	0.39
500	508	AbA Ac GgA	50% 30% 20%	0.38 0.39 0.25	0.36	0.36
507	508	Ac AbA Gh	75% 15% 10%	0.39 0.38 0.24	0.37	0.37
517	518	PT Gh CA2	50% 30% 20%	0.40 0.24 0.38	0.35	0.35
540	545	Ac GM	65% 35%	0.39 0.29	0.36	0.36
565	570	GM	100%	0.29	0.29	0.29

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CHANNEL ROUTE TRANSMISSION LOSSES SAMPLE CALCULATIONS

INFILTRATION RATES ARE BASED ON THE ADJACENT SOILS' XKSAT VALUES PER THE SCS MAP UNIT ALONG THE CHANNEL REACH. THE LOSS RATE FOR EACH ROUTING WAS DETERMINED BY CALCULATING AN AVERAGE XKSAT VALUE FOR THE REACH LENGTH. THE XKSAT VALUE FOR EACH ROUTING WAS ESTIMATED BY AREA WEIGHTING THE SCS MAP UNITS ALONG THE REACH. THIS WAS DONE BY VISUALLY EXAMINING THE SCS SOILS MAPS ALONG THE ROUTING REACH, WHILE CONSIDERING THE AVERAGE FLOW WIDTH. THE INFILTRATION RATE WERE THEN PUT INTO THE HEC-1 MODEL ON THE RL CARD.

ROUTE 240 (WITHIN SUBBASIN 265)

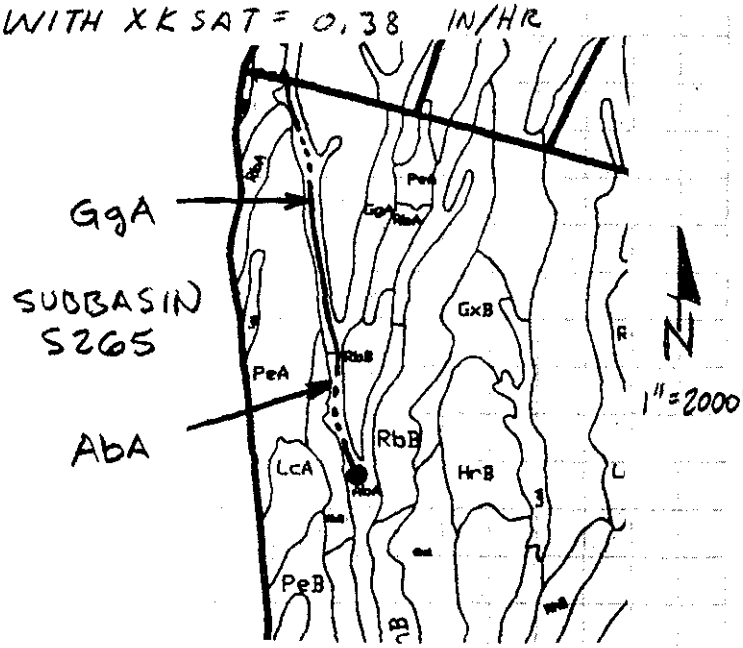
65 % GgA SOIL WITH XKSAT = 0.25 IN/HR
35 % AbA SOIL WITH XKSAT = 0.38 IN/HR

WEIGHTED XKSAT

.65 × .25 in/hr = 0.162 in/hr
.35 × .38 in/hr = 0.133 in/hr
0.30 in/hr

HEC-1 INPUT (RL CARD 3RD FIELD)

LOSS RATE = 0.30 in/hr



Section IV RESERVOIR ROUTING PARAMETERS

I-10 Reservoir Routing Sample Calculation

Old US Highway 80 Reservoir Routing Sample Calculation

Arlington Canal Reservoir Routing Sample Calculation

I-10 RESERVOIR ROUTING SAMPLE CALCULATION

The culvert crossings of Interstate 10 were modeled based on inlet control to the culverts using the HDS-5 culvert capacity charts (Ref. 10). The culvert data was obtained from the as-built highway construction plans from the Arizona Department of Transportation (ADOT). Where several culverts occurred within one sub-basin, the capacity of each culvert was calculated separately, and the results were combined to approximate the outflow rating curve for the sub-basin. At the average depth where flow occurs over the interstate, weir flow calculations were used to approximate the overflow, and this was added to the rating curves.

Ponding areas have been approximated based on the design inverts, road elevations, natural ground elevation from the ADOT I-10 plans, and from the existing topography on the USGS 7½ minute quadrangle. The areas were then calculated at various depths of ponding. This data, along with the outflow rating curve, was used in the HEC-1 model.

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RESERVOIR ROUTING (RES 93)

PONDING AT I-10 (CONCENTRATION POINT C 90)

STATION - 5402+36 - 1-10'x5' C.B.C. (1)
5405+30 - 1-72" x 224' PIPE CULVERT (2)

STORAGE DISCHARGE DATA (cfs) - BASED ON CULVERT INLET CONTROL (HDS-5) AND WEIR FLOW OVER THE ROAD.

	STA - 5402+36	STA. - 5405+30		TOTAL
DEPTH	1-10'x5'	1-72"	WEIR FLOW	
0'	0	0	0	0 cfs
1'	29	15	0	44 cfs
2'	80	30	0	110 cfs
4'	224	108	0	332 cfs
6'	395	196	0	591 cfs
8'	540	280	0	820 cfs
10'	622	348	0	970 cfs
12'	719	400	2675	3794 cfs

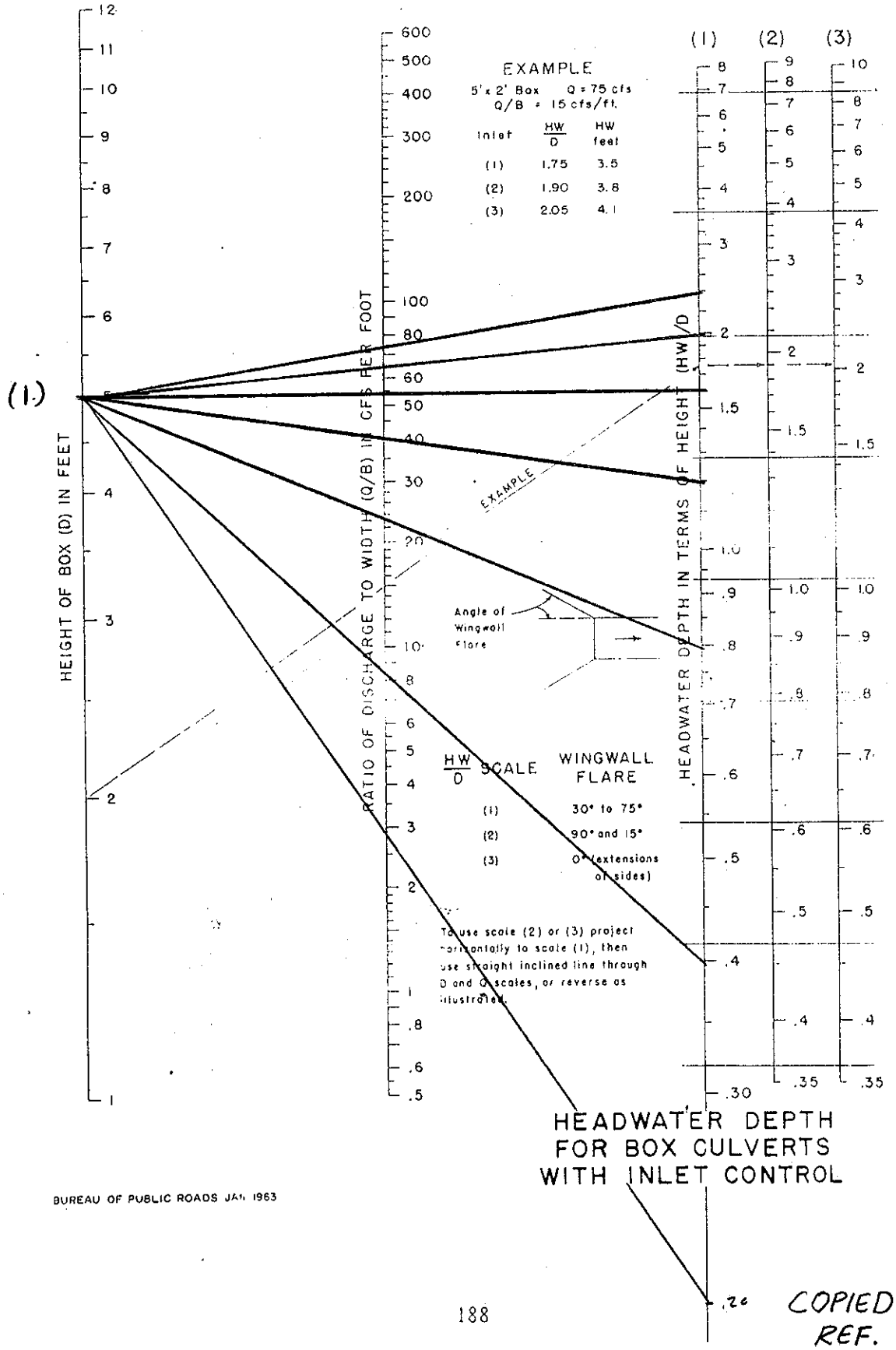
(WEIR FLOW @ 2' DEEP FOR 350' = 2675 cfs).
WEIR FLOW BASED ON $Q = C \cdot L \cdot H^{3/2}$; C = 2.70 PER REF. 5
L = LENGTH OF WEIR = 350', D = AVE. DEPTH = 2', Q = FLOW IN CFS

HEC-1 INPUT TABLE

	RS	1	ELEV	0					
*	SA	5	8	14	19	28	42	58	72
	SE	0	1	2	4	6	8	10	12
	SQ	0	44	110	332	591	820	970	3794

* PONDING AREA HAS BEEN APPROXIMATED BASED ON THE DESIGN INVERT, ROAD ELEVATION, AND NATURAL GROUND ELEVATION FROM THE ADOT I-10 PLANS; AND FROM EXISTING TOPOGRAPHY ON THE USGS 7½ MINUTE QUADRANGLE.

CHART 8



HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN. 1963

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CHART 2

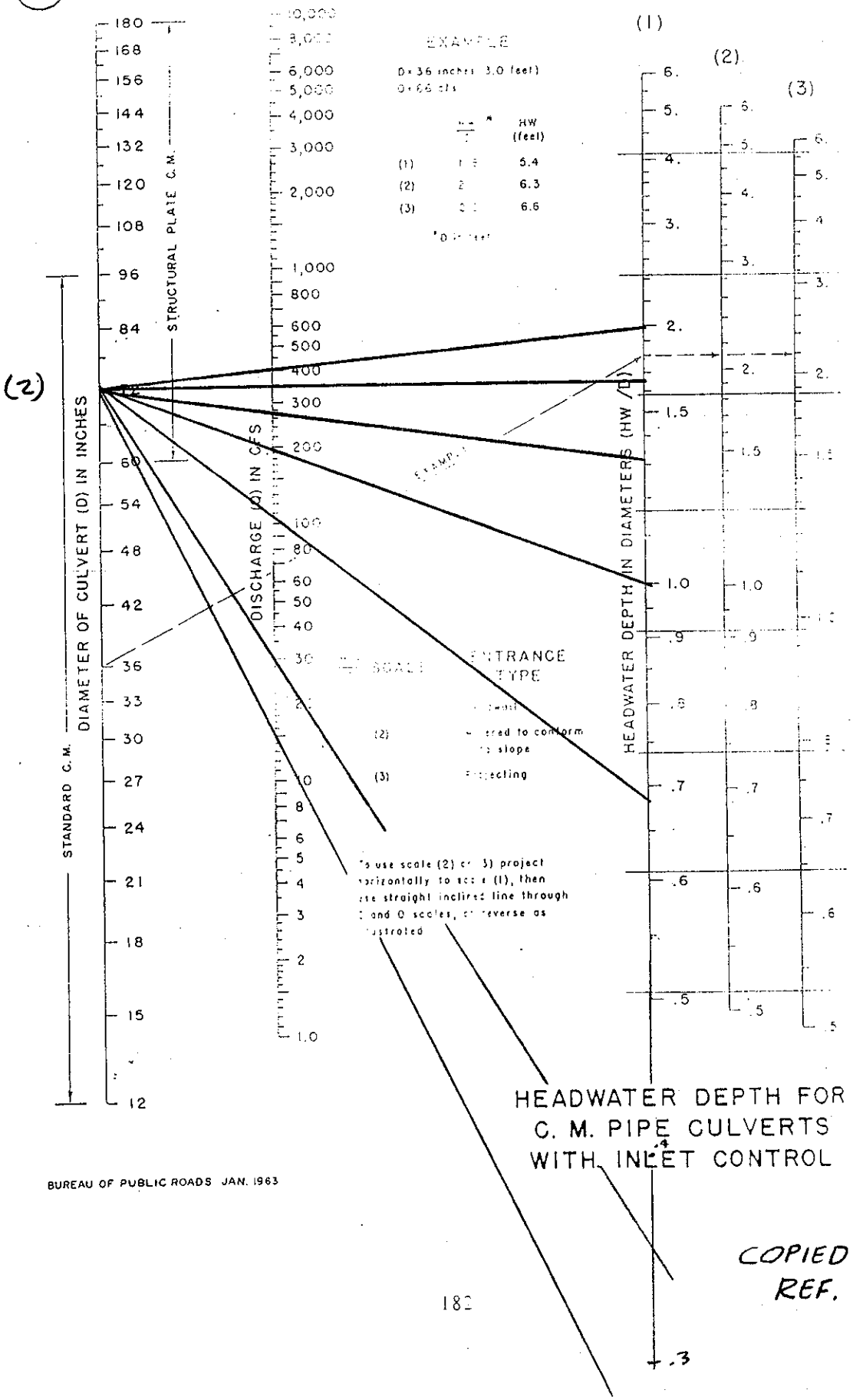

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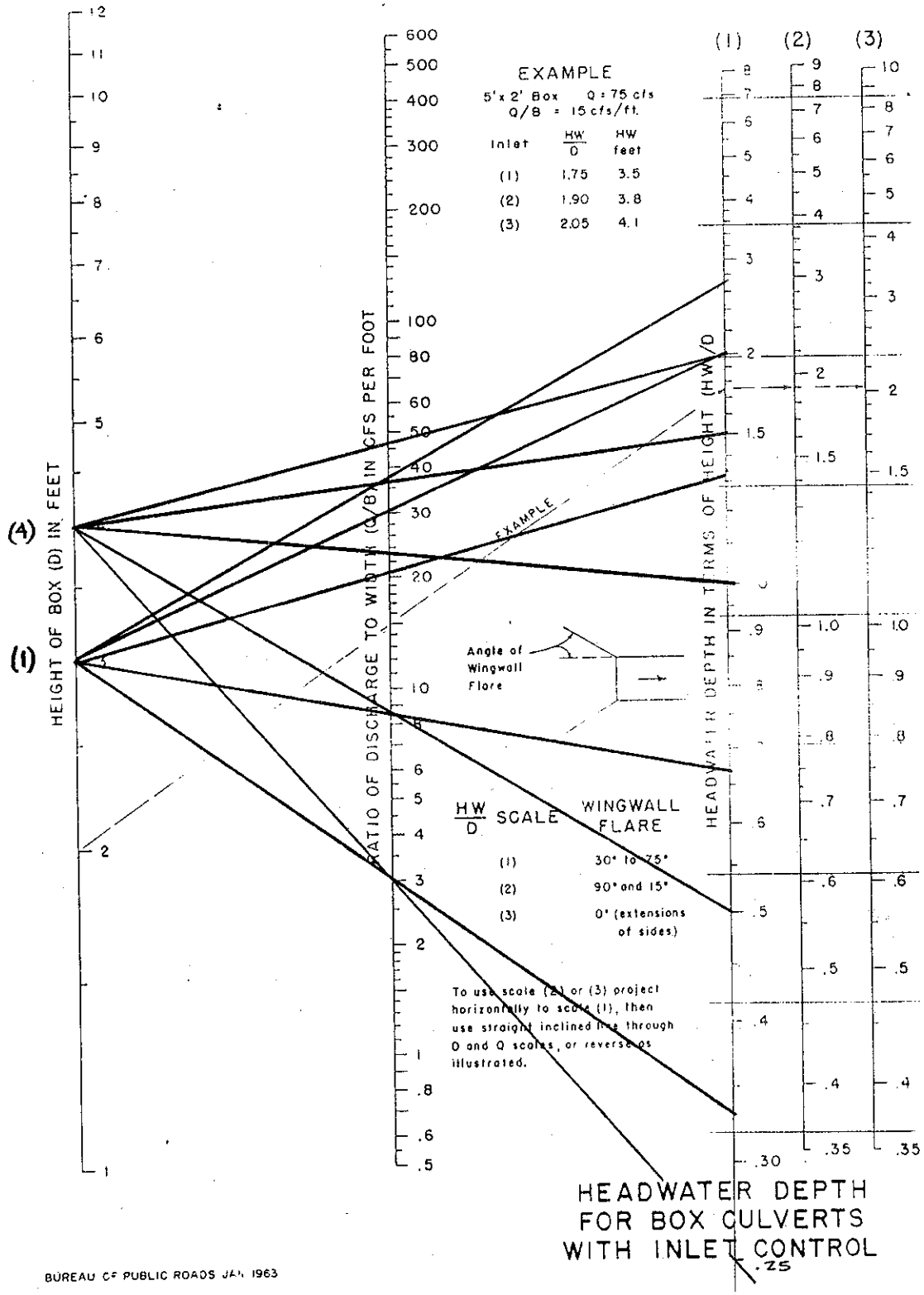
CHART 8



HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

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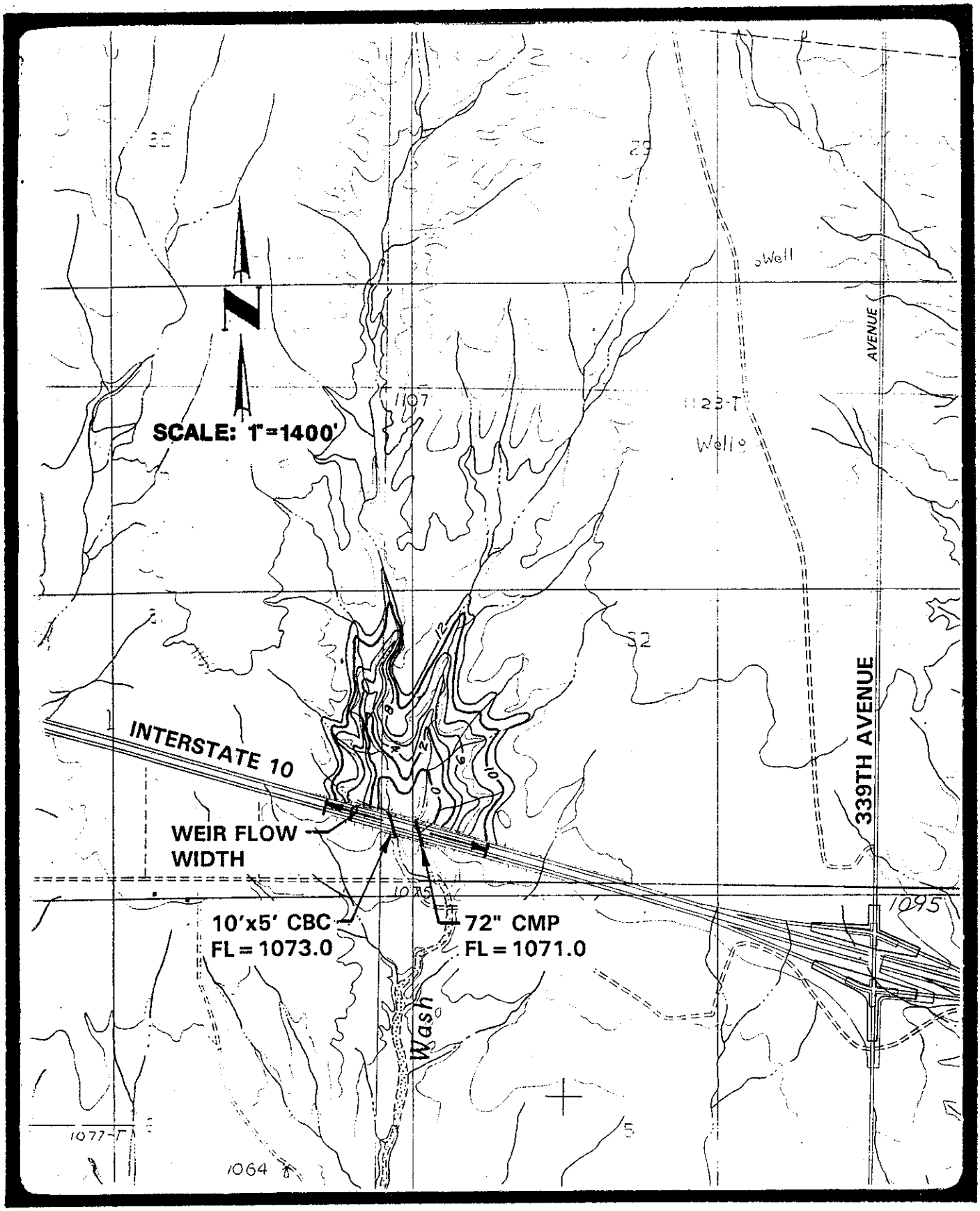

RESERVOIR ROUTING

PONDING @ I-10
(RES 93)

OLD U.S. HIGHWAY 80 RESERVOIR ROUTING SAMPLE CALCULATION

Numerous culverts cross Old U.S. Highway 80 within the watershed. Since as-built plans are not available for this highway, field survey was done to evaluate the culverts. These culvert crossings were then modeled based on inlet control using the HDS-5 culvert capacity charts (Ref. 10). Where several culverts occurred within one sub-basin, the capacity of each culvert was calculated separately, and the results were combined to approximate the outflow rating curve for the subbasin. At the average depth where flow occurred over the highway, weir flow calculations were used to approximate the overflow and added to the rating curve.

Along the portion of the project where detailed (200 scale) topography was available, it was used to evaluate the ponding limits. For the area beyond the mapping limits, the 400 scale topographic mapping from the Gila River Flood Insurance Study was used. The areas were then calculated at various depths of ponding. This data, along with the outflow rating curve, was used in the HEC-1 model.

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RESERVOIR ROUTING (RES533)

PONDING AT OLD U.S. 80 (SUB BASIN S530)

(1) 1-3' x 3' x 54' C.B.C. (STRUCTURE P-25)
(2) 1-24" x 59.2' CMP (STRUCTURE P-24)
(3) 1-24" x 70' CMP (STRUCTURE P-23)
(4) 1-10' x 4' x 34' CBC (STRUCTURE P-22)
} *

* FROM CULVERT SURVEY DATA.

STORAGE DISCHARGE DATA (cfs) - BASED ON CULVERT INLET CONTROL (HDS-5) AND WEIR FLOW OVER THE ROAD.

STRUCTURE - DEPTH	P-25 1-3'x3'	P-24 1-24"	P-23 1-24"	P-22 1-10'x4'	WEIR FLOW	TOTAL
0'	0	0	0	0	0	0 cfs
1'	9	4	4	30	0	47 cfs
2'	26	13	13	83	0	135 cfs
4'	60	26	26	232	0	344 cfs
6'	96	35	35	370	0	536 cfs
8'	114	42	42	475	15,275	15,948 cfs

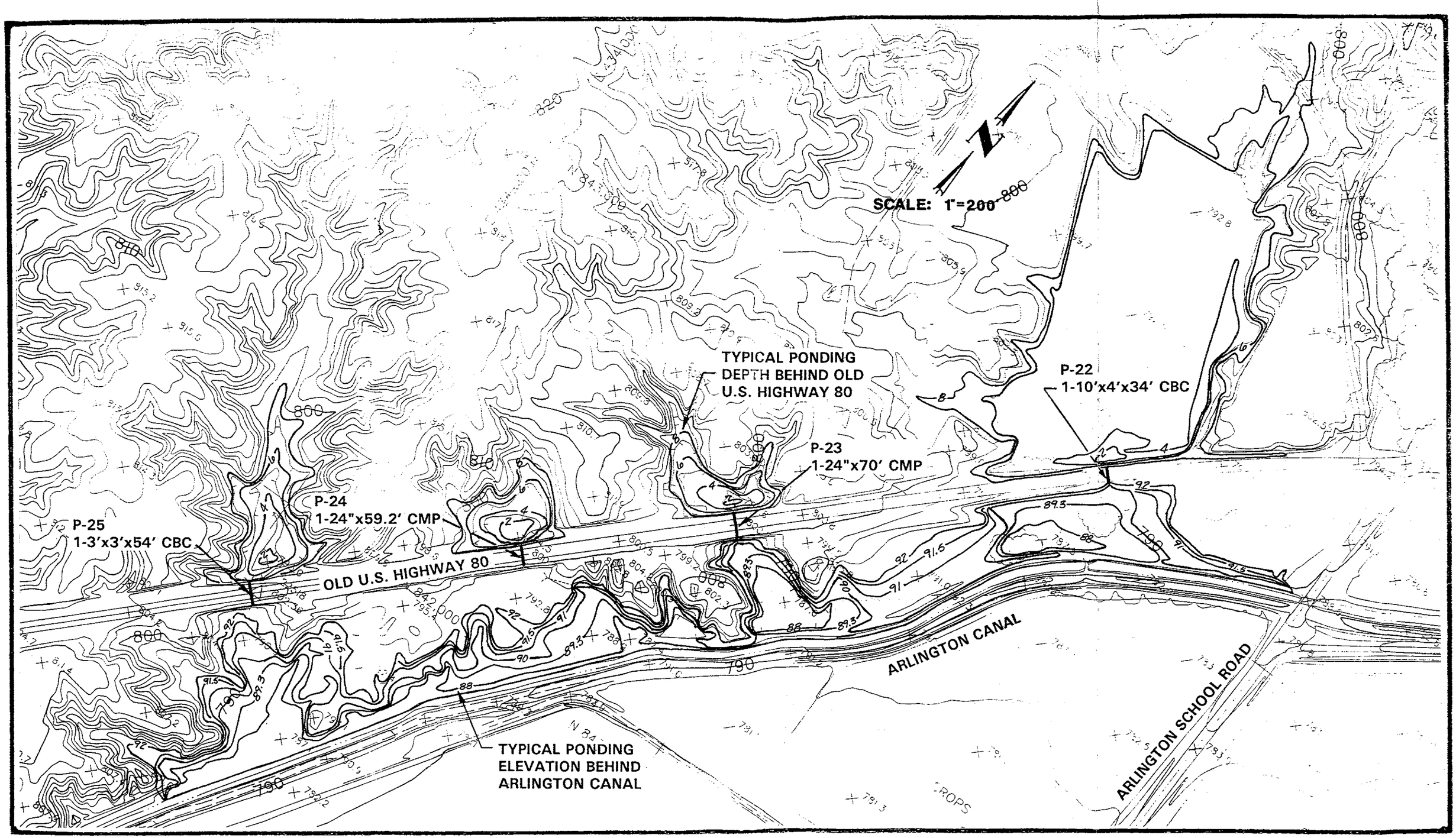
(WEIR FLOW @ 2' DEEP FOR 2000' = 15,275 cfs)

WEIR FLOW BASED ON $Q = C \cdot L \cdot H^{3/2}$; C = 2.70 PER REF. 5
L = LENGTH OF WEIR = 2000', D = AVE. DEPTH = 2', Q = FLOW IN CFS

HEC-1 INPUT TABLE

	RS	1	ELEV	0			
**	SA	0	0.1	0.3	1.1	8	11
	SE	0	1	2	4	6	8
	SQ	0	47	135	344	536	15,948

** PONDING AREA HAS BEEN CALCULATED BASED ON THE 1"=200' TOPOGRAPHIC MAPPING PRODUCED FOR THIS STUDY BY AERIAL MAPPING COMPANY, SEPT. 1991.



RESERVOIR ROUTING

PONDING @ OLD U.S. HIGHWAY 80 &
ARLINGTON CANAL
(RES 533 & RES 534)

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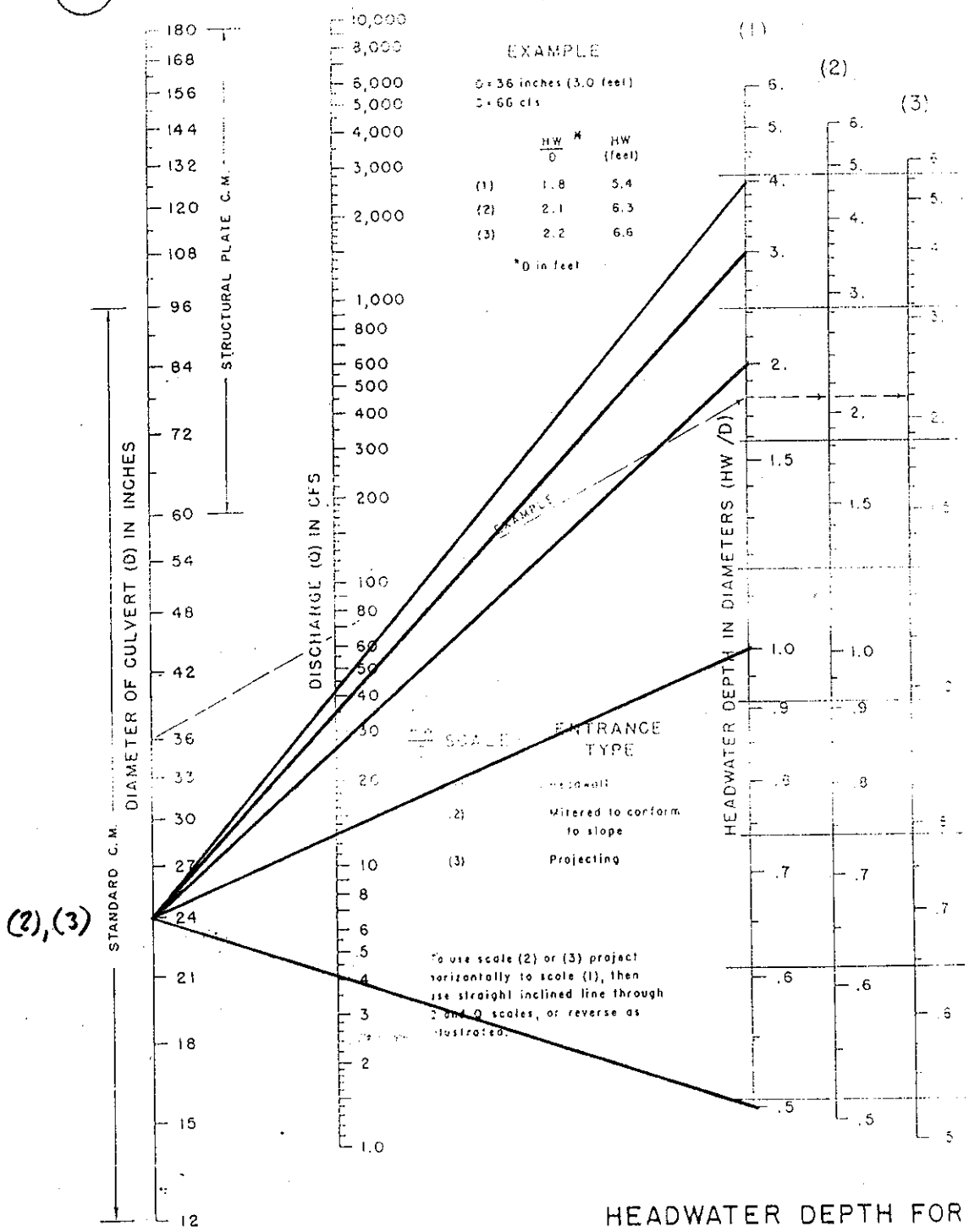
CHART 2



HEADWATER DEPTH FOR C. M. PIPE CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN. 1963

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ARLINGTON CANAL RESERVOIR ROUTING SAMPLE CALCULATION

The ponding and reservoir routing behind the Arlington Canal was evaluated for the entire watershed, based on the aerial topography produced for this study and the Gila River Flood Insurance Study. The outflow rating curves were based on weir flow over the canal, and manning's flow where Luke Wash crosses a canal siphon. The canal bank was used for weir flow calculations based on spot elevations from the 200 scale mapping, supplemented by survey field data.

The ponding limits were delineated based on the 200 scale mapping where it was available. Beyond the mapping limits, the 400 scale topographic mapping from the Gila River FIS was used. This data, along with the outflow rating curve, was used in the HEC-1 model.

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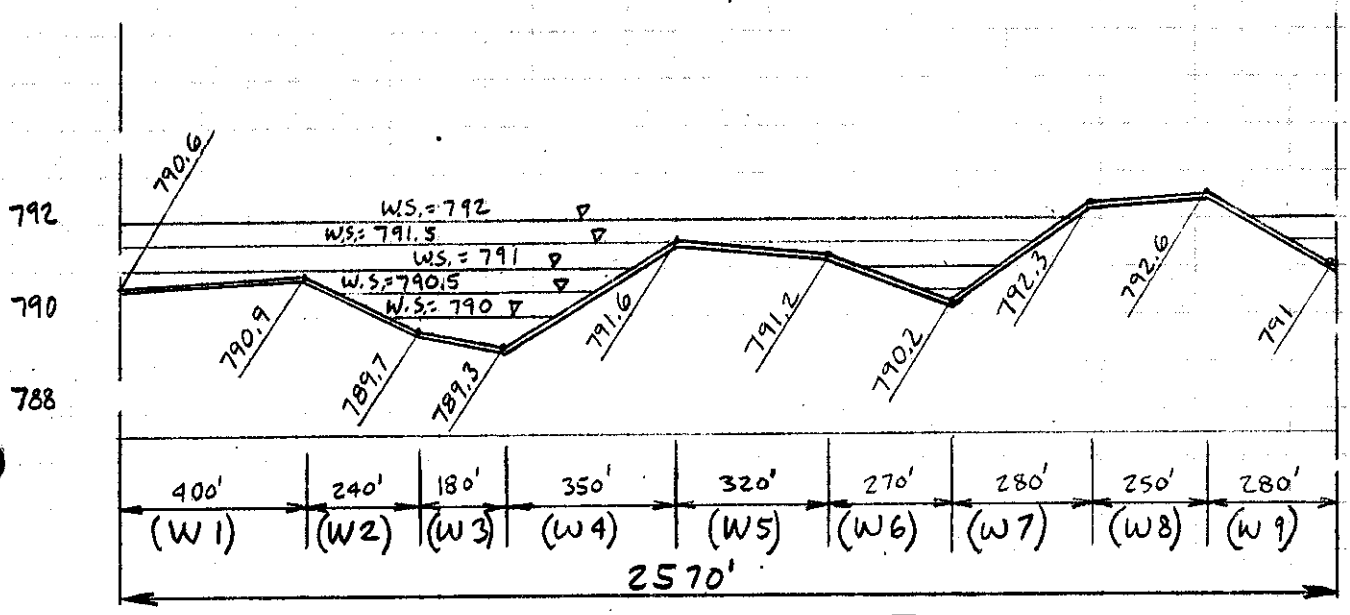
RESERVOIR ROUTING (RES S34)

PONDING AT ARLINGTON CANAL (SUB BASIN S530)



CROSS SECTION AT
TOP OF CANAL
LOOKING UPSTREAM

SCALE: 1"=4' VERT.
1"=400' HOR.

RS	1	ELEV	7875					
SA	0	1.75	3.24	4.68	5.64	6.59	7.53	8.46
SE	787.5	788	789.3	790	790.5	791	791.5	792
SQ	0	0	0	169	837	2159	4769	8827

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ARLINGTON CANAL PONDING

SAMPLE CALCULATIONS

RESERVOIR ROUTING (RES 534) - PONDING AT ARLINGTON CANAL (SUB BASIN S530) FOR HEC-1 MODEL.

CALCULATIONS ARE BASED ON WEIR FLOW OVER THE CANAL.

WEIR FLOW CALCULATIONS $(Q = C \cdot L \cdot H^{3/2})$

WHERE: Q = FLOW IN CFS OVER THE CANAL
C = WEIR COEFFICIENT = 2.68 (BASED ON THE HANDBOOK OF HYDRAULICS BY BRATER & KING, REF. 5).
L = LENGTH OF WEIR BETWEEN EACH GRADE BREAK OR INTERPOLATED FROM WATER SURFACE.
H = AVERAGE DEPTH OF WATER OVER WEIR.

WEIR FLOW AT ELEVATION 790.0

(W2)* $Q = 2.68 \cdot 60 \left(\frac{0 + 0.30}{2}\right)^{3/2} = 9.3$

(W3) $Q = 2.68 \cdot 180 \left(\frac{0.30 + 0.70}{2}\right)^{3/2} = 100.9$

(W4) $Q = 2.68 \cdot 106.5 \left(\frac{0.70 + 0}{2}\right)^{3/2} = 59.1$

TOTAL Q AT ELEVATION 790.0 = 169.3 cfs

* (W2) SEGMENT OF WEIR (BETWEEN GRADE BREAKS) BEING EVALUATED. REFERENCED ON CROSS SECTION, SHEET 1 OF 6.

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ARLINGTON CANAL PONDING

SAMPLE CALCULATIONS

WEIR FLOW CALCULATIONS (CONTINUED)

WIER FLOW AT ELEVATION 790.5

(W2) $Q = 2.68 \cdot 160 \left(\frac{0 + 0.8}{2}\right)^{3/2} = 108.5$

(W3) $Q = 2.68 \cdot 180 \left(\frac{0.8 + 1.2}{2}\right)^{3/2} = 482.4$

(W4) $Q = 2.68 \cdot 182.6 \left(\frac{1.2 + 0}{2}\right)^{3/2} = 227.4$

(W6) $Q = 2.68 \cdot 81 \left(\frac{0 + 0.3}{2}\right)^{3/2} = 12.6$

(W7) $Q = 2.68 \cdot 40 \left(\frac{0.3 + 0}{2}\right)^{3/2} = 6.2$

TOTAL Q AT ELEVATION 790.5 = 837.1 cfs

WEIR FLOW AT ELEVATION 791.0

(W1) $Q = 2.68 \cdot 400 \left(\frac{0.4 + 0.1}{2}\right)^{3/2} = 134$

(W2) $Q = 2.68 \cdot 240 \left(\frac{0.1 + 1.3}{2}\right)^{3/2} = 376.7$

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ARLINGTON CANAL PONDING

SAMPLE CALCULATIONS

WEIR FLOW CALCULATIONS (CONTINUED)

WIER FLOW AT ELEVATION 791.0 (CONTINUED)

(W3) $Q = 2.68 \cdot 180 \left(\frac{1.3 + 1.7}{2}\right)^{3/2} = 886.2$

(W4) $Q = 2.68 \cdot 258.7 \left(\frac{1.7 + 0}{2}\right)^{3/2} = 543.3$

(W6) $Q = 2.68 \cdot 216 \left(\frac{0 + 0.8}{2}\right)^{3/2} = 146.4$

(W7) $Q = 2.68 \cdot 106.7 \left(\frac{0.8 + 0}{2}\right)^{3/2} = 72.3$

TOTAL Q AT ELEVATION 791.0 = 2158.9 cfs

WEIR FLOW AT ELEVATION 791.5

(W1) $Q = 2.68 \cdot 400 \left(\frac{0.9 + 0.6}{2}\right)^{3/2} = 696.3$

(W2) $Q = 2.68 \cdot 240 \left(\frac{0.6 + 1.8}{2}\right)^{3/2} = 845.5$

(W3) $Q = 2.68 \cdot 180 \left(\frac{1.8 + 2.2}{2}\right)^{3/2} = 1364.4$

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ARLINGTON CANAL PONDING

SAMPLE CALCULATIONS

WEIR FLOW CALCULATIONS (CONTINUED)

WEIR FLOW AT ELEVATION 791.5 (CONTINUED)

(W4) $Q = 2.68 \cdot 334.8 \left(\frac{2.2 + 0}{2}\right)^{3/2} = 1035.2$

(W5) $Q = 2.68 \cdot 240 \left(\frac{0 + 0.3}{2}\right)^{3/2} = 37.4$

(W6) $Q = 2.68 \cdot 270 \left(\frac{0.3 + 1.3}{2}\right)^{3/2} = 517.8$

(W7) $Q = 2.68 \cdot 173.3 \left(\frac{1.3 + 0}{2}\right)^{3/2} = 243$

(W9) $Q = 2.68 \cdot 87.5 \left(\frac{0.5 + 0}{2}\right)^{3/2} = 29.3$

TOTAL Q AT ELEVATION 791.5 = 4768.9 CFS

WEIR FLOW AT ELEVATION 792.0

(W1) $Q = 2.68 \cdot 400 \left(\frac{1.4 + 1.1}{2}\right)^{3/2} = 1498.2$

(W2) $Q = 2.68 \cdot 240 \left(\frac{1.1 + 2.3}{2}\right)^{3/2} = 1425.7$

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ARLINGTON CANAL PONDING

SAMPLE CALCULATIONS

WEIR FLOW CALCULATIONS (CONTINUED)

WEIR FLOW AT ELEVATION 792.0 (CONTINUED)

(W3) $Q = 2.68 \cdot 180 \left(\frac{2.3 + 2.7}{2}\right)^{3/2} = 1906.9$

(W4) $Q = 2.68 \cdot 350 \left(\frac{2.7 + 0.4}{2}\right)^{3/2} = 1810.1$

(W5) $Q = 2.68 \cdot 320 \left(\frac{0.4 + 0.8}{2}\right)^{3/2} = 398.6$

(W6) $Q = 2.68 \cdot 270 \left(\frac{0.8 + 1.8}{2}\right)^{3/2} = 1072.5$

(W7) $Q = 2.68 \cdot 240 \left(\frac{1.8 + 0}{2}\right)^{3/2} = 549.2$

(W8) $Q = 2.68 \cdot 175 \left(\frac{0 + 1.0}{2}\right)^{3/2} = 165.8$

TOTAL Q AT ELEVATION 792.0 = 8,827 CFS

Section V RAINFALL DISTRIBUTION

Table 11 6-Hour Storm Rainfall Distribution

Table 12 24-Hour Storm Rainfall Distribution

TABLE 11

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

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

TABLE 12

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

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

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

Section VI PRECIPITATION DATA

Table 13 Point Precipitation Values

Isopluvial Maps

TABLE 13

POINT PRECIPITATION VALUES FOR LUKE WASH STUDY AREA
(inches)

RETURN PERIOD (YEARS)	PRECIPITATION VALUES (INCHES)			
	6-Hour Duration		24-Hour Duration	
	Map	Adjusted	Map	Adjusted
2	1.2	1.2	1.42	1.4
5	1.7	1.7	2.07	2.1
10	2.06	2.1	2.5	2.5
25	2.56	2.5	3.2	3.1
50	2.9	2.9	3.6	3.6
100	3.3	3.3	4.1	4.1

