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Design Hydrology for the Laveen Area Conveyance Channel

Flood Control District of Maricopa County

November 2002

AMERICAN INSTITUTE OF HYDROLOGY
Certificate Number
1554
VALERIE A. SWICK
Professional Hydrologist

Registered Professional Engineer (Civil)
CERTIFICATE NO.
31703
AMIR M. MOTAMEDI
Date Signed 11-27-02
ARIZONA, U.S.A.

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HYDROLOGIC ANALYSIS

The purpose of the hydrologic analysis is to estimate the 100-year recurrence interval peak discharge at designated locations along the Laveen Area Conveyance Channel (LACC).

The hydrology for the Laveen Area Master Drainage Study prepared by Cella Barr Associates, September 1991, and the South Phoenix/Laveen Drainage Improvement Project, June 1997, prepared by HDR Engineering are used as basis for the existing and future condition hydrology.

The subbasin boundaries from the Cella Barr study are used with little modification. The Cella Barr study was conducted prior to the latest edition of the Maricopa County Drainage Design standards. The existing and future subbasin parameters are updated to reflect the new standards.

1.0 Hydrologic Method Description

Watershed modeling is performed using the methodology set forth in the Drainage Design Manual for Maricopa County, Volume I, Hydrology (Flood Control District of Maricopa County (FCDMC), 1995), herein after referred to as the Design Manual. The U.S. Army Corps of Engineers (COE) HEC-1 Flood Hydrograph Package, version 4.0.1E, dated May 1991, is used for modeling.

Four separate HEC-1 models are developed for this study. All the models use a 100-year, 24-hour storm, 5-minute computational time increment, and aerial reduction over the entire watershed. A summary of the modeling criteria can be found in Table 1-1.

The first model (Model 1) uses the existing land use conditions as of March 2000[1], with the Aguila Golf Course (previously known as the Cesar Chavez Golf Course), the Baseline Road storm drain (7th Avenue to 43rd Avenue) and the 43rd Avenue storm drain (north of Baseline Road to the Salt River) in place, in addition to the proposed channel configuration for the Maricopa Drain, herein after referred to as the Laveen Area Conveyance Channel (LACC).

The second model (Model 2) is the same as the first with the addition of the proposed regional detention basin at 43rd Avenue and Southern Avenue.

The third model (Model 3) for the watershed west of 43rd Avenue uses future land uses (entire drainage area contributing to the LACC has been developed) with the 100-year, 2-hour retention requirement in place. All the future Capital Improvement Projects (CIPs) as recommended in the HDR report are assumed to be constructed, therefore no flows will cross 43rd Avenue from the east.

The fourth model (Model 4) is the same as the third, but allows for relaxed retention for developments "adjacent" to the proposed LACC alignment. The adjacent developments must retain the "first flush" runoff to capture sediment and storm runoff impurities. The

first flush is defined as the post development runoff volume from the 5-year, 2-hour rainfall event. Refer to Figure 6 for a depiction of properties with relaxed retention.

The rainfall depth-duration-frequency statistics are obtained from the NOAA Atlas II, Arizona, and the rainfall distributions used are the SCS Type II for the 24-hour storm patterns suggested in the Design Manual. Rainfall losses are estimated by the Green and Ampt infiltration equation with additional consideration for surface retention. The Clark unit hydrograph is used to generate hydrographs for the subbasins. Hydrographs are routed through the watershed using Normal Depth channel storage routing.

The study watershed in relationship to the State of Arizona is shown on the Location Map, Figure 1. The study watershed in relationship to the City of Phoenix corporate limits and Maricopa County is shown on the Vicinity Map, Figure 2. The purpose of the hydrologic analysis is to estimate the 100-year recurrence interval peak discharge at designated locations along the LACC. See Figure 3 for the locations.

TABLE 1

COMPUTER MODEL COMPARISONS

	MODEL 1	MODEL 2	MODEL 3	MODEL 4
Exiting Landuse Conditions	X	X		
Aguila Golf Course	X	X		
Baseline Road Storm drain (7th Ave. to 43rd Ave.)	X	X		
Detention Basin at 43rd Ave. and Southern Ave.		X		
Future Land use Conditions			X	X
CIP's East of 43rd Ave. assumed to be in place.			X	X
Storm water Retention for 100-yr 2-hr storm			X	
Storm water Retention waived, only retain first flush*				X

* For parcels adjacent to LACC only.

FIGURE 1
LOCATION MAP

FIGURE 2
VICINITY MAP WITHIN MARICOPA COUNTY

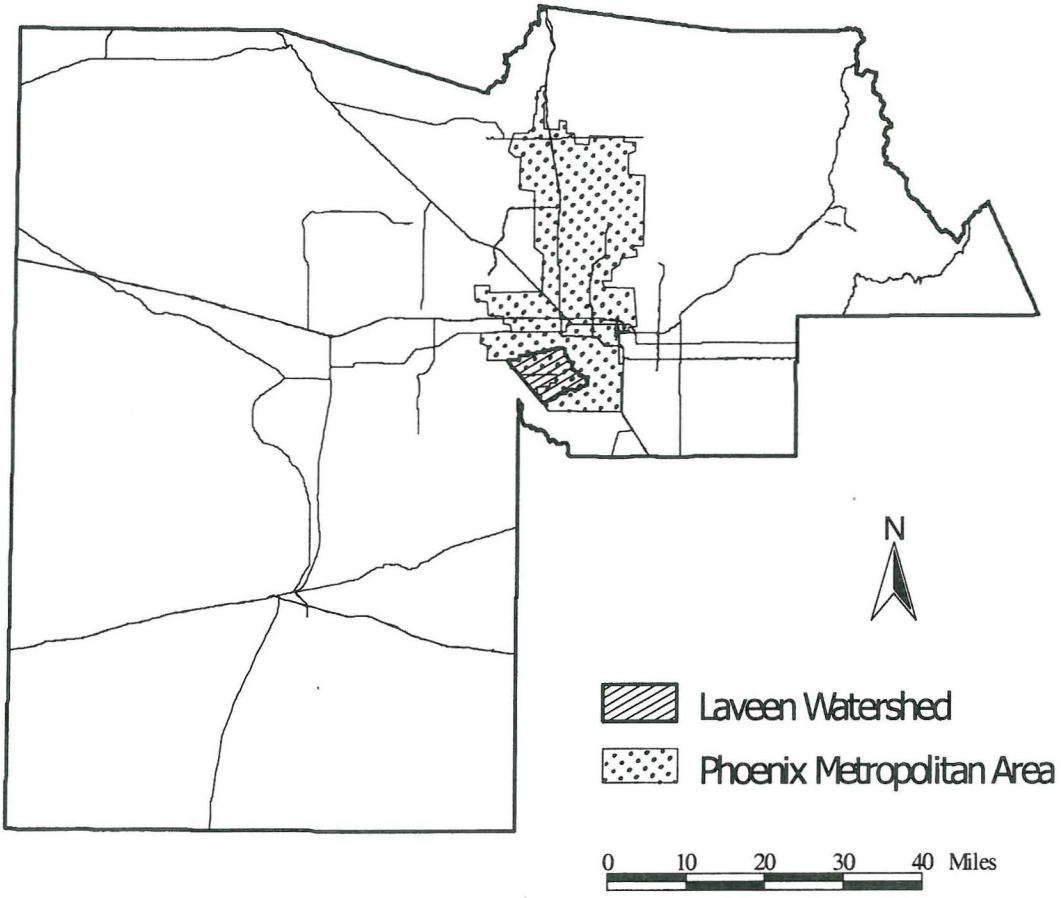
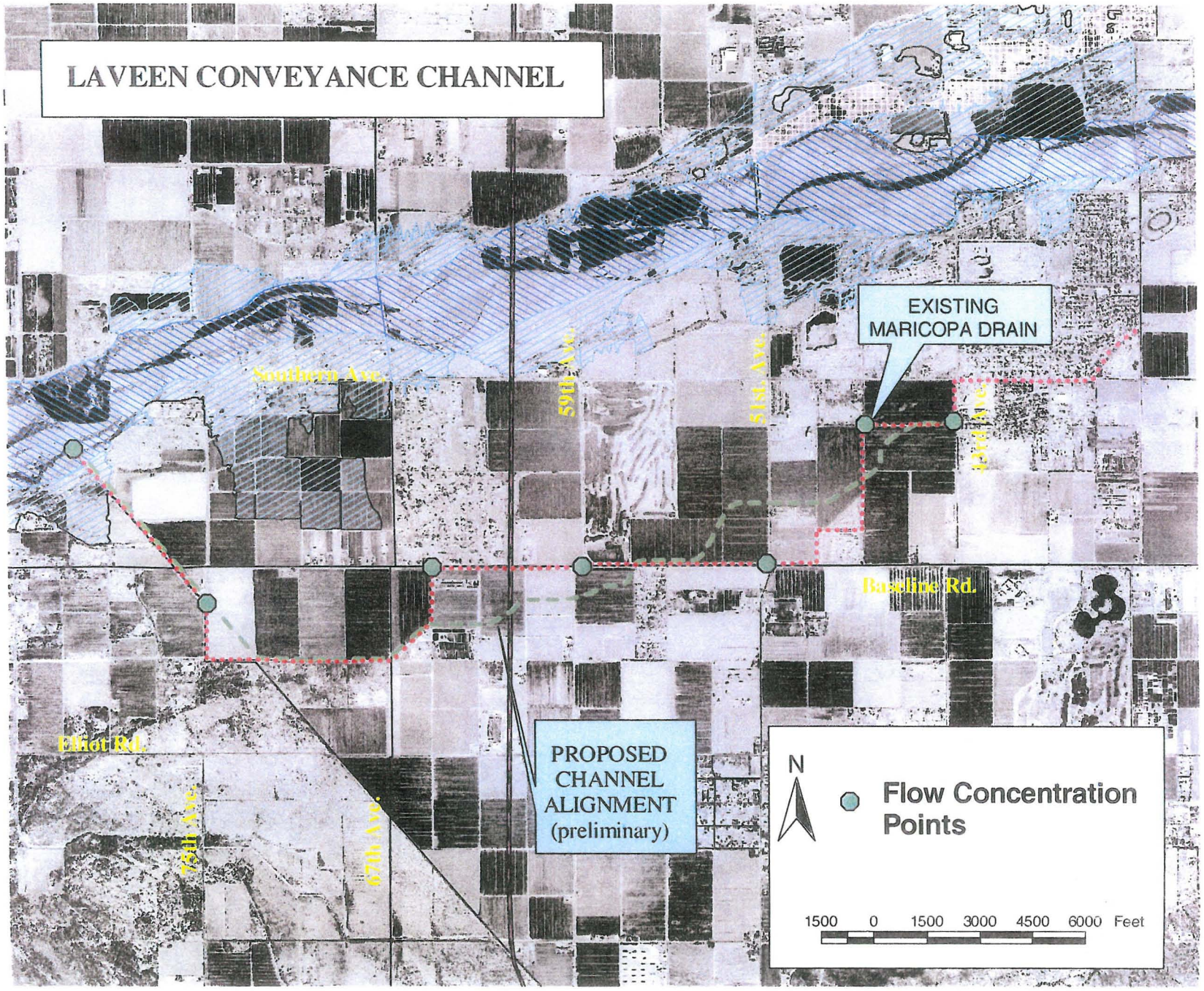


FIGURE 3
Concentration Points along the Laveen Area Conveyance Channel



2.0 Parameter Estimation

The Geographical Information System (GIS) package ARCView, Version 3.2, as developed by Environmental Systems Research Institute, Inc. (ESRI) is used to develop the specific subbasin parameters that are used as input to the Drainage Design Menu System (DDMS), Version 1.1, August 1995 as developed by the FCDMC. The DDMS computer program prepares a subbasin HEC-1 model. Combinations, split flows, and routing are added to the subbasin HEC-1 model.

2.1 Drainage Area Boundaries

The study watershed is approximately 29 square miles in size for the existing land use models and approximately 12 square miles in size for the future land use model (the area west of 43rd Avenue). The watershed boundary is shown in Figure 4.

As described in the Cella Barr study: "the study area and associated watersheds and sub-basins of the Laveen ADMS are located in the central portion of Maricopa County. The study area covers an area of approximately 39 square miles (29 square miles which drain directly to the Maricopa Drain) and extends from the crest of the South Mountains north to the Salt River and from approximately Central Avenue west to the Gila River Indian Reservation. The highest point in the study area is at 2,699 feet above mean sea level (msl) and the lowest point being 977 feet msl on the south bank of the Salt River at the outfall of the Champion (Maricopa) Drain to the Salt River."

"The study area consists of mountains, foothills and relatively flat areas and, therefore, the slope of the natural terrain varies widely. The steeper mountain and foothill slopes range from approximately 636 feet per mile to 100 feet per mile. Less steep areas within the study area range from 40 feet per mile to 5 feet per mile." The steeper areas are found in the subbasins east of 43rd Avenue. The subbasins west of 43rd Avenue are much flatter.

Approximately 41% of the LACC watershed is west of 43rd Avenue. There are 57 subbasins east of 43rd Avenue including those for the Aguila Golf Course and 24 subbasins west of 43rd Avenue.

2.2 Physical Parameters

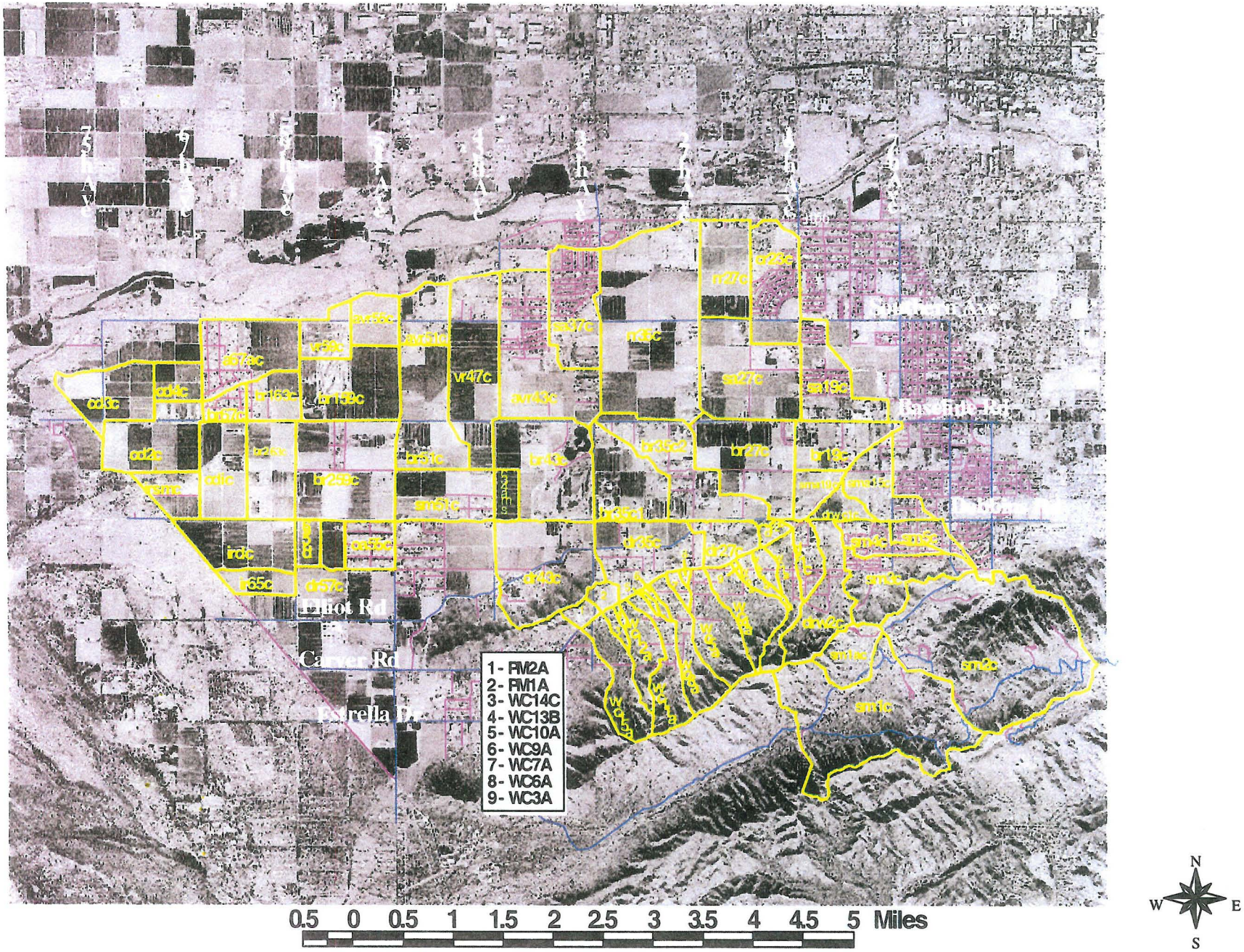
2.2.1 General

Physically based hydrologic parameters for the watershed and modeling subbasins are estimated in conformance with the Design Manual. The procedures used for estimating those parameters are discussed in the following sections. Pertinent supporting data and calculations are provided in the technical appendices as noted.

2.2.2 Watershed Subbasin Delineation and Area Parameters

The watershed and subbasin delineations were taken from the Cella Barr study.

FIGURE 4
LAVEEN AREA CONVEYANCE CHANNEL
SUBBASIN BOUNDARY MAP



2.2.3 Rainfall Loss Parameters

General

Rainfall losses for the watershed are estimated using the Green and Ampt infiltration method of HEC-1. The method as described in the Design Manual is used. Table A-1 in Appendix A is a tabular summary of PSIF (wetting front capillary suction) and DTHETA (antecedent volumetric soil moisture deficit) values for a corresponding value of XKSAT (hydraulic conductivity at natural saturation).

Soil Parameters

General – Soil properties and texture classifications are used to estimate the bare ground XKSAT variables of the Green and Ampt method.

Data Source – The soil information that is used in the DDMS program is from the Soils Conservation Service, 1977, Soil Survey of Maricopa County, Arizona – Central Part.

Parameters for each Subbasin

General – The various soil parameters are part of a database within ARCView. The database is attached to themes within ARCView. The themes are merged with the subbasin boundary theme to create a new theme of parameter per subbasin. The new database is used as input to the DDMS program.

Soil Parameters – Composite value calculations for natural area XKSAT, PSIF, DTHETA, and RTIMP are summarized in Table A-2, IA, RTIMP, and Percent Vegetation Cover For Representative Land Uses in Maricopa County found in Appendix A. Areas of soil polygons and subbasin boundaries are merged with ARCView to create a new coverage and database to provide soil parameters. The soils parameters do not change for existing and future land use conditions. A summary of the parameters is provided in Table A-3.

IA – Using the Design Manual for guidance, existing Initial Abstraction values are assigned to each subbasin. The existing land use assignments for IA are summarized by subbasin in Table B-1, Appendix B. The future land use assignments for IA are summarized by subbasin in Table B-2, Appendix B.

Vegetation Cover Density – The suggested vegetation cover density (VCD) in the Design Manual and the DDMS program are used to determine this parameter. The existing land use assignments for vegetation cover density are summarized by subbasin in Table A-3, Appendix A .

Land Use Parameters

General – The watershed is subdivided into polygons of common land use elements. This study analyzes existing land use conditions and future land use conditions. The various land use categories are part of a database within ARCView. The database is attached to themes within ARCView. The themes are merged with the subbasin boundary theme to create a new theme of parameter per subbasin. The new database is used as input to the DDMS program.

Land Use Mapping – A digital map developed by Maricopa Association of Governments (MAG) based on existing land use from 1995 supplied to the FCDMC is used to determine the landuses per subbasin. A digital map supplied by the City of Phoenix (COP) is used to determine future landuses within this area.

Land Use Classification – The existing Landuse is defined as the land use as of March 2000. Future Landuse is defined as the landuse when all the developable land in the watershed has been developed using today's standards of development. The existing and future landuse classifications for the area east of 43rd Avenue were updated in the HDR hydrology. The existing and future landuse for the area west of 43rd Avenue is updated in this study. The existing landuse classifications west of 43rd Ave. are from the Maricopa Associations of Governments (MAG), shown on Exhibit 2. The future land use classifications are taken from the City of Phoenix general plan and can be found on Exhibit 5. It is important to note that the results provided in this report depend heavily on and are very sensitive to the data provided by this map. If the future development does not follow this plan (i.e. higher or lower density development than proposed by the plan), then the 100-year discharges estimated by this report are expected to change.

Composite IA and VCD Values by Landuse Classification – Composite values of IA and VCD from the Design Manual and DDMS program are used.

Land Use Classification Polygon Areas by Subbasin –The landuse classification polygons and subbasin boundaries are merged with ARCView to create a new coverage and database to provide landuse parameters for existing and future landuses. A summary of the existing landuse parameters is provided in Table A-4 in Appendix A and a summary of the future landuse parameters is provided in Table A-5 in Appendix A.

Area Weighted Rainfall Loss Parameters

The rainfall losses were averaged over each subbasin using the soils and land use parameters as described above. Each subbasin was assigned one set of loss coefficients representing average (weighted) conditions for that subbasin.

2.2.4 Unit Hydrograph Parameters

General

The Clark method is used to determine the Unit Hydrograph in this study.

Clark Unit Hydrograph

Time of Concentration - The time of concentration (T_c) for use with the Clark unit hydrograph is estimated using the Papadakis & Kazan. Solution to the Tc equation is an iterative process dependent on the average rainfall excess intensity (inches/hour) during the time Tc, and is accomplished using the MCUHP1 portion of the DDMS program. Table B-1 for existing land use and Table B-2 for future land use in Appendix B, summarize the parameter values used to calculate Tc for each Clark unit hydrograph subbasin.

Storage Coefficient – The Clark unit hydrograph storage coefficient, R, is estimated using the calculated Tc values summarized in Table B-1 and equation 5.6 of the Design Manual. The results of the R value calculations are summarized in Table B-1 for existing land use and Table B-2 for future land use in Appendix B.

Time-Area Relation – A dimensionless time-area relationship of contributing area versus travel time to subbasin outlet, is required for the Clark unit hydrograph procedure. The HEC-1 default time-area relationship is used for the subbasins. Values that summarize the time-area relations used for each subbasin can be found in Table B-1 for existing land use and Table B-2 for future land use in Appendix B

2.2.5 Reach Route Parameters

General

Routing subbasin hydrographs are performed using the normal depth option of HEC-1. Routing reach paths are shown on Hydrology Exhibit 4. An eight-point cross section is used to approximate the channel geometry for each routing reach.

Physical Parameters

Cross-Section Geometry – Channel routings for the existing land used conditions are taken from the Cella Barr study. Future channel geometries are more channelized assuming a velocity of 3 feet per second with a generic cross-section. The pre-design channel geometry for the LACC is used for that routing.

Manning's n Estimates – The Manning's n values developed for the original Cella Barr study are used for the existing land use scenarios. The future channelized flows assume a Manning's n value for a dirt or grass lined channel of .035.

Routing Reach Length and Slope – The length and slope for each routing reach from a subbasin other than the Maricopa Drain are taken from the Cella Barr study. Although future routings paths maybe changed, the same routing path as the existing model with a channelized configuration is used to increase the velocity.

Computational Parameters

General – Routing computations are accomplished using the Modified Puls channel storage routing option of HEC-1. Other hydrologic routing computations include the computation time interval and the number of routing computation steps.

Computational Time Interval – The modeling computational time interval (NMIN) directly impacts the hydrologic routing of a flood hydrograph and the minimum allowable reach length. Values of NMIN are typically selected to provide adequate definition of the unit hydrograph and should lie within the range of 0.1 to 0.25 times the minimum Tc occurring in the watershed. The smallest Tc for this watershed is .45 hours (27 minutes), resulting in a range of 2.7 to 6.75 minutes. The selected NMIN value for this analysis is 5 minutes.

Assuming an average travel velocity of 1 feet per second for existing land use conditions and 3 feet per second for future land use conditions the minimum length of the routing reach should be 300 feet and 900 feet, respectively.

Reach Route Step Estimation – Estimating the number of routing steps for input to the HEC-1 models is an iterative process. The number of routing steps for each reach may vary with the runoff duration being considered. The process for estimating the number of steps is as follows:

Step 1: An initial estimate of the number of steps (NSTPS) for each reach is made assuming an average velocity. The HEC-1 model is run using the assumed values.

Step 2: The reach travel time is calculated by subtracting the time-to-peak (Tp) at the beginning of the routing operation from the Tp at the end of the routing operation.

Step 3: The travel time from Step 2 is then divided by the computational time interval (NMIN), to obtain a check NSTPS value.

Step 4: The results from Step 3 is compared with the NSTPS value currently coded in the HEC-1 model. If the two values are not equal, the check NSTPS value is re-coded into the HEC-1 model as the new NSTPS value and the model rerun.

Step 5: Repeat Steps 2 through 4 until the current NSTPS value and the check NSTP value are equal. Convergence normally occurs within three iterations.

Summary of Routing Results – Table C-1 for existing land use and Table C-2 for future land use in Appendix C, summarize reach routing hydraulic. Data presented in those tables include average physical parameters, normal depth routing, minimum and maximum check velocities that are based on the HEC-1 calculated wave celerity relating flood wave velocity to normal depth velocity, travel time through the reaches increments of NMIN, and final NSTPS values.

2.2.6 Reservoir Route Parameters

There is one reservoir routing calculations performed in this study for the existing conditions. The reservoir was analyzed in the original Cella Barr Study and incorporated into this study. Reservoir routing for the 43rd Avenue basin, as well as the rest of the proposed CIP basins were taken from FCD's design report and the HDR report respectively.

2.3.0 Statistical Parameters

2.3.1 Precipitation Statistics

There are no statistical data of significant record length available for this watershed other than the regional precipitation data published by the National Oceanic and Atmospheric Administration (NOAA). The precipitation depth-duration-frequency statistics used for this study are derived from the NOAA Atlas 2 for Arizona. Deficiencies of the current Atlas are recognized and a revised precipitation–frequency analysis is currently in progress at the NOAA. The results of the revised Atlas may differ from the values used herein, but until the revised Atlas or an equally accepted presentation of precipitation statistics is available, the current precipitation-frequency statistics will be used.

2.3.2 Discharge Statistics

SRP maintains a recording gage on Maricopa Drain south of Baseline Road at about 75th Avenue alignment. The data from this gage is not of sufficient extent for statistical analysis.

2.4 Precipitation Data

2.4.0 Rainfall Distribution

The storm frequencies specified for analysis in this study is the 100-year 24-hour storm. The original study conducted by Cella Barr Associates analyzed both the 6-hour and 24-hour durations for the 100-year frequency. The 24-hour duration produces greater runoff values. The 100-year, 24-hour storm was also chosen to be consistent with the Area Drainage Master Plan west of 43rd Avenue conducted by HDR Engineering. The 24-hour rainfall distribution used for this study is the SCS Type II, in accordance with the requirements set forth in the Design Manual.

2.4.1 Point Precipitation Data

Point precipitation values used for this study are the values that were established for the Laveen Area Drainage Master Study. The 100 year 24 hour point precipitation value is 4.20 inches. The 5 year 2 hour point precipitation is 1.39 inches, while the 100 year 2 hour point precipitation was estimated at 2.9 inches.

2.4.2 Aerial Precipitation Reduction

The precipitation reduction factors used for the 24-hour storms are listed in the Design Manual and those values were derived from information contained in the NOAA Technical Memorandum NWS HYDRO-40 (NWS, 1984). The Maricopa County Unit Hydrograph Procedure 1 Program (MCUHP1) was applied to each watershed to determine depth/area ratio and rainfall temporal distribution used in this study.

3.0 Comparisons

General

Calibration of the HEC-1 models is not possible due to lack of available physical data. Previous studies by FCD (See Report by Boggs, 1993) indicated that due to limited availability of data for extreme storms for the SRP gage, calibration efforts proved to be inconclusive. In lieu of calibration data, indirect methods of model verification are performed and compared to the modeling results. The flows generated by the HEC-1 model are compared to the United States Geological Survey (USGS) regression equations generated for the Phoenix area. See Table D-1 in Appendix D to see the comparison values. The values for flow per area are plotted against the high and low values for the USGS curves (Figure 5).

The general trend of the values for unit flow per area for the LACC drainage area fall just below the low USGS curve. Ideally the values should lie within the high and low curves. However, due to the agriculture nature of this watershed and the rainfall losses associated with agricultural uses, one would expect to have numbers lower than those of the USGS.

4.0 Special Problems and Solutions

4.1 HEC-1 Warnings and Errors

The only warning message encountered in any of the models summarized in this report is as follows:

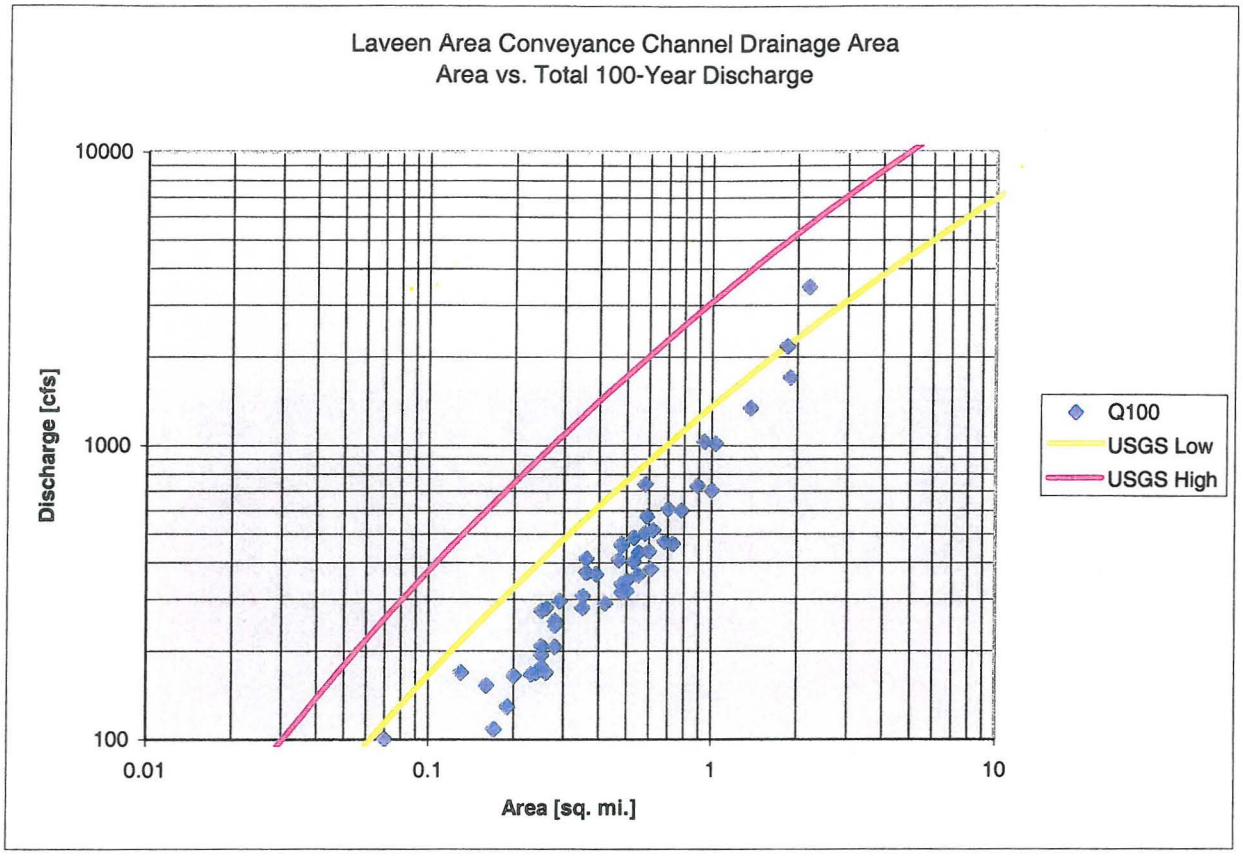
```
WARNING --- ROUTED OUTFLOW ( XXX) IS GREATER THAN MAXIMUM
OUTFLOW ( XXX) IN STORAGE-OUTFLOW TABLE.
```

The warning listed above indicates that the peak flow cannot fit in the defined cross-section. The warning does not significantly affect the attenuation of the routing. Since the area with the warning statement is within the HDR study, the cross-sections are not adjusted to eliminate the warning.

4.2 Timing of Routed Hydrographs

This watershed is very sensitive to the timing when hydrographs are routed from one point to a concentration point downstream. The routing output from the HEC-1 summary table is analyzed to determine the estimated velocity of the flow. If the velocity does not fit into a preset estimated velocity based on a Manning's equation for the cross-section and slope, the slope is adjusted to obtain a more realistic velocity. Tables C-1, C-2, and C-3, in Appendix C show the HEC-1 calculated velocities.

Figure 5



5.0 Future Condition Models

Future Condition models were developed using the Fully Developed Conditions as estimated in September 2000. It was assumed that all new development will be retaining the 100-yr 2-hr post development runoff. For design purposes, it was also assumed that the retention effectiveness would be at 80% effectiveness.

An alternative scenario assumed that the parcels adjacent to the LACC will be able to discharge directly into the proposed channel after retaining the first flush runoff. The first flush runoff was defined as the 5-yr 2-hr post development runoff.

All calculations for the Future Condition Scenarios can be found in Appendix E.

6.0 Final Results

Four HEC-1 models are developed for this study. Two models simulate existing land use conditions and two models simulate future land use conditions. The two existing land use models are the same except the second model adds the proposed detention basin at 43rd Avenue and Southern Avenue. The two future land use models are similar except that the second model allows for relaxed retention basin volumes for developments adjacent to the Laveen Area Conveyance Channel.

The results for specific concentration points along the Laveen Area Conveyance Channel of the four models are found in Table 2.

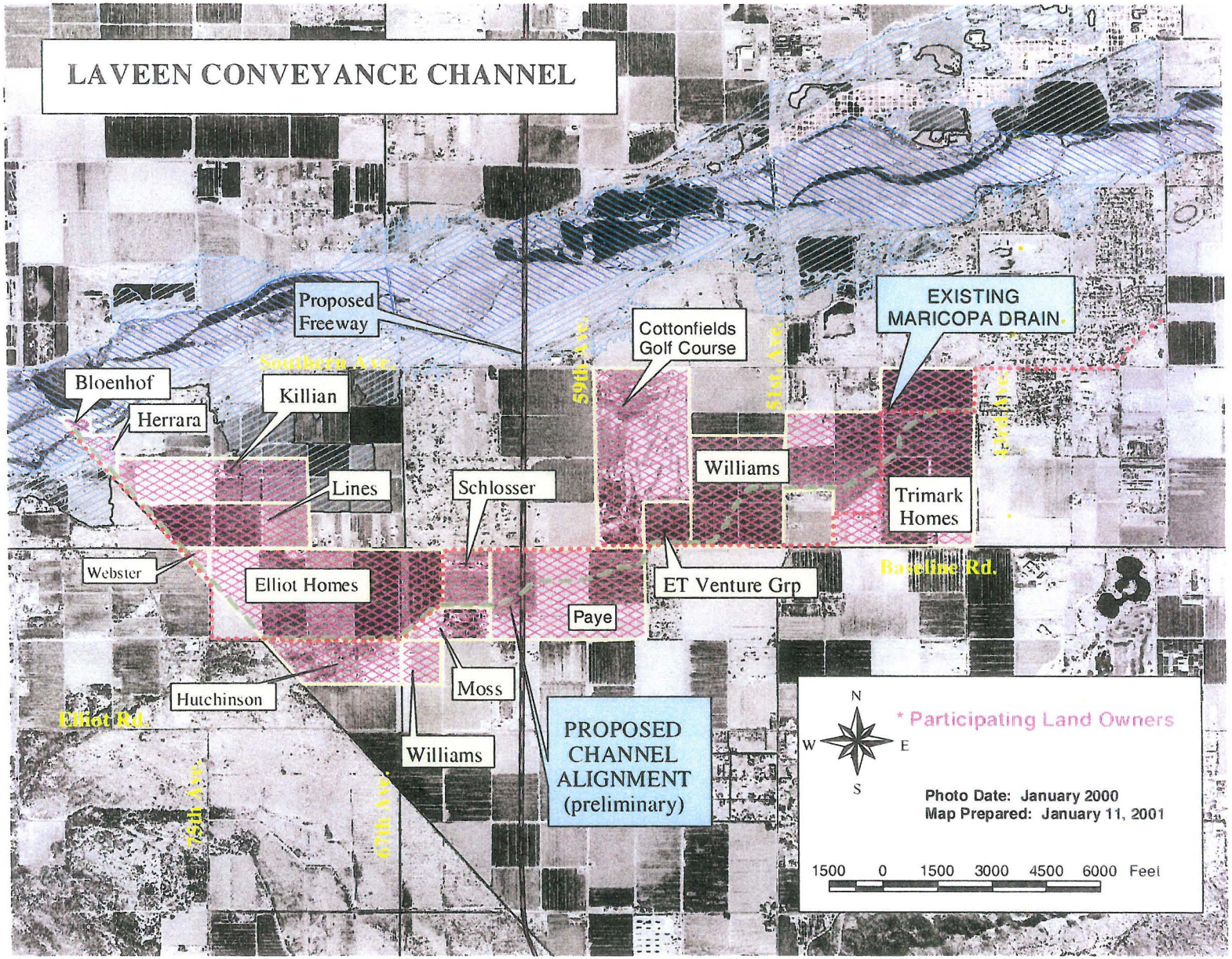
TABLE 2

Flows along the Laveen Area Conveyance Channel

Study	**Maricopa Drain 43rd Ave.** (MD43)	**Maricopa Drain @ 47th Ave.** (CVR47C)	**@51st Ave.** (CB51C)	**@ 59th Ave. (north & south)** (CB59)	**@63rd Ave.** (CB163C)	**@75th Ave.** (CCD2C2)	**@ Salt River** (CPCD3C)
Existing Land Use	1900	1880	2120	2980	3250	3420	3400
Existing Land Use w/ 43rd Ave. detention basin	990	990	1360	2200	2500	2810	2880
Future Land Use w/ ret 100yr 2hr	0	110	240	1640	1720	2030	2000
Future Land Use w/relaxed ret (first flush of 5yr 2hr vol retained)	0	160	280	1640	1780	2190	2120
Design Q	**990**	**990**	**1360**	**2200**	**2500**	**2810**	**2880**

20-Nov-02

Figure 6


LAVEEN CONVEYANCE CHANNEL
Proposed Freeway
Southern Ave.
Bloenhof
Herrara
Killian
Lines
Schlosser
Cottonfields Golf Course
59th Ave.
51st Ave.
EXISTING MARICOPA DRAIN
Williams
Trimark Homes
Baseline Rd.
Webster
Elliot Homes
ET Venture Grp
Paye
Moss
Hutchinson
Elliot Rd.
Williams
PROPOSED CHANNEL ALIGNMENT (preliminary)
75th Ave.
67th Ave.
N
W
E
S
* Participating Land Owners
Photo Date: January 2000
Map Prepared: January 11, 2001
1500 0 1500 3000 4500 6000 Feet

EXHIBITS

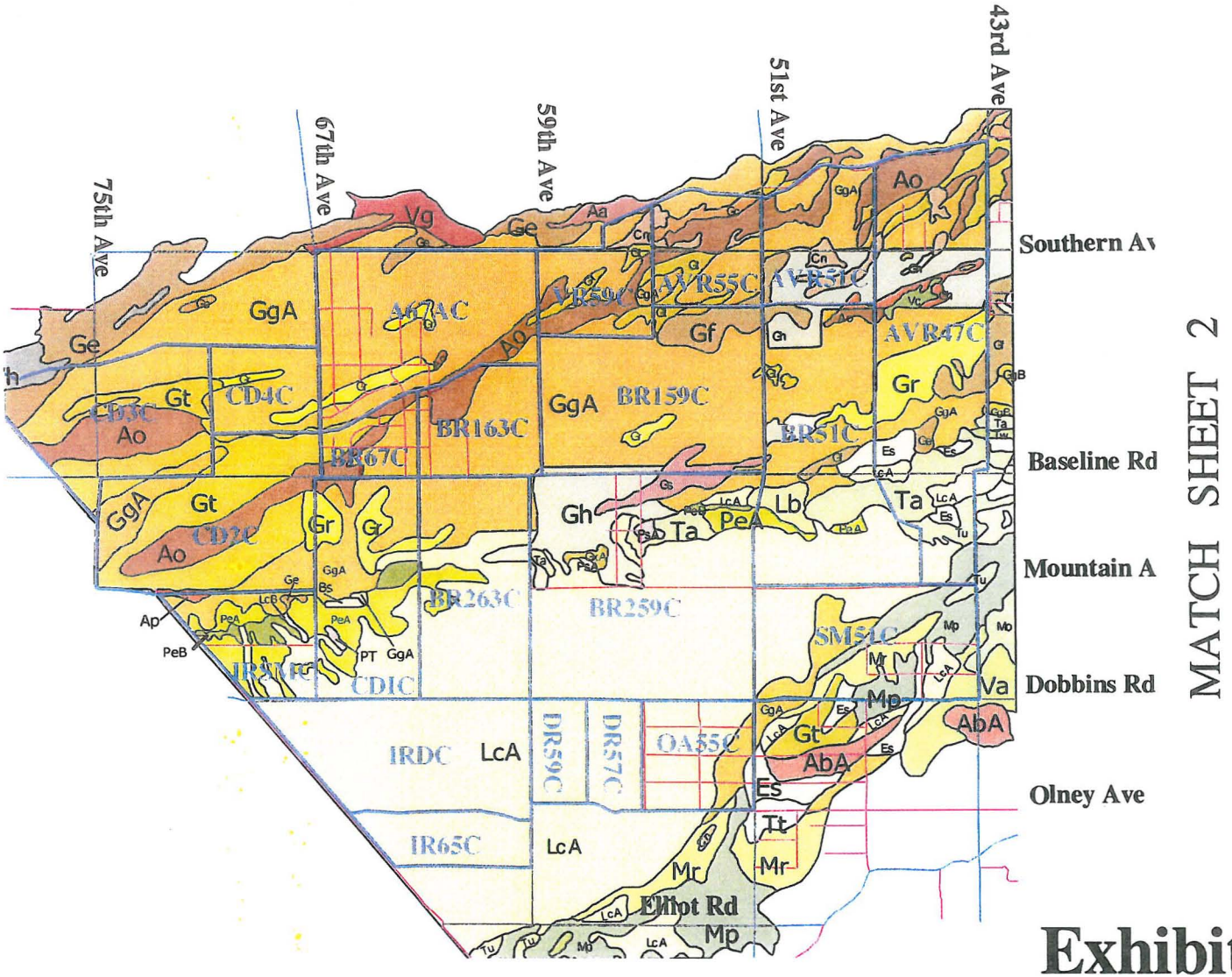
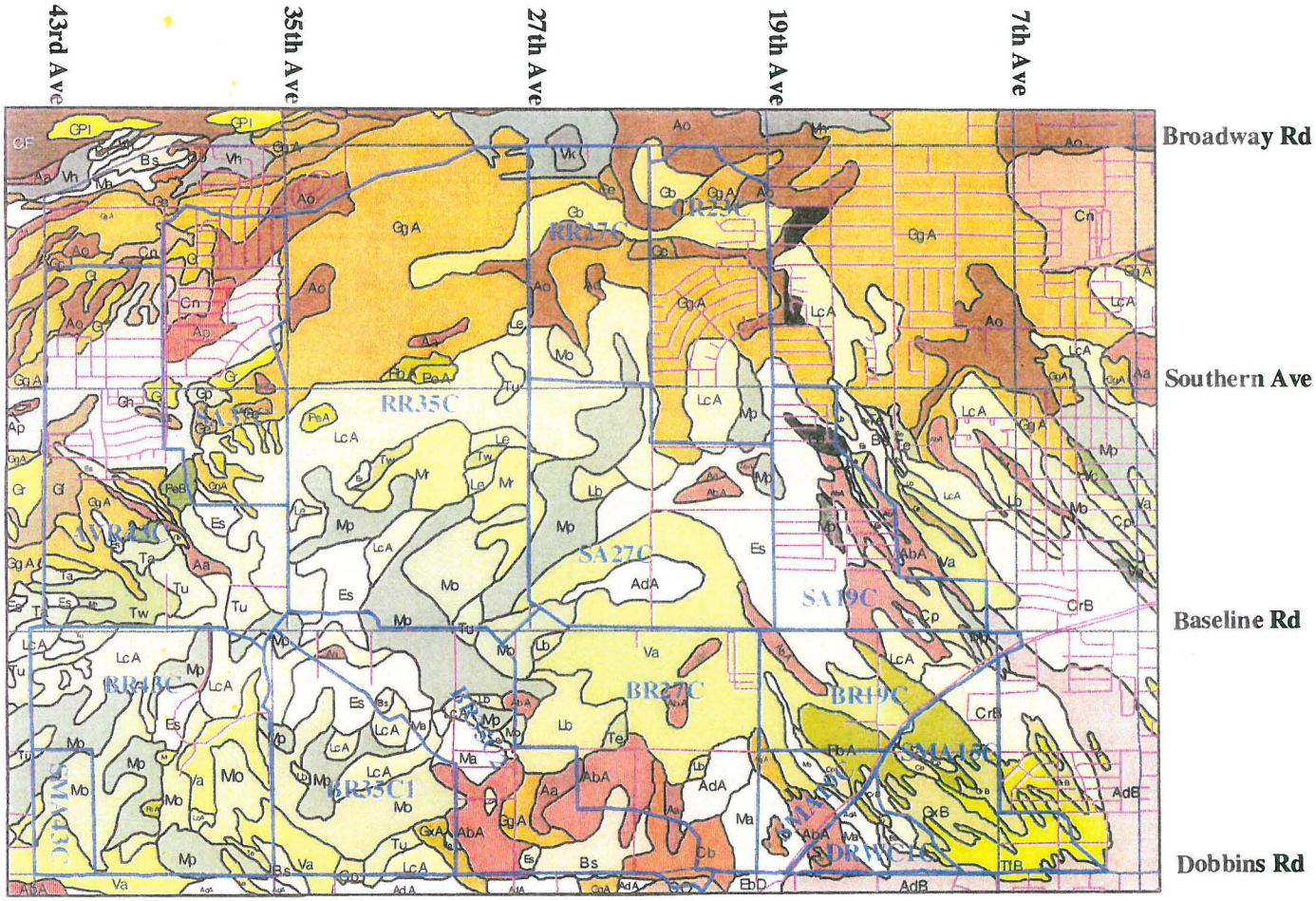


Exhibit 1

LAVEEN AREA CONVEYANCE CHANNEL SOILS MAP (Western Area)			Horiz. 1"=3500'
Flood Control District of Maricopa County	2801 W. Durango St. Phoenix, AZ 85009 (602) 506-1501	SHT. 1 OF 3	Date: March 2001

MATCH SHEET 1



MATCH SHEET 3

Exhibit 1

LAVEEN AREA CONVEYANCE CHANNEL SOILS MAP (Northeast Area)			Horiz. 1"=3500'
Flood Control District of Maricopa County	2801 W. Durango St. Phoenix, AZ 85009 (602) 506-1501	SHT. 2 OF 3	Date: March 2001

1000 0 1000 2000 3000 4000 5000 Feet

MATCH SHEET 2

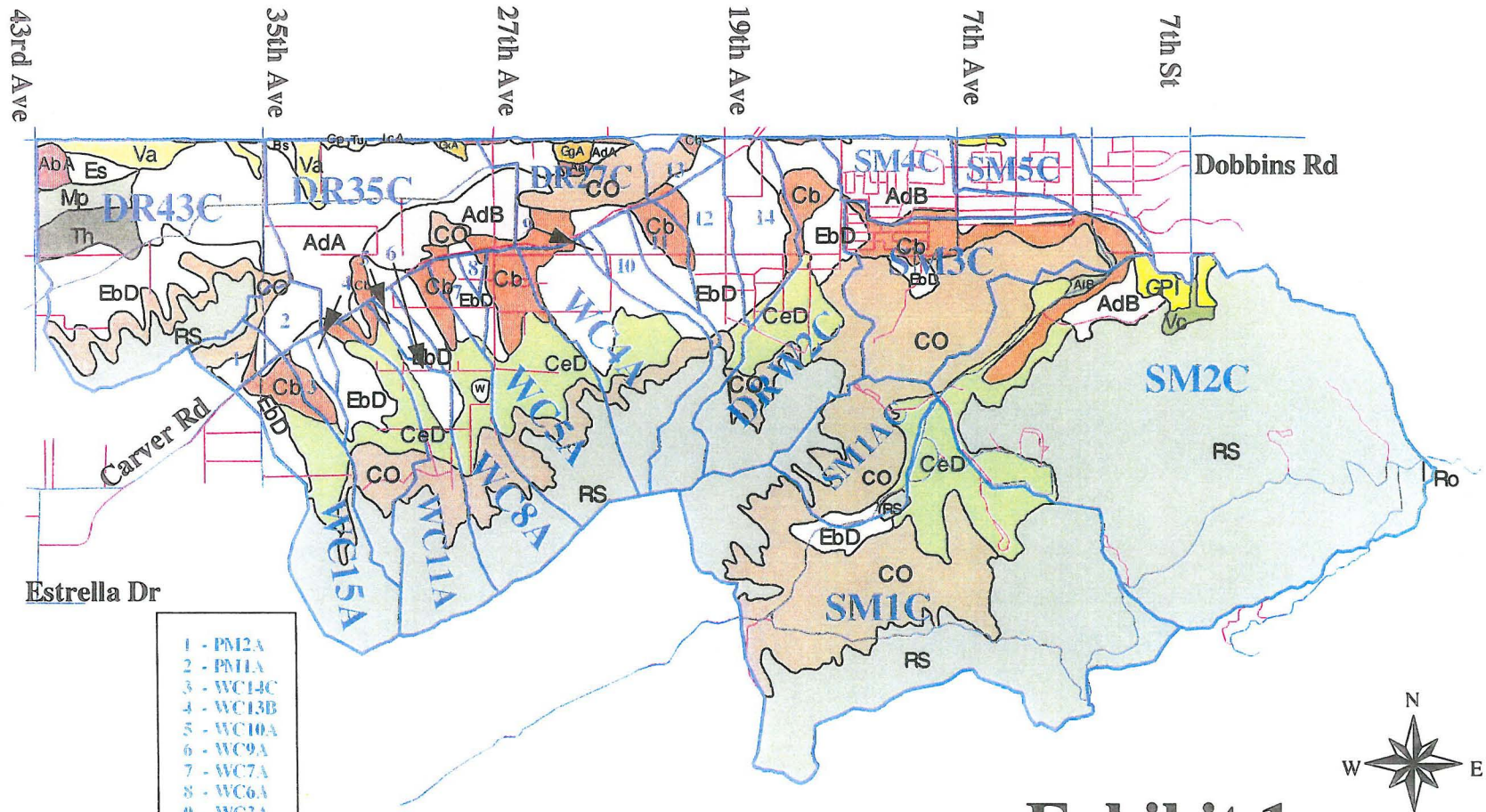


Exhibit 1

LAVEEN AREA CONVEYANCE CHANNEL SOILS MAP (Southern Area)			Horiz. 1"=3500'
Flood Control District of Maricopa County	2801 W. Durango St. Phoenix, AZ 85009 (602) 506-1501	SHT. 3 / OF 3	Date: March 2001

1000 0 1000 2000 3000 4000 5000 6000 7000 8000 Feet

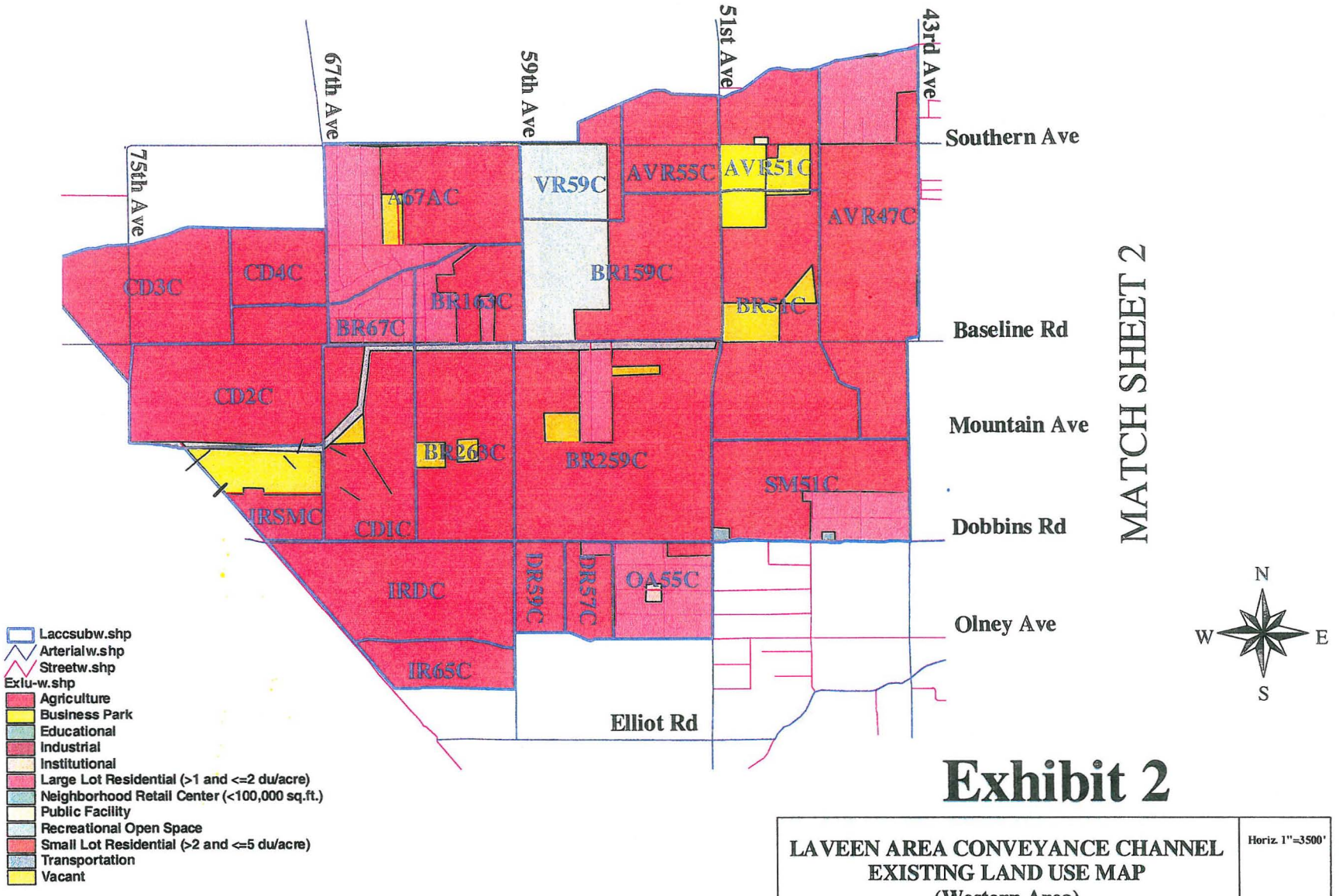


Exhibit 2

LAVEEN AREA CONVEYANCE CHANNEL EXISTING LAND USE MAP (Western Area)			Horiz. 1"=3500'
Flood Control District of Maricopa County	2801 W. Durango St. Phoenix, AZ 85009 (602) 506-1501	SHT. 1 OF 3	Date: March 2001

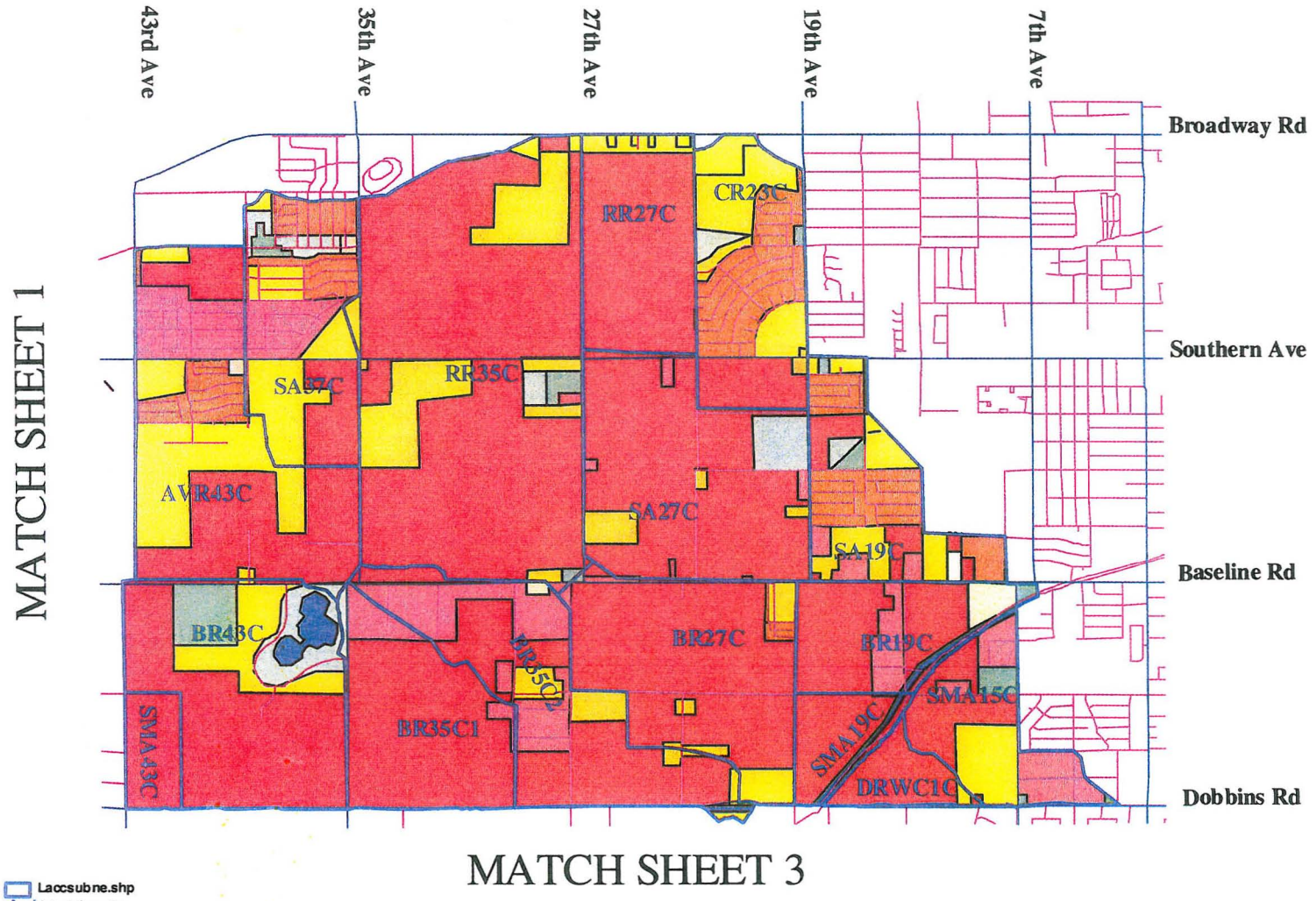


Exhibit 2

Laccsubne.shp
Arterialne.shp
Streetne.shp
Exlu-neclip.shp
- Agriculture
- Business Park
- Community Retail Center (100,000 to 500,000 sq.ft.)
- Educational
- Institutional
- Large Lot Residential (>1 and <=2 du/acre)
- Medium Density Residential (>5 and <=15 du/acre)
- Neighborhood Retail Center (<100,000 sq.ft.)
- Public Facility
- Recreational Open Space
- Rural (1 dwelling unit per acre or less)
- Small Lot Residential (>2 and <=5 du/acre)
- Vacant
- Warehouse/Distribution Center
- Water

1000 0 1000 2000 3000 4000 5000 Feet

LAVEEN AREA CONVEYANCE CHANNEL EXISTING LAND USE MAP (Northeastern Area)			Horiz. 1"=3500'
Flood Control District of Maricopa County	2801 W. Durango St. Phoenix, AZ 85009 (602) 506-1501	SHT. 2 OF 3	Date: March 2001

MATCH SHEET 2

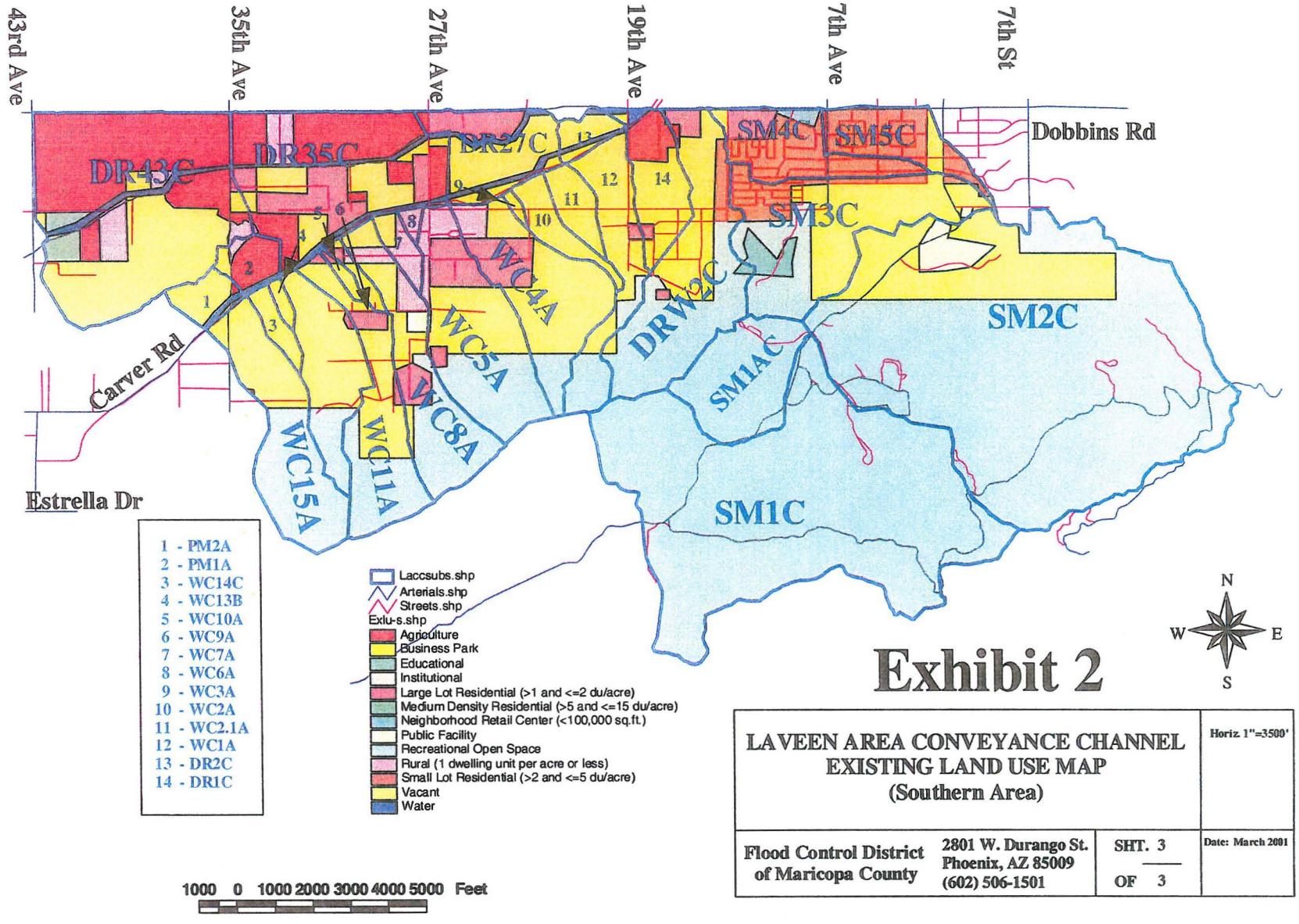
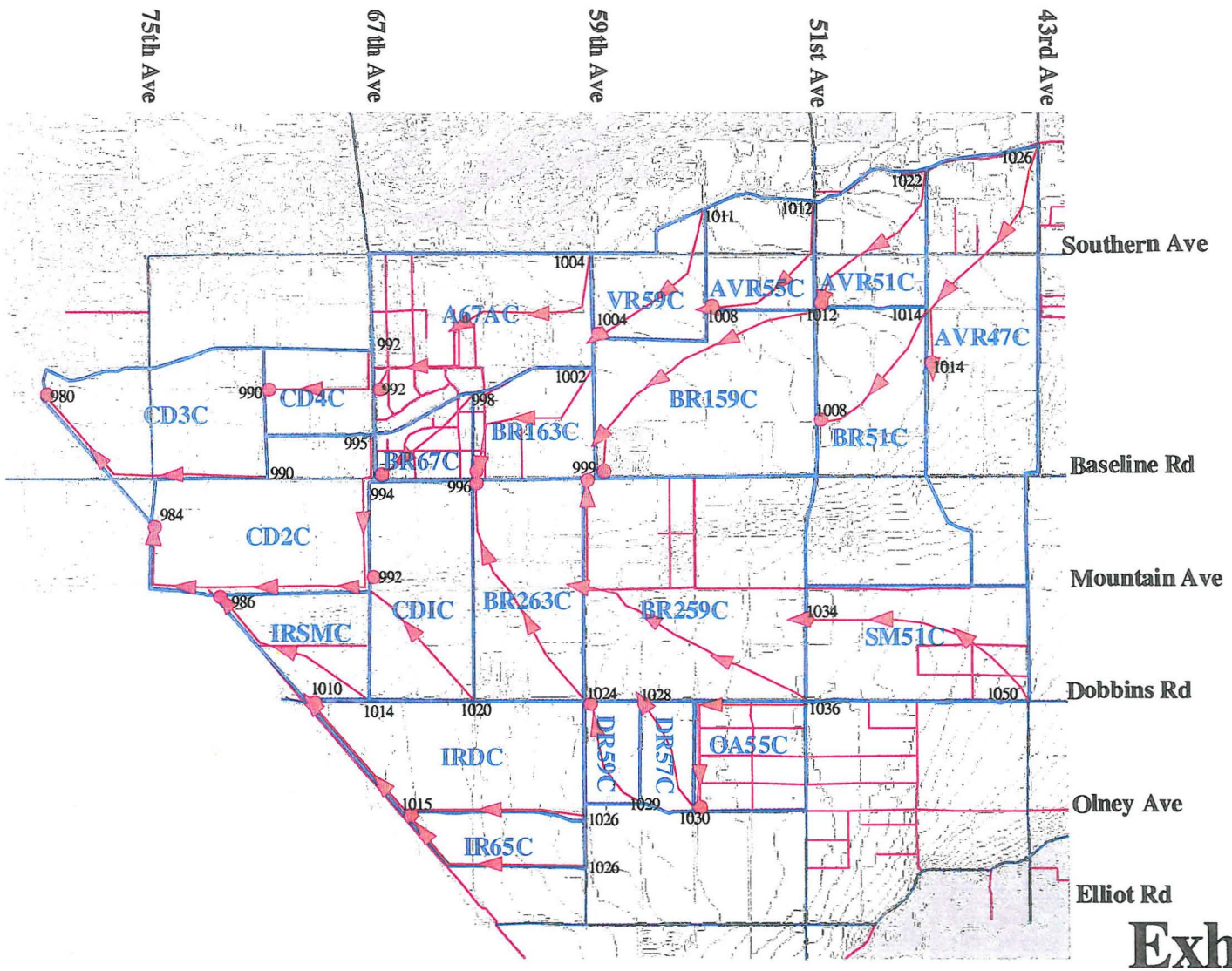


Exhibit 2

LAVEEN AREA CONVEYANCE CHANNEL EXISTING LAND USE MAP (Southern Area)			Horiz. 1"=3500'
Flood Control District of Maricopa County	2801 W. Durango St. Phoenix, AZ 85009 (602) 506-1501	SHT. 3 OF 3	Date: March 2001



MATCH SHEET 2

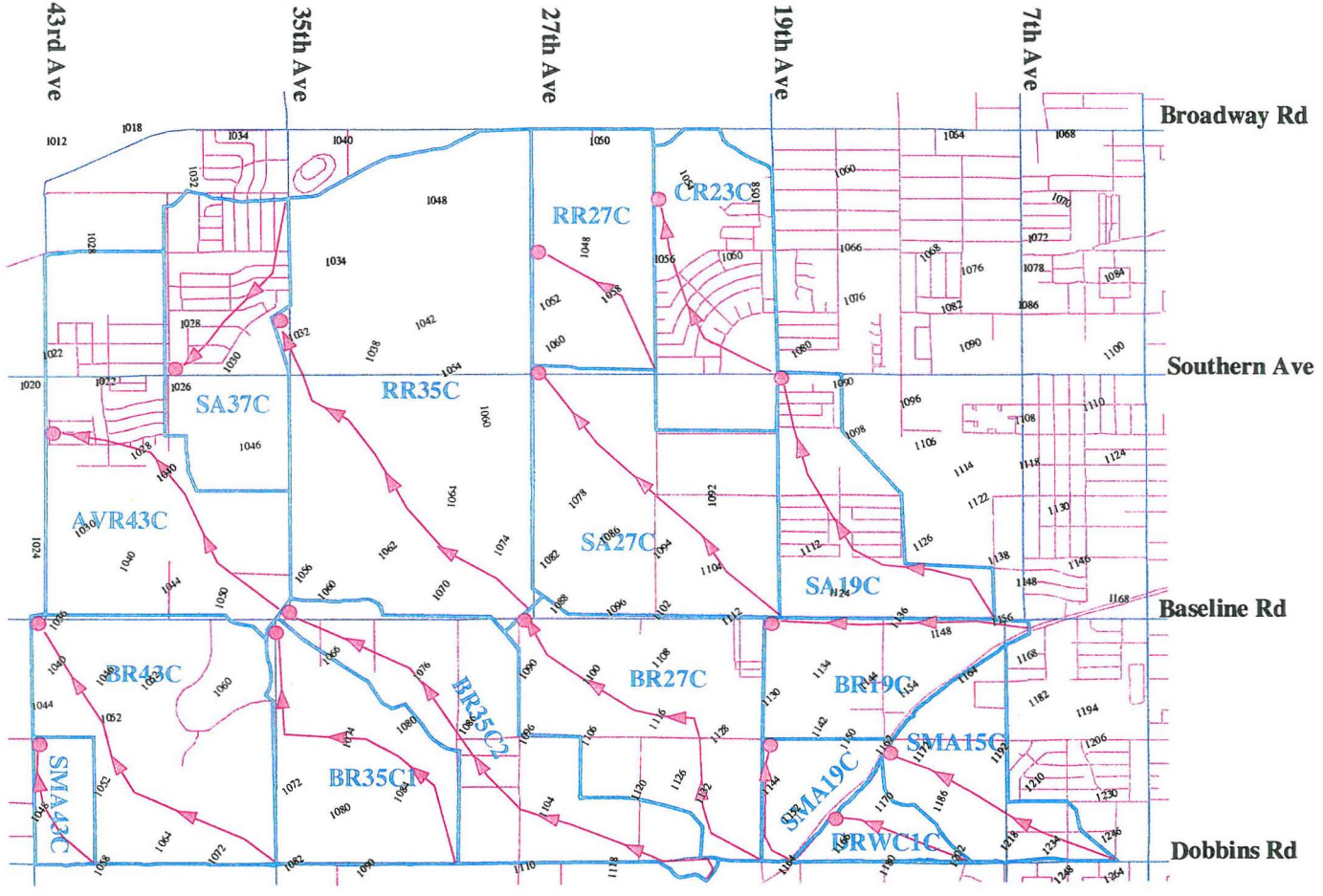
Exhibit 3

N
W E
S

1000 0 1000 2000 3000 4000 5000 Feet

LAVEEN AREA CONVEYANCE CHANNEL SUBBASIN MAP, FLOWPATHS AND OUTLET POINTS (Western Area)			Horiz. 1"=3500'
Flood Control District of Maricopa County	2801 W. Durango St. Phoenix, AZ 85009 (602) 506-1501	SHT. 1 OF 3	Date: March 2001

MATCH SHEET 1



MATCH SHEET 3

Exhibit 3

LAVEEN AREA CONVEYANCE CHANNEL SUBBASIN MAP, FLOWPATHS AND OUTLET POINTS (Northeast Area)			Horiz. 1"=3500'
Flood Control District of Maricopa County	2801 W. Durango St. Phoenix, AZ 85009 (602) 506-1501	SHT. 2 OF 3	Date: March 2001

1000 0 1000 2000 3000 4000 5000 Feet

N W E S

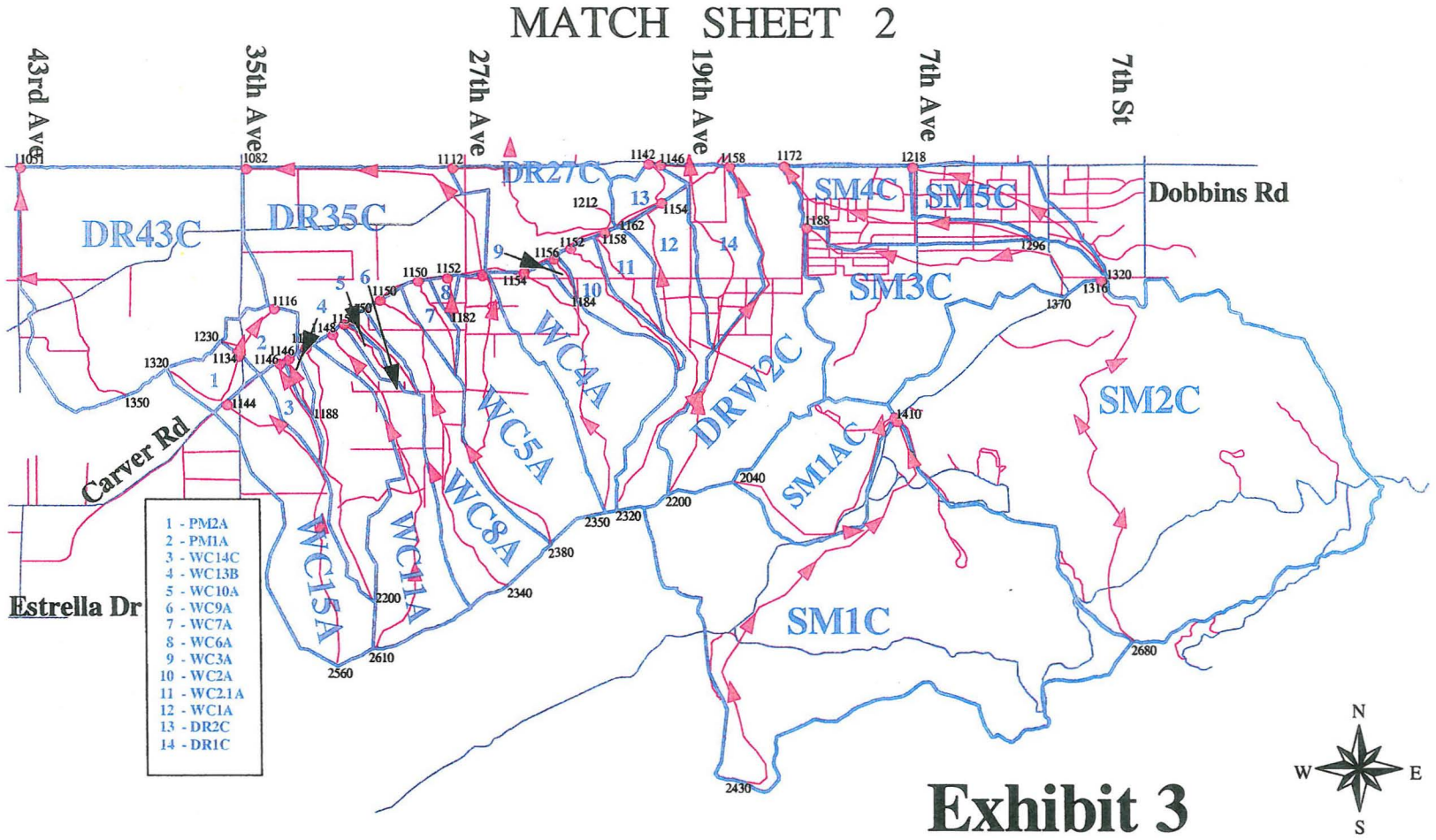
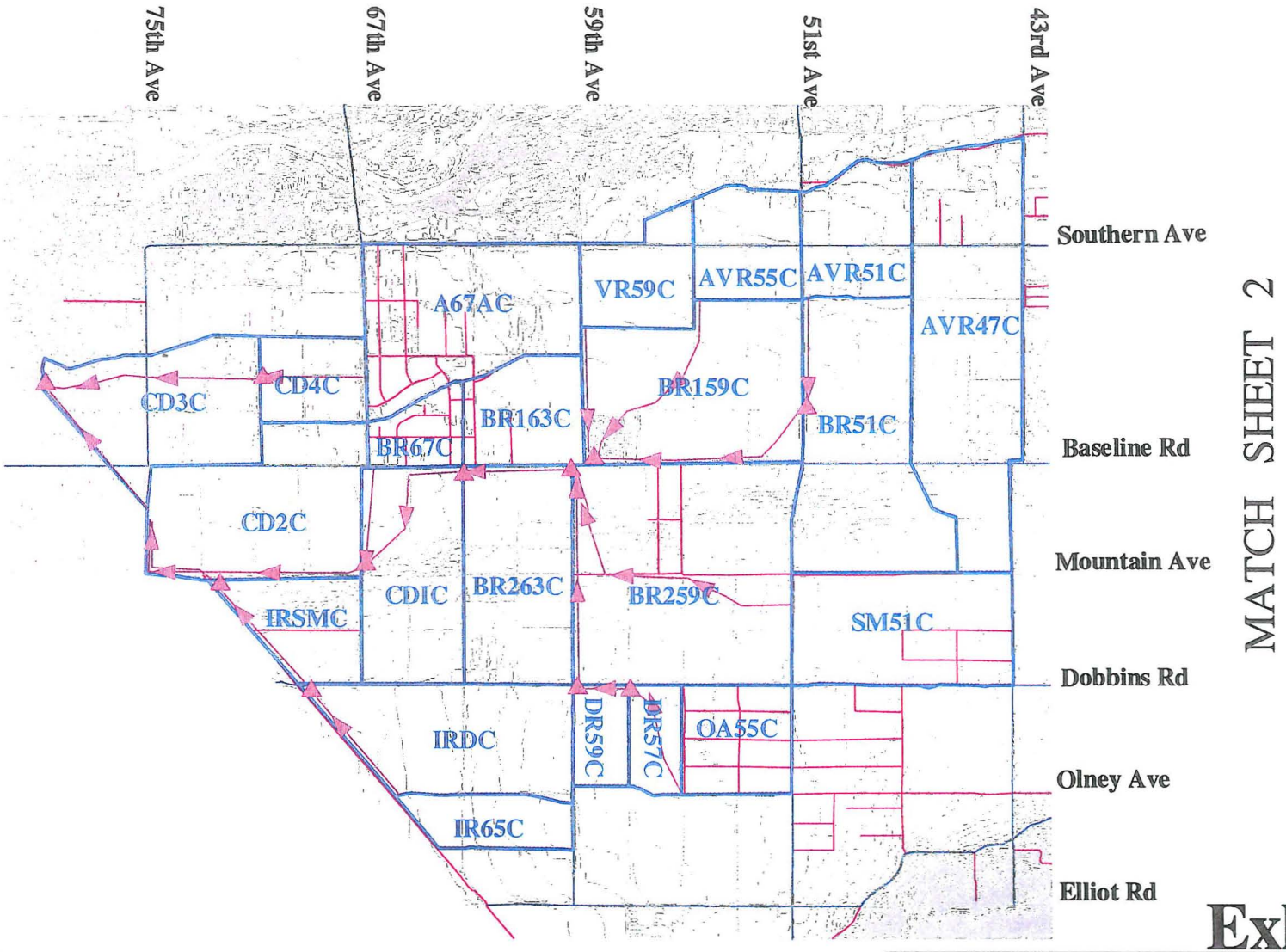


Exhibit 3

LAVEEN AREA CONVEYANCE CHANNEL SUBBASIN MAP, FLOWPATHS AND OUTLET POINTS (Sourthern Area)			Horiz. 1"=3500'
Flood Control District of Maricopa County	2801 W. Durango St. Phoenix, AZ 85009 (602) 506-1501	SHT. 3 OF 3	Date: March 2001

1000 0 1000 2000 3000 4000 5000 Feet



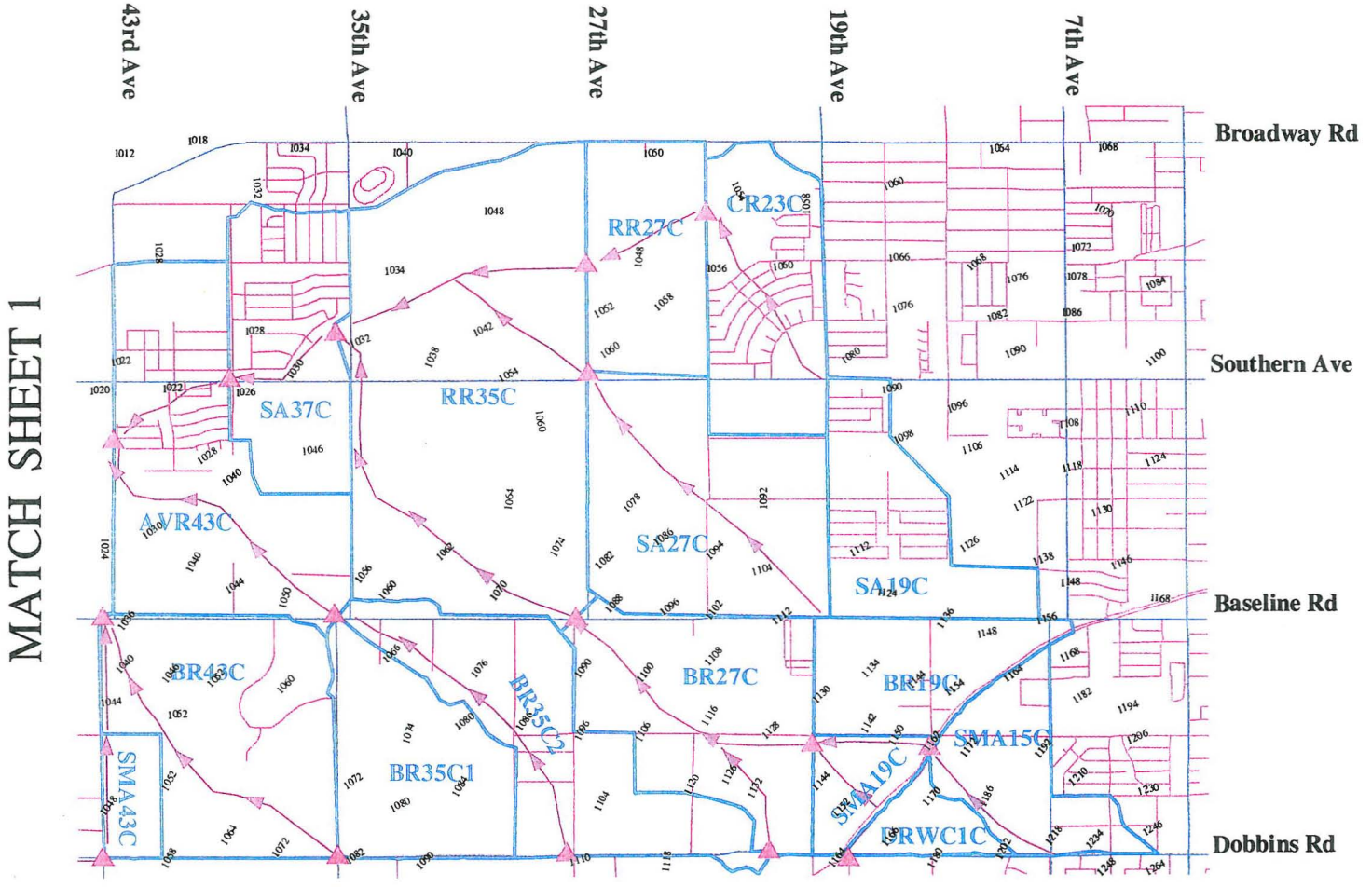
MATCH SHEET 2

Exhibit 4

N
W E
S

1000 0 1000 2000 3000 4000 5000 Feet

LAVEEN AREA CONVEYANCE CHANNEL ROUTING PATH (Western Area)			Horiz. 1"=3500'
Flood Control District of Maricopa County	2801 W. Durango St. Phoenix, AZ 85009 (602) 506-1501	SHT. 1 OF 3	Date: March 2001



N
W E
S

Exhibit 4

1000 0 1000 2000 3000 4000 5000 Feet

LAVEEN AREA CONVEYANCE CHANNEL ROUTING PATH (Northeast Area)			Horiz 1"=3500'
Flood Control District of Maricopa County	2801 W. Durango St. Phoenix, AZ 85009 (602) 506-1501	SHT. 2 OF 3	Date: March 2001

MATCH SHEET 2

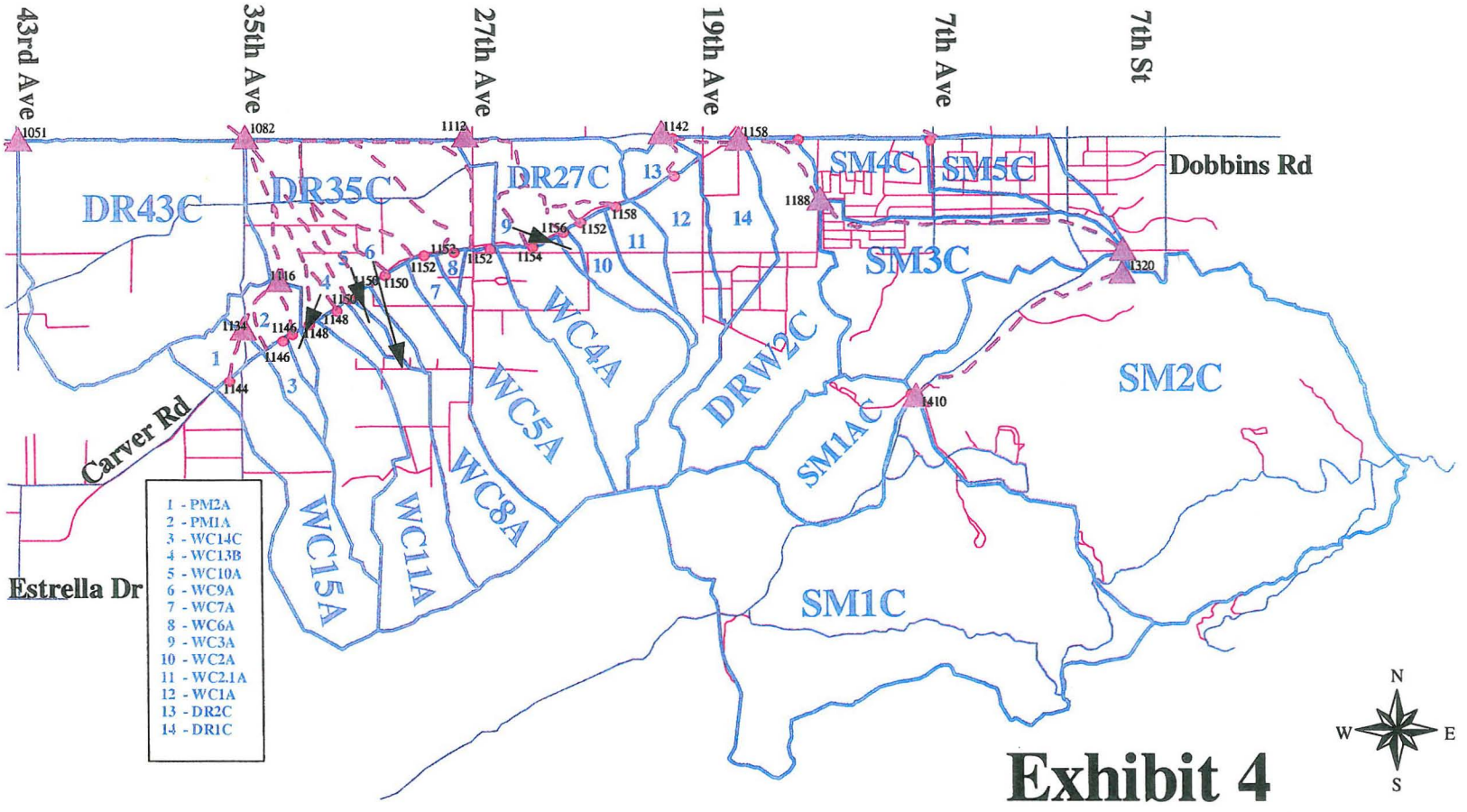


Exhibit 4

LAVEEN AREA CONVEYANCE CHANNEL ROUTING PATH (Southern Area)			Horiz. 1"=3500'
Flood Control District of Maricopa County	2801 W. Durango St. Phoenix, AZ 85009 (602) 506-1501	SHT. 3 / OF 3	Date: March 2001

1000 0 1000 2000 3000 4000 5000 Feet

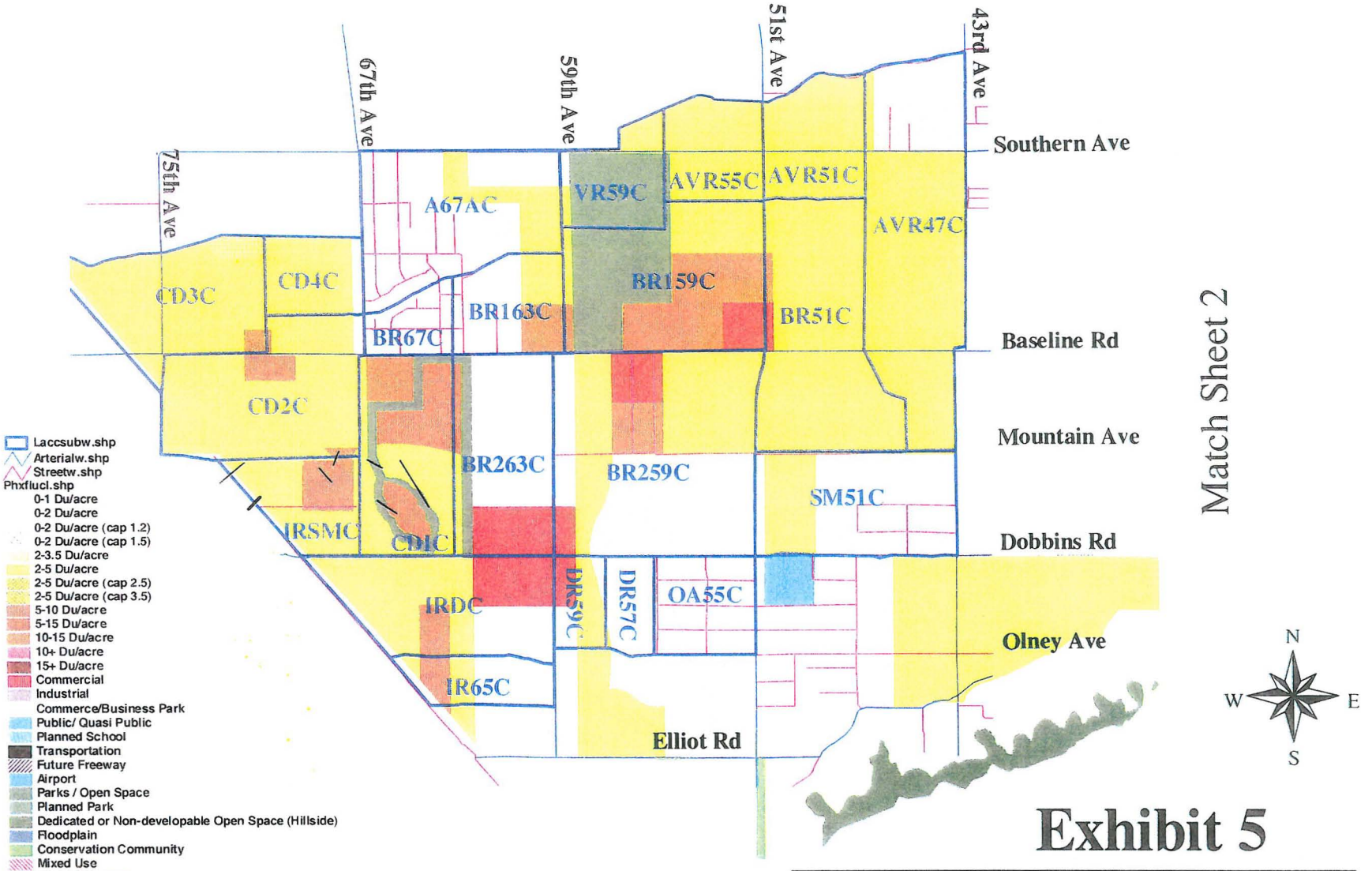


Exhibit 5

LAVEEN AREA CONVEYANCE CHANNEL FUTURE LAND USE MAP (Western Area)			Horiz. 1"=3500'
Flood Control District of Maricopa County	2801 W. Durango St. Phoenix, AZ 85009 (602) 506-1501	SHT. 1 OF 1	Date: March 2001

APPENDIX A

RAINFALL LOSS PARAMETERS

LIST OF TABLES

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TABLE A-1

Composite Values of PSIF and DTHETA as a function of XKSAT

XKSAT in/hr	DTHETA Dry	DTHETA Normal	PSIF inches
0.01	0.150	0.050	12.400
0.05	0.269	0.150	8.800
0.10	0.345	0.150	7.000
0.15	0.400	0.250	6.000
0.20	0.371	0.250	5.300
0.25	0.350	0.250	4.800
0.30	0.350	0.250	4.500
0.35	0.350	0.250	4.250
0.40	0.350	0.250	3.950
0.45	0.350	0.255	3.775
0.50	0.350	0.259	3.600
0.55	0.350	0.264	3.475
0.60	0.350	0.267	3.350
0.65	0.350	0.271	3.250
0.70	0.350	0.274	3.150
0.75	0.350	0.277	3.050
0.80	0.350	0.280	2.950
0.85	0.350	0.283	2.875
0.90	0.350	0.286	2.800
0.95	0.350	0.289	2.725
1.00	0.350	0.291	2.650
1.05	0.350	0.293	2.600
1.10	0.350	0.296	2.550
1.15	0.350	0.298	2.500
1.20	0.350	0.300	2.450

Note:
The values in this table are taken from Figure 4.3 of the FCDMC Drainage Design Manual.

TABLE A-2

IA, RTIMP, and Percent Vegetation Cover For Representative Land Uses in Maricopa County

Land Use Type		DTHETA condition	% Veg cover	RTIMP%	IA (in.)	Kn	Kb Type
Desert		DRY	25	0	0.35	0.03	Low
Rural		NORMAL	30	5	0.30	0.05	Low
Large Lot Residential		NORMAL	50	15	0.30	0.05	Low
Small Lot Residential		NORMAL	50	30	0.25	0.05	Low
Medium Density Residential		NORMAL	50	45	0.25	0.05	Low
High Density Residential		NORMAL	50	45	0.10	0.02	Min
Neighborhood Retail		NORMAL	75	80	0.10	0.02	Min
Commercial Retail		NORMAL	75	80	0.10	0.02	Min
Regional Retail		NORMAL	75	80	0.10	0.02	Min
Hotel		NORMAL	75	80	0.10	0.02	Min
Warehouse		NORMAL	75	80	0.10	0.03	Min
Industrial		NORMAL	60	55	0.15	0.03	Min
Business Park		NORMAL	75	80	0.10	0.02	Min
Office		NORMAL	75	80	0.10	0.02	Min
Education		NORMAL	80	45	0.29	0.05	Hi
Institutional		NORMAL	75	80	0.10	0.02	Min
Public Facility		NORMAL	75	80	0.10	0.02	Min
Transportation		NORMAL	75	80	0.10	0.02	Min
Airport		NORMAL	60	55	0.15	0.03	Min
Recreation – Open Space		NORMAL	90	0	0.10	0.10	Hi
Water		WET	0	0	0.00	1.00	Hi
Agriculture – Orchard		NORMAL	90	0	0.50	0.10	Hi
Agriculture – Row Crops		NORMAL	85	0	0.50	0.10	Hi
Mixed Use		NORMAL	75	80	0.10	0.02	Min
Vacant		DRY	10	0	0.35	0.09	Hi

TABLE A-3

Laveen Future Land Use Conditions Area
(Area West of 43rd Ave.)
Soils Information

Subbasin	Soil Type	Acres	Total Area (acres)	Total Area (sq.mi)
a67ac	Ao	20.509		
a67ac	Ao	1.761		
			22.27	
a67ac	Ge	5.191		
a67ac	GgA	326.983		
a67ac	GgA	7.856		
			334.839	
a67ac	Gr	8.738		
a67ac	Gr	21.499		
			30.237	
a67ac	Gt	0.935		
a67ac	Gt	1.637		
			2.572	
a67ac	Vg	0.378		
		395.487		0.62
avr51c	Ao	9.94		
avr51c	Ao	21.106		
			31.046	
avr51c	Ap	1.441		
avr51c	Cn	0.052		
avr51c	Cn	13.13		
avr51c	Cn	8.402		
			21.584	
avr51c	Gc	0.045		
avr51c	Gf	8.475		
avr51c	GgA	57.274		
avr51c	GgA	16.92		
			74.194	
avr51c	Gh	45.789		
		182.574		0.29

TABLE A-3

Subbasin	Soil Type	Acres	Total Area (acres)	Total Area (sq.mi)
avr55c	Aa	0.007		
avr55c	Ao	34.525		
avr55c	Cn	8.475		
avr55c	Cn	2.688		
			11.163	
avr55c	Gc	15.075		
avr55c	Gf	3.11		
avr55c	GgA	61.252		
avr55c	GgA	7.641		
avr55c	GgA	0.001		
			68.894	
avr55c	Gt	0.195		
avr55c	Gt	21.341		
			21.536	
		154.31		0.24
br159c	Gf	38.852		
br159c	GgA	0.069		
br159c	GgA	2.402		
br159c	GgA	349.679		
			352.15	
br159c	Gh	11.548		
br159c	Gr	8.7		
br159c	Gs	14.121		
br159c	Gt	5.616		
br159c	Gt	0.774		
			6.39	
		431.761		0.67
br163c	Ao	24.782		
br163c	GgA	137.796		
br163c	Gh	0.372		
		162.95		0.25

TABLE A-3

Subbasin	Soil Type	Acres	Total Area (acres)	Total Area (sq.mi)
br259c	GgA	22.86		
br259c	Gh	114.623		
br259c	Gs	24.478		
br259c	GxA	6.337		
br259c	Lb	2.281		
br259c	LcA	7.67		
br259c	LcA	418.291		
			425.961	
br259c	PeA	11.824		
br259c	PeB	3.826		
br259c	PsA	5.385		
br259c	PsA	1.839		
			7.224	
br259c	Ta	23.968		
br259c	Ta	4.045		
			28.013	
		647.427		1.01
br263c	GgA	84.004		
br263c	Gh	8.037		
br263c	Gr	4.941		
br263c	LcA	200.273		
br263c	PeA	18.493		
br263c	PeB	0.279		
br263c	Ta	0.003		
		316.03		0.49

TABLE A-3

Subbasin	Soil Type	Acres	Total Area (acres)	Total Area (sq.mi)
br51c	Ao	6.362		
br51c	Ap	1.738		
br51c	Es	8.666		
br51c	Es	8.671		
			17.337	
br51c	Gf	8.923		
br51c	Gf	7.486		
			16.409	
br51c	GgA	165.86		
br51c	Gh	24.013		
br51c	Gh	5.688		
			29.701	
br51c	Gr	10.696		
br51c	Gs	0.442		
br51c	Gt	2.683		
br51c	Gt	2.121		
			4.804	
br51c	Lb	21.741		
br51c	LcA	4.072		
br51c	LcA	121.408		
			125.48	
br51c	PeA	8.216		
br51c	PeA	4.676		
			12.892	
br51c	Ta	30.921		
br51c	Tu	2.833		
			33.754	
		447.216		0.70
br67c	Ao	7.737		
br67c	Ao	15.53		
			23.267	
br67c	GgA	0		
br67c	GgA	39.883		
			39.883	
br67c	Gt	18.443		
		81.593		0.13

TABLE A-3

Subbasin	Soil Type	Acres	Total Area (acres)	Total Area (sq.mi)
cd2c	37	1.313		
cd2c	Ao	73.904		
cd2c	Ap	2.709		
cd2c	GgA	4.78		
cd2c	GgA	32.131		
cd2c	GgA	47.174	84.085	
cd2c	Gr	8.712		
cd2c	Gt	212.009		
		382.732		0.60
cd3c	Ao	76.117		
cd3c	Ge	22.504		
cd3c	GgA	99.309		
cd3c	GgA	9.443		
			108.752	
cd3c	Gt	34.804		
cd3c	Gt	52.366		
			87.17	
cd3c	Vh	12.942		
		307.485		0.48
cd4c	GgA	105.557		
cd4c	Gr	7.146		
cd4c	Gr	6.216		
			13.362	
cd4c	Gt	1.673		
cd4c	Gt	0.926		
			2.599	
		121.518		0.19

TABLE A-3

Subbasin	Soil Type	Acres	Total Area (acres)	Total Area (sq.mi)
cdic	Ao	7.543		
cdic	Bs	3.838		
cdic	GgA	86.274		
cdic	Gr	26.406		
cdic	Gr	14.291		
			40.697	
cdic	LcA	89.978		
cdic	LcA	1.754	91.732	
cdic	PeA	50.692		
cdic	PeA	2.912		
			53.604	
cdic	PeB	10.305		
cdic	PT	2.736		
		296.729		0.46
dr43c	AbA	15.503		
dr43c	AdA	145.34		
dr43c	Bs	0.095		
dr43c	CO	69.354		
dr43c	EbD	135.579		
dr43c	Es	17.704		
dr43c	Mo	0.186		
dr43c	Mp	1.98		
dr43c	Mp	32.839		
			34.819	
dr43c	RS	85.61		
dr43c	Th	47.796		
dr43c	Va	32.424		
dr43c	Va	5.304		
			37.728	
		589.714		0.92

TABLE A-3

Subbasin	Soil Type	Acres	Total Area (acres)	Total Area (sq.mi)
dr57c	LcA	75.586		0.12
dr59c	LcA	74.942		0.12
er55b	Cn	2.552		
er55b	GgA	1.492		
er55b	LcA	37.542		
er55b	LcA	7.204		
			44.746	
er55b	Mp	68.019		
er55b	Mr	33.999		
er55b	Mr	9.608		
			43.607	
er55b	Tt	3.183		
		163.599		0.26
er59b	LcA	142.178		
er59b	LcA	8.479		
er59b	LcA	0.021		
			150.678	
er59b	Mp	5.507		
er59b	Mr	9.815		
		166		0.26
ir63b	LcA	79.592		
ir65c	LcA	108.637		
irdc	LcA	335.443		
			523.672	
irdc	PeA	0.052		
irdc	PeA	0.258		
			0.31	
		523.982		0.82

TABLE A-3

Subbasin	Soil Type	Acres	Total Area (acres)	Total Area (sq.mi)
irsmc	Ap	3.269		
irsmc	Ge	2.056		
irsmc	GgA	31.039		
irsmc	LcA	35.183		
irsmc	LcB	2.643		
irsmc	PeA	10.399		
irsmc	PeA	33.19		
irsmc	PeA	19.077		
irsmc	PeA	2.274		
			64.94	
irsmc	PeB	11.05		
irsmc	PeB	4.291		
			15.341	
		154.471		0.24
oa51b	AbA	12.044		
oa51b	AbA	35.904		
oa51b	AbA	6.067		
oa51b	AbA	16.151		
oa51b	AbA	0.075		
			70.241	
oa51b	CO	70.451		
oa51b	CO	4.892		
			75.343	
oa51b	Cp	9.206		
oa51b	Cp	40.934		
			50.14	
oa51b	EbD	162.838		
oa51b	Es	12.169		
oa51b	Es	6.867		
oa51b	Es	27.218		
			46.254	
oa51b	GgA	14.009		
oa51b	GgA	15.581		
			29.59	
oa51b	Gt	34.122		

TABLE A-3

Subbasin	Soil Type	Acres	Total Area (acres)	Total Area (sq.mi)
oa51b	LcA	4.421		
oa51b	LcA	7.977		
oa51b	LcA	8.06		
oa51b	LcA	26.056		
			46.514	
oa51b	Mo	3.349		
oa51b	Mp	9.904		
oa51b	Mp	4.342		
oa51b	Mp	13.12		
			27.366	
oa51b	Mr	3.553		
oa51b	Mr	49.093		
			52.646	
oa51b	RS	85.944		
oa51b	RS	4.391		
			90.335	
oa51b	Te	3.753		
oa51b	Tg	11.839		
oa51b	Th	123.933		
oa51b	Tt	19.227		
oa51b	Va	33.934		
oa51b	Va	4.827		
			38.761	
		886.251		1.38
oa55c	Es	5.041		
oa55c	GgA	26.088		
oa55c	LcA	121.073		
oa55c	Mp	3.384		
oa55c	Mr	1.473		
oa55c	Tt	0.191		
		157.25		0.25

TABLE A-3

Subbasin	Soil Type	Acres	Total Area (acres)	Total Area (sq.mi)
sm51c	Es	7.318		
sm51c	Es	3.489		
			10.807	
sm51c	GgA	47.102		
sm51c	Gt	3.404		
sm51c	LcA	106.374		
sm51c	LcA	17.659		
			124.033	
sm51c	Mo	2.666		
sm51c	Mp	58.975		
sm51c	Mp	22.537		
			81.512	
sm51c	Mr	38.935		
sm51c	Tu	4.206		
sm51c	Va	14.643		
		327.308		0.51
vr47c	Ao	40.83		
vr47c	Ao	12.547		
vr47c	Ao	1.51		
			54.887	
vr47c	Ap	13.125		
vr47c	Cn	6.228		
vr47c	Cn	2.949		
vr47c	Cn	2.093		
			11.27	
vr47c	Es	14.377		
vr47c	Es	0.125		
vr47c	Es	3.94		
vr47c	Es	5.648		
			24.09	
vr47c	Gd	2.356		
vr47c	Ge	7.397		
vr47c	Gf	18.559		
vr47c	GgA	11.508		
vr47c	GgA	38.19		
vr47c	GgA	0.661		
vr47c	GgA	0.556		
vr47c	GgA	84.194		
			135.109	

TABLE A-3

Subbasin	Soil Type	Acres	Total Area (acres)	Total Area (sq.mi)
vr47c	GgB	0.469		
vr47c	Gh	56.798		
vr47c	Gr	73.329		
vr47c	Gt	18.371		
vr47c	Gt	7.553		
			25.924	
vr47c	LcA	0.032		
vr47c	LcA	7.263		
vr47c	LcA	14.608		
vr47c	LcA	17.519		
			39.422	
vr47c	Mp	10.681		
vr47c	Ta	1.626		
vr47c	Ta	50.118		
			51.744	
vr47c	Tu	19.536		
vr47c	Tu	0.892		
			20.428	
vr47c	Tw	1.625		
vr47c	Vc	9.1		
		556.313		0.87
vr59c	Aa	1.441		
vr59c	Ao	35.531		
vr59c	Cn	8.632		
vr59c	Gc	0.375		
vr59c	GgA	60.336		
vr59c	GgA	4.556		
vr59c	GgA	16.437		
			81.329	
vr59c	Gt	4.997		
vr59c	Gt	7.818		
vr59c	Gt	9.025		
			21.84	
		149.148		0.23

TABLE A-4

Laveen Future Landuse Conditions Area (Area West of 43rd Ave.) Existing Landuse Information

Subbasin Name	Type	Acres		Total Area (Sq.Mi)
a67ac	Agriculture	206.112		
a67ac	Industrial	0.647		
a67ac	Large Lot Residential (>1 and <=2 du/acre)	165.809		
a67ac	Vacant	6.343		
a67ac	Vacant	16.577	22.92	
		395.488		**0.62**
avr51c	Agriculture	116.019		
avr51c	Business Park	34.338		
avr51c	Public Facility	1.68		
avr51c	Vacant	30.537		
		182.574		**0.29**
avr55c	Agriculture	154.31		
br159c	Agriculture	277.409		
br159c	Agriculture	0.549	432.268	
br159c	Recreational Open Space	153.069		
br159c	Transportation	0.446		
br159c	Vacant	0.288		
		586.071		**0.92**

TABLE A-4

Subbasin Name	Type	Acres		Total Area (Sq.Mi)
br163c	Agriculture	98.781		
br163c	Large Lot Residential (>1 and <=2 du/acre)	51.697		
br163c	Large Lot Residential (>1 and <=2 du/acre)	10.202	61.899	
br163c	Transportation	2.271		
		162.951		**0.25**
br259c	Agriculture	548.254		
br259c	Large Lot Residential (>1 and <=2 du/acre)	48.591		
br259c	Large Lot Residential (>1 and <=2 du/acre)	0.969	49.56	
br259c	Transportation	26.106		
br259c	Vacant	0.004		
br259c	Vacant	6.725		
br259c	Vacant	16.776	23.505	
		647.425		**1.01**
br263c	Agriculture	283.555		
br263c	Transportation	11.936		
br263c	Vacant	7.871		
br263c	Vacant	12.669	20.54	
		316.031		**0.49**

TABLE A-4

Subbasin Name	Type	Acres		Total Area (Sq.Mi)
br51c	Agriculture	369		
br51c	Business Park	27.663		
br51c	Vacant	2.818		
br51c	Vacant	11.428		
br51c	Vacant	36.308	50.554	
		410.909		**0.64**
br67c	Agriculture	1.601		
br67c	Large Lot Residential (>1 and <=2 du/acre)	78.241		
br67c	Transportation	1.751		
		81.593		**0.13**
cd2c	Agriculture	373.847		
cd2c	Large Lot Residential (>1 and <=2 du/acre)	0.778		
cd2c	Transportation	2.618		
cd2c	Transportation	5.487	8.105	
		382.73		**0.60**
cd3c	Agriculture	306.377		
cd3c	Agriculture	0.313	306.69	
cd3c	Transportation	0.794		
		307.484		**0.48**
cd4c	Agriculture	120.374		
cd4c	Large Lot Residential (>1 and <=2 du/acre)	1.144		
		121.518		**0.19**

TABLE A-4

Subbasin Name	Type	Acres		Total Area (Sq.Mi)
cdic	Agriculture	221.4		
cdic	Agriculture	48.147	269.547	
cdic	Transportation	18.514		
cdic	Vacant	8.401		
cdic	Vacant	0.266	8.667	
		296.728		**0.46**
dr57c	Agriculture	68.121		
dr57c	Large Lot Residential (>1 and <=2 du/acre)	7.465		
		75.586		**0.12**
dr59c	Agriculture	**74.942**		**0.12**
ir65c	Agriculture	**108.637**		**0.17**
irdc	Agriculture	**335.753**		**0.52**
irsmc	Agriculture	62.081		
irsmc	Agriculture	0.255		
irsmc	Agriculture	0.294	62.63	
irsmc	Transportation	0.014		
irsmc	Transportation	9.7	9.714	
irsmc	Vacant	80.963		
irsmc	Vacant	1.164	82.127	
		154.471		**0.24**

TABLE A-4

Subbasin Name	Type	Acres		Total Area (Sq.Mi)
oa55c	Agriculture	3.635		
oa55c	Institutional	4.282		
oa55c	Large Lot Residential (>1 and <=2 du/acre)	138.524		
		146.441		**0.23**
sm51c	Agriculture	254.297		
sm51c	Educational	0.04		
sm51c	Large Lot Residential (>1 and <=2 du/acre)	78.366		
sm51c	Large Lot Residential (>1 and <=2 du/acre)	0.179	78.545	
sm51c	Neighborhood Retail Center (<100, 000 sq.ft.)	1.734		
sm51c	Neighborhood Retail Center (<100,000 sq.ft.)	3.499	5.233	
		338.115		**0.53**
vr47c	Agriculture	432.428		
vr47c	Industrial	0.88		
vr47c	Large Lot Residential (>1 and <=2 du/acre)	122.591		
vr47c	Small Lot Residential (>2 and <=5 du/acre)	0.102		
vr47c	Vacant	0.311		
		556.312		**0.87**

TABLE A-4

Subbasin Name	Type	Acres		Total Area (Sq.Mi)
vr59c	Agriculture	41.865		
vr59c	Agriculture	0.437	42.302	
vr59c	Recreational Open Space	106.828		
vr59c	Vacant	0.018		
		149.148		**0.23**

LIST OF TABLES

Table D-1 Unit Flow Comparison

TABLE D-1
Unit Flow Comparison

Project Name	Laveen Area Conveyance Channel
Project Number	
Date	11/1/2002
Calculated By	Valerie Swick