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

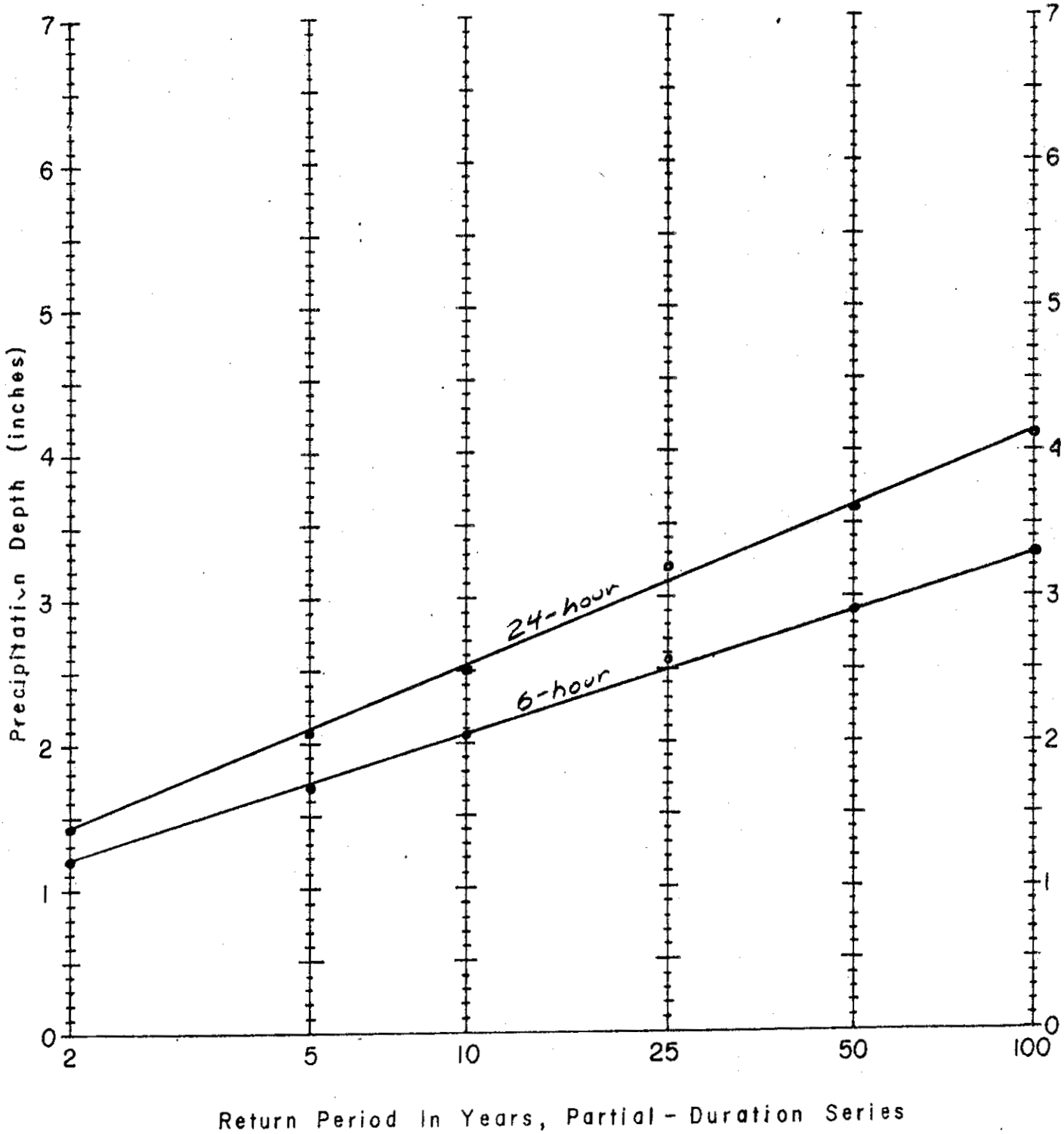


Figure 1 Precipitation Depth Versus Return Period for Partial-Duration Series

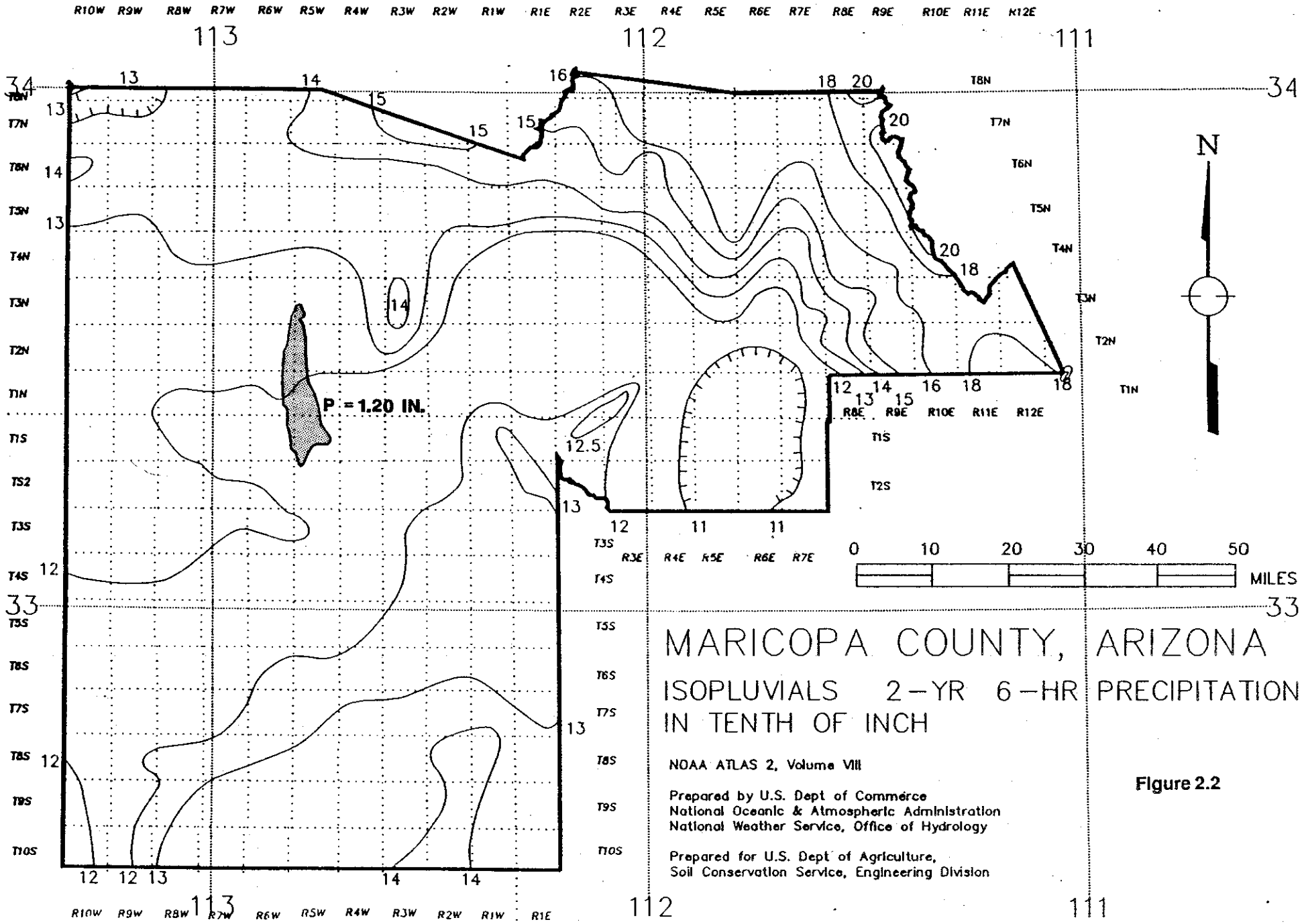
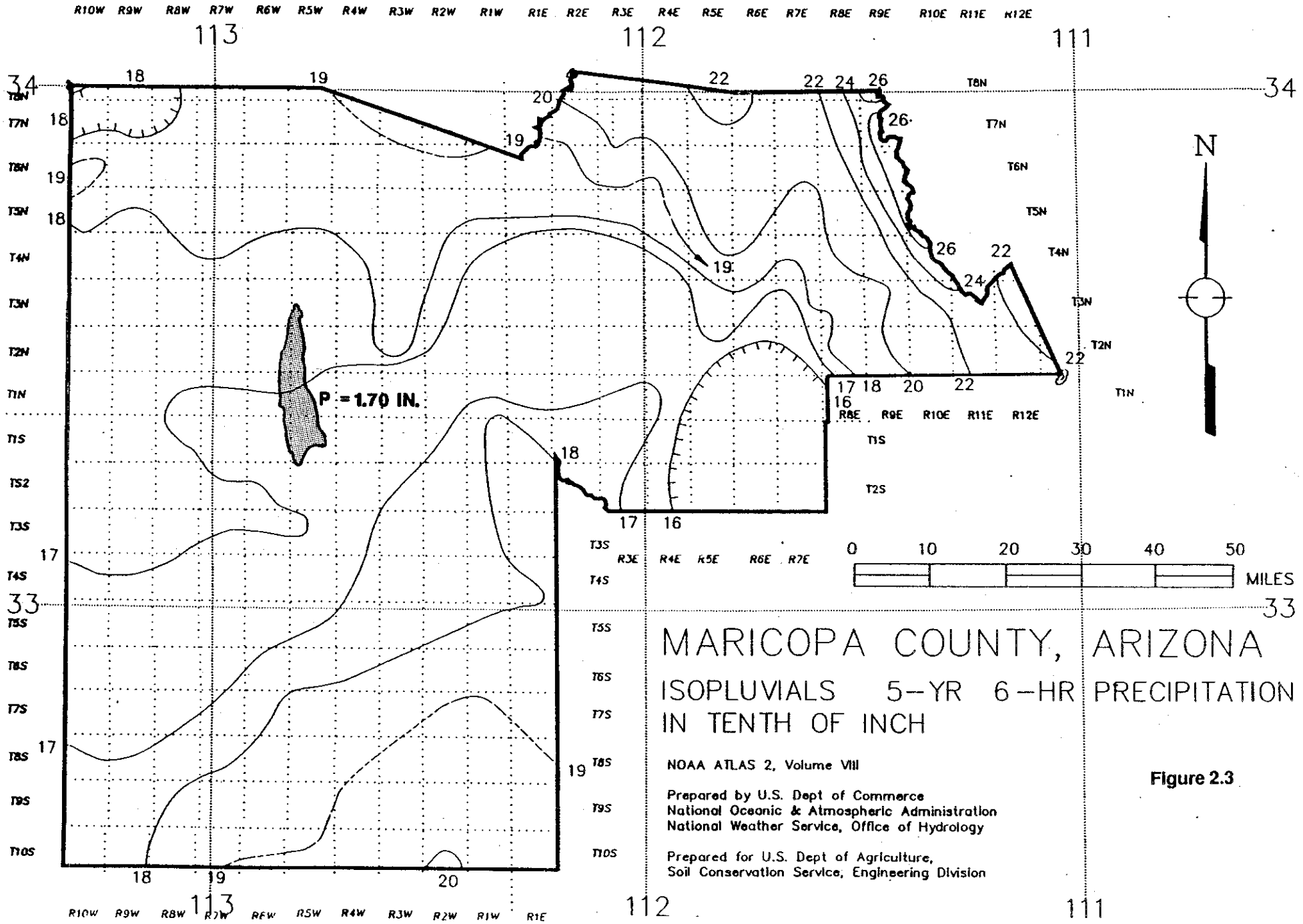

MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 2-YR 6-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
P = 1.20 IN.
N
0 10 20 30 40 50
MILES
113
112
111
34
33
R10W R9W R8W R7W R6W R5W R4W R3W R2W R1W R1E R2E R3E R4E R5E R6E R7E R8E R9E R10E R11E R12E
T8N T7N T6N T5N T4N T3N T2N T1N T1S T2S T3S T4S T5S T6S T7S T8S T9S T10S

Figure 2.2



MARICOPA COUNTY, ARIZONA

ISOPLUVIALS 5-YR 6-HR PRECIPITATION IN TENTH OF INCH

NOAA ATLAS 2, Volume VIII

Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology

Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division

Figure 2.3

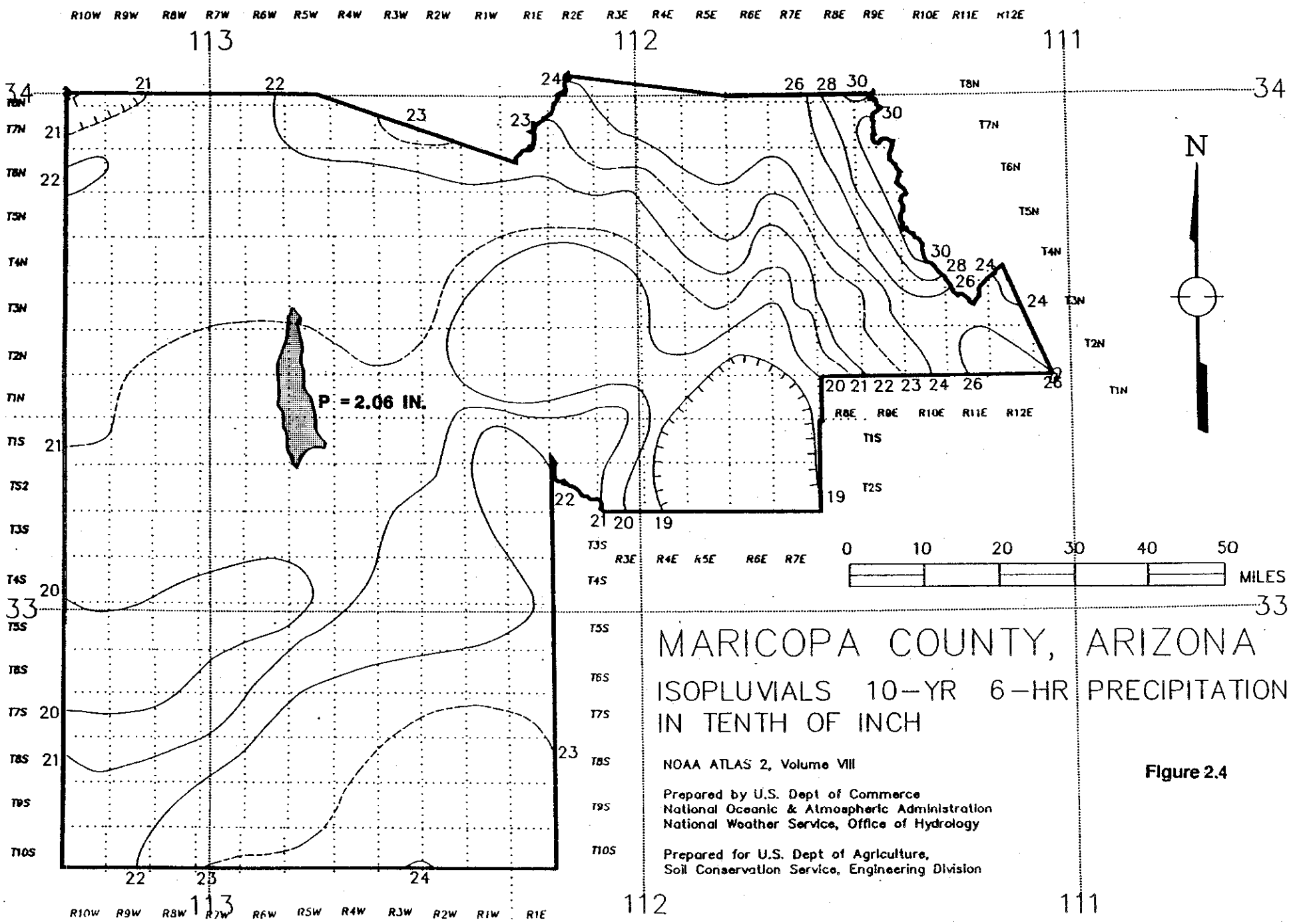

MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 10-YR 6-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
P = 2.06 IN.
N
0 10 20 30 40 50
MILES
113
112
111
34
33
R10W R9W R8W R7W R6W R5W R4W R3W R2W R1W R1E R2E R3E R4E R5E R6E R7E R8E R9E R10E R11E R12E
T8N T7N T6N T5N T4N T3N T2N T1N T1S T2S T3S T4S T5S T6S T7S T8S T9S T10S

Figure 2.4

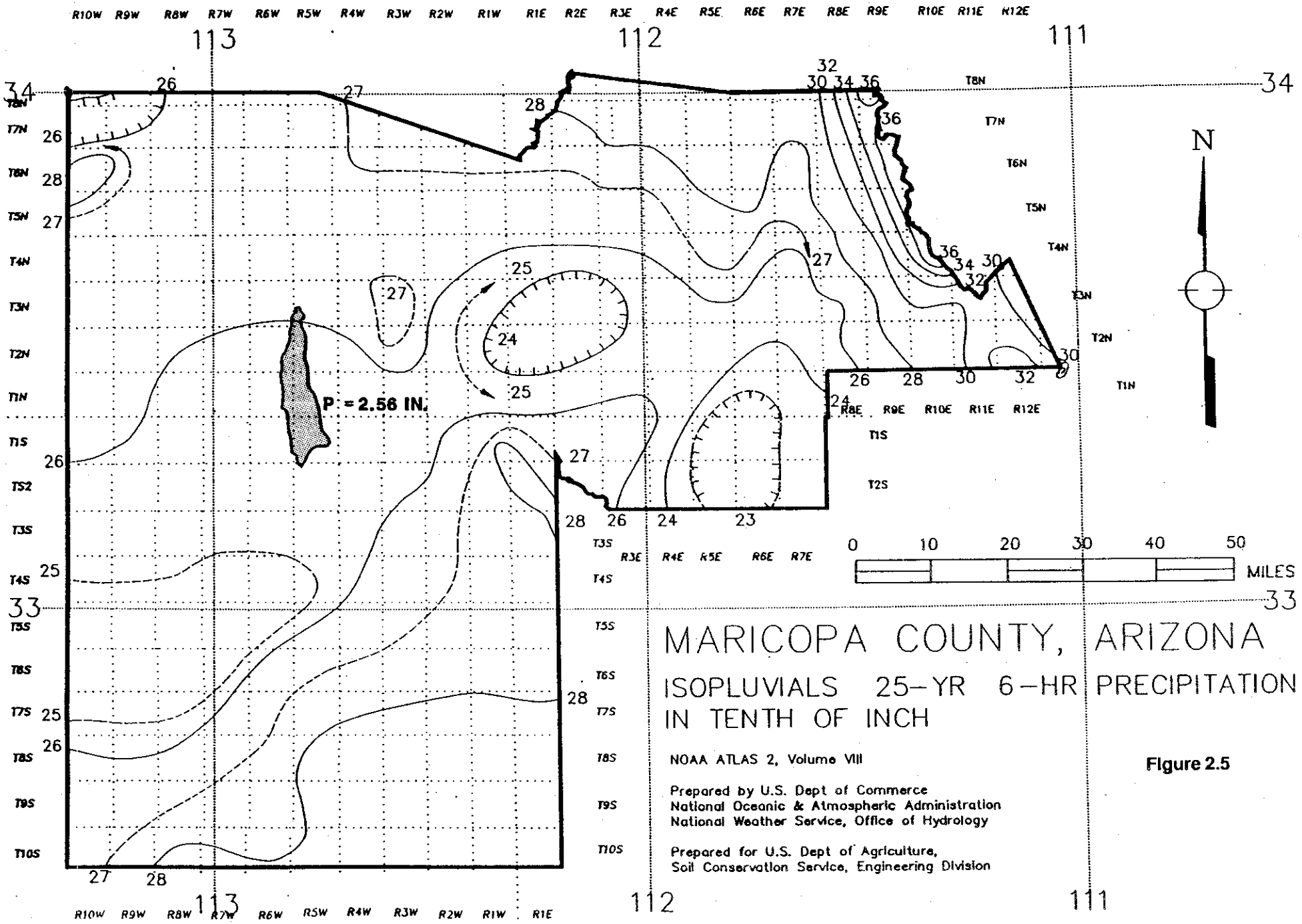
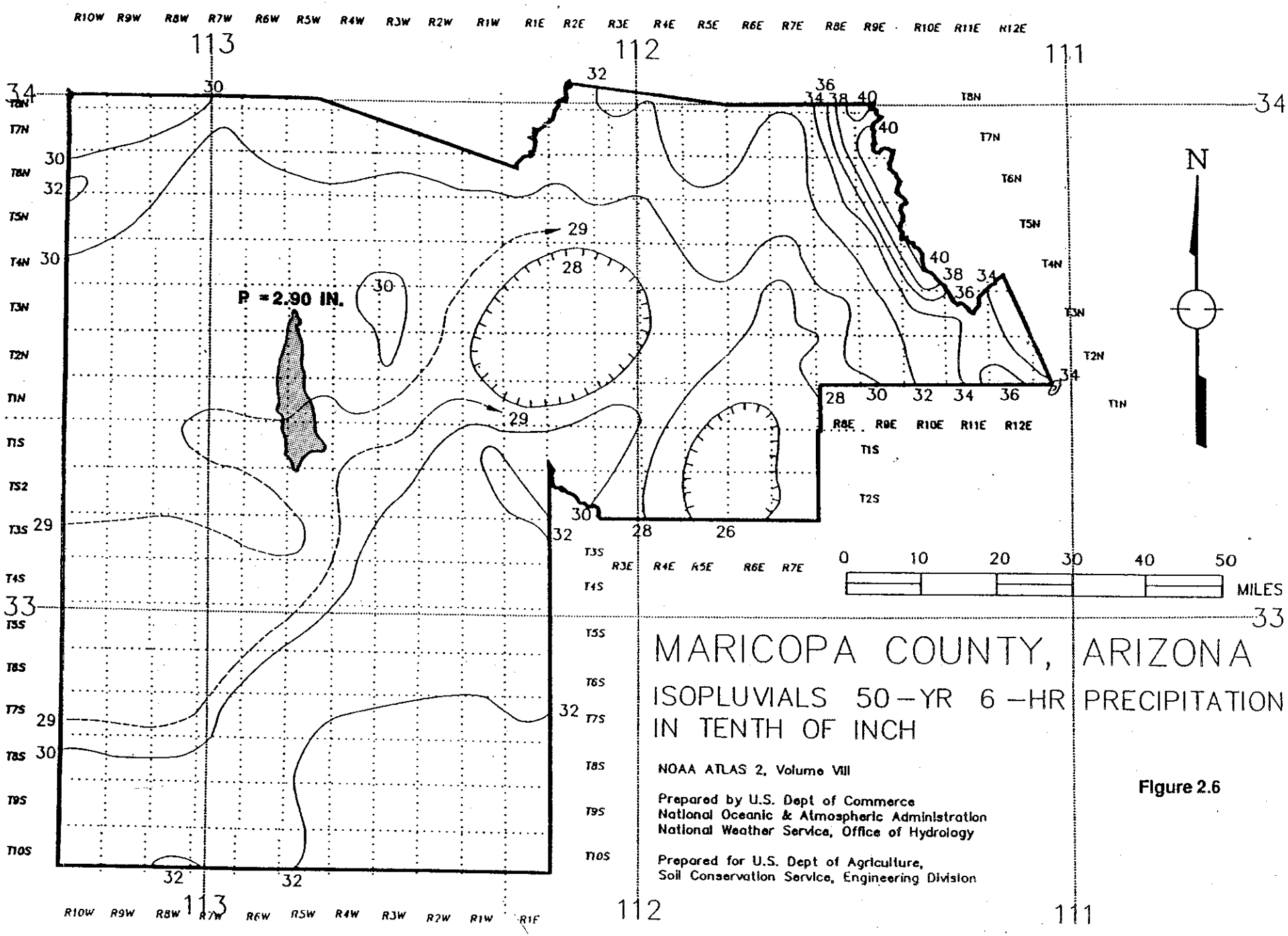

MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 25-YR 6-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
P = 2.56 IN.
N
0 10 20 30 40 50
MILES
113
112
111
34
33
R10W R9W R8W R7W R6W R5W R4W R3W R2W R1W R1E R2E R3E R4E R5E R6E R7E R8E R9E R10E R11E R12E
T8N T7N T6N T5N T4N T3N T2N T1N T1S T2S T3S T4S T5S T6S T7S T8S T9S T10S

Figure 2.5



MARICOPA COUNTY, ARIZONA

ISOPLUVIALS 50-YR 6-HR PRECIPITATION IN TENTH OF INCH

NOAA ATLAS 2, Volume VIII

Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology

Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division

Figure 2.6

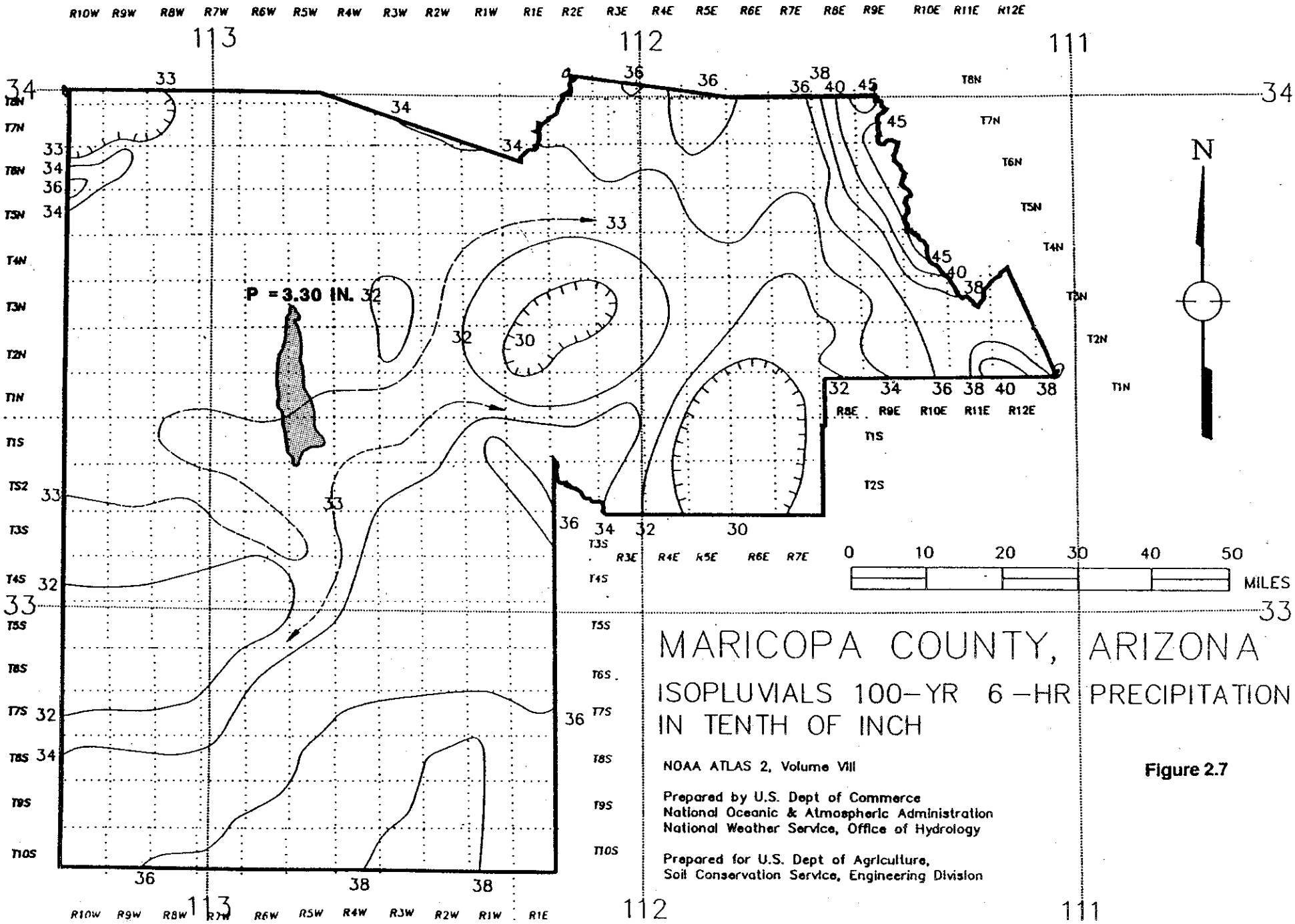
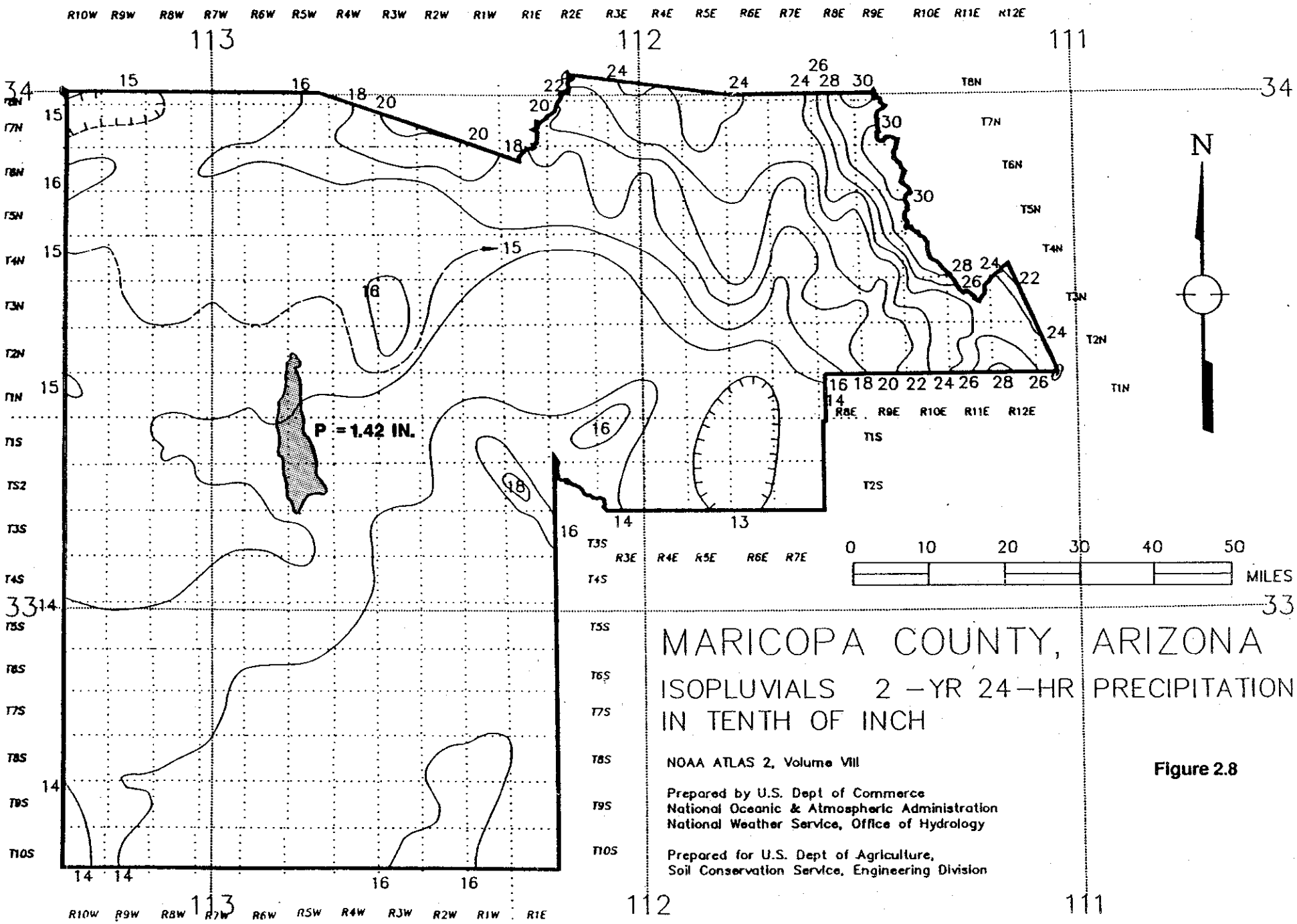

P = 3.30 IN.
N
0 10 20 30 40 50
MILES
MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 100-YR 6-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division

Figure 2.7



MARICOPA COUNTY, ARIZONA

ISOPLUVIALS 2 –YR 24–HR PRECIPITATION IN TENTH OF INCH

NOAA ATLAS 2, Volume VIII

Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology

Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division

Figure 2.8

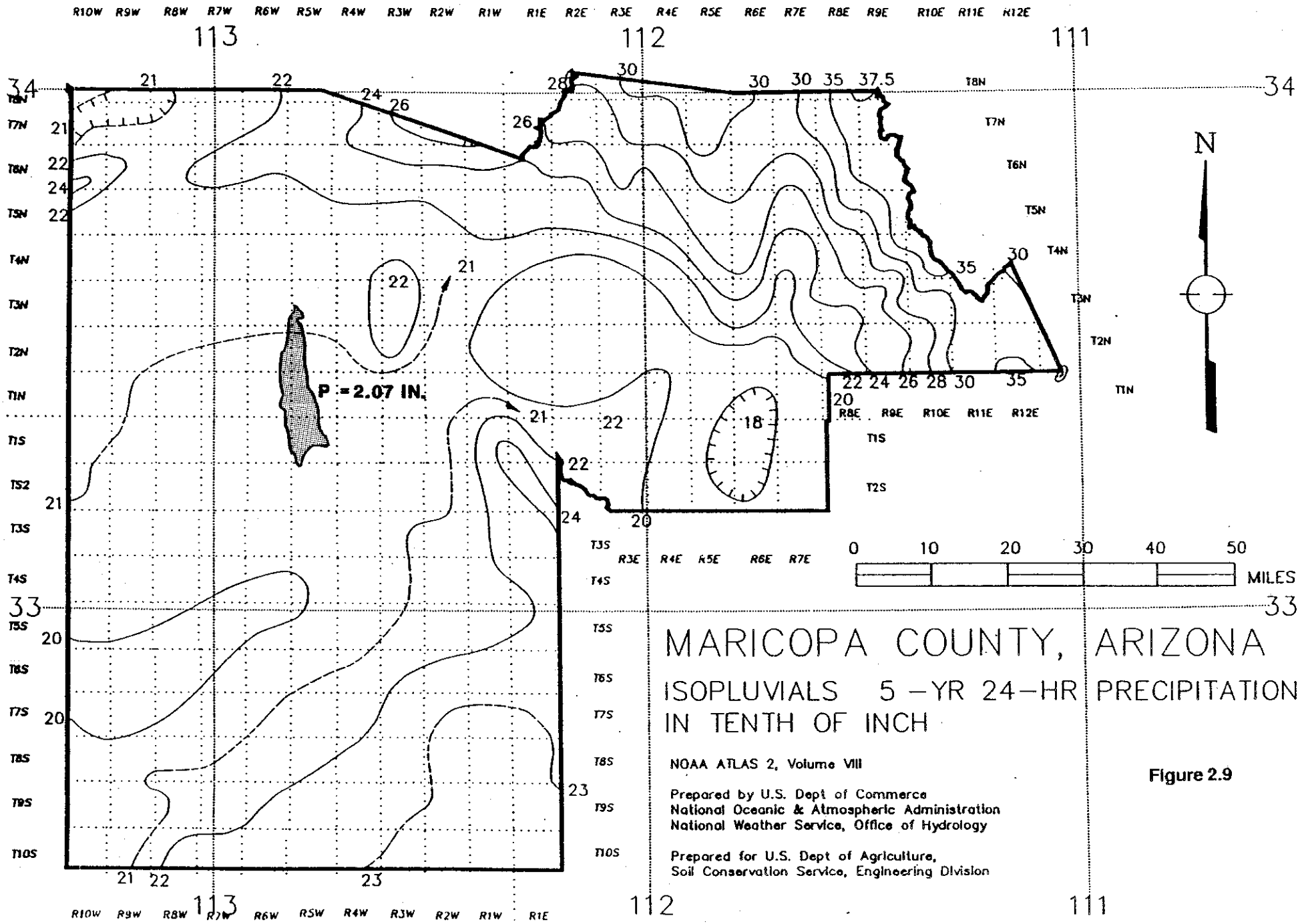

R10W R9W R8W R7W R6W R5W R4W R3W R2W R1W R1E R2E R3E R4E R5E R6E R7E R8E R9E R10E R11E R12E
113
112
111
34
33
T8N
T7N
T6N
T5N
T4N
T3N
T2N
T1N
T1S
T2S
T3S
T4S
T5S
T6S
T7S
T8S
T9S
T10S
P = 2.07 IN.
N
0 10 20 30 40 50
MILES
MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 5 -YR 24-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division

Figure 2.9

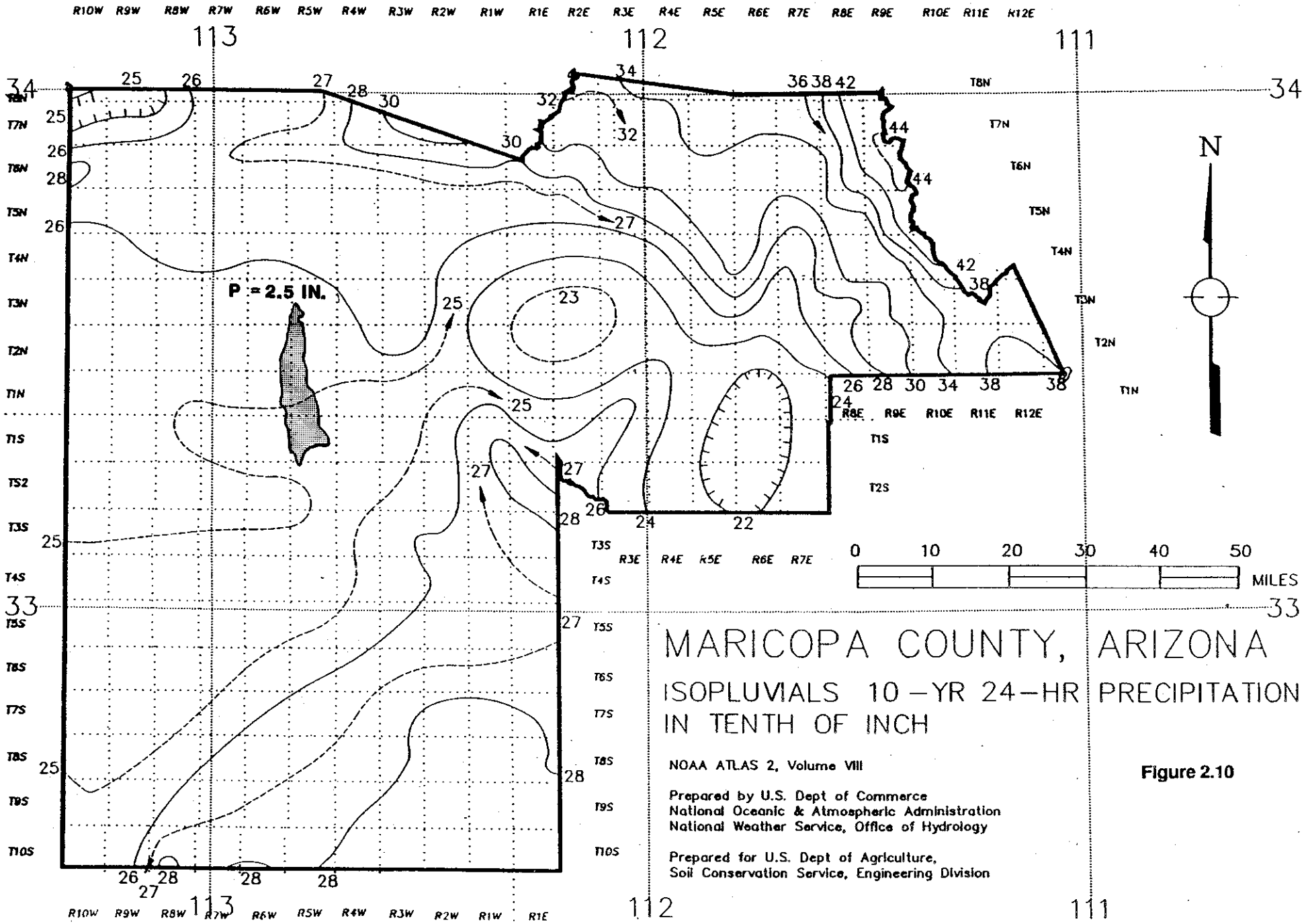

MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 10-YR 24-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
P = 2.5 IN.
N
0 10 20 30 40 50
MILES
R10W R9W R8W R7W R6W R5W R4W R3W R2W R1W R1E R2E R3E R4E R5E R6E R7E R8E R9E R10E R11E R12E
T8N T7N T6N T5N T4N T3N T2N T1N T1S T2S T3S T4S T5S T6S T7S T8S T9S T10S
113 112 111
34 33

Figure 2.10

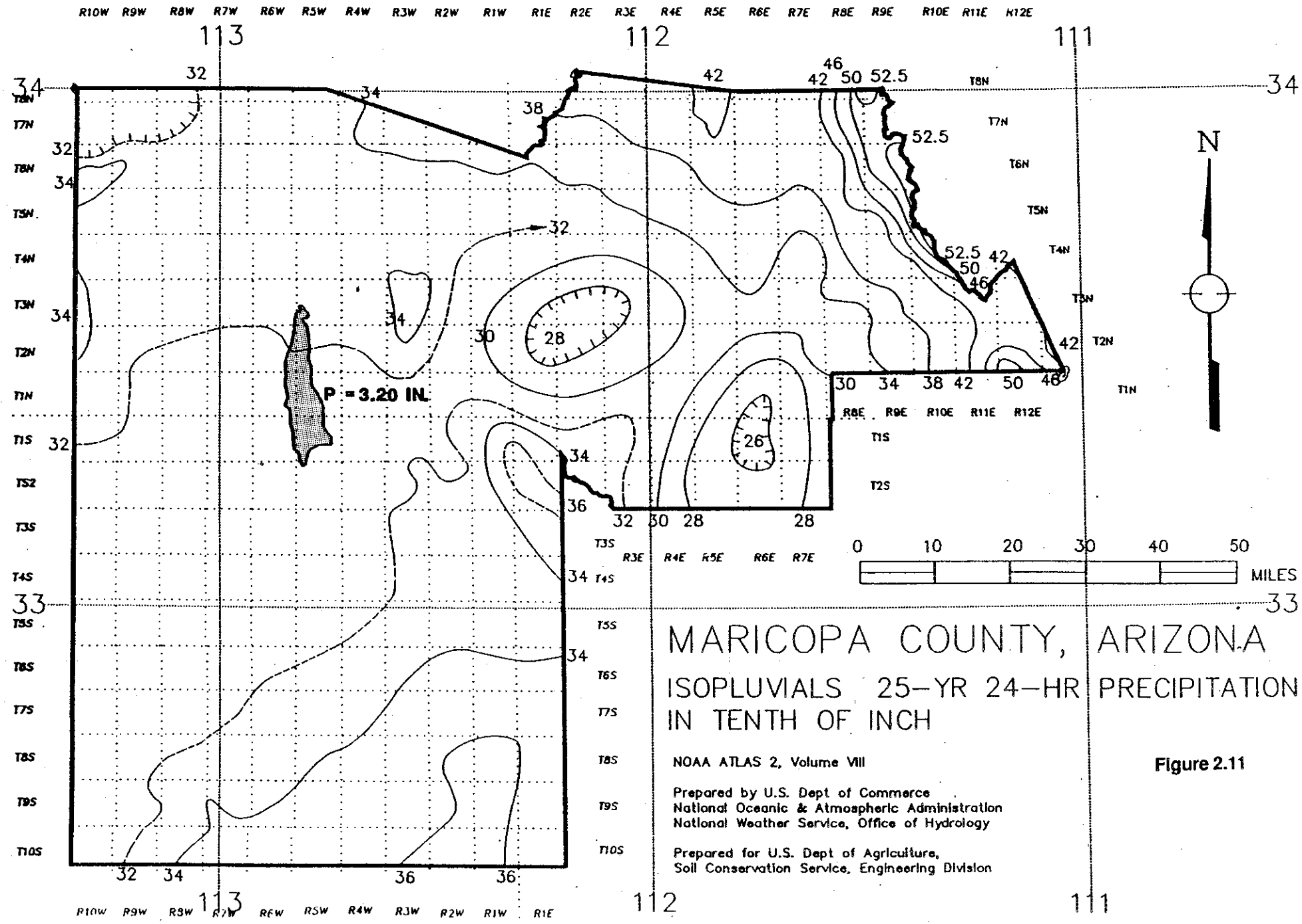

MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 25-YR 24-HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division
P = 3.20 IN.
N
0 10 20 30 40 50
MILES
113
112
111
34
33

Figure 2.11

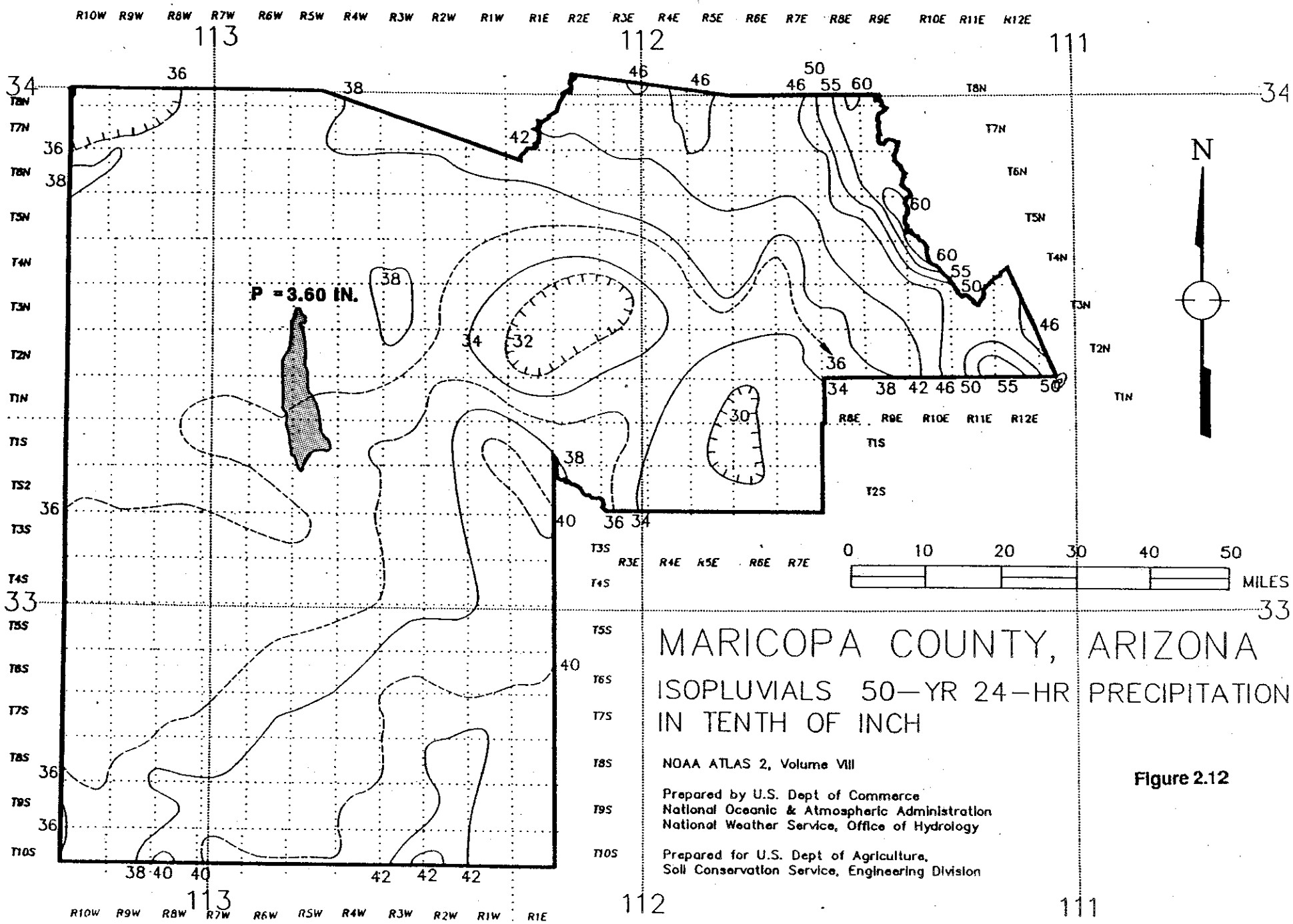
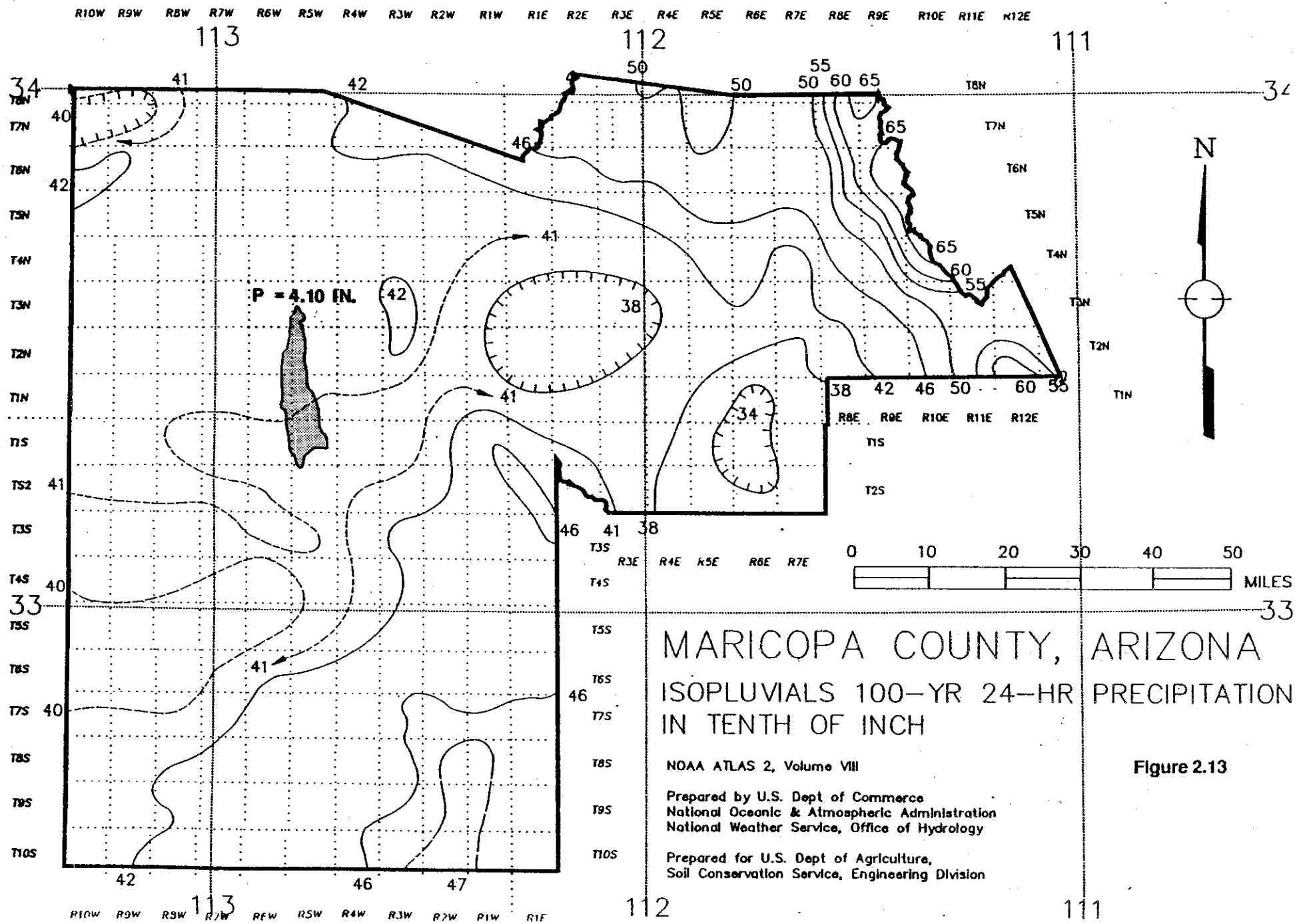

P = 3.60 IN.
N
0 10 20 30 40 50
MILES
MARICOPA COUNTY, ARIZONA
ISOPLUVIALS 50—YR 24—HR PRECIPITATION
IN TENTH OF INCH
NOAA ATLAS 2, Volume VIII
Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology
Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division

Figure 2.12



MARICOPA COUNTY, ARIZONA

ISOPLUVIALS 100-YR 24-HR PRECIPITATION IN TENTH OF INCH

NOAA ATLAS 2, Volume VIII

Prepared by U.S. Dept of Commerce
National Oceanic & Atmospheric Administration
National Weather Service, Office of Hydrology

Prepared for U.S. Dept of Agriculture,
Soil Conservation Service, Engineering Division

Figure 2.13

Section VII AERIAL REDUCTION FACTORS

Table 14 Aerial Precipitation Reduction Data

TABLE 14

AERIAL PRECIPITATION REDUCTION DATA

WATERSHED AREA (SQ. MI.)	AERIAL REDUCTION FACTOR	
	6 HOUR STORM[1]	24 HOUR STORM[2]
0	1.00	1.00
1	0.99	--
3	--	0.98
5	0.96	--
10	0.94	0.96
20	0.91	0.92
30	0.89	0.90
40	0.87	0.89
50	0.86	0.88
100	0.80	0.85

(1) This data is based on depth-area reduction curves, developed by the U.S. Army Corps of Engineers in 1974, for the historic storm of 1954 over the Queen Creek area. The information was compiled from the Hydrologic Design Manual for Maricopa County.