						100-Year Values						500-Year Values		Maximum Values	
						ADOT/Roeske		USGS/ADWR				ADOT/Roeske			
Basin ID	Area (Sq. Mi.)	Elevation (Feet)	Annual Rainfall (inches)	HEC-1 Results	Unit Q (cfs/sq mi)	Region 2 Southwest Desert	Region 3 Central Mountain	Region 13 Southern Arizona	Region 12 Central Arizona	Malvick	Creagor	Region 2 Southwest Desert	Region 3 Central Mountain	Creagor	Meyer
IR62B	0.55	1,020	7.00	431	784	816	2,220	832	1,448	1,235	1,062	1,475	5,841	2,654	7,416
DR43C	0.94	1,051	7.00	1025	1,090	1,067	2,962	1,208	2,231	1,904	1,741	1,938	7,694	4,352	9,695
OA51B	1.37	1,031	7.00	1334	974	1,287	3,821	1,548	3,033	2,557	2,428	2,348	9,899	6,070	11,705
ER55B	0.25	1,029	7.00	207	828	551	1,357	459	711	633	489	988	3,608	1,223	5,000
ER59B	0.28	1,026	7.00	206	736	583	1,460	502	792	699	549	1,046	3,876	1,372	5,292
IR63B	0.13	1,023	7.00	94	723	397	918	268	378	354	246	708	2,466	615	3,606
SA19C	0.48	1,110	7.00	316	658	763	1,831	754	1,238	1,103	932	1,377	4,765	2,331	6,928
CR23C	0.58	1,070	7.00	734	1,266	838	2,155	864	1,482	1,290	1,116	1,516	5,624	2,790	7,616
RR27C	0.48	1,060	7.00	460	958	763	1,944	754	1,265	1,103	932	1,377	5,094	2,331	6,928
CBDE	0.17	1,050	7.00	108	635	454	1,045	336	488	451	328	812	2,785	820	4,123
BR19C	0.39	1,140	7.00	364	933	688	1,558	646	1,019	927	763	1,238	4,052	1,907	6,245
SA27C	0.62	1,080	7.00	513	827	867	2,218	906	1,562	1,363	1,188	1,568	5,774	2,971	7,874
SM5C	0.2	1,250	7.00	164	820	493	920	384	527	521	389	882	2,383	972	4,472
SMA15C	0.36	1,200	7.00	368	1,022	661	1,388	609	927	866	705	1,189	3,586	1,763	6,000
SMA19C	0.16	1,150	7.00	59	369	441	895	320	441	427	308	787	2,354	769	4,000
SM1C	1.84	2,000	7.00	2160	1,174	1,491	1,933	1,865	2,812	3,201	3,124	2,728	4,514	7,810	13,565
SM1AC	0.28	1,800	7.00	253	904	583	703	502	613	699	549	1,046	1,715	1,372	5,292
SM2C	2.19	2,000	7.00	3451	1,576	1,627	2,149	2,076	3,201	3,646	3,614	2,981	5,006	9,034	14,799
SM3C	0.48	1,300	7.00	455	948	763	1,491	754	1,153	1,103	932	1,377	3,789	2,331	6,928
SM4C	0.24	1,230	7.00	168	700	540	1,050	445	631	611	469	967	2,718	1,173	4,899
DRW2C	0.53	1,680	7.00	401	757	801	1,135	810	1,118	1,198	1,025	1,448	2,771	2,562	7,280
DRWC1C	0.12	1,180	7.00	70	583	382	726	251	327	329	226	680	1,911	564	3,464
DR1C	0.16	1,500	7.00	152	950	441	633	320	391	427	308	787	1,602	769	4,000
WC1A	0.25	1,740	7.00	274	1,096	551	686	459	561	633	489	988	1,684	1,223	5,000
DR2C	0.05	1,148	7.00	46	920	247	441	113	130	145	84	435	1,181	209	2,236
BR27C	0.78	1,120	7.00	597	765	972	2,433	1,064	1,861	1,641	1,470	1,762	6,279	3,674	8,832

Basin ID	Area (Sq. Mi.)	Elevation (Feet)	Annual Rainfall (inches)	HEC-1 Results	Unit Q (cfs/sq mi)	100-Year Values						500-Year Values		Maximum Values	
						ADOT/Roeske		USGS/ADWR				ADOT/Roeske			
						Region 2 Southwest Desert	Region 3 Central Mountain	Region 13 Southern Arizona	Region 12 Central Arizona	Malvick	Creagor	Region 2 Southwest Desert	Region 3 Central Mountain	Creagor	Meyer
RR35C	1.89	1,060	7.00	1694	896	1,511	4,485	1,897	3,827	3,266	3,195	2,765	11,515	7,989	13,748
SA37C	0.59	1,035	7.00	571	968	845	2,274	875	1,527	1,308	1,134	1,529	5,963	2,836	7,681
WC2A	0.08	1,200	7.00	78	975	312	555	175	213	226	144	553	1,465	360	2,828
WC2 1A	0.08	1,180	7.00	70	875	312	567	175	215	226	144	553	1,502	360	2,828
WC3A	0.01	1,170	7.00	15	1,500	111	161	21	18	29	11	192	441	27	1,000
WC4A	0.36	1,750	7.00	369	1,025	661	850	609	781	866	705	1,189	2,075	1,763	6,000
DR27C	0.53	1,160	7.00	484	913	801	1,837	810	1,323	1,198	1,025	1,448	4,742	2,562	7,280
BR35C2	0.73	1,100	7.00	460	630	940	2,392	1,016	1,776	1,556	1,383	1,704	6,196	3,457	8,544
BR35C1	0.55	1,080	7.00	361	656	816	2,061	832	1,410	1,235	1,062	1,475	5,376	2,654	7,416
WC5A	0.42	1,700	7.00	290	690	714	970	683	908	987	820	1,286	2,372	2,049	6,481
WC6A	0.01	1,165	7.00	17	1,700	111	162	21	18	29	11	192	444	27	1,000
WC7A	0.05	1,180	7.00	57	1,140	247	426	113	129	145	84	435	1,135	209	2,236
WC8A	0.35	1,750	7.00	307	877	651	835	596	761	846	686	1,172	2,041	1,714	5,916
WC9A	0.03	1,160	7.00	28	933	191	319	68	72	88	45	336	859	113	1,732
WC10A	0.02	1,160	7.00	28	1,400	156	249	45	44	58	27	273	675	68	1,414
WC11A	0.29	1,880	7.00	295	1,017	593	679	516	621	720	569	1,065	1,645	1,421	5,385
WC12A	0.26	1,670	7.00	280	1,077	562	741	474	592	655	509	1,008	1,830	1,273	5,099
WC15A	0.36	1,850	7.00	411	1,142	661	791	609	761	866	705	1,189	1,914	1,763	6,000
PM2A	0.07	1,230	7.00	68	971	292	495	155	183	200	124	517	1,306	309	2,646
WC13A	0.01	1,160	7.00	16	1,600	111	163	21	18	29	11	192	447	27	1,000
WC14A	0.05	1,170	7.00	37	740	247	430	113	129	145	84	435	1,149	209	2,236
PM1A	0.07	1,170	7.00	64	914	292	528	155	187	200	124	517	1,404	309	2,646
DR35C	0.6	1,120	7.00	435	725	852	2,073	885	1,494	1,326	1,152	1,542	5,371	2,881	7,746
CC1	0.02	1,050	7.00	27	1,350	156	283	45	46	58	27	273	780	68	1,414
CC5	0.03	1,050	7.00	37	1,233	191	363	68	76	88	45	336	992	113	1,732
CC6	0.03	1,050	7.00	38	1,267	191	363	68	76	88	45	336	992	113	1,732
CC7	0.04	1,050	7.00	64	1,600	221	432	91	106	117	64	389	1,177	160	2,000
CC2	0.01	1,050	7.00	22	2,200	111	186	21	19	29	11	192	516	27	1,000
CC3	0.07	1,050	7.00	100	1,429	292	608	155	196	200	124	517	1,643	309	2,646
CC4	0.07	1,050	7.00	97	1,386	292	608	155	196	200	124	517	1,643	309	2,646
CC8	0.03	1,050	7.00	46	1,533	191	363	68	76	88	45	336	992	113	1,732
SMA43C	0.13	1,050	7.00	168	1,292	397	887	268	374	354	246	708	2,374	615	3,606
BR43C	0.35	1,050	7.00	280	800	651	1,623	596	960	846	686	1,172	4,280	1,714	5,916
AVR43C	1.03	1,030	7.00	1009	980	1,116	3,215	1,284	2,424	2,047	1,889	2,030	8,365	4,723	10,149
VR47C	0.89	1,020	7.00	727	817	1,038	2,978	1,164	2,164	1,824	1,657	1,885	7,778	4,142	9,434

Basin ID	Area (Sq. Mi.)	Elevation (Feet)	Annual Rainfall (inches)	HEC-1 Results	Unit Q (cfs/sq mi)	100-Year Values						500-Year Values		Maximum Values	
						ADOT/Roeske		USGS/ADWR				ADOT/Roeske			
						Region 2 Southwest Desert	Region 3 Central Mountain	Region 13 Southern Arizona	Region 12 Central Arizona	Malvick	Creagor	Region 2 Southwest Desert	Region 3 Central Mountain	Creagor	Meyer
AVR51C	0.28	1,017	7.00	244	871	583	1,477	502	795	699	549	1,046	3,925	1,372	5,292
BR51C	0.7	1,012	7.00	605	864	921	2,599	987	1,782	1,504	1,330	1,668	6,820	3,326	8,367
AVR55C	0.23	1,010	7.00	166	722	528	1,321	430	663	589	449	947	3,527	1,123	4,796
BR159C	0.68	1,006	7.00	468	688	907	2,573	967	1,744	1,469	1,295	1,644	6,761	3,238	8,246
VR59C	0.25	1,007	7.00	176	704	551	1,396	459	718	633	489	988	3,722	1,223	5,000
SM51C	0.5	1,042	7.00	347	694	778	2,038	776	1,320	1,141	970	1,405	5,351	2,424	7,071
BR259C	1	1,016	7.00	700	700	1,100	3,214	1,259	2,382	2,000	1,840	2,000	8,384	4,600	10,000
OA55C	0.25	1,033	7.00	193	772	551	1,350	459	710	633	489	988	3,587	1,223	5,000
DR57C	0.12	1,029	7.00	72	600	382	867	251	348	329	226	680	2,331	564	3,464
DR59C	0.11	1,026	7.00	73	664	366	826	232	319	304	205	650	2,223	513	3,317
BR263C	0.5	1,013	7.00	319	638	778	2,114	776	1,338	1,141	970	1,405	5,574	2,424	7,071
BR163C	0.26	999	7.00	168	646	562	1,444	474	748	655	509	1,008	3,855	1,273	5,099
BR67C	0.13	996	7.00	98	754	397	950	268	383	354	246	708	2,563	615	3,606
CD1C	0.47	1,006	7.00	407	866	755	2,054	742	1,271	1,084	914	1,362	5,427	2,285	6,856
CD2C	0.58	988	7.00	500	862	838	2,391	864	1,537	1,290	1,116	1,516	6,314	2,790	7,616
A67AC	0.61	998	7.00	379	621	860	2,433	896	1,597	1,345	1,170	1,555	6,412	2,926	7,810
CD4C	0.19	991	7.00	129	679	480	1,205	368	558	498	369	859	3,236	921	4,359
CD3C	0.48	985	7.00	337	702	763	2,138	754	1,307	1,103	932	1,377	5,666	2,331	6,928
Elevation		1,187													

ADOT (Roeske, 1978)	ADOT RS-15-121, Methods for Estimating the Magnitude and Frequency of Floods in Arizona (806.006)
USGS (1994)	Open-File Report 93-419, Methods for Estimating Magnitude and Frequency of Floods in the Southwestern United States (806.004)
ADWR (1996)	State Standard 2-96, Requirements for Floodplain and Floodway Delineations in Riverine Environments
Meyer	Portland Cement Association, Small Concrete Dams (A104.310)

How to use this spreadsheet
The only items requiring input values by the user are RED colored items like this
The blue colored items are automatically calculated by the spreadsheet

APPENDIX E

Development Retention Calculations

LIST OF TABLES

E-1 Rational Method Volume Calculations E-1

E-2 Retention Volume Calculations E-2

Table E-1, Rational Calculations

	Total Area (acres)	Developer	Dev. Area (acres)	Area minus channel	C (5yr)	5yr Vol (ac-ft)	C (100yr)	100yr Vol (ac-ft)	HEC-1 Model ret	% of non-ret are for subbasin
VR47C	556	Trimark Homes	320	310	0.45	16.2	0.6	45.0	53	44.2%
BR51C	448	Trimark Homes	200	189	0.45	9.9	0.6	27.4	33	57.8%
		Trimark Homes				26.0		72.4		
BR159C	435	Williams	200	191	0.45	10.0	0.6	27.7	35	56.1%
	435	ET Venture	40	36	0.45	1.9	0.6	5.2	7	91.8%
	435	Cottonfields GC	160	0	0.20	0.0	0.6	0.0		
BR259C	646	Paye	80	80	0.45	4.2	0.6	11.6	13	87.6%
BR263C	314	Paye	180	167	0.45	8.7	0.6	24.3	30	46.7%
		Paye				12.9		35.9	43	
CD1C	294	Schlosser	63	61	0.45	3.2	0.6	8.8	10	79.3%
	294	Moss	34	32	0.45	1.7	0.6	4.6	5	89.2%
	294	Williams	38	2	0.45	0.1	0.6	0.3	6	99.2%
	294	Elliot Homes	58	2	0.45	0.1	0.6	0.3	9	99.2%
CD2C	384	Elliot Homes	320	308	0.45	16.1	0.6	44.7	61	19.7%
		Elliot Homes				16.2		45.1	70	
IRSMC	154	Hutchinson	100	6	0.45	0.3	0.6	0.9	16	95.9%
CD3C	307	Webster	13	8	0.45	0.4	0.6	1.2	2	97.3%
	307	Lines	125	6	0.45	0.3	0.6	0.9	24	98.0%
	307	Killian	150	146	0.45	7.6	0.6	21.2	28	52.3%

5yr 2 hr rainfall = 1.39"

100yr 2hr rainfall = 2.9"

Table [illegible] Maricopa Drain Watershed Retention Values for HEC-1 Modeling

Subbasin	Area (sq.mi.)	Area (acres)	Area previously Dev. Or Rural (acres)	Area previously Dev. % or no Ret	Tot Ret Vol of Fut Dev. From HEC-1 model (ac-ft)	Ret Vol of new dev. (ac-ft) from HEC-1 model	80% Ret Vol. (HEC-1 Model)	Total Ret Vol from rational	Ret Vol of new dev	80% Vol (rational) (ac-ft)	Relaxed Ret vol including First Flush	80% of relaxed ret vol (rational)
VR47C	0.87	556.312	0	0.00	92	92.0	73.6	91	91.0	72.8	84.7	67.7
AVR51C	0.28	179.2	0	0.00	33	33.0	26.4	27	27.0	21.6	27.0	21.6
BR51C	0.7	448	0	0.00	73	73.0	58.4	67	67.0	53.6	63.1	50.5
AVR55C	0.24	153.6	0	0.00	29	29.0	23.2	32	32.0	25.6	32.0	25.6
BR159C	0.68	435.2	0	0.00	68	68.0	54.4	54	54.0	43.2	49.4	39.5
VR59C	0.23	147.2	0	0.00	25	25.0	20.0	13	13.0	10.4	13.0	10.4
DR43C	0.92	588.8	299.458	50.86	103	50.6	40.5	71	34.9	27.9	34.9	27.9
SM51C	0.51	326.4	79.72	24.42	49	37.0	29.6	38	28.7	23.0	28.7	23.0
BR259C	1.01	646.4	33.335	5.16	107	101.5	81.2	90	85.4	68.3	83.7	67.0
OA51B	1.38	883.2	132.48	15.00	151	128.4	102.7	119	101.2	80.9	101.2	80.9
OA55C	0.25	160	143.254	89.53	23	2.4	1.9	29	3.0	2.4	3.0	2.4
DR57C	0.12	76.8	0	0.00	11	11.0	8.8	16	16.0	12.8	16.0	12.8
DR59C	0.12	76.8	0	0.00	13	13.0	10.4	13	13.0	10.4	13.0	10.4
BR263C	0.49	313.6	0.138	0.04	53	53.0	42.4	40	40.0	32.0	36.6	29.3
BR163C	0.25	160	96.728	60.46	16	6.3	5.1	21	8.3	6.6	8.3	6.6
BR67C	0.13	83.2	83.2	100.00	14	0.0	0.0	9	0.0	0.0	0.0	0.0
CD1C	0.46	294.4	0	0.00	47	47.0	37.6	42	42.0	33.6	40.1	32.0
ER55B	0.26	166.4	0	0.00	27	27.0	21.6	24	24.0	19.2	24.0	19.2
ER59B	0.26	166.4	0	0.00	35	35.0	28.0	29	29.0	23.2	29.0	23.2
IR63B	0.12	76.8	0	0.00	16	16.0	12.8	14	14.0	11.2	14.0	11.2
IR65C	0.17	108.8	0	0.00	16	16.0	12.8	18	18.0	14.4	18.0	14.4
IRDC	0.52	332.8	0	0.00	62	62.0	49.6	54	54.0	43.2	54.0	43.2
IRSMC	0.24	153.6	0	0.00	25	25.0	20.0	24	24.0	19.2	23.9	19.1
CD2C	0.6	384	0	0.00	73	73.0	58.4	56	56.0	44.8	49.7	39.7
A67AC	0.62	396.8	0	0.00	66	66.0	52.8	48	48.0	38.4	48.0	38.4
CD4C	0.19	121.6	0	0.00	20	20.0	16.0	17	17.0	13.6	17.0	13.6
CD3C	0.48	307.2	0	0.00	58	58.0	46.4	44	44.0	35.2	40.7	32.6

APPENDIX F

HEC-1 Models

Existing Condition

100yr-24hr

TABLE A-5

Laveen Future Landuse Conditions Area
(Area West of 43rd Ave.)
Future Landuse Information

Subbasin Name	Newcode	Land Use	Acres		C value for 100yr	Average C Value	Ret Vol. (ac-ft)
a67ac	10	0-1 Du/acre	146.011				
				146.011	0.4	0.15	
a67ac	20	0-2 Du/acre	100.007				
a67ac	20	0-2 Du/acre	17.329				
				117.336	0.45	0.13	
a67ac	30	2-3.5 Du/acre	3.432				
a67ac	30	2-3.5 Du/acre	33.639				
a67ac	30	2-3.5 Du/acre	42.748				
				79.819	0.6	0.12	
a67ac	40	5-10 Du/acre	0.096				
				0.096	0.7	0.00	
a67ac	47	10-15 Du/acre	3.816				
				3.816	0.75	0.01	
a67ac	120	Business Park	27.337				
a67ac	120	Business Park	21.073				
				48.41	0.75	0.09	
			395.488	395.488		0.50	48
avr51c	30	2-3.5 Du/acre	6.083				
avr51c	30	2-3.5 Du/acre	6.65				
avr51c	30	2-3.5 Du/acre	103.002				
avr51c	30	2-3.5 Du/acre	66.839				
avr51c	30	2-3.5 Du/acre	6.083				
				188.657	0.6		
			188.657			0.60	27
avr55c	30	2-3.5 Du/acre	69.774				
avr55c	30	2-3.5 Du/acre	79.973				
avr55c	30	2-3.5 Du/acre	69.774				
				219.521	0.6	0.59	
avr55c	200	Park/Open Space	4.563				
				4.563	0.25	0.01	
			224.084	224.084		0.59	32

TABLE A-5

Subbasin Name	Newcode	Land Use	Acres		C value for 100yr	Average C Value	Ret Vol. (ac-ft)
br159c	30	2-3.5 Du/acre	6.856				
br159c	30	2-3.5 Du/acre	74.873				
				81.729	0.6	0.11	
br159c	40	5-10 Du/acre	67.703				
br159c	40	5-10 Du/acre	37.736				
				105.439	0.7	0.17	
br159c	47	10-15 Du/acre	42.481				
br159c	47	10-15 Du/acre	6.856				
				49.337	0.75	0.09	
br159c	70	Commercial	31.272				
				31.272	0.75	0.05	
br159c	200	Park/Open Space	160.036				
				160.036	0.25	0.09	
			427.813	427.813		0.52	54
br163c	10	0-1 Du/acre	0.026				
br163c	10	0-1 Du/acre	96.728				
				96.754	0.4	0.24	
br163c	30	2-3.5 Du/acre	0.037				
				0.037	0.6	0.00	
br163c	47	10-15 Du/acre	33.387				
br163c	47	10-15 Du/acre	32.772				
				66.159	0.75	0.30	
br163c	120	Business Park	0.001				
				0.001	0.75	0.00	
br163c	200	Park/Open Space	0.026				
				0.026	0.25	0.00	
			162.977	162.977		0.54	21
br259c	10	0-1 Du/acre	0.115				
br259c	10	0-1 Du/acre	33.22				
br259c	10	0-1 Du/acre	0.115				
				33.45	0.4	0.02	
br259c	20	0-2 Du/acre	97.023				
br259c	20	0-2 Du/acre	112.867				
				209.89	0.45	0.15	
br259c	30	2-3.5 Du/acre	0.051				
br259c	30	2-3.5 Du/acre	149.683				
br259c	30	2-3.5 Du/acre	101.177				
				250.911	0.6	0.23	

TABLE A-5

Subbasin Name	Newcode	Land Use	Acres		C value for 100yr	Average C Value	Ret Vol. (ac-ft)
br259c	40	5-10 Du/acre	0.858				
br259c	40	5-10 Du/acre	1.388				
				2.246	0.7	0.00	
br259c	47	10-15 Du/acre	41.17				
br259c	47	10-15 Du/acre	0.919				
br259c	47	10-15 Du/acre	0.266				
				42.355	0.75	0.05	
br259c	70	Commercial	1.83				
br259c	70	Commercial	39.766				
br259c	70	Commercial	16.632				
br259c	70	Commercial	0.005				
				58.233	0.75	0.07	
br259c	120	Business Park	49.501				
				49.501	0.75	0.06	
br259c	200	Park/Open Space	0.955				
				0.955	0.25	0.00	
			647.541	647.541		0.58	90
br263c	10	0-1 Du/acre	23.94				
				23.94	0.4	0.03	
br263c	30	2-3.5 Du/acre	0.138				
br263c	30	2-3.5 Du/acre	11.924				
				12.062	0.6	0.02	
br263c	40	5-10 Du/acre	10.804				
				10.804	0.7	0.02	
br263c	70	Commercial	0.269				
br263c	70	Commercial	39.109				
br263c	70	Commercial	23.94				
				63.318	0.75	0.14	
br263c	120	Business Park	74.286				
				74.286	0.75	0.16	
br263c	200	Park/Open Space	120.763				
br263c	200	Park/Open Space	34.798				
				155.561	0.25	0.11	
			339.971	339.971	0.53	0.49	40

TABLE A-5

Subbasin Name	Newcode	Land Use	Acres		C value for 100yr	Average C Value	Ret Vol. (ac-ft)
br51c	30	2-3.5 Du/acre	9.36				
br51c	30	2-3.5 Du/acre	220.21				
br51c	30	2-3.5 Du/acre	6.772				
br51c	30	2-3.5 Du/acre	198.239				
br51c	30	2-3.5 Du/acre	9.36				
br51c	40	5-10 Du/acre	3.421				
				447.362	0.6	0.59	
br51c	47	10-15 Du/acre	2.94				
				2.94	0.75	0.00	
br51c	70	Commercial	6.275				
				6.275	0.75	0.01	
			456.577	456.577		0.60	67
br67c	10	0-1 Du/acre	0.008				
				0.008	0.4	0.00	
br67c	20	0-2 Du/acre	76.534				
br67c	20	0-2 Du/acre	4.328				
				80.862	0.45	0.45	
br67c	30	2-3.5 Du/acre	0.008				
				0.008	0.6	0.00	
br67c	47	10-15 Du/acre	0.532				
				0.532	0.75	0.00	
br67c	200	Park/Open Space	0.192				
				0.192	0.25	0.00	
			81.602	81.602		0.45	9
cd2c	20	0-2 Du/acre	4.289				
				4.289	0.45	0.01	
cd2c	30	2-3.5 Du/acre	7.753				
cd2c	30	2-3.5 Du/acre	55.548				
cd2c	30	2-3.5 Du/acre	288.117				
				351.418	0.6	0.55	
cd2c	47	10-15 Du/acre	20.418				
cd2c	47	10-15 Du/acre	2.802				
cd2c	47	10-15 Du/acre	3.804				
				27.024	0.75	0.05	
			382.731	382.731		0.61	56

TABLE A-5

Subbasin Name	Newcode	Land Use	Acres		C value for 100yr	Average C Value	Ret Vol. (ac-ft)
cd3c	30	2-3.5 Du/acre	11.546				
cd3c	30	2-3.5 Du/acre	262.52				
cd3c	30	2-3.5 Du/acre	7.364				
				281.43	0.6	0.55	
cd3c	47	10-15 Du/acre	7.771				
				7.771	0.75	0.02	
cd3c	290	Undesignated Area	18.283				
				18.283	0.4	0.02	
			307.484	307.484		0.59	44
cd4c	20	0-2 Du/acre	13.852				
				13.852	0.45	0.05	
cd4c	30	2-3.5 Du/acre	106.484				
				106.484	0.6	0.53	
cd4c	290	Undesignated Area	1.182				
				1.182	0.40	0.00	
			121.518	121.518		0.58	17
cdic	30	2-3.5 Du/acre	115.579				
				115.579	0.6	0.23	
cdic	40	5-10 Du/acre	64.453				
				64.453	0.7	0.15	
cdic	47	10-15 Du/acre	24.958				
cdic	47	10-15 Du/acre	34.652				
				59.61	0.75	0.15	
cdic	200	Park/Open Space	0.005				
cdic	200	Park/Open Space	26.504				
cdic	200	Park/Open Space	30.578				
				57.087	0.25	0.05	
			296.729	296.729		0.58	42
dr43c	10	0-1 Du/acre	0.03				
dr43c	10	0-1 Du/acre	227.151				
				227.181	0.4	0.15	
dr43c	30	2-3.5 Du/acre	0.337				
dr43c	30	2-3.5 Du/acre	0.172				
dr43c	30	2-3.5 Du/acre	289.696				
				290.205	0.6	0.30	
dr43c	200	Park/Open Space	0.208				
				0.208	0.25	0.00	

TABLE A-5

Subbasin Name	Newcode	Land Use	Acres		C value for 100yr	Average C Value	Ret Vol. (ac-ft)
dr43c	210	Dedicated	0.251				
dr43c	210	Dedicated	71.425				
			0.444				
				72.12	0.4	0.05	
			589.714	589.714		0.50	71
dr57c	20	0-2 Du/acre	74.163				
dr57c	20	0-2 Du/acre	74.163				
				148.326	0.45	0.45	
dr57c	30	2-3.5 Du/acre	1.423				
				1.423	0.6	0.01	
			149.749	149.749		0.45	16
dr59c	20	0-2 Du/acre	14.556				
dr59c	20	0-2 Du/acre	6.942				
				21.498	0.45	0.11	
dr59c	30	2-3.5 Du/acre	36.077				
				36.077	0.6	0.24	
dr59c	70	Commercial	0.017				
				0.017	0.75	0.00	
dr59c	120	Business Park	17.35				
dr59c	120	Business Park	14.556				
				31.906	0.75	0.27	
			89.498	89.498		0.62	13
er55b	20	0-2 Du/acre	2.115				
er55b	20	0-2 Du/acre	7.503				
				9.618	0.45	0.03	
er55b	30	2-3.5 Du/acre	145.256				
				145.256	0.6	0.54	
er55b	230	Conservation Community	7.924				
				7.924	0.8	0.04	
			162.798	162.798		0.60	24

TABLE A-5

Subbasin Name	Newcode	Land Use	Acres		C value for 100yr	Average C Value	Ret Vol. (ac-ft)
er59b	20	0-2 Du/acre	0.802				
				0.802	0.45	0.00	
er59b	30	2-3.5 Du/acre	29.32				
				29.32	0.6	0.11	
er59b	120	Business Park	98.81				
er59b	120	Business Park	37.869				
				136.679	0.75	0.61	
			166.801	166.801		0.72	29
ir63b	30	2-3.5 Du/acre	7.501				
				7.501	0.6	0.06	
ir63b	40	5-10 Du/acre	9.566				
				9.566	0.7	0.08	
ir63b	120	Business Park	0.752				
ir63b	120	Business Park	38.456				
ir63b	120	Business Park	23.317				
				62.525	0.75	0.59	
			79.592	79.592		0.73	14
ir65c	30	2-3.5 Du/acre	7.54				
ir65c	30	2-3.5 Du/acre	22.891				
				30.431	0.6	0.17	
ir65c	40	5-10 Du/acre	18.497				
				18.497	0.7	0.12	
ir65c	120	Business Park	38.729				
ir65c	120	Business Park	20.981				
				59.71	0.75	0.41	
			108.638	108.638		0.70	18
irdc	30	2-3.5 Du/acre	13.225				
irdc	30	2-3.5 Du/acre	166.902				
				180.127	0.6	0.32	
irdc	40	5-10 Du/acre	24.209				
				24.209	0.7	0.05	

TABLE A-5

Subbasin Name	Newcode	Land Use	Acres		C value for 100yr	Average C Value	Ret Vol. (ac-ft)
irdc	70	Commercial	0.352				
irdc	70	Commercial	0.151				
irdc	70	Commercial	24.415				
				24.918	0.75	0.06	
irdc	120	Business Park	40.245				
irdc	120	Business Park	39.27				
irdc	120	Business Park	26.435				
				105.95	0.75	0.24	
irdc	200	Park/Open Space	0.547				
				0.547	0.25	0.00	
			335.751	335.751		0.67	54
irsmc	30	2-3.5 Du/acre	9.715				
irsmc	30	2-3.5 Du/acre	103.178				
				112.893	0.6	0.44	
irsmc	47	10-15 Du/acre	37.855				
irsmc	47	10-15 Du/acre	3.724				
				41.579	0.75	0.20	
			154.472	154.472		0.64	24
oa51b	10	0-1 Du/acre	0.419				
oa51b	10	0-1 Du/acre	13.652				
oa51b	10	0-1 Du/acre	200.432				
oa51b	10	0-1 Du/acre	0.496				
				214.999	0.4	0.10	
oa51b	20	0-2 Du/acre	294.694				
oa51b	20	0-2 Du/acre	0.274				
oa51b	20	0-2 Du/acre	66.931				
				361.899	0.45	0.18	
oa51b	30	2-3.5 Du/acre	13.751				
oa51b	30	2-3.5 Du/acre	0.995				
				14.746	0.6	0.01	
oa51b	160	Public	158.945				
				158.945	0.9	0.16	
oa51b	210	Dedicated	39.811				
oa51b	210	Dedicated	0.189				
				40	0.4	0.02	
oa51b	230	Conservation Community	82.018				
			13.839				
				95.857	0.8	0.09	
			886.446	886.446	1.39	0.56	119

TABLE A-5

Subbasin Name	Newcode	Land Use	Acres		C value for 100yr	Average C Value	Ret Vol. (ac-ft)
oa55c	10	0-1 Du/acre	143.254				
oa55c	10	0-1 Du/acre	143.254				
				286.508	0.4	0.38	
oa55c	20	0-2 Du/acre	13.925				
oa55c	20	0-2 Du/acre	0.07				
				13.995	0.45	0.02	
			300.503	300.503		0.40	29
sm51c	10	0-1 Du/acre	0.251				
sm51c	10	0-1 Du/acre	6.489				
sm51c	10	0-1 Du/acre	73.189				
sm51c	10	0-1 Du/acre	0.042				
				79.971	0.4	0.10	
sm51c	20	0-2 Du/acre	151.297				
sm51c	20	0-2 Du/acre	6.619				
sm51c	20	0-2 Du/acre	0.251				
				158.167	0.45	0.22	
sm51c	30	2-3.5 Du/acre	89.005				
sm51c	30	2-3.5 Du/acre	0.354				
sm51c	30	2-3.5 Du/acre	0.036				
				89.395	0.6	0.16	
sm51c	160	Public	0.025				
				0.025	0.9	0.00	
			327.558	327.558		0.48	38
vr47c	20	0-2 Du/acre	96.807				
				96.807	0.45	0.07	
vr47c	30	2-3.5 Du/acre	132.271				
vr47c	30	2-3.5 Du/acre	10.823				
vr47c	30	2-3.5 Du/acre	316.41				
vr47c	30	2-3.5 Du/acre	96.807				
				556.311	0.6	0.51	
			653.118	653.118		0.58	91

TABLE A-5

Subbasin Name	Newcode	Land Use	Acres		C value for 100yr	Average C Value	Ret Vol. (ac-ft)
vr59c	30	2-3.5 Du/acre	5.856				
vr59c	30	2-3.5 Du/acre	26.49				
vr59c	30	2-3.5 Du/acre	5.856				
				38.202	0.6	0.15	
vr59c	47	10-15 Du/acre	0.428				
				0.428	0.75	0.00	
vr59c	120	Business Park	4.814				
				4.814	0.75	0.02	
vr59c	200	Park/Open Space	111.561				
				111.561	0.25	0.18	
			155.005	155.005		0.35	13

APPENDIX B

UNIT HYDROGRAPH PARAMETERS

TABLE B-1

Summary of MCUHP1 Input Parameters
Existing Land Use Conditions

Input File: LAVEX.M1I
Output File: LAVEX.M1O

SUBBASIN	AREA sq.miles	IA ins.	DTHETA	PSIF	XKSAT adj.	RTIMP %	Tc	R
SMA43C	0.128	0.500	0.250	4.20	0.660	0.0	0.78	0.55
BR43C	0.869	0.400	0.250	4.55	0.480	4.0	1.50	0.96
VR47C	0.869	0.460	0.250	5.70	0.300	3.0	1.50	0.70
AVR51C	0.285	0.400	0.220	6.60	0.200	16.0	1.04	0.64
BR51C	0.699	0.460	0.260	4.90	0.420	5.0	1.50	0.57
AVR55C	0.241	0.500	0.150	8.00	0.130	0.0	1.26	0.86
VR59C	0.233	0.210	0.150	7.00	0.190	0.0	1.43	1.01
BR159C	0.675	0.360	0.250	4.80	0.460	0.0	1.50	0.85
BR163C	0.255	0.420	0.250	5.40	0.320	7.0	1.38	0.96
DR43C	0.921	0.410	0.280	5.10	0.320	14.0	0.85	0.47
SM51C	0.511	0.450	0.250	5.20	0.370	5.0	1.40	0.85
BR259C	1.012	0.460	0.250	4.80	0.440	4.0	1.50	0.82
OA55C	0.246	0.310	0.250	4.80	0.370	15.0	0.99	0.60
DR57C	0.118	0.480	0.250	4.80	0.450	1.0	1.50	1.18
DR59C	0.117	0.500	0.250	4.80	0.460	0.0	1.49	1.17
BR263C	0.494	0.480	0.260	4.70	0.460	3.0	1.50	1.09
BR67C	0.127	0.300	0.150	7.00	0.150	16.0	0.63	0.44
CD1C	0.464	0.470	0.250	4.70	0.470	5.0	1.42	0.59
CD2C	0.598	0.490	0.150	8.40	0.110	2.0	1.50	0.82
IR65C	0.170	0.500	0.250	4.80	0.460	0.0	1.50	1.48
IRDC	0.525	0.500	0.250	4.80	0.460	0.0	1.50	1.10
IRSMC	0.241	0.400	0.300	4.50	0.410	5.0	1.00	0.77
A67AC	0.618	0.410	0.260	5.10	0.360	6.0	0.47	0.13
CD4C	0.190	0.500	0.250	4.90	0.440	0.0	1.50	0.90
CD3C	0.480	0.500	0.150	7.00	0.180	0.0	1.47	0.90

TABLE B-2

Summary of MCUHP1 Input Parameters
Future Land Use Conditions

Summary of MCUHP1 Input Parameters

Input File: LAVFUT-1.M1I
Output File: LAVFUT-1.M1O

SUBBASIN	AREA sq.miles	IA ins.	DTHETA	PSIF	XKSAT adj.	RTIMP %	Tc	R
VR47C	0.869	0.260	0.250	5.70	0.250	27.0	1.50	0.94
AVR51C	0.285	0.250	0.190	6.60	0.170	30.0	0.83	0.55
BR51C	0.699	0.250	0.250	4.90	0.350	31.0	1.33	0.72
AVR55C	0.241	0.250	0.150	8.00	0.100	29.0	1.21	0.97
VR59C	0.233	0.130	0.150	7.00	0.180	9.0	1.50	1.06
BR159C	0.675	0.170	0.250	4.80	0.420	28.0	1.50	1.10
BR163C	0.255	0.220	0.250	5.40	0.240	21.0	0.81	0.59
SM51C	0.511	0.290	0.250	5.20	0.290	17.0	1.05	0.70
DR43C	0.922	0.250	0.250	5.10	0.300	38.0	0.45	0.22
BR259C	1.012	0.230	0.250	4.80	0.360	33.0	0.95	0.58
OA55C	0.246	0.290	0.250	4.80	0.360	19.0	1.50	1.25
DR57C	0.118	0.300	0.250	4.80	0.360	15.0	1.50	1.49
DR59C	0.117	0.230	0.250	4.80	0.370	37.0	1.55	1.52
BR263C	0.494	0.110	0.250	4.70	0.480	38.0	1.10	0.83
BR67C	0.127	0.300	0.150	7.00	0.140	15.0	1.16	1.17
CD1C	0.464	0.190	0.250	4.70	0.410	30.0	0.58	0.29
CD2C	0.598	0.240	0.150	8.40	0.090	31.0	1.50	1.12
IR65C	0.170	0.280	0.250	4.80	0.360	21.0	0.83	0.72
IRDC	0.525	0.190	0.250	4.80	0.370	51.0	0.96	0.69
IRSMC	0.241	0.210	0.250	4.50	0.430	34.0	0.48	0.33
A67AC	0.618	0.250	0.250	5.10	0.320	34.0	1.42	0.94
CD4C	0.190	0.250	0.250	4.90	0.350	29.0	0.77	0.50
CD3C	0.480	0.240	0.150	7.00	0.140	33.0	0.93	0.58
ER55B	0.256	0.260	0.260	6.00	0.210	27.0	0.91	0.60
ER59B	0.259	0.130	0.250	5.00	0.370	71.0	0.67	0.49
IR63B	0.124	0.130	0.250	4.80	0.400	71.0	0.57	0.56

APPENDIX C

REACH ROUTING PARAMETERS AND SUMMARY DATA

Table C - 1

Routing Information
Laveen Area Conveyance Channel Routing - Existing Land Use Conditions
w/43rd Ave. Detention Basins at Southern Ave. & Baseline Rd.

Maricopa Drain	HEC-1 ID	Beg Q	Beg Time	Ending Q	Ending Time	Change in Q	Change in Time (hr)	Length (ft)	Velocity (ft/sec)	Atten/ft
	R0A51A	119	12.00	115	13.33	4	1.33	2790	0.6	0.0014
	R0A51B	115	13.33	67	15.75	48	2.42	3600	0.4	0.0133
	RE55B	623	12.50	443	13.83	180	1.33	3840	0.8	0.0469
	RE59B	511	13.75	440	14.50	71	0.75	2600	1.0	0.0273
	RIR63B	452	14.42	425	15.00	27	0.58	3100	1.5	0.0087
*	RMD43	988	15.25	981	15.50	7	0.25	2800	3.1	0.0025
*	RBR511	977	15.50	965	15.67	12	0.17	3200	5.2	0.0038
	RBR512	244	12.42	162	14.08	82	1.66	3600	0.6	0.0228
*	RB1591	1348	12.67	1202	13.00	146	0.33	5200	4.4	0.0281
	RB1592	166	12.58	124	14.50	42	1.92	3600	0.5	0.0117
	RB1593	176	12.58	124	14.33	52	1.75	3000	0.5	0.0173
	RS51C	906	12.33	498	13.83	408	1.50	6000	1.1	0.0680
	RB2591	568	13.83	456	14.83	112	1.00	4200	1.2	0.0267
	RB2592	456	14.83	420	15.50	36	0.67	3000	1.2	0.0120
	RO55C	711	12.50	624	13.08	87	0.58	2600	1.2	0.0335
	RD57C	702	13.00	554	14.08	148	1.08	2920	0.8	0.0507
	RD59C	566	14.08	539	14.33	27	0.25	1200	1.3	0.0225
	RB259	544	14.33	523	14.67	21	0.34	5280	4.3	0.0040
*	RB1631	2190	12.83	2134	13.00	56	0.17	2640	4.3	0.0212
*	RCD1C	2491	12.92	2449	13.08	42	0.16	2640	4.6	0.0159
	RCD1C2	98	12.33	69	13.67	29	1.34	2100	0.4	0.0138
*	RCD2C1	2635	13.00	2517	13.25	118	0.25	3600	4.0	0.0328
	RIR65C	45	11.83	45	13.17	0	1.34	3300	0.7	0.0000
	RIRDC	134	12.67	129	12.92	5	0.25	3200	3.6	0.0016
	RIRSMC	266	12.92	241	13.83	25	0.91	3400	1.0	0.0074
	RCD2C2	251	13.75	244	14.08	7	0.33	1000	0.8	0.0070
*	RCD3C1	2757	13.25	2649	13.50	108	0.25	3700	4.1	0.0292
	RCD4C1	379	12.67	344	13.42	35	0.75	2600	1.0	0.0135
	RCD3C2	387	13.33	300	14.92	87	1.59	5200	0.9	0.0167

Table C - 2

Routing Information
Laveen Area Conveyance Channel - Future Land Use Conditions

Maricopa Drain		Beg Q	Beg Time	Ending Q	Ending Time	Change in Q	Change in Time (hr)	Length (ft)	Velocity (ft/sec)	Atten/ft
*	RBR511	109	14.67	65	15.50	44	0.83	3200	1.1	0.0138
	RBR512	133	13.00	82	13.58	51	0.58	3600	1.7	0.0142
*	RB1591	235	13.75	134	14.58	101	0.83	5200	1.7	0.0194
	RB1592	23	15.17	13	16.25	10	1.08	3600	0.9	0.0028
	RB1593	117	12.75	114	13.00	3	0.25	3000	3.3	0.0010
	RS51C	1272	12.17	1054	12.42	218	0.25	6000	6.7	0.0363
	RB2591	1054	12.42	799	12.75	255	0.33	4200	3.5	0.0607
	RB2592	799	12.75	762	12.92	37	0.17	3000	4.9	0.0123
	R0A51A	119	12.00	119	12.67	0	0.67	2790	1.2	0.0000
	R0A51B	119	12.67	105	12.92	14	0.25	3600	4.0	0.0039
	RO55C	1444	12.08	920	12.25	524	0.17	2600	4.2	0.2015
	RD57C	968	12.25	635	12.42	333	0.17	2920	4.8	0.1140
	RD59C	635	12.42	596	12.50	39	0.08	1200	4.2	0.0325
	RB259	596	12.50	444	12.75	152	0.25	5280	5.9	0.0288
*	RBR163	1643	13.00	1482	13.17	161	0.17	2640	4.3	0.0610
*	RCD1C	1723	13.17	1635	13.33	88	0.16	2640	4.6	0.0333
	RCD1C2	67	12.67	63	12.92	4	0.25	2100	2.3	0.0019
*	RCD2C1	1735	13.33	1635	13.58	100	0.25	3600	4.0	0.0278
	RE55B	1414	12.08	832	12.25	582	0.17	3840	6.3	0.1516
	RE59B	832	12.25	537	12.42	295	0.17	2600	4.2	0.1135
	RIR65C	124	12.75	114	13.08	10	0.33	3300	2.8	0.0030
	RIRDC	114	13.08	99	13.42	15	0.34	3200	2.6	0.0047
	RIRSMC	256	13.17	226	13.42	64	0.25	3400	3.8	0.0188
*	RCD3C1	2034	13.67	1843	13.92	191	0.25	3700	4.1	0.0516
	RCD4C1	205	13.58	171	13.92	34	0.34	2600	2.1	0.0131
	RCD3C2	189	13.92	166	14.33	23	0.41	5200	3.5	0.0044

TABLE C - 3

Routing Information

Laveen Area Conveyance Channel - Future Land Use Conditions (with Relaxed Retention)

Maricopa Drain		Beg Q	Beg Time	Ending Q	Ending Time	Change in Q	Change in Time (hr)	Length (ft)	Velocity (ft/sec)	Atten/ft
*	RBR511	157	14.25	97	14.92	60	0.67	3200	1.3	0.0188
	RBR512	133	13.00	82	13.58	51	0.58	3600	1.7	0.0142
*	RB1591	278	13.58	159	14.42	119	0.84	5200	1.7	0.0229
	RB1592	23	15.17	13	16.25	10	1.08	3600	0.9	0.0028
	RB1593	117	12.75	114	13.00	3	0.25	3000	3.3	0.0010
	RS51C	1272	12.17	1054	12.42	218	0.25	6000	6.7	0.0363
	RB2591	1054	12.42	799	12.75	255	0.33	4200	3.5	0.0607
	RB2592	799	12.75	762	12.92	37	0.17	3000	4.9	0.0123
	R0A51A	119	12.00	119	12.67	0	0.67	2790	1.2	0.0000
	R0A51B	119	12.67	105	12.92	14	0.25	3600	4.0	0.0039
	RO55C	1444	12.08	920	12.25	524	0.17	2600	4.2	0.2015
	RD57C	968	12.25	635	12.42	333	0.17	2920	4.8	0.1140
	RD59C	635	12.42	596	12.50	39	0.08	1200	4.2	0.0325
	RB259	596	12.50	444	12.75	152	0.25	5280	5.9	0.0288
*	RBR163	1643	13.00	1499	13.17	144	0.17	2640	4.3	0.0545
*	RCD1C	1782	13.17	1698	13.33	84	0.16	2640	4.6	0.0318
	RCD1C2	67	12.67	63	12.92	4	0.25	2100	2.3	0.0019
*	RCD2C1	1804	13.25	1693	13.58	111	0.33	3600	3.0	0.0308
	RE55B	1414	12.08	832	12.25	582	0.17	3840	6.3	0.1516
	RE59B	832	12.25	537	12.42	295	0.17	2600	4.2	0.1135
	RIR65C	124	12.75	114	13.08	10	0.33	3300	2.8	0.0030
	RIRDC	114	13.08	99	13.42	15	0.34	3200	2.6	0.0047
	RIRSMC	256	13.17	226	13.42	30	0.25	3400	3.8	0.0088
*	RCD3C1	2186	13.50	1975	13.83	211	0.33	3700	3.1	0.0570
	RCD4C1	205	13.58	171	13.92	34	0.34	2600	2.1	0.0131
	RCD3C2	189	13.92	166	14.33	23	0.41	5200	3.5	0.0044

APPENDIX D

Unit Flow Comparison

Existing Condition w/ 43rd Ave. Basin.

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*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              JUN   1998               *
*              VERSION 4.1              *
*                                       *
*  RUN DATE   29AUG02  TIME  17:37:36   *
*                                       *
*****************************************
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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
TRUCTURE.

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

HEC-1 INPUT PAGE 1

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

  1           ID    LAVEEN ADMS (FINAL HEC-1) 100-YR 24-HR STORM          CBA FILE # 40916-02-30
  2           ID    HIDDEN VALLEY WATERSHED/CHAMPION DRAIN WATERSHED
  3           ID                                                        DATE: SEPTEMBER 12,2000
  4           ID                                                        FINAL: NOVEMBER 2002
  5           ID    24-HOUR SCS TYPE II RAINFALL
  6           ID
  7           ID
  8           ID
  9           ID
 10           ID
 11           ID    ***************************************************************************
 12           ID
 13           ID   FOLLOWING REVISIONS BY AMIR MOTAMEDI, STEVEN TUCKER, FCDMD, 8/29/02
 14           ID   1- REMOVED THE PROPOSED BASIN ON NE CORNER OF BASELINE AND 43RD AVE PER PPM
 15           ID   2- REMOVED DUPLICATE RR35C3
 16           ID   3- CORRECTED THE LENGTH FOR THE REMAINING RR35C3
 17           ID   4- CORRECTED THE REACH LENGTH AND SLOPE FOR RR35C2
 18           ID   5- CORRECTED THE 43RD AVE. STORM DRAIN CAPACITY TO 294
 19           ID   6- CORRECTED THE RATING CURVE FOR THE 43RD AVE BASIN AT BASELINE RD
 20           ID   7- PLEASE NOTE: RAINFALL AREAL REDUCTION IS FOR ENTIRE WATERSHED. FOR DESIGN
 21           ID   OF LACC ONLY.  NOT TO BE USED FOR ANY OTHER DESIGN W/O PROPER MODIFICATION
 22           ID    ************************************************************************
 23           ID
 24           ID
 25           ID    ***************************************************************************
 26           ID    FLOOD INSURANCE STUDY UPDATE
 27           ID    INCLUDE PHYSICAL CHANGES IN THE WATERSHED AS OF MARCH 2000
 28           ID    INCLUDED THE FOLLOWING FACILITIES:
 29           ID      UPSTREAM OF 43RD AVE.  - EXISTING LANDUSE
 30           ID         1- 43RD AVENUE STORM DRAIN, 1000 FT NORTH OF BASELINE TO SALT RIVER
 31           ID         2- CESAR CHAVEZ GOLF COURSE, 35TH AVENUE AND DOBBINS
 32           ID         3- BASELINE STORMDRAIN, FROM 7TH AVE TO 43RD AVE.
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 33          ID         4- 43RD AVE DETENTION BASIN AT SOUTHERN AVE.
 34          ID
 35          ID      DOWNSTREAM OF 43RD AVE. - EXISTING LANDUSE
 36          ID         PLAN 2 - PROPOSED CHANNEL
 37          ID
 38          ID    CHANGES BY H&H BRANCH, FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
 39          ID    8/29/02   INPUT FILE NAME LB2DR1.DAT
             *DIAGRAM
 40          IT       5                    500
 41          IO       5       0

 42          KK   IR62B
 43          KM   SUB-BASIN  IR62B -LAND USE - AGRICULTURE;MINOR DEVELOPMENT
 44          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 45          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .97
 46          BA    .550
 47          IN      30
 48          KM   RAINFALL DEPTH OF 4.20 WAS SPACIALLY REDUCED AS SHOWN ON THE PB RECORD
 49          PB   4.074
 50          KM   THE FOLLOWING PC RECORDS REPRESENT A 24-HR SCS TYPE II STORM
 51          PC    .000    .005    .011    .016    .022    .028    .035    .041    .048    .056
 52          PC    .068    .071    .080    .089    .098    .109    .120    .133    .147    .163
 53          PC    .181    .204    .235    .283    .663    .735    .772    .799    .820    .838
                                            HEC-1 INPUT                                          PAGE  2

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

 54          PC    .854    .868    .880    .891    .902    .912    .921    .929    .937    .945
 55          PC    .952    .959    .965    .972    .978    .984    .989    .995   1.000
 56          LG    .500    .000   5.000    .371    .000
 57          UC    .850    .594
 58          UA       0       3       9      18      28      42      59      73      87      92
 59          UA     100
             *

 60          KK   DR43C
 61          KM   SUB-BASIN DR43C -LAND USE- AGRICULTURE, DESERT HILLS; MINOR DEVELOPMENT
 62          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 63          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 64          BA    .940
 65          IN      30
 66          KM   RAINFALL DEPTH OF 4.2 WAS SPACIALLY REDUCED AS SHOWN ON THE PB RECORD
 67          PB   3.780
 68          KM   THE FOLLOWING PC RECORDS REPRESENTS A 24-HR SCS TYPE II STORM
 69          PC    .000    .005    .011    .016    .022    .028    .035    .041    .048    .056
 70          PC    .068    .071    .080    .089    .098    .109    .120    .133    .147    .163
 71          PC    .181    .204    .235    .283    .663    .735    .772    .799    .820    .838
 72          PC    .854    .868    .880    .891    .902    .912    .921    .929    .937    .945
 73          PC    .952    .959    .965    .972    .978    .984    .989    .995   1.000
 74          LG    .360    .053   4.450    .391  20.000
 75          UC    .617    .325
 76          UA       0       3       5       8      12      20      43      75      90      96
 77          UA     100
             *

 78          KK  DDR43C
 79          KM   SPLIT FLOW.RESULTANT HYDROGRAPH IS THE ESTIMATED FLOW THAT DRAINS THE TO WEST
 80          KM   0F THE SOUTHWEST CORNER OF 43RD AVENUE AND DOBBINS ROAD
 81          DT  RDR43C
 82          DI       0      50     100     119     300     500     600     800     900
 83          DQ       0      50     100     119     181     381     481     681     781
             *

 84          KK  ROA51B
 85          KM   ROUTE SPLIT FLOW FROM SUB-BASIN DR43B TO COMPUTATION POINT COA51B (1ST REACH)
 86          RS      10    ELEV    1041
 87          RC    0.07    0.07    0.07    2790  0.0042
 88          RX       0     300     440     480     560     590     615     640
 89          RY    1042    1041    1041    1041    1041    1041    1041    1042
             *
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 90          KK  ROA51B
 91          KM   ROUTE SPLIT FLOW FROM SUB-BASIN DR43B TO COMPUTATION POINT COA51B (2ND REACH)
 92          RS      24    ELEV      -1
 93          RC   0.065   0.065   0.065    3600  0.0017
 94          RX       0      90     320     490     690    1060    1950    1960
 95          RY    1038  1037.8  1037.4    1037    1037  1037.1  1037.8    1038
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 96          KK   OA51B
 97          KM   SUB-BASIN  OA51B-LAND USE - AGRICULTURE, RURAL DEVELOPMENT
 98          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 99          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .97
100          BA   1.370
101          IN      30
102          KM   RAINFALL DEPTH OF 4.2 WAS SPACIALLY REDUCED AS SHOWN ON THE PB RECORD
103          PB   4.074
104          PC    .000    .005    .011    .016    .022    .028    .035    .041    .048    .056
105          PC    .068    .071    .080    .089    .098    .109    .120    .133    .147    .163
106          PC    .181    .204    .235    .283    .663    .735    .772    .799    .820    .838
107          PC    .854    .868    .880    .891    .902    .912    .921    .929    .937    .945
108          PC    .952    .959    .965    .972    .978    .984    .989    .995   1.000
109          LG    .360    .098   5.300    .312    10.0
110          UC   0.883    .320
111          UA       0       3       9      18      28      42      59      73      87      92
112          UA     100
             *

113          KK  COA51B
114          KM    COMBINE ROUTED SPLIT FLOW FROM SUB-BASIN DR43C TO RUNOFF FROM SUB-BASIN
115          KM    OA51B
116          HC       2
             *

117          KK  DFO51B
118          KM    RATE CHANNEL CROSS-SECTION AT CONCENTRATION POINT OA51B FOR SPLIT FLOW.
119          KM    DIVERTED FLOW IS ROUTED THROUGH CHAMPION DRAIN WATERSHED
120          DT  DOA55C
121          DI       0       8      24      93     219     461     852    1384
122          DQ       0       4      11      43     102     262     479     735
             *

123          KK   RE55B
124          KM    ROUTE SPLIT FLOW FROM SUB-BASIN OA51B TO COMPUTATION POINT CRE55B
125          RS      18    ELEV      -1
126          RC    0.07    0.07    0.07    3840  0.0013
127          RX       0      30     370     530     680     860    1120    1260
128          RY    1032    1030  1029.7  1029.4  1029.2    1029  1028.8    1031
             *

129          KK   ER55B
130          KM   SUB-BASIN ER55B-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
131          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
132          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .97
133          BA    .250
134          LG    .500    .000   7.800    .150    .000
135          UC    .983    .669
136          UA       0       3       9      18      28      42      59      73      87      92
137          UA     100
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

138          KK  CER55B
139          KM   COMBINE ROUTED DIVERTED FLOW FROM SUB-BASIN OA51B TO RUNOFF FROM SUBASIN
140          KM   ER55B
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 141          HC       2
              *

 142          KK   RE59B
 143          KM   ROUTE FLOW FROM COMPUTATION POINT CRE55B TO COMPUTATION POINT CER59B
 144          RS       7    ELEV      -1
 145          RC    0.07    0.07    0.07    2600   0.002
 146          RX       0      30      50      90     180     270     360     860
 147          RY  1026.5    1024    1024    1024    1025  1025.3  1025.5  1026.5
              *

 148          KK   ER59B
 149          KM   SUB-BASIN ER59B-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
 150          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 151          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .97
 152          BA    .280
 153          LG    .500    .000   3.790    .454    .000
 154          UC    .933    .586
 155          UA       0       3       9      18      28      42      59      73      87      92
 156          UA     100
              *

 157          KK  CER59B
 158          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CRE55B TO RUNOFF FROM SUBASIN
 159          KM   ER59B
 160          HC       2
              *

 161          KK  RIR63B
 162          KM   ROUTE FLOW FROM COMPUTATION POINT CER59B TO COMPUTATION POINT CIR63B. NOTE
 163          KM   END POINTS OF CROSSECTION WERE ADJUSTED SO THAT FLOW WOULD BE CONTAINED
 164          KM   WITHIN THE GIVEN ROUTING REACH
 165          RS       7    ELEV      -1
 166          RC    0.07    0.07    0.07    3100   0.002
 167          RX       0      40      80     120     160     210     290     360
 168          RY  1022.7    1020  1019.7  1019.7    1020  1020.2  1020.9  1022.7
              *

 169          KK   IR63B
 170          KM   SUB-BASIN IR63B-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
 171          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 172          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .97
 173          BA    .130
 174          LG    .500    .000   3.500    .470    .000
 175          UC    .767    .647
 176          UA       0       3       9      18      28      42      59      73      87      92
 177          UA     100
              *
                                        HEC-1 INPUT                                          PAGE  5

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

 178          KK  CIR63B
 179          KM    COMBINE ROUTED FLOW FROM COMPUTATION POINT CER59B AND RUNOFF OF SUB-BASINS
 180          KM    IR63B AND IR62B
 181          HC       3
              *

 182          KK  DIR63B
 183          KM    COMPUTATION POINT CIR63B IS LOCATED ON THE WESTERN EDGE OF THE STUDY AREA
 184          KM    WHICH IS BOUNDED BY A CONCRETE IRRIGATION CANAL AND EARTHEN ROADWAY. THE
 185          KM    EARTHEN ROADWAY HAS A CAPACITY OF APPROXIMATELY 45 CFS BEFORE THE
 186          KM    IRRIGATION  CANAL IS OVERTOPPED AND FLOW CONTINUES ITS NATURAL FLOW
 187          KM    PATH TO THE WEST. THE DIVERTED FLOW OF APPROXIMATELY 45 CFS IS ROUTED
 188          KM    TO THE CHAMPION DRAIN WATERSHED
 189          DT  RIR63B
 190          DI       0      45     100     200     400     600     800
 191          DQ       0      45      45      45      45      45      45
              *
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192          KK   SA19C
193          KM    !!!!!!! START CHAMPION DRAIN WATERSHED  !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
194          KM   SUB-BASIN SA19C-LAND USE- URBAN,AGRICULTURE
195          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
196          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
197          BA    .480
198          IN      30
199          KM   RAINFALL DEPTH OF 4.20 WAS SPACIALLY REDUCED AS SHOWN BY THE PB RECORD
200          PB   3.780
201          KM   THE FOLLOWING PC RECORD USED A 24-HOUR SCS TYPE II STORM
202          PC    .000    .005    .011    .016    .022    .028    .035    .041    .048    .056
203          PC    .068    .071    .080    .089    .098    .109    .120    .133    .147    .163
204          PC    .181    .204    .235    .283    .663    .735    .772    .799    .820    .838
205          PC    .854    .868    .880    .891    .902    .912    .921    .929    .937    .945
206          PC    .952    .959    .965    .972    .978    .984    .989    .995   1.000
207          LG    .400    .093   3.750    .484   5.800
208          UC    .700    .599
209          UA       0       3       9      18      28      42      59      73      87      92
210          UA     100
             *

211          KK  DSA19C
212          KM   DIVERT CAPACITY OF STORMDRAIN AT CONCENTRARION POINT
213          DT   SA19C
214          DI      10      30      70     100     200     300
215          DQ      10      30      70      70      70      70
             *

216          KK  RR23C1
217          KM   ROUTE FLOW FROM SUB-BASIN SA19C TO COMPUTATION POINT CPC23C ( 1ST REACH )
218          RS       4    ELEV      -1
219          RC   0.035   0.035   0.035    1200  0.0083    1076
220          RX       0      50     120     220    1020    1080    1180    1250
221          RY    1076  1075.8  1075.8  1075.8  1075.8  1075.8  1075.8    1076
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

222          KK  RR23C2
223          KM   ROUTE FLOW FROM SUB-BASIN SA19C TO COMPUTATION POINT CPC23C ( 2ND REACH )
224          RS       8    ELEV      -1
225          RC   0.100   0.100   0.100    1600  0.0088    1066
226          RX       0     150     560     820    1230    1470    1700    1870
227          RY    1066    1064    1064  1063.6  1063.5    1064    1064    1066
             *

228          KK  RR23C3
229          KM   ROUTE FLOW FROM SUB-BASIN SA19C TO COMPUTATION POINT CPC23C ( 3RD REACH )
230          RS      10    ELEV      -1
231          RC   0.070   0.070   0.070    1900  0.0053    1056
232          RX       0      40     110     590    1210    1490    1770    2040
233          RY    1058    1054    1054  1052.8  1052.8    1054  1054.8    1056
             *

234          KK   CR23C
235          KM   SUB-BASIN CR23C-LAND USE- URBAN,AGRICULTURE
236          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
237          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
238          BA    .580
239          LG    .320    .114   5.550    .234   3.300
240          UC    .433    .214
241          UA       0       3       9      18      28      42      59      73      87      92
242          UA     100
             *

243          KK  CPC23C
244          KM    COMBINE ROUTED FLOW FROM SUB-BASIN SA19C TO RUNOFF FROM SUB-BASIN CR23C
245          HC       2
             *
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```
246          KK   RF27C
247          KM   ROUTE FLOW FROM COMPUTATION POINT CPC23C TO COMPUTATION POINT CPR27C
248          RS      11    ELEV      -1
249          RC   0.070   0.070   0.070    3000  0.0020    1049
250          RX       0     200     460     680     880     985    1220    2110
251          RY    1049  1048.2    1048    1047    1047    1048    1048    1049
             *

252          KK   RR27C
253          KM   SUB-BASIN RR27C-LAND USE- URBAN,AGRICULTURE
254          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
255          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
256          BA    .480
257          LG    .460    .036   3.780    .432    .000
258          UC    .633    .314
259          UA       0       3       9      18      28      42      59      73      87      92
260          UA     100
             *
                                          HEC-1 INPUT                                          PAGE  7

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

261          KK  CPR27C
262          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CPC23C WITH RUNOFF FROM SUB-
263          KM   BASIN RR27C
264          HC       2
             *

265          KK  RR35C1
266          KM   ROUTE FLOW FROM COMPUTATION POINT CPR27C TO COMPUTATION POINT CPR35C
267          RS      18    ELEV      -1
268          RC   0.070   0.070   0.070    5320  0.0030    1140
269          RX       0     270     540     630     790     870    1260    1300
270          RY    1140    1138    1137    1137    1137    1137    1138    1140
             *

271          KK    CBDE
272          KM   BASIN EAST OF CENTRAL 7th AVE FROM BASELINE TO NORTH OF DOBBINS
273          BA    0.17
274          LG     .35     .25     4.3     .33       9
275          UC     .65     .65
276          UA       0       3       9      18      28      42      59      73      87      92
277          UA     100
             *

278          KK    OVL7
279          KM   DIVERT FLOWS IN BASELINE STORMDRAIN
280          DT   BLSD7
281          DI       0     250    1000   10000
282          DQ       0     250     250     250
             *
             * WITHOUT 7TH AVE STORMDRAIN THERE ALL THE FLOWS FROM CBDE WILL ENTER INTO
             *  BASELINE STORMDRAIN, THEREFORE THERE IS NO OVERLAND ROUTING NEEDED.
             *
             * KK ROVL7
             * KM      Route overland flows in roadside ditch to BR19C (BASELINE & 19TH AVE)
             * RD  5200   0.008   0.030            TRAP    10.0    20.0
             *

283          KK   BR19C
284          KM   SUB-BASIN BR19C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
285          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
286          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
287          BA    .390
288          LG    .430    .027   4.050    .619   3.300
289          UC    .517    .319
290          UA       0       3       9      18      28      42      59      73      87      92
291          UA     100
             *
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 292          KK   OVL19
 293          KM   THE CAPACITY OF THE BASELINE STORMDRAIN IS 300 CFS, 250 CFS IS ALREADY IN THE
 294          KM   THE STORMDRAIN FROM 7TH AVE, THEREFORE THERE IS ONLY ROOM FOR AN EXTRA 50 CFS
 295          DT  BLSD19
 296          DI       0       50     1000
 297          DQ       0       50       50
              *
                                          HEC-1 INPUT                                          PAGE  8

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


 298          KK  COVL19
 299          KM   COMBINE THE OVERLAND FLOWS FROM 19TH AVE AND 7TH AVE
 300          HC       2
              *

 301          KK  ROVL19
 302          KM   ROUTE FLOW FROM SUB-BASIN BR19C TO COMPUTATION POINT CPS27C
 303          RS      33    ELEV      -1
 304          RC   0.070   0.070   0.070    7400  0.0077    1086
 305          RX       0     730    1080    1340    1710    2380    2850    3350
 306          RY    1086  1085.9  1085.7  1085.5    1085  1085.6  1085.6    1086
              *

 307          KK   SA27C
 308          KM   SUB-BASIN SA27C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
 309          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 310          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 311          BA    .623
 312          LG    .500    .000   3.520    .476    .000
 313          UC    .683    .444
 314          UA       0       3       9      18      28      42      59      73      87      92
 315          UA     100
              *

 316          KK  CPS27C
 317          KM    COMBINE ROUTED FLOW FROM SUB-BASIN BR19C TO RUNOFF FROM SUB-BASIN SA27C
 318          HC       2
              *

 319          KK  RR35C3
 320          KM   ROUTE FLOW FROM CONCENTRATION POINT CPS27C TO CONCENTRATION POINT CPR35C
 321          KM   ROUTING REACH LENGTH CORRECTED BY AMM, 8/29/02
 322          RS       8    ELEV      -1
 323          RC     .07     .07     .07    6000   .0072    1042
 324          RX       0     200     420     520     630     750    1120    1360
 325          RY    1042  1041.5    1041  1040.8  1040.9    1041  1041.5    1042
              *

 326          KK  CPR35A
 327          KM   COMBINE ROUTED FLOW FROM  COMPUTATION POINTS CPR27C AND CPS27C
 328          HC       2
              *

 329          KK    SM5C
 330          KM   SUB-BASIN SM5C-LAND USE-URBAN
 331          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 332          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 333          BA    .200
 334          LG    .200    .349   4.300    .555  18.000
 335          UC    .383    .355
 336          UA       0       5      16      30      65      77      84      90      94      97
 337          UA     100
              *
                                          HEC-1 INPUT                                          PAGE  9

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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 338          KK    RSM7
 339          KM   ROUTE FLOW FROM SUB-BASIN SM5C TO COMPUTATION POINT CPS15C
 340          RS      10    ELEV      -1
 341          RC   0.070   0.070   0.070    4000  0.0145
 342          RX       0     110     180     270     330     420     510     600
 343          RY    1180    1179  1178.5    1178    1178  1178.5    1179    1180

 344          KK  SMA15C
 345          KM   SUB-BASIN SMA15C-LAND USE- URBAN,AGRICULTURE
 346          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 347          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 348          BA    .360
 349          LG    .400    .045   3.700    .547    .000
 350          UC    .417    .292
 351          UA       0       3       9      18      28      42      59      73      87      92
 352          UA     100

 353          KK  CPS15C
 354          KM   COMBINE ROUTED FLOW FROM SUB-BASIN SM5C WITH RUNOFF FROM SUB-BASIN SMA15C
 355          HC       2

 356          KK  RSM19C
 357          KM   ROUTE FLOW FROM SUB-BASIN SA15C TO COMPUTATION POINT CPS19C
 358          RS       4    ELEV
 359          RC   0.070   0.070   0.070    2030    0.01    1140
 360          RX       0      50     110     160     210     260     350     430
 361          RY    1140  1139.5  1139.2  1139.2  1139.2  1139.2  1139.5    1140

 362          KK  SMA19C
 363          KM   SUB-BASIN SMA19C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
 364          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 365          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 366          BA    .156
 367          LG    .500    .000   4.200    .777    .000
 368          UC    .833   1.212
 369          UA       0       3       9      18      28      42      59      73      87      92
 370          UA     100

 371          KK  CPS19C
 372          KM   COMBINE ROUTED FLOW FROM SUB-BASIN SMA15C TO RUNOFF FROM SUB-BASIN SMA19C
 373          HC       2

 374          KK  RRB27C
 375          KM   ROUTE FLOW FROM COMPUTATION POINT CPS19C TO COMPUTATION POINT CPB27C
 376          RS      22    ELEV      -1
 377          RC   0.070   0.070   0.070    7400  0.0090    1110
 378          RX       0     260     550     770     920    1170    1320    1500
 379          RY    1110    1109    1109    1108    1108  1107.8    1108    1110
                                           HEC-1 INPUT                                          PAGE 10

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


 380          KK    SM1C
 381          KM   SUB-BASIN SM1C-LAND USE- NATURAL DESERT(MOUNTAIN)
 382          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 383          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 384          BA   1.840
 385          LG    .150    .346   3.800    .623  50.000
 386          UC    .450    .220
 387          UA       0       3       5       8      12      20      43      75      90      96
 388          UA     100

 389          KK   SM1AC
 390          KM   SUB-BASIN SM1AC-LAND USE- NATURAL DESERT(MOUNTAIN)
 391          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 392          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 393          BA    .280
 394          LG    .150    .343   4.050    .528  10.000
 395          UC    .367    .288
 396          UA       0       3       5       8      12      20      43      75      90      96
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397          UA     100

398          KK    CSM1
399          KM   COMBINE FLOW FROM SUB-BASIN SM1C WITH SM1AC AT COMPUTATOIN
400          KM   POINT CSM1
401          HC       2

402          KK    RSM1
403          KM   ROUTE FLOW FROM COMPUTATION POINT CSM1  TO COMPUTATION POINT CSM2
404          RS       2    ELEV      -1
405          RC   0.035   0.035   0.035    4300   0.017
406          RX       0      90     160     230     310     380     490     590
407          RY    1390    1380    1377  1375.5    1377    1380    1383    1390

408          KK    SM2C
409          KM   SUB-BASIN SM2C-LAND USE- NATURAL DESERT(MOUNTAIN)
410          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
411          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
             * KO     1       2
412          BA   2.190
413          LG    .150    .350   3.310    .820  86.000
414          UC    .383    .134
415          UA       0       3       5       8      12      20      43      75      90      96
416          UA     100

417          KK    CSM2
418          KM   COMBINE RUNOFF FROM SUB-BASIN SM2C TO ROUTED FLOW FROM COMPUTATION
419          KM   POINT CSM1
420          HC       2

421          KK   RDENT
422          KM   ROUTE INFLOW HYDROGRAPH THROUGH SOUTH MOUNTAIN DETENTION BASIN
423          RS       1    ELEV      -1
424          SA    2.30    7.80   15.91   19.96   24.08   28.27   30.45   31.91
425          SE    1292    1294    1300    1305    1310    1315    1318    1320
426          SL    1298    7.06    0.58     0.5
                                        HEC-1 INPUT                                    PAGE 11

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

427          SS    1318     200     2.7     1.5

428          KK    RSM2
429          KM   ROUTE FLOW FROM COMPUTATOIN POINT CSM2 TO COMPUTATOIN POINT CSM3
430          RS      12    ELEV      -1
431          RC   0.040   0.040   0.040    6600   0.019    1228
432          RX       0      70     100     140     160     190     240     320
433          RY    1228  1227.5    1227    1226    1228  1228.5    1229    1230

434          KK    SM3C
435          KM   SUB-BASIN SM3C-LAND USE- NATURAL DESERT(HILLSLOPE,MOUNTAIN),MINOR DEVELOPMENT
436          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
437          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
438          BA    .480
439          LG    .160    .348   3.850    .607   1.500
440          UC    .333    .159
441          UA       0       3       5       8      12      20      43      75      90      96
442          UA     100

443          KK    CSM3
444          KM   COMBINE RUNOFF FROM SUB-BASIN SM3C TO ROUTED FLOW FROM COMPUTATION
445          KM   POINT CSM2
446          HC       2

447          KK    RSM3
448          KM   ROUTE FLOW FROM COMPUTATION POINT CSM3 TO COMPUTATION POINT CSM4
449          RS       4    ELEV      -1
450          RC   0.040   0.040   0.040    3000  0.0095
451          RX       0     120     190     270     330     400     470     530
452          RY    1178  1177.5    1177    1176    1176    1177  1177.5    1178
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 453          KK    SM4C
 454          KM   SUB-BASIN SM4C-LAND USE-URBAN
 455          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 456          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 457          BA    .240
 458          LG    .260    .350   4.600    .592  14.400
 459          UC    .417    .387
 460          UA       0       5      16      30      65      77      84      90      94      97
 461          UA     100

 462          KK    RSM4
 463          KM   ROUTE FLOW FROM SUB-BASIN SM4C TO COMPUTATION POINT CSM4
 464          RS       2    ELEV     -1
 465          RC   0.035   0.035   0.035    1200   0.012
 466          RX       0      50      80     110     130     160     180     200
 467          RY    1170  1169.5    1169  1168.5    1168  1168.5    1169    1170

 468          KK   DRW2C
 469          KM   SUB-BASIN DRW2C-LAND USE- NATURAL DESERT(HILLSLOPE,MOUNTAIN)
 470          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 471          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 472          BA    .530
 473          LG    .150    .340   3.250    .859  30.000
 474          UC    .517    .377
                                        HEC-1 INPUT                                          PAGE 12

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

 475          UA       0       3       5       8      12      20      43      75      90      96
 476          UA     100

 477          KK  DRWC1C
 478          KM   SUB-BASIN DRWC1C-LAND USE-AGRICULTURE
 479          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 480          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 481          BA   .120
 482          LG   .500    .000   4.250    .727    .000
 483          UC   .600    .720
 484          UA       0       3       9      18      28      42      59      73      87      92
 485          UA     100

 486          KK    CSM4
 487          KM   COMBINE RUNOFF FROM SUB-BASINS DRW2C AND DRWC1C WITH ROUTED FLOW FROM SM4C
 488          KM   AND COMPUTATION POINT CSM3
 489          HC       4

 490          KK    RSM5
 491          KM   ROUTE FLOW FROM COMPUTATION POINT CSM4 TO COMPUTATION POINT CSM5
 492          RS       1    ELEV     -1
 493          RC   0.045   0.045   0.045    1800  0.0078
 494          RX       0      80     130     160     180     190     220     260
 495          RY    1160    1159  1158.5    1158    1156    1156    1158    1160

 496          KK    DR1C
 497          KM   SUB-BASIN DR1C-LAND USE-NATURAL DESERT(HILLSLOPE)
 498          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 499          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 500          BA    .160
 501          LG    .150    .265   5.300    .198    .000
 502          UC    .417    .442
 503          UA       0       3       5       8      12      20      43      75      90      96
 504          UA     100
              *

 505          KK    WC1A
 506          KM   SUB-BASIN WC1A-LAND USE- NATURAL DESERT(HILLSLOPE)
 507          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 508          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 509          BA    .250
 510          LG    .150    .264   4.680    .217    40.0
 511          UC    .400    .404
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512          UA       0       3       5       8      12      20      43      75      90      96
513          UA     100
             *

514          KK    RSM6
515          KM   ROUTE FLOW FROM SUB-BASIN WC1A TO COMPUTATION POINT CPDR2C
516          RS       1    ELEV     -1
517          RC   0.045   0.045   0.045    1150   0.012    1150
518          RX       0      30      50      70      90     110     130     170
519          RY    1152    1151    1150    1148    1146    1146    1148    1150
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

520          KK    DR2C
521          KM   SUB-BASIN DR2C-LAND USE- NATURAL DESERT(HILLSLOPE),AGRICULTURAL
522          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
523          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
524          BA    .050
525          LG    .150    .325   4.255    .423    .000
526          UC    .350    .318
527          UA       0       3       5       8      12      20      43      75      90      96
528          UA     100
             *

529          KK  CPDR2C
530          KM   COMBINE FLOW FROM SUB-BASINS DR2C AND DR1C TO ROUTED FLOW FROM SUB-BASIN WC1A
531          KM   AND COMPUTATION POINT CSM4 (JUST WEST OF 27TH AVE.)
532          HC       4
             *

533          KK  RRB27C
534          KM   ROUTE FLOW FROM COMPUTATION POINT CPDR2C TO COMPUTATION POINT CPB27C
535          RS      15    ELEV     -1
536          RC   0.070   0.070   0.070    7400   0.009    1110
537          RX       0     260     550     770     920    1170    1320    1500
538          RY    1110    1109    1109    1108    1108  1107.8    1108    1110
             *

539          KK   BR27C
540          KM   SUB-BASIN BR27C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
541          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
542          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
543          BA    .780
544          LG    .500    .000   4.150    .695    .000
545          UC    .700    .416
546          UA       0       3       9      18      28      42      59      73      87      92
547          UA     100
             *

548          KK   BLSD7
549          KM   RETRIEVE BASELINE STORMDRAIN FROM 7TH AVE.
550          DR   BLSD7
             *

551          KK  RBLSD7
552          KM   ROUTE HYDROGRAPH THROUGH BASELINE STORMDRAIN TO OUTLET OF BR19C
553          RD    5750   .0080    .013            CIRC     5.5
             *

554          KK  BLSD19
555          KM   RETRIEVE BASELINE STORMDRAIN AT 19TH AVE.
556          DR  BLSD19
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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557          KK   CSD19
558          KM   COMBINE STORMDRAIN FLOWS FROM 7TH AVE AND 19TH AVE.
559          HC       2
             *

560          KK   RSD19
561          KM   ROUTE STORMDRAIN FROM 19TH AVE TO 27TH AVE
562          RD    5280    .004    .013            CIRC       8
             *

563          KK   OVL27
564          KM   BASELINE STORMDRAIN DOWNSIZES TO FORCE FLOWS INTO A FUTURE BASIN.  MAXIMUM
565          KM   CAPACITY IS 156 CFS
566          KM   DIVERT BASELINE STORMDRAIN FLOWS
567          DT  BLSD27
568          DI       0     156    1000   10000
569          DQ       0     156     156     156
             *

570          KK  CPB27C
571          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CPS19C TO RUNOFF FROM SUB-BASIN
572          KM   BR27C
573          HC       4
             *

574          KK  OVL27C
575          KM   DIVERT FLOWS INTO BASELINE STORMDRAIN AT 27TH AVE.
576          DT  BLSD27
577          DI       0     156   10000
578          DQ       0     156     156
             *
             * KKRR35C3
             * KM ROUTE FLOW FROM COMPUTATION POINT CPS27C TO COMPUTATION POINT CPR35C
             * DUPLICATE REACH ROUTE, REMOVED BY AMM, 8/29/02
             * RS     8    ELEV     -1
             * RC 0.070   0.070   0.070    3400  0.0072    1042
             * RX     0     200     420     520     630     750    1120    1360
             * RY  1042  1041.5    1041  1040.8  1040.9    1041  1041.5    1042
             *

579          KK  RR35C2
580          KM   ROUTE FLOW FROM COMPUTATION POINT CPR27C TO COMPUTATION POINT CPR35C
581          KM   REACH LENGTH AND SLOPE CORRECTED BY AMM, 8/29/02
582          RS      20    ELEV      -1
583          RC   0.070   0.070   0.070   10000  0.0065  1058.5
584          RX       0     230     480     580     680     770     910    1600
585          RY  1058.5    1057    1057    1057    1057    1057    1057  1059.3
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

586          KK   RR35C
587          KM   SUB-BASIN RR35C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
588          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
589          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
590          BA   1.890
591          LG    .500    .000   5.500    .348    .000
592          UC    .983    .310
593          UA       0       3       9      18      28      42      59      73      87      92
594          UA     100
             *

595          KK  CPR35B
596          KM    COMBINE ROUTED FLOW FROM COMPUTATION POINT CPB27C TO RUNOFF FROM SUB-BASIN
597          KM    RR35C
598          HC       3
             *

599          KK  RRS37C
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 600          KM   ROUTE FLOW FROM COMPUTATION POINT CPR35C TO COMPUTATION POINT CPS37C
 601          RS       8    ELEV     -1
 602          RC    0.10    0.10    0.10    2400  0.0025
 603          RX       0     280     470     630     700     840    1390    1860
 604          RY    1028    1026    1026    1025    1025    1025    1026    1028
              *

 605          KK   SA37C
 606          KM   SUB-BASIN SA37C-LAND USE- URBAN, AGRICULTURE
 607          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 608          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 609          BA    .590
 610          LG    .320    .130   4.900    .323  15.000
 611          UC    .750    .337
 612          UA       0       5      16      30      65      77      84      90      94      97
 613          UA     100
              *

 614          KK  CPS37C
 615          KM    COMBINE ROUTED FLOW FROM COMPUTATION POINT CPS37C WITH RUNOFF FROM SUB-
 616          KM    BASIN SA37C
 617          HC       2
              *

 618          KK  RAV431
 619          KM   ROUTE FLOW FROM COMPUTATION POINT CPS37C TO COMPUTATION POINT CAV43C
 620          RS      15    ELEV     -1
 621          RC    0.10    0.10    0.10    3200  0.0012
 622          RX       0     380     620     980    1320    1560    1700    2200
 623          RY  1022.8    1021  1020.6  1020.9  1021.4  1021.6  1021.8  1022.8
                                            HEC-1 INPUT                                          PAGE 16

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

 624          KK    WC2A
              *
 625          KM   SUB-BASIN WC2A -LAND USE- NATURAL DESERT HILLSLOPES; MINOR DEVELOPMENT
 626          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 627          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 628          BA    .080
 629          LG    .150    .251   8.600    .070    .000
 630          UC    .383    .530
 631          UA       0       3       5       8      12      20      43      75      90      96
 632          UA     100
              *

 633          KK  RD27.1
 634          KM   ROUTE FLOW FROM SUB-BASIN WC2A  TO COMPUTATION POINT CD27.1
 635          RS       1    ELEV     -1
 636          RC   0.035   0.035   0.035     960   0.016    1150
 637          RX       0      30      40      55      70      85     105     130
 638          RY    1150    1150    1148    1147    1148    1149    1150    1151
              *

 639          KK  WC2.1A
 640          KM   SUB-BASIN WC2.1A-LAND USE- NATURAL DESERT HILLSLOPES; MINOR DEVELOPMENT
 641          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 642          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 643          BA    .080
 644          LG    .150    .290   4.000    .520    .000
 645          UC    .350    .310
 646          UA       0       3       5       8      12      20      43      75      90      96
 647          UA     100
              *

 648          KK  RD27.2
 649          KM   ROUTE FLOW FROM SUB-BASIN WC2.1A TO COMPUTATION POINT CD27.1
 650          RS       1    ELEV     -1
 651          RC   0.035   0.035   0.035    1000   0.015    1153
 652          RX       0      35      75     100     135     145     165     195
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 653          RY    1153    1152    1150    1149    1148    1150    1152    1154
              *

 654          KK  CD27.1
 655          KM   COMBINE ROUTED FLOW FROM SUB-BASINS WC2A AND WC2.1A
 656          HC       2
              *

 657          KK  RD27.3
 658          KM   ROUTE FLOW FROM COMPUTATION POINT CP27.1 TO COMPUTATION POINT CP27.2
 659          RS       1    ELEV      -1
 660          RC   0.035   0.035   0.035     450   0.011    1144
 661          RX       0      50     115     125     140     150     160     180
 662          RY    1144    1143    1142    1141    1142    1144    1146    1148
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 663          KK    WC3A
 664          KM   SUB-BASIN WC3A--LAND USE- NATURAL DESERT HILLSLOPES; MINOR DEVELOPMENT
 665          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 666          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 667          BA    .014
 668          LG    .150    .250   8.600    .066    .000
 669          UC    .300    .467
 670          UA       0       3       5       8      12      20      43      75      90      96
 671          UA     100
              *

 672          KK  RD27.4
 673          KM   ROUTE FLOW FROM SUB-BASIN WC3A TO COMPUTATION POINT CD27.2
 674          RS       1    ELEV      -1
 675          RC   0.035   0.040   0.035     640   0.022
 676          RX       0      40      80     100     110     120     150     200
 677          RY    1145    1144    1143    1142  1141.8    1142    1144    1145
              *

 678          KK  CD27.2
 679          KM   COMBINE ROUTED FLOWS FROM SUB-BASIN WC3A AND COMPUTATION POINT CD27.1
 680          HC       2
              *

 681          KK  RD27.5
 682          KM   ROUTE FLOW FROM COMPUTATION POINT CD27.2 TO COMPUTATION POINT CD27.3
 683          RS       1    ELEV      -1
 684          RC   0.035   0.035   0.035    1400   0.014
 685          RX       0      40     100     160     175     190     240     260
 686          RY    1126    1124    1123    1122    1121    1122    1124    1126
              *

 687          KK    WC4A
 688          KM   SUB-BASIN WC4A -LAND USE- DESERT MOUNTAIN, DESERT HILLS;  MINOR DEVELOPMENT
 689          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 690          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 691          BA    .360
 692          LG    .150    .297   3.950    .546  25.000
 693          UC    .383    .273
 694          UA       0       3       5       8      12      20      43      75      90      96
 695          UA     100
              *

 696          KK  RD27.6
 697          KM   ROUTE FLOW FROM SUB-BASIN WC4A TO COMPUTATION POINT CD27.3
 698          RS       3    ELEV      -1
 699          RC   0.035   0.035   0.035    2200   0.016
 700          RX       0      60     100     180     225     300     435     500
 701          RY    1142    1141  1140.5    1140    1140  1140.5    1141    1142
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 702          KK  CD27.3
 703          KM   COMBINE ROUTED FLOWS FROM COMPUTATION POINT CD27.2 AND SUB-BASIN WC4A
 704          HC       2
              *

 705          KK  RD27.7
 706          KM   ROUTE FLOW FROM COMPUTATION POINT CD27.3 TO COMPUTATION POINT CD27.4
 707          RS       2    ELEV     -1
 708          RC   0.040   0.050   0.035     950   0.006
 709          RX       0      20     135     170     220     280     400     460
 710          RY  1116.5    1116  1115.5    1115  1115.5  1115.8    1116  1116.5
              *

 711          KK   DR27C
 712          KM   SUB-BASIN DR27C-LAND USE- AGRICULTURE, DESERT HILLS; MINOR DEVELOMENT
 713          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 714          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 715          BA    .230
 716          LG    .210    .345   3.996    .609    .000
 717          UC    .467    .352
 718          UA       0       3       5       8      12      20      43      75      90      96
 719          UA     100
              *

 720          KK  CD27.4
 721          KM   COMBINE RUNOFF FROM SUB-BASIN DR27C WITH ROUTED FLOW FROM COMPUTATION POINT
 722          KM   CD27.3
 723          HC       2
              *

 724          KK  RB35C2
 725          KM   ROUTE FLOW FROM COMPUTATION POINT CD27.3 TO COMPUTATION POINT CPB352
 726          RS      20    ELEV     -1
 727          RC   0.070   0.070   0.070    7680   0.007    1070
 728          RX       0     280     660     850    1000    1130    1180    1320
 729          RY    1070  1069.8  1069.7    1069    1069    1069  1069.7    1070
              *

 730          KK  BR35C2
 731          KM   SUB-BASIN BR35C2-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
 732          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 733          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 734          BA    .730
 735          LG    .500    .000   3.550    .439    .000
 736          UC    .867    .689
 737          UA       0       3       9      18      28      42      59      73      87      92
 738          UA     100
              *
```



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

 739          KK  CPB352
 740          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CD27.4 TO RUNOFF FROM SUB-BASIN
 741          KM   BR35C2
 742          HC       2
              *

 743          KK  BR35C1
 744          KM    SUB-BASIN BR35C1-LAND USE- AGRICULTURE; MINOR DEVELOPMENT
 745          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 746          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 747          BA    .550
 748          LG    .500    .000   5.100    .368    .000
 749          UC    .933    .670
 750          UA       0       3       9      18      28      42      59      73      87      92
```

```
751          UA     100

752          KK  CPB352
753          KM    COMBINE RUNOFF FROM SUB-BASIN BR35C1 TO FLOW AT COMPUTATION POINT CPB352
754          HC       2
             *

755          KK  BLSD27
756          KM   RETRIEVE BASELINE STORMDRAIN FLOWS FROM 27TH AVE.
757          DR  BLSD27
             *

758          KK   RSD27
759          KM   ROUTE FLOWS IN BASELINE STORMDRAIN FROM 27TH AVE TO 35TH AVE.
760          RD    5500   .0042    .013            CIRC       6
             *

761          KK    35-2
762          KM   COMBINE FLOWS AT 35TH AVE FROM STORMDRAIN AND OVERLAND FLOWS
763          HC       2
             *

764          KK  OV35-2
765          KM   DIVERT FLOWS TO STORMDRAIN AT 35TH AVE.
766          DT  BLSD35
767          DI       0     284   10000
768          DQ       0     284     284
             *

769          KK  RAV432
770          KM   ROUTE FLOW FROM COMPUTATION POINT CPB352 TO COMPUTATION POINT CAV43C( 1ST.
771          KM   REACH )
772          RS       9    ELEV      -1
773          RC    0.07    0.07    0.07    3400  0.0056
774          RX       0      90      91     360     640    1015    1016    1475
775          RY    1044    1042    1042  1041.2  1041.2    1042    1042    1044
                                            HEC-1 INPUT                                          PAGE 20

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

776          KK  RAV433
777          KM   ROUTE FLOW FROM COMPUTATION POINT CPB352 TO COMPUTATION POINT CAV43C (2ND.
778          KM   REACH )
779          RS       8    ELEV      -1
780          RC    0.07    0.07    0.07    3000  0.0060
781          RX       0     300     301     570     630    1220    1400    1650
782          RY    1030    1029    1029    1028    1028    1029    1029    1030
             *

783          KK    WC5A
784          KM   SUB-BASIN WC5A -LAND USE- DESERT HILLS; MINOR DEVELOMENT
785          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
786          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
             * KO     1       2
787          BA    .420
788          LG    .150    .346   2.880   1.050  28.000
789          UC    .500    .359
790          UA       0       3       5       8      12      20      43      75      90      96
791          UA     100
             *

792          KK  RD35.1
793          KM   ROUTE RUNOFF FROM SUB-BASIN WC5A TO COMPUTATION POINT CD35.1
794          RS      10    ELEV      -1
795          RC   0.040   0.055   0.035    4800   0.012
796          RX       0     130     270     330     400     460     530     625
797          RY    1126  1125.9  1125.7  1125.5    1125  1125.5  1125.7    1126
             *

798          KK    WC6A
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```
 799          KM   SUB-BASIN WC6A -LAND USE- NATURAL DESERT HILLSLOPES; MINOR DEVELOPMENT
 800          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 801          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 802          BA    .014
 803          LG    .150    .270   3.750    .293    .000
 804          UC    .233    .259
 805          UA       0       3       5       8      12      20      43      75      90      96
 806          UA     100
              *

 807          KK  RD35.2
 808          KM   ROUTE RUNOFF FROM SUB-BASIN WC6A TO COMPUTATION POINT CD35.1
 809          RS      13    ELEV      -1
 810          RC   0.070   0.070   0.070    3800   0.015
 811          RX       0     130     240     280     340     440     530     655
 812          RY    1122    1120    1118  1117.8    1118    1119    1120    1122
              *

 813          KK  CD35.1
 814          KM   COMBINE ROUTED FLOW FROM SUB-BASINS WC5A AND WC6A
 815          HC       2
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 816          KK  RD35.3
 817          KM   ROUTE FLOW FROM COMPUTATION POINT CD35.1 TO COMPUTATION POINT CD35.2
 818          RS       6    ELEV      -1
 819          RC   0.035   0.035   0.035    2480   0.005  1090.5
 820          RX       0     100     200     350     435     480     500     525
 821          RY    1092    1091    1090  1089.8  1089.7  1089.6    1090  1090.5
              *

 822          KK    WC7A
 823          KM   SUB-BASIN WC7A -LAND USE- NATURAL DESERT HILLSLOPES; MINOR DEVELOPMENT
 824          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 825          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 826          BA    .050
 827          LG    .150    .270   7.000    .141    .000
 828          UC    .317    .332
 829          UA       0       3       5       8      12      20      43      75      90      96
 830          UA     100
              *

 831          KK  RD35.4
 832          KM   ROUTE RUNOFF FROM SUB-BASIN WC7A TO COMPUTATION POINT CD35.3
 833          RS       4    ELEV      -1
 834          RC   0.035   0.035   0.035    2800   0.018  1128.5
 835          RX       0     100     170     240     250     260     330     360
 836          RY    1129    1128    1127    1126  1125.8    1126    1128  1128.5
              *

 837          KK    WC8A
 838          KM   SUB-BASIN WC8A -LAND USE- DESERT MOUNTAIN, DESERT HILLS; MINOR DEVELOMENT
 839          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 840          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 841          BA    .350
 842          LG    .150    .321   3.700    .651  30.000
 843          UC    .433    .366
 844          UA       0       3       5       8      12      20      43      75      90      96
 845          UA     100
              *

 846          KK  RD35.5
 847          KM   ROUTE FLOW FROM SUB-BASIN WC8A TO COMPUTATION POINT CD35.3
 848          RS       2    ELEV      -1
 849          RC   0.030   0.030   0.030    2200   0.022    1139
 850          RX       0      50     125     190     240     370     400     450
 851          RY    1139    1138  1137.5    1137  1137.5    1138    1140    1141
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                *
 852            KK  CD35.3
 853            KM   COMBINE ROUTED FLOW FROM SUB-BASINS WC7A AND WC8A
 854            HC       2
                *
                                        HEC-1 INPUT                                                    PAGE 22

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


 855            KK  RD35.6
 856            KM   ROUTE FLOW FROM COMPUTATION POINT CD35.3 TO COMPUTATION POINT CD35.4
 857            RS       1    ELEV      -1
 858            RC   0.030   0.035   0.035     700   0.011
 859            RX       0      30      60     110     140     180     240     350
 860            RY    1103  1101.8  1101.6  1101.4    1101  1101.4  1101.7    1103
                *

 861            KK    WC9A
 862            KM   SUB-BASIN WC9A -LAND USE- NATURAL DESERT HILLSLOPES; MINOR DEVELOPMENT
 863            KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 864            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 865            BA    .025
 866            LG    .150    .250   8.600    .066    .000
 867            UC    .300    .420
 868            UA       0       3       5       8      12      20      43      75      90      96
 869            UA     100
                *

 870            KK  RD35.7
 871            KM   ROUTE RUNOFF FROM SUB-BASIN WC9A TO COMPUTATION POINT CD35.5
 872            RS       1    ELEV      -1
 873            RC   0.035   0.035   0.035    1000   0.025    1130
 874            RX       0      30      40      60      70      90     120     140
 875            RY    1130    1130    1129    1128  1128.5    1129    1130  1130.5
                *

 876            KK   WC10A
 877            KM   SUB-BASIN WC10A -LAND USE- NATURAL DESERT HILLSLOPES; MINOR DEVELOPMENT
 878            KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 879            KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
 880            BA    .020
 881            LG    .150    .260   5.800    .059    .000
 882            UC    .233    .289
 883            UA       0       3       5       8      12      20      43      75      90      96
 884            UA     100
                *

 885            KK  RD35.8
 886            KM   ROUTE RUNOFF FROM SUB-BASIN WC10A TO COMPUTATION POINT CD35.5
 887            RS       1    ELEV      -1
 888            RC   0.035   0.035   0.035    1000   0.025
 889            RX       0      30      50      70     100     140     210     260
 890            RY    1134    1134    1133    1132    1132    1133  1133.5    1134
                *

 891            KK  CD35.5
 892            KM   COMBINE ROUTED FLOW FROM SUB-BASINS WC9A AND WC10A
 893            HC       2
                *
                                        HEC-1 INPUT                                                    PAGE 23

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


 894            KK  RD35.9
 895            KM   ROUTE FLOW FROM COMPUTATION POINT CD35.5 TO COMPUTATION POINT CD35.6
 896            RS       2    ELEV      -1
 897            RC   0.030   0.030   0.030    1200   0.015
 898            RX       0      60     110     170     210     240     330     370
```

```
1051          HC       4
              *
              *
              * TEST BY JUST DIVERTING OUT THE REQUIRED VOLUME FROM THE GOLG COURSE.
              *
              * KK    GC
              * KM  DIVERT STORAGE FROM AGUILA GOLF COURSE
              * DT  STGC     135
              * DI     0      50     100    1000   10000
              * DQ     0      50     100    1000   10000
              * *
              * KK GCOUT
              * KM  DIVERT FLOWS IN EXCESS OF 50 CFS
              * DTGCOVLN
              * DI     0      50     100    1000   10000
              * DQ     0       0      50     950    9950
              *
              *
              *
              * START HEC-1 MODEL MODIFICATION FOR CESAR CHAVEZ DETENTION BASIN
              *
              *
              *
              *
                                          HEC-1 INPUT                                          PAGE 27

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

1052          KK  DI35TH
1053          KM        SPLIT FLOW OPERATION AT THE INTERSECTION OF 35TH AVE AND DOBBINS ROAD
1054          DT   DIDOB
1055          DI       0      40     836    1575
1056          DQ       0      10     335     630
              *

1057          KK   RDI35
1058          KM        ROUTE DIVERSION FLOW WEST ACROSS 35TH AVE TO DET. STORAGE AT SRCC1
1059          RS       1    FLOW      -1
1060          RC     .03    .025     .03     700    .005
1061          RX       0      80     190     270     310     335     440     480
1062          RY    1083  1082.5    1082    1081    1081    1082  1082.5    1083
              *

1063          KK     CC1
1064          KM        RUNOFF HYDROGRAPH FROM GC WATERSHED CC1
1065          BA    .022
1066          LG    .400     .15   6.350    .259    .000
1067          UC    .213    .235
1068          UA       0       3       9      18      28      42      59      73      87
1069          UA     100
              *

1070          KK   CPCC1
1071          KM        COMBINE HYDROGRAPHS AT CPCC1
1072          HC       2
              *

1073          KK   SRCC1
1074          KM         STORAGE ROUTE THROUGH FIRST DET. BASIN IN CC1
1075          RS       1    STOR       0
1076          SV       0   1.576   4.110   7.819  13.036  16.318  20.104  24.633  29.653  35.9
1077          SQ       0       0       9      14      16      17      18     242     696    12
1078          SE    1060    1062    1064    1066    1068    1069    1070    1071    1072    10
              *

1079          KK   DICC5
1080          KM        SPLIT FLOW OPERATION AT BASIN CC1 - REMAINDER TO SRCC2
1081          DT   DICC2
1082          DI       0       9      14      17      18     242     696    1264
1083          DQ       0       0       0       0       0      84     254     467
```

```
                *
1084            KK    RCC5
1085            KM        ROUTE OVERFLOW FROM SRCC1 TO CPCC5
1086            RS       1    FLOW      -1
1087            RC     .03    .025     .03     550    .005
1088            RX       0      40      90     100     140     150     200     240
1089            RY    1072    1068    1062    1060    1060    1062    1068    1072
                *
                                          HEC-1 INPUT                                          PAGE 28

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


1090            KK     CC5
1091            KM        RUNOFF HYDROGRAPH FROM GOLF COURSE WATERSHED CC5
1092            BA    .026
1093            LG    .400     .15   6.350    .259    .000
1094            UC    .204    .118
1095            UA       0       3       9      18      28      42      59      73      87
1096            UA     100
                *

1097            KK   CPCC5
1098            KM        COMBINE HYDROGRAPHS AT CPCC5
1099            HC       2
                *

1100            KK   SRCC5
1101            KM         STORAGE ROUTE THROUGH DET. BASIN SRCC5 IN GOLF COURSE
1102            RS       1    STOR      -1
1103            SV       0    1.15    3.18    6.08   10.23   16.23   20.57   26.49   33.71   41.
1104            SQ       0       0       9      13      16      19      21     105     276     4
1105            SE    1056    1058    1060    1062    1064    1066    1067    1068    1069    10
                *

1106            KK    RCC6
1107            KM        ROUTE OVERFLOW FROM SRCC5 TO CPCC6
1108            RS       1    FLOW      -1
1109            RC     .03    .025     .03     450    .005
1110            RX       0      40      90     100     140     150     200     240
1111            RY    1072    1068    1062    1060    1060    1062    1068    1072
                *

1112            KK     CC6
1113            KM        RUNOFF HYDROGRAPH FROM GOLF COURSE WATERSHED CC6
1114            BA    .025
1115            LG    .400     .15   6.350    .259    .000
1116            UC    .117    .059
                *

1117            KK   CPCC6
1118            KM        COMBINE HYDROGRAPHS AT CPCC6
1119            HC       2
                *

1120            KK   SRCC6
1121            KM        STORAGE ROUTE THROUGH DET. BASIN SRCC6 IN GOLF COURSE
1122            RS       1    STOR      -1
1123            SV       0    0.34    1.02    2.15    3.87    6.54   10.95   17.51   21.94   27.
1124            SV   34.94   42.41
1125            SQ       0       0       9      11      13      14      15      16      17     1
1126            SQ     272     485
1127            SE    1044    1046    1048    1050    1052    1054    1056    1058    1059    10
1128            SE    1061    1062
                *
                                          HEC-1 INPUT                                          PAGE 29

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

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1129          KK    RCC7
1130          KM        ROUTE OVERFLOW FROM SRCC6 TO CPCC7
1131          RS       1    FLOW      -1
1132          RC     .03    .025     .03     800    .005
1133          RX       0      40      90     100     140     150     200     240
1134          RY    1072    1068    1062    1060    1060    1062    1068    1072
              *

1135          KK     CC7
1136          KM        RUNOFF HYDROGRAPH FROM GOLF COURSE WATERSHED CC7
1137          BA    .044
1138          LG    .400     .15   6.350    .259    .000
1139          UC    .196    .110
              *

1140          KK  ICPCC7
1141          KM        COMBINE INTERMEDIATE HYDROGRAPHS AT CPCC7
1142          HC       2
              *

1143          KK   DIDOB
1144          KM        RETURN DIVERSION FLOW NORTH ACROSS DOBBINS ROAD
1145          DR   DIDOB
              *

1146          KK  RDIDOB
1147          KM        ROUTE DIVERSION FLOW NORTH ACROSS DOBBINS TO DET. STORAGE AT SRCC2
1148          RS       1    FLOW      -1
1149          RC     .03    .025     .03     700    .005
1150          RX       0      80     190     270     310     335     440     480
1151          RY    1083  1082.5    1082    1081    1081    1082  1082.5    1083
              *

1152          KK     CC2
1153          KM        RUNOFF HYDROGRAPH FROM GOLF COURSE WATERSHED CC2
1154          BA    .015
1155          LG    .400     .15   6.350    .259    .000
1156          UC    .158    .123
              *

1157          KK  ICPCC2
1158          KM        COMBINE HYDROGRAPHS AT CPCC2
1159          HC       2
              *

1160          KK   DICC2
1161          KM        RETURN DIVERSION FLOW NORTH TO DET BASIN SRCC2
1162          DR   DICC2
              *
```



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

1163          KK   CPCC2
1164          KM        COMBINE HYDROGRAPHS AT CPCC2
1165          HC       2
              *

1166          KK   SRCC2
1167          KM        STORAGE ROUTE THROUGH DET. BASIN SRCC2 IN GOLF COURSE
1168          RS       1    STOR      -1
1169          SV       0    0.44    1.41    3.11    4.32    5.71    7.69   10.16  11.622
1170          SQ       0       0       9      10      12     153     437     792     995
1171          SE    1062    1064    1066    1068    1069    1070    1071    1072  1072.5
              *

1172          KK    RCC3
1173          KM        ROUTE OVERFLOW FROM SRCC2 TO CPCC3
1174          RS       1    FLOW      -1
1175          RC     .03    .025     .03     750    .005
```

```
1176          RX       0      40      90     100     140     150     200     240
1177          RY    1072    1068    1062    1060    1060    1062    1068    1072
              *

1178          KK     CC3
1179          KM        RUNOFF HYDROGRAPH FROM GOLF COURSE WATERSHED CC3
1180          BA    .069
1181          LG    .400     .15   6.350    .259    .000
1182          UC    .233    .110
              *

1183          KK   CPCC3
1184          KM        COMBINE HYDROGRAPHS AT CPCC3
1185          HC       2
              *

1186          KK   SRCC3
1187          KM        STORAGE ROUTE THROUGH DET. BASIN SRCC3 IN GOLF COURSE
1188          RS       1    STOR       0
1189          SV       0    2.61    9.40   23.16   33.72   48.15   67.11   86.06
1190          SQ       0      10      20      23      26     110     281     494
1191          SE    1058    1060    1062    1064    1065    1066    1067    1068
              *