(2) This data is based on NOAA Technical Memorandum NWS HYDRO-40, (Ref. 4). Depth-Area Ratio in the Semi-Arid Southwest United States, August 1984.

Section VIII CALIBRATION

Peak Discharges versus Drainage Area Curves

Table 15 Representative Discharges for HEC-1 Calibration

PEAK DISCHARGES VERSUS DRAINAGE AREA CURVE

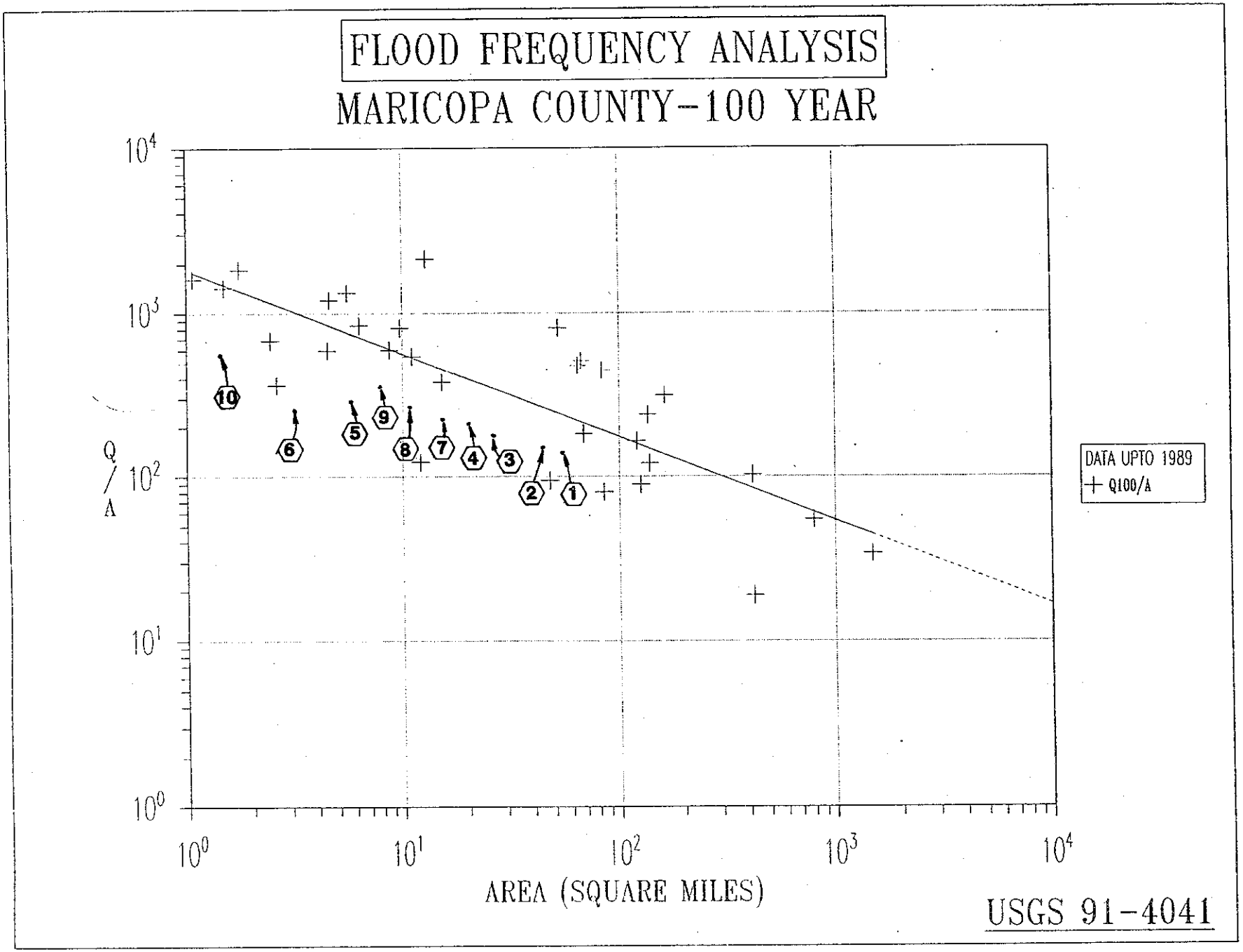


TABLE 15

REPRESENTATIVE DISCHARGES FOR HEC-1 CALIBRATION

ITEM NO.	LOCATION	HEC-1 ID	CONTRIBUTING AREA (SM)	100-YEAR DISCHARGE			
				6-HR (CFS)	Q/A (CFS/SM)	24-HR (CFS)	Q/A (CFS/SM)
1	Luke Wash Below the Arlington Canal	RES513	54.11	4673	86	7633	141
2	Luke Wash Above Confluence with East Main Tributary	C375	42.84	4231	99	6551	153
3	Luke Wash at Salome Highway	C165	25.08	3500	140	4559	182
4	Luke Wash at Lower Buckeye Road	C120	19.99	3204	160	4116	206
5	Dickey Wash at Confluence w/Phillips Wash	C115	5.84	1616	277	1691	290
6	Dickey Wash at I-10	C100	3.06	742	242	748	244
7	Phillips Wash at Confluence w/Dickey Wash	C75	14.15	2534	179	3071	217
8	East Main Tributary Above Old U.S. Highway 80	C485	10.44	2345	225	2631	252
9	East Main Tributary Below Southern Pacific Railroad	C425	7.88	2645	336	2749	349
10	East Sub Tributary Above Confluence w/East Main Tributary	C460	1.35	752	557	618	458

100-Year, 6-Hour HEC-1 Model

```
****************************************
*                                      *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*          SEPTEMBER 1990              *
*           VERSION 4.0                *
*                                      *
* RUN DATE  09/10/1992  TIME  10:52:11 *
*                                      *
****************************************
```

```
****************************************
*                                      *
*   U.S. ARMY CORPS OF ENGINEERS       *
*   HYDROLOGIC ENGINEERING CENTER      *
*         609 SECOND STREET            *
*      DAVIS, CALIFORNIA 95616         *
*          (916) 756-1104              *
*                                      *
****************************************
```

```
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     FCDMC LUKE WASH, PROJECT NO. 90-68
  2           ID     100-YEAR, 6-HOUR DURATION STORM
  3           ID        FILENAME:  LUKE6        SEPT 1992
              *DIAGRAM
  4           IT      5                    300
  5           IO      5
  6           IN     15
  7           JD   3.30    0.01
  8           PC   .000    .008    .016    .025    .033    .041    .050    .058    .066    .074
  9           PC   .087    .099    .118    .138    .216    .377    .834    .911    .931    .950
 10           PC   .962    .972    .983    .991   1.000
 11           JD   3.28    0.50
 12           JD   3.23    2.80
 13           PC   .000    .009    .016    .025    .034    .042    .051    .059    .067    .076
 14           PC   .087    .100    .120    .163    .252    .451    .694    .837    .900    .938
 15           PC   .950    .963    .975    .988   1.000
 16           JD   3.04    16.0
 17           PC   .000    .015    .020    .030    .048    .063    .076    .090    .105    .119
 18           PC   .135    .152    .175    .222    .304    .472    .670    .796    .868    .912
 19           PC   .946    .960    .973    .987   1.000
 20           JD   2.67    90.0
 21           PC   .000    .021    .035    .051    .071    .087    .105    .125    .143    .160
 22           PC   .179    .201    .232    .281    .364    .500    .658    .773    .841    .888
 23           PC   .927    .945    .964    .982   1.000
 24           JD   1.88   500.0
 25           PC   .000    .024    .043    .059    .078    .098    .119    .141    .162    .186
 26           PC   .212    .239    .271    .321    .408    .515    .627    .735    .814    .864
 27           PC   .907    .930    .954    .977   1.000

 28           KK     S5
 29           KM       BASIN S5
 30           KM       THE HYDROGRAPH LOCATION ID NUMBERS INCREASE THROUGHOUT THIS MODEL.
 31           KM       ALL SUBBASINS ARE DENOTED WITH AN "S"
 32           KM       ALL ROUTES ARE DENOTED WITH AN "R"
 33           KM       ALL COMBINES ARE DENOTED WITH A "C"
 34           KM       ALL RESERVOIRS ARE DENOTED WITH AN "RES"
 35           KM       HEADWATERS OF PHILLIPS WASH
 36           KM       THIS IS SUB-BASIN 18D FROM THE JACKRABBIT WASH STUDY
 37           BA   3.60
 38           LG    .35     .35    3.90     .45     .00
 39           UI   247.    247.    677.   1038.   1274.   1462.   1714.   2023.   2697.   3128.
 40           UI  2497.   2116.   1830.   1542.   1301.   1081.    765.    441.    415.    352.
 41           UI   247.    232.     76.     76.     76.     76.     76.     76.     76.      0.
 42           UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 43           UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 44           KK    R10
 45           KM       ROUTE R10
 46           KM       THIS IS ROUTE 104-105 FROM THE JACK RABBIT WASH STUDY
 47           RS     17    FLOW      -1
 48           RL                   0.43    85.2
 49           RC   0.07   0.039    0.06   18322   0.006
 50           RX 1000.0  1515.0  1567.0  1574.5  1596.5  1602.0  1622.5  2337.5
 51           RY   95.7    90.5    88.7    85.2    85.2    87.7    88.5    95.7
```

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

  52          KK     S15
  53          KM        BASIN 15
  54          KM        THIS IS SUB-BASIN 18E FROM THE JACK RABBIT WASH STUDY
  55          BA    3.83
  56          LG     .35     .35    4.20     .42     .00
  57          UI    293.    293.   1005.   1344.   1631.   1902.   2286.   3056.   3690.   2920.
  58          UI   2441.   2054.   1707.   1419.   1014.    608.    497.    416.    293.    227.
  59          UI     90.     90.     90.     90.     90.     90.      0.      0.      0.      0.
  60          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  61          KK     C20
  62          KM        COMBINE C20
  63          KM        THIS IS THE COMBINE AT C105 FROM THE JACK RABBIT WASH STUDY
  64          KM        PHILLIPS WASH CROSSING AT INDIAN SCHOOL ROAD
  65          HC       2

  66          KK     R25
  67          KM        ROUTE R25
  68          KM        THIS IS ROUTE 105-106 FROM THE JACK RABBIT WASH STUDY
  69          RS       8    FLOW      -1
  70          RL                   0.33    82.5
  71          RC    0.05   0.037    0.05    9610   0.004
  72          RX  1000.0  1510.0  1560.0  1570.0  1590.0  1595.0  1620.0  1822.0
  73          RY    95.1    90.0    87.5    82.5    82.5    84.5    85.0    95.1

  74          KK     S30
  75          KM        BASIN S30
  76          KM        THIS IS SUB-BASIN 18F FROM THE JACK RABBIT WASH STUDY
  77          BA     .80
  78          LG     .35     .35    4.00     .45     .00
  79          UI    104.    329.    549.    729.   1129.   1092.    795.    582.    383.    183.
  80          UI    132.     77.     32.     32.     32.      0.      0.      0.      0.      0.
  81          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  82          KK     C35
  83          KM        COMBINE C35
  84          KM        THIS IS THE COMBINE AT C106 FROM THE JACK RABBIT WASH STUDY
  85          KM        PHILLIPS WASH CROSSING AT INTERSTATE-10
  86          HC       2