1192          KK    RCC4
1193          KM        ROUTE OVERFLOW FROM SRCC3 TO CPCC4
1194          RS       1    FLOW       0
1195          RC     .03    .025     .03    1100    .005
1196          RX       0      40      90     100     140     150     200     240
1197          RY    1072    1068    1062    1060    1060    1062    1068    1072
              *
```



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

1198          KK     CC4
1199          KM        RUNOFF HYDROGRAPH FROM GOLF COURSE WATERSHED CC4
1200          BA    .066
1201          LG    .400     .15   6.350    .259    .000
1202          UC    .204    .091
1203          UA       0       3       9      18      28      42      59      73      87
1204          UA     100
              *

1205          KK   CPCC4
1206          KM        COMBINE HYDROGRAPHS AT CPCC4
1207          HC       2
              *

1208          KK   SRCC4
1209          KM        STORAGE ROUTE THROUGH DET. BASIN SRCC3 IN GOLF COURSE
1210          RS       1    STOR       0
1211          SV       0    0.91    3.43    8.89   18.90   26.34   35.88   47.79   60.36
1212          SQ       0       0       9      16      17      18     102     273     486
1213          SE    1052    1054    1056    1058    1060    1061    1062    1063    1064
              *

1214          KK    RCC7
1215          KM        ROUTE OVERFLOW FROM SRCC4 TO CPCC7
1216          RS       1    FLOW       0
1217          RC     .03    .025     .03    1100    .005
1218          RX       0      40      90     100     140     150     200     240
1219          RY    1072    1068    1062    1060    1060    1062    1068    1072
              *

1220          KK   CPCC7
1221          KM        COMBINE ALL HYDROGRAPHS AT CPCC7
1222          HC       2
              *
```

```
1223          KK   SRCC7
1224          KM        STORAGE ROUTE THROUGH DET. BASIN SRCC7 IN GOLF COURSE
1225          RS       1    STOR       0
1226          SV       0    0.77    2.10    4.03    6.73   10.47   15.75   17.32   20.45
1227          SV   21.08   22.65   22.70
1228          SQ       0       0      12    35.7    35.7    35.7    35.7    35.7    35.7
1229          SQ    35.7     234     280
1230          SE    1042    1044    1046    1048    1050    1052    1054  1054.5    1055
1231          SE  1055.7  1056.2  1056.5
              *

1232          KK   DICC7
1233          KM     SPLIT FLOW OPERATION AT BASIN CC7 - REMAINDER TO RPB352
1234          DT  GCOVLD
1235          DI       0      12      30    35.7     234
1236          DQ       0       0       0       0     198
              *
                                          HEC-1 INPUT                                          PAGE 32

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


1237          KK  RPC352
1238          KM     ROUTE DISCHARGE FROM CCP7 TO 39TH & BASELINE
1239          RD    2640    .004    .012            CIRC       3
              *

1240          KK  BLSD35
1241          KM   RETRIEVE STORMDRAIN FLOWS FROM 35TH AVE.
1242          DR  BLSD35
              *

1243          KK  RDS35
1244          KM   ROUTE BASELINE STORMDRAIN FLOWS FROM 35TH AVE TO 39TH AVE
1245          RD    2600   .0062    .013            CIRC       7
              *

1246          KK    CG39
1247          KM    COMBINE HYDROGRAPHS FROM GOLF COURSE STORM DRAIN & RPB352 IN HDR MODEL
1248          KM      AT BASELINE ROAD
1249          HC       2
              *

1250          KK  RBSD43
1251          KM    ROUTE COMBINED STORMDRAIN FROM 29TH AVE TO 43RD & BASELINE
1252          RD    2640   0.028    .012            CIRC      10
              *

1253          KK     CC8
1254          KM        RUNOFF HYDROGRAPH FROM GOLF COURSE WATERSHED CC8
1255          BA    .033
1256          LG    .400     .15   6.350    .259    .000
1257          UC    .188    .115
1258          UA       0       3       9      18      28      42      59      73      87
1259          UA     100
              *

1260          KK  GCOVLD
1261          KM   RETRIEVE THE OVERLAND FLOWS THAT DO NOT MAKE IT INTO THE GOLF COURSE
1262          KM   OUTLET.
1263          DR  GCOVLD
              *

1264          KK    GCOL
1265          KM   COMBINE FLOWS FROM GOLF COURSE
1266          HC       2
              *

1267          KK   RGCOL
1268          KM   ROUTE FLOWS TO CBR43C
1269          RS       1    ELEV      -1
```

```
1270          RC    .035     .07     .07    3730    .003  1044.2
1271          RX       0       1      55      56      65      70      90     120
1272          RY  1044.9  1043.2  1043.2  1044.1  1043.5  1043.7  1043.8  1044.9
              *
                                          HEC-1 INPUT                                                    PAGE 33

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


1273          KK  SMA43C
1274          KM   SUB-BASIN SMA43C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1275          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1276          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1277          BA    .130
1278          LG    .500    .000   6.960    .244    .000
1279          UC    .400    .261
1280          UA       0       3       9      18      28      42      59      73      87      92
1281          UA     100
              *

1282          KK  RB43C2
1283          KM   ROUTE RUNOFF FROM SUB-BASIN SMA43C TO COMPUTATION POINT CBR43C
1284          RS       3    ELEV      -1
1285          RC    0.07    0.07    0.07    2600   0.003  1044.2
1286          RX       0       1      55      56      65      70      90     120
1287          RY  1044.5  1043.2  1043.2  1044.1  1043.5  1043.7  1043.8  1044.5
              *

1288          KK   BR43C
1289          KM   SUB-BASIN BR43C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT-LAND USE
1290          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1291          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1292          BA     .35
1293          LG    .500    .000   6.350    .259    .000
1294          UC    .883    .538
1295          UA       0       3       9      18      28      42      59      73      87      92
1296          UA     100
              *

1297          KK  CBR43C
1298          KM   COMBINE ROUTED FLOWS FROM COMPUTATION POINT CD35.2 AND SUB-BASIN SMA43C
1299          HC       2
              *

1300          KK     C43
1301          KM   COMBINE FLOWS BEFORE ENTERING BASELINE BASIN
1302          HC       3
              *
              * KK 43BAS
              * KM DETENTION BASIN AT 43RD AVE AND BASELINE ROAD
              * RS     1    STOR
              * SQ     0      26      80     115     175     210     240     265
              * SV     0      12    25.2    39.6    55.3    72.3    90.6   110.4
              * SE  1022    1024    1026    1028    1030    1032    1034    1036
              *

1303          KK  43OVLD
1304          KM   AMM CORRECTED THE RATING CURVE 8/29/02
1305          KM   DIVERTS FLOWS INTO 43RD AVE STORMDRAIN
1306          KM    43RD AVENUE STORM DRAIN UNDER CONSTRUCTION
1307          KM    THE STORM DRAIN BEGINS NORTH OF BASELINE, DIVERTS FLOWS TO SALT RIVER
1308          DT    43SD
1309          DI       0     294   10000
                                          HEC-1 INPUT                                                    PAGE 34

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

1310          DQ       0     294     294
              *

1311          KK  R43OVL
```

```
1312          KM   ROUTE THE OVERLAND FLOWS TO THE LOW SPOT IN 43RD AVE (MARICOPA DRAIN)
1313          KM   FLOWS CONTAINED WITHIN 43RD AVE AND ADJACENT LANDSCAPE,REVISED AMM, 8/29/02
1314          RS       6    FLOW      -1
1315          RC    .035     .07    .035    3750   .0043
1316          RX       0       1      55      56      65      70      90     120
1317          RY    1036  1035.5    1035    1033    1033    1035  1035.5    1036
              *
              *
              *  CONTINUE EXISTING HEC1 MODEL PREPARED FOR THE LAVEEN AREA DRAINAGE MADY
              *
              *

1318          KK  AVR43C
1319          KM   SUB-BASIN AVR43C -LAND USE- URBAN, AGRICULTURE
1320          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1321          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1322          BA   1.030
1323          LG    .430    .059   4.000    .396   6.250
1324          UC    .717    .321
1325          UA       0       5      16      30      65      77      84      90      94      97
1326          UA     100
              *

1327          KK   DIVMD
1328          KM   DIVERT FLOWS THAT WILL GO TO THE SOUTHERN AVE BASIN, THE REMAINDER FLOWS WILL
1329          KM   GO TO THE MARICOPA DRAIN NORTH OF THE BASIN.
1330          KM   THE FLOWS TO THE MARICOPA DRAIN ARE APPROXIMATELY 38% OF THE AREA,
1331          KM   THEREFORE, AN ESTIMATE OF 38% OF THE FLOW WILL FLOW TO THE MARICOPA DRAIN.
1332          DT     43C
1333          DI       0     625    1000   10000
1334          DQ       0     625     625     625
              *

1335          KK     MDA
1336          KM    OVERLAND FLOWS THAT CONCENTRATE AT THE LOW SPOT ON 43RD AVE
1337          HC       3
              *

1338          KK   DUMMY
1339          KM   DIVERT THE NORTH FLOWS TO TEMPORARILY GET RID OF THE HYGDROGRAPH
1340          DT    DMDA
1341          DI       0     100    1000   10000
1342          DQ       0     100    1000   10000
              *

1343          KK     43C
1344          KM   RETREIVE THE FLOWS FROM SUBBASIN AVR43C
1345          DR     43C
              *
                                        HEC-1 INPUT                                          PAGE 35

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

1346          KK    SBAS
1347          KM   COMBINE FLOWS FROM THE EAST AND AVR43C TO ENTER INTO THE SOUTHERN AVE &
1348          KM   43RD AVE DETENTION BASIN.
1349          HC       3
              *

1350          KK  STOR43
1351          KM   PROPOSED BASIN AT THE CORNER OF 43RD AVE AND SOUTHERN
1352          KM   AMM CORRECTED THE 6TH FIELD ON THE SV CARD FROM 38.4 TO 88.4, 8/29/02
1353          KM   DATA  RELECTS TWO 1018 3-36" OPENINGS
1354          RS       1    STOR
1355          SV       0     .01    12.1    45.6    65.6    88.4   111.1   133.9   146.5
1356          SQ       0       0       0       0       0       0       0    56.3     340
1357          SE    1002    1003    1006    1012    1014    1016    1018    1020    1021
              *

1358          KK     43W
```

```
1359          KM   DIVERT THE ADDITIONAL FLOWS INTO 43RD AVE STORMDRAIN TO THE SALT RIVER
1360          DT   43SDS
1361          DI       0      29     100    1000
1362          DQ       0      29      29      29
              *
              *
              * ***** BEGINNING OF CHAMPION DRAIN WEST OF 43RD AVE *****
              *
              *

1363          KK    DMDA
1364          KM   RETRIEVE FLOWS AT LOW SPOT ON 43RD AVE (MARICOPA DRAIN)
1365          DR    DMDA
              *

1366          KK    MD43
1367          KM   COMBINE THE FLOWS IN THE MARICOPA DRAIN AT 43RD AVE SOUTH OF BASIN.
1368          HC       2
              *

1369          KK   RMD43
1370          KM   ROUTE FLOWS IN MARICOPA DRAIN FROM 43RD AVE TO 47TH AVE.
1371          RS       3    ELEV      -1
1372          RC    .030    .030    .030    3750   .0011
1373          RX       0      10      20      45     105     130     140     150
1374          RY  1015.2  1015.1    1015    1010    1010    1015  1015.1  1015.2
              *

1375          KK   VR47C
1376          KM   SUB-BASIN VR47C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1377          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1378          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1379          BA    .890
1380          LG    .500    .000   4.950    .385    .000
1381          UC    .933    .407
1382          UA       0       3       9      18      28      42      59      73      87      92
1383          UA     100
              *
                                          HEC-1 INPUT                                          PAGE 36

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

1384          KK  CVR47C
1385          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINTS CAV43C AND CBR43C WITH RUNOFF
1386          KM   FROM SUB-BASIN VR47C
1387          HC       2
              *

1388          KK  RBR511
1389          KM   ROUTE FLOW FROM COMPUTATION POINT CVR47C TO COMPUTATION POINT CB51C
1390          KM   MARICOPA DRAIN FROM 47TH AVE TO 51ST AVE.
1391          RS       2    ELEV      -1
1392          RC    .030    .030    .030    3200   .0011
1393          RX       0      10      20      45     115     140     150     160
1394          RY  1008.2  1008.1    1008    1003    1003    1008  1008.1  1008.2
              *

1395          KK  AVR51C
1396          KM   SUB-BASIN AVR51C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1397          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1398          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1399          BA    .280
1400          LG    .500    .000   6.200    .304    .000
1401          UC    .767    .457
1402          UA       0       3       9      18      28      42      59      73      87      92
1403          UA     100
              *

1404          KK  RBR512
1405          KM    ROUTE FLOW FROM SUB-BASIN AVR51C TO COMPUTATION POINT CB51C
```

```
1406          RS      24    ELEV      -1
1407          RC    0.07    0.07    0.07    3600   0.001  1010.5
1408          RX       0     120     240     380     570     640     670     740
1409          RY  1010.5  1009.7  1009.5  1009.4  1009.1  1009.1    1009  1010.5
              *

1410          KK   BR51C
1411          KM   SUB-BASIN BR51C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1412          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1413          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1414          BA    .700
1415          LG    .500    .000   3.650    .459    .000
1416          UC   0.900    .324
1417          UA       0       3       9      18      28      42      59      73      87      92
1418          UA     100
              *

1419          KK    CB51
1420          KM   INTERMEDIATE HYDROGRAPH
1421          HC       2
              *
                                          HEC-1 INPUT                                          PAGE 37

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


1422          KK   CB51C
1423          KM    COMBINE ROUTED FLOW FROM COMPUTATION POINT CVR47C AND SUB-BASIN AVR51C
1424          KM    WITH RUNOFF FROM SUB-BASIN BR51C
1425          KM    CP AT 51ST AVE AND BASELINE RD.
1426          HC       2
              *

1427          KK  RB1591
1428          KM    ROUTE FLOW FROM 51ST AVE (CB51C) TO 59TH AVE. (CB159C)
1429          KM    MARICOPA DRAIN FROM 51ST AVE TO 59TH AVE.
1430          RS       3    ELEV      -1
1431          RC    .030    .030    .030    5200   .0011
1432          RX       0      10      20      45     125     150     160     170
1433          RY  1000.2  1000.1    1000     995     995    1000  1000.1  1000.2
              *

1434          KK  AVR55C
1435          KM   SUB-BASIN AVR55C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1436          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1437          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1438          BA    .230
1439          LG    .500    .000   6.330    .295    .000
1440          UC    .917    .623
1441          UA       0       3       9      18      28      42      59      73      87      92
1442          UA     100
              *

1443          KK  RB1592
1444          KM    ROUTE FLOW FROM SUBASIN AVR55C TO COMPUTATION POINT CB159C
1445          RS      28    ELEV      -1
1446          RC    .070    .070    .070    3720   .0018    1004
1447          RX       0     170     340     540     750     940    1120    1320
1448          RY    1004    1003    1003  1003.5  1003.5  1003.7  1008.8    1004
              *

1449          KK  BR159C
1450          KM   SUB-BASIN BR159C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1451          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1452          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1453          BA    .680
1454          LG    .500    .000   3.750    .462    .000
1455          UC    .983    .527
1456          UA       0       3       9      18      28      42      59      73      87      92
1457          UA     100
              *
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```
1458          KK   VR59C
1459          KM   SUB-BASIN VR59C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1460          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1461          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1462          BA    .250
1463          LG    .500    .000   6.470    .298    .000
1464          UC    .967    .630
1465          UA       0       3       9      18      28      42      59      73      87      92
                                          HEC-1 INPUT                                          PAGE 38

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

1466          UA     100
              *

1467          KK  RB1593
1468          KM   ROUTE FLOW FROM SUB-BASIN VR59C TO COMPUTATION POINT CB159C
1469          RS      22    ELEV      -1
1470          RC    0.07    0.07    0.07    3000  0.0015    1002
1471          RX       0     280     660     840    1020    1120    1220    1250
1472          RY    1002  1001.3  1001.4  1001.4  1001.5  1001.5  1001.6    1002
              *

1473          KK  CB159N
1474          KM     COMBINE ROUTED FLOWS FROM COMPUTATION POINT CB51C AND SUB-BASINS AVR51C
1475          KM     AND VR59C WITH RUNOFF FROM SUB-BASIN BR159C
1476          KM    CP (NORTH FLOWS) AT 59TH AVE AND BASELINE RD.
1477          HC       4
              *

1478          KK  RET43C
1479          KM    RETRIEVE SPLIT FLOW FROM DIVERSION POINT DDR43C
1480          DR  RDR43C
              *

1481          KK   RS51C
1482          KM    ROUTE SPLIT FLOW FROM SUB-BASIN DR43C TO COMPUTATION POINT CS51C
1483          RS      20    ELEV      -1
1484          RC    0.07    0.07    0.07    6000  0.0026
1485          RX       0     240     420     580     760     890    1030    1150
1486          RY    1041  1039.2  1039.3  1039.5  1039.2    1039  1039.4    1041
              *

1487          KK   SM51C
1488          KM   SUB-BASIN SM51C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1489          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1490          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1491          BA    .500
1492          LG    .500    .000   5.850    .330    .000
1493          UC   1.017    .599
1494          UA       0       3       9      18      28      42      59      73      87      92
1495          UA     100
              *

1496          KK   CS51C
1497          KM   COMBINE ROUTED FLOW FROM SUB-BASIN DR43C TO RUNOFF FROM SUB-BASIN SM51C
1498          HC       2
              *

1499          KK  RB2591
1500          KM   ROUTE FLOW FROM COMPUTATION POINT CS51C TO COMPUTATION POINT CB259C
1501          KM   FIRST REACH
1502          RS      13    ELEV      -1
1503          RC    0.07    0.07    0.07    4200  0.0036
1504          RX       0     612    1085    1155    1595    1670    1765    2130
1505          RY  1029.6    1029    1028  1027.5  1027.5    1028    1028  1029.6
              *
                                          HEC-1 INPUT                                          PAGE 39

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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1506          KK  RB2592
1507          KM   ROUTE FLOW FROM COMPUTATION POINT CS51C TO COMPUTATION POINT CB259C
1508          KM   2ND REACH
1509          RS      10    ELEV      -1
1510          RC    0.07    0.07    0.07    3000  0.0063
1511          RX       0      50     140     335    1120    1770    1825    1870
1512          RY    1006    1004    1003    1002    1001    1001    1002  1002.5
              *

1513          KK  BR259C
1514          KM   SUB-BASIN BR259C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1515          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1516          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1517          BA   1.000
1518          LG    .500    .000   3.550    .475    .000
1519          UC    .967    .506
1520          UA       0       3       9      18      28      42      59      73      87      92
1521          UA     100
              *

1522          KK  CB259A
1523          KM    COMBINE ROUTED FLOW FROM COMPUTATION POINT CS51C AND RUNOFF FROM SUB-
1524          KM    BASIN BR259C
1525          HC       2
              *

1526          KK  DOA55C
1527          KM   RETRIEVE FLOW FROM HIDDEN VALLEY WATERSHED AT SUB-BASIN OA51B
1528          DR  DOA55C
              *

1529          KK   RO55C
1530          KM   ROUTE SPLIT FLOW FROM SUB-BASIN OA51B ( HIDDEN VALLEY WATERSHED ) TO
1531          KM   COMPUTATION POINT CPO55C
1532          RS       9    ELEV      -1
1533          RC   0.065   0.065   0.065    2600  0.0014
1534          RX       0      90     190     260     350     450     580     910
1535          RY  1033.8  1031.8  1031.5  1031.5  1031.5  1031.5  1031.5  1033.8
              *

1536          KK   OA55C
1537          KM   SUB-BASIN OA55C -LAND USE- RUAL DEVELEMENT
1538          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1539          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1540          BA    .250
1541          LG    .500    .000   3.550    .466    .000
1542          UC    .800    .468
1543          UA       0       3       9      18      28      42      59      73      87      92
1544          UA     100
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1545          KK  CPO55C
1546          KM    COMBINE ROUTED DIVERTED FLOW FROM SUB-BASIN OA51B TO RUNOFF FROM SUB-
1547          KM    BASIN OA55C
1548          HC       2
              *

1549          KK   RD57C
1550          KM   ROUTE FLOW FROM COMPUTATION POINT CPO55C TO COMPUTAION CDR57C
1551          RS      12    ELEV      -1
1552          RC    0.07    0.07    0.07    2920   0.001
1553          RX       0     230     370     520     720     870     990    1230
1554          RY    1030  1028.6  1028.4  1028.6  1028.6  1028.8  1028.9    1030
              *
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1555          KK   DR57C
1556          KM   SUB-BASIN DR57C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1557          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1558          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1559          BA    .120
1560          LG    .500    .000   3.500    .470    .000
1561          UC    .950    .704
1562          UA       0       3       9      18      28      42      59      73      87      92
1563          UA     100
              *

1564          KK  CDR57C
1565          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CPO55C TO RUNOFF FROM SUB-BASIN
1566          KM   DR57C
1567          HC       2
              *

1568          KK   RD59C
1569          KM   ROUTE FLOW FROM COMPUTATION POINT CDR57C TO COMPUTATION POINT CDR59C
1570          RS       3    ELEV      -1
1571          RC    0.07    0.07    0.07    1200  0.0025
1572          RX       0     130     250     360     480     600     700     740
1573          RY  1027.2    1027    1027    1026  1025.5  1025.5    1026  1027.2
              *

1574          KK   DR59C
1575          KM   SUB-BASIN DR59C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1576          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1577          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1578          BA    .110
1579          LG    .500    .000   3.500    .470    .000
1580          UC    .817    .626
1581          UA       0       3       9      18      28      42      59      73      87      92
1582          UA     100
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1583          KK  CDR59C
1584          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CDR57C TO RUNOFF FROM SUB-BASIN
1585          KM   DR59C
1586          HC       2
              *

1587          KK   RB259
1588          KM   ROUTE FLOW FROM COMPUTATION POINT CDR59C TO COMPUTATION POINT CB259C
1589          RS       6    ELEV      -1
1590          RC    0.07    0.02    0.07    5280  0.0046
1591          RX       0      10      20      35      70      80     120     180
1592          RY    1019  1017.7  1017.2  1017.2  1017.2  1017.7    1018    1019
              *

1593          KK  CB259S
1594          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CDR59C TO PREVIOUSLY
1595          KM   COMPUTED FLOW AT COMPUTATION POINT CB1592
1596          KM   CP (SOUTH SIDE) 59TH AVE AND BASELINE RD.
1597          HC       2
              *

1598          KK    CB59
1599          KM   COMBINE FLOWS AT 59TH AVE & BASELINE RD
1600          KM   COMBINED BOTH NORTH AND SOUTH FLOWS
1601          HC       2
              *

1602          KK  RB1631
1603          KM   ROUTE FLOW FROM 59TH AVE (CB259C) TO 63RD AVE. (CB163C)
1604          KM   MODIFY SLOPE TO INDICATE A REALISTIC VELOCITY OF LESS THAN 5 FT/SEC
1605          KM   ADJUST SLOPE FROM .0011 TO .0005
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1606          RS       2    ELEV      -1
1607          RC   0.030    .030    .030    2640   .0009
1608          RX       0      10      20      45     135     160     170     180
1609          RY   997.8   997.7   997.6   992.6   992.6   997.6   997.7   997.8
              *

1610          KK  BR263C
1611          KM   SUB-BASIN BR263C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1612          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1613          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1614          BA    .500
1615          LG    .500    .000   3.500    .463    .000
1616          UC    .933    .639
1617          UA       0       3       9      18      28      42      59      73      87      92
1618          UA     100
              *

1619          KK     63S
1620          KM   FLOWS GENERATED FROM THE SOUTHSIDE OF BASELINE RD.
1621          HC       2
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1622          KK  BR163C
1623          KM   SUB-BASIN BR163C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1624          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1625          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1626          BA    .260
1627          LG    .500    .000   4.700    .411    .000
1628          UC    .967    .642
1629          UA       0       3       9      18      28      42      59      73      87      92
1630          UA     100
              *

1631          KK  CB163C
1632          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CB159C WITH RUNOFF FROM SUB-BASINS
1633          KM   BR163C AND BR263C AND ROUTED FLOW FROM COMPUTATION POINT  CB259C
1634          HC       2
              *

1635          KK   RCD1C
1636          KM   ROUTE FLOW FROM COMPUTATION POINT CB163C TO COMPUTATION POINT CPCD1C
1637          KM   MARICOPA DRAIN FROM 63RD AVE TO 67TH AVE.
1638          RS       2    ELEV      -1
1639          RC   0.030    .030    .030    2640   .0011
1640          RX       0      10      20      45     135     160     170     180
1641          RY   996.2   996.1     996     991     991     996   996.1   996.2
              *

1642          KK   BR67C
1643          KM   SUB-BASIN BR67C-LAND USE - RURAL DEVELEMENT
1644          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1645          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1646          BA    .130
1647          LG    .500    .220   6.200    .305    15.0
1648          UC    .667    .454
1649          UA       0       3       9      18      28      42      59      73      87      92
1650          UA     100
              *

1651          KK  RCD1C2
1652          KM    ROUTE FLOW FROM SUBASIN BR67C TO COMPUTATION POINT CPCD1C
1653          RS      17    ELEV      -1
1654          RC    0.07    0.07    0.07    2100  0.0014
1655          RX       0      75     260     490     670     830    1000    1130
1656          RY     994   993.5   993.5     993     993     993     993     994
              *
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1657          KK    CD1C
1658          KM   SUB-BASIN CD1C -LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1659          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1660          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1661          BA    .470
1662          LG    .500     .000    5.320     .351     .000
1663          UC    .933     .369
1664          UA       0        3        9       18       28       42       59       73       87       92
1665          UA     100
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1666          KK  CPCD1C
1667          KM    COMBINE ROUTED FLOWS FROM COMPUTATION POINT CB163C AND SUB-BASIN BR67C
1668          KM    WITH RUNOFF FROM SUB-BASIN CD1C
1669          HC       3
              *

1670          KK  RCD2C1
1671          KM    ROUTE FLOW FROM COMPUTATION POINT CPCD1C TO COMPUTATION POINT CCD2C
1672          KM    MARICOPA DRAIN FROM 67TH AVE TO 75TH AVE.
1673          RS       3    ELEV      -1
1674          RC   0.030    .030    .030    4600   .0011
1675          RX       0      10      20      45     155     180     190     200
1676          RY   990.2   990.1     990     985     985     990   990.1   990.2
              *

1677          KK    CD2C
1678          KM   SUB-BASIN CD2C -LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1679          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1680          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1681          BA    .580
1682          LG    .500     .000    6.500     .277     .000
1683          UC    .867     .451
1684          UA       0        3        9       18       28       42       59       73       87       92
1685          UA     100
              *

1686          KK  CCD2C1
1687          KM    COMBINE ROUTED FLOW FROM COMPUTATION POINT CPCD1C TO RUNOFF FROM SUB-BASIN
1688          KM    CD2C
1689          HC       2
              *

1690          KK  RIR63B
1691          KM   RETRIEVE SPLIT FLOW FROM COMPUTATION POINT CIR63B
1692          DR  RIR63B
              *

1693          KK  RIR65C
1694          KM    ROUTE RETRIEVED FLOW FROM SUB-BASIN IR63B TO COMPUTATION POINT CIR65C
1695          RS       7    ELEV      -1
1696          RC   0.030   0.030   0.030    3300  0.0010
1697          RX       0       1      11      21      26      31      41      46
1698          RY       6       5     4.7     4.7       5     5.5     5.5     6.2
              *

1699          KK   IR65C
1700          KM   SUB-BASIN IR65C -LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1701          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1702          KM   6-HOUR RAINFALL, PATTERN NO. 3.35 WAS USED TO FIND TC & R FOR THIS BASIN
1703          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1704          BA    .170
1705          LG    .500     .000    3.500     .470     .000
1706          UC    .933     .873
1707          UA       0        3        9       18       28       42       59       73       87       92
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1708          UA     100
              *

1709          KK  CIR65C
1710          KM   COMBINE RETRIEVED ROUTED FLOW FROM SUB-BASIN IR63B TO RUNOFF FROM SUB-BASIN
1711          KM   IR65C
1712          HC       2
              *

1713          KK   RIRDC
1714          KM   ROUTE FLOW FROM COMPUTATION POINT CIR65C TO COMPUTATION POINT CIRDC
1715          RS       4    ELEV      -1
1716          RC    0.03    0.03    0.03    3200  0.0018
1717          RX       0       1      10      20      30      40      50      51
1718          RY  1014.5    1013    1013    1013    1013    1013    1013  1014.5
              *

1719          KK  DIIRDC
1720          KM    ROUTED FLOW FROM COMPUTATION POINT CIR65C IS SPLIT AT COMPUTATION POINT
1721          KM    CIRDC
1722          DT  RIR65C
1723          DI       0      16      34      51      71      80     100     120     150
1724          DQ       0      16      25      32      40      49      69      89     119
              *

1725          KK    IRDC
1726          KM   SUB-BASIN IRDC-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1727          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1728          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1729          BA    .520
1730          LG    .500    .000   3.500    .470    .000
1731          UC   1.333    .968
1732          UA       0       3       9      18      28      42      59      73      87      92
1733          UA     100
              *

1734          KK   CIRDC
1735          KM    COMBINE ROUTED FLOW FROM COMPUTATION POINT CIR65C TO RUNOFF FROM SUB-BASIN
1736          KM    IRDC
1737          HC       2
              *

1738          KK  RIRSMC
1739          KM    ROUTE FLOW COMPUTATION POINT CIRDC TO COMPUTATION POINT CIRSMC
1740          RS      11    ELEV      -1
1741          RC    0.07    0.07    0.07    3400  0.0058
1742          RX       0     160     240     470     530     780     900    1000
1743          RY  1006.2  1005.7  1005.7  1005.7  1005.6  1005.5  1005.7  1006.2
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1744          KK   IRSMC
1745          KM   SUB-BASIN IRSMC-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1746          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1747          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1748          BA    .250
1749          LG    .290    .177   3.890    .488    .000
1750          UC    .650    .469
1751          UA       0       3       9      18      28      42      59      73      87      92
1752          UA     100
              *

1753          KK  CIRSMC
1754          KM
1755          HC       2
              *
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```
1756          KK  RCD2C2
1757          KM    ROUTE FLOW FROM COMPUTATION POINT CIRSMC TO COMPUTATION POINT CCD2C
1758          RS       4    ELEV      -1
1759          RC    0.07    0.07    0.07    1000  0.0040
1760          RX       0     100     300     400     560     620     750     870
1761          RY     989   987.6   987.6   987.6   987.6   987.6   987.6     989
              *

1762          KK  CCD2C2
1763          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CIRSMC TO PREVIOUSLY COMPUTED
1764          KM   FLOW AT COMPUTATION POINT CCD2C
1765          KM   MARICOPA DRAIN AT 75TH AVE.
1766          HC       2
              *

1767          KK  RCD3C1
1768          KM   ROUTE FLOW FROM DIVERSION POINT AT BASELINE ROAD (75TH AVE) TO COMPUTATION
1769          KM   POINT CPCD3C (SALT RIVER)
1770          KM   ADJUST SLOPE FROM .0011 TO REFLECT A VELOCITY OF LESS THAN 5 FT/SEC
1771          RS       2    ELEV      -1
1772          RC    0.03    .030    .030    3700   .0011
1773          RX       0      10      20      45     165     190     200     210
1774          RY   986.2   986.1     986     981     981     986   986.1   986.2
              *

1775          KK   A67AC
1776          KM   SUB-BASIN 67AC-LAND USE - AGRICULTURE, RURAL
1777          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1778          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1779          BA    .610
1780          LG    .500    .000   4.400    .416    .000
1781          UC   1.100    .631
1782          UA       0       3       9      18      28      42      59      73      87      92
1783          UA     100
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1784          KK  RCD4C1
1785          KM   ROUTE FLOW FROM SUB-BASIN 67AC CPCD4C TO COMPUTATION POINT CPCD4C
1786          RS      11    ELEV      -1
1787          RC    0.07    0.07    0.07    2600  0.0024
1788          RX       0      80     230     340     590     730     850     920
1789          RY     988     984     984     984     984     984     984   987.8
              *

1790          KK    CD4C
1791          KM   SUB-BASIN CD4C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1792          KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1793          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1794          BA    .190
1795          LG    .500    .000   3.800    .451    .000
1796          UC    .967    .553
1797          UA       0       3       9      18      28      42      59      73      87      92
1798          UA     100
              *

1799          KK  CPCD4C
1800          KM    COMBINE ROUTED FLOW FROM SUB-BASIN 67AC TO RUNOFF FROM SUB-BASIN CD4C
1801          HC       2
              *

1802          KK  RCD3C2
1803          KM   ROUTE FLOW FROM COMPUTATION POINT CPCD4C TO COMPUTATION POINT CPCD3C
1804          RS      22    ELEV      -1
1805          RC    0.07    0.07    0.07    5200  0.0024
1806          RX       0      80     230     340     590     730     850     920
1807          RY     988     984     984     984     984     984     984   987.8
```

```
                    *
1808                KK    CD3C
1809                KM   SUB-BASIN CD3C-LAND USE - AGRICULTURE;MINOR DEVELOPMENT
1810                KM   24-HOUR TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
1811                KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF .90
1812                BA    .480
1813                LG    .500    .000   4.800    .350    .000
1814                UC   0.983    .578
1815                UA       0       3       9      18      28      42      59      73      87      92
1816                UA     100
                    *
1817                KK  CPCD3C
1818                KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CPCD4C, ROUTED FLOW FROM DIVERSION
1819                KM   POINT AT BASELINE ROAD WITH RUNOFF FROM SUB-BASIN CD3C
1820                HC       3
1821                ZZ

          SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 NE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

 42       IR62B
              .
              .
 60           .       DR43C
              .           .
              .           .
 81           .           .-------> RDR43C
 78           .      DDR43C
              .           V
              .           V
 84           .      ROA51B
              .           V
              .           V
 90           .      ROA51B
              .           .
              .           .
 96           .           .       OA51B
              .           .           .
              .           .           .
 13           .      COA51B............
              .           .
              .           .
120           .           .-------> DOA55C
 17           .      DFO51B
              .           V
              .           V
123           .       RE55B
              .           .
              .           .
 29           .           .       ER55B
              .           .           .
              .           .           .
 38           .      CER55B............
              .           V
              .           V
142           .       RE59B
              .           .
              .           .
 48           .           .       ER59B
              .           .           .
              .           .           .
 57           .      CER59B............
              .           V
              .           V
161           .      RIR63B
              .           .
```

```
            .           .
169         .           .       IR63B
            .           .           .
            .           .           .
 78     CIR63B.......................
            .
            .
189         .-------> RIR63B
 82     DIR63B
            .
            .
192         .       SA19C
            .           .
            .           .
213         .           .------->   SA19C
211         .      DSA19C
            .           V
            .           V
 16         .      RR23C1
            .           V
            .           V
 22         .      RR23C2
            .           V
            .           V
228         .      RR23C3
            .           .
            .           .
 34         .           .       CR23C
            .           .           .
            .           .           .
 43         .      CPC23C............
            .           V
            .           V
246         .       RF27C
            .           .
            .           .
252         .           .       RR27C
            .           .           .
            .           .           .
261         .      CPR27C............
            .           V
            .           V
265         .      RR35C1
            .           .
            .           .
271         .           .        CBDE
            .           .           .
            .           .           .
280         .           .           .------->   BLSD7
278         .           .        OVL7
            .           .           .
            .           .           .
283         .           .           .       BR19C
            .           .           .           .
            .           .           .           .
295         .           .           .           .-------> BLSD19
292         .           .           .       OVL19
            .           .           .           .
            .           .           .           .
298         .           .      COVL19............
            .           .           V
            .           .           V
301         .           .      ROVL19
            .           .           .
            .           .           .
307         .           .           .       SA27C
            .           .           .           .
            .           .           .           .
316         .           .      CPS27C............
            .           .           V
            .           .           V
```

```
19          .           .      RR35C3
            .           .           .
            .           .           .
26          .     CPR35A............
            .           .
            .           .
329         .           .        SM5C
            .           .           V
            .           .           V
38          .           .        RSM7
            .           .           .
            .           .           .
44          .           .           .      SMA15C
            .           .           .           .
            .           .           .           .
353         .           .      CPS15C............
            .           .           V
            .           .           V
56          .           .      RSM19C
            .           .           .
            .           .           .
62          .           .           .      SMA19C
            .           .           .           .
            .           .           .           .
371         .           .      CPS19C............
            .           .           V
            .           .           V
74          .           .      RRB27C
            .           .           .
            .           .           .
80          .           .           .        SM1C
            .           .           .           .
            .           .           .           .
389         .           .           .           .       SM1AC
            .           .           .           .           .
            .           .           .           .           .
98          .           .           .        CSM1............
            .           .           .           V
            .           .           .           V
02          .           .           .        RSM1
            .           .           .           .
            .           .           .           .
408         .           .           .           .        SM2C
            .           .           .           .           .
            .           .           .           .           .
17          .           .           .        CSM2............
            .           .           .           V
            .           .           .           V
21          .           .           .       RDENT
            .           .           .           V
            .           .           .           V
428         .           .           .        RSM2
            .           .           .           .
            .           .           .           .
34          .           .           .           .        SM3C
            .           .           .           .           .
            .           .           .           .           .
43          .           .           .        CSM3............
            .           .           .           V
            .           .           .           V
447         .           .           .        RSM3
            .           .           .           .
            .           .           .           .
53          .           .           .           .        SM4C
            .           .           .           .           V
            .           .           .           .           V
52          .           .           .           .        RSM4
            .           .           .           .           .
            .           .           .           .           .
468         .           .           .           .           .       DRW2C
            .           .           .           .           .           .
```

```
477                                                                  DRWC1C
                                                                        .
                                                                        .
 86                                CSM4.................................
                                     V
                                     V
 90                                RSM5
                                     .
                                     .
496                                     .        DR1C
                                        .           .
                                        .           .
 05                                     .           .        WC1A
                                        .           .           V
                                        .           .           V
 14                                     .           .        RSM6
                                        .           .           .
                                        .           .           .
520                                     .           .           .        DR2C
                                        .           .           .           .
                                        .           .           .           .
 29                                CPDR2C...............................
                                     V
                                     V
 33                                RRB27C
                                     .
                                     .
539                                     .       BR27C
                                        .           .
                                        .           .
 50                                     .           .           .<-------   BLSD7
548                                     .           .       BLSD7
                                        .           .           V
                                        .           .           V
 51                                     .           .      RBLSD7
                                        .           .           .
                                        .           .           .
556                                     .           .           .           .<-------  BLSD19
 54                                     .           .           .      BLSD19
                                        .           .           .           .
                                        .           .           .           .
557                                     .           .       CSD19............
                                        .           .           V
                                        .           .           V
 50                                     .           .       RSD19
                                        .           .           .
                                        .           .           .
 57                                     .           .           .-------> BLSD27
 53                                     .           .       OVL27
                                        .           .           .
                                        .           .           .
 70                           CPB27C.................................
                                     .
                                     .
576                                  .-------> BLSD27
574                          OVL27C
                                     V
                                     V
579                          RR35C2
                                     .
                                     .
 36                                  .       RR35C
                                     .           .
                                     .           .
595                     CPR35B......................
                             V
                             V
599                     RRS37C
                             .
                             .
```

```
05          .           .       SA37C
            .           .           .
            .           .           .
14          .     CPS37C............
            .          V
            .          V
618         .     RAV431
            .           .
            .           .
24          .           .        WC2A
            .           .           V
            .           .           V
33          .           .      RD27.1
            .           .           .
            .           .           .
639         .           .           .      WC2.1A
            .           .           .           V
            .           .           .           V
48          .           .           .      RD27.2
            .           .           .           .
            .           .           .           .
54          .           .      CD27.1............
            .           .           V
            .           .           V
657         .           .      RD27.3
            .           .           .
            .           .           .
63          .           .           .        WC3A
            .           .           .           V
            .           .           .           V
72          .           .           .      RD27.4
            .           .           .           .
            .           .           .           .
678         .           .      CD27.2............
            .           .           V
            .           .           V
81          .           .      RD27.5
            .           .           .
            .           .           .
87          .           .           .        WC4A
            .           .           .           V
            .           .           .           V
696         .           .           .      RD27.6
            .           .           .           .
            .           .           .           .
02          .           .      CD27.3............
            .           .           V
            .           .           V
05          .           .      RD27.7
            .           .           .
            .           .           .
711         .           .           .       DR27C
            .           .           .           .
            .           .           .           .
20          .           .      CD27.4............
            .           .           V
            .           .           V
24          .           .      RB35C2
            .           .           .
            .           .           .
730         .           .           .      BR35C2
            .           .           .           .
            .           .           .           .
39          .           .      CPB352............
            .           .           .
            .           .           .
13          .           .           .      BR35C1
            .           .           .           .
            .           .           .           .
752         .           .      CPB352............
            .           .           .
```

```
757                 .<-------  BLSD27
755            BLSD27
                    V
                    V
,58             RSD27
                    .
                    .
 61        35-2............
                    .
                    .
766                 .-------> BLSD35
 64        OV35-2
                V
                V
769        RAV432
                V
                V
 76        RAV433
                    .
                    .
 83             WC5A
                    V
                    V
792            RD35.1
                    .
                    .
 98                 .        WC6A
                    .           V
                    .           V
 07                 .      RD35.2
                    .           .
                    .           .
813            CD35.1............
                    V
                    V
 16            RD35.3
                    .
                    .
 22                 .        WC7A
                    .           V
                    .           V
831                 .      RD35.4
                    .           .
                    .           .
 37                 .           .        WC8A
                    .           .           V
                    .           .           V
 16                 .           .      RD35.5
                    .           .           .
                    .           .           .
852                 .      CD35.3............
                    .           V
                    .           V
 35                 .      RD35.6
                    .           .
                    .           .
 51                 .           .        WC9A
                    .           .           V
                    .           .           V
870                 .           .      RD35.7
                    .           .           .
                    .           .           .
 76                 .           .           .        WC10A
                    .           .           .           V
                    .           .           .           V
 35                 .           .           .      RD35.8
                    .           .           .           .
                    .           .           .           .
891                 .           .           .      CD35.5............
                    .           .           .           V
```

```
                                                  V
894                                          RD35.9
                                                  .
                                                  .
00                                                .      WC11A
                                                  .          V
                                                  .          V
09                                                .      RD3510
                                                  .          .
                                                  .          .
915                                               .          .      WC12A
                                                  .          .          V
                                                  .          .          V
24                                                .          .      RD3511
                                                  .          .          .
                                                  .          .          .
30                                                .      CD35.7............
                                                  .          V
                                                  .          V
933                                               .      RD3512
                                                  .          .
                                                  .          .
39                                           CD35.6............
                                                  V
                                                  V
42                                           RD3513
                                                  .
                                                  .
948                                     CD35.4............
                                             V
                                             V
51                                      RD3514
                                                .
                                                .
57                                              .      WC15A
                                                .          V
                                                .          V
966                                             .      RD3515
                                                .          .
                                                .          .
72                                              .          .      PM2A
                                                .          .          .
                                                .          .          .
81                                              .      CD35.8............
                                                .          V
                                                .          V
984                                             .      RD3516
                                                .          .
                                                .          .
90                                              .          .      WC13A
                                                .          .          V
                                                .          .          V
99                                              .          .      RD3517
                                                .          .          .
                                                .          .          .
1005                                            .          .          .      WC14A
                                                .          .          .          V
                                                .          .          .          V
14                                              .          .          .      RD3518
                                                .          .          .          .
                                                .          .          .          .
20                                              .          .          .          .      PM1A
                                                .          .          .          .          .
                                                .          .          .          .          .
1029                                            .      CD35.9.......................................
                                                .          V
                                                .          V
33                                              .      RD3519
                                                .          .
                                                .          .
39                                              .          .      DR35C
```

```
                 .           .           .           .           .           .
                 .           .           .           .           .           .
1048             .           .           .      CD35.2.......................................
                 .           .           .           .
                 .           .           .           .
1054             .           .           .           .-------->   DIDOB
1052             .           .           .      DI35TH
                 .           .           .           V
                 .           .           .           V
  57             .           .           .       RDI35
                 .           .           .           .
                 .           .           .           .
  63             .           .           .           .         CC1
                 .           .           .           .           .
                 .           .           .           .           .
1070             .           .           .       CPCC1............
                 .           .           .           V
                 .           .           .           V
  73             .           .           .       SRCC1
                 .           .           .           .
                 .           .           .           .
  81             .           .           .           .-------->   DICC2
  79             .           .           .       DICC5
                 .           .           .           V
                 .           .           .           V
1084             .           .           .        RCC5
                 .           .           .           .
                 .           .           .           .
1090             .           .           .           .         CC5
                 .           .           .           .           .
                 .           .           .           .           .
  97             .           .           .       CPCC5............
                 .           .           .           V
                 .           .           .           V
 100             .           .           .       SRCC5
                 .           .           .           V
                 .           .           .           V
1106             .           .           .        RCC6
                 .           .           .           .
                 .           .           .           .
  12             .           .           .           .         CC6
                 .           .           .           .           .
                 .           .           .           .           .
 117             .           .           .       CPCC6............
                 .           .           .           V
                 .           .           .           V
1120             .           .           .       SRCC6
                 .           .           .           V
                 .           .           .           V
  29             .           .           .        RCC7
                 .           .           .           .
                 .           .           .           .
 135             .           .           .           .         CC7
                 .           .           .           .           .
                 .           .           .           .           .
1140             .           .           .      ICPCC7............
                 .           .           .           .
                 .           .           .           .
  45             .           .           .           .           .<-------   DIDOB
1143             .           .           .           .       DIDOB
                 .           .           .           .           V
                 .           .           .           .           V
  46             .           .           .           .      RDIDOB
                 .           .           .           .           .
                 .           .           .           .           .
1152             .           .           .           .           .         CC2
                 .           .           .           .           .           .
                 .           .           .           .           .           .
1157             .           .           .           .      ICPCC2............
                 .           .           .           .           .
                 .           .           .           .           .
```

```
 62                                                  .<-------   DICC2
1160                                          DICC2
                                                 .           .
                                                 .           .
 63                                     CPCC2............
                                            V
                                            V
1166                                    SRCC2
                                            V
                                            V
1172                                     RCC3
                                            .
                                            .
 78                                         .         CC3
                                            .           .
                                            .           .
1183                                    CPCC3............
                                            V
                                            V
1186                                    SRCC3
                                            V
                                            V
 92                                      RCC4
                                            .
                                            .
1198                                        .         CC4
                                            .           .
                                            .           .
1205                                    CPCC4............
                                            V
                                            V
 08                                     SRCC4
                                            V
                                            V
1214                                     RCC7
                                            .
                                            .
1220                                CPCC7............
                                        V
                                        V
 23                                 SRCC7
                                        .
                                        .
 34                                     .-------> GCOVLD
 32                                 DICC7
                                        V
                                        V
1237                               RPC352
                                        .
                                        .
1242                                        .<-------  BLSD35
1240                                   BLSD35
                                            V
                                            V
 43                                    RDS35
                                            .
                                            .
 46                                  CG39............
                                        V
                                        V
1250                               RBSD43
                                        .
                                        .
 53                                      CC8
                                            .
                                            .
 53                                         .           .<-------  GCOVLD
 50                                         .       GCOVLD
                                            .           .
                                            .           .
 54                                      GCOL............
```

```
                 .         .         .         .         V
                 .         .         .         .         V
1267             .         .         .         .      RGCOL
                 .         .         .         .         .
                 .         .         .         .         .
1273             .         .         .         .         .      SMA43C
                 .         .         .         .         .          V
                 .         .         .         .         .          V
 82              .         .         .         .         .      RB43C2
                 .         .         .         .         .          .
                 .         .         .         .         .          .
1288             .         .         .         .         .          .       BR43C
                 .         .         .         .         .          .          .
                 .         .         .         .         .          .          .
1297             .         .         .         .         .      CBR43C............
                 .         .         .         .         .          .
                 .         .         .         .         .          .
 00              .         .         .       C43.......................
                 .         .         .         .
                 .         .         .         .
1308             .         .         .         .-------->    43SD
 03              .         .         .     43OVLD
                 .         .         .         V
                 .         .         .         V
1311             .         .         .     R43OVL
                 .         .         .         .
                 .         .         .         .
 18              .         .         .         .     AVR43C
                 .         .         .         .         .
                 .         .         .         .         .
 32              .         .         .         .         .-------->     43C
 27              .         .         .         .      DIVMD
                 .         .         .         .         .
                 .         .         .         .         .
 35              .         .       MDA........................
                 .         .         .
                 .         .         .
1340             .         .         .-------->    DMDA
1338             .         .      DUMMY
                 .         .         .
                 .         .         .
1345             .         .         .         .<--------     43C
1343             .         .         .       43C
                 .         .         .         .
                 .         .         .         .
 46              .       SBAS........................
                 .         V
                 .         V
 50              .     STOR43
                 .         .
                 .         .
1360             .         .-------->   43SDS
 58              .       43W
                 .         .
                 .         .
1365             .         .         .<--------    DMDA
1363             .         .      DMDA
                 .         .         .
                 .         .         .
1366             .       MD43............
                 .         V
                 .         V
 69              .     RMD43
                 .         .
                 .         .
1375             .         .      VR47C
                 .         .         .
                 .         .         .
1384             .     CVR47C............
                 .         V
                 .         V
```

```
 88          .      RBR511
             .          .
             .          .
 95          .          .      AVR51C
             .          .          V
             .          .          V
1404         .          .      RBR512
             .          .          .
             .          .          .
 10          .          .          .       BR51C
             .          .          .           .
             .          .          .           .
 19          .          .        CB51............
             .          .          .
             .          .          .
1422         .       CB51C............
             .          V
             .          V
 27          .      RB1591
             .          .
             .          .
 34          .          .      AVR55C
             .          .          V
             .          .          V
1443         .          .      RB1592
             .          .          .
             .          .          .
 49          .          .          .      BR159C
             .          .          .           .
             .          .          .           .
 58          .          .          .           .       VR59C
             .          .          .           .           V
             .          .          .           .           V
1467         .          .          .           .      RB1593
             .          .          .           .           .
             .          .          .           .           .
 73          .      CB159N..................................
             .          .
             .          .
 80          .          .          .<-------  RDR43C
 78          .          .      RET43C
             .          .          V
             .          .          V
 81          .          .       RS51C
             .          .          .
             .          .          .
1487         .          .          .       SM51C
             .          .          .           .
             .          .          .           .
 96          .          .       CS51C............
             .          .          V
             .          .          V
 99          .          .      RB2591
             .          .          V
             .          .          V
1506         .          .      RB2592
             .          .          .
             .          .          .
 13          .          .          .      BR259C
             .          .          .           .
             .          .          .           .
 22          .          .      CB259A............
             .          .          .
             .          .          .
1528         .          .          .           .<-------  DOA55C
1526         .          .          .      DOA55C
             .          .          .          V
             .          .          .          V
1529         .          .          .       RO55C
             .          .          .           .
             .          .          .           .
```

```
 36          .          .          .          .      OA55C
             .          .          .          .          .
             .          .          .          .          .
 45          .          .          .     CPO55C...........
             .          .          .          V
             .          .          .          V
1549         .          .          .      RD57C
             .          .          .          .
             .          .          .          .
 55          .          .          .          .      DR57C
             .          .          .          .          .
             .          .          .          .          .
 64          .          .          .     CDR57C...........
             .          .          .          V
             .          .          .          V
1568         .          .          .      RD59C
             .          .          .          .
             .          .          .          .
 74          .          .          .          .      DR59C
             .          .          .          .          .
             .          .          .          .          .
 83          .          .          .     CDR59C...........
             .          .          .          V
             .          .          .          V
1587         .          .          .      RB259
             .          .          .          .
             .          .          .          .
 93          .          .     CB259S...........
             .          .          .
             .          .          .
 98          .       CB59...........
             .          V
             .          V
1602         .     RB1631
             .          .
             .          .
 10          .          .     BR263C
             .          .          .
             .          .          .
 19          .        63S...........
             .          .
             .          .
1622         .          .     BR163C
             .          .          .
             .          .          .
 31          .     CB163C...........
             .          V
             .          V
 35          .      RCD1C
             .          .
             .          .
1642         .          .      BR67C
             .          .          V
             .          .          V
 51          .          .     RCD1C2
             .          .          .
             .          .          .
 57          .          .          .       CD1C
             .          .          .          .
             .          .          .          .
1666         .     CPCD1C......................
             .          V
             .          V
 70          .     RCD2C1
             .          .
             .          .
 77          .          .       CD2C
             .          .          .
             .          .          .
1686         .     CCD2C1...........
             .          .
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                .           .
1692            .           .          .<-------  RIR63B
1690            .           .     RIR63B
                .           .          V
                .           .          V
 93             .           .     RIR65C
                .           .          .
                .           .          .
 99             .           .          .       IR65C
                .           .          .           .
                .           .          .           .
1709            .           .     CIR65C............
                .           .          V
                .           .          V
 13             .           .      RIRDC
                .           .          .
                .           .          .
 22             .           .          .-------> RIR65C
 19             .           .     DIIRDC
                .           .          .
                .           .          .
 25             .           .          .        IRDC
                .           .          .           .
                .           .          .           .
1734            .           .      CIRDC............
                .           .          V
                .           .          V
 38             .           .     RIRSMC
                .           .          .
                .           .          .
 44             .           .          .       IRSMC
                .           .          .           .
                .           .          .           .
1753            .           .     CIRSMC............
                .           .          V
                .           .          V
 56             .           .     RCD2C2
                .           .          .
                .           .          .
 62             .      CCD2C2............
                .           V
                .           V
1767            .      RCD3C1
                .           .
                .           .
 75             .           .      A67AC
                .           .          V
                .           .          V
 84             .           .     RCD4C1
                .           .          .
                .           .          .
1790            .           .          .        CD4C
                .           .          .           .
                .           .          .           .
 99             .           .     CPCD4C............
                .           .          V
                .           .          V
 02             .           .     RCD3C2
                .           .          .
                .           .          .
1808            .           .          .        CD3C
                .           .          .           .
                .           .          .           .
 17             .      CPCD3C........................
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(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                                    *    U.S. ARMY CORPS OF
NGINEERS     *
*                JUN   1998             *                                                    *    HYDROLOGIC ENGINEERING
E  ER    *
*            VERSION 4.1                *                                                    *          609 SECOND STREET

*                                       *                                                    *       DAVIS, CALIFORNIA
5616       *
*   RUN DATE   29AUG02  TIME  17:37:36  *                                                    *          (916) 756-1104

*                                       *                                                    *

*   ***************************************
*   ************************************
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                    LAVEEN ADMS (FINAL HEC-1) 100-YR 24-HR STORM          CBA FILE # 40916-02-30
                    HIDDEN VALLEY WATERSHED/CHAMPION DRAIN WATERSHED
                                                                        DATE: SEPTEMBER 12,2000

                    24-HOUR SCS TYPE II RAINFALL

                    REVISED SCHEMATIC TO INCLUDE FLOWS IN BOTH 43RD AVE. BASINS


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

                   FOLLOWING REVISIONS BY AMIR MOTAMEDI, STEVEN TUCKER, FCDMD, 8/29/02
                   1- REMOVED THE PROPOSED BASIN ON NE CORNER OF BASELINE AND 43RD AVE PER PPM
                   2- REMOVED DUPLICATE RR35C3
                   3- CORRECTED THE LENGTH FOR THE REMAINING RR35C3
                   4- CORRECTED THE REACH LENGTH AND SLOPE FOR RR35C2
                   5- CORRECTED THE 43RD AVE. STORM DRAIN CAPACITY TO 294
                   6- CORRECTED THE RATING CURVE FOR THE 43RD AVE BASIN AT BASELINE RD
                   7- PLEASE NOTE: RAINFALL AREAL REDUCTION IS FOR ENTIRE WATERSHED. FOR DESIGN
                   OF LACC ONLY.  NOT TO BE USED FOR ANY OTHER DESIGN W/O PROPER MODIFICATION
                    ****************************************************************************


                    ****************************************************************************
                    FLOOD INSURANCE STUDY UPDATE
                    INCLUDE PHYSICAL CHANGES IN THE WATERSHED AS OF MARCH 2000
                    INCLUDED THE FOLLOWING FACILITIES:
                      UPSTREAM OF 43RD AVE.  - EXISTING LANDUSE
                         1- 43RD AVENUE STORM DRAIN, 1000 FT NORTH OF BASELINE TO SALT RIVER
                         2- CESAR CHAVEZ GOLF COURSE, 35TH AVENUE AND DOBBINS
                         3- BASELINE STORMDRAIN, FROM 7TH AVE TO 43RD AVE.
                         4- 43RD AVE DETENTION BASIN AT SOUTHERN AVE.

                      DOWNSTREAM OF 43RD AVE. - EXISTING LANDUSE
                         PLAN 2 - PROPOSED CHANNEL

                    CHANGES BY H&H BRANCH, FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
                    8/29/02   INPUT FILE NAME LB2DR1.DAT

 41 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         500  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      2    0  ENDING DATE
                     NDTIME        1735  ENDING TIME
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                ICENT          19  CENTURY MARK

           COMPUTATION INTERVAL     .08 HOURS
               TOTAL TIME BASE   41.58 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

WARNING --- ROUTED OUTFLOW (    137.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    150.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    159.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    166.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    171.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    174.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    176.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    177.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    176.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    175.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    173.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    170.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    167.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    163.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    160.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    156.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    151.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    147.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    143.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    139.) IS GREATER THAN MAXIMUM OUTFLOW (    137.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (     80.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    108.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    130.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    143.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    144.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    135.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    120.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    103.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (     87.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
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WARNING --- ROUTED OUTFLOW (     76.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (     99.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    116.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    125.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    126.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    120.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    110.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (     98.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (     86.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (     89.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    103.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    111.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    113.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    110.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    103.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (     94.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (     84.) IS GREATER THAN MAXIMUM OUTFLOW (     75.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    245.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    315.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    368.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    405.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    423.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    423.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    408.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    382.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    351.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    316.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    282.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    250.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    259.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    328.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    377.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    408.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    421.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    416.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
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W  NING --- ROUTED OUTFLOW (    399.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    372.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    340.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    306.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    273.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    242.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    273.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W..NING --- ROUTED OUTFLOW (    339.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W RNING --- ROUTED OUTFLOW (    384.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    409.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    417.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    409.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    389.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    361.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    329.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    296.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W..NING --- ROUTED OUTFLOW (    264.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W RNING --- ROUTED OUTFLOW (    233.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    287.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    349.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    389.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    409.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    412.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    401.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    380.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    351.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W RNING --- ROUTED OUTFLOW (    319.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    286.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    255.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    300.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    357.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
 NING --- ROUTED OUTFLOW (    392.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    408.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
 NING --- ROUTED OUTFLOW (    407.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    393.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
 NING --- ROUTED OUTFLOW (    370.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
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WARNING --- ROUTED OUTFLOW (    341.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    309.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    277.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    246.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    228.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    312.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    364.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    394.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    405.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    401.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    385.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    360.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    331.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    299.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    268.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    238.) IS GREATER THAN MAXIMUM OUTFLOW (    226.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    370.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    453.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    516.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    562.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    596.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    620.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    637.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    648.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    656.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    662.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    667.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    673.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    679.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    688.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    699.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    713.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    732.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    754.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    780.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
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W  NING --- ROUTED OUTFLOW (    809.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    839.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    869.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    898.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    924.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    945.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    962.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    973.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    980.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    981.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    979.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    972.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    962.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    949.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    934.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    917.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    899.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    880.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    860.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    839.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    818.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    798.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    777.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    756.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    736.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    716.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    696.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    677.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    659.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    641.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    623.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    605.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    589.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    572.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    556.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    541.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
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WARNING --- ROUTED OUTFLOW (    526.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    511.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W...NING --- ROUTED OUTFLOW (    497.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W^^RNING --- ROUTED OUTFLOW (    482.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    469.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    455.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    442.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    429.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    417.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    405.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    393.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W...NING --- ROUTED OUTFLOW (    382.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W^^RNING --- ROUTED OUTFLOW (    371.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    360.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    350.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
W  NING --- ROUTED OUTFLOW (    340.) IS GREATER THAN MAXIMUM OUTFLOW (    340.) IN STORAGE-OUTFLOW TABLE
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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	IR62B	431.	12.50	87.	22.	13.	.55		
HYDROGRAPH AT	DR43C	1025.	12.33	152.	44.	25.	.94		
DIVERSION TO	RDR43C	906.	12.00	128.	38.	22.	.94		
HYDROGRAPH AT	DDR43C	119.	12.00	24.	6.	3.	.94		
ROUTED TO	ROA51B	115.	13.33	24.	6.	3.	.94	1041.42	13.33
ROUTED TO	ROA51B	67.	15.75	21.	6.	3.	.94	1037.30	5.75
HYDROGRAPH AT	OA51B	1334.	12.50	223.	60.	35.	1.37		
2 COMBINED AT	COA51B	1334.	12.50	237.	66.	38.	2.31		
DIVERSION TO	DOA55C	711.	12.50	126.	35.	20.	2.31		
HYDROGRAPH AT	DFO51B	623.	12.50	111.	31.	18.	2.31		
ROUTED TO	RE55B	443.	13.83	107.	31.	18.	2.31	1029.97	13.83
HYDROGRAPH AT	ER55B	207.	12.67	54.	13.	8.	.25		
2 COMBINED AT	CER55B	511.	13.75	155.	45.	26.	2.56		
ROUTED TO	RE59B	440.	14.50	154.	44.	26.	2.56	1025.96	14.50
HYDROGRAPH AT	ER59B	206.	12.58	42.	10.	6.	.28		
2 COMBINED AT	CER59B	452.	14.42	194.	55.	32.	2.84		
ROUTED TO	RIR63B	425.	15.00	190.	55.	32.	2.84	1021.48	15.00
HYDROGRAPH AT	IR63B	94.	12.50	19.	5.	3.	.13		
3 COMBINED AT	CIR63B	526.	12.50	289.	81.	47.	3.52		
DIVERSION TO	RIR63B	45.	12.50	45.	20.	12.	3.52		
HYDROGRAPH AT	DIR63B	481.	12.50	244.	61.	35.	3.52		
HYDROGRAPH AT	SA19C	316.	12.42	61.	16.	9.	.48		
DIVERSION TO									

	SA19C	70.	12.42	28.	8.	5.	.48		
HYDROGRAPH AT	DSA19C	246.	12.42	32.	8.	5.	.48		
ROUTED TO	RR23C1	235.	12.58	32.	8.	5.	.48	1075.97	12.58
ROUTED TO	RR23C2	189.	13.25	32.	8.	5.	.48	1063.98	13.25
ROUTED TO	RR23C3	156.	13.92	32.	8.	5.	.48	1053.12	13.92
HYDROGRAPH AT	CR23C	734.	12.17	85.	22.	13.	.58		
2 COMBINED AT	CPC23C	734.	12.17	116.	30.	17.	1.06		
ROUTED TO	RF27C	489.	13.08	113.	30.	17.	1.06	1048.25	13.08
HYDROGRAPH AT	RR27C	460.	12.33	62.	16.	9.	.48		
2 COMBINED AT	CPR27C	561.	13.00	173.	45.	26.	1.54		
ROUTED TO	RR35C1	490.	14.17	163.	45.	26.	1.54	1137.88	14.17
HYDROGRAPH AT	CBDE	108.	12.42	22.	6.	3.	.17		
DIVERSION TO	BLSD7	108.	.00	22.	6.	3.	.17		
HYDROGRAPH AT	OVL7	0.	.00	0.	0.	0.	.17		
HYDROGRAPH AT	BR19C	364.	12.25	47.	12.	7.	.39		
DIVERSION TO	BLSD19	50.	12.25	15.	4.	2.	.39		
HYDROGRAPH AT	OVL19	314.	12.25	33.	8.	5.	.39		
2 COMBINED AT	COVL19	314.	12.25	33.	8.	5.	.56		
ROUTED TO	ROVL19	138.	14.67	32.	8.	5.	.56	1085.46	14.67
HYDROGRAPH AT	SA27C	513.	12.33	82.	21.	12.	.62		
2 COMBINED AT	CPS27C	513.	12.33	112.	29.	17.	1.18		
ROUTED TO	RR35C3	284.	13.75	105.	29.	17.	1.18	1041.44	13.75
2 COMBINED AT	CPR35A	733.	14.08	266.	74.	43.	2.72		
HYDROGRAPH AT	SM5C	164.	12.08	24.	7.	4.	.20		
ROUTED TO	RSM7	130.	12.75	24.	7.	4.	.20	1178.58	12.75

HYDROGRAPH AT	SMA15C	368.	12.17	43.	11.	6.	.36		
2 COMBINED AT	CPS15C	372.	12.17	67.	18.	10.	.56		
ROUTED TO	RSM19C	327.	12.50	67.	18.	10.	.56	1139.93	12.50
HYDROGRAPH AT	SMA19C	59.	12.58	17.	4.	3.	.16		
2 COMBINED AT	CPS19C	385.	12.50	84.	22.	13.	.72		
ROUTED TO	RRB27C	270.	14.08	80.	22.	13.	.72	1108.35	14.08
HYDROGRAPH AT	SM1C	2160.	12.25	341.	113.	65.	1.84		
HYDROGRAPH AT	SM1AC	253.	12.17	31.	9.	5.	.28		
2 COMBINED AT	CSM1	2401.	12.17	373.	121.	70.	2.12		
ROUTED TO	RSM1	2321.	12.33	372.	121.	70.	2.12	1378.07	12.33
HYDROGRAPH AT	SM2C	3451.	12.17	561.	196.	113.	2.19		
2 COMBINED AT	CSM2	5481.	12.17	933.	317.	183.	4.31		
ROUTED TO	RDENT	147.	17.33	146.	139.	103.	4.31	1317.99	17.33
ROUTED TO	RSM2	147.	17.67	146.	139.	101.	4.31	1227.22	17.33
HYDROGRAPH AT	SM3C	455.	12.17	43.	11.	6.	.48		
2 COMBINED AT	CSM3	535.	12.17	176.	148.	107.	4.79		
ROUTED TO	RSM3	499.	12.33	175.	148.	106.	4.79	1177.13	12.33
HYDROGRAPH AT	SM4C	168.	12.17	26.	7.	4.	.24		
ROUTED TO	RSM4	164.	12.17	26.	7.	4.	.24	1169.02	12.17
HYDROGRAPH AT	DRW2C	401.	12.33	71.	22.	13.	.53		
HYDROGRAPH AT	DRWC1C	70.	12.33	14.	3.	2.	.12		
4 COMBINED AT	CSM4	1120.	12.25	280.	176.	126.	5.68		
ROUTED TO	RSM5	1051.	12.42	279.	176.	125.	5.68	1159.49	12.42
HYDROGRAPH AT	DR1C	152.	12.25	22.	5.	3.	.16		

HYDROGRAPH AT	WC1A	274.	12.25	49.	15.	9.	.25		
ROUTED TO	RSM6	268.	12.25	49.	15.	9.	.25	1147.73	12.25
HYDROGRAPH AT	DR2C	46.	12.17	5.	1.	1.	.05		
4 COMBINED AT	CPDR2C	1473.	12.33	352.	196.	138.	6.14		
ROUTED TO	RRB27C	1183.	13.25	345.	195.	130.	6.14	1108.92	13.25
HYDROGRAPH AT	BR27C	594.	12.33	91.	23.	13.	.78		
HYDROGRAPH AT	BLSD7	108.	12.42	22.	6.	3.	.00		
ROUTED TO	RBLSD7	109.	12.50	22.	6.	3.	.00		
HYDROGRAPH AT	BLSD19	50.	11.75	15.	4.	2.	.00		
2 COMBINED AT	CSD19	159.	12.50	37.	10.	6.	.00		
ROUTED TO	RSD19	158.	12.58	37.	10.	6.	.00		
DIVERSION TO	BLSD27	156.	12.58	37.	10.	6.	.00		
HYDROGRAPH AT	OVL27	2.	12.58	0.	0.	0.	.00		
4 COMBINED AT	CPB27C	1286.	13.25	494.	237.	156.	7.64		
DIVERSION TO	BLSD27	156.	13.25	156.	149.	105.	7.64		
HYDROGRAPH AT	OVL27C	1130.	13.25	338.	88.	51.	7.64		
ROUTED TO	RR35C2	819.	14.92	309.	88.	51.	7.64	1057.75	14.92
HYDROGRAPH AT	RR35C	1694.	12.50	277.	69.	40.	1.89		
3 COMBINED AT	CPR35B	1695.	12.50	786.	232.	134.	12.25		
ROUTED TO	RRS37C	1477.	13.08	767.	231.	134.	12.25	1026.89	13.08
HYDROGRAPH AT	SA37C	571.	12.25	89.	25.	14.	.59		
2 COMBINED AT	CPS37C	1580.	13.08	807.	254.	148.	12.84		
ROUTED TO	RAV431	1255.	14.25	786.	254.	148.	12.84	1022.47	14.25
HYDROGRAPH AT	WC2A	78.	12.25	14.	3.	2.	.08		
ROUTED TO	RD27.1	76.	12.25	14.	3.	2.	.08	1148.15	12.25

HYDROGRAPH AT	WC2.1A	70.	12.17	8.	2.	1.	.08	
ROUTED TO	RD27.2	67.	12.25	8.	2.	1.	.08	1149.00 12.25
2 COMBINED AT	CD27.1	143.	12.25	21.	5.	3.	.16	
ROUTED TO	RD27.3	141.	12.25	21.	5.	3.	.16	1142.56 12.25
HYDROGRAPH AT	WC3A	15.	12.17	2.	1.	0.	.01	
ROUTED TO	RD27.4	15.	12.25	2.	1.	0.	.01	1142.19 12.25
2 COMBINED AT	CD27.2	155.	12.25	24.	6.	3.	.17	
ROUTED TO	RD27.5	146.	12.33	24.	6.	3.	.17	1122.49 12.33
HYDROGRAPH AT	WC4A	369.	12.17	52.	16.	9.	.36	
ROUTED TO	RD27.6	351.	12.33	52.	16.	9.	.36	1140.69 12.33
2 COMBINED AT	CD27.3	498.	12.33	75.	21.	12.	.53	
ROUTED TO	RD27.7	484.	12.42	75.	21.	12.	.53	1116.30 12.42
HYDROGRAPH AT	DR27C	157.	12.25	19.	5.	3.	.23	
2 COMBINED AT	CD27.4	608.	12.42	94.	26.	15.	.76	
ROUTED TO	RB35C2	398.	13.92	93.	26.	15.	.76	1069.76 13.92
HYDROGRAPH AT	BR35C2	460.	12.58	99.	25.	14.	.73	
2 COMBINED AT	CPB352	483.	13.83	190.	51.	29.	1.49	
HYDROGRAPH AT	BR35C1	361.	12.58	79.	20.	11.	.55	
2 COMBINED AT	CPB352	823.	12.58	269.	71.	41.	2.04	
HYDROGRAPH AT	BLSD27	156.	12.58	37.	10.	6.	.00	
ROUTED TO	RSD27	156.	12.75	37.	10.	6.	.00	
2 COMBINED AT	35-2	973.	12.58	305.	80.	47.	2.04	
DIVERSION TO	BLSD35	284.	12.58	168.	46.	27.	2.04	
HYDROGRAPH AT	OV35-2	689.	12.58	137.	34.	20.	2.04	
ROUTED TO	RAV432	569.	13.25	137.	34.	20.	2.04	

							1042.04	13.25
ROUTED TO	RAV433	454.	14.00	135.	34.	20.	2.04	
							1028.94	14.00
HYDROGRAPH AT	WC5A	290.	12.25	51.	16.	9.	.42	
ROUTED TO	RD35.1	239.	12.92	50.	16.	9.	.42	
							1125.88	12.92
HYDROGRAPH AT	WC6A	17.	12.08	2.	0.	0.	.01	
ROUTED TO	RD35.2	7.	13.42	2.	0.	0.	.01	
							1118.01	13.42
2 COMBINED AT	CD35.1	242.	12.92	52.	16.	10.	.43	
ROUTED TO	RD35.3	229.	13.17	52.	16.	10.	.43	
							1090.25	13.17
HYDROGRAPH AT	WC7A	57.	12.17	7.	2.	1.	.05	
ROUTED TO	RD35.4	51.	12.42	7.	2.	1.	.05	
							1126.41	12.42
HYDROGRAPH AT	WC8A	307.	12.25	51.	16.	9.	.35	
ROUTED TO	RD35.5	287.	12.33	51.	16.	9.	.35	
							1137.78	12.33
2 COMBINED AT	CD35.3	338.	12.33	58.	18.	10.	.40	
ROUTED TO	RD35.6	336.	12.42	58.	18.	10.	.40	
							1101.97	12.42
HYDROGRAPH AT	WC9A	28.	12.17	4.	1.	1.	.03	
ROUTED TO	RD35.7	27.	12.25	4.	1.	1.	.03	
							1128.65	12.25
HYDROGRAPH AT	WC10A	28.	12.08	4.	1.	1.	.02	
ROUTED TO	RD35.8	26.	12.17	4.	1.	1.	.02	
							1132.27	12.17
2 COMBINED AT	CD35.5	52.	12.17	8.	2.	1.	.05	
ROUTED TO	RD35.9	50.	12.33	8.	2.	1.	.05	
							1115.17	12.33
HYDROGRAPH AT	WC11A	295.	12.17	55.	18.	11.	.29	
ROUTED TO	RD3510	274.	12.25	55.	18.	11.	.29	
							1131.90	12.25
HYDROGRAPH AT	WC12A	280.	12.17	37.	11.	7.	.26	
ROUTED TO	RD3511	262.	12.25	37.	11.	7.	.26	

								1143.99	12.25
2 COMBINED AT	CD35.7	536.	12.25	92.	30.	17.	.55		
ROUTED TO	RD3512	499.	12.33	92.	30.	17.	.55	1122.15	12.33
2 COMBINED AT	CD35.6	549.	12.33	100.	32.	18.	.59		
ROUTED TO	RD3513	530.	12.42	100.	32.	18.	.59	1101.99	12.42
2 COMBINED AT	CD35.4	867.	12.42	158.	49.	28.	1.00		
ROUTED TO	RD3514	808.	12.67	158.	49.	28.	1.00	1193.75	12.67
HYDROGRAPH AT	WC15A	411.	12.17	65.	22.	12.	.36		
ROUTED TO	RD3515	403.	12.17	65.	22.	12.	.36	1134.77	12.17
HYDROGRAPH AT	PM2A	68.	12.17	9.	2.	1.	.07		
2 COMBINED AT	CD35.8	471.	12.17	74.	24.	14.	.43		
ROUTED TO	RD3516	455.	12.25	74.	24.	14.	.43	1123.33	12.25
HYDROGRAPH AT	WC13A	16.	12.08	2.	1.	0.	.01		
ROUTED TO	RD3517	15.	12.33	2.	1.	0.	.01	1131.21	12.33
HYDROGRAPH AT	WC14A	37.	12.17	5.	1.	1.	.05		
ROUTED TO	RD3518	32.	12.58	5.	1.	1.	.05	1133.78	12.58
HYDROGRAPH AT	PM1A	64.	12.17	7.	2.	1.	.07		
4 COMBINED AT	CD35.9	542.	12.25	88.	28.	16.	.56		
ROUTED TO	RD3519	539.	12.25	88.	28.	16.	.56	1102.22	12.25
HYDROGRAPH AT	DR35C	435.	12.42	63.	16.	9.	.60		
4 COMBINED AT	CD35.2	1548.	12.50	360.	109.	63.	2.59		
DIVERSION TO	DIDOB	619.	12.50	140.	40.	23.	2.59		
HYDROGRAPH AT	DI35TH	929.	12.50	220.	69.	40.	2.59		
ROUTED TO	RDI35	917.	12.58	220.	69.	40.	2.59	1082.55	12.58
HYDROGRAPH AT									

	CC1	27.	12.08	3.	1.	0.	.02	
2 COMBINED AT								
	CPCC1	922.	12.58	223.	70.	41.	2.61	
ROUTED TO								
	SRCC1	843.	12.75	203.	64.	40.	2.61	1071.90 12.08
DIVERSION TO								
	DICC2	309.	12.75	69.	18.	10.	2.61	
HYDROGRAPH AT								
	DICC5	534.	12.75	133.	46.	30.	2.61	
ROUTED TO								
	RCC5	536.	12.75	133.	46.	30.	2.61	1061.89 12.75
HYDROGRAPH AT								
	CC5	37.	12.00	3.	1.	0.	.03	
2 COMBINED AT								
	CPCC5	536.	12.75	136.	47.	30.	2.64	
ROUTED TO								
	SRCC5	277.	13.50	103.	41.	27.	2.64	1068.99 13.58
ROUTED TO								
	RCC6	277.	13.50	103.	41.	27.	2.64	1061.29 13.50
HYDROGRAPH AT								
	CC6	38.	12.00	3.	1.	0.	.03	
2 COMBINED AT								
	CPCC6	277.	13.50	103.	42.	28.	2.67	
ROUTED TO								
	SRCC6	125.	14.83	66.	32.	21.	2.67	1058.99 41.58
ROUTED TO								
	RCC7	125.	14.83	66.	32.	21.	2.67	1060.78 14.83
HYDROGRAPH AT								
	CC7	64.	12.00	6.	1.	1.	.04	
2 COMBINED AT								
	ICPCC7	125.	14.83	66.	32.	22.	2.71	
HYDROGRAPH AT								
	DIDOB	619.	12.50	140.	40.	23.	.00	
ROUTED TO								
	RDIDOB	612.	12.58	140.	40.	23.	.00	1082.34 12.58
HYDROGRAPH AT								
	CC2	22.	12.00	2.	0.	0.	.01	
2 COMBINED AT								
	ICPCC2	612.	12.58	142.	40.	23.	.01	
HYDROGRAPH AT								
	DICC2	309.	12.75	69.	18.	10.	.00	
2 COMBINED AT								
	CPCC2	905.	12.58	210.	58.	33.	.01	
ROUTED TO								
	SRCC2	877.	12.67	206.	58.	33.	.01	1072.21 12.67
ROUTED TO								
	RCC3	877.	12.75	206.	58.	33.	.01	1062.43 12.75
HYDROGRAPH AT								

	CC3	100.	12.00	9.	2.	1.	.07		
2 COMBINED AT	CPCC3	878.	12.75	214.	60.	35.	.08		
ROUTED TO	SRCC3	282.	13.83	143.	54.	34.	.08	1067.00	13.83
ROUTED TO	RCC4	282.	13.83	143.	54.	34.	.08	1061.31	13.83
HYDROGRAPH AT	CC4	97.	12.00	8.	2.	1.	.07		
2 COMBINED AT	CPCC4	282.	13.83	144.	56.	35.	.15		
ROUTED TO	SRCC4	157.	15.50	100.	44.	28.	.15	1062.32	15.50
ROUTED TO	RCC7	156.	15.58	100.	44.	28.	.15	1060.89	15.58
2 COMBINED AT	CPCC7	266.	15.25	165.	75.	50.	2.86		
ROUTED TO	SRCC7	269.	15.58	136.	67.	44.	2.86	1056.43	15.58
DIVERSION TO	GCOVLD	233.	15.58	100.	31.	18.	2.86		
HYDROGRAPH AT	DICC7	36.	15.58	36.	36.	26.	2.86		
ROUTED TO	RPC352	36.	15.75	36.	36.	26.	2.86		
HYDROGRAPH AT	BLSD35	284.	12.08	168.	46.	27.	.00		
ROUTED TO	RDS35	285.	12.17	168.	46.	27.	.00		
2 COMBINED AT	CG39	320.	14.33	202.	81.	53.	2.86		
ROUTED TO	RBSD43	320.	14.33	202.	81.	53.	2.86		
HYDROGRAPH AT	CC8	46.	12.00	4.	1.	1.	.03		
HYDROGRAPH AT	GCOVLD	233.	15.58	100.	31.	18.	.00		
2 COMBINED AT	GCOL	233.	15.58	100.	32.	18.	.03		
ROUTED TO	RGCOL	177.	16.50	97.	31.	18.	.03	1044.36	16.50
HYDROGRAPH AT	SMA43C	168.	12.17	21.	5.	3.	.13		
ROUTED TO	RB43C2	113.	12.67	21.	5.	3.	.13	1044.46	12.67
HYDROGRAPH AT	BR43C	280.	12.50	57.	14.	8.	.35		
2 COMBINED AT	CBR43C	390.	12.58	78.	20.	11.	.48		

3 COMBINED AT	C43	723.	12.58	339.	132.	82.	3.37	
DIVERSION TO	43SD	294.	12.58	254.	110.	70.	3.37	
HYDROGRAPH AT	43OVLD	429.	12.58	86.	21.	12.	3.37	
ROUTED TO	R43OVL	405.	12.92	86.	21.	12.	3.37	1036.52 12.92
HYDROGRAPH AT	AVR43C	1009.	12.25	143.	38.	22.	1.03	
DIVERSION TO	43C	625.	12.25	120.	32.	18.	1.03	
HYDROGRAPH AT	DIVMD	384.	12.25	24.	6.	3.	1.03	
3 COMBINED AT	MDA	578.	14.00	242.	62.	36.	6.45	
DIVERSION TO	DMDA	578.	.00	242.	62.	36.	6.45	
HYDROGRAPH AT	DUMMY	0.	.00	0.	0.	0.	6.45	
HYDROGRAPH AT	43C	625.	12.00	120.	32.	18.	.00	
3 COMBINED AT	SBAS	1263.	14.25	790.	283.	166.	19.29	
ROUTED TO	STOR43	981.	17.08	672.	226.	132.	19.29	1023.26 17.08
DIVERSION TO	43SDS	29.	17.08	29.	28.	18.	19.29	
HYDROGRAPH AT	43W	952.	17.08	643.	198.	114.	19.29	
HYDROGRAPH AT	DMDA	578.	14.00	242.	62.	36.	.00	
2 COMBINED AT	MD43	992.	17.00	742.	259.	150.	19.29	
ROUTED TO	RMD43	987.	17.25	740.	259.	150.	19.29	1013.69 17.25
HYDROGRAPH AT	VR47C	727.	12.50	126.	32.	18.	.89	
2 COMBINED AT	CVR47C	987.	17.25	756.	291.	168.	20.18	
ROUTED TO	RBR511	982.	17.42	752.	291.	168.	20.18	1006.41 17.42
HYDROGRAPH AT	AVR51C	244.	12.42	43.	11.	6.	.28	
ROUTED TO	RBR512	162.	14.08	42.	11.	6.	.28	1009.93 14.08
HYDROGRAPH AT	BR51C	605.	12.50	94.	23.	14.	.70	
2 COMBINED AT	CB51	605.	12.50	133.	34.	20.	.98	
2 COMBINED AT								

	CB51C	1365.	12.67	848.	325.	188.	21.16	
ROUTED TO	RB1591	1243.	13.00	839.	324.	188.	21.16	998.64 13.00
HYDROGRAPH AT	AVR55C	166.	12.58	36.	9.	5.	.23	
ROUTED TO	RB1592	124.	14.50	35.	9.	5.	.23	1003.65 14.50
HYDROGRAPH AT	BR159C	468.	12.58	91.	23.	13.	.68	
HYDROGRAPH AT	VR59C	176.	12.58	39.	10.	6.	.25	
ROUTED TO	RB1593	124.	14.33	37.	10.	6.	.25	1001.73 14.33
4 COMBINED AT	CB159N	1578.	12.92	963.	365.	211.	22.32	
HYDROGRAPH AT	RET43C	906.	12.33	128.	38.	22.	.00	
ROUTED TO	RS51C	498.	13.83	126.	37.	22.	.00	1039.97 13.83
HYDROGRAPH AT	SM51C	347.	12.67	75.	19.	11.	.50	
2 COMBINED AT	CS51C	568.	13.83	195.	56.	32.	.50	
ROUTED TO	RB2591	456.	14.83	189.	56.	32.	.50	1028.28 14.83
ROUTED TO	RB2592	420.	15.50	185.	56.	32.	.50	1001.51 15.50
HYDROGRAPH AT	BR259C	700.	12.58	132.	33.	19.	1.00	
2 COMBINED AT	CB259A	702.	12.58	287.	89.	51.	1.50	
HYDROGRAPH AT	DOA55C	711.	12.50	126.	35.	20.	.00	
ROUTED TO	RO55C	624.	13.08	123.	35.	20.	.00	1032.73 13.08
HYDROGRAPH AT	OA55C	193.	12.42	33.	8.	5.	.25	
2 COMBINED AT	CPO55C	702.	13.00	154.	43.	25.	.25	
ROUTED TO	RD57C	554.	14.08	148.	43.	25.	.25	1029.62 14.08
HYDROGRAPH AT	DR57C	72.	12.58	16.	4.	2.	.12	
2 COMBINED AT	CDR57C	566.	14.08	159.	47.	27.	.37	
ROUTED TO	RD59C	539.	14.33	158.	47.	27.	.37	1026.93 14.33
HYDROGRAPH AT								

	DR59C	73.	12.50	15.	4.	2.	.11		
2 COMBINED AT	CDR59C	544.	14.33	170.	50.	29.	.48		
ROUTED TO	RB259	523.	14.67	169.	50.	29.	.48	1018.54	14.67
2 COMBINED AT	CB259S	806.	14.67	452.	139.	81.	1.98		
2 COMBINED AT	CB59	2202.	12.83	1394.	504.	292.	24.30		
ROUTED TO	RB1631	2153.	13.00	1390.	504.	292.	24.30	997.55	13.00
HYDROGRAPH AT	BR263C	319.	12.58	67.	17.	10.	.50		
2 COMBINED AT	63S	2369.	13.00	1439.	520.	302.	24.80		
HYDROGRAPH AT	BR163C	168.	12.58	36.	9.	5.	.26		
2 COMBINED AT	CB163C	2501.	12.92	1467.	529.	307.	25.06		
ROUTED TO	RCD1C	2465.	13.08	1463.	529.	307.	25.06	996.04	13.08
HYDROGRAPH AT	BR67C	98.	12.33	18.	5.	3.	.13		
ROUTED TO	RCD1C2	69.	13.67	17.	5.	3.	.13	993.33	13.67
HYDROGRAPH AT	CD1C	407.	12.50	69.	17.	10.	.47		
3 COMBINED AT	CPCD1C	2643.	13.00	1521.	550.	320.	25.66		
ROUTED TO	RCD2C1	2571.	13.25	1511.	549.	319.	25.66	989.68	13.25
HYDROGRAPH AT	CD2C	500.	12.50	92.	23.	13.	.58		
2 COMBINED AT	CCD2C1	2739.	13.25	1551.	571.	332.	26.24		
HYDROGRAPH AT	RIR63B	45.	11.83	45.	20.	12.	.00		
ROUTED TO	RIR65C	45.	13.17	45.	20.	12.	.00	5.81	13.42
HYDROGRAPH AT	IR65C	90.	12.58	23.	6.	3.	.17		
2 COMBINED AT	CIR65C	134.	12.67	65.	26.	15.	.17		
ROUTED TO	RIRDC	129.	12.92	64.	26.	15.	.17	1014.15	12.92
DIVERSION TO	RIR65C	98.	12.67	42.	19.	11.	.17		
HYDROGRAPH AT	DIIRDC	31.	12.67	22.	7.	4.	.17		

HYDROGRAPH AT	IRDC	235.	12.92	69.	17.	10.	.52		
2 COMBINED AT	CIRDC	266.	12.92	89.	24.	14.	.69		
ROUTED TO	RIRSMC	241.	13.83	85.	24.	14.	.69	1006.00	13.83
HYDROGRAPH AT	IRSMC	173.	12.33	27.	7.	4.	.25		
2 COMBINED AT	CIRSMC	251.	13.75	106.	31.	18.	.94		
ROUTED TO	RCD2C2	244.	14.08	104.	31.	18.	.94	988.06	14.08
2 COMBINED AT	CCD2C2	2812.	13.17	1652.	602.	350.	27.18		
ROUTED TO	RCD3C1	2745.	13.42	1644.	601.	350.	27.18	985.64	13.42
HYDROGRAPH AT	A67AC	379.	12.67	84.	21.	12.	.61		
ROUTED TO	RCD4C1	344.	13.42	84.	21.	12.	.61	984.60	13.42
HYDROGRAPH AT	CD4C	129.	12.58	26.	6.	4.	.19		
2 COMBINED AT	CPCD4C	387.	13.33	109.	27.	16.	.80		
ROUTED TO	RCD3C2	300.	14.92	105.	27.	16.	.80	984.55	14.92
HYDROGRAPH AT	CD3C	337.	12.58	70.	18.	10.	.48		
3 COMBINED AT	CPCD3C	2879.	13.33	1770.	646.	376.	28.46		

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
RBLSD7	MANE	5.00	108.54	750.00	-1.00	5.00	108.54	750.00	-1.00
RSD19	MANE	5.00	158.18	755.00	-1.00	5.00	158.18	755.00	-1.00
RSD27	MANE	5.00	156.28	765.00	-1.00	5.00	156.28	765.00	-1.00
RPC352	MANE	5.00	36.04	945.00	.58	5.00	36.04	945.00	.58

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8857E+02 EXCESS= .0000E+00 OUTFLOW= .8828E+02 BASIN STORAGE= .2875E+00 PERCENT ERROR= .0

RDS35	MANE	2.80	284.71	730.14	-1.00	5.00	284.56	730.00	-1.00

```
        RBSD43  MANE        1.36    319.95    861.85      1.18      5.00    319.86    860.00        1.19

C  TINUITY SUMMARY (AC-FT) - INFLOW= .1808E+03 EXCESS= .0000E+00 OUTFLOW= .1807E+03 BASIN STORAGE= .1125E+00 PERCENT
R  R=     .0


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

Future Condition
With
Retention

100yr-24hr

Future Land Use w/ Retention (west of 43rd)

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1*************************************** *************************************
 *                                     * *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1) *  *    U.S. ARMY CORPS OF ENGINEERS   *
 *              MAY   1991             *  *   HYDROLOGIC ENGINEERING CENTER   *
 *           VERSION 4.0.1E            *  *         609 SECOND STREET         *
 *     Lahey F77L-EM/32 version 5.01   *  *      DAVIS, CALIFORNIA 95616      *
 *       Dodson & Associates, Inc.     *  *          (916) 551-1748           *
 *  RUN DATE  09/27/00  TIME  14:18:38 *  *                                   *
 *************************************** *************************************

                                        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

1 HEC-1 INPUT

PAGE 1

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

  1           ID    LAVEEN ADMS (FINAL HEC-1) 100-YR 24-HR STORM          CBA FILE # 40916-02-30
  2           ID    HIDDEN VALLEY WATERSHED/CHAMPION DRAIN WATERSHED
  3           ID    INPUT FILE NAME  LAVFUT-1                        DATE: SEPTBER 25,2000
  4           ID    24-HOUR SCS TYPE II
  5           ID   80% RETENTION VOLUME OF FUTURE RETENTION
  6           ID
  7           ID   MULTIPLAN FOR ROUTING WITHIN THE CHAMPION DRAIN
  8           ID     PLAN 2: CHANNEL, S=.0011 ft/ft, n=.030, SS=5:1, D=5', TW & BW VARIES
  9           ID
 10           ID   DDM MCUHP1 LAVEEN REVISED HYDROLOGY - FUTURE LANDUSE CONDITIONS
 11           ID   9/27/00  INPUT FILE NAME  LAVFUT-1.DAT
 12           ID
              *DIAGRAM
 13           IT       5                    300
 14           IO       5       0
              * DDM   ***** Updated *****

 15           KK   VR47C
 16           KM   SUB-BASIN VR47C
 17           KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 18           KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 19           KM     L = 1.65  Kb = .042  Adj. Slope =    7.0
 20           BA    .869
 21           IN      15
 22           KM   RAINFALL DEPTH OF 4.20 WAS SPACIALLY REDUCED AS SHOWN BY THE PB RECORD
 23           PB   3.923
 24           KM   THE FOLLOWING PC RECORD USED A 24-HR SCS TYPE II STORM
 25           PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
 26           PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
 27           PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
 28           PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
 29           PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
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 30          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
 31          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
 32          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
 33          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
 34          PC    .983    .986    .989    .992    .995    .998   1.000
 35          LG    .260    .250   5.700    .250  27.000
 36          UC   1.500    .938
 37          UA       0       5      16      30      65      77      84      90      94      97
 38          UA     100
             *
             * DDM   ***** Preserved *****

 39          KK   VR47R
 40          KM   DIVERT RETENTION VOLUME
 41          DT  RET47C    72.8
 42          DI       0    1000   10000
 43          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****
1                                        HEC-1 INPUT
PAGE  2

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

 44          KK  RBR511
 45          KM   ROUTE FLOW FROM COMPUTATION POINT CVR47C TO COMPUTATION POINT CB51C
 46          KM   MARICOPA DRAIN - 47TH AVE. TO 51ST AVE.
 47          KO       1
 48          RS       2    ELEV      -1
 49          RC    .030    .030    .030    3200   .0011
 50          RX       0      10      20      45     105     130     140     150
 51          RY  1008.2  1008.1    1008    1003    1003    1008  1008.1  1008.2
             *
             * DDM   ***** Updated *****

 52          KK  AVR51C
 53          KM   SUB-BASIN AVR51C
 54          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 55          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 56          KM     L =  .86  Kb = .049  Adj. Slope =   10.0
 57          BA    .285
 58          LG    .250    .190   6.600    .170  30.000
 59          UC    .829    .545
 60          UA       0       5      16      30      65      77      84      90      94      97
 61          UA     100
             *
             * DDM   ***** Preserved *****

 62          KK  AVR51R
 63          KM   DIVERT RETENTION VOLUME
 64          DT  RET51C    21.6
 65          DI       0    1000   10000
 66          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****

 67          KK  RBR512
 68          KM    ROUTE FLOW FROM SUB-BASIN AVR51C TO COMPUTATION POINT CB51C
 69          KM    ROUTING REVISED TO REFLECT AN URBANIZED CONDITION
 70          RS       4    ELEV      -1
 71          RC   0.035   0.035   0.035    3600   0.001  1010.5
 72          RX       0      20      40      46      56      62      82     102
 73          RY  1010.5  1009.7  1009.0    1006    1006    1009  1009.7  1010.5
             *
             * DDM   ***** Updated *****

 74          KK   BR51C
 75          KM   SUB-BASIN BR51C
 76          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 77          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 78          KM     L = 1.21  Kb = .043  Adj. Slope =    6.0
 79          BA    .699
 80          LG    .250    .250   4.900    .350  31.000
 81          UC   1.325    .722
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 82          UA       0       5      16      30      65      77      84      90      94      97
 83          UA     100
             *
             * DDM   ***** Preserved *****
1                                          HEC-1 INPUT
PAGE  3

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

 84          KK   BR51R
 85          KM   DIVERT RETENTION VOLUME
 86          DT  RET159    53.6
 87          DI       0    1000   10000
 88          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****

 89          KK  CB51C
 90          KM    COMBINE ROUTED FLOW FROM COMPUTATION POINT CVR47C AND SUB-BASIN AVR51C
 91          KM    WITH RUNOFF FROM SUB-BASIN BR51C
 92          HC       3
             *
             * DDM   ***** Preserved *****

 93          KK  RB1591
 94          KM    ROUTE FLOW FROM COMPUTATION POINT CB51C TO COMPUTATION POINT CB159C
 95          KM    MARICOPA DRAIN FROM 51ST AVE TO 59TH AVE.
 96          RS       3    ELEV      -1
 97          RC    .030    .030    .030    5200   .0011
 98          RX       0      10      20      45     125     150     160     170
 99          RY  1000.2  1000.1    1000     995     995    1000  1000.1  1000.2
             *
             * DDM   ***** Updated *****

100          KK  AVR55C
101          KM   SUB-BASIN AVR55C
102          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
103          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
104          KM     L =  .93  Kb = .051  Adj. Slope =    5.0
105          BA    .241
106          LG    .250    .150   8.000    .100  29.000
107          UC   1.212    .973
108          UA       0       5      16      30      65      77      84      90      94      97
109          UA     100
             *
             * DDM   ***** Preserved *****

110          KK  AVR55R
111          KM   DIVERT RETENTION VOLUME
112          DT  RET55C    25.6
113          DI       0    1000   10000
114          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****

115          KK  RB1592
116          KM    ROUTE FLOW FROM SUBASIN AVR55C TO COMPUTATION POINT CB159C
117          KM   ROUTING REVISED TO REFLECT URBANIZED CONDITIONS
118          RS       3    ELEV      -1
119          RC   0.035   0.035   0.035    3600   0.001
120          RX       0      20      40      46      56      62      82     102
121          RY    1004    1003    1002     999     999    1002    1003    1004
             *
             * DDM   ***** Updated *****
1                                          HEC-1 INPUT
PAGE  4

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

122          KK  BR159C
123          KM   SUB-BASIN BR159C
124          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
125          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
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 126          KM     L = 1.68  Kb = .054  Adj. Slope =    8.0
 127          BA    .675
 128          LG    .170    .250   4.800    .420  28.000
 129          UC   1.500   1.100
 130          UA       0       5      16      30      65      77      84      90      94      97
 131          UA     100
              *
              * DDM   ***** Preserved *****

 132          KK  BR159R
 133          KM   DIVERT RETENTION VOLUME
 134          DT  RET159    43.2
 135          DI       0    1000   10000
 136          DQ       0    1000   10000
              *
              * DDM   ***** Updated *****

 137          KK   VR59C
 138          KM   SUB-BASIN VR59C
 139          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 140          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 141          KM     L =  .75  Kb = .083  Adj. Slope =    4.0
 142          BA    .233
 143          LG    .130    .150   7.000    .180   9.000
 144          UC   1.500   1.058
 145          UA       0       5      16      30      65      77      84      90      94      97
 146          UA     100
              *
              * DDM   ***** Preserved *****

 147          KK  RB1593
 148          KM   ROUTE FLOW FROM SUB-BASIN VR59C TO COMPUTATION POINT CB159C
 149          KM   ROUTING REVISED TO REFLECT URBANIZED CONDITIONS
 150          RS       3    ELEV      -1
 151          RC   0.035   0.035   0.035    3000  0.0015
 152          RX       0      20      40      46      56      62      82     102
 153          RY    1002  1001.3    1001     998     998    1001  1001.3    1002
              *
              * DDM   ***** Preserved *****

 154          KK  CB159N
 155          KM     COMBINE ROUTED FLOWS FROM COMPUTATION POINT CB51C AND SUB-BASINS AVR51C
 156          KM     AND VR59C WITH RUNOFF FROM SUB-BASIN BR159C
 157          KM     CP (NORTH FLOWS) AT 59TH AVE AND BASELINE RD.
 158          HC       4
              *
              * DDM   ***** Updated *****
```



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                                   HEC-1 INPUT

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

 159          KK   DR43C
 160          KM   SUB-BASIN DR43C
 161          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 162          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 163          KM     L = 1.49  Kb = .039  Adj. Slope =   69.0
 164          BA    .922
 165          LG    .250    .250   5.100    .300  38.000
 166          UC    .450    .220
 167          UA       0       5      16      30      65      77      84      90      94      97
 168          UA     100
              *
              * DDM   ***** Preserved *****

 169          KK   DR43R
 170          KM   DIVERT RETENTION VOLUME
 171          DT  RET43C    27.9
 172          DI       0    1000   10000
 173          DQ       0    1000   10000
              *
              * DDM   ***** Preserved *****

 174          KK  RDR43C
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175          KM   SPLIT FLOW. RESULTANT HYDROGRAPH IS THE ESTIMATED FLOW THAT DRAINS TO THE
176          KM   EAST OF THE SOUTHWEST CORNER OF 43RD AVENUE AND DOBBINS ROAD
177          KM   CAPACITY OF DOBBINS ROAD WEST IS ONLY 119 CFS.
178          DT  DDR43C
179          DI       0      50     100     119     300     500     600     800     900
180          DQ       0       0       0       0     119     119     119     119     119
             *
             * DDM   ***** Preserved *****

181          KK   RS51C
182          KM    ROUTE SPLIT FLOW FROM SUB-BASIN DR43C TO COMPUTATION POINT CS51C
183          KM    CROSS-SECTION REVISED TO REFLECT DEVELOPED CONDITION.
184          RS       4    ELEV      -1
185          RC   0.035   0.035   0.035    6000  0.0026
186          RX       0      40      60      74      99     113     133     153
187          RY    1041    1040    1039    1032    1032    1039    1040    1041
             *
             * DDM   ***** Updated *****

188          KK   SM51C
189          KM   SUB-BASIN SM51C
190          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
191          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
192          KM     L = 1.29  Kb = .045  Adj. Slope =   12.0
193          BA    .511
194          LG    .290    .250   5.200    .290  17.000
195          UC   1.054    .705
196          UA       0       5      16      30      65      77      84      90      94      97
197          UA     100
             *
             * DDM   ***** Preserved *****
1                                          HEC-1 INPUT
PAGE  6

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

198          KK   SM51R
199          KM   DIVERT RETENTION VOLUME
200          DT  RET51C    23.0
201          DI       0    1000   10000
202          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****

203          KK   CS51C
204          KM   COMBINE ROUTED FLOW FROM SUB-BASIN DR43C TO RUNOFF FROM SUB-BASIN SM51C
205          HC       2
             *
             * DDM   ***** Preserved *****

206          KK  RB2591
207          KM   ROUTE FLOW FROM COMPUTATION POINT CS51C TO COMPUTATION POINT CB259C
208          KM   FIRST REACH
209          KM   CROSS-SECTION REVISED TO REFLECT DEVELOPED CONDITIONS
210          RS       3    ELEV      -1
211          RC   0.035   0.035   0.035    4200  0.0036
212          RX       0      40      60      65      75      80     100     140
213          RY    1030    1029    1028    1025    1025    1028    1029    1030
             *
             * RC  0.07    0.07    0.07    4200  0.0036
             * RX     0     612    1085    1155    1595    1670    1765    2130
             * RY1029.6    1029    1028  1027.5  1027.5    1028    1028  1029.6
             *
             * DDM   ***** Preserved *****

214          KK  RB2592
215          KM   ROUTE FLOW FROM COMPUTATION POINT CS51C TO COMPUTATION POINT CB259C
216          KM   2ND REACH
217          KM   CROSS-SECTION REVISED TO REFLECT DEVELOPED CONDITIONS
218          RS       3    ELEV      -1
219          RC   0.035   0.035   0.035    3000  0.0063
220          RX       0      40      60      65      75      80     100     140
221          RY    1006    1005    1004    1001    1001    1004    1005    1006
             *
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                    * RC  0.07    0.07    0.07    3000  0.0063
                    * RX     0      50     140     335    1120    1770    1825    1870
                    * RY  1006    1004    1003    1002    1001    1001    1002  1002.5
                    *
                    * DDM   ***** Updated *****

 222                KK  BR259C
 223                KM   SUB-BASIN BR259C
 224                KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 225                KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 226                KM     L = 1.90  Kb = .037  Adj. Slope =   19.0
 227                BA   1.012
 228                LG    .230    .250   4.800    .360  33.000
 229                UC    .954    .583
 230                UA       0       5      16      30      65      77      84      90      94      97
 231                UA     100
                    *
                    * DDM   ***** Preserved *****
1                                                HEC-1 INPUT
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          LINE      ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 232                KK  BR259R
 233                KM   DIVERT RETENTION VOLUME
 234                DT  RET259    68.3
 235                DI       0    1000   10000
 236                DQ       0    1000   10000
                    *
                    * DDM   ***** Preserved *****

 237                KK  CB259A
 238                KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CDR59C TO PREVIOUSLY
 239                KM   COMPUTED FLOW AT COMPUTATION POINT CB1592
 240                HC       2
                    *
                    * DDM   ***** Preserved *****

 241                KK  DR43CR
 242                KM   RETRIEVE DIVERTED HYDROGRAPH FROM 43RD AVE & DOBBINS
 243                DR  DDR43C
                    *
                    * DDM   ***** Preserved *****

 244                KK  ROA51A
 245                KM   ROUTE SPLIT FLOW WEST (1ST REACH)
 246                RS       2    ELEV      -1
 247                RC    .035    .035    .035    2790   .0042
 248                RX       0      40      60      74      99     113     133     153
 249                RY    1025    1024    1023    1016    1016    1023    1024    1025
                    *
                    * DDM   ***** Preserved *****

 250                KK  ROA51B
 251                KM   ROUTE FLOWS SOUTH ALONG 51ST AVE
 252                KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
 253                RS       2    ELEV      -1
 254                RC    .035    .035    .035    3600   .0017
 255                RX       0      40      60      74      99     113     133     153
 256                RY    1013    1012    1011    1004    1004    1011    1012    1013
                    *
                    * DDM   ***** Updated *****

 257                KK   OA51B
 258                KM   SUB-BASIN OA51B
 259                KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 260                KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 261                KM     L = 1.26  Kb = .036  Adj. Slope =  254.0
 262                BA   1.385
 263                LG    .270    .270   6.000    .200  30.000
 264                UC    .233    .074
 265                UA       0       5      16      30      65      77      84      90      94      97
 266                UA     100
                    *
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                    * DDM    ***** Preserved *****
1                                                HEC-1 INPUT
PAGE  8

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

         267        KK   OA51R
         268        KM   DIVERT RETENTION VOLUME
         269        DT   RET51    80.9
         270        DI       0    1000   10000
         271        DQ       0    1000   10000
                    *
                    * DDM    ***** Preserved *****

         272        KK  CO151B
         273        KM   COMBINE ROUTED SPLIT FLOW FROM SUB-BASIN DR43C TO RUNOFF FROM SUB-BASIN
         274        KM   OA51B
         275        HC       2
                    *
                    * DDM    ***** Preserved *****

         276        KK  DO155C
         277        KM    RATE CHANNEL CROSS-SECTION AT CONCENTRATION POINT OA51B FOR SPLIT FLOW
         278        KM    DIVERTED FLOW GOES TO HIDDEN VALLEY WATERSHED
         279        DT  DFO51B
         280        DI       0       8      24      93     219     461     852    1384
         281        DQ       0       4      13      50     117     199     373     649
                    *
                    * DDM    ***** Preserved *****

         282        KK   RO55C
         283        KM   ROUTE SPLIT FLOW FROM SUB-BASIN OA51B ( HIDDEN VALLEY WATERSHED ) TO
         284        KM   COMPUTATION POINT CPO55C
         285        KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
         286        RS       2    ELEV      -1
         287        RC   0.035   0.025   0.035    2600  0.0014
         288        RX       0      40      60      72      97     109     129     149
         289        RY    1034    1033    1032    1026    1026    1032    1033    1034
                    *
                    * DDM    ***** Updated *****

         290        KK   OA55C
         291        KM   SUB-BASIN OA55C
         292        KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
         293        KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
         294        KM     L =  .96  Kb = .049  Adj. Slope =    3.0
         295        BA    .246
         296        LG    .290    .250   4.800    .360  19.000
         297        UC   1.500   1.249
         298        UA       0       5      16      30      65      77      84      90      94      97
         299        UA     100
                    *
                    * DDM    ***** Preserved *****

         300        KK   OA55R
         301        KM   DIVERT RETENTION VOLUME
         302        DT  RET55C     2.4
         303        DI       0    1000   10000
         304        DQ       0    1000   10000
                    *
                    * DDM    ***** Preserved *****
1                                                HEC-1 INPUT
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        LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

         305        KK  CPO55C
         306        KM    COMBINE ROUTED DIVERTED FLOW FROM SUB-BASIN OA51B TO RUNOFF FROM SUB-
         307        KM    BASIN OA55C
         308        HC       2
                    *
                    * DDM    ***** Preserved *****
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309          KK   RD57C
310          KM   ROUTE FLOW FROM COMPUTATION POINT CPO55C TO COMPUTAION CDR57C
311          KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
312          RS       2    ELEV      -1
313          RC   0.035   0.035   0.035    2920   0.001
314          RX       0      40      60      72      97     109     129     149
315          RY    1030    1029    1028    1022    1022    1028    1029    1030
             *
             *
             * DDM   ***** Updated *****

316          KK   DR57C
317          KM   SUB-BASIN DR57C
318          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
319          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
320          KM     L =  .71  Kb = .054  Adj. Slope =    3.0
321          BA    .118
322          LG    .300    .250   4.800    .360  15.000
323          UC   1.500   1.492
324          UA       0       5      16      30      65      77      84      90      94      97
325          UA     100
             *
             * DDM   ***** Preserved *****

326          KK   DR57R
327          KM   DIVERT RETENTION VOLUME
328          DT   RET27    12.8
329          DI       0    1000   10000
330          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****

331          KK  CDR57C
332          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CPO55C TO RUNOFF FROM SUB-BASIN
333          KM   DR57C
334          HC       2
             *
             * DDM   ***** Preserved *****

335          KK   RD59C
336          KM   ROUTE FLOW FROM COMPUTATION POINT CDR57C TO COMPUTATION POINT CDR59C
337          KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
338          RS       1    ELEV      -1
339          RC   0.035   0.035   0.035    1200  0.0025
340          RX       0      40      60      72      97     109     129     149
341          RY    1026    1025    1024    1019    1019    1024    1025    1026
             *
             * DDM   ***** Updated *****
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                                          HEC-1 INPUT

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

342          KK   DR59C
343          KM   SUB-BASIN DR59C
344          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
345          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
346          KM     L =  .69  Kb = .048  Adj. Slope =    7.0
347          BA    .117
348          LG    .230    .250   4.800    .370  37.000
349          UC   1.554   1.524
350          UA       0       5      16      30      65      77      84      90      94      97
351          UA     100
             *
             * DDM   ***** Preserved *****

352          KK   DR59R
353          KM   DIVERT RETENTION VOLUME
354          DT  RET59C    10.4
355          DI       0    1000   10000
356          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****
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 357          KK  CDR59C
 358          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CDR57C TO RUNOFF FROM SUB-BASIN
 359          KM   DR59C
 360          HC       2
              *
              * DDM   ***** Preserved *****

 361          KK   RB259
 362          KM   ROUTE FLOW FROM COMPUTATION POINT CDR59C TO COMPUTATION POINT CB259C
 363          KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
 364          KM   REVISED SLOPE FROM .0046 TO REFLECT A VELOCITY OF LESS THAN 4 FT/SEC
 365          RS       2    ELEV      -1
 366          RC   0.035    0.02   0.035    5280  0.0015
 367          RX       0      40      60      72      97     109     129     149
 368          RY    1024    1023    1022    1016    1016    1022    1023    1024
              *
              * DDM   ***** Preserved *****

 369          KK  CB259S
 370          KM   COMBINE FLOWS FROM THE SOUTH AT 59TH AVENUE
 371          HC       2
              *
              * DDM   ***** Preserved *****

 372          KK   CB259
 373          KM   COMBINE NORTH AND SOUTH FLOWS
 374          HC       2
              *
              * DDM   ***** Preserved *****
1                                                HEC-1 INPUT
PAGE 11

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


 375          KK  RBR163
 376          KM   ROUTE FLOW FROM COMPUTATION POINT CB1591 TO COMPUTATION POINT CB163C
 377          KM   MARICOPA DRAIN FROM 59TH AVE TO 63RD AVE. (SOUTH SIDE OF BASELINE RD.)
 378          RS       2    ELEV      -1
 379          RC    .030    .030    .030    2640   .0011
 380          RX       0      10      20      45     135     160     170     180
 381          RY   997.8   997.7   997.6   992.6   992.6   997.6   997.7   997.8
              *
              * DDM   ***** Updated *****

 382          KK  BR263C
 383          KM   SUB-BASIN BR263C
 384          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 385          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 386          KM     L = 1.45  Kb = .057  Adj. Slope =   19.0
 387          BA    .494
 388          LG    .110    .250   4.700    .480  38.000
 389          UC   1.104    .831
 390          UA       0       5      16      30      65      77      84      90      94      97
 391          UA     100
              *
              * DDM   ***** Preserved *****

 392          KK  BR263R
 393          KM   DIVERT RETENTION VOLUME
 394          DT  RET263    32.0
 395          DI       0    1000   10000
 396          DQ       0    1000   10000
              *
              * DDM   ***** Preserved *****

 397          KK     63S
 398          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CB159C WITH RUNOFF FROM SUB-BASINS
 399          KM   BR163C AND BR263C AND ROUTED FLOW FROM COMPUTATION POINT  CB259C
 400          HC       2
              *
              * DDM   ***** Updated *****

 401          KK  BR163C
 402          KM   SUB-BASIN BR163C
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 403          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 404          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 405          KM     L =  .91  Kb = .040  Adj. Slope =    9.0
 406          BA    .255
 407          LG    .220    .250   5.400    .240  21.000
 408          UC    .808    .590
 409          UA       0       5      16      30      65      77      84      90      94      97
 410          UA     100
              *
              * DDM   ***** Preserved *****
1                                          HEC-1 INPUT
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 411          KK  BR163R
 412          KM   DIVERT RETENTION VOLUME
 413          DT  RET163     6.6
 414          DI       0    1000   10000
 415          DQ       0    1000   10000
              *
              * DDM   ***** Preserved *****

 416          KK   CB163
 417          KM   COMBINE FLOWS ON THE SOUTH SIDE OF BASELINE
 418          HC       2
              *
              * DDM   ***** Preserved *****

 419          KK   RCD1C
 420          KM   ROUTE FLOW FROM COMPUTATION POINT CB163C TO COMPUTATION POINT CPCD1C
 421          KM   MARICOPA DRAIN FROM 63RD AVE TO 67TH AVE.
 422          RS       2    ELEV      -1
 423          RC    .030    .030    .030    2640   .0011
 424          RX       0      10      20      45     135     160     170     180
 425          RY   996.2   996.1     996     991     991     996   996.1   996.2
              *
              * DDM   ***** Updated *****

 426          KK   BR67C
 427          KM   SUB-BASIN BR67C
 428          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 429          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 430          KM     L =  .79  Kb = .054  Adj. Slope =    5.0
 431          BA    .127
 432          LG    .300    .150   7.000    .140  15.000
 433          UC   1.163   1.174
 434          UA       0       5      16      30      65      77      84      90      94      97
 435          UA     100
              *
              * DDM   ***** Preserved *****

 436          KK  RCD1C2
 437          KM    ROUTE FLOW FROM SUBASIN BR67C TO COMPUTATION POINT CPCD1C
 438          KM   CROSS-SECTION WAS REVISED TO REFLECT URBANIZED CONDITIONS
 439          RS       1    ELEV
 440          RC   0.035   0.035   0.035    2100  0.0014
 441          RX       0      40      60      65      75      80     100     140
 442          RY     994     993     992     989     989     992     993     994
              *
              * DDM   ***** Updated *****

 443          KK    CD1C
 444          KM   SUB-BASIN CD1C
 445          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 446          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 447          KM     L =  .90  Kb = .049  Adj. Slope =   27.0
 448          BA    .464
 449          LG    .190    .250   4.700    .410  30.000
1                                          HEC-1 INPUT
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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450          UC    .583    .290
451          UA       0       5      16      30      65      77      84      90      94      97
452          UA     100
             *
             * DDM   ***** Preserved *****

453          KK    CD1R
454          KM   DIVERT RETENTION VOLUME
455          DT   RET1C    33.6
456          DI       0    1000   10000
457          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****

458          KK  CPCD1C
459          KM    COMBINE ROUTED FLOWS FROM COMPUTATION POINT CB163C AND SUB-BASIN BR67C
460          KM    WITH RUNOFF FROM SUB-BASIN CD1C
461          HC       3
             *
             * DDM   ***** Preserved *****

462          KK  RCD2C1
463          KM    ROUTE FLOW FROM COMPUTATION POINT CPCD1C TO COMPUTATION POINT CIRSMC
464          KM    MARIOCPA DRAIN FROM 67TH AVE TO 75TH AVE.
465          KM    ADJUST SLOPE FROM .0011 TO REFLECT A VELOCITY OF LESS THAN 5 FT/SEC
466          RS       3    ELEV      -1
467          RC    .030    .030    .030    3600   .0007
468          RX       0      10      20      45     155     180     190     200
469          RY   990.2   990.1     990     985     985     990   990.1   990.2
             *
             * DDM   ***** Preserved *****

470          KK  DFO51B
471          KM   RETRIEVE DIVERTED HYDROGRAPH FROM OLNEY RD & 51ST AVE
472          DR  DFO51B
             *
             * DDM   ***** Preserved *****

473          KK   RE55B
474          KM   ROUTE HYDROGRAPH TO CR355B (ELLIOT & 55TH AVE.)
475          KM   ROUTE REVISED TO REFLECT URBANIZED CONDITIONS
476          RS       3    ELEV      -1
477          RC    .035    .020    .035    3840   .0013
478          RX       0      30      50      64      74      83     103     123
479          RY    1032    1030    1029    1024    1024    1029    1030    1032
             *
             * DDM   ***** Updated *****

480          KK   ER55B
481          KM   SUB-BASIN ER55B
482          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
483          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
484          KM     L =  .79  Kb = .050  Adj. Slope =    8.0
485          BA    .256
486          LG    .260    .260   6.000    .210  27.000
1                                          HEC-1 INPUT
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

487          UC    .908    .599
488          UA       0       5      16      30      65      77      84      90      94      97
489          UA     100
             *
             * DDM   ***** Preserved *****

490          KK   ER55R
491          KM   DIVERT RETENTION VOLUME
492          DT   RET55    19.2
493          DI       0    1000   10000
494          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****

495          KK  CER55B
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```
496          KM   COMBINE ROUTED DIVERTED FLOW FROM SUB-BASIN OA51B TO RUNOFF FROM ER55B
497          HC       2
             *
             * DDM   ***** Preserved *****

498          KK   RE59B
499          KM   ROUTE FLOWS FROM CONCENTRATION POINT CRE55B TO CP CER59B
500          KM   ROUTING REVISED TO REFLECT URBANIZED CONDITIONS
501          RS       2    ELEV      -1
502          RC    .035    .035    .035    2600    .002
503          RX       0      30      50      55      65      70      90     120
504          RY    1026    1024    1023    1020    1020    1023    1024    1026
             *
             * DDM   ***** Updated *****

505          KK   ER59B
506          KM   SUB-BASIN ER59B
507          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
508          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
509          KM     L =  .95  Kb = .030  Adj. Slope =    8.0
510          BA    .259
511          LG    .130    .250   5.000    .370  71.000
512          UC    .671    .492
513          UA       0       5      16      30      65      77      84      90      94      97
514          UA     100
             *
             * DDM   ***** Preserved *****

515          KK   ER59R
516          KM   DIVERT RETENTION VOLUME
517          DT   RET59    23.2
518          DI       0    1000   10000
519          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****
1                                          HEC-1 INPUT
PAGE 15

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

520          KK  CER59B
521          KM   COMBINE ROUTED FLOW FROM CP CRE55B TO RUNOFF FROM SUBBASIN ER59B
522          HC       2
             *
             *
             * DDM   ***** Updated *****

523          KK  RIR63B
524          KM   CP CIR63B IS LOCATED ON THE WESTERN EDGE OF THE STUDY AREA WHICH IS BOUNDED
525          KM   BY A CONCRETE IRRIGATION CANAL AND EARTHEN ROADWAY.  THE IRRIGATION CANAL IS
526          KM   OVERTOPPED AND FLOW CONTINUES ITS NATURAL FLOW PATH TO THE WEST.  THE
527          KM   FLOW IS APPROXIMATELY 45 CFS SOUTH TO MARICOPA DRAIN.
528          DT  DIR63B
529          DI       0      45     100     200     400     600     800
530          DQ       0       0      55     155     355     555     755
             *
             * DDM   ***** Updated *****

531          KK   IR63B
532          KM   SUB-BASIN IR63B
533          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
534          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
535          KM     L =  .82  Kb = .034  Adj. Slope =   11.0
536          BA    .124
537          LG    .130    .250   4.800    .400  71.000
538          UC    .575    .561
539          UA       0       5      16      30      65      77      84      90      94      97
540          UA     100
             *
             * DDM   ***** Preserved *****

541          KK    IR63
542          KM   DIVERT RETENTION VOLUME
543          DT   RET63    11.2
```

```
544          DI       0    1000   10000
545          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****

546          KK  CIR63B
547          KM   COMBINE ROUTED FLOW FROM CP CER59B AND RUNOFF OF SUB-BASINS IR63B & IR62B
548          HC       2
             *
             * DDM   ***** Preserved *****

549          KK  RIR65C
550          KM    ROUTE RETRIEVED FLOW FROM SUB-BASIN IR63B TO COMPUTATION POINT CIR65C
551          KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
552          RS       7    ELEV      -1
553          RC   0.030   0.030   0.030    3300  0.0010
554          RX       0       1      11      21      26      31      41      46
555          RY       6       5       4       1       1       4       5       6
             *
             * DDM   ***** Updated *****
1                                          HEC-1 INPUT
PAGE 16

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

556          KK   IR65C
557          KM   SUB-BASIN IR65C
558          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
559          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
560          KM     L =  .84  Kb = .052  Adj. Slope =   13.0
561          BA    .170
562          LG    .280    .250   4.800    .360  21.000
563          UC    .829    .718
564          UA       0       5      16      30      65      77      84      90      94      97
565          UA     100
             *
             * DDM   ***** Preserved *****

566          KK   IR65R
567          KM   DIVERT RETENTION VOLUME
568          DT  RET65C    14.4
569          DI       0    1000   10000
570          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****

571          KK  CIR65C
572          KM   COMBINE RETRIEVED ROUTED FLOW FROM SUB-BASIN IR63B TO RUNOFF FROM SUB-BASIN
573          KM   IR65C
574          HC       2
             *
             * DDM   ***** Preserved *****

575          KK   RIRDC
576          KM   ROUTE FLOW FROM COMPUTATION POINT CIR65C TO COMPUTATION POINT CIRDC
577          KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
578          RS       2    ELEV
579          RC    0.03    0.03    0.03    3200  0.0018
580          RX       0       1      10      20      30      40      50      51
581          RY  1014.5    1014    1013    1010    1010    1013    1014  1014.5
             *
             * DDM   ***** Preserved *****

582          KK  DIIRDC
583          KM    ROUTED FLOW FROM COMPUTATION POINT CIR65C IS SPLIT AT COMPUTATION POINT
584          KM    CIRDC
585          DT  RIR65C
586          DI       0      16      34      51      71      80     100     120     150
587          DQ       0      16      25      32      40      49      69      89     119
             *
             * DDM   ***** Updated *****

588          KK    IRDC
589          KM   SUB-BASIN IRDC
```

```
 590          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 591          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 592          KM     L = 1.47  Kb = .038  Adj. Slope =   12.0
 593          BA    .525
 594          LG    .190    .250   4.800    .370  51.000
1                                          HEC-1 INPUT
PAGE 17

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

 595          UC    .958    .694
 596          UA       0       5      16      30      65      77      84      90      94      97
 597          UA     100
              *
              * DDM   ***** Preserved *****

 598          KK    IRDR
 599          KM   DIVERT RETENTION VOLUME
 600          DT  RETRDC    43.2
 601          DI       0    1000   10000
 602          DQ       0    1000   10000
              *
              * DDM   ***** Preserved *****

 603          KK   CIRDC
 604          KM    COMBINE ROUTED FLOW FROM COMPUTATION POINT CIR65C TO RUNOFF FROM SUB-BASIN
 605          KM    IRDC
 606          HC       2
              *
              * DDM   ***** Preserved *****

 607          KK  RIRSMC
 608          KM    ROUTE FLOW COMPUTATION POINT CIRDC TO COMPUTATION POINT CIRSMC
 609          KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
 610          RS       3    ELEV      -1
 611          RC   0.035   0.035   0.035    3400  0.0058
 612          RX       0      40      60      70      80      90     110     150
 613          RY    1006    1005    1004     999     999    1004    1005    1006
              *
              * DDM   ***** Updated *****

 614          KK   IRSMC
 615          KM   SUB-BASIN IRSMC
 616          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 617          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 618          KM     L =  .88  Kb = .043  Adj. Slope =   32.0
 619          BA    .241
 620          LG    .210    .250   4.500    .430  34.000
 621          UC    .479    .332
 622          UA       0       5      16      30      65      77      84      90      94      97
 623          UA     100
              *
              * DDM   ***** Preserved *****

 624          KK   IRSMR
 625          KM   DIVERT RETENTION VOLUME
 626          DT  RETSMC    19.2
 627          DI       0    1000   10000
 628          DQ       0    1000   10000
              *
              * DDM   ***** Preserved *****
1                                          HEC-1 INPUT
PAGE 18

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

 629          KK  CIRSMS
 630          KM
 631          HC       2
              *
              * DDM   ***** Preserved *****

 632          KK  CIRSMC
 633          KM   COMBINE FLOWS IN MARICOPA DRAIN JUST WEST OF 75TH AVE
```

```
 634          HC       2
              *
              * DDM   ***** Updated *****

 635          KK    CD2C
 636          KM   SUB-BASIN CD2C
 637          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 638          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 639          KM     L = 1.57  Kb = .043  Adj. Slope =    4.0
 640          BA    .598
 641          LG    .240    .150   8.400    .090  31.000
 642          UC   1.500   1.116
 643          UA       0       5      16      30      65      77      84      90      94      97
 644          UA     100
              *
              * DDM   ***** Preserved *****

 645          KK    CD2R
 646          KM   DIVERT RETENTION VOLUME
 647          DT   RET2C    44.8
 648          DI       0    1000   10000
 649          DQ       0    1000   10000
              *
              *
              * DDM   ***** Preserved *****

 650          KK   CCD2C
 651          KM   COMBINE FLOW FROM CD2C AND MARIOCPA DRAIN
 652          KM   MARICOPA DRAIN AT 1000 FT EAST OF 75TH AVE AND SOUTH MOUNTAIN AVE. (1/2 MILE
 653          KM   BETWEEN DOBBINS AND BASELINE ROADS.)
 654          HC       2
              *
              * DDM   ***** Preserved *****

 655          KK  RCD3C1
 656          KM    MARICOPA DRAIN FROM JUST EAST OF 75TH AVE ALONG POWERLINE RD (INDIAN
 657          KM    RESERVATION BOUNDARY).
 658          KM    MODIFY SLOPE FROM .0011 TO REFLECT A VELOCITY OF LESS THAN 5 FT/SEC
 659          RS       2    ELEV      -1
 660          RC    .030    .030    .030    3700   .0007
 661          RX       0      10      20      45     165     190     200     210
 662          RY   986.2   986.1     986     981     981     986   986.1   986.2
              *
              * DDM   ***** Updated *****
1                                          HEC-1 INPUT
PAGE 19

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

 663          KK   A67AC
 664          KM   SUB-BASIN A67AC
 665          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 666          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 667          KM     L = 1.65  Kb = .042  Adj. Slope =    7.0
 668          BA    .618
 669          LG    .250    .250   5.100    .320  34.000
 670          UC   1.500   1.140
 671          UA       0       5      16      30      65      77      84      90      94      97
 672          UA     100
              *
              * DDM   ***** Preserved *****

 673          KK   A67AR
 674          KM   DIVERT RETENTION VOLUME
 675          DT  RET67A    38.4
 676          DI       0    1000   10000
 677          DQ       0    1000   10000
              *
              * DDM   ***** Preserved *****

 678          KK  RCD4C1
 679          KM   ROUTE FLOW FROM SUB-BASIN 67AC CPCD4C TO COMPUTATION POINT CPCD4C
 680          KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
 681          RS       2    ELEV      -1
```

```
682          RC   0.035   0.035   0.035    2600  0.0024
683          RX       0      40      50      55      60      65      70     110
684          RY     988     987     986     983     983     986     987     988
             *
             * DDM   ***** Updated *****

685          KK    CD4C
686          KM   SUB-BASIN CD4C
687          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
688          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
689          KM     L =  .64  Kb = .051  Adj. Slope =    9.0
690          BA    .190
691          LG    .250    .250   4.900    .350  29.000
692          UC    .771    .500
693          UA       0       5      16      30      65      77      84      90      94      97
694          UA     100
             *
             * DDM   ***** Preserved *****

695          KK    CD4R
696          KM   DIVERT RETENTION VOLUME
697          DT  RETD4C    13.6
698          DI       0    1000   10000
699          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****
```



```
                                                HEC-1 INPUT

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

700          KK  CPCD4C
701          KM    COMBINE ROUTED FLOW FROM SUB-BASIN 67AC TO RUNOFF FROM SUB-BASIN CD4C
702          HC       2
             *
             * DDM   ***** Preserved *****

703          KK  RCD3C2
704          KM   ROUTE FLOW FROM COMPUTATION POINT CPCD4C TO COMPUTATION POINT CPCD3C
705          KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
706          RS       3    ELEV      -1
707          RC   0.035   0.035   0.035    5200  0.0024
708          RX       0      40      50      55      60      65      70     110
709          RY     988     987     986     983     983     986     987     988
             *
             * DDM   ***** Updated *****

710          KK    CD3C
711          KM   SUB-BASIN CD3C
712          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
713          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
714          KM     L = 1.15  Kb = .044  Adj. Slope =   10.0
715          BA    .480
716          LG    .240    .150   7.000    .140  33.000
717          UC    .929    .579
718          UA       0       5      16      30      65      77      84      90      94      97
719          UA     100
             *
             * DDM   ***** Preserved *****

720          KK    CD3R
721          KM   DIVERT RETENTION VOLUME
722          DT  RETD3C    35.2
723          DI       0    1000   10000
724          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****

725          KK  CPCD3C
726          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CPCD4C, ROUTED FLOW FROM DIVERSION
727          KM   POINT AT BASELINE ROAD WITH RUNOFF FROM SUB-BASIN CD3C
728          HC       3
729          ZZ
```