  87          KK   RES38
  88          KM        RESERVOIR ROUTING RES38
  89          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF INTERSTATE-10
  90          KM        THIS PONDING IS BASED ON THE USGS WINTERSBURG QUADRANGLE
  91          KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
  92          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
  93          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER I-10 HAVE BEEN COMBINED
  94          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
  95          KM            2-10'x3'x194' CBCs
  96          KM            3-10'x5'x194' CBCs
  97          KM        WEIR FLOW OVER I-10 IS ASSUMED TO BEGIN AT A DEPTH OF 9 FEET.
  98          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
  99          KM                DETAILED INFORMATION ON THE CULVERTS.
 100          RS       1    ELEV       0
```

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

 101          SA     0.1       2       5      16      35      56      65      97
 102          SE       0       1       2       4       6       8       9      11
 103          SQ       0     145     400    1064    1763    2243    2488    7590

 104          KK     S40
 105          KM        BASIN S40
 106          KM        THIS IS SUB-BASIN 18R FROM THE JACK RABBIT WASH STUDY
 107          BA    2.17
 108          LG     .35     .34    4.30     .34     .00
 109          UI    124.    124.    205.    438.    552.    643.    723.    817.    937.   1114.
 110          UI   1445.   1566.   1279.   1105.    985.    854.    749.    645.    563.    420.
 111          UI    285.    219.    204.    177.    124.    124.     71.     38.     38.     38.
 112          UI     38.     38.     38.     38.     38.      0.      0.      0.      0.      0.
 113          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 114          KK     R45
 115          KM        ROUTE R45
 116          KM        THIS IS ROUTE R118-64 FROM THE JACK RABBIT WASH STUDY
 117          RS      10    FLOW      -1
 118          RL                    0.40    88.0
 119          RC    0.07   0.041    0.07    8818   0.006
 120          RX  1000.0  1520.0  1574.0  1579.0  1603.0  1609.0  1625.0  2045.0
 121          RY    96.2    91.0    90.0    88.0    88.0    91.0    92.0    96.2

 122          KK     S50
 123          KM        BASIN S50
 124          KM        THIS IS SUB-BASIN 18S FROM THE JACK RABBIT WASH STUDY
 125          BA    1.35
 126          LG     .35     .34    4.50     .38     .00
 127          UI    142.    320.    641.    827.   1046.   1520.   1636.   1222.    962.    744.
 128          UI    513.    268.    219.    142.     74.     44.     44.     44.     44.      0.
 129          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 130          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 131          KK     C55
 132          KM        COMBINE C55
 133          KM        THIS IS THE COMBINE C64 FROM THE JACK RABBIT WASH STUDY
 134          KM        THIS IS A FLOW CROSSING AT INTERSTATE-10
 135          HC       2

 136          KK   RES58
 137          KM        RESERVOIR ROUTING RES58
 138          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF INTERSTATE-10
 139          KM        THIS PONDING IS BASED ON THE USGS WINTERSBURG QUADRANGLE
 140          KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
 141          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
 142          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER I-10 HAVE BEEN COMBINED
 143          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
 144          KM            2-10'x8'x194' CBCs
 145          KM        WEIR FLOW OVER I-10 IS ASSUMED TO BEGIN AT A DEPTH OF 11 FEET.
 146          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
 147          KM                DETAILED INFORMATION ON THE CULVERTS.
 148          RS       1    ELEV       0
 149          SA     0.1     0.8     1.4       5      12      20      31      38      49
 150          SE       0       1       2       4       6       8      10      11      13
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 151          SQ       0      60     166     480     900    1300    1700    1900    6060

 152          KK     C60
 153          KM        COMBINE C60
 154          HC       2

 155          KK     R65
 156          KM        ROUTE R65
 157          RS       3    FLOW      -1
 158          RL                    .39      10
 159          RC    .060    .040    .060    7700  .00506
 160          RX     405     417     479     485     515     521     583     595
 161          RY      17      13      13      10      10      13      13      17

 162          KK     R68
 163          KM        ROUTE R68
 164          RS       8    FLOW      -1
 165          RL                   0.39      10
 166          RC     .06     .04     .06   13300  .00436
 167          RX     410     419     472     480     520     528     581     590
 168          RY      17      14      14      10      10      14      14      17

 169          KK     S70
 170          KM        BASIN S70
 171          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 172          KM        L=      4.1  Lca=      2.5   S=   27.0  Kn= .060  LAG= 111.1
 173          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 174          BA    2.40
 175          LG     .35     .35    3.71     .32     .00
 176          UI     73.     73.     73.     73.     73.    221.    252.    279.    335.    354.
 177          UI    384.    406.    431.    460.    493.    534.    566.    619.    709.    836.
 178          UI    917.    941.    833.    753.    692.    644.    606.    571.    534.    488.
 179          UI    455.    428.    393.    363.    342.    305.    265.    209.    175.    129.
 180          UI    129.    124.    119.    119.    100.     73.     73.     73.     73.     57.
 181          UI     22.     22.     22.     22.     22.     22.     22.     22.     22.     22.
 182          UI     22.     22.     22.     22.     22.     22.      0.      0.      0.      0.
 183          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 184          KK     C75
 185          KM        COMBINE C75
 186          KM        PHILLIPS WASH CROSSING AT LOWER BUCKEYE ROAD
 187          HC       2

 188          KK     S80
 189          KM        BASIN S80
 190          KM        THIS IS SUB-BASIN 18G FROM THE JACK RABBIT WASH STUDY
 191          BA    2.03
 192          LG     .35     .35    5.30     .29     .00
 193          UI    159.    167.    559.    747.    896.   1060.   1279.   1759.   1942.   1514.
 194          UI   1277.   1055.    876.    712.    481.    281.    262.    185.    159.     74.
 195          UI     49.     49.     49.     49.     49.      0.      0.      0.      0.      0.
 196          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

 197          KK     S85
 198          KM        BASIN S85
 199          KM        THIS IS SUB-BASIN 18K FROM THE JACK RABBIT WASH STUDY
 200          BA     .80
 201          LG     .35     .35    4.00     .49     .00
 202          UI    122.    491.    738.   1116.   1381.    939.    653.    339.    191.    109.
 203          UI     38.     38.     38.      0.      0.      0.      0.      0.      0.      0.
 204          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 205          KK     C90
 206          KM        COMBINE C90
 207          KM        DICKEY WASH CROSSING AT INTERSTATE-10
 208          HC       2

 209          KK   RES93
 210          KM        RESERVOIR ROUTING RES93
 211          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF INTERSTATE-10
 212          KM        THIS PONDING IS BASED ON THE USGS WINTERSBURG QUADRANGLE
 213          KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
 214          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
 215          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER I-10 HAVE BEEN COMBINED
 216          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
 217          KM              1-72"x224' PIPE CULVERT
 218          KM              2-10'x5' CBCs
 219          KM        WEIR FLOW OVER I-10 IS ASSUMED TO BEGIN AT A DEPTH OF 10 FEET.
 220          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
 221          KM                DETAILED INFORMATION ON THE CULVERTS.
 222          RS      1    ELEV      0
 223          SA      5       8     14     19     28     42     58     72
 224          SE      0       1      2      4      6      8     10     12
 225          SQ      0      44    110    332    591    820    970   3794

 226          KK     S95
 227          KM        BASIN S95
 228          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 229          KM        L=       .9  Lca=       .4   S=   26.0  Kn= .060  LAG=  32.6
 230          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 231          BA     .23
 232          LG     .35     .35    4.30     .44     .00
 233          UI     24.     51.    105.    137.    171.    242.    283.    211.    168.    130.
 234          UI     94.     50.     40.     25.     17.      7.      7.      7.      7.      0.
 235          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 236          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 237          KK   RES98
 238          KM        RESERVOIR ROUTING RES98
 239          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF INTERSTATE-10
 240          KM        THIS PONDING IS BASED ON THE USGS WINTERSBURG QUADRANGLE
 241          KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
 242          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
 243          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER I-10 HAVE BEEN COMBINED
 244          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
 245          KM              1-6'x3'x194' CBC
 246          KM              2-36"x216' CMPs
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 247          KM        WEIR FLOW OVER I-10 IS ASSUMED TO BEGIN AT A DEPTH OF 8 FEET.
 248          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
 249          KM                DETAILED INFORMATION ON THE CULVERTS.
 250          RS      1    ELEV      0
 251          SA    0.1     0.3     0.7      3      6     10     20
 252          SE      0       1       2      4      6      8     10
 253          SQ      0      30      85    218    314    393   5801

 254          KK    C100
 255          KM        COMBINE C100
 256          HC      2

 257          KK    R103
 258          KM        ROUTE R103
 259          RS      5    FLOW     -1
 260          RL                   .40     10
 261          RC   .060    .040    .060   6500  .00462
 262          RX  447.5   459.5   481.5  487.5  512.5  518.5  540.5  552.5
 263          RY     17      13      13     10     10     13     13     17

 264          KK    R105
 265          KM        ROUTE R105
 266          RS      5    FLOW     -1
 267          RL                   .40     10
 268          RC   .060    .040    .060   5800  .00431
 269          RX  437.5   449.5   481.5  487.5  512.5  518.5  550.5  562.5
 270          RY     17      13      13     10     10     13     13     17

 271          KK    R108
 272          KM        ROUTE R108
 273          RS      7    FLOW     -1
 274          RL                   .40     10
 275          RC   .060    .040    .060   6000  .00433
 276          RX    425     432     479    485    515    521    563    575
 277          RY     17      13      13     10     10     13     13     17

 278          KK    S110
 279          KM        BASIN S110
 280          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 281          KM        L=      3.8  Lca=      2.1   S=   30.0  Kn= .060  LAG=  98.8
 282          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 283          BA    2.78
 284          LG    .35     .35    3.66     .31    .39
 285          UI    95.     95.     95.     95.   193.   315.   363.   428.   461.   508.
 286          UI   540.    575.    620.    680.   729.   799.   930.  1088.  1256.  1160.
 287          UI  1025.    924.    851.    792.   742.   683.   623.   579.   532.   483.
 288          UI   451.    402.    338.    272.   199.   168.   166.   156.   156.   134.
 289          UI    95.     95.     95.     95.    41.    29.    29.    29.    29.    29.
 290          UI    29.     29.     29.     29.    29.    29.    29.    29.    29.     0.
 291          UI     0.      0.      0.      0.     0.     0.     0.     0.     0.     0.
 292          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

 293          KK    C115
 294          KM        COMBINE C115
 295          KM        DICKEY WASH CROSSING AT LOWER BUCKEYE ROAD
 296          HC       2

 297          KK    C120
 298          KM        COMBINE C120
 299          KM        DICKEY AND PHILLIPS WASHES COMBINE AT BUCKEYE ROAD AND BECOME LUKE WASH
 300          HC       2

 301          KK    R125
 302          KM        ROUTE R125
 303          RS       3    FLOW      -1
 304          RL                     .40      10
 305          RC    .065    .035    .065    5400  .00463
 306          RX    380     392     472     480     520     528     608     620
 307          RY     18      14      14      10      10      14      14      18

 308          KK    S130
 309          KM        BASIN S130
 310          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 311          KM        L=      1.4  Lca=       .8   S=   27.0  Kn= .065  LAG=  51.0
 312          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 313          BA     .31
 314          LG    .35     .35    3.66     .31     .00
 315          UI    20.     20.     51.     83.    102.    118.    135.    159.    203.    259.
 316          UI   226.    187.    164.    139.    119.    101.     81.     52.     36.     34.
 317          UI    27.     20.     18.      6.      6.      6.      6.      6.      6.      6.
 318          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 319          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 320          KK    C135
 321          KM        COMBINE C135
 322          HC       2

 323          KK    S136
 324          KM        BASIN S136
 325          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 326          KM        L=      3.0  Lca=      1.4   S=   32.0  Kn= .062  LAG=  79.8
 327          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 328          BA    1.26
 329          LG    .35     .34    3.50     .29     .00
 330          UI    53.     53.     53.     93.    181.    214.    252.    278.    304.    329.
 331          UI   364.    403.    449.    544.    654.    680.    579.    511.    464.    426.
 332          UI   388.    347.    315.    283.    255.    223.    175.    136.     94.     93.
 333          UI    87.     87.     54.     53.     53.     42.     16.     16.     16.     16.
 334          UI    16.     16.     16.     16.     16.     16.     16.      0.      0.      0.
 335          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

 336          KK    R138
 337          KM        ROUTE R138
 338          RS      5    FLOW      -1
 339          RL                    .40      10
 340          RC    .065    .040    .065    8500  .00518
 341          RX     455   462.5     490     495     505     510   537.5     545
 342          RY      15    12.5    12.5      10      10    12.5    12.5      15

 343          KK    S140
 344          KM        BASIN S140
 345          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 346          KM        L=      2.8  Lca=      1.2   S=   32.0  Kn= .062  LAG=  73.7
 347          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 348          BA    1.52
 349          LG     .37     .31    3.61     .31     .00
 350          UI     69.     69.     69.    166.    250.    303.    347.    383.    419.    465.
 351          UI    520.    583.    722.    864.    861.    729.    642.    582.    532.    471.
 352          UI    424.    379.    338.    294.    227.    168.    123.    119.    114.     95.
 353          UI     69.     69.     67.     21.     21.     21.     21.     21.     21.     21.
 354          UI     21.     21.     21.     21.      0.      0.      0.      0.      0.      0.
 355          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 356          KK    C142
 357          KM        COMBINE C142
 358          KM        FLOW CROSSING AT BROADWAY ROAD
 359          HC      2

 360          KK    C145
 361          KM        COMBINE C145
 362          KM        LUKE WASH CROSSING AT BROADWAY ROAD
 363          HC      2

 364          KK    R150
 365          KM        ROUTE R150
 366          RS      2    FLOW      -1
 367          RL                    .40      10
 368          RC    .065    .035    .065    6000  .00433
 369          RX     390     405     474     480     520     526     595     610
 370          RY      18      13      13      10      10      13      13      18

 371          KK    S155
 372          KM        BASIN S155
 373          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 374          KM        L=      1.9  Lca=       .8   S=   37.0  Kn= .065  LAG=  53.8
 375          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 376          BA     .82
 377          LG     .35     .35    3.71     .33     .00
 378          UI     51.     51.    113.    195.    247.    285.    322.    376.    444.    586.
 379          UI    646.    521.    446.    393.    334.    289.    248.    195.    129.     91.
 380          UI     85.     71.     51.     51.     18.     16.     16.     16.     16.     16.
 381          UI     16.     16.      0.      0.      0.      0.      0.      0.      0.      0.
 382          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

383           KK    S160
384           KM        BASIN S160
385           KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
386           KM        L=      3.4  Lca=      1.5   S=   27.0  Kn= .065  LAG=  94.4
387           KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
388           BA    1.18
389           LG     .35     .35    3.71     .32     .00
390           UI     42.     42.     42.     42.    105.    146.    168.    197.    213.    231.
391           UI    246.    267.    289.    317.    342.    396.    476.    537.    527.    460.
392           UI    413.    378.    351.    328.    298.    274.    251.    230.    210.    196.
393           UI    166.    132.    111.     74.     74.     70.     69.     66.     42.     42.
394           UI     42.     42.     19.     13.     13.     13.     13.     13.     13.     13.
395           UI     13.     13.     13.     13.     13.     13.      0.      0.      0.      0.
396           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

397           KK    C165
398           KM        COMBINE C165
399           KM        LUKE WASH CROSSING AT SALOME HIGHWAY
400           KM        LUKE WASH INTERMINGLES WITH A TRIBUTARY APPROXIMATELY
401           KM        2000 FEET NORTH OF SALOME HIGHWAY
402           HC       3

403           KK    R170
404           KM        ROUTE R170
405           RS       3    FLOW      -1
406           RL                     .40      10
407           RC    .070    .040    .070    5500  .00527
408           RX     390     402     482     490     510     518     598     610
409           RY      20      14      14      10      10      14      14      20

410           KK    S175
411           KM        BASIN S175
412           KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
413           KM        L=      1.4  Lca=       .7   S=   44.0  Kn= .068  LAG=  47.1
414           KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
415           BA     .58
416           LG     .35     .35    3.82     .35     .00
417           UI     41.     41.    124.    180.    219.    253.    299.    365.    502.    483.
418           UI    388.    334.    280.    236.    199.    144.     90.     71.     65.     41.
419           UI     41.     15.     13.     13.     13.     13.     13.     13.      0.      0.
420           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

421           KK    C180
422           KM        COMBINE C180
423           KM        LUKE WASH CROSSING AT BASELINE ROAD
424           HC       2

425           KK    S185
426           KM        BASIN S185
427           KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
428           KM        L=      2.4  Lca=      1.1   S=   31.0  Kn= .068  LAG=  74.3
429           KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
430           BA     .74
431           LG     .35     .35    3.61     .31     .00
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 432          UI     34.     34.     34.     78.    120.    145.    166.    184.    201.    223.
 433          UI    249.    277.    336.    414.    424.    358.    315.    285.    261.    232.
 434          UI    208.    186.    167.    147.    116.     89.     59.     58.     55.     51.
 435          UI     34.     34.     34.     16.     10.     10.     10.     10.     10.     10.
 436          UI     10.     10.     10.     10.      0.      0.      0.      0.      0.      0.
 437          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 438          KK    C190
 439          KM        COMBINE C190
 440          HC       2

 441          KK    R195
 442          KM        ROUTE 195
 443          RS       6    FLOW      -1
 444          RL                     .40      10
 445          RC    .070    .035    .070   11600  .00474
 446          RX     380     392     474     480     520     526     608     620
 447          RY      20      13      13      10      10      13      13      20

 448          KK    S200
 449          KM        BASIN S200
 450          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 451          KM        L=      2.6  Lca=      1.4   S=   34.0  Kn= .068  LAG=  80.7
 452          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 453          BA    1.34
 454          LG     .35     .35    3.71     .33     .00
 455          UI     56.     56.     56.     93.    189.    222.    263.    289.    317.    342.
 456          UI    378.    420.    461.    551.    670.    731.    626.    550.    496.    456.
 457          UI    419.    373.    340.    306.    276.    247.    200.    161.    100.     99.
 458          UI     93.     92.     69.     56.     56.     56.     21.     17.     17.     17.
 459          UI     17.     17.     17.     17.     17.     17.     17.     17.      0.      0.
 460          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 461          KK    C205
 462          KM        COMBINE C205
 463          KM        LUKE WASH UPSTREAM OF SOUTHERN PACIFIC RAILROAD
 464          HC       2

 465          KK    S210
 466          KM        BASIN S210
 467          KM        THIS IS SUB-BASIN 18P FROM THE JACK RABBIT WASH STUDY
 468          BA    1.36
 469          LG     .35     .31    6.00     .28     .00
 470          UI    112.    141.    404.    548.    650.    783.    978.   1376.   1218.    977.
 471          UI    820.    669.    547.    391.    227.    188.    144.    112.     60.     34.
 472          UI     34.     34.     34.     34.      0.      0.      0.      0.      0.      0.
 473          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 474          KK    R215
 475          KM        ROUTE R125
 476          KM        THIS IS ROUTE 116-117 FROM THE JACK RABBIT WASH STUDY
 477          RS       9    FLOW      -1
 478          RL                    0.39    88.0
 479          RC    0.07   0.041    0.07    7392   0.006
 480          RX  1000.0  1520.0  1574.0  1579.0  1603.0  1609.0  1625.0  2045.0
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 481          RY    96.2    91.0    90.0    88.0    88.0    91.0    92.0    96.2

 482          KK    S220
 483          KM        BASIN S220
 484          KM        THIS IS SUB-BASIN 18Q FROM THE JACK RABBIT WASH STUDY
 485          BA    1.13
 486          LG     .35     .35    3.90     .37     .00
 487          UI    136.    381.    686.    888.   1259.   1615.   1190.    905.    673.    384.
 488          UI    231.    156.     91.     42.     42.     42.      0.      0.      0.      0.
 489          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 490          KK    C225
 491          KM        COMBINE C225
 492          KM        THIS IS COMBINE C117 FROM THE JACK RABBIT WASH STUDY
 493          KM        THIS IS A FLOW CROSSING AT INTERSTATE-10
 494          HC       2

 495          KK  RES228
 496          KM        RESERVOIR ROUTING RES228
 497          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF INTERSTATE-10
 498          KM        THIS PONDING IS BASED ON THE USGS WINTERSBURG QUADRANGLE
 499          KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
 500          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
 501          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER I-10 HAVE BEEN COMBINED
 502          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
 503          KM              2-10'x5'x209' CBCs
 504          KM        WEIR FLOW OVER I-10 IS ASSUMED TO BEGIN AT A DEPTH OF 12 FEET.
 505          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
 506          KM                DETAILED INFORMATION ON THE CULVERTS.
 507          RS       1    ELEV       0
 508          SA     0.1     1.5       3       9      22      36      54      80     100
 509          SE       0       1       2       4       6       8      10      12      14
 510          SQ       0      60     164     448     790    1014    1244    1438    9276

 511          KK    R230
 512          KM        ROUTE R230
 513          RS       3    FLOW      -1
 514          RL                    .38      10
 515          RC    .060    .045    .060    5400  .00611
 516          RX     446     455     492     496     504     508     545     554
 517          RY      15      12      12      10      10      12      12      15

 518          KK    S235
 519          KM        BASIN S235
 520          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 521          KM        L=      1.4  Lca=       .5   S=   31.0  Kn= .060  LAG=  39.0
 522          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 523          BA     .26
 524          LG     .35     .35    3.66     .31     .00
 525          UI     22.     33.     85.    114.    136.    166.    224.    278.    220.    181.
 526          UI    147.    119.     92.     53.     38.     32.     22.     14.      7.      7.
 527          UI      7.      7.      7.      0.      0.      0.      0.      0.      0.      0.
 528          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

 529          KK  RES238
 530          KM        RESERVOIR ROUTING RES238
 531          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF INTERSTATE-10
 532          KM        THIS PONDING IS BASED ON THE USGS WINTERSBURG QUADRANGLE
 533          KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
 534          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
 535          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER I-10 HAVE BEEN COMBINED
 536          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
 537          KM              2-42"x213' CMPs
 538          KM              2-36"x235' CMPs
 539          KM        WEIR FLOW OVER I-10 IS ASSUMED TO BEGIN AT A DEPTH OF 8 FEET.
 540          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
 541          KM                DETAILED INFORMATION ON THE CULVERTS.
 542          RS       1    ELEV       0
 543          SA     0.1     1.5       3      10      25      38      50
 544          SE       0       1       2       4       6       8      10
 545          SQ       0      26      76     220     320     406    4660

 546          KK    R240
 547          KM        ROUTE R240
 548          RS       6    FLOW      -1
 549          RL                     .30      10
 550          RC    .060    .045    .060    4200  .00595
 551          RX   457.5   466.5   493.5   497.5   502.5   506.5   533.5   542.5
 552          RY      15      12      12      10      10      12      12      15

 553          KK    C245
 554          KM        COMBINE C245
 555          KM        FLOW COMBINES AT MCDOWELL ROAD
 556          HC       2

 557          KK    R248
 558          KM        ROUTE R248
 559          RS       3    FLOW      -1
 560          RL                     .38      10
 561          RC    .060    .045    .060    5400  .00611
 562          RX   447.5   456.5   491.5   497.5   502.5   508.5   543.5   552.5
 563          RY      16      13      13      10      10      13      13      16

 564          KK    R250
 565          KM        ROUTE R250
 566          RS       5    FLOW      -1
 567          RL                     .25      10
 568          RC    .060    .045    .060    7600  .00487
 569          RX   457.5   466.5   491.5   497.5   502.5   508.5   533.5   542.5
 570          RY      16      13      13      10      10      13      13      16

 571          KK    S255
 572          KM        BASIN S255
 573          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 574          KM        L=      1.2  Lca=       .5   S=   33.0  Kn= .060  LAG=  35.6
 575          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 576          BA     .34
 577          LG     .35     .35    3.61     .30     .00
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

578           UI     32.     59.    132.    173.    212.    270.    391.    339.    268.    215.
579           UI    171.    126.     70.     54.     38.     30.     10.     10.     10.     10.
580           UI     10.      0.      0.      0.      0.      0.      0.      0.      0.      0.
581           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

582           KK  RES256
583           KM        RESERVOIR ROUTING RES256
584           KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF INTERSTATE-10
585           KM        THIS PONDING IS BASED ON THE USGS WINTERSBURG QUADRANGLE
586           KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
587           KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
588           KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER I-10 HAVE BEEN COMBINED
589           KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
590           KM              2-36"x206' CMPs
591           KM              3-36"x225' CMPs
592           KM              1-42"x242' CMPs
593           KM        WEIR FLOW OVER I-10 IS ASSUMED TO BEGIN AT A DEPTH OF 6 FEET.
594           KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
595           KM                DETAILED INFORMATION ON THE CULVERTS.
596           RS      1    ELEV      0
597           SA    0.5       2       4      14      29      56
598           SE      0       1       2       4       6       8
599           SQ      0      37     110     310     440   12025

600           KK    R258
601           KM        ROUTE R258
602           RS      9    FLOW     -1
603           RL                   .25      10
604           RC   .060    .045    .060    8800  .00602
605           RX  468.5     476   495.5   498.5   501.5   504.5     524   531.5
606           RY     14    11.5    11.5      10      10    11.5    11.5      14

607           KK    R260
608           KM        ROUTE R260
609           RS     10    FLOW     -1
610           RL                  0.25      10
611           RC   .060    .045    .060    7400  .00500
612           RX  468.5     476   495.5   498.5   501.5   504.5     524   531.5
613           RY     14    11.5    11.5      10      10    11.5    11.5      14

614           KK    S265
615           KM        BASIN S265
616           KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
617           KM        L=      3.3  Lca=      1.6   S=   29.0  Kn= .060  LAG=  86.4
618           KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
619           BA    3.20
620           LG     .35     .35    3.50     .28     .16
621           UI    125.    125.    125.    132.    410.    465.    553.    613.    679.    723.
622           UI    789.    865.    948.   1046.   1236.   1491.   1644.   1429.   1256.   1139.
623           UI   1047.    973.    876.    796.    734.    657.    600.    533.    432.    358.
624           UI    221.    221.    209.    205.    178.    125.    125.    125.     93.     38.
625           UI     38.     38.     38.     38.     38.     38.     38.     38.     38.     38.
626           UI     38.      0.      0.      0.      0.      0.      0.      0.      0.      0.
627           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

 628          KK    C270
 629          KM        COMBINE C270
 630          KM        FLOW 2000 FEET DOWNSTREAM OF BUCKEYE ROAD
 631          HC      3

 632          KK    R273
 633          KM        ROUTE R273
 634          RS      1    FLOW      -1
 635          RL                    .25      10
 636          RC   .065    .045    .065    3700  .00459
 637          RX    445     454     492     495     505     508     546     555
 638          RY     18    11.5    11.5      10      10    11.5    11.5      18

 639          KK    R275
 640          KM        ROUTE R275
 641          RS      4    FLOW      -1
 642          RL                    .24      10
 643          RC   .065    .045    .065    7700  .00416
 644          RX    445     454     491     495     505     509     546     555
 645          RY     18      12      12      10      10      12      12      18

 646          KK    S280
 647          KM        BASIN S280
 648          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 649          KM        L=      2.7  Lca=      1.2   S=   29.0  Kn= .065  LAG=  76.3
 650          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 651          BA    2.30
 652          LG     .35     .36    3.81     .27     .00
 653          UI    101.    101.    101.    215.    357.    428.    490.    553.    596.    654.
 654          UI    734.    805.    949.   1165.   1334.   1153.   1005.    900.    825.    749.
 655          UI    666.    602.    537.    485.    417.    318.    235.    180.    173.    167.
 656          UI    141.    101.    101.    101.     40.     31.     31.     31.     31.     31.
 657          UI     31.     31.     31.     31.     31.      0.      0.      0.      0.      0.
 658          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 659          KK    C285
 660          KM        COMBINE C285
 661          KM        FLOW CROSSING AT SALOME HIGHWAY
 662          HC      2

 663          KK    R288
 664          KM        ROUTE R288
 665          RS      6    FLOW      -1
 666          RL                    .24      10
 667          RC   .070    .040    .070   11000  .00436
 668          RX    455     464     491     495     505     509     536     545
 669          RY     20      12      12      10      10      12      12      20

 670          KK    R290
 671          KM        ROUTE R290
 672          RS      3    FLOW      -1
 673          RL                    .24      10
 674          RC   .070    .040    .070    6500  .00415
 675          RX    445     454     491     495     505     509     546     555
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 676          RY      18      12      12      10      10      12      12      18

 677          KK    S295
 678          KM        BASIN S295
 679          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 680          KM        L=      4.1  Lca=      2.0   S=   28.0  Kn= .068  LAG= 116.2
 681          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 682          BA    3.51
 683          LG     .35     .38    5.05     .23    1.41
 684          UI    102.    102.    102.    102.    102.    254.    336.    390.    439.    482.
 685          UI    515.    554.    583.    617.    656.    706.    764.    798.    891.   1011.
 686          UI   1178.   1299.   1315.   1168.   1059.    977.    913.    854.    812.    762.
 687          UI    704.    656.    612.    575.    526.    496.    468.    397.    340.    292.
 688          UI    219.    180.    180.    172.    167.    167.    142.    102.    102.    102.
 689          UI    102.     99.     31.     31.     31.     31.     31.     31.     31.     31.
 690          UI     31.     31.     31.     31.     31.     31.     31.     31.     31.      0.
 691          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 692          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 693          KK    C300
 694          KM        COMBINE C300
 695          KM        FLOW CROSSING APPROXIMATELY AT DOBBINS ROAD
 696          HC       2

 697          KK    R305
 698          KM        ROUTE R305
 699          RS       3    FLOW      -1
 700          RL                     .29      10
 701          RC    .070    .050    .070    6500  .00385
 702          RX     425     434     491     495     505     509     566     575
 703          RY      20      12      12      10      10      12      12      20

 704          KK    S310
 705          KM        BASIN S310
 706          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 707          KM        L=      2.3  Lca=       .9   S=   25.0  Kn= .068  LAG=  68.2
 708          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 709          BA    1.28
 710          LG     .35     .35    3.50     .28     .00
 711          UI     63.     63.     63.    188.    243.    298.    334.    368.    409.    463.
 712          UI    517.    645.    790.    771.    648.    570.    515.    461.    406.    364.
 713          UI    319.    281.    217.    159.    112.    107.    104.     78.     63.     63.
 714          UI     41.     19.     19.     19.     19.     19.     19.     19.     19.     19.
 715          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 716          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 717          KK    C315
 718          KM        COMBINE C315
 719          KM        TRIBUTARY UPSTREAM OF SOUTHERN PACIFIC RAILROAD
 720          HC       2
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 721          KK    C320
 722          KM        COMBINE C320
 723          KM        LUKE WASH AND TRIBUTARY COMBINED AT SOUTHERN PACIFIC RAILROAD,
 724          KM        SO THAT THE PONDING CAN BE COMBINED.
 725          HC       2

 726          KK    R325
 727          KM        ROUTE R325
 728          RS       4    FLOW      -1
 729          RL                     .33      10
 730          RC    .070    .045    .070    7300  .00411
 731          RX     330     339     472     480     520     528     661     670
 732          RY      20      14      14      10      10      14      14      20

 733          KK    S330
 734          KM        BASIN S330
 735          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 736          KM        L=      1.7  Lca=       .8   S=   28.0  Kn= .070  LAG=  59.0
 737          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 738          BA     .62
 739          LG     .33     .35    3.87     .37   11.58
 740          UI     35.     35.     59.    125.    158.    184.    207.    233.    268.    318.
 741          UI    413.    447.    366.    316.    281.    244.    214.    184.    161.    120.
 742          UI     82.     63.     58.     51.     35.     35.     20.     11.     11.     11.
 743          UI     11.     11.     11.     11.     11.      0.      0.      0.      0.      0.
 744          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 745          KK    C335
 746          KM        COMBINE C335
 747          KM        LUKE WASH CROSSING AT 339TH AVENUE
 748          HC       2

 749          KK    S340
 750          KM        BASIN S340
 751          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 752          KM        L=      1.1  Lca=       .5   S=   46.0  Kn= .068  LAG=  37.3
 753          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 754          BA     .46
 755          LG     .35     .35    3.61     .30     .00
 756          UI     42.     68.    164.    217.    261.    323.    460.    489.    374.    308.
 757          UI    246.    197.    131.     73.     67.     42.     32.     13.     13.     13.
 758          UI     13.     13.      0.      0.      0.      0.      0.      0.      0.      0.
 759          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 760          KK    R345
 761          KM        ROUTE R345
 762          RS       9    FLOW      -1
 763          RL                     .35      10
 764          RC    .070    .045    .070    6300  .00571
 765          RX     115     355     482     485     515     518     705     735
 766          RY      14      13    11.5      10      10    11.5      13      14
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

767           KK    S350
768           KM        BASIN S350
769           KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
770           KM        L=      1.3  Lca=       .7   S=   40.0  Kn= .068  LAG=  45.7
771           KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
772           BA     .33
773           LG     .35     .35    3.71     .32     .00
774           UI     24.     24.     78.    108.    131.    152.    181.    230.    307.    263.
775           UI    216.    185.    154.    128.    105.     69.     43.     40.     30.     24.
776           UI     15.      7.      7.      7.      7.      7.      7.      0.      0.      0.
777           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

778           KK    C355
779           KM        COMBINE C355
780           HC       2

781           KK    C360
782           KM        COMBINE C360
783           KM        COMBINE LUKE WASH AND TRIBUTARY AT NARRAMORE ROAD ALIGNMENT
784           HC       2

785           KK    R365
786           KM        ROUTE R365
787           RS       6    FLOW     -1
788           RL                     .30      10
789           RC    .070    .050    .070    5300  .00434
790           RX     235     270     977     985    1015    1023    1750    1765
791           RY      20      16      14      10      10      14      14      20

792           KK    S370
793           KM        BASIN S370
794           KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
795           KM        L=      1.1  Lca=       .7   S=   32.0  Kn= .070  LAG=  46.8
796           KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
797           BA     .31
798           LG     .41     .22    3.66     .37     .00
799           UI     22.     22.     68.     97.    118.    137.    162.    199.    274.    255.
800           UI    206.    177.    148.    125.    105.     75.     46.     38.     33.     22.
801           UI     21.      7.      7.      7.      7.      7.      7.      0.      0.      0.
802           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

803           KK    C375
804           KM        COMBINE C375
805           KM        LUKE WASH NORTH OF OLD US 80
806           HC       2

807           KK    S385
808           KM        BASIN S385
809           KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
810           KM        L=      3.8  Lca=      1.8   S=   32.0  Kn= .065  LAG= 100.5
811           KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
812           BA    2.39
813           LG     .35     .33    3.50     .29     .47
814           UI     80.     80.     80.     80.    149.    263.    306.    354.    386.    422.
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 815          UI    451.    481.    515.    563.    606.    655.    754.    906.    997.   1029.
 816          UI    901.    808.    741.    688.    645.    600.    549.    503.    471.    429.
 817          UI    395.    370.    312.    252.    221.    142.    142.    137.    132.    132.
 818          UI     97.     80.     80.     80.     77.     25.     25.     25.     25.     25.
 819          UI     25.     25.     25.     25.     25.     25.     25.     25.     25.     25.
 820          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 821          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 822          KK    S390
 823          KM        BASIN S390
 824          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 825          KM        L=      4.2  Lca=      2.1   S=   32.0  Kn= .065  LAG= 110.1
 826          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 827          BA    1.80
 828          LG     .38     .28    3.71     .35     .00
 829          UI     55.     55.     55.     55.     55.    173.    193.    214.    253.    269.
 830          UI    293.    310.    329.    350.    376.    410.    430.    480.    548.    637.
 831          UI    720.    697.    615.    559.    516.    479.    451.    428.    393.    363.
 832          UI    339.    319.    289.    270.    254.    217.    183.    158.    111.     97.
 833          UI     97.     91.     90.     90.     61.     55.     55.     55.     55.     26.
 834          UI     17.     17.     17.     17.     17.     17.     17.     17.     17.     17.
 835          UI     17.     17.     17.     17.     17.      0.      0.      0.      0.      0.
 836          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 837          KK    C395
 838          KM        COMBINE C395
 839          KM        FLOW CROSSING AT SALOME HIGHWAY
 840          HC       2

 841          KK    S400
 842          KM        BASIN S400
 843          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 844          KM        L=      1.8  Lca=       .8   S=   36.0  Kn= .065  LAG=  54.7
 845          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 846          BA     .66
 847          LG     .35     .35    3.82     .35     .00
 848          UI     41.     41.     86.    151.    193.    224.    252.    292.    339.    444.
 849          UI    522.    427.    364.    321.    275.    239.    203.    170.    121.     72.
 850          UI     69.     65.     41.     41.     25.     12.     12.     12.     12.     12.
 851          UI     12.     12.      0.      0.      0.      0.      0.      0.      0.      0.
 852          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 853          KK    R405
 854          KM        ROUTE R405
 855          RS       4    FLOW     -1
 856          RL                     .30      10
 857          RC    .065    .035    .065    4000  .00325
 858          RX     445     454     493     495     505     507     546     555
 859          RY    13.5    10.5    10.5      10      10    10.5    10.5    13.5
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 860          KK    C410
 861          KM        COMBINE C410
 862          HC       2

 863          KK    R415
 864          KM        ROUTE R415
 865          RS       4    FLOW      -1
 866          RL                     .25      10
 867          RC    .065    .035    .065   10000  .00570
 868          RX   437.5   446.5   495.5   497.5   502.5   504.5   553.5   562.5
 869          RY      18      12      12      10      10      12      12      18

 870          KK    S420
 871          KM        BASIN S420
 872          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 873          KM        L=      3.0  Lca=      1.4   S=   33.0  Kn= .065  LAG=  83.9
 874          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 875          BA    3.03
 876          LG     .35     .35    3.66     .32     .00
 877          UI    122.    122.    122.    161.    400.    464.    560.    613.    670.    725.
 878          UI    787.    875.    947.   1092.   1346.   1528.   1508.   1298.   1159.   1055.
 879          UI    975.    893.    800.    731.    662.    599.    539.    441.    350.    233.
 880          UI    215.    205.    200.    173.    122.    122.    122.     81.     37.     37.
 881          UI     37.     37.     37.     37.     37.     37.     37.     37.     37.     37.
 882          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 883          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 884          KK    C425
 885          KM        COMBINE C425
 886          KM        FLOW CROSSING AT SOUTHERN PACIFIC RAILROAD
 887          HC       2

 888          KK    R430
 889          KM        ROUTE R430
 890          RS       9    FLOW      -1
 891          RL                     .27      10
 892          RC    .070    .040    .070    8300  .00518
 893          RX   240.5     300   985.5   987.5  1012.5  1014.5    1260  1280.5
 894          RY    14.5    10.5    10.5      10      10    10.5    10.5    14.5

 895          KK    S435
 896          KM        BASIN S435
 897          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 898          KM        L=      2.8  Lca=      1.1   S=   42.0  Kn= .070  LAG=  77.4
 899          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 900          BA     .93
 901          LG     .35     .35    3.71     .33     .24
 902          UI     40.     40.     40.     81.    141.    168.    194.    218.    235.    258.
 903          UI    288.    314.    367.    451.    525.    477.    412.    368.    335.    308.
 904          UI    274.    248.    223.    200.    177.    141.    111.     72.     71.     66.
 905          UI     66.     42.     40.     40.     30.     12.     12.     12.     12.     12.
 906          UI     12.     12.     12.     12.     12.     12.      0.      0.      0.      0.
 907          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

 908          KK    C440
 909          KM        COMBINE C440
 910          HC       2

 911          KK    S445
 912          KM        BASIN S445
 913          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 914          KM        L=      1.7  Lca=       .7   S=   84.0  Kn= .073  LAG=  47.3
 915          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 916          BA     .90
 917          LG     .29     .35    4.08     .40    1.83
 918          UI     64.     64.    190.    277.    338.    390.    461.    559.    767.    755.
 919          UI    604.    518.    438.    369.    310.    230.    143.    111.    104.     64.
 920          UI     64.     26.     20.     20.     20.     20.     20.     20.      0.      0.
 921          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 922          KK    R450
 923          KM        ROUTE R450
 924          RS       7    FLOW      -1
 925          RL                     .25      10
 926          RC    .075    .045    .075    3700  .00378
 927          RX     390     410     478     480     520     522     972    1050
 928          RY      13    12.5    10.5      10      10    10.5    10.5      13

 929          KK    S455
 930          KM        BASIN S455
 931          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 932          KM        L=      1.5  Lca=       .7   S=  115.0  Kn= .073  LAG=  42.5
 933          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 934          BA     .45
 935          LG     .33     .35    4.03     .39     .97
 936          UI     36.     39.    126.    170.    203.    241.    292.    408.    425.    332.
 937          UI    280.    231.    190.    154.     95.     62.     59.     37.     36.     11.
 938          UI     11.     11.     11.     11.     11.      0.      0.      0.      0.      0.
 939          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 940          KK    C460
 941          KM        COMBINE C460
 942          HC       2

 943          KK    C470
 944          KM        COMBINE C470
 945          KM        FLOW FROM EAST TRIBUTARIES COMBINE 2500 FEET UPSTREAM OF OLD US 80
 946          HC       2

 947          KK    R475
 948          KM        ROUTE R475
 949          RS       2    FLOW      -1
 950          RL                     .26      10
 951          RC    .075    .045    .075    2500  .00320
 952          RX      50     100     473     475     525     527     675     700
 953          RY      18      13      11      10      10      11      13      18
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  954         KK    S480
  955         KM        BASIN S480
  956         KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  957         KM        L=       .9  Lca=       .4   S=  119.0  Kn= .073  LAG=  28.1
  958         KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  959         BA     .28
  960         LG     .35     .35    3.98     .38    1.49
  961         UI     34.     94.    169.    218.    309.    400.    296.    225.    168.     97.
  962         UI     57.     39.     23.     10.     10.     10.      0.      0.      0.      0.
  963         UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  964         KK    C485
  965         KM        COMBINE C485
  966         KM        EAST TRIBUTARY NORTH OF OLD US 80
  967         HC       2

  968         KK    C486
  969         KM        COMBINE C486
  970         KM        COMBINE LUKE WASH AND EAST TRIBUTARY AT OLD US 80 SO PONDING
  971         KM        RATING CURVE CAN BE COMBINED.
  972         HC       2

  973         KK  RES488
  974         KM        RESERVOIR ROUTING RES488
  975         KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF OLD US 80
  976         KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
  977         KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
  978         KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
  979         KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
  980         KM              6-10'x6'x34' CBCs
  981         KM              6-10'x6'x34' CBCs
  982         KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 8 FEET.
  983         RS       1    ELEV     796
  984         SA       0     .21     1.1     7.8      22      34      50      63      95
  985         SE     796     797     798     800     802     803     804     805     807
  986         SQ       0     564    1020    2880    5040    6240    7200   20460   50000

  987         KK    S490
  988         KM        BASIN S490
  989         KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  990         KM        L=      1.3  Lca=       .5   S=  238.0  Kn= .068  LAG=  28.7
  991         KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  992         BA     .26
  993         LG     .30     .35    4.24     .43    1.82
  994         UI     31.     83.    151.    195.    265.    372.    279.    214.    161.    105.
  995         UI     53.     41.     27.      9.      9.      9.      9.      0.      0.      0.
  996         UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  997         KK  RES491
  998         KM        RESERVOIR ROUTING RES491
  999         KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF OLD US 80
 1000         KM        THIS PONDING IS BASED ON THE USGS ARLINGTON QUADRANGLE
 1001         KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
 1002         KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1003          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
1004          KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
1005          KM              1-24"x48' CMP
1006          KM              1-5'x4'x42' CBC
1007          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 6 FEET.
1008          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
1009          KM                DETAILED INFORMATION ON THE CULVERTS.
1010          RS      1    ELEV      0
1011          SA      0     0.1     0.5       2       6      10
1012          SE      0       1       2       4       6       8
1013          SQ      0      22      56     135     211    4859

1014          KK    R492
1015          KM        ROUTE R492
1016          RS      3    FLOW     -1
1017          RL                   .39      10
1018          RC   .080    .045    .080    4800  .01563
1019          RX    460     466     476     480     520     524     640     655
1020          RY     17      14      12      10      10      12      12      17

1021          KK    C495
1022          KM        COMBINE C495
1023          HC      2

1024          KK    R500
1025          KM        ROUTE R500
1026          RS      1    FLOW     -1
1027          RL                   .36      10
1028          RC   .070    .040    .070    1800  .00667
1029          RX     35      41     469     485     515     531     959     965
1030          RY     22      18      18      10      10      18      18      22

1031          KK    S505
1032          KM        BASIN S505
1033          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1034          KM        L=       .9  Lca=       .3   S=   39.0  Kn= .078  LAG=  32.6
1035          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1036          BA     .15
1037          LG    .40     .23    3.66     .37     .00
1038          UI    15.     34.     69.     89.    112.    158.    185.    137.    109.     85.
1039          UI    62.     33.     26.     16.     11.      5.      5.      5.      5.      0.
1040          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1041          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1042          KK  RES506
1043          KM        RESERVOIR ROUTING RES506
1044          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF OLD US 80
1045          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
1046          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1047          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
1048          KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
1049          KM              1-5'9"x6'x45' CBC
1050          KM              1-30"x50.7' CMP
1051          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 6 FEET.
1052          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1053          KM                DETAILED INFORMATION ON THE CULVERTS.
1054          RS       1    ELEV       0
1055          SA       0       .1      .2     1.9     6.1      13
1056          SE       0        1       2       4       6       8
1057          SQ       0       32      65     175     293    8042

1058          KK    R507
1059          KM        ROUTE R507
1060          RS       6    FLOW      -1
1061          RL                     .37      10
1062          RC    .080     .045    .080    1700  .00706
1063          RX     291      300     488     490     510     512     800     804
1064          RY      14       11      11      10      10      11      11      12

1065          KK    S508
1066          KM        BASIN S508
1067          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1068          KM        L=       1.4  Lca=       .7   S=   73.0  Kn= .078  LAG=  48.2
1069          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1070          BA     .42
1071          LG     .36      .32    3.98     .42     .70
1072          UI     29.      29.     84.    125.    153.    176.    207.    246.    335.    361.
1073          UI    287.     245.    209.    177.    148.    120.     76.     52.     48.     36.
1074          UI     29.      20.      9.      9.      9.      9.      9.      9.      0.      0.
1075          UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.

1076          KK    C510
1077          KM        COMBINE C510
1078          KM        LUKE WASH CROSSING AT ARLINGTON CANAL
1079          HC       3

1080          KK  RES513
1081          KM        RESERVOIR ROUTING RES513
1082          KM        THIS RESERVOIR ROUTING IS TO SIMULATE LUKE WASH PONDING AT THE
1083          KM        ARLINGTON CANAL. THIS PONDING IS BASED ON 200 SCALE MAPPING
1084          KM        BY AMCI (9-11-91). THE OUTFLOW RATING CURVE IS BASED ON CHANNEL
1085          KM        FLOW ACROSS THE CANAL SIPHON, AND WEIR FLOW OVER THE CANAL.
1086          RS       1    ELEV     784
1087          SA       0     0.3     1.1     1.8    19.5    27.4    35.2    47.1
1088          SE     784     786     788     790     792     793     794     795
1089          SQ       0     158     769    1852    2657    5211   11998   21982

1090          KK    S515
1091          KM        BASIN S515
1092          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1093          KM        L=        .7  Lca=       .3   S=  201.0  Kn= .073  LAG=  20.8
1094          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1095          BA     .26
1096          LG     .29      .35    4.24     .43    1.10
1097          UI     46.     177.    267.    433.    426.    289.    187.     84.     51.     22.
1098          UI     13.      13.      0.      0.      0.      0.      0.      0.      0.      0.
1099          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

1100          KK  RES516
1101          KM        RESERVOIR ROUTING RES516
1102          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF OLD US 80
1103          KM        THIS PONDING IS BASED ON THE USGS ARLINGTON QUADRANGLE
1104          KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
1105          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1106          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
1107          KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
1108          KM             1-5.5'x4'x41.5' CBC
1109          KM             1-36"x49.6' CMP
1110          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 6 FEET.
1111          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
1112          KM                DETAILED INFORMATION ON THE CULVERTS.
1113          RS       1   ELEV       0
1114          SA       0     0.1     0.5     2.5       7      11
1115          SE       0       1       2       4       6       8
1116          SQ       0      26      65     177     274   11831

1117          KK    R517
1118          KM        ROUTE R517
1119          RS       3   FLOW      -1
1120          RL                   .35      10
1121          RC    .075    .040    .075    6000  .01867
1122          RX     400     412     472     480     520     528     588     600
1123          RY      18      14      14      10      10      14      14      18

1124          KK    S518
1125          KM        BASIN S518
1126          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1127          KM        L=      1.3  Lca=       .5   S=   95.0  Kn= .073  LAG=  38.3
1128          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1129          BA     .74
1130          LG     .35     .34    4.19     .46     .00
1131          UI     65.    100.    251.    333.    399.    491.    671.    802.    615.    508.
1132          UI    410.    331.    241.    137.    109.     80.     65.     26.     20.     20.
1133          UI     20.     20.      0.      0.      0.      0.      0.      0.      0.      0.
1134          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1135          KK    C519
1136          KM        COMBINE C519
1137          KM        FLOW CROSSING AT ARLINGTON CANAL
1138          HC       2

1139          KK  RES520
1140          KM        RESERVOIR ROUTING RES520
1141          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1142          KM        THIS PONDING IS BASED ON THE USGS ARLINGTON QUADRANGLE
1143          KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
1144          KM        THE OUTFLOW RATING CURVE IS BASED ON WEIR FLOW OVER THE CANAL
1145          RS       1   ELEV     792
1146          SA     8.5    14.9    15.2    15.6    16.2    16.9
1147          SE     792     796   796.2   796.5     797   797.5
1148          SQ       0       0     233     919    2600    4780
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1149          KK    S521
1150          KM        BASIN S521
1151          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1152          KM        L=       .6  Lca=       .3   S=  110.0  Kn= .075  LAG=  24.1
1153          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1154          BA     .16
1155          LG     .35     .35    3.92     .40     .00
1156          UI     22.     79.    125.    173.    265.    202.    147.    102.     49.     32.
1157          UI     19.      7.      7.      7.      0.      0.      0.      0.      0.      0.
1158          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1159          KK  RES523
1160          KM        RESERVOIR ROUTING RES523   .
1161          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1162          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-92)
1163          KM        THE OUTFLOW RATING CURVE IS BASED ON WEIR FLOW OVER THE CANAL
1164          RS       1    ELEV   789.3
1165          SA     0.5     2.8     5.5     6.3     7.3     7.8     8.2
1166          SE   789.3     790   793.3     794     795   795.5     796
1167          SQ       0       0       0     186    1715    3404    6098

1168          KK    S525
1169          KM        BASIN S525
1170          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1171          KM        L=      1.0  Lca=       .4   S=   54.0  Kn= .073  LAG=  34.8
1172          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1173          BA     .36
1174          LG     .35     .33    3.61     .33    1.23
1175          UI     35.     67.    147.    191.    235.    305.    431.    349.    279.    222.
1176          UI    175.    121.     65.     56.     35.     24.     11.     11.     11.     11.
1177          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1178          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1179          KK  RES528
1180          KM        RESERVOIR ROUTING RES528
1181          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF OLD US 80
1182          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
1183          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1184          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
1185          KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
1186          KM              1-5'x4'x78' CBC              1-4'x4'x47.7' CBC
1187          KM              1-3.5'x2.5'x50' CMP          1-4'x4'x48.5' CBC
1188          KM              1-24"x42.5' CMP              1-36"x54' CMP
1189          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 6 FEET.
1190          RS       1    ELEV       0
1191          SA       0     0.2     0.6     2.5     7.3      15
1192          SE       0       1       2       4       6       8
1193          SQ       0      63     166     430     661   16109
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1194          KK  RES529
1195          KM        RESERVOIR ROUTING RES529
1196          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1197          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
1198          KM        THE OUTFLOW RATING CURVE IS BASED ON WEIR FLOW OVER THE CANAL
1199          RS       1    ELEV     788
1200          SA     1.2     6.7    12.7    16.4    18.3    20.2    21.8
1201          SE     788   788.9     790     791   791.5     792   792.5
1202          SQ       0       0     123     622    1170    2511    6360

1203          KK    S530
1204          KM        BASIN S530
1205          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1206          KM        L=       1.1  Lca=       .4   S=   51.0  Kn= .075  LAG=  37.2
1207          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1208          BA     .32
1209          LG     .36     .34    3.61     .33     .00
1210          UI     29.     48.    114.    151.    183.    227.    323.    339.    260.    214.
1211          UI    171.    136.     89.     51.     46.     29.     22.      9.      9.      9.
1212          UI      9.      9.      0.      0.      0.      0.      0.      0.      0.      0.
1213          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1214          KK  RES533
1215          KM        RESERVOIR ROUTING RES533
1216          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTHWEST OF OLD US 80
1217          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
1218          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1219          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
1220          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
1221          KM              1-24"x59.2' CMP              1-24"x70' CMP
1222          KM              1-3'x3'x54' CBC              1-10'x4'x34' CBC
1223          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 6 FEET.
1224          RS       1    ELEV       0
1225          SA       0     0.1     0.3     1.1       8      11
1226          SE       0       1       2       4       6       8
1227          SQ       0      47     135     344     536   15948

1228          KK  RES534
1229          KM        RESERVOIR ROUTING RES534
1230          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1231          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
1232          KM        THE OUTFLOW RATING CURVE IS BASED ON WEIR FLOW OVER THE CANAL
1233          RS       1    ELEV   787.5
1234          SA       0    1.75    3.24    4.68    5.64    6.59    7.53    8.46
1235          SE   787.5     788   789.3     790   790.5     791   791.5     792
1236          SQ       0       0       0     169     837    2159    4769    8827

1237          KK    S535
1238          KM        BASIN S535
1239          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1240          KM        L=       3.1  Lca=      1.4   S=   29.0  Kn= .068  LAG=  90.9
1241          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1242          BA    2.71
1243          LG     .35     .35    3.50     .28     .00
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1244          UI    100.    100.    100.    100.    288.    360.    420.    478.    523.    565.
1245          UI    607.    658.    724.    781.    879.   1060.   1221.   1310.   1136.   1008.
1246          UI    917.    846.    789.    720.    656.    600.    548.    500.    465.    386.
1247          UI    299.    240.    178.    177.    165.    165.    131.    100.    100.    100.
1248          UI     76.     31.     31.     31.     31.     31.     31.     31.     31.     31.
1249          UI     31.     31.     31.     31.      0.      0.      0.      0.      0.      0.
1250          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1251          KK    R540
1252          KM        ROUTE R540
1253          RS      9    FLOW      -1
1254          RL                    .36      10
1255          RC   .070    .040    .070    9800  .00561
1256          RX    340     349     488     490     510     512     651     660
1257          RY   14.5    11.5    10.5      10      10    11.5    11.5    14.5

1258          KK    S545
1259          KM        BASIN S545
1260          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1261          KM        L=      2.0  Lca=       .9   S=   33.0  Kn= .070  LAG=  66.8
1262          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1263          BA    1.53
1264          LG     .34     .35    3.55     .29    5.44
1265          UI     77.     77.     77.    241.    307.    367.    415.    456.    509.    576.
1266          UI    656.    838.    988.    890.    757.    671.    610.    536.    475.    421.
1267          UI    370.    315.    231.    153.    136.    127.    117.     77.     77.     70.
1268          UI     24.     24.     24.     24.     24.     24.     24.     24.     24.      0.
1269          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1270          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1271          KK    C550
1272          KM        COMBINE C550
1273          HC      2

1274          KK    S555
1275          KM        BASIN S555
1276          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1277          KM        L=      2.7  Lca=      1.3   S=   31.0  Kn= .068  LAG=  82.8
1278          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1279          BA    1.31
1280          LG     .35     .40    6.60     .17     .00
1281          UI     53.     53.     53.     77.    176.    206.    248.    271.    296.    321.
1282          UI    350.    389.    423.    493.    599.    695.    636.    553.    494.    452.
1283          UI    419.    378.    341.    313.    278.    254.    222.    175.    138.     94.
1284          UI     94.     88.     88.     61.     53.     53.     53.     17.     16.     16.
1285          UI     16.     16.     16.     16.     16.     16.     16.     16.     16.      0.
1286          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1287          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1288          KK    C560
1289          KM        COMBINE C560
1290          HC      2
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1291          KK    R565
1292          KM        ROUTE R565
1293          RS      5    FLOW      -1
1294          RL                    .29      10
1295          RC    .080    .050    .080    4200  .00476
1296          RX     340     349     488     490     510     512     651     660
1297          RY    14.5    11.5    10.5      10      10    10.5    11.5    14.5

1298          KK    S570
1299          KM        BASIN S570
1300          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1301          KM        L=      1.4  Lca=       .6   S=   37.0  Kn= .080  LAG=  52.8
1302          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1303          BA     .72
1304          LG     .35     .39    5.98     .21     .00
1305          UI     46.     46.    106.    179.    224.    258.    294.    342.    413.    552.
1306          UI    555.    449.    387.    338.    288.    246.    210.    153.     98.     80.
1307          UI     75.     51.     46.     34.     14.     14.     14.     14.     14.     14.
1308          UI     14.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1309          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1310          KK    C575
1311          KM        COMBINE C575
1312          KM        FLOW AT ARLINGTON CANAL
1313          HC       2

1314          KK  RES577
1315          KM        RESERVOIR ROUTING RES577
1316          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTHWEST OLD OF US 80
1317          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
1318          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1319          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
1320          KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
1321          KM              3-10'x7'x33' CBC
1322          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 9 FEET.
1323          RS       1    ELEV     785
1324          SA       0     0.1     0.7     4.1    10.1    17.1      22      32
1325          SE     785     786     787     789     791     793     794     796
1326          SQ       0      90     249     720    1260    1866    2229    8804

1327          KK  RES578
1328          KM        RESERVOIR ROUTING RES578
1329          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1330          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
1331          KM        THE OUTFLOW RATING CURVE IS BASED ON WEIR FLOW OVER THE CANAL
1332          RS       1    ELEV   785.6
1333          SA       0     0.5     1.8     2.0     2.1     2.2     2.4
1334          SE   785.6     787   788.8   789.2   789.6     790     791
1335          SQ       0       0       0      63     414    1191    4166
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1336          KK    S580
1337          KM        BASIN S580
1338          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1339          KM        L=       .4  Lca=       .1   S=   65.0  Kn= .073  LAG=  14.0
1340          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1341          BA     .05
1342          LG     .35     .38    5.05     .25     .00
1343          UI     23.     70.    127.     93.     47.     17.      6.      4.      0.      0.
1344          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1345          KK  RES582
1346          KM        RESERVOIR ROUTING RES582
1347          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTHWEST OF OLD US 80
1348          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1349          KM        MAPPING BY DAMES AND MOORE.
1350          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1351          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
1352          KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
1353          KM              1-24"x53' PIPE CULVERT
1354          KM              1-3.8'x3.2'x56' CBC
1355          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 13 FEET.
1356          RS       1    ELEV       0
1357          SA       0    0.01    0.03    0.28    0.63     1.5     3.3     7.3      11      15
1358          SE       0       1       2       4       6       8      10      12      13      15
1359          SQ       0      15      44     110     157     198     226     250     268    3343

1360          KK  RES584
1361          KM        RESERVOIR ROUTING RES584
1362          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1363          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1364          KM        MAPPING BY DAMES AND MOORE.
1365          RS       1    ELEV     787
1366          SA     5.4     6.9     7.7     8.4     8.9     9.3
1367          SE     786     787   787.5     788   788.5     789
1368          SQ       0      30     353    1132    2466    3658

1369          KK   CLEAR
1370          KM        COMBINE TO CLEAR REGISTERS
1371          HC       4

1372          KK    S585
1373          KM        BASIN S585
1374          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1375          KM        L=      2.2  Lca=       .9   S=   35.0  Kn= .075  LAG=  72.4
1376          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1377          BA    1.25
1378          LG     .35     .38    5.05     .24     .00
1379          UI     58.     58.     58.    147.    212.    259.    295.    325.    355.    397.
1380          UI    443.    504.    638.    744.    686.    587.    521.    475.    429.    379.
1381          UI    343.    300.    274.    227.    167.    112.    103.     96.     96.     60.
1382          UI     58.     58.     33.     18.     18.     18.     18.     18.     18.     18.
1383          UI     18.     18.     18.      0.      0.      0.      0.      0.      0.      0.
1384          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

1385          KK  RES588
1386          KM        RESERVOIR ROUTING RES588
1387          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTHWEST OF OLD US 80
1388          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1389          KM        MAPPING BY DAMES AND MOORE
1390          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1391          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
1392          KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
1393          KM              1-15.9'x33' BRIDGE
1394          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 8 FEET.
1395          RS       1    ELEV   784.5
1396          SA       0     0.4     0.9     5.6     7.8      13      16
1397          SE   784.5   785.5   786.5   788.5   790.5   792.5   794.5
1398          SQ       0      33      66     256     448     624    5318

1399          KK  RES589
1400          KM        RESERVOIR ROUTING RES589
1401          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1402          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1403          KM        MAPPING BY DAMES AND MOORE.
1404          RS       1    ELEV     786
1405          SA     0.2     0.5     0.7     0.8     0.9     1.0
1406          SE     786     787   787.5     788   788.5     789
1407          SQ       0      11     203     617    1213    1986

1408          KK    S590
1409          KM        BASIN S590
1410          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1411          KM        L=       .8  Lca=       .4   S=   49.0  Kn= .075  LAG=  32.6
1412          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1413          BA     .24
1414          LG     .35     .35    3.55     .32     .00
1415          UI     25.     54.    110.    142.    179.    253.    295.    220.    175.    136.
1416          UI     98.     53.     41.     26.     18.      8.      8.      8.      8.      0.
1417          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1418          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1419          KK  RES593
1420          KM        RESERVOIR ROUTING RES593
1421          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTHWEST OF OLD US 80
1422          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1423          KM        MAPPING BY DAMES AND MOORE
1424          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1425          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN COMBINE
1426          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
1427          KM              1-4'x4'x35' CBC
1428          KM              1-6'x4'x36' CBC
1429          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 7 FEET.
1430          RS       1    ELEV       0
1431          SA       0     0.2     0.9     3.6     5.1     7.5    11.4
1432          SE       0       1       2       4       6       7       9
1433          SQ       0      35      85     230     370     424    6630
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1434          KK  RES594
1435          KM        RESERVOIR ROUTING RES594
1436          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1437          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1438          KM        MAPPING BY DAMES AND MOORE.
1439          RS      1    ELEV     786
1440          SA    2.9     3.2     3.3     3.4
1441          SE    786     787   787.5     788
1442          SQ      0       4     257     971

1443          KK    S600
1444          KM        BASIN S600
1445          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1446          KM        L=       .4  Lca=       .1   S=   64.0  Kn= .075  LAG=  16.2
1447          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1448          BA    .21
1449          LG    .35     .35    3.55     .32     .00
1450          UI    70.    223.    384.    449.    270.    128.     58.     21.     13.      0.
1451          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1452          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1453          KK  RES603
1454          KM        RESERVOIR ROUTING RES603
1455          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTHWEST OF OLD US 80
1456          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1457          KM        MAPPING BY DAMES AND MOORE
1458          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1459          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN COMBINE
1460          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
1461          KM              1-4'x3'x34' CBC
1462          KM              1-4'x3'x40' CBC
1463          KM              1-5'x4'x55' CBC
1464          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 11 FEET.
1465          RS      1    ELEV       0
1466          SA      0       8      10      14      19      27      37      43      58
1467          SE      0       1       2       4       6       8      10      11      13
1468          SQ      0      42     111     259     441     539     632     676   12206

1469          KK  RES604
1470          KM        RESERVOIR ROUTING RES604
1471          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1472          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1473          KM        MAPPING BY DAMES AND MOORE.
1474          RS      1    ELEV     784
1475          SA    2.3     3.3     3.9     4.4     5.0     5.5
1476          SE    784     786   786.5     787   787.5     788
1477          SQ      0       0      58     442    1380    3361
1478          ZZ
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SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

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

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

```
 28        S5
            V
            V
 44       R10
            .
            .
 52         .        S15
            .          .
            .          .
 61       C20............
            V
            V
 66       R25
            .
            .
 74         .        S30
            .          .
            .          .
 82       C35............
            V
            V
 87     RES38
            .
            .
104         .        S40
            .          V
            .          V
114         .        R45
            .          .
            .          .
122         .          .        S50
            .          .          .
            .          .          .
131         .        C55............
            .          V
            .          V
136         .      RES58
            .          .
            .          .
152       C60............
            V
            V
155       R65
            V
            V
162       R68
            .
            .
169         .        S70
            .          .
            .          .
184       C75............
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          .
          .
188       .        S80
          .          .
          .          .
197       .          .        S85
          .          .          .
          .          .          .
205       .        C90............
          .          V
          .          V
209       .      RES93
          .          .
          .          .
226       .          .        S95
          .          .          V
          .          .          V
237       .          .      RES98
          .          .          .
          .          .          .
254       .       C100............
          .          V
          .          V
257       .       R103
          .          V
          .          V
264       .       R105
          .          V
          .          V
271       .       R108
          .          .
          .          .
278       .          .       S110
          .          .          .
          .          .          .
293       .       C115............
          .          .
          .          .
297     C120............
          V
          V
301     R125
          .
          .
308       .       S130
          .          .
          .          .
320     C135............
          .
          .
323       .       S136
          .          V
          .          V
336       .       R138
          .          .
          .          .
343       .          .       S140
          .          .          .
          .          .          .
356       .       C142............
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            .          .
            .          .
    60    C145............
            V
            V
   364    R150
            .
            .
   371      .       S155
            .          .
            .          .
   383      .          .       S160
            .          .         .
            .          .         .
   397    C165......................
            V
            V
   403    R170
            .
            .
   410      .       S175
            .          .
            .          .
   421    C180............
            .
            .
   425      .       S185
            .          .
            .          .
   438    C190............
            V
            V
   441    R195
            .
            .
   448      .       S200
            .          .
            .          .
   461    C205............
            .
            .
   465      .       S210
            .          V
            .          V
   474      .       R215
            .          .
            .          .
   482      .          .       S220
            .          .         .
            .          .         .
   490      .       C225............
            .          V
            .          V
   495      .      RES228
            .          V
            .          V
   511      .       R230
            .          .
            .          .
   518      .          .       S235
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          .         .         V
          .         .         V
529       .         .    RES238
          .         .         V
          .         .         V
546       .         .      R240
          .         .         .
          .         .         .
553       .      C245............
          .         V
          .         V
557       .      R248
          .         V
          .         V
564       .      R250
          .         .
          .         .
571       .         .      S255
          .         .         V
          .         .         V
582       .         .    RES256
          .         .         V
          .         .         V
600       .         .      R258
          .         .         V
          .         .         V
607       .         .      R260
          .         .         .
          .         .         .
614       .         .         .      S265
          .         .         .         .
          .         .         .         .
628       .      C270......................
          .         V
          .         V
632       .      R273
          .         V
          .         V
639       .      R275
          .         .
          .         .
646       .         .      S280
          .         .         .
          .         .         .
659       .      C285............
          .         V
          .         V
663       .      R288
          .         V
          .         V
670       .      R290
          .         .
          .         .
677       .         .      S295
          .         .         .
          .         .         .
693       .      C300............
          .         V
          .         V
697       .      R305
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                .          .
                .          .
 94             .          .        S310
                .          .          .
                .          .          .
717             .       C315............
                .          .
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721          C320............
                V
                V
726          R325
                .
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733             .       S330
                .          .
                .          .
745          C335............
                .
                .
749             .       S340
                .          V
                .          V
760             .       R345
                .          .
                .          .
767             .          .        S350
                .          .          .
                .          .          .
778             .       C355............
                .          .
                .          .
781          C360............
                V
                V
785          R365
                .
                .
792             .       S370
                .          .
                .          .
803          C375............
                .
                .
807             .       S385
                .          .
                .          .
822             .          .        S390
                .          .          .
                .          .          .
837             .       C395............
                .          .
                .          .
841             .          .        S400
                .          .          V
                .          .          V
853             .          .        R405
                .          .          .
                .          .          .
860             .       C410............
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              .          V
              .          V
863           .       R415
              .          .
              .          .
870           .          .       S420
              .          .          .
              .          .          .
884           .       C425............
              .          V
              .          V
888           .       R430
              .          .
              .          .
895           .          .       S435
              .          .          .
              .          .          .
908           .       C440............
              .          .
              .          .
911           .          .       S445
              .          .          V
              .          .          V
922           .          .       R450
              .          .          .
              .          .          .
929           .          .          .       S455
              .          .          .          .
              .          .          .          .
940           .          .       C460............
              .          .          .
              .          .          .
943           .       C470............
              .          V
              .          V
947           .       R475
              .          .
              .          .
954           .          .       S480
              .          .          .
              .          .          .
964           .       C485............
              .          .
              .          .
968        C486............
              V
              V
973       RES488
              .
              .
987           .       S490
              .          V
              .          V
997           .      RES491
              .          V
              .          V
1014          .       R492
              .          .
              .          .
1021       C495............
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          V
          V
4       R500
          .
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1031      .       S505
          .          V
          .          V
1042      .     RES506
          .          V
          .          V
1058      .       R507
          .          .
          .          .
1065      .          .       S508
          .          .          .
          .          .          .
1076    C510.......................
          V
          V
1080  RES513
          .
          .
1090      .       S515
          .          V
          .          V
1100      .     RES516
          .          V
          .          V
1117      .       R517
          .          .
          .          .
1124      .          .       S518
          .          .          .
          .          .          .
1135      .       C519............
          .          V
          .          V
1139      .     RES520
          .          .
          .          .
1149      .          .       S521
          .          .          V
          .          .          V
1159      .          .     RES523
          .          .          .
          .          .          .
1168      .          .          .       S525
          .          .          .          V
          .          .          .          V
1179      .          .          .     RES528
          .          .          .          V
          .          .          .          V
1194      .          .          .     RES529
          .          .          .          .
          .          .          .          .
1203      .          .          .          .       S530
          .          .          .          .          V
          .          .          .          .          V
1214      .          .          .          .     RES533
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                .         .         .         .         V
                .         .         .         .         V
1228            .         .         .         .   RES534
                .         .         .         .         .
                .         .         .         .         .
1237            .         .         .         .         .       S535
                .         .         .         .         .         V
                .         .         .         .         .         V
1251            .         .         .         .         .       R540
                .         .         .         .         .         .
                .         .         .         .         .         .
1258            .         .         .         .         .         .         S545
                .         .         .         .         .         .           .
                .         .         .         .         .         .           .
1271            .         .         .         .         .       C550............
                .         .         .         .         .         .
                .         .         .         .         .         .
1274            .         .         .         .         .         .         S555
                .         .         .         .         .         .           .
                .         .         .         .         .         .           .
1288            .         .         .         .         .       C560............
                .         .         .         .         .         V
                .         .         .         .         .         V
1291            .         .         .         .         .       R565
                .         .         .         .         .         .
                .         .         .         .         .         .
1298            .         .         .         .         .         .         S570
                .         .         .         .         .         .           .
                .         .         .         .         .         .           .
1310            .         .         .         .         .       C575............
                .         .         .         .         .         V
                .         .         .         .         .         V
1314            .         .         .         .         .     RES577
                .         .         .         .         .         V
                .         .         .         .         .         V
1327            .         .         .         .         .     RES578
                .         .         .         .         .         .
                .         .         .         .         .         .
1336            .         .         .         .         .         .         S580
                .         .         .         .         .         .           V
                .         .         .         .         .         .           V
1345            .         .         .         .         .         .       RES582
                .         .         .         .         .         .           V
                .         .         .         .         .         .           V
1360            .         .         .         .         .         .       RES584
                .         .         .         .         .         .           .
                .         .         .         .         .         .           .
1369            .         .         .     CLEAR.......................................
                .         .         .         .
                .         .         .         .
1372            .         .         .         .       S585
                .         .         .         .         V
                .         .         .         .         V
1385            .         .         .         .   RES588
                .         .         .         .         V
                .         .         .         .         V
1399            .         .         .         .   RES589
                .         .         .         .         .
                .         .         .         .         .
1408            .         .         .         .         .       S590
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                .         .         .         .         .         V
                .         .         .         .         .         V
19              .         .         .         .         .    RES593
                .         .         .         .         .         V
                .         .         .         .         .         V
1434            .         .         .         .         .    RES594
                .         .         .         .         .         .
                .         .         .         .         .         .
1443            .         .         .         .         .         .      S600
                .         .         .         .         .         .         V
                .         .         .         .         .         .         V
1453            .         .         .         .         .         .    RES603
                .         .         .         .         .         .         V
                .         .         .         .         .         .         V
1469            .         .         .         .         .         .    RES604
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(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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****************************************                    ****************************************
*                                      *                    *                                      *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                    *   U.S. ARMY CORPS OF ENGINEERS       *
*            SEPTEMBER 1990            *                    *   HYDROLOGIC ENGINEERING CENTER      *
*             VERSION 4.0              *                    *         609 SECOND STREET            *
*                                      *                    *      DAVIS, CALIFORNIA 95616         *
*  RUN DATE  09/10/1992  TIME  10:52:11 *                    *          (916) 756-1104              *
*                                      *                    *                                      *
****************************************                    ****************************************
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                    FCDMC LUKE WASH, PROJECT NO. 90-68
                    100-YEAR, 6-HOUR DURATION STORM
                       FILENAME:  LUKE6        SEPT 1992