1

```
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   15       VR47C
                .
                .
   41           .-------->  RET47C
   39       VR47R
                V
                V
   44      RBR511
                .
                .
   52           .      AVR51C
                .           .
                .           .
   64           .           .-------->  RET51C
   62           .      AVR51R
                .           V
                .           V
   67           .      RBR512
                .           .
                .           .
   74           .           .       BR51C
                .           .           .
                .           .           .
   86           .           .           .-------->  RET159
   84           .           .       BR51R
                .           .           .
                .           .           .
   89      CB51C .......................
                V
                V
   93      RB1591
                .
                .
  100           .      AVR55C
                .           .
                .           .
  112           .           .-------->  RET55C
  110           .      AVR55R
                .           V
                .           V
  115           .      RB1592
                .           .
                .           .
  122           .           .      BR159C
                .           .           .
                .           .           .
  134           .           .           .-------->  RET159
  132           .           .      BR159R
                .           .           .
                .           .           .
  137           .           .           .       VR59C
                .           .           .           V
                .           .           .           V
  147           .           .           .      RB1593
                .           .           .           .
                .           .           .           .
  154      CB159N...................................
                .
                .
  159           .       DR43C
                .           .
                .           .
  171           .           .-------->  RET43C
  169           .       DR43R
                .           .
                .           .
  178           .           .-------->  DDR43C
  174           .      RDR43C
                .           V
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                .          V
181             .       RS51C
                .          .
                .          .
188             .          .       SM51C
                .          .          .
                .          .          .
200             .          .          .-------> RET51C
198             .          .       SM51R
                .          .          .
                .          .          .
203             .       CS51C............
                .          V
                .          V
206             .      RB2591
                .          V
                .          V
214             .      RB2592
                .          .
                .          .
222             .          .      BR259C
                .          .          .
                .          .          .
234             .          .          .-------> RET259
232             .          .      BR259R
                .          .          .
                .          .          .
237             .      CB259A............
                .          .
                .          .
243             .          .          .<-------  DDR43C
241             .          .      DR43CR
                .          .          V
                .          .          V
244             .          .      ROA51A
                .          .          V
                .          .          V
250             .          .      ROA51B
                .          .          .
                .          .          .
257             .          .          .       OA51B
                .          .          .          .
                .          .          .          .
269             .          .          .          .-------> RET51
267             .          .          .       OA51R
                .          .          .          .
                .          .          .          .
272             .          .      CO151B............
                .          .          .
                .          .          .
279             .          .          .-------> DFO51B
276             .          .      DO155C
                .          .          V
                .          .          V
282             .          .       RO55C
                .          .          .
                .          .          .
290             .          .          .       OA55C
                .          .          .          .
                .          .          .          .
302             .          .          .          .-------> RET55C
300             .          .          .       OA55R
                .          .          .          .
                .          .          .          .
305             .          .      CPO55C............
                .          .          V
                .          .          V
309             .          .       RD57C
                .          .          .
                .          .          .
316             .          .          .       DR57C
                .          .          .          .
                .          .          .          .
328             .          .          .          .-------> RET27
326             .          .          .       DR57R
```

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                .          .          .          .
                .          .          .          .
331             .          .     CDR57C...........
                .          .          V
                .          .          V
335             .          .      RD59C
                .          .          .
                .          .          .
342             .          .          .      DR59C
                .          .          .          .
                .          .          .          .
354             .          .          .          .-------> RET59C
352             .          .          .      DR59R
                .          .          .          .
                .          .          .          .
357             .          .     CDR59C...........
                .          .          V
                .          .          V
361             .          .      RB259
                .          .          .
                .          .          .
369             .     CB259S...........
                .          .
                .          .
372        CB259...........
               V
               V
375       RBR163
                .
                .
382             .     BR263C
                .          .
                .          .
394             .          .-------> RET263
392             .     BR263R
                .          .
                .          .
397          63S...........
                .
                .
401             .     BR163C
                .          .
                .          .
413             .          .-------> RET163
411             .     BR163R
                .          .
                .          .
416        CB163...........
               V
               V
419        RCD1C
                .
                .
426             .      BR67C
                .          V
                .          V
436             .     RCD1C2
                .          .
                .          .
443             .          .       CD1C
                .          .          .
                .          .          .
455             .          .          .-------> RET1C
453             .          .       CD1R
                .          .          .
                .          .          .
458       CPCD1C........................
               V
               V
462       RCD2C1
                .
                .
472             .          .<------- DFO51B
470             .     DFO51B
                .          V
```

```
                .          V
473             .      RE55B
                .          .
                .          .
480             .          .       ER55B
                .          .           .
                .          .           .
492             .          .           .-------->   RET55
490             .          .       ER55R
                .          .           .
                .          .           .
495             .     CER55B............
                .          V
                .          V
498             .      RE59B
                .          .
                .          .
505             .          .       ER59B
                .          .           .
                .          .           .
517             .          .           .-------->   RET59
515             .          .       ER59R
                .          .           .
                .          .           .
520             .     CER59B............
                .          .
                .          .
528             .          .-------->  DIR63B
523             .     RIR63B
                .          .
                .          .
531             .          .       IR63B
                .          .           .
                .          .           .
543             .          .           .-------->   RET63
541             .          .        IR63
                .          .           .
                .          .           .
546             .     CIR63B............
                .          V
                .          V
549             .     RIR65C
                .          .
                .          .
556             .          .       IR65C
                .          .           .
                .          .           .
568             .          .           .-------->  RET65C
566             .          .       IR65R
                .          .           .
                .          .           .
571             .     CIR65C............
                .          V
                .          V
575             .      RIRDC
                .          .
                .          .
585             .          .-------->  RIR65C
582             .     DIIRDC
                .          .
                .          .
588             .          .        IRDC
                .          .           .
                .          .           .
600             .          .           .-------->  RETRDC
598             .          .        IRDR
                .          .           .
                .          .           .
603             .      CIRDC............
                .          V
                .          V
607             .     RIRSMC
                .          .
                .          .
614             .          .       IRSMC
```

```
                .          .          .
                .          .          .
   626          .          .          .-------> RETSMC
   624          .          .      IRSMR
                .          .          .
                .          .          .
   629          .     CIRSMS............
                .          .
                .          .
   632     CIRSMC............
                .
                .
   635          .       CD2C
                .          .
                .          .
   647          .          .-------> RET2C
   645          .       CD2R
                .          .
                .          .
   650      CCD2C............
                V
                V
   655     RCD3C1
                .
                .
   663          .      A67AC
                .          .
                .          .
   675          .          .-------> RET67A
   673          .      A67AR
                .          V
                .          V
   678          .     RCD4C1
                .          .
                .          .
   685          .          .      CD4C
                .          .          .
                .          .          .
   697          .          .          .-------> RETD4C
   695          .          .      CD4R
                .          .          .
                .          .          .
   700          .     CPCD4C............
                .          V
                .          V
   703          .     RCD3C2
                .          .
                .          .
   710          .          .      CD3C
                .          .          .
                .          .          .
   722          .          .          .-------> RETD3C
   720          .          .      CD3R
                .          .          .
                .          .          .
   725     CPCD3C........................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              MAY   1991              *
 *           VERSION 4.0.1E             *
 *     Lahey F77L-EM/32 version 5.01    *
 *       Dodson & Associates, Inc.      *
 *  RUN DATE  09/27/00  TIME  14:18:38  *
 ****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 551-1748             *
*                                      *
****************************************
```

LAVEEN ADMS (FINAL HEC-1) 100-YR 24-HR STORM CBA FILE # 40916-02-30
HIDDEN VALLEY WATERSHED/CHAMPION DRAIN WATERSHED

```
                    INPUT FILE NAME  LAVFUT-1                    DATE: SEPTBER 25,2000
                    24-HOUR SCS TYPE II
                   80% RETENTION VOLUME OF FUTURE RETENTION

                   MULTIPLAN FOR ROUTING WITHIN THE CHAMPION DRAIN
                     PLAN 2: CHANNEL, S=.0011 ft/ft, n=.030, SS=5:1, D=5', TW & BW VARIES

                   DDM MCUHP1 LAVEEN REVISED HYDROLOGY - FUTURE LANDUSE CONDITIONS
                   9/27/00  INPUT FILE NAME  LAVFUT-1.DAT


 14 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    0.08 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


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


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           *            *
 44 KK     *    RBR511  *
           *            *
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 47 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           1  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

              HYDROGRAPH ROUTING DATA

 48 RS          STORAGE ROUTING
                     NSTPS           2  NUMBER OF SUBREACHES
                      ITYP        ELEV  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X        0.00 WORKING R AND D COEFFICIENT

 49 RC          NORMAL DEPTH CHANNEL
                       ANL       0.030  LEFT OVERBANK N-VALUE
                      ANCH       0.030  MAIN CHANNEL N-VALUE
                       ANR       0.030  RIGHT OVERBANK N-VALUE
                     RLNTH       3200.  REACH LENGTH
                       SEL      0.0011  ENERGY SLOPE
                     ELMAX         0.0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                        CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 51 RY        ELEVATION   1008.20   1008.10   1008.00   1003.00   1003.00   1008.00   1008.10   1008.20
 50 RX        DISTANCE       0.00     10.00     20.00     45.00    105.00    130.00    140.00    150.00

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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	1.23	2.52	3.87	5.27	6.72	8.23	9.79	11.41	13.09
OUTFLOW	0.00	11.49	36.75	72.82	118.63	173.60	237.39	309.80	390.70	480.04
ELEVATION	1003.00	1003.27	1003.55	1003.82	1004.09	1004.37	1004.64	1004.92	1005.19	1005.46
STORAGE	14.81	16.60	18.44	20.33	22.28	24.28	26.34	28.46	30.63	33.13
OUTFLOW	577.79	683.95	798.56	921.67	1053.33	1193.62	1342.62	1500.40	1667.08	1865.26
ELEVATION	1005.74	1006.01	1006.28	1006.56	1006.83	1007.11	1007.38	1007.65	1007.93	1008.20

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HYDROGRAPH AT STATION RBR511

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DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	0.0	1003.0	*	1		0820	101	0.	0.0	1003.0	*	1		1640	201	36.	1.2	1003.5
1		0005	2	0.	0.0	1003.0	*	1		0825	102	0.	0.0	1003.0	*	1		1645	202	35.	1.2	1003.5
1		0010	3	0.	0.0	1003.0	*	1		0830	103	0.	0.0	1003.0	*	1		1650	203	33.	1.2	1003.5
1		0015	4	0.	0.0	1003.0	*	1		0835	104	0.	0.0	1003.0	*	1		1655	204	32.	1.1	1003.5
1		0020	5	0.	0.0	1003.0	*	1		0840	105	0.	0.0	1003.0	*	1		1700	205	31.	1.1	1003.5
1		0025	6	0.	0.0	1003.0	*	1		0845	106	0.	0.0	1003.0	*	1		1705	206	30.	1.1	1003.5
1		0030	7	0.	0.0	1003.0	*	1		0850	107	0.	0.0	1003.0	*	1		1710	207	29.	1.1	1003.5
1		0035	8	0.	0.0	1003.0	*	1		0855	108	0.	0.0	1003.0	*	1		1715	208	28.	1.0	1003.4
1		0040	9	0.	0.0	1003.0	*	1		0900	109	0.	0.0	1003.0	*	1		1720	209	26.	1.0	1003.4
1		0045	10	0.	0.0	1003.0	*	1		0905	110	0.	0.0	1003.0	*	1		1725	210	25.	1.0	1003.4
1		0050	11	0.	0.0	1003.0	*	1		0910	111	0.	0.0	1003.0	*	1		1730	211	24.	0.9	1003.4
1		0055	12	0.	0.0	1003.0	*	1		0915	112	0.	0.0	1003.0	*	1		1735	212	23.	0.9	1003.4
1		0100	13	0.	0.0	1003.0	*	1		0920	113	0.	0.0	1003.0	*	1		1740	213	22.	0.9	1003.4
1		0105	14	0.	0.0	1003.0	*	1		0925	114	0.	0.0	1003.0	*	1		1745	214	21.	0.9	1003.4
1		0110	15	0.	0.0	1003.0	*	1		0930	115	0.	0.0	1003.0	*	1		1750	215	20.	0.8	1003.4
1		0115	16	0.	0.0	1003.0	*	1		0935	116	0.	0.0	1003.0	*	1		1755	216	19.	0.8	1003.4
1		0120	17	0.	0.0	1003.0	*	1		0940	117	0.	0.0	1003.0	*	1		1800	217	18.	0.8	1003.3
1		0125	18	0.	0.0	1003.0	*	1		0945	118	0.	0.0	1003.0	*	1		1805	218	18.	0.8	1003.3
1		0130	19	0.	0.0	1003.0	*	1		0950	119	0.	0.0	1003.0	*	1		1810	219	17.	0.8	1003.3
1		0135	20	0.	0.0	1003.0	*	1		0955	120	0.	0.0	1003.0	*	1		1815	220	16.	0.7	1003.3
1		0140	21	0.	0.0	1003.0	*	1		1000	121	0.	0.0	1003.0	*	1		1820	221	16.	0.7	1003.3
1		0145	22	0.	0.0	1003.0	*	1		1005	122	0.	0.0	1003.0	*	1		1825	222	15.	0.7	1003.3
1		0150	23	0.	0.0	1003.0	*	1		1010	123	0.	0.0	1003.0	*	1		1830	223	15.	0.7	1003.3
1		0155	24	0.	0.0	1003.0	*	1		1015	124	0.	0.0	1003.0	*	1		1835	224	14.	0.7	1003.3
1		0200	25	0.	0.0	1003.0	*	1		1020	125	0.	0.0	1003.0	*	1		1840	225	14.	0.7	1003.3
1		0205	26	0.	0.0	1003.0	*	1		1025	126	0.	0.0	1003.0	*	1		1845	226	14.	0.7	1003.3
1		0210	27	0.	0.0	1003.0	*	1		1030	127	0.	0.0	1003.0	*	1		1850	227	13.	0.7	1003.3
1		0215	28	0.	0.0	1003.0	*	1		1035	128	0.	0.0	1003.0	*	1		1855	228	13.	0.7	1003.3
1		0220	29	0.	0.0	1003.0	*	1		1040	129	0.	0.0	1003.0	*	1		1900	229	13.	0.7	1003.3
1		0225	30	0.	0.0	1003.0	*	1		1045	130	0.	0.0	1003.0	*	1		1905	230	13.	0.6	1003.3
1		0230	31	0.	0.0	1003.0	*	1		1050	131	0.	0.0	1003.0	*	1		1910	231	12.	0.6	1003.3
1		0235	32	0.	0.0	1003.0	*	1		1055	132	0.	0.0	1003.0	*	1		1915	232	12.	0.6	1003.3
1		0240	33	0.	0.0	1003.0	*	1		1100	133	0.	0.0	1003.0	*	1		1920	233	12.	0.6	1003.3
1		0245	34	0.	0.0	1003.0	*	1		1105	134	0.	0.0	1003.0	*	1		1925	234	12.	0.6	1003.3
1		0250	35	0.	0.0	1003.0	*	1		1110	135	0.	0.0	1003.0	*	1		1930	235	12.	0.6	1003.3
1		0255	36	0.	0.0	1003.0	*	1		1115	136	0.	0.0	1003.0	*	1		1935	236	12.	0.6	1003.3
1		0300	37	0.	0.0	1003.0	*	1		1120	137	0.	0.0	1003.0	*	1		1940	237	11.	0.6	1003.3
1		0305	38	0.	0.0	1003.0	*	1		1125	138	0.	0.0	1003.0	*	1		1945	238	11.	0.6	1003.3
1		0310	39	0.	0.0	1003.0	*	1		1130	139	0.	0.0	1003.0	*	1		1950	239	11.	0.6	1003.3
1		0315	40	0.	0.0	1003.0	*	1		1135	140	0.	0.0	1003.0	*	1		1955	240	11.	0.6	1003.3
1		0320	41	0.	0.0	1003.0	*	1		1140	141	0.	0.0	1003.0	*	1		2000	241	11.	0.6	1003.3
1		0325	42	0.	0.0	1003.0	*	1		1145	142	0.	0.0	1003.0	*	1		2005	242	11.	0.6	1003.3
1		0330	43	0.	0.0	1003.0	*	1		1150	143	0.	0.0	1003.0	*	1		2010	243	11.	0.6	1003.3
1		0335	44	0.	0.0	1003.0	*	1		1155	144	0.	0.0	1003.0	*	1		2015	244	11.	0.6	1003.3
1		0340	45	0.	0.0	1003.0	*	1		1200	145	0.	0.0	1003.0	*	1		2020	245	11.	0.6	1003.3
1		0345	46	0.	0.0	1003.0	*	1		1205	146	0.	0.0	1003.0	*	1		2025	246	11.	0.6	1003.3
1		0350	47	0.	0.0	1003.0	*	1		1210	147	0.	0.0	1003.0	*	1		2030	247	11.	0.6	1003.3
1		0355	48	0.	0.0	1003.0	*	1		1215	148	0.	0.0	1003.0	*	1		2035	248	11.	0.6	1003.3
1		0400	49	0.	0.0	1003.0	*	1		1220	149	0.	0.0	1003.0	*	1		2040	249	11.	0.6	1003.3
1		0405	50	0.	0.0	1003.0	*	1		1225	150	0.	0.0	1003.0	*	1		2045	250	10.	0.6	1003.2
1		0410	51	0.	0.0	1003.0	*	1		1230	151	0.	0.0	1003.0	*	1		2050	251	10.	0.6	1003.2
1		0415	52	0.	0.0	1003.0	*	1		1235	152	0.	0.0	1003.0	*	1		2055	252	10.	0.6	1003.2
1		0420	53	0.	0.0	1003.0	*	1		1240	153	0.	0.0	1003.0	*	1		2100	253	10.	0.5	1003.2
1		0425	54	0.	0.0	1003.0	*	1		1245	154	0.	0.0	1003.0	*	1		2105	254	10.	0.5	1003.2
1		0430	55	0.	0.0	1003.0	*	1		1250	155	0.	0.0	1003.0	*	1		2110	255	10.	0.5	1003.2
1		0435	56	0.	0.0	1003.0	*	1		1255	156	0.	0.0	1003.0	*	1		2115	256	10.	0.5	1003.2
1		0440	57	0.	0.0	1003.0	*	1		1300	157	0.	0.0	1003.0	*	1		2120	257	10.	0.5	1003.2
1		0445	58	0.	0.0	1003.0	*	1		1305	158	0.	0.0	1003.0	*	1		2125	258	10.	0.5	1003.2
1		0450	59	0.	0.0	1003.0	*	1		1310	159	0.	0.0	1003.0	*	1		2130	259	10.	0.5	1003.2
1		0455	60	0.	0.0	1003.0	*	1		1315	160	0.	0.0	1003.0	*	1		2135	260	9.	0.5	1003.2
1		0500	61	0.	0.0	1003.0	*	1		1320	161	0.	0.0	1003.0	*	1		2140	261	9.	0.5	1003.2
1		0505	62	0.	0.0	1003.0	*	1		1325	162	0.	0.0	1003.0	*	1		2145	262	9.	0.5	1003.2
1		0510	63	0.	0.0	1003.0	*	1		1330	163	0.	0.0	1003.0	*	1		2150	263	9.	0.5	1003.2
1		0515	64	0.	0.0	1003.0	*	1		1335	164	0.	0.0	1003.0	*	1		2155	264	9.	0.5	1003.2
1		0520	65	0.	0.0	1003.0	*	1		1340	165	0.	0.0	1003.0	*	1		2200	265	9.	0.5	1003.2
1		0525	66	0.	0.0	1003.0	*	1		1345	166	0.	0.0	1003.0	*	1		2205	266	9.	0.5	1003.2
1		0530	67	0.	0.0	1003.0	*	1		1350	167	0.	0.0	1003.0	*	1		2210	267	9.	0.5	1003.2
1		0535	68	0.	0.0	1003.0	*	1		1355	168	0.	0.0	1003.0	*	1		2215	268	9.	0.5	1003.2
1		0540	69	0.	0.0	1003.0	*	1		1400	169	0.	0.0	1003.0	*	1		2220	269	9.	0.5	1003.2
1		0545	70	0.	0.0	1003.0	*	1		1405	170	0.	0.0	1003.0	*	1		2225	270	8.	0.5	1003.2
1		0550	71	0.	0.0	1003.0	*	1		1410	171	0.	0.0	1003.0	*	1		2230	271	8.	0.5	1003.2
1		0555	72	0.	0.0	1003.0	*	1		1415	172	0.	0.0	1003.0	*	1		2235	272	8.	0.4	1003.2
1		0600	73	0.	0.0	1003.0	*	1		1420	173	0.	0.0	1003.0	*	1		2240	273	8.	0.4	1003.2

1	0605	74	0.	0.0	1003.0	*	1	1425	174	0.	0.0	1003.0	*	1	2245	274	8.	0.4	1003.2
1	0610	75	0.	0.0	1003.0	*	1	1430	175	0.	0.0	1003.0	*	1	2250	275	8.	0.4	1003.2
1	0615	76	0.	0.0	1003.0	*	1	1435	176	0.	0.0	1003.0	*	1	2255	276	8.	0.4	1003.2
1	0620	77	0.	0.0	1003.0	*	1	1440	177	1.	0.1	1003.0	*	1	2300	277	8.	0.4	1003.2
1	0625	78	0.	0.0	1003.0	*	1	1445	178	4.	0.2	1003.1	*	1	2305	278	8.	0.4	1003.2
1	0630	79	0.	0.0	1003.0	*	1	1450	179	9.	0.5	1003.2	*	1	2310	279	8.	0.4	1003.2
1	0635	80	0.	0.0	1003.0	*	1	1455	180	19.	0.8	1003.4	*	1	2315	280	8.	0.4	1003.2
1	0640	81	0.	0.0	1003.0	*	1	1500	181	31.	1.1	1003.5	*	1	2320	281	8.	0.4	1003.2
1	0645	82	0.	0.0	1003.0	*	1	1505	182	42.	1.4	1003.6	*	1	2325	282	8.	0.4	1003.2
1	0650	83	0.	0.0	1003.0	*	1	1510	183	52.	1.6	1003.7	*	1	2330	283	8.	0.4	1003.2
1	0655	84	0.	0.0	1003.0	*	1	1515	184	59.	1.7	1003.7	*	1	2335	284	8.	0.4	1003.2
1	0700	85	0.	0.0	1003.0	*	1	1520	185	63.	1.8	1003.7	*	1	2340	285	8.	0.4	1003.2
1	0705	86	0.	0.0	1003.0	*	1	1525	186	65.	1.8	1003.8	*	1	2345	286	8.	0.4	1003.2
1	0710	87	0.	0.0	1003.0	*	1	1530	187	65.	1.8	1003.8	*	1	2350	287	8.	0.4	1003.2
1	0715	88	0.	0.0	1003.0	*	1	1535	188	64.	1.8	1003.8	*	1	2355	288	7.	0.4	1003.2
1	0720	89	0.	0.0	1003.0	*	1	1540	189	63.	1.7	1003.7	*	2	0000	289	7.	0.4	1003.2
1	0725	90	0.	0.0	1003.0	*	1	1545	190	61.	1.7	1003.7	*	2	0005	290	7.	0.4	1003.2
1	0730	91	0.	0.0	1003.0	*	1	1550	191	58.	1.7	1003.7	*	2	0010	291	7.	0.4	1003.2
1	0735	92	0.	0.0	1003.0	*	1	1555	192	56.	1.6	1003.7	*	2	0015	292	7.	0.4	1003.2
1	0740	93	0.	0.0	1003.0	*	1	1600	193	53.	1.6	1003.7	*	2	0020	293	7.	0.4	1003.2
1	0745	94	0.	0.0	1003.0	*	1	1605	194	51.	1.5	1003.7	*	2	0025	294	7.	0.4	1003.2
1	0750	95	0.	0.0	1003.0	*	1	1610	195	48.	1.5	1003.6	*	2	0030	295	7.	0.4	1003.2
1	0755	96	0.	0.0	1003.0	*	1	1615	196	46.	1.4	1003.6	*	2	0035	296	7.	0.4	1003.2
1	0800	97	0.	0.0	1003.0	*	1	1620	197	43.	1.4	1003.6	*	2	0040	297	7.	0.4	1003.2
1	0805	98	0.	0.0	1003.0	*	1	1625	198	41.	1.3	1003.6	*	2	0045	298	7.	0.4	1003.2
1	0810	99	0.	0.0	1003.0	*	1	1630	199	39.	1.3	1003.6	*	2	0050	299	7.	0.4	1003.2
1	0815	100	0.	0.0	1003.0	*	1	1635	200	37.	1.3	1003.6	*	2	0055	300	7.	0.4	1003.2
						*							*						

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PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)					
		(CFS)				
+ 65.	15.50		27.	8.	8.	8.
		(INCHES)	0.288	0.350	0.350	0.350
		(AC-FT)	13.	16.	16.	16.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (AC-FT)	(HR)				
2.	15.50	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.92-HR
+ (FEET)	(HR)				
1003.76	15.50	1003.42	1003.14	1003.14	1003.14

CUMULATIVE AREA = 0.87 SQ MI

WARNING --- ROUTED OUTFLOW (827.) IS GREATER THAN MAXIMUM OUTFLOW (767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (934.) IS GREATER THAN MAXIMUM OUTFLOW (767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (902.) IS GREATER THAN MAXIMUM OUTFLOW (767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (792.) IS GREATER THAN MAXIMUM OUTFLOW (767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (848.) IS GREATER THAN MAXIMUM OUTFLOW (767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (847.) IS GREATER THAN MAXIMUM OUTFLOW (767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (774.) IS GREATER THAN MAXIMUM OUTFLOW (767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (782.) IS GREATER THAN MAXIMUM OUTFLOW (767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (799.) IS GREATER THAN MAXIMUM OUTFLOW (767.) IN STORAGE-OUTFLOW TABLE

1

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	MAX STAGE
+	HYDROGRAPH AT	VR47C	460.	12.67	152.	45.	44.	0.87		
+	DIVERSION TO	RET47C	460.	14.67	137.	37.	35.	0.87		
+	HYDROGRAPH AT	VR47R	109.	14.67	29.	9.	8.	0.87		
+	ROUTED TO	RBR511	65.	15.50	27.	8.	8.	0.87		
+									1003.76	15.50
+	HYDROGRAPH AT	AVR51C	261.	12.33	55.	16.	16.	0.28		
+	DIVERSION TO	RET51C	261.	13.00	41.	11.	10.	0.28		
+	HYDROGRAPH AT	AVR51R	133.	13.00	19.	6.	5.	0.28		
+	ROUTED TO	RBR512	82.	13.58	19.	5.	5.	0.28		
+									1008.64	13.58
+	HYDROGRAPH AT	BR51C	432.	12.58	122.	37.	36.	0.70		
+	DIVERSION TO	RET159	432.	13.75	100.	27.	26.	0.70		
+	HYDROGRAPH AT	BR51R	162.	13.75	34.	10.	10.	0.70		
+	3 COMBINED AT	CB51C	235.	13.75	76.	24.	23.	1.85		
+	ROUTED TO	RB1591	134.	14.58	72.	22.	21.	1.85		
+									995.99	14.58
+	HYDROGRAPH AT	AVR55C	152.	12.58	51.	15.	14.	0.24		
+	DIVERSION TO	RET55C	152.	15.17	48.	13.	12.	0.24		
+	HYDROGRAPH AT	AVR55R	23.	15.17	7.	2.	2.	0.24		
+	ROUTED TO	RB1592	13.	16.25	6.	2.	2.	0.24		
+									999.96	16.25
+	HYDROGRAPH AT	BR159C	300.	12.67	110.	33.	32.	0.68		
+	DIVERSION TO	RET159	300.	13.92	80.	22.	21.	0.68		
+	HYDROGRAPH AT	BR159R	160.	13.92	41.	12.	11.	0.68		
+	HYDROGRAPH AT	VR59C	117.	12.75	39.	10.	10.	0.23		
+	ROUTED TO	RB1593	114.	13.00	39.	10.	10.	0.23		
+									1000.83	13.00
+	4 COMBINED AT	CB159N	283.	14.42	145.	46.	44.	3.00		
	HYDROGRAPH AT									

+		DR43C	1391.	12.17	176.	55.	53.	0.92	
	DIVERSION TO								
+		RET43C	451.	12.17	45.	14.	14.	0.92	
	HYDROGRAPH AT								
+		DR43R	1391.	12.17	150.	41.	39.	0.92	
	DIVERSION TO								
+		DDR43C	119.	12.17	18.	5.	4.	0.92	
	HYDROGRAPH AT								
+		RDR43C	1272.	12.17	132.	36.	35.	0.92	
	ROUTED TO								
+		RS51C	1054.	12.42	129.	36.	35.	0.92	
+									1037.42 12.42
	HYDROGRAPH AT								
+		SM51C	327.	12.42	79.	22.	22.	0.51	
	DIVERSION TO								
+		RET51C	327.	12.92	44.	12.	11.	0.51	
	HYDROGRAPH AT								
+		SM51R	248.	12.92	40.	11.	10.	0.51	
	2 COMBINED AT								
+		CS51C	1054.	12.42	169.	47.	45.	1.43	
	ROUTED TO								
+		RB2591	799.	12.75	168.	46.	45.	1.43	
+									1030.06 12.75
	ROUTED TO								
+		RB2592	762.	12.92	167.	46.	45.	1.43	
+									1005.60 12.92
	HYDROGRAPH AT								
+		BR259C	778.	12.42	180.	55.	53.	1.01	
	DIVERSION TO								
+		RET259	778.	13.00	126.	34.	33.	1.01	
	HYDROGRAPH AT								
+		BR259R	456.	13.00	72.	21.	20.	1.01	
	2 COMBINED AT								
+		CB259A	1194.	13.00	237.	67.	64.	2.44	
	HYDROGRAPH AT								
+		DR43CR	119.	12.00	18.	5.	4.	0.00	
	ROUTED TO								
+		ROA51A	119.	12.67	18.	5.	4.	0.00	
+									1017.36 12.67
	ROUTED TO								
+		ROA51B	105.	12.92	18.	5.	4.	0.00	
+									1005.64 12.92
	HYDROGRAPH AT								
+		OA51B	3164.	12.00	257.	77.	74.	1.38	
	DIVERSION TO								
+		RET51	2476.	12.08	149.	41.	39.	1.38	
	HYDROGRAPH AT								
+		OA51R	2857.	12.08	130.	36.	35.	1.38	
	2 COMBINED AT								
+		CO151B	2858.	12.08	148.	41.	39.	1.38	
	DIVERSION TO								
+		DFO51B	1414.	12.08	74.	20.	20.	1.38	
	HYDROGRAPH AT								
+		DO155C	1444.	12.08	74.	20.	20.	1.38	
	ROUTED TO								
+		RO55C	920.	12.25	74.	20.	20.	1.38	
+									1030.96 12.25
	HYDROGRAPH AT								
+		OA55C	97.	12.75	37.	11.	10.	0.25	

	DIVERSION TO								
+		RET55C	27.	12.75	4.	1.	1.	0.25	
	HYDROGRAPH AT								
+		OA55R	97.	12.75	36.	9.	9.	0.25	
	2 COMBINED AT								
+		CPO55C	968.	12.25	109.	30.	29.	1.63	
	ROUTED TO								
+		RD57C	635.	12.42	107.	30.	28.	1.63	
+									1027.34 12.42
	HYDROGRAPH AT								
+		DR57C	40.	12.75	16.	5.	5.	0.12	
	DIVERSION TO								
+		RET27	40.	0.08	16.	5.	5.	0.12	
	HYDROGRAPH AT								
+		DR57R	0.	0.08	0.	0.	0.	0.12	
	2 COMBINED AT								
+		CDR57C	635.	12.42	107.	30.	28.	1.75	
	ROUTED TO								
+		RD59C	596.	12.50	107.	29.	28.	1.75	
+									1022.93 12.50
	HYDROGRAPH AT								
+		DR59C	45.	12.83	21.	7.	6.	0.12	
	DIVERSION TO								
+		RET59C	45.	15.67	19.	5.	5.	0.12	
	HYDROGRAPH AT								
+		DR59R	13.	15.67	5.	1.	1.	0.12	
	2 COMBINED AT								
+		CDR59C	596.	12.50	110.	31.	30.	1.87	
	ROUTED TO								
+		RB259	444.	12.75	108.	30.	29.	1.87	
+									1018.85 12.75
	2 COMBINED AT								
+		CB259S	1529.	13.00	345.	97.	94.	4.31	
	2 COMBINED AT								
+		CB259	1643.	13.00	490.	144.	138.	7.31	
	ROUTED TO								
+		RBR163	1482.	13.17	484.	142.	137.	7.31	
+									996.39 13.17
	HYDROGRAPH AT								
+		BR263C	294.	12.50	89.	28.	27.	0.49	
	DIVERSION TO								
+		RET263	294.	13.25	58.	16.	16.	0.49	
	HYDROGRAPH AT								
+		BR263R	186.	13.25	41.	12.	11.	0.49	
	2 COMBINED AT								
+		63S	1642.	13.17	525.	154.	148.	7.81	
	HYDROGRAPH AT								
+		BR163C	208.	12.33	43.	12.	12.	0.25	
	DIVERSION TO								
+		RET163	163.	12.33	12.	3.	3.	0.25	
	HYDROGRAPH AT								
+		BR163R	208.	12.33	34.	9.	9.	0.25	
	2 COMBINED AT								
+		CB163	1723.	13.17	551.	163.	157.	8.06	
	ROUTED TO								
+		RCD1C	1635.	13.33	548.	161.	155.	8.06	
+									995.01 13.33
	HYDROGRAPH AT								
+		BR67C	67.	12.67	23.	6.	6.	0.13	

	ROUTED TO								
+		RCD1C2	63.	12.92	23.	6.	6.	0.13	
+									991.14	12.92
	HYDROGRAPH AT								
+		CD1C	552.	12.25	79.	24.	23.	0.46	
	DIVERSION TO								
+		RET1C	552.	12.67	63.	17.	16.	0.46	
	HYDROGRAPH AT								
+		CD1R	216.	12.67	23.	7.	7.	0.46	
	3 COMBINED AT								
+		CPCD1C	1735.	13.33	591.	175.	168.	8.65	
	ROUTED TO								
+		RCD2C1	1635.	13.58	583.	172.	165.	8.65	
+									989.11	13.58
	HYDROGRAPH AT								
+		DFO51B	1414.	12.08	74.	20.	20.	0.00	
	ROUTED TO								
+		RE55B	832.	12.25	73.	20.	20.	0.00	
+									1029.65	12.25
	HYDROGRAPH AT								
+		ER55B	205.	12.42	46.	14.	13.	0.26	
	DIVERSION TO								
+		RET55	205.	13.25	36.	10.	9.	0.26	
	HYDROGRAPH AT								
+		ER55R	82.	13.25	13.	4.	4.	0.26	
	2 COMBINED AT								
+		CER55B	832.	12.25	86.	24.	23.	0.26	
	ROUTED TO								
+		RE59B	537.	12.42	85.	24.	23.	0.26	
+									1024.95	12.42
	HYDROGRAPH AT								
+		ER59B	274.	12.25	64.	21.	21.	0.26	
	DIVERSION TO								
+		RET59	274.	12.67	41.	12.	11.	0.26	
	HYDROGRAPH AT								
+		ER59R	194.	12.67	33.	10.	9.	0.26	
	2 COMBINED AT								
+		CER59B	537.	12.42	117.	34.	33.	0.51	
	DIVERSION TO								
+		DIR63B	492.	12.25	79.	20.	19.	0.51	
	HYDROGRAPH AT								
+		RIR63B	45.	12.25	38.	14.	14.	0.51	
	HYDROGRAPH AT								
+		IR63B	127.	12.25	30.	10.	10.	0.12	
	DIVERSION TO								
+		RET63	127.	12.75	20.	6.	5.	0.12	
	HYDROGRAPH AT								
+		IR63	79.	12.75	16.	5.	4.	0.12	
	2 COMBINED AT								
+		CIR63B	124.	12.75	54.	19.	18.	0.64	
	ROUTED TO								
+		RIR65C	114.	13.08	53.	18.	18.	0.64	
+									4.33	13.08
	HYDROGRAPH AT								
+		IR65C	112.	12.33	26.	8.	7.	0.17	
	DIVERSION TO								
+		RET65C	112.	17.17	26.	7.	7.	0.17	
	HYDROGRAPH AT								
+		IR65R	2.	17.17	1.	0.	0.	0.17	

	2 COMBINED AT								
+		CIR65C	114.	13.08	53.	19.	18.	0.81	
	ROUTED TO								
+		RIRDC	99.	13.42	53.	19.	18.	0.81	
+									1012.13 13.42
	DIVERSION TO								
+		RIR65C	68.	13.17	34.	13.	13.	0.81	
	HYDROGRAPH AT								
+		DIIRDC	31.	13.17	18.	5.	5.	0.81	
	HYDROGRAPH AT								
+		IRDC	397.	12.42	110.	36.	34.	0.52	
	DIVERSION TO								
+		RETRDC	397.	13.17	78.	22.	21.	0.52	
	HYDROGRAPH AT								
+		IRDR	225.	13.17	47.	14.	13.	0.52	
	2 COMBINED AT								
+		CIRDC	256.	13.17	65.	19.	18.	1.33	
	ROUTED TO								
+		RIRSMC	226.	13.42	64.	19.	18.	1.33	
+									1001.84 13.42
	HYDROGRAPH AT								
+		IRSMC	285.	12.17	42.	13.	13.	0.24	
	DIVERSION TO								
+		RETSMC	285.	12.83	36.	10.	9.	0.24	
	HYDROGRAPH AT								
+		IRSMR	74.	12.83	11.	3.	3.	0.24	
	2 COMBINED AT								
+		CIRSMS	250.	13.42	74.	22.	22.	1.58	
	2 COMBINED AT								
+		CIRSMC	1852.	13.58	656.	194.	187.	10.23	
	HYDROGRAPH AT								
+		CD2C	337.	12.75	128.	38.	37.	0.60	
	DIVERSION TO								
+		RET2C	337.	13.67	84.	23.	22.	0.60	
	HYDROGRAPH AT								
+		CD2R	233.	13.67	56.	16.	15.	0.60	
	2 COMBINED AT								
+		CCD2C	2034.	13.67	711.	210.	202.	10.83	
	ROUTED TO								
+		RCD3C1	1843.	13.92	699.	206.	198.	10.83	
+									985.20 13.92
	HYDROGRAPH AT								
+		A67AC	291.	12.75	111.	34.	33.	0.62	
	DIVERSION TO								
+		RET67A	291.	13.58	70.	19.	19.	0.62	
	HYDROGRAPH AT								
+		A67AR	205.	13.58	53.	15.	14.	0.62	
	ROUTED TO								
+		RCD4C1	171.	13.92	53.	15.	14.	0.62	
+									986.82 13.92
	HYDROGRAPH AT								
+		CD4C	165.	12.33	32.	10.	9.	0.19	
	DIVERSION TO								
+		RETD4C	165.	13.00	25.	7.	7.	0.19	
	HYDROGRAPH AT								
+		CD4R	62.	13.00	10.	3.	3.	0.19	
	2 COMBINED AT								
+		CPCD4C	189.	13.92	62.	18.	17.	0.81	
	ROUTED TO								

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+                    RCD3C2      166.   14.33        61.        18.        17.      0.81
+                                                                                              986.78      14.33
        HYDROGRAPH AT
+                      CD3C      428.   12.42       100.        30.        29.      0.48
        DIVERSION TO
+                    RETD3C      428.   12.92        66.        18.        17.      0.48
        HYDROGRAPH AT
+                      CD3R      290.   12.92        43.        12.        12.      0.48
        3 COMBINED AT
+                    CPCD3C     1999.   13.92       790.       236.       227.     12.11


 *** NORMAL END OF HEC-1 ***
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Future Condition
With
<u>Relaxed</u> Retention

100yr-24hr

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*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             MAY  1991                 *
*           VERSION 4.0.1E              *
*     Lahey F77L-EM/32 version 5.01     *
*       Dodson & Associates, Inc.       *
*  RUN DATE  09/27/00  TIME  14:44:49   *
*****************************************
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*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*        DAVIS, CALIFORNIA 95616        *
*           (916) 551-1748              *
*                                       *
*****************************************
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X               X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX   XXXXX         XXX
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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

HEC-1 INPUT PAGE 1

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

  1           ID    LAVEEN ADMS (FINAL HEC-1) 100-YR 24-HR STORM          CBA FILE # 40916-02-30
  2           ID    HIDDEN VALLEY WATERSHED/CHAMPION DRAIN WATERSHED
  3           ID    INPUT FILE NAME  LAVFUT1A                        DATE: SEPT. 27,2000
  4           ID    24-HOUR SCS TYPE II
  5           ID   80% RETENTION VOLUME OF FUTURE RETENTION
  6           ID
  7           ID   RELAXED RETENTION 1/2 MILE OF MARICOPA DRAIN
  8           ID   MINUS FIRST FLUSH OF 5YR 24HR VOLUME
  9           ID
 10           ID   MULTIPLAN FOR ROUTING WITHIN THE CHAMPION DRAIN
 11           ID     PLAN 2: CHANNEL, S=.0020 ft/ft, n=.031, BW=14', SS=6:1, D=10', TW=124'
 12           ID
 13           ID   DDM MCUHP1 LAVEEN REVISED HYDROLOGY - FUTURE LANDUSE CONDITIONS
              *DIAGRAM
 14           IT       5                    300
 15           IO       5       0
              * DDM   ***** Updated *****

 16           KK   VR47C
 17           KM   SUB-BASIN VR47C
 18           KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 19           KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 20           KM     L = 1.65  Kb = .042  Adj. Slope =    7.0
 21           BA    .869
 22           IN      15
 23           KM   RAINFALL DEPTH OF 4.20 WAS SPACIALLY REDUCED AS SHOWN BY THE PB RECORD
 24           PB   3.923
 25           KM   THE FOLLOWING PC RECORD USED A 24-HR SCS TYPE II STORM
 26           PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
 27           PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
 28           PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
 29           PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
 30           PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
 31           PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
 32           PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
 33           PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
 34           PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
 35           PC    .983    .986    .989    .992    .995    .998   1.000
 36           LG    .260    .250   5.700    .250  27.000
 37           UC   1.500    .938
 38           UA       0       5      16      30      65      77      84      90      94      97
 39           UA     100
              *
              * DDM   ***** Preserved *****

 40           KK   VR47R
 41           KM   DIVERT RETENTION VOLUME
 42           KM   RELAXED RETENTION VOLUME FROM 72.8 AC-FT
 43           DT  RET47C    67.7
 44           DI       0    1000   10000
 45           DQ       0    1000   10000
              *
              * DDM   ***** Preserved *****
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HEC-1 INPUT PAGE 2

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

  46          KK  RBR511
  47          KM   ROUTE FLOW FROM COMPUTATION POINT CVR47C TO COMPUTATION POINT CB51C
  48          KM   MARICOPA DRAIN - 47TH AVE. TO 51ST AVE.
  49          RS       2    ELEV      -1
  50          RC    .030    .030    .030    3200   .0011
  51          RX       0      10      20      45     115     140     150     160
  52          RY  1008.2  1008.1    1008    1003    1003    1008  1008.1  1008.2
              *
              * DDM   ***** Updated *****

  53          KK  AVR51C
  54          KM   SUB-BASIN AVR51C
  55          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
  56          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
  57          KM     L =  .86  Kb = .049  Adj. Slope =   10.0
  58          BA    .285
  59          LG    .250    .190   6.600    .170  30.000
  60          UC    .829    .545
  61          UA       0       5      16      30      65      77      84      90      94      97
  62          UA     100
              *
              * DDM   ***** Preserved *****

  63          KK  AVR51R
  64          KM   DIVERT RETENTION VOLUME
  65          DT  RET51C    21.6
  66          DI       0    1000   10000
  67          DQ       0    1000   10000
              *
              * DDM   ***** Preserved *****

  68          KK  RBR512
  69          KM    ROUTE FLOW FROM SUB-BASIN AVR51C TO COMPUTATION POINT CB51C
  70          KM    ROUTING REVISED TO REFLECT AN URBANIZED CONDITION
  71          RS       4    ELEV      -1
  72          RC   0.035   0.035   0.035    3600   0.001  1010.5
  73          RX       0      20      40      46      56      62      82     102
  74          RY  1010.5  1009.7  1009.0    1006    1006    1009  1009.7  1010.5
              *
              * DDM   ***** Updated *****

  75          KK   BR51C
  76          KM   SUB-BASIN BR51C
  77          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
  78          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
  79          KM     L = 1.21  Kb = .043  Adj. Slope =    6.0
  80          BA    .699
  81          LG    .250    .250   4.900    .350  31.000
  82          UC   1.325    .722
  83          UA       0       5      16      30      65      77      84      90      94      97
  84          UA     100
              *
              * DDM   ***** Preserved *****
                                          HEC-1 INPUT                                          PAGE  3

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

  85          KK   BR51R
  86          KM   DIVERT RETENTION VOLUME
  87          KM   RELAXED RETENTION VOLUME FROM 53.6 AC-FT
  88          DT  RET159    50.5
  89          DI       0    1000   10000
  90          DQ       0    1000   10000
              *
              * DDM   ***** Preserved *****

  91          KK   CB51C
  92          KM    COMBINE ROUTED FLOW FROM COMPUTATION POINT CVR47C AND SUB-BASIN AVR51C
  93          KM    WITH RUNOFF FROM SUB-BASIN BR51C
  94          HC       3
              *
              * DDM   ***** Preserved *****

  95          KK  RB1591
  96          KM    ROUTE FLOW FROM COMPUTATION POINT CB51C TO COMPUTATION POINT CB159C
  97          KM    MARICOPA DRAIN FROM 51ST AVE TO 59TH AVE.
  98          RS       3    ELEV      -1
  99          RC    .030    .030    .030    5200   .0011
 100          RX       0      10      20      45     125     150     160     170
 101          RY  1000.2  1000.1    1000     995     995    1000  1000.1  1000.2
              *
              * DDM   ***** Updated *****

 102          KK  AVR55C
 103          KM   SUB-BASIN AVR55C
 104          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 105          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
```

```
 106          KM     L =  .93  Kb = .051  Adj. Slope =    5.0
 107          BA    .241
 108          LG    .250    .150   8.000    .100  29.000
 109          UC   1.212    .973
 110          UA       0       5      16      30      65      77      84      90      94      97
 111          UA     100
              *
              * DDM   ***** Preserved *****

 112          KK  AVR55R
 113          KM   DIVERT RETENTION VOLUME
 114          DT  RET55C    25.6
 115          DI       0    1000   10000
 116          DQ       0    1000   10000
              *
              * DDM   ***** Preserved *****

 117          KK  RB1592
 118          KM    ROUTE FLOW FROM SUBASIN AVR55C TO COMPUTATION POINT CB159C
 119          KM   ROUTING REVISED TO REFLECT URBANIZED CONDITIONS
 120          RS       3    ELEV      -1
 121          RC   0.035   0.035   0.035    3600   0.001
 122          RX       0      20      40      46      56      62      82     102
 123          RY    1004    1003    1002     999     999    1002    1003    1004
              *
              * DDM   ***** Updated *****
                                          HEC-1 INPUT                                          PAGE  4

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

 124          KK  BR159C
 125          KM   SUB-BASIN BR159C
 126          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 127          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 128          KM     L = 1.68  Kb = .054  Adj. Slope =    8.0
 129          BA    .675
 130          LG    .170    .250   4.800    .420  28.000
 131          UC   1.500   1.100
 132          UA       0       5      16      30      65      77      84      90      94      97
 133          UA     100
              *
              * DDM   ***** Preserved *****

 134          KK  BR159R
 135          KM   DIVERT RETENTION VOLUME
 136          KM   RELAXED RETENTION VOLUME FROM 43.2 AC-FT
 137          DT  RET159    39.5
 138          DI       0    1000   10000
 139          DQ       0    1000   10000
              *
              * DDM   ***** Updated *****

 140          KK   VR59C
 141          KM   SUB-BASIN VR59C
 142          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 143          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 144          KM     L =  .75  Kb = .083  Adj. Slope =    4.0
 145          BA    .233
 146          LG    .130    .150   7.000    .180   9.000
 147          UC   1.500   1.058
 148          UA       0       5      16      30      65      77      84      90      94      97
 149          UA     100
              *
              * DDM   ***** Preserved *****

 150          KK  RB1593
 151          KM   ROUTE FLOW FROM SUB-BASIN VR59C TO COMPUTATION POINT CB159C
 152          KM   ROUTING REVISED TO REFLECT URBANIZED CONDITIONS
 153          RS       3    ELEV      -1
 154          RC   0.035   0.035   0.035    3000  0.0015
 155          RX       0      20      40      46      56      62      82     102
 156          RY    1002  1001.3    1001     998     998    1001  1001.3    1002
              *
              * DDM   ***** Preserved *****

 157          KK  CB159N
 158          KM     COMBINE ROUTED FLOWS FROM COMPUTATION POINT CB51C AND SUB-BASINS AVR51C
 159          KM     AND VR59C WITH RUNOFF FROM SUB-BASIN BR159C
 160          KM     CP (NORTH FLOWS) AT 59TH AVE AND BASELINE RD.
 161          HC       4
              *
              * DDM   ***** Updated *****
1                                         HEC-1 INPUT                                          PAGE  5

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

 162          KK   DR43C
 163          KM   SUB-BASIN DR43C
 164          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 165          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
```

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166          KM     L = 1.49  Kb = .039  Adj. Slope =   69.0
167          BA    .922
168          LG    .250    .250   5.100    .300  38.000
169          UC    .450    .220
170          UA       0       5      16      30      65      77      84      90      94      97
171          UA     100
             *
             * DDM   ***** Preserved *****

172          KK   DR43R
173          KM   DIVERT RETENTION VOLUME
174          DT  RET43C    27.9
175          DI       0    1000   10000
176          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****

177          KK  RDR43C
178          KM   SPLIT FLOW. RESULTANT HYDROGRAPH IS THE ESTIMATED FLOW THAT DRAINS TO THE
179          KM   EAST OF THE SOUTHWEST CORNER OF 43RD AVENUE AND DOBBINS ROAD
180          KM   CAPACITY OF DOBBINS ROAD WEST IS ONLY 119 CFS.
181          DT  DDR43C
182          DI       0      50     100     119     300     500     600     800     900
183          DQ       0       0       0       0     119     119     119     119     119
             *
             * DDM   ***** Preserved *****

184          KK   RS51C
185          KM    ROUTE SPLIT FLOW FROM SUB-BASIN DR43C TO COMPUTATION POINT CS51C
186          KM    CROSS-SECTION REVISED TO REFLECT DEVELOPED CONDITION.
187          RS       4    ELEV      -1
188          RC   0.035   0.035   0.035    6000  0.0026
189          RX       0      40      60      74      99     113     133     153
190          RY    1041    1040    1039    1032    1032    1039    1040    1041
             *
             * DDM   ***** Updated *****

191          KK   SM51C
192          KM   SUB-BASIN SM51C
193          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
194          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
195          KM     L = 1.29  Kb = .045  Adj. Slope =   12.0
196          BA    .511
197          LG    .290    .250   5.200    .290  17.000
198          UC   1.054    .705
199          UA       0       5      16      30      65      77      84      90      94      97
200          UA     100
             *
             * DDM   ***** Preserved *****
                                        HEC-1 INPUT                                          PAGE  6

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

201          KK   SM51R
202          KM   DIVERT RETENTION VOLUME
203          DT  RET51C    23.0
204          DI       0    1000   10000
205          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****

206          KK   CS51C
207          KM   COMBINE ROUTED FLOW FROM SUB-BASIN DR43C TO RUNOFF FROM SUB-BASIN SM51C
208          HC       2
             *
             * DDM   ***** Preserved *****

209          KK  RB2591
210          KM   ROUTE FLOW FROM COMPUTATION POINT CS51C TO COMPUTATION POINT CB259C
211          KM   FIRST REACH
212          KM   CROSS-SECTION REVISED TO REFLECT DEVELOPED CONDITIONS
213          RS       3    ELEV      -1
214          RC   0.035   0.035   0.035    4200  0.0036
215          RX       0      40      60      65      75      80     100     140
216          RY    1030    1029    1028    1025    1025    1028    1029    1030
             *
             * RC  0.07    0.07    0.07    4200  0.0036
             * RX     0     612    1085    1155    1595    1670    1765    2130
             * RY1029.6    1029    1028  1027.5  1027.5    1028    1028  1029.6
             *
             * DDM   ***** Preserved *****

217          KK  RB2592
218          KM   ROUTE FLOW FROM COMPUTATION POINT CS51C TO COMPUTATION POINT CB259C
219          KM   2ND REACH
220          KM   CROSS-SECTION REVISED TO REFLECT DEVELOPED CONDITIONS
221          RS       3    ELEV      -1
222          RC   0.035   0.035   0.035    3000  0.0063
223          RX       0      40      60      65      75      80     100     140
224          RY    1006    1005    1004    1001    1001    1004    1005    1006
             *
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                 * RC  0.07    0.07    0.07    3000  0.0063
                 * RX     0      50     140     335    1120    1770    1825    1870
                 * RY  1006    1004    1003    1002    1001    1001    1002  1002.5
                 *
                 * DDM   ***** Updated *****

 225             KK  BR259C
 226             KM   SUB-BASIN BR259C
 227             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 228             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 229             KM     L = 1.90  Kb = .037  Adj. Slope =   19.0
 230             BA   1.012
 231             LG    .230    .250   4.800    .360  33.000
 232             UC    .954    .583
 233             UA       0       5      16      30      65      77      84      90      94      97
 234             UA     100
                 *
                 * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE  7

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

 235             KK  BR259R
 236             KM   DIVERT RETENTION VOLUME
 237             KM   RELAXED RETENTION VOLUME FROM 68.3 AC-FT.
 238             DT  RET259    67.0
 239             DI       0    1000   10000
 240             DQ       0    1000   10000
                 *
                 * DDM   ***** Preserved *****

 241             KK  CB259A
 242             KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CDR59C TO PREVIOUSLY
 243             KM   COMPUTED FLOW AT COMPUTATION POINT CB1592
 244             HC       2
                 *
                 * DDM   ***** Preserved *****

 245             KK  DR43CR
 246             KM   RETRIEVE DIVERTED HYDROGRAPH FROM 43RD AVE & DOBBINS
 247             DR  DDR43C
                 *
                 * DDM   ***** Preserved *****

 248             KK  ROA51A
 249             KM   ROUTE SPLIT FLOW WEST (1ST REACH)
 250             RS       2    ELEV      -1
 251             RC    .035    .035    .035    2790   .0042
 252             RX       0      40      60      74      99     113     133     153
 253             RY    1025    1024    1023    1016    1016    1023    1024    1025
                 *
                 * DDM   ***** Preserved *****

 254             KK  ROA51B
 255             KM   ROUTE FLOWS SOUTH ALONG 51ST AVE
 256             KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
 257             RS       2    ELEV      -1
 258             RC    .035    .035    .035    3600   .0017
 259             RX       0      40      60      74      99     113     133     153
 260             RY    1013    1012    1011    1004    1004    1011    1012    1013
                 *
                 * DDM   ***** Updated *****

 261             KK   OA51B
 262             KM   SUB-BASIN OA51B
 263             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 264             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 265             KM     L = 1.26  Kb = .036  Adj. Slope =  254.0
 266             BA   1.385
 267             LG    .270    .270   6.000    .200  30.000
 268             UC    .233    .074
 269             UA       0       5      16      30      65      77      84      90      94      97
 270             UA     100
                 *
                 * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE  8

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

 271             KK   OA51R
 272             KM   DIVERT RETENTION VOLUME
 273             DT   RET51    80.9
 274             DI       0    1000   10000
 275             DQ       0    1000   10000
                 *
                 * DDM   ***** Preserved *****

 276             KK  CO151B
 277             KM   COMBINE ROUTED SPLIT FLOW FROM SUB-BASIN DR43C TO RUNOFF FROM SUB-BASIN
 278             KM   OA51B
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 279          HC       2
              *
              * DDM   ***** Preserved *****

 280          KK  DO155C
 281          KM    RATE CHANNEL CROSS-SECTION AT CONCENTRATION POINT OA51B FOR SPLIT FLOW
 282          KM    DIVERTED FLOW GOES TO HIDDEN VALLEY WATERSHED
 283          DT  DFO51B
 284          DI       0       8      24      93     219     461     852    1384
 285          DQ       0       4      13      50     117     199     373     649
              *
              * DDM   ***** Preserved *****

 286          KK   RO55C
 287          KM   ROUTE SPLIT FLOW FROM SUB-BASIN OA51B ( HIDDEN VALLEY WATERSHED ) TO
 288          KM   COMPUTATION POINT CPO55C
 289          KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
 290          RS       2    ELEV      -1
 291          RC   0.035   0.025   0.035    2600  0.0014
 292          RX       0      40      60      72      97     109     129     149
 293          RY    1034    1033    1032    1026    1026    1032    1033    1034
              *
              * DDM   ***** Updated *****

 294          KK   OA55C
 295          KM   SUB-BASIN OA55C
 296          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 297          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 298          KM     L =  .96  Kb = .049  Adj. Slope =    3.0
 299          BA    .246
 300          LG    .290    .250   4.800    .360  19.000
 301          UC   1.500   1.249
 302          UA       0       5      16      30      65      77      84      90      94      97
 303          UA     100
              *
              * DDM   ***** Preserved *****

 304          KK   OA55R
 305          KM   DIVERT RETENTION VOLUME
 306          DT  RET55C     2.4
 307          DI       0    1000   10000
 308          DQ       0    1000   10000
              *
              * DDM   ***** Preserved *****
                                        HEC-1 INPUT                                          PAGE  9

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

 309          KK  CPO55C
 310          KM    COMBINE ROUTED DIVERTED FLOW FROM SUB-BASIN OA51B TO RUNOFF FROM SUB-
 311          KM    BASIN OA55C
 312          HC       2
              *
              * DDM   ***** Preserved *****

 313          KK   RD57C
 314          KM   ROUTE FLOW FROM COMPUTATION POINT CPO55C TO COMPUTAION CDR57C
 315          KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
 316          RS       2    ELEV      -1
 317          RC   0.035   0.035   0.035    2920   0.001
 318          RX       0      40      60      72      97     109     129     149
 319          RY    1030    1029    1028    1022    1022    1028    1029    1030
              *
              *
              * DDM   ***** Updated *****

 320          KK   DR57C
 321          KM   SUB-BASIN DR57C
 322          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 323          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 324          KM     L =  .71  Kb = .054  Adj. Slope =    3.0
 325          BA    .118
 326          LG    .300    .250   4.800    .360  15.000
 327          UC   1.500   1.492
 328          UA       0       5      16      30      65      77      84      90      94      97
 329          UA     100
              *
              * DDM   ***** Preserved *****

 330          KK   DR57R
 331          KM   DIVERT RETENTION VOLUME
 332          DT   RET27    12.8
 333          DI       0    1000   10000
 334          DQ       0    1000   10000
              *
              * DDM   ***** Preserved *****

 335          KK  CDR57C
 336          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CPO55C TO RUNOFF FROM SUB-BASIN
 337          KM   DR57C
 338          HC       2
```

```
                 *
                 * DDM    ***** Preserved *****

 339             KK   RD59C
 340             KM   ROUTE FLOW FROM COMPUTATION POINT CDR57C TO COMPUTATION POINT CDR59C
 341             KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
 342             RS       1    ELEV      -1
 343             RC   0.035   0.035   0.035    1200  0.0025
 344             RX       0      40      60      72      97     109     129     149
 345             RY    1026    1025    1024    1019    1019    1024    1025    1026
                 *
                 * DDM    ***** Updated *****
1                                          HEC-1 INPUT                                                    PAGE 10

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

 346             KK   DR59C
 347             KM   SUB-BASIN DR59C
 348             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 349             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 350             KM     L =  .69  Kb = .048  Adj. Slope =    7.0
 351             BA    .117
 352             LG    .230    .250   4.800    .370  37.000
 353             UC   1.554   1.524
 354             UA       0       5      16      30      65      77      84      90      94      97
 355             UA     100
                 *
                 * DDM    ***** Preserved *****

 356             KK   DR59R
 357             KM   DIVERT RETENTION VOLUME
 358             DT  RET59C    10.4
 359             DI       0    1000   10000
 360             DQ       0    1000   10000
                 *
                 * DDM    ***** Preserved *****

 361             KK  CDR59C
 362             KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CDR57C TO RUNOFF FROM SUB-BASIN
 363             KM   DR59C
 364             HC       2
                 *
                 * DDM    ***** Preserved *****

 365             KK   RB259
 366             KM   ROUTE FLOW FROM COMPUTATION POINT CDR59C TO COMPUTATION POINT CB259C
 367             KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
 368             KM   REVISED SLOPW FROM .0046 TO REFLECT A VELOCITY OF LESS THAN 4 FT/SEC
 369             KM
 370             RS       2    ELEV      -1
 371             RC   0.035   0.02   0.035    5280  0.0015
 372             RX       0      40      60      72      97     109     129     149
 373             RY    1024    1023    1022    1016    1016    1022    1023    1024
                 *
                 * DDM    ***** Preserved *****

 374             KK  CB259S
 375             KM   COMBINE FLOWS FROM THE SOUTH AT 59TH AVENUE
 376             HC       2
                 *
                 * DDM    ***** Preserved *****

 377             KK   CB259
 378             KM   COMBINE NORTH AND SOUTH FLOWS
 379             HC       2
                 *
                 * DDM    ***** Preserved *****
                                           HEC-1 INPUT                                                    PAGE 11

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

 380             KK  RBR163
 381             KM   ROUTE FLOW FROM COMPUTATION POINT CB1591 TO COMPUTATION POINT CB163C
 382             KM   MARICOPA DRAIN FROM 59TH AVE. TO 63RD AVE.
 383             KM   ADJUST THE SLOPE FROM .0011 TO REFLECT A VELOCITY OF LESS THAN 5 FT/SEC
 384             RS       2    ELEV      -1
 385             RC    .030    .030    .030    2640    .0009
 386             RX       0      10      20      45     135     160     170     180
 387             RY   997.8   997.7   997.6   992.6   992.6   997.6   997.7   997.8
                 *
                 * DDM    ***** Updated *****

 388             KK  BR263C
 389             KM   SUB-BASIN BR263C
 390             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 391             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 392             KM     L = 1.45  Kb = .057  Adj. Slope =   19.0
 393             BA    .494
 394             LG    .110    .250   4.700    .480  38.000
 395             UC   1.104    .831
```

```
396          UA       0       5      16      30      65      77      84      90      94      97
397          UA     100
             *
             * DDM   ***** Preserved *****

398          KK  BR263R
399          KM   DIVERT RETENTION VOLUME
400          KM   RELAXED RETENTION VOLUME FROM 32.0 AC-FT.
401          DT  RET263    29.3
402          DI       0    1000   10000
403          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****

404          KK     63S
405          KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CB159C WITH RUNOFF FROM SUB-BASINS
406          KM   BR163C AND BR263C AND ROUTED FLOW FROM COMPUTATION POINT  CB259C
407          HC       2
             *
             * DDM   ***** Updated *****

408          KK  BR163C
409          KM   SUB-BASIN BR163C
410          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
411          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
412          KM     L =  .91  Kb = .040  Adj. Slope =    9.0
413          BA    .255
414          LG    .220    .250   5.400    .240  21.000
415          UC    .808    .590
416          UA       0       5      16      30      65      77      84      90      94      97
417          UA     100
             *
             * DDM   ***** Preserved *****
                                        HEC-1 INPUT                                          PAGE 12

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

418          KK  BR163R
419          KM   DIVERT RETENTION VOLUME
420          DT  RET163     6.6
421          DI       0    1000   10000
422          DQ       0    1000   10000
             *
             * DDM   ***** Preserved *****

423          KK   CB163
424          KM   COMBINE FLOWS ON THE SOUTH SIDE OF BASELINE
425          HC       2
             *
             * DDM   ***** Preserved *****

426          KK   RCD1C
427          KM   ROUTE FLOW FROM COMPUTATION POINT CB163C TO COMPUTATION POINT CPCD1C
428          KM   MARICOPA DRAIN FROM 63RD AVE TO 67TH AVE.
429          RS       2    ELEV      -1
430          RC    .030    .030    .030    2640   .0011
431          RX       0      10      20      45     135     160     170     180
432          RY   996.2   996.1     996     991     991     996   996.1   996.2
             *
             * DDM   ***** Updated *****

433          KK   BR67C
434          KM   SUB-BASIN BR67C
435          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
436          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
437          KM     L =  .79  Kb = .054  Adj. Slope =    5.0
438          BA    .127
439          LG    .300    .150   7.000    .140  15.000
440          UC   1.163   1.174
441          UA       0       5      16      30      65      77      84      90      94      97
442          UA     100
             *
             * DDM   ***** Preserved *****

443          KK  RCD1C2
444          KM    ROUTE FLOW FROM SUBASIN BR67C TO COMPUTATION POINT CPCD1C
445          KM   CROSS-SECTION WAS REVISED TO REFLECT URBANIZED CONDITIONS
446          RS       1    ELEV      -1
447          RC   0.035   0.035   0.035    2100  0.0014
448          RX       0      40      60      65      75      80     100     140
449          RY     994     993     992     989     989     992     993     994
             *
             * DDM   ***** Updated *****

450          KK    CD1C
451          KM   SUB-BASIN CD1C
452          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
453          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
454          KM     L =  .90  Kb = .049  Adj. Slope =   27.0
455          BA    .464
456          LG    .190    .250   4.700    .410  30.000
```

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

 457          UC     .583     .290
 458          UA        0        5       16       30       65       77       84       90       94       97
 459          UA      100
              *
              * DDM    ***** Preserved *****

 460          KK     CD1R
 461          KM    DIVERT RETENTION VOLUME
 462          DT    RET1C     32.0
 463          DI        0     1000    10000
 464          DQ        0     1000    10000
              *
              * DDM    ***** Preserved *****

 465          KK   CPCD1C
 466          KM     COMBINE ROUTED FLOWS FROM COMPUTATION POINT CB163C AND SUB-BASIN BR67C
 467          KM     WITH RUNOFF FROM SUB-BASIN CD1C
 468          HC        3
              *
              * DDM    ***** Preserved *****

 469          KK   RCD2C1
 470          KM     ROUTE FLOW FROM COMPUTATION POINT CPCD1C TO COMPUTATION POINT CIRSMC
 471          KM     MARIOCPA DRAIN FROM 67TH AVE TO 75TH AVE.
 472          KM     ADJUST SLOPE FROM .0011 TO REFLECT A VELOCITY OF LESS THAN 5 FT/SEC
 473          RS        3     ELEV      -1
 474          RC     .030     .030     .030     3600    .0007
 475          RX        0       10       20       45      155      180      190      200
 476          RY    990.2    990.1      990      985      985      990    990.1    990.2
              *
              * DDM    ***** Preserved *****

 477          KK   DFO51B
 478          KM    RETRIEVE DIVERTED HYDROGRAPH FROM OLNEY RD & 51ST AVE
 479          DR   DFO51B
              *
              * DDM    ***** Preserved *****

 480          KK    RE55B
 481          KM    ROUTE HYDROGRAPH TO CR355B (ELLIOT & 55TH AVE.)
 482          KM    ROUTE REVISED TO REFLECT URBANIZED CONDITIONS
 483          RS        3     ELEV      -1
 484          RC     .035     .020     .035     3840    .0013
 485          RX        0       30       50       64      74       83      103      123
 486          RY     1032     1030     1029     1024     1024     1029     1030     1032
              *
              * DDM    ***** Updated *****

 487          KK    ER55B
 488          KM    SUB-BASIN ER55B
 489          KM    24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 490          KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 491          KM      L =  .79  Kb = .050  Adj. Slope =    8.0
 492          BA     .256
 493          LG     .260     .260    6.000     .210  27.000
```



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

 494          UC     .908     .599
 495          UA        0        5       16       30       65       77       84       90       94       97
 496          UA      100
              *
              * DDM    ***** Preserved *****

 497          KK    ER55R
 498          KM    DIVERT RETENTION VOLUME
 499          DT    RET55     19.2
 500          DI        0     1000    10000
 501          DQ        0     1000    10000
              *
              * DDM    ***** Preserved *****

 502          KK   CER55B
 503          KM    COMBINE ROUTED DIVERTED FLOW FROM SUB-BASIN OA51B TO RUNOFF FROM ER55B
 504          HC        2
              *
              * DDM    ***** Preserved *****

 505          KK    RE59B
 506          KM    ROUTE FLOWS FROM CONCENTRATION POINT CRE55B TO CP CER59B
 507          KM    ROUTING REVISED TO REFLECT URBANIZED CONDITIONS
 508          RS        2     ELEV      -1
 509          RC     .035     .035     .035     2600     .002
 510          RX        0       30       50       55       65       70       90      120
 511          RY     1026     1024     1023     1020     1020     1023     1024     1026
              *
              * DDM    ***** Updated *****
```

```
 512          KK   ER59B
 513          KM   SUB-BASIN ER59B
 514          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 515          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 516          KM     L =  .95  Kb = .030  Adj. Slope =    8.0
 517          BA    .259
 518          LG    .130    .250   5.000    .370  71.000
 519          UC    .671    .492
 520          UA       0       5      16      30      65      77      84      90      94      97
 521          UA     100
              *
              * DDM   ***** Preserved *****

 522          KK   ER59R
 523          KM   DIVERT RETENTION VOLUME
 524          DT   RET59    23.2
 525          DI       0    1000   10000
 526          DQ       0    1000   10000
              *
              * DDM   ***** Preserved *****
                                        HEC-1 INPUT                                          PAGE 15

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

 527          KK  CER59B
 528          KM   COMBINE ROUTED FLOW FROM CP CRE55B TO RUNOFF FROM SUBBASIN ER59B
 529          HC       2
              *
              *
              * DDM   ***** Updated *****

 530          KK  RIR63B
 531          KM   CP CIR63B IS LOCATED ON THE WESTERN EDGE OF THE STUDY AREA WHICH IS BOUNDED
 532          KM   BY A CONCRETE IRRIGATION CANAL AND EARTHEN ROADWAY.  THE IRRIGATION CANAL IS
 533          KM   OVERTOPPED AND FLOW CONTINUES ITS NATURAL FLOW PATH TO THE WEST.  THE
 534          KM   FLOW IS APPROXIMATELY 45 CFS SOUTH TO MARICOPA DRAIN.
 535          DT  DIR63B
 536          DI       0      45     100     200     400     600     800
 537          DQ       0       0      55     155     355     555     755
              *
              * DDM   ***** Updated *****

 538          KK   IR63B
 539          KM   SUB-BASIN IR63B
 540          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 541          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 542          KM     L =  .82  Kb = .034  Adj. Slope =   11.0
 543          BA    .124
 544          LG    .130    .250   4.800    .400  71.000
 545          UC    .575    .561
 546          UA       0       5      16      30      65      77      84      90      94      97
 547          UA     100
              *
              * DDM   ***** Preserved *****

 548          KK    IR63
 549          KM   DIVERT RETENTION VOLUME
 550          DT   RET63    11.2
 551          DI       0    1000   10000
 552          DQ       0    1000   10000
              *
              * DDM   ***** Preserved *****

 553          KK  CIR63B
 554          KM   COMBINE ROUTED FLOW FROM CP CER59B AND RUNOFF OF SUB-BASINS IR63B & IR62B
 555          HC       2
              *
              * DDM   ***** Preserved *****

 556          KK  RIR65C
 557          KM    ROUTE RETRIEVED FLOW FROM SUB-BASIN IR63B TO COMPUTATION POINT CIR65C
 558          KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
 559          RS       7    ELEV      -1
 560          RC   0.030   0.030   0.030    3300  0.0010
 561          RX       0       1      11      21      26      31      41      46
 562          RY       6       5       4       1       1       4       5       6
              *
              * DDM   ***** Updated *****
                                        HEC-1 INPUT                                          PAGE 16

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

 563          KK   IR65C
 564          KM   SUB-BASIN IR65C
 565          KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 566          KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 567          KM     L =  .84  Kb = .052  Adj. Slope =   13.0
 568          BA    .170
 569          LG    .280    .250   4.800    .360  21.000
```

```
570          UC     .829     .718
571          UA        0        5       16       30       65       77       84       90       94       97
572          UA      100
             *
             * DDM    ***** Preserved *****

573          KK    IR65R
574          KM    DIVERT RETENTION VOLUME
575          DT   RET65C     14.4
576          DI        0     1000    10000
577          DQ        0     1000    10000
             *
             * DDM    ***** Preserved *****

578          KK   CIR65C
579          KM    COMBINE RETRIEVED ROUTED FLOW FROM SUB-BASIN IR63B TO RUNOFF FROM SUB-BASIN
580          KM    IR65C
581          HC        2
             *
             * DDM    ***** Preserved *****

582          KK    RIRDC
583          KM    ROUTE FLOW FROM COMPUTATION POINT CIR65C TO COMPUTATION POINT CIRDC
584          KM    CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
585          RS        2     ELEV       -1
586          RC     0.03     0.03     0.03     3200  0.0018
587          RX        0        1       10       20       30       40       50       51
588          RY   1014.5     1014     1013     1010     1010     1013     1014   1014.5
             *
             * DDM    ***** Preserved *****

589          KK   DIIRDC
590          KM     ROUTED FLOW FROM COMPUTATION POINT CIR65C IS SPLIT AT COMPUTATION POINT
591          KM     CIRDC
592          DT   RIR65C
593          DI        0       16       34       51       71       80      100      120      150
594          DQ        0       16       25       32       40       49       69       89      119
             *
             * DDM    ***** Updated *****

595          KK     IRDC
596          KM    SUB-BASIN IRDC
597          KM    24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
598          KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
599          KM      L = 1.47  Kb = .038  Adj. Slope =   12.0
600          BA     .525
601          LG     .190     .250    4.800     .370  51.000
1                                              HEC-1 INPUT                                                    PAGE 17

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

602          UC     .958     .694
603          UA        0        5       16       30       65       77       84       90       94       97
604          UA      100
             *
             * DDM    ***** Preserved *****

605          KK     IRDR
606          KM    DIVERT RETENTION VOLUME
607          DT   RETRDC     43.2
608          DI        0     1000    10000
609          DQ        0     1000    10000
             *
             * DDM    ***** Preserved *****

610          KK    CIRDC
611          KM     COMBINE ROUTED FLOW FROM COMPUTATION POINT CIR65C TO RUNOFF FROM SUB-BASIN
612          KM     IRDC
613          HC        2
             *
             * DDM    ***** Preserved *****

614          KK   RIRSMC
615          KM     ROUTE FLOW COMPUTATION POINT CIRDC TO COMPUTATION POINT CIRSMC
616          KM    CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
617          RS        3     ELEV       -1
618          RC    0.035    0.035    0.035     3400  0.0058
619          RX        0       40       60       70       80       90      110      150
620          RY     1006     1005     1004      999      999     1004     1005     1006
             *
             * DDM    ***** Updated *****

621          KK    IRSMC
622          KM    SUB-BASIN IRSMC
623          KM    24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
624          KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
625          KM      L =  .88  Kb = .043  Adj. Slope =   32.0
626          BA     .241
627          LG     .210     .250    4.500     .430  34.000
628          UC     .479     .332
629          UA        0        5       16       30       65       77       84       90       94       97
630          UA      100
```

```
                *
                * DDM    ***** Preserved *****

 631            KK    IRSMR
 632            KM    DIVERT RETENTION VOLUME
 633            KM    RELAXED RETENTION VOLUME FROM 20.0 AC-FT
 634            DT   RETSMC     19.1
 635            DI        0     1000    10000
 636            DQ        0     1000    10000
                *
                * DDM    ***** Preserved *****
                                          HEC-1 INPUT                                                    PAGE 18

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

 637            KK   CIRSMS
 638            KM
 639            HC        2
                *
                * DDM    ***** Preserved *****

 640            KK   CIRSMC
 641            KM    COMBINE FLOWS IN MARICOPA DRAIN JUST WEST OF 75TH AVE
 642            HC        2
                *
                * DDM    ***** Updated *****

 643            KK     CD2C
 644            KM    SUB-BASIN CD2C
 645            KM    24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 646            KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 647            KM      L = 1.57  Kb = .043  Adj. Slope =     4.0
 648            BA     .598
 649            LG     .240     .150    8.400     .090  31.000
 650            UC    1.500    1.116
 651            UA        0        5       16       30       65       77       84       90       94       97
 652            UA      100
                *
                * DDM    ***** Preserved *****

 653            KK     CD2R
 654            KM    DIVERT RETENTION VOLUME
 655            KM    RELAXED RETENTION VOLUME FROM 44.8 AC-FT.
 656            DT    RET2C     39.7
 657            DI        0     1000    10000
 658            DQ        0     1000    10000
                *
                *
                * DDM    ***** Preserved *****

 659            KK    CCD2C
 660            KM    COMBINE FLOW FROM CD2C AND MARIOCPA DRAIN
 661            KM    MARICOPA DRAIN AT 1000 FT EAST OF 75TH AVE AND SOUTH MOUNTAIN AVE. (1/2 MILE
 662            KM    BETWEEN DOBBINS AND BASELINE ROADS.)
 663            HC        2
                *
                * DDM    ***** Preserved *****

 664            KK   RCD3C1
 665            KM     MARICOPA DRAIN FROM JUST EAST OF 75TH AVE ALONG POWERLINE RD (INDIAN
 666            KM     RESERVATION BOUNDARY).
 667            KM     ADJUST SLOPE FROM .0011 TO REFLECT A VELOCITY OF LESS THAN 5 FT/SEC
 668            RS        2     ELEV      -1
 669            RC     .030     .030     .030     3700    .0007
 670            RX        0       10       20       45      165      190      200      210
 671            RY    986.2    986.1      986      981      981      986    986.1    986.2
                *
                * DDM    ***** Updated *****
                                          HEC-1 INPUT                                                    PAGE 19

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

 672            KK    A67AC
 673            KM    SUB-BASIN A67AC
 674            KM    24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 675            KM    THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 676            KM      L = 1.65  Kb = .042  Adj. Slope =     7.0
 677            BA     .618
 678            LG     .250     .250    5.100     .320  34.000
 679            UC    1.500    1.140
 680            UA        0        5       16       30       65       77       84       90       94       97
 681            UA      100
                *
                * DDM    ***** Preserved *****

 682            KK    A67AR
 683            KM    DIVERT RETENTION VOLUME
 684            DT   RET67A     38.4
 685            DI        0     1000    10000
 686            DQ        0     1000    10000
```

```
                 *
                 * DDM    ***** Preserved *****

 687             KK  RCD4C1
 688             KM   ROUTE FLOW FROM SUB-BASIN 67AC CPCD4C TO COMPUTATION POINT CPCD4C
 689             KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
 690             RS       2    ELEV      -1
 691             RC   0.035   0.035   0.035    2600  0.0024
 692             RX       0      40      50      55      60      65      70     110
 693             RY     988     987     986     983     983     986     987     988
                 *
                 * DDM    ***** Updated *****

 694             KK    CD4C
 695             KM   SUB-BASIN CD4C
 696             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 697             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 698             KM     L =  .64  Kb = .051  Adj. Slope =    9.0
 699             BA    .190
 700             LG    .250    .250   4.900    .350  29.000
 701             UC    .771    .500
 702             UA       0       5      16      30      65      77      84      90      94      97
 703             UA     100
                 *
                 * DDM    ***** Preserved *****

 704             KK    CD4R
 705             KM   DIVERT RETENTION VOLUME
 706             DT  RETD4C    13.6
 707             DI       0    1000   10000
 708             DQ       0    1000   10000
                 *
                 * DDM    ***** Preserved *****
                                          HEC-1 INPUT                                                    PAGE 20

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

 709             KK  CPCD4C
 710             KM    COMBINE ROUTED FLOW FROM SUB-BASIN 67AC TO RUNOFF FROM SUB-BASIN CD4C
 711             HC       2
                 *
                 * DDM    ***** Preserved *****

 712             KK  RCD3C2
 713             KM   ROUTE FLOW FROM COMPUTATION POINT CPCD4C TO COMPUTATION POINT CPCD3C
 714             KM   CROSS-SECTION REVISED TO REFLECT URBANIZED CONDITIONS
 715             RS       3    ELEV      -1
 716             RC   0.035   0.035   0.035    5200  0.0024
 717             RX       0      40      50      55      60      65      70     110
 718             RY     988     987     986     983     983     986     987     988
                 *
                 * DDM    ***** Updated *****

 719             KK    CD3C
 720             KM   SUB-BASIN CD3C
 721             KM   24-HOUR SCS TYPE II RAINFALL WAS USED TO FIND TC & R FOR THIS BASIN
 722             KM   THIS BASIN USED RAINFALL REDUCTION FACTOR OF  .934
 723             KM     L = 1.15  Kb = .044  Adj. Slope =   10.0
 724             BA    .480
 725             LG    .240    .150   7.000    .140  33.000
 726             UC    .929    .579
 727             UA       0       5      16      30      65      77      84      90      94      97
 728             UA     100
                 *
                 * DDM    ***** Preserved *****

 729             KK    CD3R
 730             KM   DIVERT RETENTION VOLUME
 731             KM   RELAXED RETENTION VOLUME FROM 35.2 AC-FT.
 732             DT  RETD3C    32.6
 733             DI       0    1000   10000
 734             DQ       0    1000   10000
                 *
                 * DDM    ***** Preserved *****

 735             KK  CPCD3C
 736             KM   COMBINE ROUTED FLOW FROM COMPUTATION POINT CPCD4C, ROUTED FLOW FROM DIVERSION
 737             KM   POINT AT BASELINE ROAD WITH RUNOFF FROM SUB-BASIN CD3C
 738             HC       3
 739             ZZ

          SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

   16      VR47C
              .
              .
   43         .-------> RET47C
```

```
 40      VR47R
             V
             V
 46     RBR511
             .
             .
 53          .      AVR51C
             .           .
             .           .
 65          .           .-------> RET51C
 63          .      AVR51R
             .           V
             .           V
 68          .      RBR512
             .           .
             .           .
 75          .           .       BR51C
             .           .           .
             .           .           .
 88          .           .           .-------> RET159
 85          .           .       BR51R
             .           .           .
             .           .           .
 91      CB51C.......................
             V
             V
 95     RB1591
             .
             .
102          .      AVR55C
             .           .
             .           .
114          .           .-------> RET55C
112          .      AVR55R
             .           V
             .           V
117          .      RB1592
             .           .
             .           .
124          .           .      BR159C
             .           .           .
             .           .           .
137          .           .           .-------> RET159
134          .           .      BR159R
             .           .           .
             .           .           .
140          .           .           .       VR59C
             .           .           .           V
             .           .           .           V
150          .           .           .      RB1593
             .           .           .           .
             .           .           .           .
157     CB159N.................................
             .
             .
162          .       DR43C
             .           .
             .           .
174          .           .-------> RET43C
172          .       DR43R
             .           .
             .           .
181          .           .-------> DDR43C
177          .      RDR43C
             .           V
             .           V
184          .       RS51C
             .           .
             .           .
191          .           .       SM51C
             .           .           .
             .           .           .
203          .           .           .-------> RET51C
201          .           .       SM51R
             .           .           .
             .           .           .
206          .       CS51C............
             .           V
             .           V
209          .      RB2591
             .           V
             .           V
217          .      RB2592
             .           .
             .           .
225          .           .      BR259C
             .           .           .
             .           .           .
238          .           .           .-------> RET259
235          .           .      BR259R
             .           .           .
             .           .           .
```

```
241          .      CB259A............
             .           .
             .           .
247          .           .          .<-------  DDR43C
245          .           .      DR43CR
             .           .           V
             .           .           V
248          .           .      ROA51A
             .           .           V
             .           .           V
254          .           .      ROA51B
             .           .           .
             .           .           .
261          .           .           .       OA51B
             .           .           .           .
             .           .           .           .
273          .           .           .           .-------->   RET51
271          .           .           .       OA51R
             .           .           .           .
             .           .           .           .
276          .           .      CO151B............
             .           .           .
             .           .           .
283          .           .           .-------->  DFO51B
280          .           .      DO155C
             .           .           V
             .           .           V
286          .           .       RO55C
             .           .           .
             .           .           .
294          .           .           .       OA55C
             .           .           .           .
             .           .           .           .
306          .           .           .           .-------->  RET55C
304          .           .           .       OA55R
             .           .           .           .
             .           .           .           .
309          .           .      CPO55C............
             .           .           V
             .           .           V
313          .           .       RD57C
             .           .           .
             .           .           .
320          .           .           .       DR57C
             .           .           .           .
             .           .           .           .
332          .           .           .           .-------->   RET27
330          .           .           .       DR57R
             .           .           .           .
             .           .           .           .
335          .           .      CDR57C............
             .           .           V
             .           .           V
339          .           .       RD59C
             .           .           .
             .           .           .
346          .           .           .       DR59C
             .           .           .           .
             .           .           .           .
358          .           .           .           .-------->  RET59C
356          .           .           .       DR59R
             .           .           .           .
             .           .           .           .
361          .           .      CDR59C............
             .           .           V
             .           .           V
365          .           .       RB259
             .           .           .
             .           .           .
374          .      CB259S............
             .           .
             .           .
377       CB259............
             V
             V
380      RBR163
             .
             .
388          .      BR263C
             .           .
             .           .
401          .           .-------->  RET263
398          .      BR263R
             .           .
             .           .
404        63S............
             .
             .
408          .      BR163C
             .           .
             .           .
420          .           .-------->  RET163
```

```
418          .      BR163R
             .          .
             .          .
423      CB163............
             V
             V
426      RCD1C
             .
             .
433          .       BR67C
             .          V
             .          V
443          .      RCD1C2
             .          .
             .          .
450          .          .        CD1C
             .          .          .
             .          .          .
462          .          .          .-------->   RET1C
460          .          .        CD1R
             .          .          .
             .          .          .
465     CPCD1C........................
             V
             V
469     RCD2C1
             .
             .
479          .          .<-------  DFO51B
477          .      DFO51B
             .          V
             .          V
480          .       RE55B
             .          .
             .          .
487          .          .       ER55B
             .          .          .
             .          .          .
499          .          .          .-------->   RET55
497          .          .       ER55R
             .          .          .
             .          .          .
502          .      CER55B............
             .          V
             .          V
505          .       RE59B
             .          .
             .          .
512          .          .       ER59B
             .          .          .
             .          .          .
524          .          .          .-------->   RET59
522          .          .       ER59R
             .          .          .
             .          .          .
527          .      CER59B............
             .          .
             .          .
535          .          .-------->  DIR63B
530          .      RIR63B
             .          .
             .          .
538          .          .       IR63B
             .          .          .
             .          .          .
550          .          .          .-------->   RET63
548          .          .        IR63
             .          .          .
             .          .          .
553          .      CIR63B............
             .          V
             .          V
556          .      RIR65C
             .          .
             .          .
563          .          .       IR65C
             .          .          .
             .          .          .
575          .          .          .-------->  RET65C
573          .          .       IR65R
             .          .          .
             .          .          .
578          .      CIR65C............
             .          V
             .          V
582          .       RIRDC
             .          .
             .          .
592          .          .-------->  RIR65C
589          .      DIIRDC
             .          .
             .          .
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595          .           .        IRDC
             .           .           .
             .           .           .
607          .           .           .-------> RETRDC
605          .           .        IRDR
             .           .           .
             .           .           .
610          .       CIRDC............
             .           V
             .           V
614          .      RIRSMC
             .           .
             .           .
621          .           .       IRSMC
             .           .           .
             .           .           .
634          .           .           .-------> RETSMC
631          .           .       IRSMR
             .           .           .
             .           .           .
637          .      CIRSMS............
             .           .
             .           .
640     CIRSMC............
             .
             .
643          .        CD2C
             .           .
             .           .
656          .           .-------> RET2C
653          .        CD2R
             .           .
             .           .
659      CCD2C............
             V
             V
664     RCD3C1
             .
             .
672          .       A67AC
             .           .
             .           .
684          .           .-------> RET67A
682          .       A67AR
             .           V
             .           V
687          .      RCD4C1
             .           .
             .           .
694          .           .        CD4C
             .           .           .
             .           .           .
706          .           .           .-------> RETD4C
704          .           .        CD4R
             .           .           .
             .           .           .
709          .      CPCD4C............
             .           V
             .           V
712          .      RCD3C2
             .           .
             .           .
719          .           .        CD3C
             .           .           .
             .           .           .
732          .           .           .-------> RETD3C
729          .           .        CD3R
             .           .           .
             .           .           .
735     CPCD3C........................
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             MAY  1991                *
*           VERSION 4.0.1E             *
*     Lahey F77L-EM/32 version 5.01    *
*       Dodson & Associates, Inc.      *
*  RUN DATE  09/27/00  TIME  14:44:49  *
****************************************
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****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 551-1748             *
*                                      *
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LAVEEN ADMS (FINAL HEC-1) 100-YR 24-HR STORM CBA FILE # 40916-02-30
HIDDEN VALLEY WATERSHED/CHAMPION DRAIN WATERSHED
INPUT FILE NAME LAVFUT1A DATE: SEPT. 27,2000
24-HOUR SCS TYPE II
80% RETENTION VOLUME OF FUTURE RETENTION

```
                    RELAXED RETENTION 1/2 MILE OF MARICOPA DRAIN
                    MINUS FIRST FLUSH OF 5YR 24HR VOLUME

                    MULTIPLAN FOR ROUTING WITHIN THE CHAMPION DRAIN
                      PLAN 2: CHANNEL, S=.0020 ft/ft, n=.031, BW=14', SS=6:1, D=10', TW=124'

                    DDM MCUHP1 LAVEEN REVISED HYDROLOGY - FUTURE LANDUSE CONDITIONS

 15 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    0.08 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

WARNING --- ROUTED OUTFLOW (    827.) IS GREATER THAN MAXIMUM OUTFLOW (    767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    934.) IS GREATER THAN MAXIMUM OUTFLOW (    767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    902.) IS GREATER THAN MAXIMUM OUTFLOW (    767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    792.) IS GREATER THAN MAXIMUM OUTFLOW (    767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    848.) IS GREATER THAN MAXIMUM OUTFLOW (    767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    847.) IS GREATER THAN MAXIMUM OUTFLOW (    767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    774.) IS GREATER THAN MAXIMUM OUTFLOW (    767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    782.) IS GREATER THAN MAXIMUM OUTFLOW (    767.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    799.) IS GREATER THAN MAXIMUM OUTFLOW (    767.) IN STORAGE-OUTFLOW TABLE
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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	VR47C	460.	12.67	152.	45.	44.	0.87		
+	DIVERSION TO	RET47C	460.	14.25	127.	34.	33.	0.87		
	HYDROGRAPH AT	VR47R	157.	14.25	38.	11.	11.	0.87		
+	ROUTED TO	RBR511	97.	14.92	36.	11.	10.	0.87		
+									1003.89	14.92
	HYDROGRAPH AT	AVR51C	261.	12.33	55.	16.	16.	0.28		
	DIVERSION TO	RET51C	261.	13.00	41.	11.	10.	0.28		
	HYDROGRAPH AT	AVR51R	133.	13.00	19.	6.	5.	0.28		
	ROUTED TO	RBR512	82.	13.58	19.	5.	5.	0.28		
									1008.64	13.58
+	HYDROGRAPH AT	BR51C	432.	12.58	122.	37.	36.	0.70		
	DIVERSION TO	RET159	432.	13.58	94.	25.	25.	0.70		
+	HYDROGRAPH AT	BR51R	196.	13.58	40.	12.	11.	0.70		
	3 COMBINED AT	CB51C	278.	13.58	92.	28.	27.	1.85		
+	ROUTED TO	RB1591	159.	14.42	87.	26.	25.	1.85		
+									996.10	14.42
	HYDROGRAPH AT	AVR55C	152.	12.58	51.	15.	14.	0.24		
	DIVERSION TO	RET55C	152.	15.17	48.	13.	12.	0.24		
	HYDROGRAPH AT	AVR55R	23.	15.17	7.	2.	2.	0.24		
	ROUTED TO	RB1592	13.	16.25	6.	2.	2.	0.24		
									999.96	16.25
+	HYDROGRAPH AT	BR159C	300.	12.67	110.	33.	32.	0.68		
	DIVERSION TO	RET159	300.	13.67	73.	20.	19.	0.68		
+	HYDROGRAPH AT	BR159R	193.	13.67	48.	14.	13.	0.68		
	HYDROGRAPH AT	VR59C	117.	12.75	39.	10.	10.	0.23		
+	ROUTED TO	RB1593	114.	13.00	39.	10.	10.	0.23		
									1000.83	13.00
	4 COMBINED AT	CB159N	327.	14.25	169.	52.	50.	3.00		
	HYDROGRAPH AT	DR43C	1391.	12.17	176.	55.	53.	0.92		
	DIVERSION TO	RET43C	451.	12.17	45.	14.	14.	0.92		
	HYDROGRAPH AT	DR43R	1391.	12.17	150.	41.	39.	0.92		

+	DIVERSION TO	DDR43C	119.	12.17	18.	5.	4.	0.92		
	HYDROGRAPH AT	RDR43C	1272.	12.17	132.	36.	35.	0.92		
+	ROUTED TO	RS51C	1054.	12.42	129.	36.	35.	0.92		
+									1037.42	12.42
	HYDROGRAPH AT	SM51C	327.	12.42	79.	22.	22.	0.51		
+	DIVERSION TO	RET51C	327.	12.92	44.	12.	11.	0.51		
	HYDROGRAPH AT	SM51R	248.	12.92	40.	11.	10.	0.51		
+	2 COMBINED AT	CS51C	1054.	12.42	169.	47.	45.	1.43		
+	ROUTED TO	RB2591	799.	12.75	168.	46.	45.	1.43	1030.06	12.75
	ROUTED TO	RB2592	762.	12.92	167.	46.	45.	1.43	1005.60	12.92
+	HYDROGRAPH AT	BR259C	778.	12.42	180.	55.	53.	1.01		
	DIVERSION TO	RET259	778.	13.00	124.	34.	33.	1.01		
+	HYDROGRAPH AT	BR259R	456.	13.00	74.	21.	21.	1.01		
	2 COMBINED AT	CB259A	1194.	13.00	240.	68.	65.	2.44		
+	HYDROGRAPH AT	DR43CR	119.	12.00	18.	5.	4.	0.00		
+	ROUTED TO	ROA51A	119.	12.67	18.	5.	4.	0.00	1017.36	12.67
	ROUTED TO	ROA51B	105.	12.92	18.	5.	4.	0.00	1005.64	12.92
+	HYDROGRAPH AT	OA51B	3164.	12.00	257.	77.	74.	1.38		
	DIVERSION TO	RET51	2476.	12.08	149.	41.	39.	1.38		
+	HYDROGRAPH AT	OA51R	2857.	12.08	130.	36.	35.	1.38		
	2 COMBINED AT	CO151B	2858.	12.08	148.	41.	39.	1.38		
+	DIVERSION TO	DFO51B	1414.	12.08	74.	20.	20.	1.38		
	HYDROGRAPH AT	DO155C	1444.	12.08	74.	20.	20.	1.38		
+	ROUTED TO	RO55C	920.	12.25	74.	20.	20.	1.38	1030.96	12.25
	HYDROGRAPH AT	OA55C	97.	12.75	37.	11.	10.	0.25		
	DIVERSION TO	RET55C	27.	12.75	4.	1.	1.	0.25		
	HYDROGRAPH AT	OA55R	97.	12.75	36.	9.	9.	0.25		
	2 COMBINED AT	CPO55C	968.	12.25	109.	30.	29.	1.63		
+	ROUTED TO	RD57C	635.	12.42	107.	30.	28.	1.63	1027.34	12.42
	HYDROGRAPH AT									

	DR57C	40.	12.75	16.	5.	5.	0.12		
DIVERSION TO	RET27	40.	0.08	16.	5.	5.	0.12		
HYDROGRAPH AT	DR57R	0.	0.08	0.	0.	0.	0.12		
2 COMBINED AT	CDR57C	635.	12.42	107.	30.	28.	1.75		
ROUTED TO	RD59C	596.	12.50	107.	29.	28.	1.75	1022.93	12.50
HYDROGRAPH AT	DR59C	45.	12.83	21.	7.	6.	0.12		
DIVERSION TO	RET59C	45.	15.67	19.	5.	5.	0.12		
HYDROGRAPH AT	DR59R	13.	15.67	5.	1.	1.	0.12		
2 COMBINED AT	CDR59C	596.	12.50	110.	31.	30.	1.87		
ROUTED TO	RB259	444.	12.75	108.	30.	29.	1.87	1018.85	12.75
2 COMBINED AT	CB259S	1529.	13.00	348.	98.	94.	4.31		
2 COMBINED AT	CB259	1643.	13.00	516.	150.	145.	7.31		
ROUTED TO	RBR163	1499.	13.17	510.	149.	143.	7.31	996.64	13.17
HYDROGRAPH AT	BR263C	294.	12.50	89.	28.	27.	0.49		
DIVERSION TO	RET263	294.	13.08	53.	15.	14.	0.49		
HYDROGRAPH AT	BR263R	218.	13.08	47.	13.	13.	0.49		
2 COMBINED AT	63S	1701.	13.17	556.	162.	156.	7.81		
HYDROGRAPH AT	BR163C	208.	12.33	43.	12.	12.	0.25		
DIVERSION TO	RET163	163.	12.33	12.	3.	3.	0.25		
HYDROGRAPH AT	BR163R	208.	12.33	34.	9.	9.	0.25		
2 COMBINED AT	CB163	1782.	13.17	582.	171.	165.	8.06		
ROUTED TO	RCD1C	1698.	13.33	579.	169.	163.	8.06	995.10	13.33
HYDROGRAPH AT	BR67C	67.	12.67	23.	6.	6.	0.13		
ROUTED TO	RCD1C2	63.	12.92	23.	6.	6.	0.13	991.14	12.92
HYDROGRAPH AT	CD1C	552.	12.25	79.	24.	23.	0.46		
DIVERSION TO	RET1C	552.	12.58	60.	16.	16.	0.46		
HYDROGRAPH AT	CD1R	259.	12.58	27.	8.	8.	0.46		
3 COMBINED AT	CPCD1C	1804.	13.25	625.	183.	177.	8.65		
ROUTED TO	RCD2C1	1693.	13.58	616.	180.	174.	8.65	989.19	13.58

+	HYDROGRAPH AT	DFO51B	1414.	12.08	74.	20.	20.	0.00		
	ROUTED TO	RE55B	832.	12.25	73.	20.	20.	0.00	1029.65	12.25
+	HYDROGRAPH AT	ER55B	205.	12.42	46.	14.	13.	0.26		
	DIVERSION TO	RET55	205.	13.25	36.	10.	9.	0.26		
	HYDROGRAPH AT	ER55R	82.	13.25	13.	4.	4.	0.26		
	2 COMBINED AT	CER55B	832.	12.25	86.	24.	23.	0.26		
	ROUTED TO	RE59B	537.	12.42	85.	24.	23.	0.26	1024.95	12.42
+	HYDROGRAPH AT	ER59B	274.	12.25	64.	21.	21.	0.26		
	DIVERSION TO	RET59	274.	12.67	41.	12.	11.	0.26		
+	HYDROGRAPH AT	ER59R	194.	12.67	33.	10.	9.	0.26		
	2 COMBINED AT	CER59B	537.	12.42	117.	34.	33.	0.51		
+	DIVERSION TO	DIR63B	492.	12.25	79.	20.	19.	0.51		
	HYDROGRAPH AT	RIR63B	45.	12.25	38.	14.	14.	0.51		
+	HYDROGRAPH AT	IR63B	127.	12.25	30.	10.	10.	0.12		
	DIVERSION TO	RET63	127.	12.75	20.	6.	5.	0.12		
+	HYDROGRAPH AT	IR63	79.	12.75	16.	5.	4.	0.12		
	2 COMBINED AT	CIR63B	124.	12.75	54.	19.	18.	0.64		
+	ROUTED TO	RIR65C	114.	13.08	53.	18.	18.	0.64	4.33	13.08
+	HYDROGRAPH AT	IR65C	112.	12.33	26.	8.	7.	0.17		
	DIVERSION TO	RET65C	112.	17.17	26.	7.	7.	0.17		
+	HYDROGRAPH AT	IR65R	2.	17.17	1.	0.	0.	0.17		
	2 COMBINED AT	CIR65C	114.	13.08	53.	19.	18.	0.81		
+	ROUTED TO	RIRDC	99.	13.42	53.	19.	18.	0.81	1012.13	13.42
+	DIVERSION TO	RIR65C	68.	13.17	34.	13.	13.	0.81		
+	HYDROGRAPH AT	DIIRDC	31.	13.17	18.	5.	5.	0.81		
	HYDROGRAPH AT	IRDC	397.	12.42	110.	36.	34.	0.52		
+	DIVERSION TO	RETRDC	397.	13.17	78.	22.	21.	0.52		
	HYDROGRAPH AT	IRDR	225.	13.17	47.	14.	13.	0.52		
+	2 COMBINED AT	CIRDC	256.	13.17	65.	19.	18.	1.33		
	ROUTED TO									

+	RIRSMC	226.	13.42	64.	19.	18.	1.33	1001.84	13.42
HYDROGRAPH AT	IRSMC	285.	12.17	42.	13.	13.	0.24		
DIVERSION TO +	RETSMC	285.	12.83	36.	10.	9.	0.24		
HYDROGRAPH AT	IRSMR	74.	12.83	11.	3.	3.	0.24		
2 COMBINED AT +	CIRSMS	250.	13.42	74.	22.	22.	1.58		
2 COMBINED AT	CIRSMC	1924.	13.50	689.	203.	195.	10.23		
HYDROGRAPH AT +	CD2C	337.	12.75	128.	38.	37.	0.60		
DIVERSION TO	RET2C	337.	13.50	74.	20.	19.	0.60		
HYDROGRAPH AT +	CD2R	262.	13.50	66.	18.	17.	0.60		
2 COMBINED AT	CCD2C	2186.	13.50	755.	221.	213.	10.83		
ROUTED TO +	RCD3C1	1975.	13.83	743.	217.	209.	10.83	985.37	13.83
HYDROGRAPH AT +	A67AC	291.	12.75	111.	34.	33.	0.62		
DIVERSION TO	RET67A	291.	13.58	70.	19.	19.	0.62		
HYDROGRAPH AT +	A67AR	205.	13.58	53.	15.	14.	0.62		
ROUTED TO	RCD4C1	171.	13.92	53.	15.	14.	0.62	986.82	13.92
HYDROGRAPH AT +	CD4C	165.	12.33	32.	10.	9.	0.19		
DIVERSION TO	RETD4C	165.	13.00	25.	7.	7.	0.19		
HYDROGRAPH AT +	CD4R	62.	13.00	10.	3.	3.	0.19		
2 COMBINED AT	CPCD4C	189.	13.92	62.	18.	17.	0.81		
ROUTED TO +	RCD3C2	166.	14.33	61.	18.	17.	0.81	986.78	14.33
HYDROGRAPH AT +	CD3C	428.	12.42	100.	30.	29.	0.48		
DIVERSION TO	RETD3C	428.	12.83	60.	16.	16.	0.48		
HYDROGRAPH AT +	CD3R	321.	12.83	48.	13.	13.	0.48		
3 COMBINED AT	CPCD3C	2115.	13.83	835.	248.	239.	12.11		

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