 5 IO        OUTPUT CONTROL VARIABLES
                  IPRNT          5  PRINT CONTROL
                  IPLOT          0  PLOT CONTROL
                  QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT        HYDROGRAPH TIME DATA
                   NMIN          5  MINUTES IN COMPUTATION INTERVAL
                  IDATE      1   0  STARTING DATE
                  ITIME       0000  STARTING TIME
                     NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                 NDDATE      2   0  ENDING DATE
                 NDTIME       0055  ENDING TIME
                 ICENT         19  CENTURY MARK

             COMPUTATION INTERVAL     .08 HOURS
                  TOTAL TIME BASE   24.92 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

 7 JD        INDEX STORM NO. 1
                  STRM       3.30  PRECIPITATION DEPTH
                  TRDA        .01  TRANSPOSITION DRAINAGE AREA

 8 PI          PRECIPITATION PATTERN
                 .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                 .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                 .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                 .00      .00      .00      .01      .01      .01      .01      .01      .01      .03
                 .03      .03      .05      .05      .05      .15      .15      .15      .03      .03
                 .03      .01      .01      .01      .01      .01      .01      .00      .00      .00
                 .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
                 .00      .00

11 JD        INDEX STORM NO. 2
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                STRM        3.28  PRECIPITATION DEPTH
                TRDA         .50  TRANSPOSITION DRAINAGE AREA

 0 PI         PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

12 JD        INDEX STORM NO. 3
                STRM        3.23  PRECIPITATION DEPTH
                TRDA        2.80  TRANSPOSITION DRAINAGE AREA

13 PI         PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .07       .07       .07       .08       .08       .08       .05       .05
                .05       .02       .02       .02       .01       .01       .01       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

16 JD        INDEX STORM NO. 4
                STRM        3.04  PRECIPITATION DEPTH
                TRDA       16.00  TRANSPOSITION DRAINAGE AREA

17 PI         PRECIPITATION PATTERN
                .01       .01       .00       .00       .00       .00       .00       .00       .00       .01
                .01       .01       .00       .01       .00       .00       .00       .00       .00       .00
                .00       .00       .01       .00       .00       .00       .00       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                .03       .03       .06       .06       .06       .07       .07       .07       .04       .04
                .04       .02       .02       .02       .01       .01       .01       .01       .01       .01
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

20 JD        INDEX STORM NO. 5
                STRM        2.67  PRECIPITATION DEPTH
                TRDA       90.00  TRANSPOSITION DRAINAGE AREA

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

24 JD        INDEX STORM NO. 6
                STRM        1.88  PRECIPITATION DEPTH
                TRDA      500.00  TRANSPOSITION DRAINAGE AREA

25 PI         PRECIPITATION PATTERN
```

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

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	S5	2227.	4.67	377.	94.	91.	3.60		
ROUTED TO	R10	1697.	6.00	371.	93.	89.	3.60		
HYDROGRAPH AT	S15	2563.	4.58	403.	101.	97.	3.83		
2 COMBINED AT	C20	2226.	4.58	667.	167.	161.	7.43		
ROUTED TO	R25	2093.	5.08	663.	166.	160.	7.43		
HYDROGRAPH AT	S30	1134.	4.33	108.	27.	26.	.80		
2 COMBINED AT	C35	2093.	5.08	724.	182.	175.	8.23		
ROUTED TO	RES38	1521.	5.58	714.	179.	173.	8.23		
HYDROGRAPH AT	S40	1503.	4.83	289.	72.	70.	2.17		
ROUTED TO	R45	1292.	5.58	286.	72.	69.	2.17		
HYDROGRAPH AT	S50	1528.	4.42	179.	45.	43.	1.35		
2 COMBINED AT	C55	1347.	4.50	418.	104.	101.	3.52		
ROUTED TO	RES58	1053.	5.83	418.	104.	101.	3.52		
2 COMBINED AT	C60	2306.	5.67	986.	247.	238.	11.75		
ROUTED TO	R65	2265.	6.00	978.	246.	237.	11.75		
ROUTED TO	R68	2211.	6.67	963.	243.	234.	11.75		
HYDROGRAPH AT	S70	1041.	5.67	337.	84.	81.	2.40		
2 COMBINED AT	C75	2534.	6.50	1161.	295.	284.	14.15		
HYDROGRAPH AT	S80	1797.	4.58	273.	68.	66.	2.03		
HYDROGRAPH AT	S85	1239.	4.25	103.	26.	25.	.80		
2 COMBINED AT	C90	2078.	4.42	342.	86.	82.	2.83		
ROUTED TO	RES93	645.	5.08	320.	86.	82.	2.83		
HYDROGRAPH AT	S95	315.	4.42	33.	8.	8.	.23		
ROUTED TO	RES98	222.	4.58	33.	8.	8.	.23		
2 COMBINED AT	C100	742.	4.83	340.	90.	87.	3.06		
ROUTED TO	R103	719.	5.25	335.	89.	86.	3.06		

ROUTED TO	R105	694.	5.67	330.	88.	85.	3.06
ROUTED TO	R108	672.	6.17	324.	87.	84.	3.06
HYDROGRAPH AT	S110	1318.	5.42	393.	98.	95.	2.78
2 COMBINED AT	C115	1616.	5.50	620.	165.	159.	5.84
2 COMBINED AT	C120	3204.	6.25	1524.	393.	379.	19.99
ROUTED TO	R125	3178.	6.50	1518.	392.	377.	19.99
HYDROGRAPH AT	S130	346.	4.67	54.	13.	13.	.31
2 COMBINED AT	C135	3177.	6.50	1543.	399.	384.	20.30
HYDROGRAPH AT	S136	859.	5.17	204.	51.	49.	1.26
ROUTED TO	R138	766.	5.58	202.	51.	49.	1.26
HYDROGRAPH AT	S140	1048.	5.00	237.	59.	57.	1.52
2 COMBINED AT	C142	1349.	5.33	404.	101.	97.	2.78
2 COMBINED AT	C145	3464.	5.92	1746.	451.	434.	23.08
ROUTED TO	R150	3417.	6.42	1736.	449.	432.	23.08
HYDROGRAPH AT	S155	785.	4.75	131.	33.	31.	.82
HYDROGRAPH AT	S160	674.	5.33	182.	45.	44.	1.18
3 COMBINED AT	C165	3500.	6.25	1857.	481.	463.	25.08
ROUTED TO	R170	3462.	6.58	1851.	480.	462.	25.08
HYDROGRAPH AT	S175	637.	4.67	93.	23.	22.	.58
2 COMBINED AT	C180	3440.	6.58	1879.	489.	471.	25.66
HYDROGRAPH AT	S185	569.	5.08	123.	31.	30.	.74
2 COMBINED AT	C190	3433.	6.50	1924.	501.	482.	26.40
ROUTED TO	R195	3354.	7.08	1905.	496.	478.	26.40
HYDROGRAPH AT	S200	844.	5.17	201.	50.	48.	1.34
2 COMBINED AT	C205	3317.	7.08	1967.	517.	498.	27.74
HYDROGRAPH AT	S210	1387.	4.50	197.	49.	47.	1.36
ROUTED TO	R215	1152.	5.17	195.	49.	47.	1.36
HYDROGRAPH AT	S220	1517.	4.33	161.	40.	39.	1.13
2 COMBINED AT	C225	1471.	4.42	323.	81.	78.	2.49
ROUTED TO	RES228	842.	5.42	323.	81.	78.	2.49

ROUTED TO	R230	835.	5.67	321.	80.	77.	2.49
HYDROGRAPH AT	S235	358.	4.50	45.	11.	11.	.26
ROUTED TO	RES238	168.	4.83	45.	11.	11.	.26
ROUTED TO	R240	161.	5.25	45.	11.	11.	.26
2 COMBINED AT	C245	950.	5.50	353.	88.	85.	2.75
ROUTED TO	R248	940.	5.83	351.	88.	85.	2.75
ROUTED TO	R250	927.	6.17	350.	88.	84.	2.75
HYDROGRAPH AT	S255	502.	4.42	60.	15.	14.	.34
ROUTED TO	RES256	233.	4.75	60.	15.	14.	.34
ROUTED TO	R258	214.	5.50	59.	15.	14.	.34
ROUTED TO	R260	196.	6.17	58.	15.	14.	.34
HYDROGRAPH AT	S265	1742.	5.25	469.	117.	113.	3.20
3 COMBINED AT	C270	1789.	5.75	768.	193.	186.	6.29
ROUTED TO	R273	1765.	5.83	763.	192.	185.	6.29
ROUTED TO	R275	1733.	6.17	756.	192.	185.	6.29
HYDROGRAPH AT	S280	1445.	5.08	345.	86.	83.	2.30
2 COMBINED AT	C285	2104.	5.67	985.	253.	244.	8.59
ROUTED TO	R288	2053.	6.17	971.	252.	243.	8.59
ROUTED TO	R290	2011.	6.50	958.	251.	242.	8.59
HYDROGRAPH AT	S295	1443.	5.75	494.	124.	119.	3.51
2 COMBINED AT	C300	2676.	6.25	1257.	339.	326.	12.10
ROUTED TO	R305	2614.	6.58	1240.	337.	325.	12.10
HYDROGRAPH AT	S310	991.	4.92	208.	52.	50.	1.28
2 COMBINED AT	C315	2608.	6.58	1329.	371.	357.	13.38
2 COMBINED AT	C320	4557.	7.00	2667.	722.	695.	41.12
ROUTED TO	R325	4447.	7.42	2643.	719.	692.	41.12
HYDROGRAPH AT	S330	596.	4.83	111.	28.	27.	.62
2 COMBINED AT	C335	4422.	7.42	2651.	729.	703.	41.74
HYDROGRAPH AT	S340	657.	4.50	80.	20.	19.	.46
ROUTED TO	R345	476.	5.25	79.	20.	19.	.46

HYDROGRAPH AT	S350	397.	4.58	56.	14.	14.	.33
2 COMBINED AT	C355	590.	4.67	129.	32.	31.	.79
2 COMBINED AT	C360	4391.	7.42	2667.	740.	713.	42.53
ROUTED TO	R365	4233.	8.00	2636.	737.	710.	42.53
HYDROGRAPH AT	S370	371.	4.58	54.	14.	13.	.31
2 COMBINED AT	C375	4231.	8.00	2635.	743.	715.	42.84
HYDROGRAPH AT	S385	1209.	5.42	365.	91.	88.	2.39
HYDROGRAPH AT	S390	842.	5.58	265.	66.	64.	1.80
2 COMBINED AT	C395	1810.	5.50	573.	143.	138.	4.19
HYDROGRAPH AT	S400	636.	4.75	104.	26.	25.	.66
ROUTED TO	R405	564.	5.00	103.	26.	25.	.66
2 COMBINED AT	C410	2040.	5.50	638.	160.	154.	4.85
ROUTED TO	R415	1926.	5.83	633.	159.	153.	4.85
HYDROGRAPH AT	S420	1583.	5.17	414.	104.	100.	3.03
2 COMBINED AT	C425	2645.	5.67	936.	236.	227.	7.88
ROUTED TO	R430	2422.	6.50	873.	229.	220.	7.88
HYDROGRAPH AT	S435	650.	5.08	146.	37.	35.	.93
2 COMBINED AT	C440	2424.	6.50	924.	250.	241.	8.81
HYDROGRAPH AT	S445	871.	4.67	132.	33.	32.	.90
ROUTED TO	R450	707.	5.17	130.	32.	31.	.90
HYDROGRAPH AT	S455	535.	4.58	71.	18.	17.	.45
2 COMBINED AT	C460	752.	5.08	184.	46.	44.	1.35
2 COMBINED AT	C470	2466.	6.42	1019.	276.	266.	10.16
ROUTED TO	R475	2359.	6.75	1011.	275.	265.	10.16
HYDROGRAPH AT	S480	457.	4.33	45.	11.	11.	.28
2 COMBINED AT	C485	2345.	6.75	1019.	280.	270.	10.44
2 COMBINED AT	C486	4790.	7.83	3001.	858.	827.	53.28
ROUTED TO	RES488	4761.	8.17	3001.	858.	827.	53.28
HYDROGRAPH AT	S490	404.	4.33	40.	10.	10.	.26
ROUTED TO	RES491	191.	4.58	40.	10.	10.	.26

ROUTED TO	R492	184.	4.83	38.	10.	9.	.26
2 COMBINED AT	C495	4758.	8.17	3001.	861.	829.	53.54
ROUTED TO	R500	4717.	8.33	2995.	859.	827.	53.54
HYDROGRAPH AT	S505	236.	4.42	26.	7.	6.	.15
ROUTED TO	RES506	183.	4.58	26.	7.	6.	.15
ROUTED TO	R507	161.	5.00	26.	6.	6.	.15
HYDROGRAPH AT	S508	448.	4.67	65.	16.	16.	.42
3 COMBINED AT	C510	4715.	8.33	2995.	867.	835.	54.11
ROUTED TO	RES513	4673.	8.42	2982.	864.	832.	54.11
HYDROGRAPH AT	S515	493.	4.17	39.	10.	9.	.26
ROUTED TO	RES516	236.	4.42	39.	10.	9.	.26
ROUTED TO	R517	224.	4.67	38.	10.	9.	.26
HYDROGRAPH AT	S518	816.	4.50	99.	25.	24.	.74
2 COMBINED AT	C519	944.	4.50	129.	32.	31.	1.00
ROUTED TO	RES520	319.	4.92	36.	9.	9.	1.00
HYDROGRAPH AT	S521	285.	4.25	25.	6.	6.	.16
ROUTED TO	RES523	0.	.08	0.	0.	0.	.16
HYDROGRAPH AT	S525	537.	4.42	63.	16.	15.	.36
ROUTED TO	RES528	452.	4.58	63.	16.	15.	.36
ROUTED TO	RES529	280.	4.83	56.	14.	14.	.36
HYDROGRAPH AT	S530	448.	4.50	55.	14.	13.	.32
ROUTED TO	RES533	376.	4.58	55.	14.	13.	.32
ROUTED TO	RES534	374.	4.67	47.	12.	11.	.32
HYDROGRAPH AT	S535	1450.	5.33	405.	101.	98.	2.71
ROUTED TO	R540	1300.	6.08	397.	99.	96.	2.71
HYDROGRAPH AT	S545	1194.	4.92	256.	64.	62.	1.53
2 COMBINED AT	C550	1397.	6.00	596.	150.	145.	4.24
HYDROGRAPH AT	S555	858.	5.17	210.	52.	51.	1.31
2 COMBINED AT	C560	1666.	5.92	748.	188.	181.	5.55
ROUTED TO	R565	1627.	6.17	739.	187.	180.	5.55

HYDROGRAPH AT	S570	724.	4.75	118.	30.	28.	.72
2 COMBINED AT	C575	1734.	5.33	808.	206.	198.	6.27
ROUTED TO	RES577	1565.	6.33	808.	206.	198.	6.27
ROUTED TO	RES578	1565.	6.33	808.	205.	197.	6.27
HYDROGRAPH AT	S580	131.	4.08	9.	2.	2.	.05
ROUTED TO	RES582	116.	4.17	9.	2.	2.	.05
ROUTED TO	RES584	30.	.08	16.	5.	5.	.05
4 COMBINED AT	CLEAR	1609.	5.67	870.	223.	215.	7.00
HYDROGRAPH AT	S585	889.	5.00	194.	48.	47.	1.25
ROUTED TO	RES588	539.	5.50	194.	48.	47.	1.25
ROUTED TO	RES589	539.	5.50	194.	48.	47.	1.25
HYDROGRAPH AT	S590	374.	4.42	41.	10.	10.	.24
ROUTED TO	RES593	250.	4.58	41.	10.	10.	.24
ROUTED TO	RES594	246.	4.67	38.	10.	10.	.24
HYDROGRAPH AT	S600	498.	4.17	36.	9.	9.	.21
ROUTED TO	RES603	120.	4.42	36.	9.	9.	.21
ROUTED TO	RES604	87.	5.08	25.	6.	6.	.21

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

100-Year, 24-Hour HEC-1 Model

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****************************************
*                                      *
*  FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            SEPTEMBER 1990            *
*             VERSION 4.0              *
*                                      *
* RUN DATE  09/10/1992  TIME  10:45:56 *
*                                      *
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*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X       XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

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

  1           ID     FCDMC LUKE WASH FIS, PROJECT NO. 90-68,  BY COE & VAN LOO CONSULTANTS
  2           ID     100-YEAR, 24-HOUR DURATION STORM
  3           ID     FILE NAME:   LUKE24        SEPT 1992
              *DIAGRAM
  4           IT      5                    300
  5           IO      5
  6           IN     30
  7           JD    4.10    0.01
  8           PC    .000    .005    .011    .016    .022    .028    .035    .041    .048    .056
  9           PC    .063    .071    .080    .089    .098    .109    .120    .133    .147    .163
 10           PC    .181    .204    .235    .283    .663    .735    .772    .799    .820    .838
 11           PC    .854    .868    .880    .891    .902    .912    .921    .929    .937    .945
 12           PC    .952    .959    .965    .972    .978    .984    .989    .995   1.000
 13           JD    4.02       3
 14           JD    3.94      10
 15           JD    3.77      20
 16           JD    3.69      30
 17           JD    3.65      40
 18           JD    3.61      50
 19           JD    3.49     100

 20           KK     S5
 21           KM       BASIN S5
 22           KM       THE HYDROGRAPH LOCATION ID NUMBERS INCREASE THROUGHOUT THIS MODEL.
 23           KM       ALL SUBBASINS ARE DENOTED WITH AN "S"
 24           KM       ALL ROUTES ARE DENOTED WITH AN "R"
 25           KM       ALL COMBINES ARE DENOTED WITH A "C"
 26           KM       ALL RESERVOIRS ARE DENOTED WITH AN "RES"
 27           KM       HEADWATERS OF PHILLIPS WASH
 28           KM       THIS IS SUB-BASIN 18D FROM THE JACKRABBIT WASH STUDY
 29           BA    3.60
 30           LG     .35     .35    3.90     .45     .00
 31           UI    247.    247.    677.   1038.   1274.   1462.   1714.   2023.   2697.   3128.
 32           UI   2497.   2116.   1830.   1542.   1301.   1081.    765.    441.    415.    352.
 33           UI    247.    232.     76.     76.     76.     76.     76.     76.     76.      0.
 34           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 35           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 36           KK    R10
 37           KM       ROUTE R10
 38           KM       THIS IS ROUTE 104-105 FROM THE JACK RABBIT WASH STUDY
 39           RS     17    FLOW      -1
 40           RL                   0.43    85.2
 41           RC   0.07   0.039    0.06   18322   0.006
 42           RX 1000.0  1515.0  1567.0  1574.5  1596.5  1602.0  1622.5  2337.5
 43           RY   95.7    90.5    88.7    85.2    85.2    87.7    88.5    95.7

 44           KK    S15
 45           KM       BASIN 15
 46           KM       THIS IS SUB-BASIN 18E FROM THE JACK RABBIT WASH STUDY
 47           BA    3.83
 48           LG     .35     .35    4.20     .42     .00
 49           UI    293.    293.    1005.   1344.   1631.   1902.   2286.   3056.   3690.   2920.
 50           UI   2441.   2054.   1707.   1419.   1014.    608.    497.    416.    293.    227.
 51           UI     90.     90.     90.     90.     90.     90.      0.      0.      0.      0.
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  52          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  53          KK     C20
  54          KM        COMBINE C20
  55          KM        THIS IS THE COMBINE AT C105 FROM THE JACK RABBIT WASH STUDY
  56          KM        PHILLIPS WASH CROSSING AT INDIAN SCHOOL ROAD
  57          HC       2

  58          KK     R25
  59          KM        ROUTE R25
  60          KM        THIS IS ROUTE 105-106 FROM THE JACK RABBIT WASH STUDY
  61          RS       8    FLOW      -1
  62          RL                   0.33    82.5
  63          RC    0.05   0.037    0.05    9610   0.004
  64          RX  1000.0  1510.0  1560.0  1570.0  1590.0  1595.0  1620.0  1822.0
  65          RY    95.1    90.0    87.5    82.5    82.5    84.5    85.0    95.1

  66          KK     S30
  67          KM        BASIN S30
  68          KM        THIS IS SUB-BASIN 18F FROM THE JACK RABBIT WASH STUDY
  69          BA     .80
  70          LG     .35     .35    4.00     .45     .00
  71          UI    104.    329.    549.    729.   1129.   1092.    795.    582.    383.    183.
  72          UI    132.     77.     32.     32.     32.      0.      0.      0.      0.      0.
  73          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

  74          KK     C35
  75          KM        COMBINE C35
  76          KM        THIS IS THE COMBINE AT C106 FROM THE JACK RABBIT WASH STUDY
  77          KM        PHILLIPS WASH CROSSING AT INTERSTATE-10
  78          HC       2

  79          KK   RES38
  80          KM        RESERVOIR ROUTING RES38
  81          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF INTERSTATE-10
  82          KM        THIS PONDING IS BASED ON THE USGS WINTERSBURG QUADRANGLE
  83          KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
  84          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
  85          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER I-10 HAVE BEEN COMBINED
  86          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
  87          KM            2-10'x3'x194' CBCs
  88          KM            3-10'x5'x194' CBCs
  89          KM        WEIR FLOW OVER I-10 IS ASSUMED TO BEGIN AT A DEPTH OF 9 FEET.
  90          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
  91          KM                DETAILED INFORMATION ON THE CULVERTS.
  92          RS       1    ELEV       0
  93          SA     0.1       2       5      16      35      56      65      97
  94          SE       0       1       2       4       6       8       9      11
  95          SQ       0     145     400    1064    1763    2243    2488    7590
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 96           KK     S40
 97           KM        BASIN S40
 98           KM        THIS IS SUB-BASIN 18R FROM THE JACK RABBIT WASH STUDY
 99           BA    2.17
100           LG     .35     .34    4.30     .34     .00
101           UI    124.    124.    205.    438.    552.    643.    723.    817.    937.   1114.
102           UI   1445.   1566.   1279.   1105.    985.    854.    749.    645.    563.    420.
103           UI    285.    219.    204.    177.    124.    124.     71.     38.     38.     38.
104           UI     38.     38.     38.     38.     38.      0.      0.      0.      0.      0.
105           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

106           KK     R45
107           KM        ROUTE R45
108           KM        THIS IS ROUTE R118-64 FROM THE JACK RABBIT WASH STUDY
109           RS     10    FLOW      -1
110           RL                   0.40    88.0
111           RC   0.07   0.041    0.07    8818   0.006
112           RX 1000.0  1520.0  1574.0  1579.0  1603.0  1609.0  1625.0  2045.0
113           RY   96.2    91.0    90.0    88.0    88.0    91.0    92.0    96.2

114           KK     S50
115           KM        BASIN S50
116           KM        THIS IS SUB-BASIN 18S FROM THE JACK RABBIT WASH STUDY
117           BA    1.35
118           LG     .35     .34    4.50     .38     .00
119           UI    142.    320.    641.    827.   1046.   1520.   1636.   1222.    962.    744.
120           UI    513.    268.    219.    142.     74.     44.     44.     44.     44.      0.
121           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
122           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

123           KK     C55
124           KM        COMBINE C55
125           KM        THIS IS THE COMBINE C64 FROM THE JACK RABBIT WASH STUDY
126           KM        THIS IS A FLOW CROSSING AT INTERSTATE-10
127           HC       2

128           KK   RES58
129           KM        RESERVOIR ROUTING RES58
130           KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF INTERSTATE-10
131           KM        THIS PONDING IS BASED ON THE USGS WINTERSBURG QUADRANGLE
132           KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
133           KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
134           KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER I-10 HAVE BEEN COMBINED
135           KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
136           KM            2-10'x8'x194' CBCs
137           KM        WEIR FLOW OVER I-10 IS ASSUMED TO BEGIN AT A DEPTH OF 11 FEET.
138           KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
139           KM                DETAILED INFORMATION ON THE CULVERTS.
140           RS      1    ELEV      0
141           SA    0.1     0.8     1.4       5      12      20      31      38      49
142           SE      0       1       2       4       6       8      10      11      13
143           SQ      0      60     166     480     900    1300    1700    1900    6060
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 144          KK     C60
 145          KM        COMBINE C60
 146          HC       2

 147          KK     R65
 148          KM        ROUTE R65
 149          RS       3    FLOW      -1
 150          RL                     .39      10
 151          RC    .060     .040    .060    7700  .00506
 152          RX     405      417     479     485     515     521     583     595
 153          RY      17       13      13      10      10      13      13      17

 154          KK     R68
 155          KM        ROUTE R68
 156          RS       8    FLOW      -1
 157          RL                    0.39      10
 158          RC     .06      .04     .06   13300  .00436
 159          RX     410      419     472     480     520     528     581     590
 160          RY      17       14      14      10      10      14      14      17

 161          KK     S70
 162          KM        BASIN S70
 163          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 164          KM        L=      4.1  Lca=      2.5   S=   27.0  Kn= .060  LAG= 111.1
 165          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 166          BA    2.40
 167          LG     .35      .35    3.71     .32     .00
 168          UI     73.      73.     73.     73.     73.    221.    252.    279.    335.    354.
 169          UI    384.     406.    431.    460.    493.    534.    566.    619.    709.    836.
 170          UI    917.     941.    833.    753.    692.    644.    606.    571.    534.    488.
 171          UI    455.     428.    393.    363.    342.    305.    265.    209.    175.    129.
 172          UI    129.     124.    119.    119.    100.     73.     73.     73.     73.     57.
 173          UI     22.      22.     22.     22.     22.     22.     22.     22.     22.     22.
 174          UI     22.      22.     22.     22.     22.     22.      0.      0.      0.      0.
 175          UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.

 176          KK     C75
 177          KM        COMBINE C75
 178          KM        PHILLIPS WASH CROSSING AT LOWER BUCKEYE ROAD
 179          HC       2

 180          KK     S80
 181          KM        BASIN S80
 182          KM        THIS IS SUB-BASIN 18G FROM THE JACK RABBIT WASH STUDY
 183          BA    2.03
 184          LG     .35      .35    5.30     .29     .00
 185          UI    159.     167.    559.    747.    896.   1060.   1279.   1759.   1942.   1514.
 186          UI   1277.    1055.    876.    712.    481.    281.    262.    185.    159.     74.
 187          UI     49.      49.     49.     49.     49.      0.      0.      0.      0.      0.
 188          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

 189          KK     S85
 190          KM        BASIN S85
 191          KM        THIS IS SUB-BASIN 18K FROM THE JACK RABBIT WASH STUDY
 192          BA     .80
 193          LG     .35     .35    4.00     .49     .00
 194          UI    122.    491.    738.   1116.   1381.    939.    653.    339.    191.    109.
 195          UI     38.     38.     38.      0.      0.      0.      0.      0.      0.      0.
 196          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 197          KK     C90
 198          KM        COMBINE C90
 199          KM        DICKEY WASH CROSSING AT INTERSTATE-10
 200          HC       2

 201          KK   RES93
 202          KM        RESERVOIR ROUTING RES93
 203          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF INTERSTATE-10
 204          KM        THIS PONDING IS BASED ON THE USGS WINTERSBURG QUADRANGLE
 205          KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
 206          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
 207          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER I-10 HAVE BEEN COMBINED
 208          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
 209          KM              1-72"x224' PIPE CULVERT
 210          KM              2-10'x5' CBCs
 211          KM        WEIR FLOW OVER I-10 IS ASSUMED TO BEGIN AT A DEPTH OF 10 FEET.
 212          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
 213          KM                DETAILED INFORMATION ON THE CULVERTS.
 214          RS       1    ELEV       0
 215          SA       5       8      14      19      28      42      58      72
 216          SE       0       1       2       4       6       8      10      12
 217          SQ       0      44     110     332     591     820     970    3794

 218          KK     S95
 219          KM        BASIN S95
 220          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 221          KM        L=       .9  Lca=       .4   S=   26.0  Kn= .060  LAG=  32.6
 222          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 223          BA     .23
 224          LG     .35     .35    4.30     .44     .00
 225          UI     24.     51.    105.    137.    171.    242.    283.    211.    168.    130.
 226          UI     94.     50.     40.     25.     17.      7.      7.      7.      7.      0.
 227          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 228          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 229          KK   RES98
 230          KM        RESERVOIR ROUTING RES98
 231          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF INTERSTATE-10
 232          KM        THIS PONDING IS BASED ON THE USGS WINTERSBURG QUADRANGLE
 233          KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
 234          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
 235          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER I-10 HAVE BEEN COMBINED
 236          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
 237          KM              1-6'x3'x194' CBC
 238          KM              2-36"x216' CMPs
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 239          KM        WEIR FLOW OVER I-10 IS ASSUMED TO BEGIN AT A DEPTH OF 8 FEET.
 240          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
 241          KM                DETAILED INFORMATION ON THE CULVERTS.
 242          RS       1    ELEV      0
 243          SA     0.1     0.3     0.7       3       6      10      20
 244          SE       0       1       2       4       6       8      10
 245          SQ       0      30      85     218     314     393    5801

 246          KK    C100
 247          KM        COMBINE C100
 248          HC       2

 249          KK    R103
 250          KM        ROUTE R103
 251          RS       5    FLOW      -1
 252          RL                    .40      10
 253          RC    .060    .040    .060    6500  .00462
 254          RX   447.5   459.5   481.5   487.5   512.5   518.5   540.5   552.5
 255          RY      17      13      13      10      10      13      13      17

 256          KK    R105
 257          KM        ROUTE R105
 258          RS       5    FLOW      -1
 259          RL                    .40      10
 260          RC    .060    .040    .060    5800  .00431
 261          RX   437.5   449.5   481.5   487.5   512.5   518.5   550.5   562.5
 262          RY      17      13      13      10      10      13      13      17

 263          KK    R108
 264          KM        ROUTE R108
 265          RS       7    FLOW      -1
 266          RL                    .40      10
 267          RC    .060    .040    .060    6000  .00433
 268          RX     425     432     479     485     515     521     563     575
 269          RY      17      13      13      10      10      13      13      17

 270          KK    S110
 271          KM        BASIN S110
 272          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 273          KM        L=      3.8  Lca=      2.1   S=   30.0  Kn= .060  LAG=  98.8
 274          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 275          BA    2.78
 276          LG     .35     .35    3.66     .31     .39
 277          UI     95.     95.     95.     95.    193.    315.    363.    428.    461.    508.
 278          UI    540.    575.    620.    680.    729.    799.    930.   1088.   1256.   1160.
 279          UI   1025.    924.    851.    792.    742.    683.    623.    579.    532.    483.
 280          UI    451.    402.    338.    272.    199.    168.    166.    156.    156.    134.
 281          UI     95.     95.     95.     95.     41.     29.     29.     29.     29.     29.
 282          UI     29.     29.     29.     29.     29.     29.     29.     29.     29.      0.
 283          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 284          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

 285          KK    C115
 286          KM        COMBINE C115
 287          KM        DICKEY WASH CROSSING AT LOWER BUCKEYE ROAD
 288          HC       2

 289          KK    C120
 290          KM        COMBINE C120
 291          KM        DICKEY AND PHILLIPS WASHES COMBINE AT BUCKEYE ROAD AND BECOME LUKE WASH
 292          HC       2

 293          KK    R125
 294          KM        ROUTE R125
 295          RS       3    FLOW      -1
 296          RL                     .40      10
 297          RC    .065    .035    .065    5400  .00463
 298          RX     380     392     472     480     520     528     608     620
 299          RY      18      14      14      10      10      14      14      18

 300          KK    S130
 301          KM        BASIN S130
 302          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 303          KM        L=      1.4  Lca=       .8   S=   27.0  Kn= .065  LAG=  51.0
 304          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 305          BA     .31
 306          LG     .35     .35    3.66     .31     .00
 307          UI     20.     20.     51.     83.    102.    118.    135.    159.    203.    259.
 308          UI    226.    187.    164.    139.    119.    101.     81.     52.     36.     34.
 309          UI     27.     20.     18.      6.      6.      6.      6.      6.      6.      6.
 310          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 311          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 312          KK    C135
 313          KM        COMBINE C135
 314          HC       2

 315          KK    S136
 316          KM        BASIN S136
 317          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 318          KM        L=      3.0  Lca=      1.4   S=   32.0  Kn= .062  LAG=  79.8
 319          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 320          BA    1.26
 321          LG     .35     .34    3.50     .29     .00
 322          UI     53.     53.     53.     93.    181.    214.    252.    278.    304.    329.
 323          UI    364.    403.    449.    544.    654.    680.    579.    511.    464.    426.
 324          UI    388.    347.    315.    283.    255.    223.    175.    136.     94.     93.
 325          UI     87.     87.     54.     53.     53.     42.     16.     16.     16.     16.
 326          UI     16.     16.     16.     16.     16.     16.     16.      0.      0.      0.
 327          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

 328          KK    R138
 329          KM        ROUTE R138
 330          RS      5    FLOW      -1
 331          RL                    .40      10
 332          RC    .065    .040    .065    8500  .00518
 333          RX     455   462.5     490     495     505     510   537.5     545
 334          RY      15    12.5    12.5      10      10    12.5    12.5      15

 335          KK    S140
 336          KM        BASIN S140
 337          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 338          KM        L=      2.8  Lca=      1.2   S=   32.0  Kn= .062  LAG=  73.7
 339          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 340          BA    1.52
 341          LG     .37     .31    3.61     .31     .00
 342          UI     69.     69.     69.    166.    250.    303.    347.    383.    419.    465.
 343          UI    520.    583.    722.    864.    861.    729.    642.    582.    532.    471.
 344          UI    424.    379.    338.    294.    227.    168.    123.    119.    114.     95.
 345          UI     69.     69.     67.     21.     21.     21.     21.     21.     21.     21.
 346          UI     21.     21.     21.     21.      0.      0.      0.      0.      0.      0.
 347          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 348          KK    C142
 349          KM        COMBINE C142
 350          KM        FLOW CROSSING AT BROADWAY ROAD
 351          HC      2

 352          KK    C145
 353          KM        COMBINE C145
 354          KM        LUKE WASH CROSSING AT BROADWAY ROAD
 355          HC      2

 356          KK    R150
 357          KM        ROUTE R150
 358          RS      2    FLOW      -1
 359          RL                    .40      10
 360          RC    .065    .035    .065    6000  .00433
 361          RX     390     405     474     480     520     526     595     610
 362          RY      18      13      13      10      10      13      13      18

 363          KK    S155
 364          KM        BASIN S155
 365          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 366          KM        L=      1.9  Lca=       .8   S=   37.0  Kn= .065  LAG=  53.8
 367          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 368          BA     .82
 369          LG     .35     .35    3.71     .33     .00
 370          UI     51.     51.    113.    195.    247.    285.    322.    376.    444.    586.
 371          UI    646.    521.    446.    393.    334.    289.    248.    195.    129.     91.
 372          UI     85.     71.     51.     51.     18.     16.     16.     16.     16.     16.
 373          UI     16.     16.      0.      0.      0.      0.      0.      0.      0.      0.
 374          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

 375          KK    S160
 376          KM        BASIN S160
 377          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 378          KM        L=      3.4  Lca=      1.5   S=   27.0  Kn= .065  LAG=  94.4
 379          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 380          BA    1.18
 381          LG     .35     .35    3.71     .32     .00
 382          UI     42.     42.     42.     42.    105.    146.    168.    197.    213.    231.
 383          UI    246.    267.    289.    317.    342.    396.    476.    537.    527.    460.
 384          UI    413.    378.    351.    328.    298.    274.    251.    230.    210.    196.
 385          UI    166.    132.    111.     74.     74.     70.     69.     66.     42.     42.
 386          UI     42.     42.     19.     13.     13.     13.     13.     13.     13.     13.
 387          UI     13.     13.     13.     13.     13.     13.      0.      0.      0.      0.
 388          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 389          KK    C165
 390          KM        COMBINE C165
 391          KM        LUKE WASH CROSSING AT SALOME HIGHWAY
 392          KM        LUKE WASH INTERMINGLES WITH A TRIBUTARY APPROXIMATELY
 393          KM        2000 FEET NORTH OF SALOME HIGHWAY
 394          HC       3

 395          KK    R170
 396          KM        ROUTE R170
 397          RS       3    FLOW      -1
 398          RL                     .40      10
 399          RC    .070    .040    .070    5500  .00527
 400          RX     390     402     482     490     510     518     598     610
 401          RY      20      14      14      10      10      14      14      20

 402          KK    S175
 403          KM        BASIN S175
 404          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 405          KM        L=      1.4  Lca=       .7   S=   44.0  Kn= .068  LAG=  47.1
 406          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 407          BA     .58
 408          LG     .35     .35    3.82     .35     .00
 409          UI     41.     41.    124.    180.    219.    253.    299.    365.    502.    483.
 410          UI    388.    334.    280.    236.    199.    144.     90.     71.     65.     41.
 411          UI     41.     15.     13.     13.     13.     13.     13.     13.      0.      0.
 412          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 413          KK    C180
 414          KM        COMBINE C180
 415          KM        LUKE WASH CROSSING AT BASELINE ROAD
 416          HC       2

 417          KK    S185
 418          KM        BASIN S185
 419          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 420          KM        L=      2.4  Lca=      1.1   S=   31.0  Kn= .068  LAG=  74.3
 421          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 422          BA     .74
 423          LG     .35     .35    3.61     .31     .00
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 424          UI     34.     34.     34.     78.    120.    145.    166.    184.    201.    223.
 425          UI    249.    277.    336.    414.    424.    358.    315.    285.    261.    232.
 426          UI    208.    186.    167.    147.    116.     89.     59.     58.     55.     51.
 427          UI     34.     34.     34.     16.     10.     10.     10.     10.     10.     10.
 428          UI     10.     10.     10.     10.      0.      0.      0.      0.      0.      0.
 429          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 430          KK    C190
 431          KM        COMBINE C190
 432          HC       2

 433          KK    R195
 434          KM        ROUTE 195
 435          RS       6    FLOW      -1
 436          RL                     .40      10
 437          RC    .070    .035    .070   11600  .00474
 438          RX     380     392     474     480     520     526     608     620
 439          RY      20      13      13      10      10      13      13      20

 440          KK    S200
 441          KM        BASIN S200
 442          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 443          KM        L=      2.6  Lca=      1.4   S=   34.0  Kn= .068  LAG=  80.7
 444          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 445          BA    1.34
 446          LG     .35     .35    3.71     .33     .00
 447          UI     56.     56.     56.     93.    189.    222.    263.    289.    317.    342.
 448          UI    378.    420.    461.    551.    670.    731.    626.    550.    496.    456.
 449          UI    419.    373.    340.    306.    276.    247.    200.    161.    100.     99.
 450          UI     93.     92.     69.     56.     56.     56.     21.     17.     17.     17.
 451          UI     17.     17.     17.     17.     17.     17.     17.     17.      0.      0.
 452          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 453          KK    C205
 454          KM        COMBINE C205
 455          KM        LUKE WASH UPSTREAM OF SOUTHERN PACIFIC RAILROAD
 456          HC       2

 457          KK    S210
 458          KM        BASIN S210
 459          KM        THIS IS SUB-BASIN 18P FROM THE JACK RABBIT WASH STUDY
 460          BA    1.36
 461          LG     .35     .31    6.00     .28     .00
 462          UI    112.    141.    404.    548.    650.    783.    978.   1376.   1218.    977.
 463          UI    820.    669.    547.    391.    227.    188.    144.    112.     60.     34.
 464          UI     34.     34.     34.     34.      0.      0.      0.      0.      0.      0.
 465          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 466          KK    R215
 467          KM        ROUTE R125
 468          KM        THIS IS ROUTE 116-117 FROM THE JACK RABBIT WASH STUDY
 469          RS       9    FLOW      -1
 470          RL                    0.39    88.0
 471          RC    0.07   0.041    0.07    7392   0.006
 472          RX  1000.0  1520.0  1574.0  1579.0  1603.0  1609.0  1625.0  2045.0
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

473           RY    96.2    91.0    90.0    88.0    88.0    91.0    92.0    96.2

474           KK    S220
475           KM        BASIN S220
476           KM        THIS IS SUB-BASIN 18Q FROM THE JACK RABBIT WASH STUDY
477           BA    1.13
478           LG     .35     .35    3.90     .37     .00
479           UI    136.    381.    686.    888.   1259.   1615.   1190.    905.    673.    384.
480           UI    231.    156.     91.     42.     42.     42.      0.      0.      0.      0.
481           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

482           KK    C225
483           KM        COMBINE C225
484           KM        THIS IS COMBINE C117 FROM THE JACK RABBIT WASH STUDY
485           KM        THIS IS A FLOW CROSSING AT INTERSTATE-10
486           HC       2

487           KK  RES228
488           KM        RESERVOIR ROUTING RES228
489           KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF INTERSTATE-10
490           KM        THIS PONDING IS BASED ON THE USGS WINTERSBURG QUADRANGLE
491           KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
492           KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
493           KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER I-10 HAVE BEEN COMBINED
494           KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
495           KM              2-10'x5'x209' CBCs
496           KM        WEIR FLOW OVER I-10 IS ASSUMED TO BEGIN AT A DEPTH OF 12 FEET.
497           KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
498           KM                DETAILED INFORMATION ON THE CULVERTS.
499           RS       1    ELEV       0
500           SA     0.1     1.5       3       9      22      36      54      80     100
501           SE       0       1       2       4       6       8      10      12      14
502           SQ       0      60     164     448     790    1014    1244    1438    9276

503           KK    R230
504           KM        ROUTE R230
505           RS       3    FLOW      -1
506           RL                     .38      10
507           RC    .060    .045    .060    5400  .00611
508           RX     446     455     492     496     504     508     545     554
509           RY      15      12      12      10      10      12      12      15

510           KK    S235
511           KM        BASIN S235
512           KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
513           KM        L=      1.4  Lca=       .5   S=   31.0  Kn= .060  LAG=  39.0
514           KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
515           BA     .26
516           LG     .35     .35    3.66     .31     .00
517           UI     22.     33.     85.    114.    136.    166.    224.    278.    220.    181.
518           UI    147.    119.     92.     53.     38.     32.     22.     14.      7.      7.
519           UI      7.      7.      7.      0.      0.      0.      0.      0.      0.      0.
520           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

 521          KK  RES238
 522          KM        RESERVOIR ROUTING RES238
 523          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF INTERSTATE-10
 524          KM        THIS PONDING IS BASED ON THE USGS WINTERSBURG QUADRANGLE
 525          KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
 526          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
 527          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER I-10 HAVE BEEN COMBINED
 528          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
 529          KM              2-42"x213' CMPs
 530          KM              2-36"x235' CMPs
 531          KM        WEIR FLOW OVER I-10 IS ASSUMED TO BEGIN AT A DEPTH OF 8 FEET.
 532          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
 533          KM                DETAILED INFORMATION ON THE CULVERTS.
 534          RS       1    ELEV       0
 535          SA     0.1     1.5       3      10      25      38      50
 536          SE       0       1       2       4       6       8      10
 537          SQ       0      26      76     220     320     406    4660

 538          KK    R240
 539          KM        ROUTE R240
 540          RS       6    FLOW      -1
 541          RL                    .30      10
 542          RC    .060    .045    .060    4200  .00595
 543          RX   457.5   466.5   493.5   497.5   502.5   506.5   533.5   542.5
 544          RY      15      12      12      10      10      12      12      15

 545          KK    C245
 546          KM        COMBINE C245
 547          KM        FLOW COMBINES AT MCDOWELL ROAD
 548          HC       2

 549          KK    R248
 550          KM        ROUTE R248
 551          RS       3    FLOW      -1
 552          RL                    .38      10
 553          RC    .060    .045    .060    5400  .00611
 554          RX   447.5   456.5   491.5   497.5   502.5   508.5   543.5   552.5
 555          RY      16      13      13      10      10      13      13      16

 556          KK    R250
 557          KM        ROUTE R250
 558          RS       5    FLOW      -1
 559          RL                    .25      10
 560          RC    .060    .045    .060    7600  .00487
 561          RX   457.5   466.5   491.5   497.5   502.5   508.5   533.5   542.5
 562          RY      16      13      13      10      10      13      13      16

 563          KK    S255
 564          KM        BASIN S255
 565          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 566          KM        L=      1.2  Lca=       .5   S=   33.0  Kn= .060  LAG=  35.6
 567          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 568          BA     .34
 569          LG     .35     .35    3.61     .30     .00
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

570           UI     32.     59.    132.    173.    212.    270.    391.    339.    268.    215.
571           UI    171.    126.     70.     54.     38.     30.     10.     10.     10.     10.
572           UI     10.      0.      0.      0.      0.      0.      0.      0.      0.      0.
573           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

574           KK  RES256
575           KM        RESERVOIR ROUTING RES256
576           KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF INTERSTATE-10
577           KM        THIS PONDING IS BASED ON THE USGS WINTERSBURG QUADRANGLE
578           KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
579           KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
580           KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER I-10 HAVE BEEN COMBINED
581           KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
582           KM              2-36"x206' CMPs
583           KM              3-36"x225' CMPs
584           KM              1-42"x242' CMPs
585           KM        WEIR FLOW OVER I-10 IS ASSUMED TO BEGIN AT A DEPTH OF 6 FEET.
586           KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
587           KM                DETAILED INFORMATION ON THE CULVERTS.
588           RS       1    ELEV       0
589           SA     0.5       2       4      14      29      56
590           SE       0       1       2       4       6       8
591           SQ       0      37     110     310     440   12025

592           KK    R258
593           KM        ROUTE R258
594           RS       9    FLOW      -1
595           RL                    .25      10
596           RC    .060    .045    .060    8800  .00602
597           RX   468.5     476   495.5   498.5   501.5   504.5     524   531.5
598           RY      14    11.5    11.5      10      10    11.5    11.5      14

599           KK    R260
600           KM        ROUTE R260
601           RS      10    FLOW      -1
602           RL                   0.25      10
603           RC    .060    .045    .060    7400  .00500
604           RX   468.5     476   495.5   498.5   501.5   504.5     524   531.5
605           RY      14    11.5    11.5      10      10    11.5    11.5      14

606           KK    S265
607           KM        BASIN S265
608           KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
609           KM        L=      3.3  Lca=      1.6   S=   29.0  Kn= .060  LAG=  86.4
610           KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
611           BA    3.20
612           LG     .35     .35    3.50     .28     .16
613           UI    125.    125.    125.    132.    410.    465.    553.    613.    679.    723.
614           UI    789.    865.    948.   1046.   1236.   1491.   1644.   1429.   1256.   1139.
615           UI   1047.    973.    876.    796.    734.    657.    600.    533.    432.    358.
616           UI    221.    221.    209.    205.    178.    125.    125.    125.     93.     38.
617           UI     38.     38.     38.     38.     38.     38.     38.     38.     38.     38.
618           UI     38.      0.      0.      0.      0.      0.      0.      0.      0.      0.
619           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

 620          KK    C270
 621          KM        COMBINE C270
 622          KM        FLOW 2000 FEET DOWNSTREAM OF BUCKEYE ROAD
 623          HC      3

 624          KK    R273
 625          KM        ROUTE R273
 626          RS      1    FLOW      -1
 627          RL                    .25      10
 628          RC   .065    .045    .065    3700  .00459
 629          RX    445     454     492     495     505     508     546     555
 630          RY     18    11.5    11.5      10      10    11.5    11.5      18

 631          KK    R275
 632          KM        ROUTE R275
 633          RS      4    FLOW      -1
 634          RL                    .24      10
 635          RC   .065    .045    .065    7700  .00416
 636          RX    445     454     491     495     505     509     546     555
 637          RY     18      12      12      10      10      12      12      18

 638          KK    S280
 639          KM        BASIN S280
 640          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 641          KM        L=      2.7  Lca=      1.2   S=   29.0  Kn= .065  LAG=  76.3
 642          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 643          BA    2.30
 644          LG     .35     .36    3.81     .27     .00
 645          UI    101.    101.    101.    215.    357.    428.    490.    553.    596.    654.
 646          UI    734.    805.    949.   1165.   1334.   1153.   1005.    900.    825.    749.
 647          UI    666.    602.    537.    485.    417.    318.    235.    180.    173.    167.
 648          UI    141.    101.    101.    101.     40.     31.     31.     31.     31.     31.
 649          UI     31.     31.     31.     31.     31.      0.      0.      0.      0.      0.
 650          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 651          KK    C285
 652          KM        COMBINE C285
 653          KM        FLOW CROSSING AT SALOME HIGHWAY
 654          HC      2

 655          KK    R288
 656          KM        ROUTE R288
 657          RS      6    FLOW      -1
 658          RL                    .24      10
 659          RC   .070    .040    .070   11000  .00436
 660          RX    455     464     491     495     505     509     536     545
 661          RY     20      12      12      10      10      12      12      20

 662          KK    R290
 663          KM        ROUTE R290
 664          RS      3    FLOW      -1
 665          RL                    .24      10
 666          RC   .070    .040    .070    6500  .00415
 667          RX    445     454     491     495     505     509     546     555
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 668          RY      18      12      12      10      10      12      12      18

 669          KK    S295
 670          KM        BASIN S295
 671          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 672          KM        L=      4.1  Lca=      2.0   S=   28.0  Kn= .068  LAG= 116.2
 673          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 674          BA    3.51
 675          LG     .35     .38    5.05     .23    1.41
 676          UI    102.    102.    102.    102.    102.    254.    336.    390.    439.    482.
 677          UI    515.    554.    583.    617.    656.    706.    764.    798.    891.   1011.
 678          UI   1178.   1299.   1315.   1168.   1059.    977.    913.    854.    812.    762.
 679          UI    704.    656.    612.    575.    526.    496.    468.    397.    340.    292.
 680          UI    219.    180.    180.    172.    167.    167.    142.    102.    102.    102.
 681          UI    102.     99.     31.     31.     31.     31.     31.     31.     31.     31.
 682          UI     31.     31.     31.     31.     31.     31.     31.     31.     31.      0.
 683          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 684          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 685          KK    C300
 686          KM        COMBINE C300
 687          KM        FLOW CROSSING APPROXIMATELY AT DOBBINS ROAD
 688          HC       2

 689          KK    R305
 690          KM        ROUTE R305
 691          RS       3    FLOW      -1.
 692          RL                     .29      10
 693          RC    .070    .050    .070    6500  .00385
 694          RX     425     434     491     495     505     509     566     575
 695          RY      20      12      12      10      10      12      12      20

 696          KK    S310
 697          KM        BASIN S310
 698          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 699          KM        L=      2.3  Lca=       .9   S=   25.0  Kn= .068  LAG=  68.2
 700          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 701          BA    1.28
 702          LG     .35     .35    3.50     .28     .00
 703          UI     63.     63.     63.    188.    243.    298.    334.    368.    409.    463.
 704          UI    517.    645.    790.    771.    648.    570.    515.    461.    406.    364.
 705          UI    319.    281.    217.    159.    112.    107.    104.     78.     63.     63.
 706          UI     41.     19.     19.     19.     19.     19.     19.     19.     19.     19.
 707          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 708          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 709          KK    C315
 710          KM        COMBINE C315
 711          KM        TRIBUTARY UPSTREAM OF SOUTHERN PACIFIC RAILROAD
 712          HC       2
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 713          KK    C320
 714          KM        COMBINE C320
 715          KM        LUKE WASH AND TRIBUTARY COMBINED AT SOUTHERN PACIFIC RAILROAD,
 716          KM        SO THAT THE PONDING CAN BE COMBINED.
 717          HC       2

 718          KK    R325
 719          KM        ROUTE R325
 720          RS       4   FLOW      -1
 721          RL                    .33      10
 722          RC    .070    .045    .070    7300  .00411
 723          RX     330     339     472     480     520     528     661     670
 724          RY      20      14      14      10      10      14      14      20

 725          KK    S330
 726          KM        BASIN S330
 727          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 728          KM        L=      1.7  Lca=       .8   S=   28.0  Kn= .070  LAG=  59.0
 729          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 730          BA     .62
 731          LG     .33     .35    3.87     .37   11.58
 732          UI     35.     35.     59.    125.    158.    184.    207.    233.    268.    318.
 733          UI    413.    447.    366.    316.    281.    244.    214.    184.    161.    120.
 734          UI     82.     63.     58.     51.     35.     35.     20.     11.     11.     11.
 735          UI     11.     11.     11.     11.     11.      0.      0.      0.      0.      0.
 736          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 737          KK    C335
 738          KM        COMBINE C335
 739          KM        LUKE WASH CROSSING AT 339TH AVENUE
 740          HC       2

 741          KK    S340
 742          KM        BASIN S340
 743          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 744          KM        L=      1.1  Lca=       .5   S=   46.0  Kn= .068  LAG=  37.3
 745          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 746          BA     .46
 747          LG     .35     .35    3.61     .30     .00
 748          UI     42.     68.    164.    217.    261.    323.    460.    489.    374.    308.
 749          UI    246.    197.    131.     73.     67.     42.     32.     13.     13.     13.
 750          UI     13.     13.      0.      0.      0.      0.      0.      0.      0.      0.
 751          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 752          KK    R345
 753          KM        ROUTE R345
 754          RS       9   FLOW      -1
 755          RL                    .35      10
 756          RC    .070    .045    .070    6300  .00571
 757          RX     115     355     482     485     515     518     705     735
 758          RY      14      13    11.5      10      10    11.5      13      14
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 759          KK    S350
 760          KM        BASIN S350
 761          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 762          KM        L=      1.3  Lca=       .7   S=   40.0  Kn= .068  LAG=  45.7
 763          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 764          BA     .33
 765          LG     .35     .35    3.71     .32     .00
 766          UI     24.     24.     78.    108.    131.    152.    181.    230.    307.    263.
 767          UI    216.    185.    154.    128.    105.     69.     43.     40.     30.     24.
 768          UI     15.      7.      7.      7.      7.      7.      7.      0.      0.      0.
 769          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 770          KK    C355
 771          KM        COMBINE C355
 772          HC       2

 773          KK    C360
 774          KM        COMBINE C360
 775          KM        COMBINE LUKE WASH AND TRIBUTARY AT NARRAMORE ROAD ALIGNMENT
 776          HC       2

 777          KK    R365
 778          KM        ROUTE R365
 779          RS       6    FLOW      -1
 780          RL                     .30      10
 781          RC    .070    .050    .070    5300  .00434
 782          RX     235     270     977     985    1015    1023    1750    1765
 783          RY      20      16      14      10      10      14      14      20

 784          KK    S370
 785          KM        BASIN S370
 786          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 787          KM        L=      1.1  Lca=       .7   S=   32.0  Kn= .070  LAG=  46.8
 788          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 789          BA     .31
 790          LG     .41     .22    3.66     .37     .00
 791          UI     22.     22.     68.     97.    118.    137.    162.    199.    274.    255.
 792          UI    206.    177.    148.    125.    105.     75.     46.     38.     33.     22.
 793          UI     21.      7.      7.      7.      7.      7.      7.      0.      0.      0.
 794          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 795          KK    C375
 796          KM        COMBINE C375
 797          KM        LUKE WASH NORTH OF OLD US 80
 798          HC       2

 799          KK    S385
 800          KM        BASIN S385
 801          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 802          KM        L=      3.8  Lca=      1.8   S=   32.0  Kn= .065  LAG= 100.5
 803          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 804          BA    2.39
 805          LG     .35     .33    3.50     .29     .47
 806          UI     80.     80.     80.     80.    149.    263.    306.    354.    386.    422.
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 807          UI    451.    481.    515.    563.    606.    655.    754.    906.    997.   1029.
 808          UI    901.    808.    741.    688.    645.    600.    549.    503.    471.    429.
 809          UI    395.    370.    312.    252.    221.    142.    142.    137.    132.    132.
 810          UI     97.     80.     80.     80.     77.     25.     25.     25.     25.     25.
 811          UI     25.     25.     25.     25.     25.     25.     25.     25.     25.     25.
 812          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 813          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 814          KK    S390
 815          KM        BASIN S390
 816          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 817          KM        L=      4.2  Lca=      2.1   S=   32.0  Kn= .065  LAG= 110.1
 818          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 819          BA    1.80
 820          LG     .38     .28    3.71     .35     .00
 821          UI     55.     55.     55.     55.     55.    173.    193.    214.    253.    269.
 822          UI    293.    310.    329.    350.    376.    410.    430.    480.    548.    637.
 823          UI    720.    697.    615.    559.    516.    479.    451.    428.    393.    363.
 824          UI    339.    319.    289.    270.    254.    217.    183.    158.    111.     97.
 825          UI     97.     91.     90.     90.     61.     55.     55.     55.     55.     26.
 826          UI     17.     17.     17.     17.     17.     17.     17.     17.     17.     17.
 827          UI     17.     17.     17.     17.     17.      0.      0.      0.      0.      0.
 828          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 829          KK    C395
 830          KM        COMBINE C395
 831          KM        FLOW CROSSING AT SALOME HIGHWAY
 832          HC       2

 833          KK    S400
 834          KM        BASIN S400
 835          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 836          KM        L=      1.8  Lca=       .8   S=   36.0  Kn= .065  LAG=  54.7
 837          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 838          BA     .66
 839          LG     .35     .35    3.82     .35     .00
 840          UI     41.     41.     86.    151.    193.    224.    252.    292.    339.    444.
 841          UI    522.    427.    364.    321.    275.    239.    203.    170.    121.     72.
 842          UI     69.     65.     41.     41.     25.     12.     12.     12.     12.     12.
 843          UI     12.     12.      0.      0.      0.      0.      0.      0.      0.      0.
 844          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 845          KK    R405
 846          KM        ROUTE R405
 847          RS       4    FLOW      -1
 848          RL                     .30      10
 849          RC    .065    .035    .065    4000  .00325
 850          RX     445     454     493     495     505     507     546     555
 851          RY    13.5    10.5    10.5      10      10    10.5    10.5    13.5
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 852          KK    C410
 853          KM        COMBINE C410
 854          HC       2

 855          KK    R415
 856          KM        ROUTE R415
 857          RS       4    FLOW      -1
 858          RL                     .25      10
 859          RC    .065    .035    .065   10000  .00570
 860          RX   437.5   446.5   495.5   497.5   502.5   504.5   553.5   562.5
 861          RY      18      12      12      10      10      12      12      18

 862          KK    S420
 863          KM        BASIN S420
 864          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 865          KM        L=      3.0  Lca=      1.4   S=   33.0  Kn= .065  LAG=  83.9
 866          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 867          BA    3.03
 868          LG     .35     .35    3.66     .32     .00
 869          UI    122.    122.    122.    161.    400.    464.    560.    613.    670.    725.
 870          UI    787.    875.    947.   1092.   1346.   1528.   1508.   1298.   1159.   1055.
 871          UI    975.    893.    800.    731.    662.    599.    539.    441.    350.    233.
 872          UI    215.    205.    200.    173.    122.    122.    122.     81.     37.     37.
 873          UI     37.     37.     37.     37.     37.     37.     37.     37.     37.     37.
 874          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 875          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 876          KK    C425
 877          KM        COMBINE C425
 878          KM        FLOW CROSSING AT SOUTHERN PACIFIC RAILROAD
 879          HC       2

 880          KK    R430
 881          KM        ROUTE R430
 882          RS       9    FLOW      -1
 883          RL                     .27      10
 884          RC    .070    .040    .070    8300  .00518
 885          RX   240.5     300   985.5   987.5  1012.5  1014.5    1260  1280.5
 886          RY    14.5    10.5    10.5      10      10    10.5    10.5    14.5

 887          KK    S435
 888          KM        BASIN S435
 889          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 890          KM        L=      2.8  Lca=      1.1   S=   42.0  Kn= .070  LAG=  77.4
 891          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 892          BA     .93
 893          LG     .35     .35    3.71     .33     .24
 894          UI     40.     40.     40.     81.    141.    168.    194.    218.    235.    258.
 895          UI    288.    314.    367.    451.    525.    477.    412.    368.    335.    308.
 896          UI    274.    248.    223.    200.    177.    141.    111.     72.     71.     66.
 897          UI     66.     42.     40.     40.     30.     12.     12.     12.     12.     12.
 898          UI     12.     12.     12.     12.     12.     12.      0.      0.      0.      0.
 899          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

 900          KK    C440
 901          KM        COMBINE C440
 902          HC       2

 903          KK    S445
 904          KM        BASIN S445
 905          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 906          KM        L=      1.7  Lca=       .7   S=   84.0  Kn= .073  LAG=  47.3
 907          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 908          BA     .90
 909          LG     .29     .35    4.08     .40    1.83
 910          UI     64.     64.    190.    277.    338.    390.    461.    559.    767.    755.
 911          UI    604.    518.    438.    369.    310.    230.    143.    111.    104.     64.
 912          UI     64.     26.     20.     20.     20.     20.     20.     20.      0.      0.
 913          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 914          KK    R450
 915          KM        ROUTE R450
 916          RS       7    FLOW      -1
 917          RL                     .25      10
 918          RC    .075    .045    .075    3700  .00378
 919          RX     390     410     478     480     520     522     972    1050
 920          RY      13    12.5    10.5      10      10    10.5    10.5      13

 921          KK    S455
 922          KM        BASIN S455
 923          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 924          KM        L=      1.5  Lca=       .7   S=  115.0  Kn= .073  LAG=  42.5
 925          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 926          BA     .45
 927          LG     .33     .35    4.03     .39     .97
 928          UI     36.     39.    126.    170.    203.    241.    292.    408.    425.    332.
 929          UI    280.    231.    190.    154.     95.     62.     59.     37.     36.     11.
 930          UI     11.     11.     11.     11.     11.      0.      0.      0.      0.      0.
 931          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

 932          KK    C460
 933          KM        COMBINE C460
 934          HC       2

 935          KK    C470
 936          KM        COMBINE C470
 937          KM        FLOW FROM EAST TRIBUTARIES COMBINE 2500 FEET UPSTREAM OF OLD US 80
 938          HC       2

 939          KK    R475
 940          KM        ROUTE R475
 941          RS       2    FLOW      -1
 942          RL                     .26      10
 943          RC    .075    .045    .075    2500  .00320
 944          RX      50     100     473     475     525     527     675     700
 945          RY      18      13      11      10      10      11      13      18
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

946           KK    S480
947           KM        BASIN S480
948           KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
949           KM        L=       .9  Lca=       .4   S=  119.0  Kn= .073  LAG=  28.1
950           KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
951           BA     .28
952           LG     .35     .35    3.98     .38    1.49
953           UI     34.     94.    169.    218.    309.    400.    296.    225.    168.     97.
954           UI     57.     39.     23.     10.     10.     10.      0.      0.      0.      0.
955           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

956           KK    C485
957           KM        COMBINE C485
958           KM        EAST TRIBUTARY NORTH OF OLD US 80
959           HC       2

960           KK    C486
961           KM        COMBINE C486
962           KM        COMBINE LUKE WASH AND EAST TRIBUTARY AT OLD US 80 SO PONDING
963           KM        RATING CURVE CAN BE COMBINED.
964           HC       2

965           KK  RES488
966           KM        RESERVOIR ROUTING RES488
967           KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF OLD US 80
968           KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
969           KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
970           KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
971           KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
972           KM             6-10'x6'x34' CBCs
973           KM             6-10'x6'x34' CBCs
974           KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 8 FEET.
975           RS       1    ELEV     796
976           SA       0     .21     1.1     7.8      22      34      50      63      95
977           SE     796     797     798     800     802     803     804     805     807
978           SQ       0     564    1020    2880    5040    6240    7200   20460   50000

979           KK    S490
980           KM        BASIN S490
981           KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
982           KM        L=      1.3  Lca=       .5   S=  238.0  Kn= .068  LAG=  28.7
983           KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
984           BA     .26
985           LG     .30     .35    4.24     .43    1.82
986           UI     31.     83.    151.    195.    265.    372.    279.    214.    161.    105.
987           UI     53.     41.     27.      9.      9.      9.      9.      0.      0.      0.
988           UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

989           KK  RES491
990           KM        RESERVOIR ROUTING RES491
991           KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF OLD US 80
992           KM        THIS PONDING IS BASED ON THE USGS ARLINGTON QUADRANGLE
993           KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
994           KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 995          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
 996          KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
 997          KM              1-24"x48' CMP
 998          KM              1-5'x4'x42' CBC
 999          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 6 FEET.
1000          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
1001          KM                DETAILED INFORMATION ON THE CULVERTS.
1002          RS      1    ELEV      0
1003          SA      0     0.1     0.5       2       6      10
1004          SE      0       1       2       4       6       8
1005          SQ      0      22      56     135     211    4859

1006          KK    R492
1007          KM        ROUTE R492
1008          RS      3    FLOW     -1
1009          RL                   .39      10
1010          RC   .080    .045    .080    4800  .01563
1011          RX    460     466     476     480     520     524     640     655
1012          RY     17      14      12      10      10      12      12      17

1013          KK    C495
1014          KM        COMBINE C495
1015          HC      2

1016          KK    R500
1017          KM        ROUTE R500
1018          RS      1    FLOW     -1
1019          RL                   .36      10
1020          RC   .070    .040    .070    1800  .00667
1021          RX     35      41     469     485     515     531     959     965
1022          RY     22      18      18      10      10      18      18      22

1023          KK    S505
1024          KM        BASIN S505
1025          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1026          KM        L=       .9  Lca=       .3   S=   39.0  Kn= .078  LAG=  32.6
1027          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1028          BA     .15
1029          LG    .40     .23    3.66     .37     .00
1030          UI    15.     34.     69.     89.    112.    158.    185.    137.    109.     85.
1031          UI    62.     33.     26.     16.     11.      5.      5.      5.      5.      0.
1032          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1033          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1034          KK  RES506
1035          KM        RESERVOIR ROUTING RES506
1036          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF OLD US 80
1037          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
1038          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1039          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
1040          KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
1041          KM              1-5'9"x6'x45' CBC
1042          KM              1-30"x50.7' CMP
1043          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 6 FEET.
1044          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1045          KM                DETAILED INFORMATION ON THE CULVERTS.
1046          RS       1    ELEV       0
1047          SA       0       .1      .2     1.9     6.1      13
1048          SE       0        1       2       4       6       8
1049          SQ       0       32      65     175     293    8042

1050          KK    R507
1051          KM        ROUTE R507
1052          RS       6    FLOW      -1
1053          RL                     .37      10
1054          RC    .080    .045    .080    1700  .00706
1055          RX     291     300     488     490     510     512     800     804
1056          RY      14      11      11      10      10      11      11      12

1057          KK    S508
1058          KM        BASIN S508
1059          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1060          KM        L=      1.4  Lca=       .7   S=   73.0  Kn= .078  LAG=  48.2
1061          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1062          BA     .42
1063          LG     .36     .32    3.98     .42     .70
1064          UI     29.     29.     84.    125.    153.    176.    207.    246.    335.    361.
1065          UI    287.    245.    209.    177.    148.    120.     76.     52.     48.     36.
1066          UI     29.     20.      9.      9.      9.      9.      9.      9.      0.      0.
1067          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1068          KK    C510
1069          KM        COMBINE C510
1070          KM        LUKE WASH CROSSING AT ARLINGTON CANAL
1071          HC       3

1072          KK  RES513
1073          KM        RESERVOIR ROUTING RES513
1074          KM        THIS RESERVOIR ROUTING IS TO SIMULATE LUKE WASH PONDING AT THE
1075          KM        ARLINGTON CANAL. THIS PONDING IS BASED ON 200 SCALE MAPPING
1076          KM        BY AMCI (9-11-91). THE OUTFLOW RATING CURVE IS BASED ON CHANNEL
1077          KM        FLOW ACROSS THE CANAL SIPHON, AND WEIR FLOW OVER THE CANAL.
1078          RS       1    ELEV     784
1079          SA       0     0.3     1.1     1.8    19.5    27.4    35.2    47.1
1080          SE     784     786     788     790     792     793     794     795
1081          SQ       0     158     769    1852    2657    5211   11998   21982

1082          KK    S515
1083          KM        BASIN S515
1084          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1085          KM        L=       .7  Lca=       .3   S=  201.0  Kn= .073  LAG=  20.8
1086          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1087          BA     .26
1088          LG     .29     .35    4.24     .43    1.10
1089          UI     46.    177.    267.    433.    426.    289.    187.     84.     51.     22.
1090          UI     13.     13.      0.      0.      0.      0.      0.      0.      0.      0.
1091          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

1092          KK  RES516
1093          KM        RESERVOIR ROUTING RES516
1094          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF OLD US 80
1095          KM        THIS PONDING IS BASED ON THE USGS ARLINGTON QUADRANGLE
1096          KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
1097          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1098          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
1099          KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
1100          KM              1-5.5'x4'x41.5' CBC
1101          KM              1-36"x49.6' CMP
1102          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 6 FEET.
1103          KM        **NOTE; THIS DATA HAS BEEN APPROXIMATED, AND SHOULD BE VERIFIED FOR
1104          KM                DETAILED INFORMATION ON THE CULVERTS.
1105          RS      1    ELEV      0
1106          SA      0     0.1     0.5     2.5       7      11
1107          SE      0       1       2       4       6       8
1108          SQ      0      26      65     177     274   11831

1109          KK    R517
1110          KM        ROUTE R517
1111          RS      3    FLOW     -1
1112          RL                   .35      10
1113          RC   .075    .040    .075    6000  .01867
1114          RX    400     412     472     480     520     528     588     600
1115          RY     18      14      14      10      10      14      14      18

1116          KK    S518
1117          KM        BASIN S518
1118          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1119          KM        L=      1.3  Lca=       .5  S=   95.0  Kn= .073  LAG=  38.3
1120          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1121          BA     .74
1122          LG     .35     .34    4.19     .46     .00
1123          UI     65.    100.    251.    333.    399.    491.    671.    802.    615.    508.
1124          UI    410.    331.    241.    137.    109.     80.     65.     26.     20.     20.
1125          UI     20.     20.      0.      0.      0.      0.      0.      0.      0.      0.
1126          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1127          KK    C519
1128          KM        COMBINE C519
1129          KM        FLOW CROSSING AT ARLINGTON CANAL
1130          HC      2

1131          KK  RES520
1132          KM        RESERVOIR ROUTING RES520
1133          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1134          KM        THIS PONDING IS BASED ON THE USGS ARLINGTON QUADRANGLE
1135          KM        7.5 MINUTE SERIES TOPOGRAPHIC MAPPING
1136          KM        THE OUTFLOW RATING CURVE IS BASED ON WEIR FLOW OVER THE CANAL
1137          RS      1    ELEV    792
1138          SA    8.5    14.9    15.2    15.6    16.2    16.9
1139          SE    792     796   796.2   796.5     797   797.5
1140          SQ      0       0     233     919    2600    4780
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1141          KK    S521
1142          KM        BASIN S521
1143          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1144          KM        L=       .6  Lca=       .3   S=  110.0  Kn= .075  LAG=  24.1
1145          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1146          BA     .16
1147          LG     .35     .35    3.92     .40     .00
1148          UI     22.     79.    125.    173.    265.    202.    147.    102.     49.     32.
1149          UI     19.      7.      7.      7.      0.      0.      0.      0.      0.      0.
1150          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1151          KK  RES523
1152          KM        RESERVOIR ROUTING RES523
1153          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1154          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-92)
1155          KM        THE OUTFLOW RATING CURVE IS BASED ON WEIR FLOW OVER THE CANAL
1156          RS       1    ELEV   789.3
1157          SA     0.5     2.8     5.5     6.3     7.3     7.8     8.2
1158          SE   789.3     790   793.3     794     795   795.5     796
1159          SQ       0       0       0     186    1715    3404    6098

1160          KK    S525
1161          KM        BASIN S525
1162          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1163          KM        L=      1.0  Lca=       .4   S=   54.0  Kn= .073  LAG=  34.8
1164          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1165          BA     .36
1166          LG     .35     .33    3.61     .33    1.23
1167          UI     35.     67.    147.    191.    235.    305.    431.    349.    279.    222.
1168          UI    175.    121.     65.     56.     35.     24.     11.     11.     11.     11.
1169          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1170          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1171          KK  RES528
1172          KM        RESERVOIR ROUTING RES528
1173          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTH OF OLD US 80
1174          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
1175          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1176          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
1177          KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
1178          KM              1-5'x4'x78' CBC              1-4'x4'x47.7' CBC
1179          KM              1-3.5'x2.5'x50' CMP          1-4'x4'x48.5' CBC
1180          KM              1-24"x42.5' CMP              1-36"x54' CMP
1181          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 6 FEET.
1182          RS       1    ELEV       0
1183          SA       0     0.2     0.6     2.5     7.3      15
1184          SE       0       1       2       4       6       8
1185          SQ       0      63     166     430     661   16109
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1186          KK  RES529
1187          KM        RESERVOIR ROUTING RES529
1188          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1189          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
1190          KM        THE OUTFLOW RATING CURVE IS BASED ON WEIR FLOW OVER THE CANAL
1191          RS       1    ELEV     788
1192          SA     1.2     6.7    12.7    16.4    18.3    20.2    21.8
1193          SE     788   788.9     790     791   791.5     792   792.5
1194          SQ       0       0     123     622    1170    2511    6360

1195          KK    S530
1196          KM        BASIN S530
1197          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1198          KM        L=      1.1  Lca=       .4   S=   51.0  Kn= .075  LAG=  37.2
1199          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1200          BA     .32
1201          LG     .36     .34    3.61     .33     .00
1202          UI     29.     48.    114.    151.    183.    227.    323.    339.    260.    214.
1203          UI    171.    136.     89.     51.     46.     29.     22.      9.      9.      9.
1204          UI      9.      9.      0.      0.      0.      0.      0.      0.      0.      0.
1205          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1206          KK  RES533
1207          KM        RESERVOIR ROUTING RES533
1208          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTHWEST OF OLD US 80
1209          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
1210          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1211          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
1212          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
1213          KM              1-24"x59.2' CMP              1-24"x70' CMP
1214          KM              1-3'x3'x54' CBC              1-10'x4'x34' CBC
1215          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 6 FEET.
1216          RS       1    ELEV       0
1217          SA       0     0.1     0.3     1.1       8      11
1218          SE       0       1       2       4       6       8
1219          SQ       0      47     135     344     536   15948

1220          KK  RES534
1221          KM        RESERVOIR ROUTING RES534
1222          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1223          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
1224          KM        THE OUTFLOW RATING CURVE IS BASED ON WEIR FLOW OVER THE CANAL
1225          RS       1    ELEV   787.5
1226          SA       0    1.75    3.24    4.68    5.64    6.59    7.53    8.46
1227          SE   787.5     788   789.3     790   790.5     791   791.5     792
1228          SQ       0       0       0     169     837    2159    4769    8827

1229          KK    S535
1230          KM        BASIN S535
1231          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1232          KM        L=      3.1  Lca=      1.4   S=   29.0  Kn= .068  LAG=  90.9
1233          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1234          BA    2.71
1235          LG     .35     .35    3.50     .28     .00
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1236          UI    100.    100.    100.    100.    288.    360.    420.    478.    523.    565.
1237          UI    607.    658.    724.    781.    879.   1060.   1221.   1310.   1136.   1008.
1238          UI    917.    846.    789.    720.    656.    600.    548.    500.    465.    386.
1239          UI    299.    240.    178.    177.    165.    165.    131.    100.    100.    100.
1240          UI     76.     31.     31.     31.     31.     31.     31.     31.     31.     31.
1241          UI     31.     31.     31.     31.      0.      0.      0.      0.      0.      0.
1242          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1243          KK    R540
1244          KM        ROUTE R540
1245          RS       9    FLOW      -1
1246          RL                    .36     10
1247          RC    .070    .040    .070   9800   .00561
1248          RX     340     349     488    490     510     512     651     660
1249          RY    14.5    11.5    10.5     10      10    11.5    11.5    14.5

1250          KK    S545
1251          KM        BASIN S545
1252          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1253          KM        L=      2.0  Lca=       .9   S=   33.0  Kn= .070  LAG=  66.8
1254          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1255          BA    1.53
1256          LG     .34     .35    3.55     .29    5.44
1257          UI     77.     77.     77.    241.    307.    367.    415.    456.    509.    576.
1258          UI    656.    838.    988.    890.    757.    671.    610.    536.    475.    421.
1259          UI    370.    315.    231.    153.    136.    127.    117.     77.     77.     70.
1260          UI     24.     24.     24.     24.     24.     24.     24.     24.     24.      0.
1261          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1262          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1263          KK    C550
1264          KM        COMBINE C550
1265          HC       2

1266          KK    S555
1267          KM        BASIN S555
1268          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1269          KM        L=      2.7  Lca=      1.3   S=   31.0  Kn= .068  LAG=  82.8
1270          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1271          BA    1.31
1272          LG     .35     .40    6.60     .17     .00
1273          UI     53.     53.     53.     77.    176.    206.    248.    271.    296.    321.
1274          UI    350.    389.    423.    493.    599.    695.    636.    553.    494.    452.
1275          UI    419.    378.    341.    313.    278.    254.    222.    175.    138.     94.
1276          UI     94.     88.     88.     61.     53.     53.     53.     17.     16.     16.
1277          UI     16.     16.     16.     16.     16.     16.     16.     16.     16.      0.
1278          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1279          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1280          KK    C560
1281          KM        COMBINE C560
1282          HC       2
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1283          KK    R565
1284          KM        ROUTE R565
1285          RS      5    FLOW      -1
1286          RL                    .29      10
1287          RC    .080    .050    .080    4200  .00476
1288          RX     340     349     488     490     510     512     651     660
1289          RY    14.5    11.5    10.5      10      10    10.5    11.5    14.5

1290          KK    S570
1291          KM        BASIN S570
1292          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1293          KM        L=      1.4  Lca=       .6   S=   37.0  Kn= .080  LAG=  52.8
1294          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1295          BA     .72
1296          LG     .35     .39    5.98     .21     .00
1297          UI     46.     46.    106.    179.    224.    258.    294.    342.    413.    552.
1298          UI    555.    449.    387.    338.    288.    246.    210.    153.     98.     80.
1299          UI     75.     51.     46.     34.     14.     14.     14.     14.     14.     14.
1300          UI     14.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1301          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1302          KK    C575
1303          KM        COMBINE C575
1304          KM        FLOW AT ARLINGTON CANAL
1305          HC       2

1306          KK  RES577
1307          KM        RESERVOIR ROUTING RES577
1308          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTHWEST OLD OF US 80
1309          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
1310          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1311          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
1312          KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
1313          KM              3-10'x7'x33' CBC
1314          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 9 FEET.
1315          RS       1    ELEV     785
1316          SA       0     0.1     0.7     4.1    10.1    17.1      22      32
1317          SE     785     786     787     789     791     793     794     796
1318          SQ       0      90     249     720    1260    1866    2229    8804

1319          KK  RES578
1320          KM        RESERVOIR ROUTING RES578
1321          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1322          KM        THIS PONDING IS BASED ON 200 SCALE MAPPING BY AMCI (9-11-91)
1323          KM        THE OUTFLOW RATING CURVE IS BASED ON WEIR FLOW OVER THE CANAL
1324          RS       1    ELEV   785.6
1325          SA       0     0.5     1.8     2.0     2.1     2.2     2.4
1326          SE   785.6     787   788.8   789.2   789.6     790     791
1327          SQ       0       0       0      63     414    1191    4166
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1328          KK    S580
1329          KM        BASIN S580
1330          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1331          KM        L=       .4  Lca=       .1   S=   65.0  Kn= .073  LAG=  14.0
1332          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1333          BA     .05
1334          LG     .35     .38    5.05     .25     .00
1335          UI     23.     70.    127.     93.     47.     17.      6.      4.      0.      0.
1336          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1337          KK  RES582
1338          KM        RESERVOIR ROUTING RES582
1339          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTHWEST OF OLD US 80
1340          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1341          KM        MAPPING BY DAMES AND MOORE.
1342          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1343          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
1344          KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
1345          KM              1-24"x53' PIPE CULVERT
1346          KM              1-3.8'x3.2'x56' CBC
1347          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 13 FEET.
1348          RS      1    ELEV       0
1349          SA      0    0.01    0.03    0.28    0.63     1.5     3.3     7.3      11      15
1350          SE      0       1       2       4       6       8      10      12      13      15
1351          SQ      0      15      44     110     157     198     226     250     268    3343

1352          KK  RES584
1353          KM        RESERVOIR ROUTING RES584
1354          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1355          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1356          KM        MAPPING BY DAMES AND MOORE.
1357          RS      1    ELEV     787
1358          SA    5.4     6.9     7.7     8.4     8.9     9.3
1359          SE    786     787   787.5     788   788.5     789
1360          SQ      0      30     353    1132    2466    3658

1361          KK   CLEAR
1362          KM        COMBINE TO CLEAR REGISTERS
1363          HC      4

1364          KK    S585
1365          KM        BASIN S585
1366          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1367          KM        L=      2.2  Lca=       .9   S=   35.0  Kn= .075  LAG=  72.4
1368          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1369          BA    1.25
1370          LG     .35     .38    5.05     .24     .00
1371          UI     58.     58.     58.    147.    212.    259.    295.    325.    355.    397.
1372          UI    443.    504.    638.    744.    686.    587.    521.    475.    429.    379.
1373          UI    343.    300.    274.    227.    167.    112.    103.     96.     96.     60.
1374          UI     58.     58.     33.     18.     18.     18.     18.     18.     18.     18.
1375          UI     18.     18.     18.      0.      0.      0.      0.      0.      0.      0.
1376          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

1377          KK  RES588
1378          KM        RESERVOIR ROUTING RES588
1379          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTHWEST OF OLD US 80
1380          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1381          KM        MAPPING BY DAMES AND MOORE
1382          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1383          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN
1384          KM        COMBINED TO APPROXIMATE THE OUTFLOW RATING CURVE:
1385          KM              1-15.9'x33' BRIDGE
1386          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 8 FEET.
1387          RS       1    ELEV   784.5
1388          SA       0     0.4     0.9     5.6     7.8      13      16
1389          SE   784.5   785.5   786.5   788.5   790.5   792.5   794.5
1390          SQ       0      33      66     256     448     624    5318

1391          KK  RES589
1392          KM        RESERVOIR ROUTING RES589
1393          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1394          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1395          KM        MAPPING BY DAMES AND MOORE.
1396          RS       1    ELEV     786
1397          SA     0.2     0.5     0.7     0.8     0.9     1.0
1398          SE     786     787   787.5     788   788.5     789
1399          SQ       0      11     203     617    1213    1986

1400          KK    S590
1401          KM        BASIN S590
1402          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1403          KM        L=       .8  Lca=       .4   S=   49.0  Kn= .075  LAG=  32.6
1404          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1405          BA     .24
1406          LG     .35     .35    3.55     .32     .00
1407          UI     25.     54.    110.    142.    179.    253.    295.    220.    175.    136.
1408          UI     98.     53.     41.     26.     18.      8.      8.      8.      8.      0.
1409          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1410          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1411          KK  RES593
1412          KM        RESERVOIR ROUTING RES593
1413          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTHWEST OF OLD US 80
1414          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1415          KM        MAPPING BY DAMES AND MOORE
1416          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1417          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN COMBINE
1418          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
1419          KM              1-4'x4'x35' CBC
1420          KM              1-6'x4'x36' CBC
1421          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 7 FEET.
1422          RS       1    ELEV       0
1423          SA       0     0.2     0.9     3.6     5.1     7.5    11.4
1424          SE       0       1       2       4       6       7       9
1425          SQ       0      35      85     230     370     424    6630
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1426          KK  RES594
1427          KM        RESERVOIR ROUTING RES594
1428          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1429          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1430          KM        MAPPING BY DAMES AND MOORE.
1431          RS      1    ELEV     786
1432          SA    2.9     3.2     3.3     3.4
1433          SE    786     787   787.5     788
1434          SQ      0       4     257     971

1435          KK    S600
1436          KM        BASIN S600
1437          KM        THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1438          KM        L=       .4  Lca=       .1   S=   64.0  Kn= .075  LAG=  16.2
1439          KM        PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1440          BA    .21
1441          LG    .35     .35    3.55     .32     .00
1442          UI    70.    223.    384.    449.    270.    128.     58.     21.     13.      0.
1443          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1444          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.

1445          KK  RES603
1446          KM        RESERVOIR ROUTING RES603
1447          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING NORTHWEST OF OLD US 80
1448          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1449          KM        MAPPING BY DAMES AND MOORE
1450          KM        OUTFLOW RATING CURVE IS BASED ON INLET CAPACITY PER HDS-5 CHARTS
1451          KM        THE CAPACITY OF THE FOLLOWING CULVERTS UNDER OLD US 80 HAVE BEEN COMBINE
1452          KM        TO APPROXIMATE THE OUTFLOW RATING CURVE:
1453          KM              1-4'x3'x34' CBC
1454          KM              1-4'x3'x40' CBC
1455          KM              1-5'x4'x55' CBC
1456          KM        WEIR FLOW OVER OLD US 80 IS ASSUMED TO BEGIN AT A DEPTH OF 11 FEET.
1457          RS      1    ELEV       0
1458          SA      0       8      10      14      19      27      37      43      58
1459          SE      0       1       2       4       6       8      10      11      13
1460          SQ      0      42     111     259     441     539     632     676   12206

1461          KK  RES604
1462          KM        RESERVOIR ROUTING RES604
1463          KM        THIS RESERVOIR ROUTING IS TO SIMULATE PONDING AT THE ARLINGTON CANAL
1464          KM        THIS PONDING IS BASED ON THE GILA RIVER 400 SCALE FLOODPLAIN
1465          KM        MAPPING BY DAMES AND MOORE.
1466          RS      1    ELEV     784
1467          SA    2.3     3.3     3.9     4.4     5.0     5.5
1468          SE    784     786   786.5     787   787.5     788
1469          SQ      0       0      58     442    1380    3361
1470          ZZ
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SCHEMATIC DIAGRAM OF STREAM NETWORK

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

NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

 20        S5
            V
            V
 36       R10
            .
            .
 44         .        S15
            .          .
            .          .
 53       C20............
            V
            V
 58       R25
            .
            .
 66         .        S30
            .          .
            .          .
 74       C35............
            V
            V
 79      RES38
            .
            .
 96         .        S40
            .          V
            .          V
106         .        R45
            .          .
            .          .
114         .          .        S50
            .          .          .
            .          .          .
123         .        C55............
            .          V
            .          V
128         .      RES58
            .          .
            .          .
144       C60............
            V
            V
147       R65
            V
            V
154       R68
            .
            .
161         .        S70
            .          .
            .          .
176       C75............
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180         .        S80
            .          .
            .          .
189         .          .        S85
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            .          .          .
197         .        C90............
            .          V
            .          V
201         .      RES93
            .          .
            .          .
218         .          .        S95
            .          .          V
            .          .          V
229         .          .      RES98
            .          .          .
            .          .          .
246         .       C100............
            .          V
            .          V
249         .       R103
            .          V
            .          V
256         .       R105
            .          V
            .          V
263         .       R108
            .          .
            .          .
270         .          .       S110
            .          .          .
            .          .          .
285         .       C115............
            .          .
            .          .
289      C120............
            V
            V
293      R125
            .
            .
300         .       S130
            .          .
            .          .
312      C135............
            .
            .
315         .       S136
            .          V
            .          V
328         .       R138
            .          .
            .          .
335         .          .       S140
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348         .       C142............
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352  C145............
     V
     V
356  R150
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363  .        S155
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375  .          .        S160
     .          .          .
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389  C165........................
     V
     V
395  R170
     .
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402  .        S175
     .          .
     .          .
413  C180............
     .
     .
417  .        S185
     .          .
     .          .
430  C190............
     V
     V
433  R195
     .
     .
440  .        S200
     .          .
     .          .
453  C205............
     .
     .
457  .        S210
     .          V
     .          V
466  .        R215
     .          .
     .          .
474  .          .        S220
     .          .          .
     .          .          .
482  .        C225............
     .          V
     .          V
487  .      RES228
     .          V
     .          V
503  .        R230
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510  .          .        S235
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          .          .          V
          .          .          V
521       .          .     RES238
          .          .          V
          .          .          V
538       .          .       R240
          .          .          .
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545       .       C245............
          .          V
          .          V
549       .       R248
          .          V
          .          V
556       .       R250
          .          .
          .          .
563       .          .       S255
          .          .          V
          .          .          V
574       .          .     RES256
          .          .          V
          .          .          V
592       .          .       R258
          .          .          V
          .          .          V
599       .          .       R260
          .          .          .
          .          .          .
606       .          .          .       S265
          .          .          .          .
          .          .          .          .
620       .       C270......................
          .          V
          .          V
624       .       R273
          .          V
          .          V
631       .       R275
          .          .
          .          .
638       .          .       S280
          .          .          .
          .          .          .
651       .       C285............
          .          V
          .          V
655       .       R288
          .          V
          .          V
662       .       R290
          .          .
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669       .          .       S295
          .          .          .
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685       .       C300............
          .          V
          .          V
689       .       R305
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 96             .          .        S310
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709             .       C315............
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713          C320............
                V
                V
718          R325
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725             .       S330
                .          .
                .          .
737          C335............
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741             .       S340
                .          V
                .          V
752             .       R345
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759             .          .        S350
                .          .          .
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770             .       C355............
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                .          .
773          C360............
                V
                V
777          R365
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784             .       S370
                .          .
                .          .
795          C375............
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                .
799             .       S385
                .          .
                .          .
814             .          .        S390
                .          .          .
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829             .       C395............
                .          .
                .          .
833             .          .        S400
                .          .          V
                .          .          V
845             .          .        R405
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852             .       C410............
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          .         V
          .         V
855       .       R415
          .         .
          .         .
862       .         .       S420
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876       .       C425............
          .         V
          .         V
880       .       R430
          .         .
          .         .
887       .         .       S435
          .         .         .
          .         .         .
900       .       C440............
          .         .
          .         .
903       .         .       S445
          .         .         V
          .         .         V
914       .         .       R450
          .         .         .
          .         .         .
921       .         .         .       S455
          .         .         .         .
          .         .         .         .
932       .         .       C460............
          .         .         .
          .         .         .
935       .       C470............
          .         V
          .         V
939       .       R475
          .         .
          .         .
946       .         .       S480
          .         .         .
          .         .         .
956       .       C485............
          .         .
          .         .
960     C486............
          V
          V
965   RES488
          .
          .
979       .       S490
          .         V
          .         V
989       .     RES491
          .         V
          .         V
1006      .       R492
          .         .
          .         .
1013    C495............
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          V
          V
6       R500
          .
          .
1023      .       S505
          .          V
          .          V
1034      .     RES506
          .          V
          .          V
1050      .       R507
          .          .
          .          .
1057      .          .        S508
          .          .          .
          .          .          .
1068    C510.......................
          V
          V
1072  RES513
          .
          .
1082      .       S515
          .          V
          .          V
1092      .     RES516
          .          V
          .          V
1109      .       R517
          .          .
          .          .
1116      .          .        S518
          .          .          .
          .          .          .
1127      .       C519............
          .          V
          .          V
1131      .     RES520
          .          .
          .          .
1141      .          .        S521
          .          .          V
          .          .          V
1151      .          .      RES523
          .          .          .
          .          .          .
1160      .          .          .      S525
          .          .          .        V
          .          .          .        V
1171      .          .          .    RES528
          .          .          .        V
          .          .          .        V
1186      .          .          .    RES529
          .          .          .        .
          .          .          .        .
1195      .          .          .        .        S530
          .          .          .        .          V
          .          .          .        .          V
1206      .          .          .        .      RES533
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                 .         .         .         .         V
                 .         .         .         .         V
1220             .         .         .         .   RES534
                 .         .         .         .         .
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1229             .         .         .         .         .       S535
                 .         .         .         .         .         V
                 .         .         .         .         .         V
1243             .         .         .         .         .       R540
                 .         .         .         .         .         .
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1250             .         .         .         .         .         .         S545
                 .         .         .         .         .         .           .
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1263             .         .         .         .         .       C550............
                 .         .         .         .         .         .
                 .         .         .         .         .         .
1266             .         .         .         .         .         .         S555
                 .         .         .         .         .         .           .
                 .         .         .         .         .         .           .
1280             .         .         .         .         .       C560............
                 .         .         .         .         .         V
                 .         .         .         .         .         V
1283             .         .         .         .         .       R565
                 .         .         .         .         .         .
                 .         .         .         .         .         .
1290             .         .         .         .         .         .         S570
                 .         .         .         .         .         .           .
                 .         .         .         .         .         .           .
1302             .         .         .         .         .       C575............
                 .         .         .         .         .         V
                 .         .         .         .         .         V
 06              .         .         .         .         .     RES577
                 .         .         .         .         .         V
                 .         .         .         .         .         V
 319             .         .         .         .         .     RES578
                 .         .         .         .         .         .
                 .         .         .         .         .         .
1328             .         .         .         .         .         .         S580
                 .         .         .         .         .         .           V
                 .         .         .         .         .         .           V
1337             .         .         .         .         .         .       RES582
                 .         .         .         .         .         .           V
                 .         .         .         .         .         .           V
1352             .         .         .         .         .         .       RES584
                 .         .         .         .         .         .           .
                 .         .         .         .         .         .           .
1361             .         .         .     CLEAR.................................
                 .         .         .         .
                 .         .         .         .
1364             .         .         .         .       S585
                 .         .         .         .         V
                 .         .         .         .         V
1377             .         .         .         .   RES588
                 .         .         .         .         V
                 .         .         .         .         V
1391             .         .         .         .   RES589
                 .         .         .         .         .
                 .         .         .         .         .
1400             .         .         .         .         .       S590
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1	.	.	.	.	.	RES593	
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1426	.	.	.	.	.	RES594	
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	.	.	.	.	.	.	
1435	.	.	.	.	.	.	S600
	.	.	.	.	.	.	V
	.	.	.	.	.	.	V
1445	.	.	.	.	.	.	RES603
	.	.	.	.	.	.	V
	.	.	.	.	.	.	V
1461	.	.	.	.	.	.	RES604

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*          SEPTEMBER 1990              *
*           VERSION 4.0                *
*                                      *
* RUN DATE  09/10/1992  TIME  10:45:56 *
*                                      *
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****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
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                    FCDMC LUKE WASH FIS, PROJECT NO. 90-68,  BY COE & VAN LOO CONSULTANTS
                    100-YEAR, 24-HOUR DURATION STORM
                    FILE NAME:   LUKE24        SEPT 1992

5 IO        OUTPUT CONTROL VARIABLES
                 IPRNT          5  PRINT CONTROL
                 IPLOT          0  PLOT CONTROL
                 QSCAL         0.  HYDROGRAPH PLOT SCALE

  IT        HYDROGRAPH TIME DATA
                  NMIN          5  MINUTES IN COMPUTATION INTERVAL
                 IDATE      1   0  STARTING DATE
                 ITIME       0000  STARTING TIME
                    NQ        300  NUMBER OF HYDROGRAPH ORDINATES
                NDDATE      2   0  ENDING DATE
                NDTIME       0055  ENDING TIME
                 ICENT         19  CENTURY MARK

            COMPUTATION INTERVAL     .08 HOURS
                 TOTAL TIME BASE   24.92 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

7 JD        INDEX STORM NO. 1
                 STRM        4.10  PRECIPITATION DEPTH
                 TRDA         .01  TRANSPOSITION DRAINAGE AREA

8 PI          PRECIPITATION PATTERN
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.06	.06
.06	.06	.06	.06	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
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13 JD INDEX STORM NO. 2

STRM 4.02 PRECIPITATION DEPTH

TRDA 3.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.06	.06
.06	.06	.06	.06	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
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14 JD INDEX STORM NO. 3

STRM 3.94 PRECIPITATION DEPTH

TRDA 10.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.06	.06
.06	.06	.06	.06	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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15 JD INDEX STORM NO. 4

STRM 3.77 PRECIPITATION DEPTH

TRDA 20.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.06	.06
.06	.06	.06	.06	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00		

16 JD INDEX STORM NO. 5

STRM 3.69 PRECIPITATION DEPTH

TRDA 30.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.06	.06
.06	.06	.06	.06	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
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17 JD INDEX STORM NO. 6

STRM 3.65 PRECIPITATION DEPTH

TRDA 40.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.06	.06
.06	.06	.06	.06	.01	.01	.01	.01	.01	.01

.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
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18 JD INDEX STORM NO. 7

STRM 3.61 PRECIPITATION DEPTH

TRDA 50.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.06	.06
.06	.06	.06	.06	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
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19 JD INDEX STORM NO. 8

STRM 3.49 PRECIPITATION DEPTH

TRDA 100.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.01	.01	.06	.06
.06	.06	.06	.06	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	S5	2394.	12.58	387.	97.	93.	3.60		
ROUTED TO	R10	1795.	13.92	382.	96.	92.	3.60		
HYDROGRAPH AT	S15	2783.	12.50	416.	104.	100.	3.83		
2 COMBINED AT	C20	2733.	12.50	782.	195.	188.	7.43		
ROUTED TO	R25	2560.	13.00	777.	195.	187.	7.43		
HYDROGRAPH AT	S30	820.	12.17	87.	22.	21.	.80		
2 COMBINED AT	C35	2568.	13.00	857.	215.	207.	8.23		
ROUTED TO	RES38	1777.	13.42	857.	215.	207.	8.23		
HYDROGRAPH AT	S40	1389.	12.75	259.	65.	62.	2.17		
ROUTED TO	R45	1197.	13.42	256.	64.	62.	2.17		
HYDROGRAPH AT	S50	1270.	12.25	153.	38.	37.	1.35		
2 COMBINED AT	C55	1436.	12.42	407.	102.	98.	3.52		
ROUTED TO	RES58	1042.	13.67	407.	102.	98.	3.52		
2 COMBINED AT	C60	2735.	13.58	1224.	307.	295.	11.75		
ROUTED TO	R65	2695.	13.83	1215.	305.	294.	11.75		
ROUTED TO	R68	2642.	14.50	1200.	302.	291.	11.75		
HYDROGRAPH AT	S70	960.	13.50	298.	74.	72.	2.40		
2 COMBINED AT	C75	3071.	14.25	1443.	366.	352.	14.15		
HYDROGRAPH AT	S80	1644.	12.50	243.	61.	58.	2.03		
HYDROGRAPH AT	S85	856.	12.08	83.	21.	20.	.80		
2 COMBINED AT	C90	2168.	12.25	325.	81.	78.	2.83		
ROUTED TO	RES93	633.	12.92	305.	81.	78.	2.83		
HYDROGRAPH AT	S95	204.	12.33	25.	6.	6.	.23		
ROUTED TO	RES98	165.	12.50	25.	6.	6.	.23		
2 COMBINED AT	C100	748.	12.67	329.	87.	84.	3.06		
ROUTED TO	R103	722.	13.08	324.	86.	83.	3.06		

ROUTED TO	R105	692.	13.50	318.	85.	82.	3.06
ROUTED TO	R108	669.	14.08	313.	84.	81.	3.06
HYDROGRAPH AT	S110	1245.	13.33	351.	88.	85.	2.78
2 COMBINED AT	C115	1691.	13.33	634.	169.	163.	5.84
2 COMBINED AT	C120	4116.	14.08	1965.	506.	487.	19.99
ROUTED TO	R125	4079.	14.33	1958.	504.	485.	19.99
HYDROGRAPH AT	S130	236.	12.58	39.	10.	9.	.31
2 COMBINED AT	C135	4079.	14.33	1988.	512.	493.	20.30
HYDROGRAPH AT	S136	693.	13.08	164.	41.	40.	1.26
ROUTED TO	R138	615.	13.50	163.	41.	39.	1.26
HYDROGRAPH AT	S140	876.	13.00	195.	49.	47.	1.52
2 COMBINED AT	C142	1194.	13.08	356.	89.	86.	2.78
2 COMBINED AT	C145	4448.	14.17	2274.	585.	564.	23.08
ROUTED TO	R150	4416.	14.33	2264.	583.	561.	23.08
HYDROGRAPH AT	S155	583.	12.67	101.	25.	24.	.82
HYDROGRAPH AT	S160	543.	13.25	147.	37.	35.	1.18
3 COMBINED AT	C165	4559.	14.17	2452.	633.	610.	25.08
ROUTED TO	R170	4537.	14.42	2445.	631.	608.	25.08
HYDROGRAPH AT	S175	445.	12.50	70.	18.	17.	.58
2 COMBINED AT	C180	4537.	14.42	2496.	646.	623.	25.66
HYDROGRAPH AT	S185	419.	13.00	94.	23.	23.	.74
2 COMBINED AT	C190	4546.	14.42	2562.	664.	639.	26.40
ROUTED TO	R195	4481.	14.92	2537.	658.	634.	26.40
HYDROGRAPH AT	S200	694.	13.08	165.	41.	40.	1.34
2 COMBINED AT	C205	4489.	14.83	2640.	692.	666.	27.74
HYDROGRAPH AT	S210	1158.	12.42	165.	41.	40.	1.36
ROUTED TO	R215	996.	13.00	163.	41.	39.	1.36
HYDROGRAPH AT	S220	1198.	12.25	133.	33.	32.	1.13
2 COMBINED AT	C225	1448.	12.33	295.	74.	71.	2.49
ROUTED TO	RES228	818.	13.25	295.	74.	71.	2.49

ROUTED TO	R230	811.	13.50	294.	73.	71.	2.49
HYDROGRAPH AT	S235	240.	12.42	33.	8.	8.	.26
ROUTED TO	RES238	129.	12.75	33.	8.	8.	.26
ROUTED TO	R240	122.	13.25	33.	8.	8.	.26
2 COMBINED AT	C245	924.	13.42	326.	81.	78.	2.75
ROUTED TO	R248	914.	13.67	324.	81.	78.	2.75
ROUTED TO	R250	899.	14.08	323.	81.	78.	2.75
HYDROGRAPH AT	S255	337.	12.33	44.	11.	11.	.34
ROUTED TO	RES256	179.	12.67	44.	11.	11.	.34
ROUTED TO	R258	161.	13.50	43.	11.	10.	.34
ROUTED TO	R260	145.	14.25	42.	11.	10.	.34
HYDROGRAPH AT	S265	1657.	13.17	419.	105.	101.	3.20
3 COMBINED AT	C270	1780.	13.67	767.	192.	185.	6.29
ROUTED TO	R273	1759.	13.75	761.	192.	185.	6.29
ROUTED TO	R275	1735.	14.08	755.	191.	184.	6.29
HYDROGRAPH AT	S280	1306.	13.00	298.	75.	72.	2.30
2 COMBINED AT	C285	2188.	13.58	1021.	262.	252.	8.59
ROUTED TO	R288	2129.	14.08	1005.	261.	251.	8.59
ROUTED TO	R290	2090.	14.33	992.	260.	251.	8.59
HYDROGRAPH AT	S295	1397.	13.58	454.	115.	111.	3.51
2 COMBINED AT	C300	2878.	14.17	1350.	364.	351.	12.10
ROUTED TO	R305	2826.	14.42	1332.	362.	349.	12.10
HYDROGRAPH AT	S310	801.	12.92	168.	42.	41.	1.28
2 COMBINED AT	C315	2826.	14.42	1430.	398.	384.	13.38
2 COMBINED AT	C320	6757.	14.75	3852.	1033.	995.	41.12
ROUTED TO	R325	6674.	15.08	3811.	1028.	990.	41.12
HYDROGRAPH AT	S330	425.	12.75	87.	24.	23.	.62
2 COMBINED AT	C335	6674.	15.08	3829.	1048.	1009.	41.74
HYDROGRAPH AT	S340	439.	12.33	59.	15.	14.	.46
ROUTED TO	R345	347.	13.08	58.	14.	14.	.46

HYDROGRAPH AT	S350	269.	12.50	41.	10.	10.	.33
2 COMBINED AT	C355	483.	12.67	99.	25.	24.	.79
2 COMBINED AT	C360	6674.	15.08	3860.	1068.	1029.	42.53
ROUTED TO	R365	6552.	15.50	3822.	1062.	1022.	42.53
HYDROGRAPH AT	S370	253.	12.50	40.	10.	10.	.31
2 COMBINED AT	C375	6551.	15.50	3822.	1070.	1030.	42.84
HYDROGRAPH AT	S385	1094.	13.33	315.	79.	76.	2.39
HYDROGRAPH AT	S390	731.	13.50	225.	56.	54.	1.80
2 COMBINED AT	C395	1789.	13.42	534.	134.	129.	4.19
HYDROGRAPH AT	S400	454.	12.67	80.	20.	19.	.66
ROUTED TO	R405	414.	13.00	79.	20.	19.	.66
2 COMBINED AT	C410	2041.	13.42	609.	153.	147.	4.85
ROUTED TO	R415	1910.	13.75	605.	152.	146.	4.85
HYDROGRAPH AT	S420	1528.	13.08	377.	94.	91.	3.03
2 COMBINED AT	C425	2749.	13.58	960.	242.	233.	7.88
ROUTED TO	R430	2567.	14.33	898.	234.	226.	7.88
HYDROGRAPH AT	S435	499.	13.00	115.	29.	28.	.93
2 COMBINED AT	C440	2619.	14.33	969.	262.	252.	8.81
HYDROGRAPH AT	S445	660.	12.50	107.	27.	26.	.90
ROUTED TO	R450	540.	13.17	104.	26.	25.	.90
HYDROGRAPH AT	S455	357.	12.42	53.	13.	13.	.45
2 COMBINED AT	C460	618.	13.08	156.	39.	38.	1.35
2 COMBINED AT	C470	2723.	14.33	1107.	298.	287.	10.16
ROUTED TO	R475	2631.	14.58	1098.	297.	286.	10.16
HYDROGRAPH AT	S480	297.	12.25	33.	8.	8.	.28
2 COMBINED AT	C485	2631.	14.58	1116.	305.	294.	10.44
2 COMBINED AT	C486	7948.	15.42	4615.	1312.	1264.	53.28
ROUTED TO	RES488	7820.	15.58	4615.	1312.	1264.	53.28
HYDROGRAPH AT	S490	260.	12.25	30.	8.	7.	.26
ROUTED TO	RES491	158.	12.50	30.	8.	7.	.26

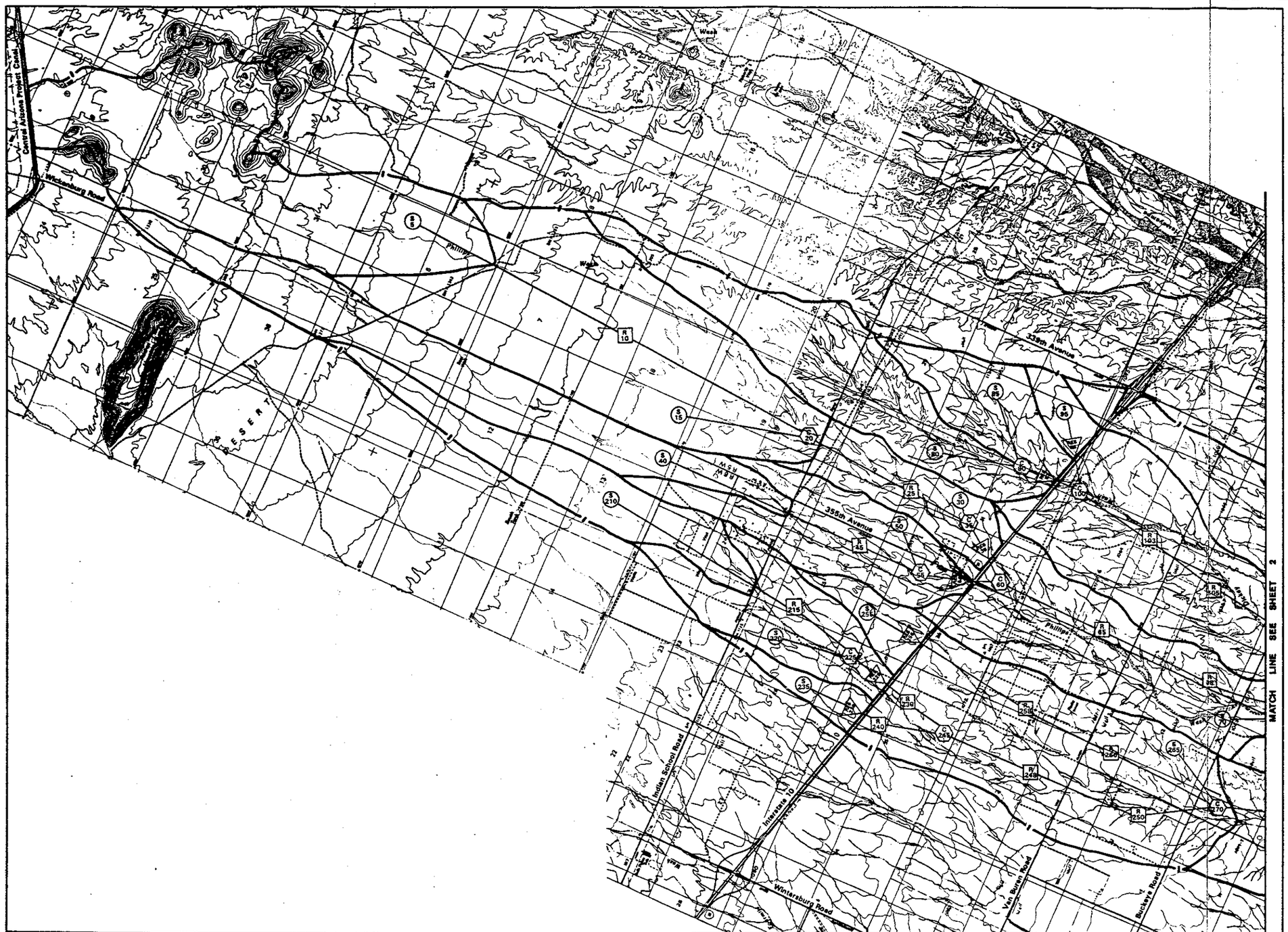
ROUTED TO	R492	152.	12.75	29.	7.	7.	.26
2 COMBINED AT	C495	7814.	15.58	4615.	1317.	1269.	53.54
ROUTED TO	R500	7669.	15.75	4613.	1316.	1268.	53.54
HYDROGRAPH AT	S505	156.	12.25	19.	5.	5.	.15
ROUTED TO	RES506	139.	12.42	19.	5.	5.	.15
ROUTED TO	R507	119.	12.92	19.	5.	5.	.15
HYDROGRAPH AT	S508	301.	12.58	49.	12.	12.	.42
3 COMBINED AT	C510	7664.	15.75	4613.	1330.	1281.	54.11
ROUTED TO	RES513	7633.	15.83	4605.	1329.	1280.	54.11
HYDROGRAPH AT	S515	309.	12.08	29.	7.	7.	.26
ROUTED TO	RES516	195.	12.33	30.	7.	7.	.26
ROUTED TO	R517	186.	12.58	28.	7.	7.	.26
HYDROGRAPH AT	S518	583.	12.42	79.	20.	19.	.74
2 COMBINED AT	C519	752.	12.42	107.	27.	26.	1.00
ROUTED TO	RES520	138.	13.17	14.	3.	3.	1.00
HYDROGRAPH AT	S521	182.	12.17	18.	5.	4.	.16
ROUTED TO	RES523	0.	.08	0.	0.	0.	.16
HYDROGRAPH AT	S525	358.	12.33	46.	12.	11.	.36
ROUTED TO	RES528	336.	12.42	46.	12.	11.	.36
ROUTED TO	RES529	170.	12.83	40.	10.	10.	.36
HYDROGRAPH AT	S530	300.	12.33	40.	10.	10.	.32
ROUTED TO	RES533	294.	12.42	40.	10.	10.	.32
ROUTED TO	RES534	291.	12.50	33.	8.	8.	.32
HYDROGRAPH AT	S535	1347.	13.25	355.	89.	86.	2.71
ROUTED TO	R540	1166.	14.00	348.	87.	84.	2.71
HYDROGRAPH AT	S545	990.	12.83	213.	56.	54.	1.53
2 COMBINED AT	C550	1301.	13.92	552.	141.	136.	4.24
HYDROGRAPH AT	S555	708.	13.08	174.	43.	42.	1.31
2 COMBINED AT	C560	1662.	12.92	718.	183.	176.	5.55
ROUTED TO	R565	1585.	13.33	709.	181.	174.	5.55

Section X PLATES

Plate 1 Drainage Area Map & HEC-1 Schematic

Plate 2 Soil Classification & Land Use Map

Plate 3 Routing Map



BASE MAP COMPILED FROM USGS 7.5 MINUTE QUADRANGLE MAPS
FLATIRON MOUNTAIN, AZ., WINTERSBURG, AZ.,
ARLINGTON, AZ., HASSAYAMPA, AZ.

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FLOOD DELINEATION STUDY OF

LUKE WASH F.I.S.

F.C.D. CONTRACT NO. **90-68**

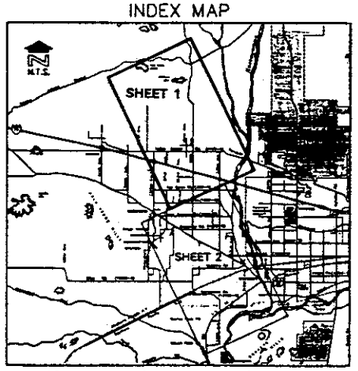
DRAINAGE AREA MAP & HEC-1 SCHEMATIC

PLATE 1

LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- S 535 — Compute Runoff from Sub-Basin S 535
- R 310 — Route Hydrograph
- S 545 — Compute Runoff from Sub-Basin S 545
- C 610 — Combine Hydrographs
- RES 577 — Route Hydrograph through Retention Basin RES 577

INDEX MAP



2000 0' 2000 4000

COE & VAN LOO, INC.

	BY	DATE
DESIGN	DS	7/92
DESIGN CHK.	JM	7/92
PLANS	PP	7/92
PLANS CHK.	JM	7/92

SUBMITTED BY: Jack R. Moody DATE: 11/92

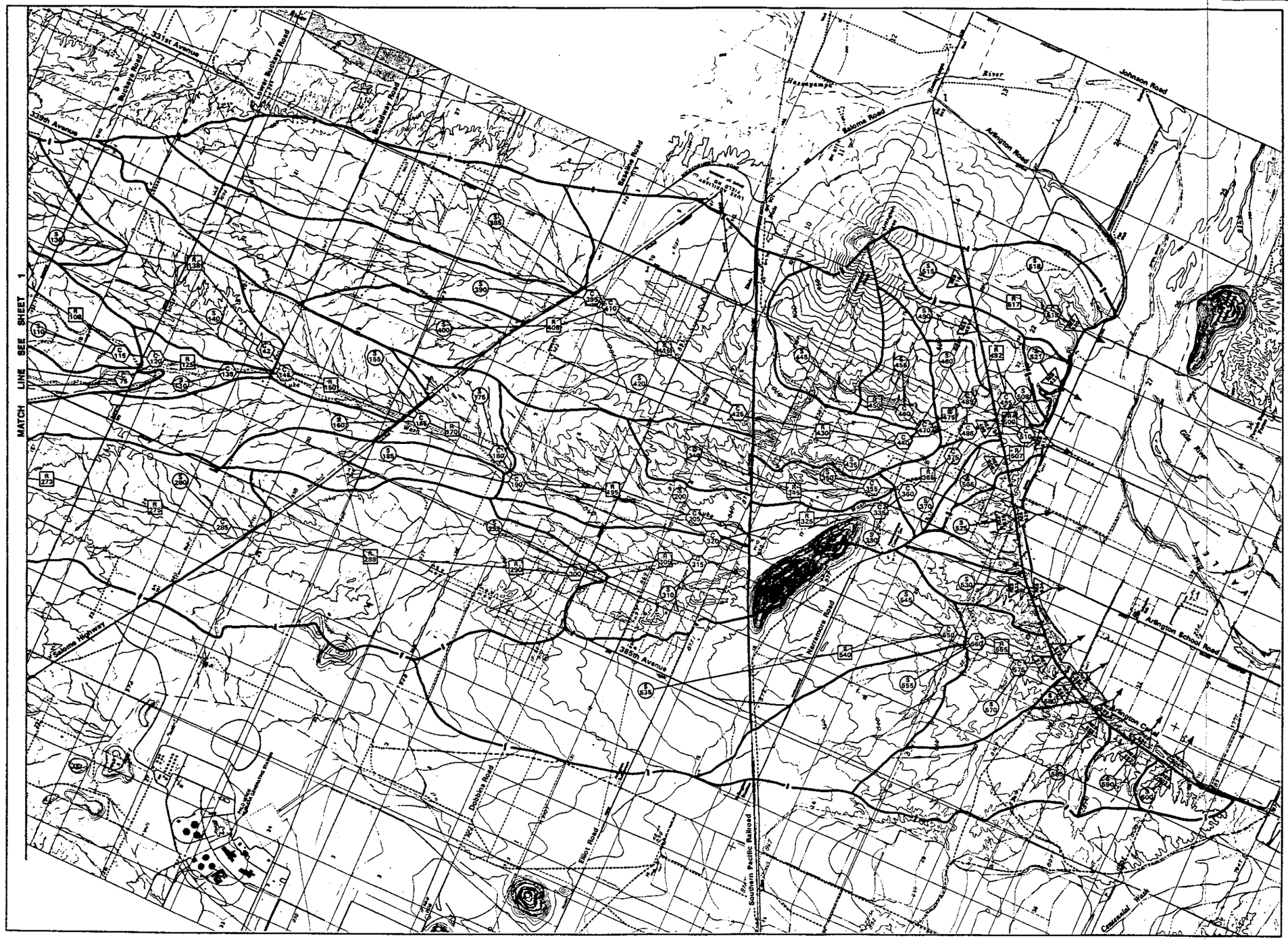
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 1 OF 2



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FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
FLOOD DELINEATION STUDY OF
LUKE WASH F.I.S.
F.C.D. CONTRACT NO. **90-68**

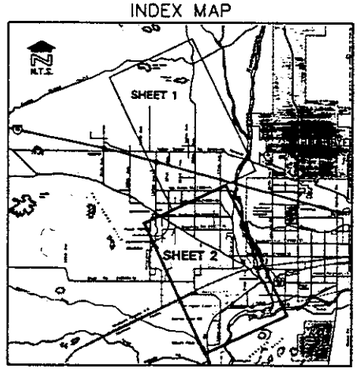
DRAINAGE AREA MAP & HEC-1 SCHEMATIC

PLATE 1

LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- Compute Runoff from Sub-Basin S 535
- Route Hydrograph
- Compute Runoff from Sub-Basin S 545
- Combine Hydrographs
- Route Hydrograph through Retention Basin RES 577

INDEX MAP



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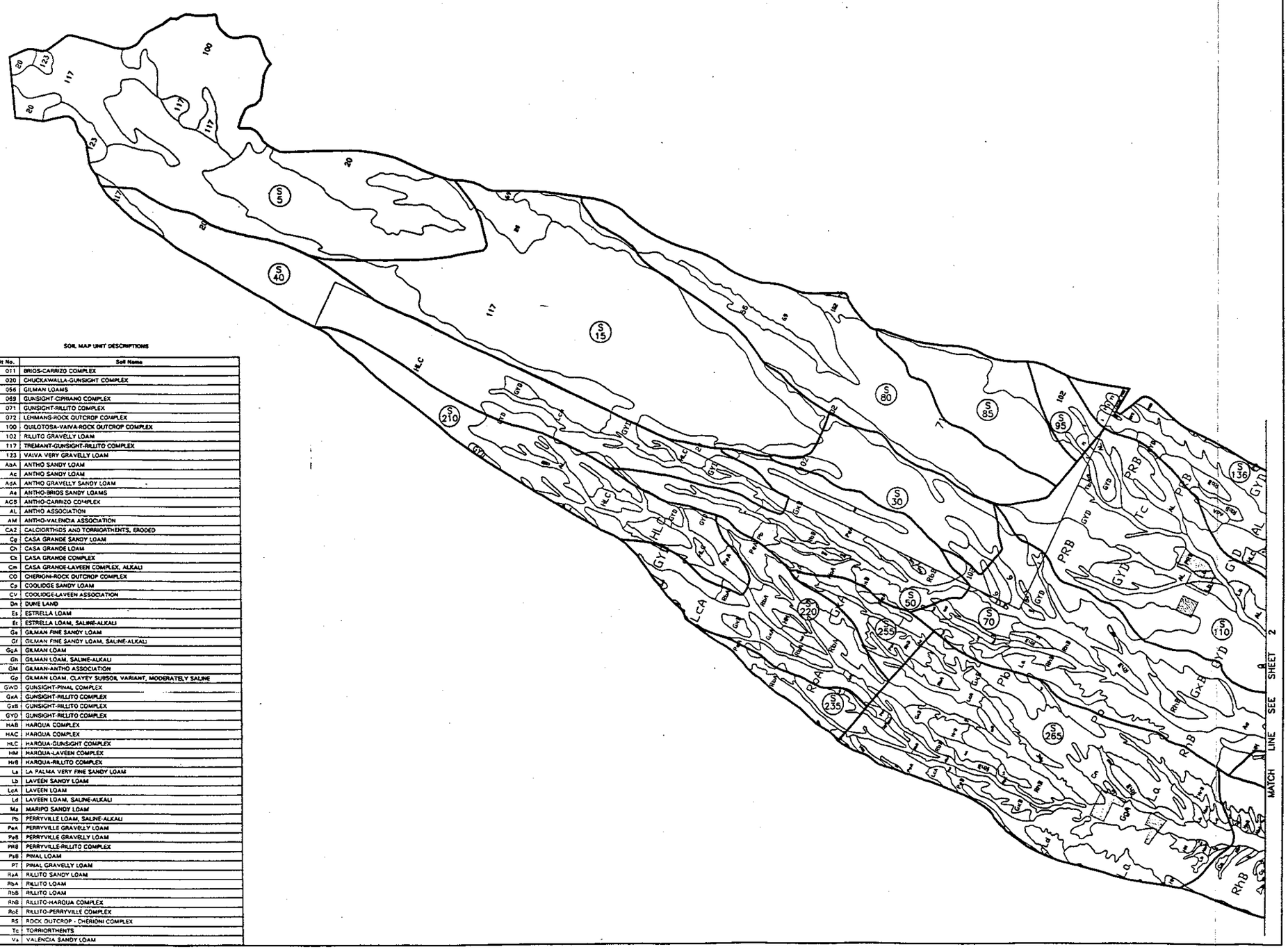
			SHEET 2 OF 2



SOIL MAP UNIT DESCRIPTIONS

Map Unit No.	Soil Name
011	BRIOS-CARRIZO COMPLEX
020	CHUCKAWALLA-GUNSIGHT COMPLEX
056	GILMAN LOAMS
069	GUNSIGHT-CIPRIANO COMPLEX
071	GUNSIGHT-RILLITO COMPLEX
072	LEHMANS-ROCK OUTCROP COMPLEX
100	QUILOTOSA-VAIVA-ROCK OUTCROP COMPLEX
102	RILLITO GRAVELLY LOAM
117	TREMANT-GUNSIGHT-RILLITO COMPLEX
123	VAIVA VERY GRAVELLY LOAM
AbA	ANTHO SANDY LOAM
Ac	ANTHO SANDY LOAM
AdA	ANTHO GRAVELLY SANDY LOAM
Ae	ANTHO-BRIOS SANDY LOAMS
AGB	ANTHO-CARRIZO COMPLEX
AL	ANTHO ASSOCIATION
AM	ANTHO-VALENCIA ASSOCIATION
CA2	CALCIORTHIDS AND TORRIORTHENTS, ERODED
Cg	CASA GRANDE SANDY LOAM
Ch	CASA GRANDE LOAM
Ck	CASA GRANDE COMPLEX
Cm	CASA GRANDE-LAVEEN COMPLEX, ALKALI
CO	CHERIONI-ROCK OUTCROP COMPLEX
Cp	COOLIDGE SANDY LOAM
CV	COOLIDGE-LAVEEN ASSOCIATION
Dn	DUNE LAND
Es	ESTRELLA LOAM
Et	ESTRELLA LOAM, SALINE-ALKALI
Ge	GILMAN FINE SANDY LOAM
Gf	GILMAN FINE SANDY LOAM, SALINE-ALKALI
GgA	GILMAN LOAM
Gh	GILMAN LOAM, SALINE-ALKALI
GM	GILMAN-ANTHO ASSOCIATION
Go	GILMAN LOAM, CLAYEY SUBSOIL VARIANT, MODERATELY SALINE
GWD	GUNSIGHT-PINAL COMPLEX
GxA	GUNSIGHT-RILLITO COMPLEX
GxB	GUNSIGHT-RILLITO COMPLEX
GYD	GUNSIGHT-RILLITO COMPLEX
HAB	HAROUA COMPLEX
HAC	HAROUA COMPLEX
HLC	HAROUA-GUNSIGHT COMPLEX
HM	HAROUA-LAVEEN COMPLEX
HrB	HAROUA-RILLITO COMPLEX
La	LA PALMA VERY FINE SANDY LOAM
Lb	LAVEEN SANDY LOAM
LcA	LAVEEN LOAM
Ld	LAVEEN LOAM, SALINE-ALKALI
Ma	MARIPO SANDY LOAM
Pb	PERRYVILLE LOAM, SALINE-ALKALI
PeA	PERRYVILLE GRAVELLY LOAM
PeB	PERRYVILLE GRAVELLY LOAM
PRB	PERRYVILLE-RILLITO COMPLEX
PsB	PINAL LOAM
PT	PINAL GRAVELLY LOAM
RzA	RILLITO SANDY LOAM
RbA	RILLITO LOAM
RbB	RILLITO LOAM
RnB	RILLITO-HAROUA COMPLEX
RpE	RILLITO-PERRYVILLE COMPLEX
RS	ROCK OUTCROP - CHERIONI COMPLEX
Tc	TORRIORTHENTS
Va	VALENCIA SANDY LOAM

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FLOOD DELINEATION STUDY OF

LUKE WASH F.I.S.

F.C.D. CONTRACT NO. **90-68**

LEGEND

SOIL CLASSIFICATION & LAND USE MAP

PLATE 2

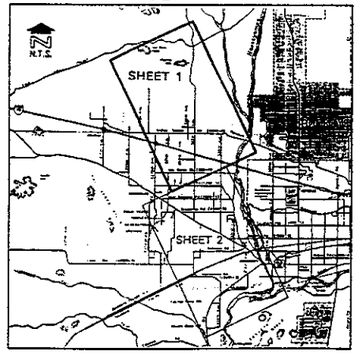
LEGEND

- Drainage Sub-Basin Boundary
- (S 318) Drainage Sub-Basin Number
- Soil Unit Boundary
- GgA Soil Type

LAND USE

- Very Low Density Residential
- Farmland
- Mountain
- Desert

INDEX MAP



2000 0' 2000 4000
SCALE: 1" = 2000'

COE & VAN LOO, INC.

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PLANS	PP	7/92
PLANS CHK.	JM	7/92

SUBMITTED BY: Jack K. Moody DATE: 8/92

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

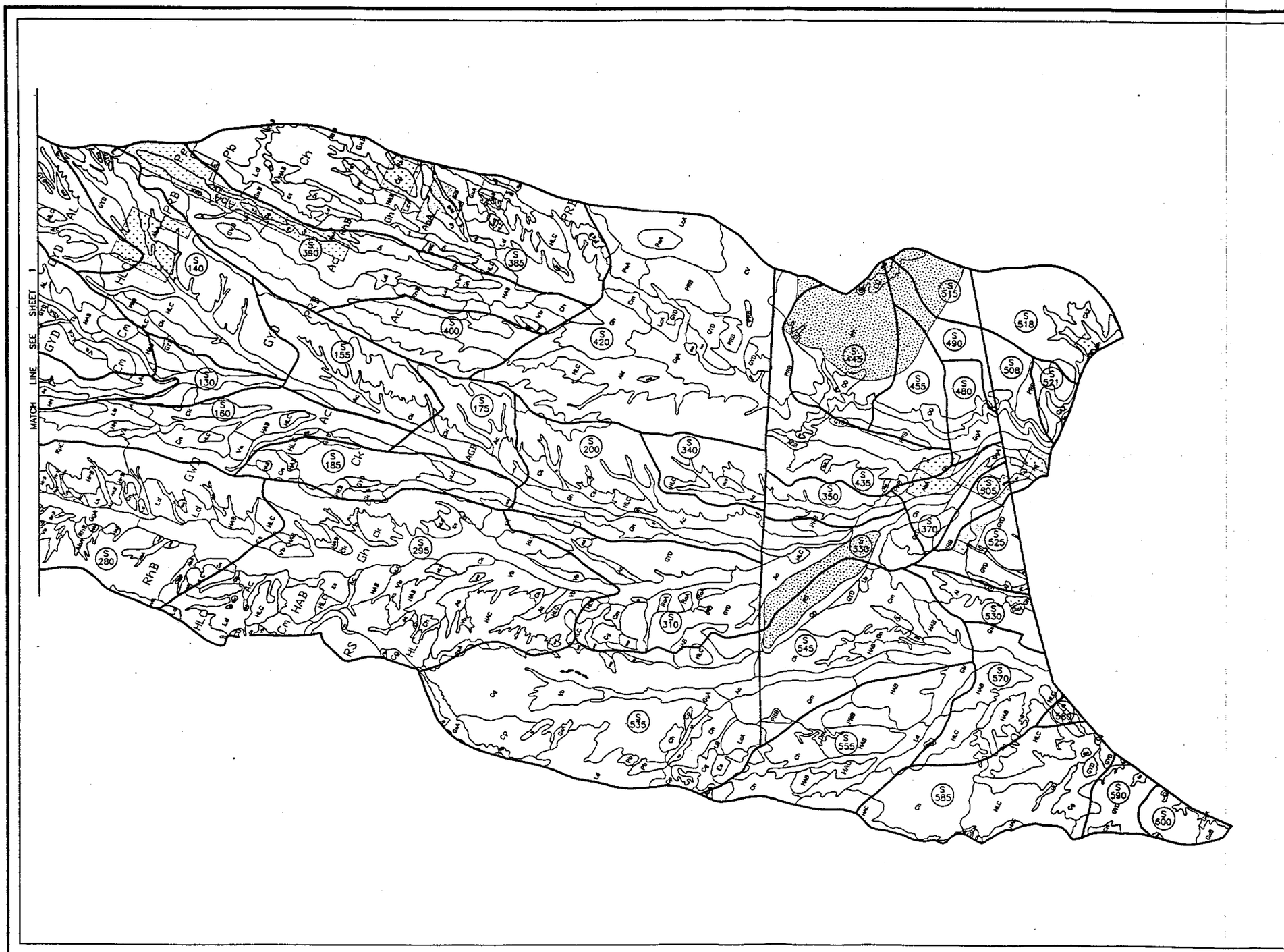
APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 1 OF 2

SUB-BASIN DELINEATIONS COMPILED FROM USGS 7.5 MINUTE QUADRANGLE MAPS
FLATIRON MOUNTAIN, AZ., WINTERSBURG, AZ.,
ARLINGTON, AZ., HASSAYAMPA, AZ.

SOIL TYPE COMPILED FROM
SOIL SURVEY OF MARICOPA COUNTY, AZ., CENTRAL PART,
SOIL SURVEY OF AGUILA-CAREFREE AREA, PARTS OF MARICOPA AND PINAL COUNTIES, AZ.



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FLOOD DELINEATION STUDY OF

LUKE WASH F.I.S.

F.C.D. CONTRACT NO. **90-68**

SOIL CLASSIFICATION & LAND USE MAP

PLATE 2

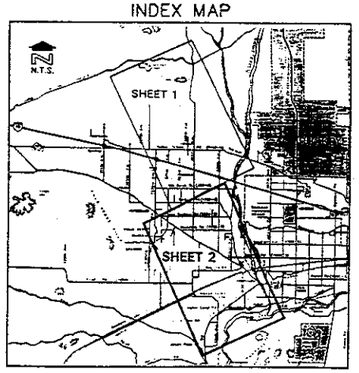
LEGEND

- Drainage Sub-Basin Boundary
- (S 518) Drainage Sub-Basin Number
- Soil Unit Boundary
- GoA Soil Type

LAND USE

- Very Low Density Residential
- Farmland
- Mountain
- Desert

INDEX MAP



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PLANS CHK.	JM	7/92	CHIEF ENGINEER AND GENERAL MANAGER
SUBMITTED BY: Jack H. Moody DATE: 11/92			SHEET 2 OF 2

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SUB-BASIN DELINEATIONS COMPILED FROM USGS 7.5 MINUTE QUADRANGLE MAPS
FLATIRON MOUNTAIN, AZ., WINTERSBURG, AZ.,
ARLINGTON, AZ., HASSAYAMPA, AZ.

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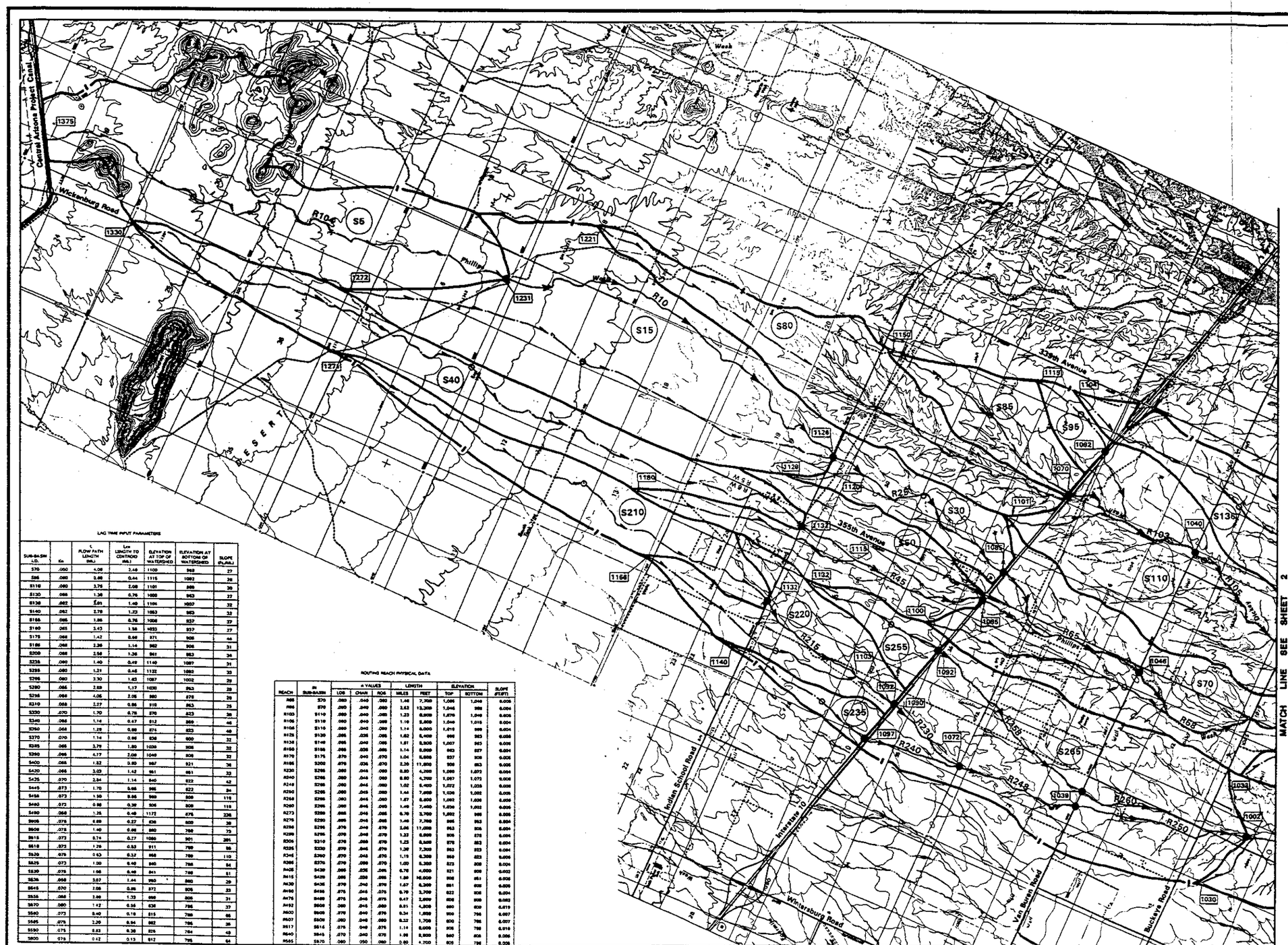


LAG TIME INPUT PARAMETERS

SUB-BASIN I.D.	Kn	FLOW PATH LENGTH (MILE)	Lca LENGTH TO CENTROID (MILE)	ELEVATION AT TOP OF WATERSHED	ELEVATION AT BOTTOM OF WATERSHED	SLOPE (FL/MI)
S70	.050	4.08	2.46	1120	963	27
S85	.080	3.88	0.44	1115	1092	36
S110	.080	3.75	2.08	1101	880	30
S130	.085	1.38	0.76	1000	963	27
S135	.082	5.01	1.40	1104	1057	32
S140	.082	2.79	1.23	1053	963	33
S155	.085	1.88	0.76	1000	937	37
S160	.065	3.43	1.56	1033	937	27
S175	.068	1.42	0.66	971	905	46
S185	.068	3.38	1.14	982	905	31
S200	.068	2.56	1.36	941	863	34
S235	.080	1.40	0.49	1140	1087	31
S255	.080	1.21	0.46	1122	1092	33
S265	.080	2.30	1.43	1087	1002	29
S280	.085	2.89	1.17	1030	963	28
S295	.068	4.06	2.06	980	878	29
S310	.068	2.27	0.86	910	863	25
S320	.070	1.70	0.76	870	823	36
S340	.068	1.14	0.47	912	869	46
S350	.068	1.25	0.98	874	823	40
S370	.070	1.14	0.66	936	900	32
S385	.068	3.78	1.80	1030	906	32
S390	.068	4.17	2.08	1040	908	32
S400	.068	1.82	0.80	987	921	36
S420	.068	3.03	1.42	991	861	33
S435	.070	2.84	1.14	940	822	42
S445	.073	1.70	0.66	905	822	34
S455	.073	1.90	0.86	980	808	115
S460	.072	0.98	0.38	906	808	115
S480	.068	1.35	0.48	1172	875	226
S505	.075	4.69	0.27	936	800	38
S605	.072	1.40	0.66	980	788	73
S615	.072	0.74	0.27	1000	901	291
S618	.072	1.29	0.53	911	799	86
S620	.075	0.53	0.32	968	799	110
S625	.072	1.00	0.40	940	788	84
S630	.075	1.06	0.40	941	788	61
S635	.068	3.07	1.44	950	880	29
S645	.070	2.08	0.86	972	905	33
S655	.068	2.60	1.33	968	905	31
S670	.080	1.42	0.56	838	795	37
S680	.072	0.40	0.19	815	788	66
S685	.075	2.20	0.94	982	788	36
S690	.075	0.83	0.38	826	764	48
S600	.075	0.42	0.13	812	795	64

ROUTING REACH PHYSICAL DATA

REACH	IN SUB-BASIN	n VALUES LOB	CHAN	ROB	LENGTH MILES	FEET	ELEVATION TOP	BOTTOM	SLOPE (FT/FT)
R65	S70	.060	.040	.060	1.46	7,700	1,046	1,044	0.005
R66	S70	.060	.040	.060	2.52	13,300	1,044	998	0.004
R103	S110	.060	.040	.060	1.23	6,500	1,070	1,040	0.005
R106	S110	.060	.040	.060	1.10	5,800	1,044	1,015	0.004
R105	S110	.060	.040	.060	1.14	6,000	1,015	999	0.004
R125	S130	.065	.035	.065	1.62	8,400	998	963	0.005
R138	S140	.065	.040	.065	1.81	9,500	1,007	963	0.005
R160	S155	.065	.035	.065	1.14	6,000	963	937	0.004
R170	S175	.070	.040	.070	1.04	5,500	937	905	0.005
R185	S200	.070	.035	.070	2.30	11,800	905	863	0.005
R230	S295	.060	.045	.060	0.80	4,200	1,080	1,072	0.004
R240	S295	.060	.045	.060	0.80	4,200	1,087	1,073	0.002
R248	S295	.060	.045	.060	1.02	5,400	1,072	1,058	0.005
R250	S295	.060	.045	.060	1.44	7,600	1,039	1,002	0.005
R260	S295	.060	.045	.060	1.47	8,000	1,002	1,039	0.005
R280	S295	.060	.045	.060	1.49	7,900	1,039	1,002	0.005
R273	S280	.065	.045	.065	0.70	3,700	1,002	998	0.005
R275	S280	.065	.045	.065	1.46	7,700	995	963	0.004
R290	S295	.070	.040	.070	2.06	11,000	963	905	0.004
R295	S295	.070	.040	.070	1.33	6,800	905	878	0.004
R305	S310	.070	.035	.070	1.23	6,500	878	863	0.004
R335	S330	.070	.045	.070	1.38	7,300	863	823	0.004
R345	S390	.070	.045	.070	1.19	6,300	950	823	0.005
R355	S375	.070	.050	.070	1.00	5,300	823	808	0.003
R405	S430	.065	.035	.065	0.70	4,000	905	880	0.003
R415	S420	.065	.035	.065	1.89	10,000	905	861	0.003
R430	S435	.070	.040	.070	1.47	8,300	861	808	0.005
R450	S455	.070	.045	.070	0.70	3,700	822	808	0.004
R475	S460	.075	.045	.075	0.47	2,500	808	788	0.002
R492	S505	.080	.045	.080	0.81	4,300	880	820	0.019
R500	S505	.070	.040	.070	0.34	1,800	900	788	0.007
R507	S505	.080	.045	.080	0.32	1,700	820	788	0.007
R517	S514	.075	.040	.075	1.14	6,000	812	788	0.018
R540	S545	.070	.040	.070	1.98	8,900	880	808	0.006
R565	S570	.080	.050	.080	0.80	4,200	809	788	0.005

BASE MAP COMPILED FROM USGS 7.5 MINUTE QUADRANGLE MAPS
PLATIRON MOUNTAIN, AZ., WINTERSBURG, AZ.,
ARLINGTON, AZ., MASSAYAMPA, AZ.

REDUCED COPY
DO NOT SCALE

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FLOOD DELINEATION STUDY OF

LUKE WASH F.I.S.

F.C.D. CONTRACT NO. **90-68**

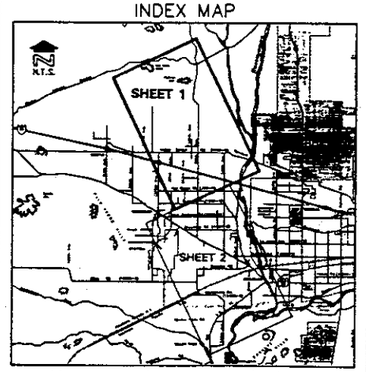
FLOW ROUTING MAP

PLATE 3

LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- S235 Drainage Sub-Basin Number
- Lag Time Flow Path
- R105 Route Number & Flow Path
- 560 Elevation Along Flow Path
- Centroid of Sub-Basin (located on flow path)
- Routing Delimiter & Concentration Point

INDEX MAP



2000 0' 2000 4000

COE & VAN LOO, INC.

	BY	DATE
DESIGN	DS	7/92
DESIGN CHK.	JM	7/92
PLANS	PP	7/92
PLANS CHK.	JM	7/92

SUBMITTED BY: DATE: 11/92

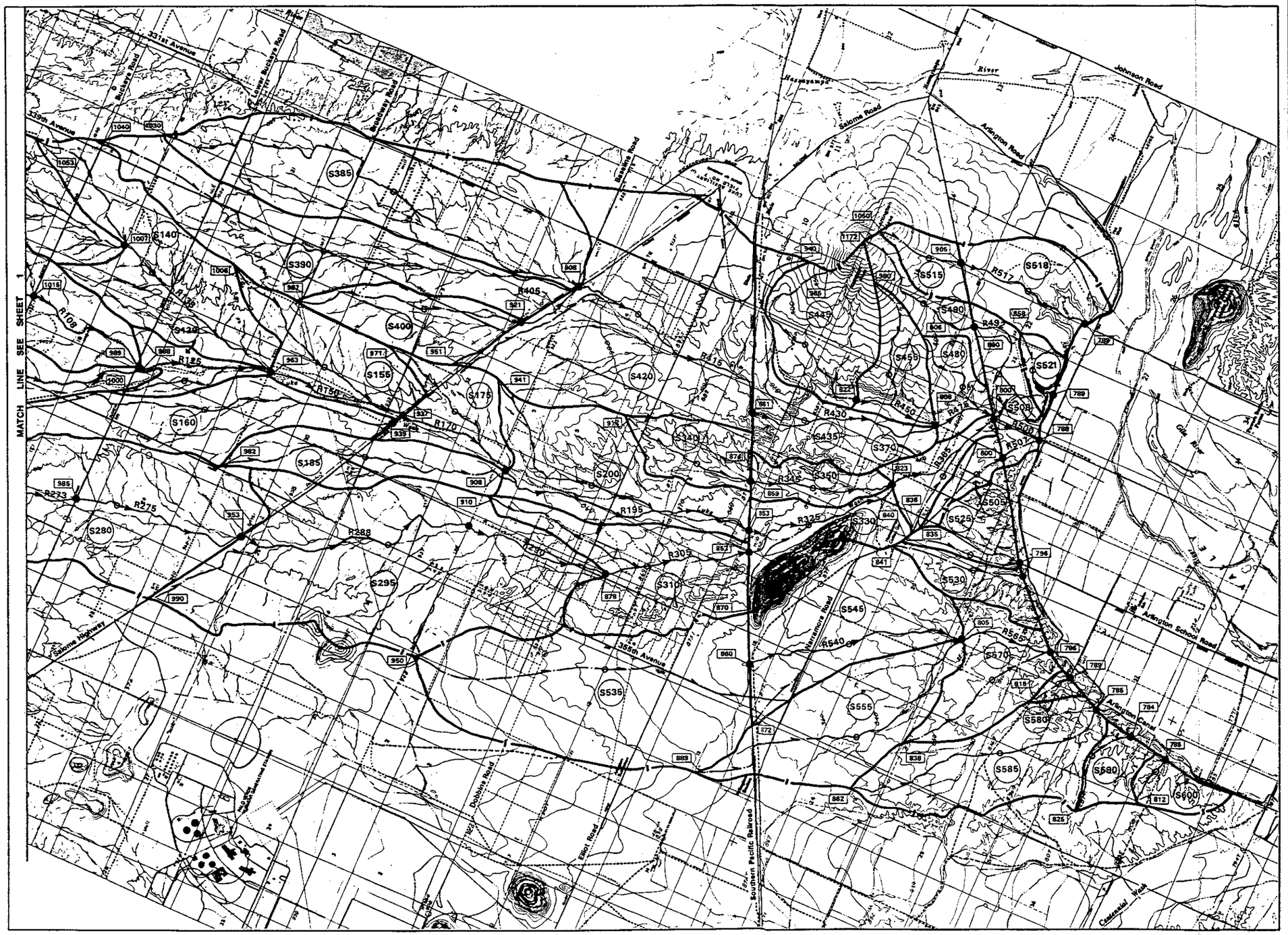
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 1 OF 2



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FLOOD DELINEATION STUDY OF

LUKE WASH F.I.S.

F.C.D. CONTRACT NO. 90-68

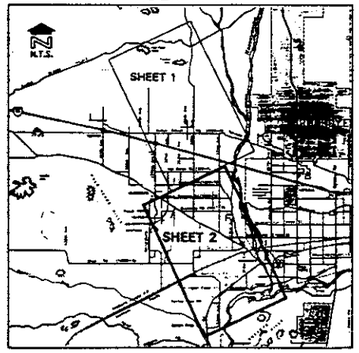
FLOW ROUTING MAP

PLATE 3

LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- S236 Drainage Sub-Basin Number
- Lag Time Flow Path
- R105 Route Number & Flow Path
- 560 Elevation Along Flow Path
- Centroid of Sub-Basin (located on flow path)
- Routing Delimiter & Concentration Point

INDEX MAP



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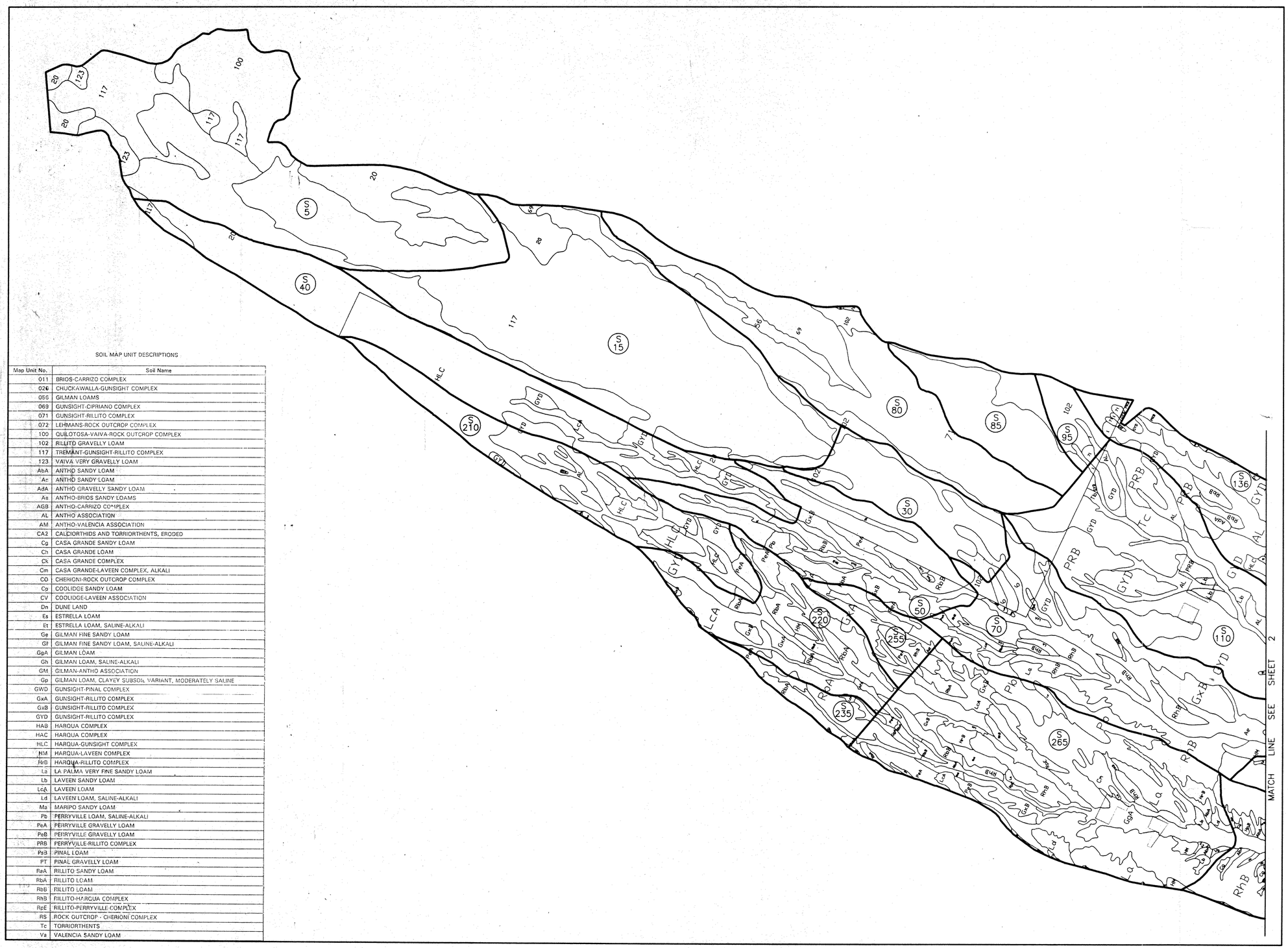
CHIEF ENGINEER AND GENERAL MANAGER

SHEET 2 OF 2

REDUCED COPY
DO NOT SCALE

BASE MAP COMPILED FROM USGS 7.5 MINUTE QUADRANGLE MAPS
FLATIRON MOUNTAIN, AZ., WINTERSBURG, AZ.,
ARLINGTON, AZ., HASSAYAMPA, AZ.



SOIL MAP UNIT DESCRIPTIONS

Map Unit No.	Soil Name
011	BRIOS-CARRIZO COMPLEX
020	CHUCKAWALLA-GUNSIGHT COMPLEX
056	GILMAN LOAMS
069	GUNSIGHT-CIPRIANO COMPLEX
071	GUNSIGHT-RILLITO COMPLEX
072	LEHMANS-ROCK OUTCROP COMPLEX
100	QUILOTOSA-VAIVA-ROCK OUTCROP COMPLEX
102	RILLITO GRAVELLY LOAM
117	TREMANT-GUNSIGHT-RILLITO COMPLEX
123	VAIVA VERY GRAVELLY LOAM
AbA	ANTHO SANDY LOAM
Ac	ANTHO SANDY LOAM
AdA	ANTHO GRAVELLY SANDY LOAM
Ae	ANTHO-BRIOS SANDY LOAMS
AGB	ANTHO-CARRIZO COMPLEX
AL	ANTHO ASSOCIATION
AM	ANTHO-VALENCIA ASSOCIATION
CA2	CALCIORTHIDS AND TORRIORTHENTS, ERODED
Cg	CASA GRANDE SANDY LOAM
Ch	CASA GRANDE LOAM
Ck	CASA GRANDE COMPLEX
Cm	CASA GRANDE-LAVEEN COMPLEX, ALKALI
CO	CHERIONI-ROCK OUTCROP COMPLEX
Cp	COOLIDGE SANDY LOAM
CV	COOLIDGE-LAVEEN ASSOCIATION
Dn	DUNE LAND
Es	ESTRELLA LOAM
Et	ESTRELLA LOAM, SALINE-ALKALI
Ge	GILMAN FINE SANDY LOAM
Gf	GILMAN FINE SANDY LOAM, SALINE-ALKALI
GgA	GILMAN LOAM
Gh	GILMAN LOAM, SALINE-ALKALI
GM	GILMAN-ANTHO ASSOCIATION
Gp	GILMAN LOAM, CLAYEY SUBSOIL VARIANT, MODERATELY SALINE
GWD	GUNSIGHT-PINAL COMPLEX
GxA	GUNSIGHT-RILLITO COMPLEX
GxB	GUNSIGHT-RILLITO COMPLEX
GYD	GUNSIGHT-RILLITO COMPLEX
HAB	HARQUA COMPLEX
HAC	HARQUA COMPLEX
HLC	HARQUA-GUNSIGHT COMPLEX
HM	HARQUA-LAVEEN COMPLEX
HrB	HARQUA-RILLITO COMPLEX
La	LA PALMA VERY FINE SANDY LOAM
Lb	LAVEEN SANDY LOAM
LcA	LAVEEN LOAM
Ld	LAVEEN LOAM, SALINE-ALKALI
Ma	MARIPO SANDY LOAM
Pb	PERRYVILLE LOAM, SALINE-ALKALI
PeA	PERRYVILLE GRAVELLY LOAM
PeB	PERRYVILLE GRAVELLY LOAM
PRB	PERRYVILLE-RILLITO COMPLEX
PsB	PINAL LOAM
PT	PINAL GRAVELLY LOAM
RaA	RILLITO SANDY LOAM
RbA	RILLITO LOAM
RbB	RILLITO LOAM
RhB	RILLITO-HARQUA COMPLEX
RpE	RILLITO-PERRYVILLE COMPLEX
RS	ROCK OUTCROP - CHERIONI COMPLEX
Tc	TORRIORTHENTS
Va	VALENCIA SANDY LOAM

SUB-BASIN DELINEATIONS COMPILED FROM USGS 7.5 MINUTE QUADRANGLE MAPS
FLATIRON MOUNTAIN, AZ., WINTERSBURG, AZ.,
ARLINGTON, AZ., HASSAYAMPA, AZ.

SOIL TYPE COMPILED FROM
SOIL SURVEY OF MARICOPA COUNTY, AZ., CENTRAL PART,
SOIL SURVEY OF AGUILA-CAREFREE AREA, PARTS OF MARICOPA AND PINAL COUNTIES, AZ

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FLOOD DELINEATION STUDY OF

LUKE WASH F.I.S.

F.C.D. CONTRACT NO. **90-68**

LEGEND

SOIL CLASSIFICATION & LAND USE MAP

PLATE 2

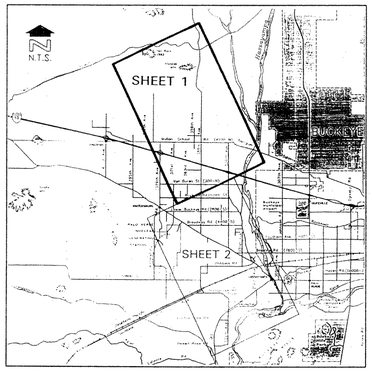
LEGEND

- Drainage Sub-Basin Boundary
- (S 518) Drainage Sub-Basin Number
- Soil Unit Boundary
- GgA Soil Type

LAND USE

- Very Low Density Residential
- Farmland
- Mountain
- Desert

INDEX MAP



2000 0' 2000 4000
SCALE: 1"= 2000'

COE & VAN LOO, INC.

	BY	DATE
DESIGN	DB	7/92
DESIGN CHK.	JM	7/92
PLANS	PP	7/92
PLANS CHK.	JM	7/92

SUBMITTED BY: Jack R. Moody DATE: 11/92

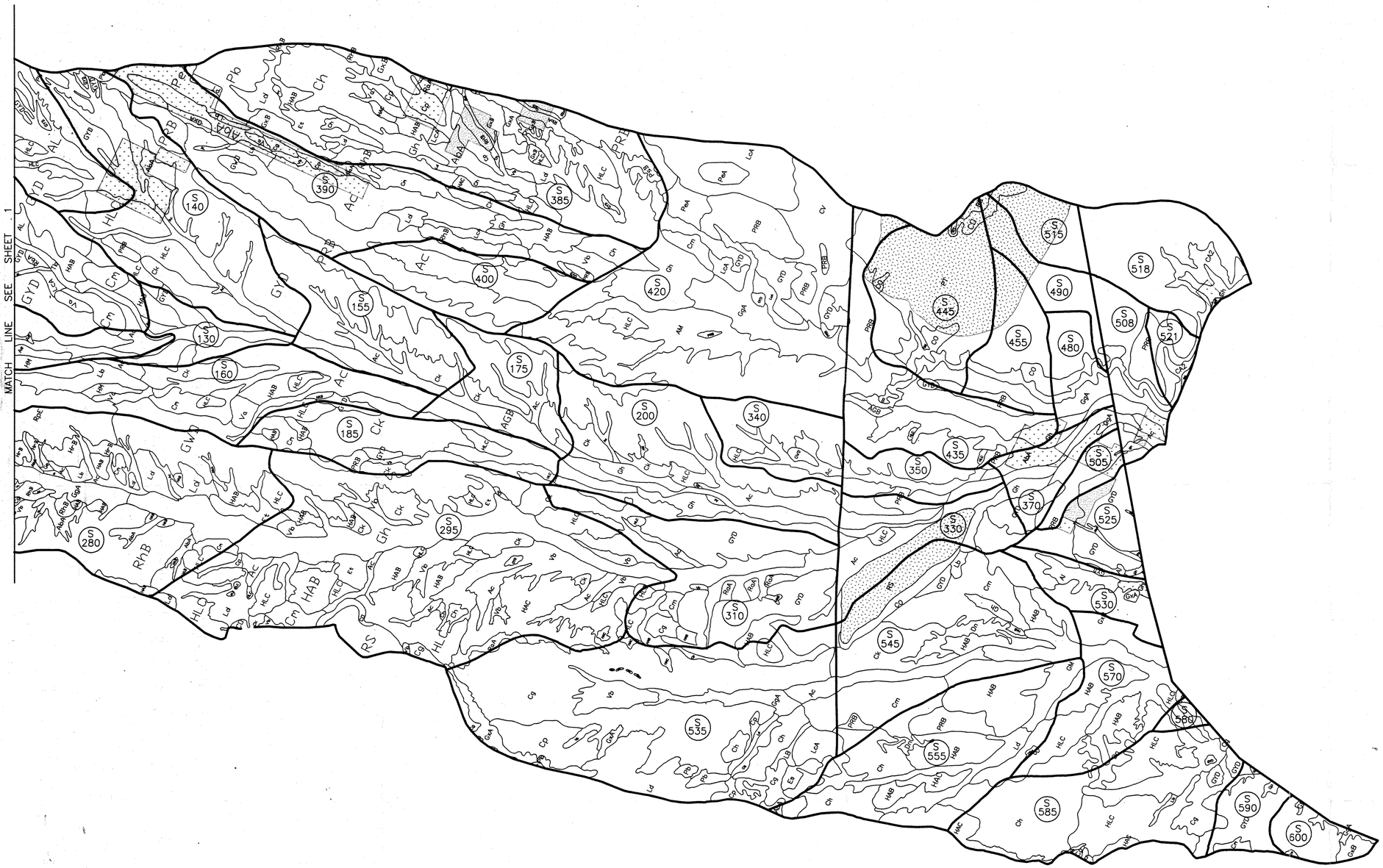
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 1 OF 2



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FLOOD DELINEATION STUDY OF

LUKE WASH F.I.S.

F.C.D. CONTRACT NO. **90-68**

SOIL CLASSIFICATION & LAND USE MAP

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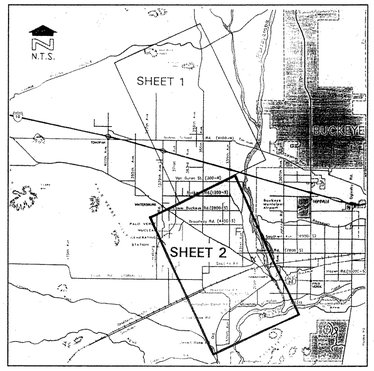
INDEX MAP



2000 0' 2000 4000

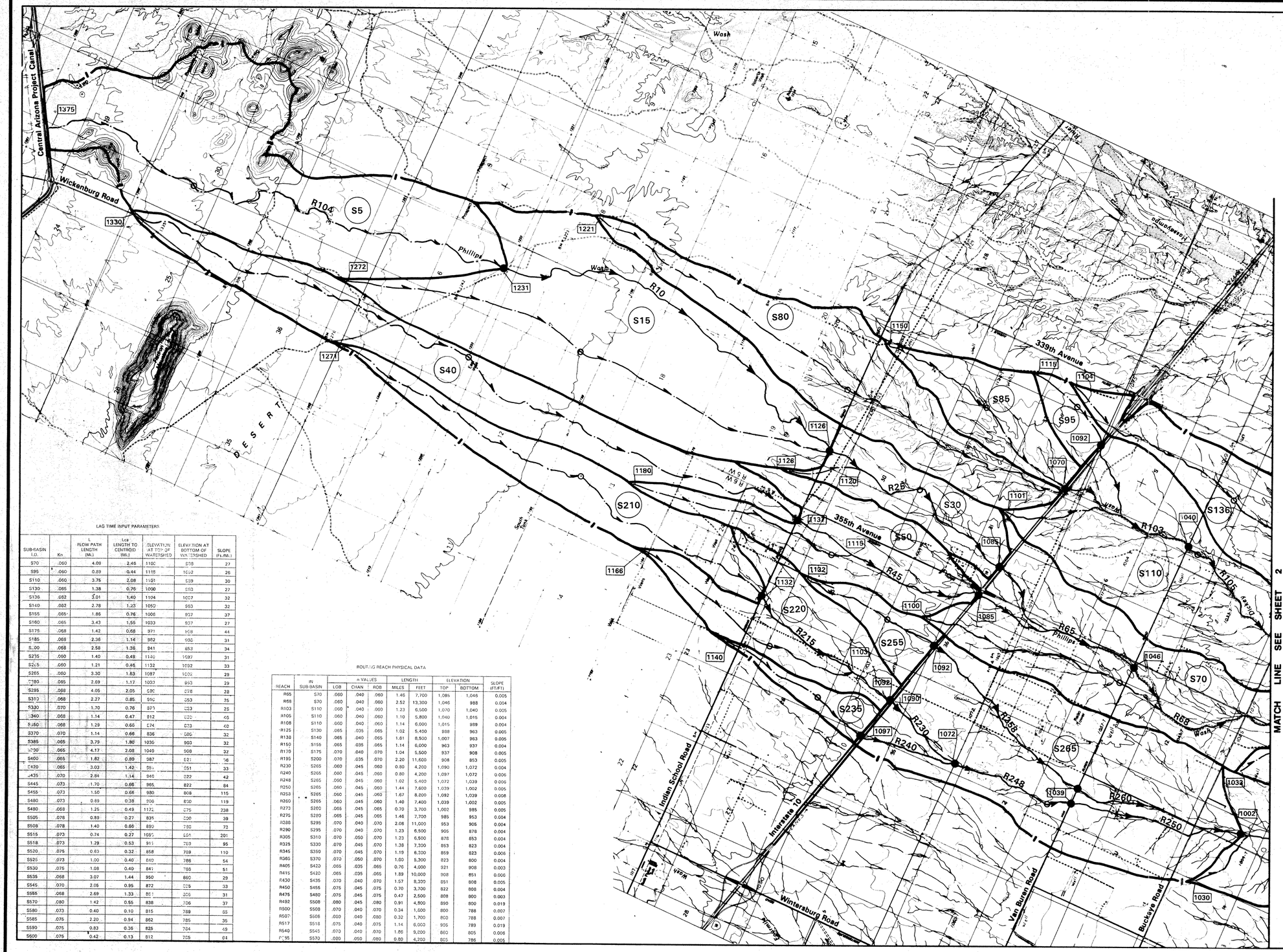
SCALE: 1"= 2000'

COE & VAN LOO, INC.

	BY	DATE	
DESIGN	DB	7/92	FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
DESIGN CHK.	JM	7/92	RECOMMENDED BY: DATE
PLANS	PP	7/92	APPROVED BY: DATE
PLANS CHK.	JM	7/92	CHIEF ENGINEER AND GENERAL MANAGER
SUBMITTED BY: Jack R. Moody DATE: 11/92			SHEET 2 OF 2

SUB-BASIN DELINEATIONS COMPILED FROM USGS 7.5 MINUTE QUADRANGLE MAPS
FLATIRON MOUNTAIN, AZ., WINTERSBURG, AZ.,
ARLINGTON, AZ., HASSAYAMPA, AZ.

SOIL TYPE COMPILED FROM
SOIL SURVEY OF MARICOPA COUNTY, AZ., CENTRAL PART,
SOIL SURVEY OF AGUILA-CAREFREE AREA, PARTS OF MARICOPA AND PINAL COUNTIES, AZ.



LAG TIME INPUT PARAMETERS

SUB-BASIN I.D.	Kn	L FLOW PATH LENGTH (MI.)	Lca LENGTH TO CENTROID (MI.)	ELEVATION AT TOP OF WATERSHED	ELEVATION AT BOTTOM OF WATERSHED	SLOPE (FT./MI.)
S70	.060	4.09	2.45	1100	918	27
S95	.060	0.89	0.44	1115	1092	26
S110	.060	3.75	2.08	1101	939	30
S130	.065	1.38	0.76	1090	963	27
S136	.062	3.01	1.40	1104	1007	32
S140	.062	2.78	1.23	1050	963	32
S155	.065	1.86	0.76	1006	937	37
S160	.065	3.43	1.55	1033	937	27
S175	.068	1.42	0.68	971	908	44
S185	.068	2.36	1.14	982	900	31
S200	.068	2.58	1.36	941	853	34
S235	.060	1.40	0.49	1140	1097	31
S245	.060	1.21	0.46	1132	1092	33
S265	.060	3.30	1.83	1087	1002	29
S280	.065	2.69	1.12	1030	993	29
S295	.068	4.05	2.05	990	878	28
S310	.068	2.27	0.85	910	853	25
S330	.070	1.70	0.76	873	823	25
S340	.068	1.14	0.47	812	800	40
S350	.068	1.29	0.66	874	823	40
S370	.070	1.14	0.66	836	800	32
S385	.065	3.79	1.80	1030	908	32
S390	.065	4.17	2.08	1040	908	32
S400	.065	1.82	0.80	987	921	36
S420	.065	3.03	1.42	951	851	33
S435	.070	2.84	1.14	940	822	42
S445	.073	1.70	0.66	985	822	84
S455	.073	1.50	0.66	980	808	115
S480	.073	0.89	0.38	908	830	119
S490	.068	1.25	0.49	1172	875	238
S505	.078	0.89	0.27	935	900	39
S508	.078	1.40	0.66	880	780	73
S515	.073	0.74	0.27	1095	891	201
S518	.073	1.29	0.53	911	769	95
S520	.075	0.63	0.32	858	789	110
S525	.073	1.00	0.40	840	786	54
S530	.075	1.08	0.40	841	785	51
S535	.068	3.07	1.44	950	860	29
S545	.070	2.06	0.95	872	839	33
S555	.068	2.69	1.33	861	805	31
S570	.080	1.42	0.55	838	786	37
S580	.073	0.40	0.10	815	789	65
S585	.076	2.20	0.94	862	785	35
S590	.075	0.83	0.36	825	784	49
S600	.075	0.42	0.13	812	705	64

ROUTING REACH PHYSICAL DATA

REACH	IN SUB-BASIN	n VALUES LOB	n VALUES CHAN	n VALUES ROB	LENGTH MILES	LENGTH FEET	ELEVATION TOP	ELEVATION BOTTOM	SLOPE (FT/FT)
R65	S70	.060	.040	.060	1.46	7,700	1,085	1,046	0.005
R68	S70	.060	.040	.060	2.52	13,300	1,046	988	0.004
R103	S110	.060	.040	.060	1.23	6,500	1,070	1,040	0.005
R105	S110	.060	.040	.060	1.10	5,800	1,040	1,015	0.004
R108	S110	.060	.040	.060	1.14	6,000	1,015	989	0.004
R125	S130	.065	.035	.065	1.02	5,400	988	963	0.005
R138	S140	.065	.040	.065	1.61	8,500	1,007	963	0.005
R150	S155	.065	.035	.065	1.14	6,000	963	937	0.004
R170	S175	.070	.040	.070	1.04	5,500	937	908	0.005
R195	S200	.070	.035	.070	2.20	11,600	908	853	0.005
R230	S265	.060	.045	.060	0.80	4,200	1,090	1,072	0.004
R240	S265	.060	.045	.060	0.80	4,200	1,097	1,072	0.006
R248	S265	.060	.045	.060	1.02	5,400	1,072	1,039	0.006
R250	S265	.060	.045	.060	1.44	7,600	1,039	1,002	0.005
R253	S265	.060	.045	.060	1.67	8,800	1,092	1,039	0.006
R260	S265	.060	.045	.060	1.40	7,400	1,039	1,002	0.005
R275	S280	.065	.045	.065	0.70	3,700	1,002	985	0.005
R275	S280	.065	.045	.065	1.46	7,700	985	953	0.004
R285	S295	.070	.040	.070	2.08	11,000	953	905	0.004
R290	S295	.070	.040	.070	1.23	6,500	905	878	0.004
R305	S310	.070	.050	.070	1.23	6,500	878	853	0.004
R325	S330	.070	.045	.070	1.38	7,300	853	823	0.004
R345	S350	.070	.045	.070	1.19	6,300	859	823	0.006
R365	S370	.070	.050	.070	1.00	5,300	823	800	0.004
R405	S420	.065	.035	.065	0.76	4,000	921	908	0.003
R415	S420	.065	.035	.065	1.89	10,000	908	851	0.006
R430	S435	.070	.040	.070	1.57	8,300	851	808	0.005
R450	S455	.075	.045	.075	0.70	3,700	822	808	0.004
R475	S480	.075	.045	.075	0.47	2,500	808	800	0.003
R492	S508	.080	.045	.080	0.91	4,800	890	800	0.019
R500	S508	.070	.040	.070	0.34	1,500	800	788	0.007
R507	S508	.000	.040	.000	0.32	1,700	800	788	0.007
R517	S518	.075	.040	.075	1.14	6,000	905	789	0.019
R540	S545	.070	.040	.070	1.86	9,800	860	805	0.006
R595	S570	.080	.050	.080	0.80	4,200	805	786	0.005

BASE MAP COMPILED FROM USGS 7.5 MINUTE QUADRANGLE MAPS
FLATIRON MOUNTAIN, AZ., WINTERSBURG, AZ.,
ARLINGTON, AZ., HASSAYAMPA, AZ.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FLOOD DELINEATION STUDY OF

LUKE WASH F.I.S.

F.C.D. CONTRACT NO. **90-68**

FLOW ROUTING MAP

PLATE 3

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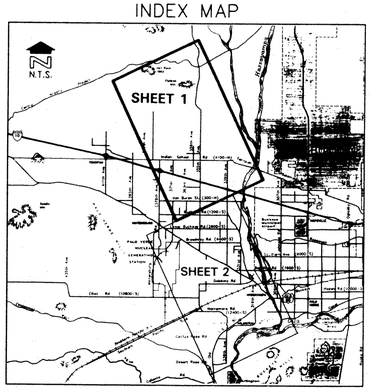
- Routing Delimiter & Concentration Point

INDEX MAP



2000 0' 2000 4000
SCALE: 1"= 2000'

COE & VAN LOO, INC.

	BY	DATE
DESIGN	DB	7/92
DESIGN CHK.	JM	7/92
PLANS	PP	7/92
PLANS CHK.	JM	7/92

SUBMITTED BY: Jack H. Moody DATE: 11/92

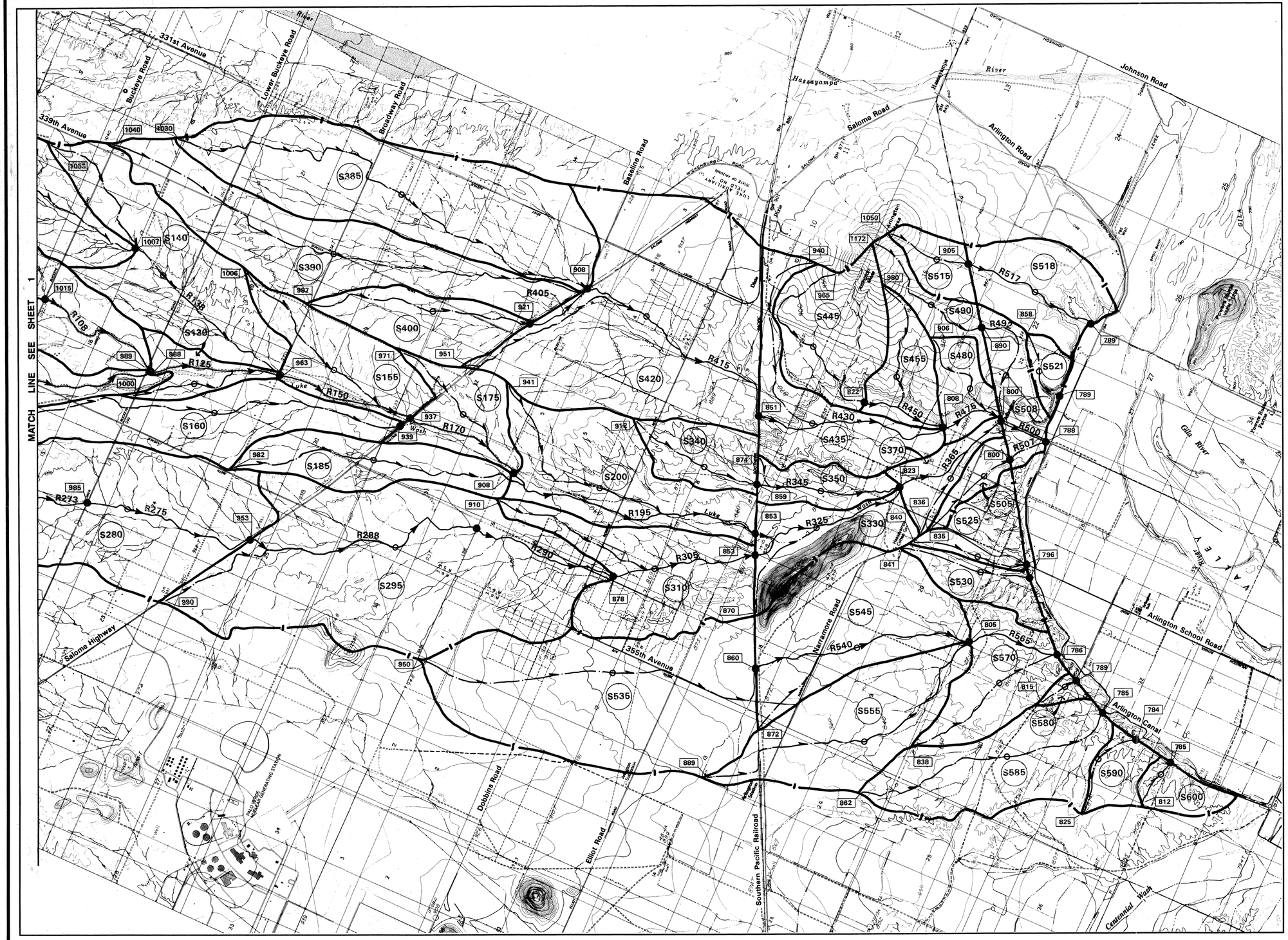
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 1 OF 2



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

FLOOD DELINEATION STUDY OF

LUKE WASH F.I.S.

F.C.D. CONTRACT NO. **90-68**

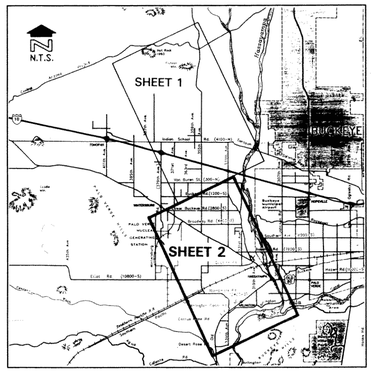
FLOW ROUTING MAP

PLATE 3

LEGEND

- Major Drainage Basin Boundary
- Drainage Sub-Basin Boundary
- (S235) Drainage Sub-Basin Number
- Lag Time Flow Path
- R105 Route Number & Flow Path
- 560 Elevation Along Flow Path
- Centroid of Sub-Basin (located on flow path)
- Routing Delimiter & Concentration Point

INDEX MAP



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SUBMITTED BY: Jack K. Moody DATE: 11/92			SHEET 2 OF 2

BASE MAP COMPILED FROM USGS 7.5 MINUTE QUADRANGLE MAPS
FLATIRON MOUNTAIN, AZ., WINTERSBURG, AZ.,
ARLINGTON, AZ., HASSAYAMPA, AZ.