ELLIOT ROAD DETENTION BASINS AND OUTFALL CHANNEL PHASES I & II

Contract FCD 98-44
PCN No. 442 04 31

Design Documentation Summary

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Prepared for: **Flood Control District of Maricopa County**
2801 West Durango Street
Phoenix, Arizona 85009
Phone: (602) 506-1501

Prepared by: **Wood, Patel & Associates, Inc.**
2051 West Northern Avenue, Suite 100
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Registered Professional Engineer (Civil)
CERTIFICATE NO.
10512
ASHOK C.
PATEL
Date Signed 5/2/00
ARIZONA, U.S.A.

May 2, 2000
WP #99891

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WOOD/PATEL

CIVIL ENGINEERS • HYDROLOGISTS • LAND SURVEYORS

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May 2, 2000

Mr. Scott Vogel, P.E.
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, AZ 85009

Re: **Elliot Road Detention Basins and Outfall Channel**
Contract FCD 98-44
WP #99891

Dear Mr. Vogel:

We are pleased to submit this final deliverables package for the above referenced project. This package has been separated into three construction phases and includes:

- Full size set of plans - Phases I through III (original mylars) - 1 sets
- Half size set of plans - Phases I through III (photocopy) - 4 sets
- Design Report including Design Calculations-Phases I and II - 3 sets
- Cost Estimate/Bid Tabs - Phases I through III - 3 sets
- Original Cost Estimate (Sealed Envelope) - 1 set
- Special Provisions/General Conditions-Phases I and II - 1 set / 1 floppy diskette
- Correspondence - 1 set
- 100% Redlines - 1 full size
- CD ROM with Construction Drawings - 1 each
- 100% Review Comments and Responses - 4 sets
- Design Calculations - 6 sets
- Tree Inventory (mylar and list) - 1 set

We will make a separate submittal of the final package to the City of Mesa.

Please feel free to call if you have any questions.

Sincerely,

WOOD, PATEL & ASSOCIATES, INC.

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

James Taillon
Assistant Project Manager

ACP/tjd

Enclosures

Y:\WP\General Correspondence\99891 Final Submittal.wpd

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APPENDICES

Appendix I HYDROLOGY

- Table 1, Design Flows (Optimized Model)
- Hydrograph into WA and from WA to WB
- Basin Volume/Stage Tables
- 100-Year, 24-Hour Storm HEC-1 Output (Optimized Model)
- 100-Year, 24-Hour Storm HEC-1 Output & Plate 9 and 10, HEC-1 Schematic (Baseline Model)

Appendix II HYDRAULICS

- Ellsworth Road StormCad Output
- Elliot Road StormCad Output
- Crismon Road StormCad Output
- Basin "EA" to 104th Street StormCad Output
- 104th Street Splitter Structure & Bypass Pipe Calcs
- Elliot Road Dip Section Culvert Replacement
- Basin "WA" to "WB" Overflow Structure
- Crismon Road Channel, Splitter Structure & Bypass Pipe Calcs
- Outfall Channel
- Hydrology and Hydraulics Electronic Files

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1.0 INTRODUCTION

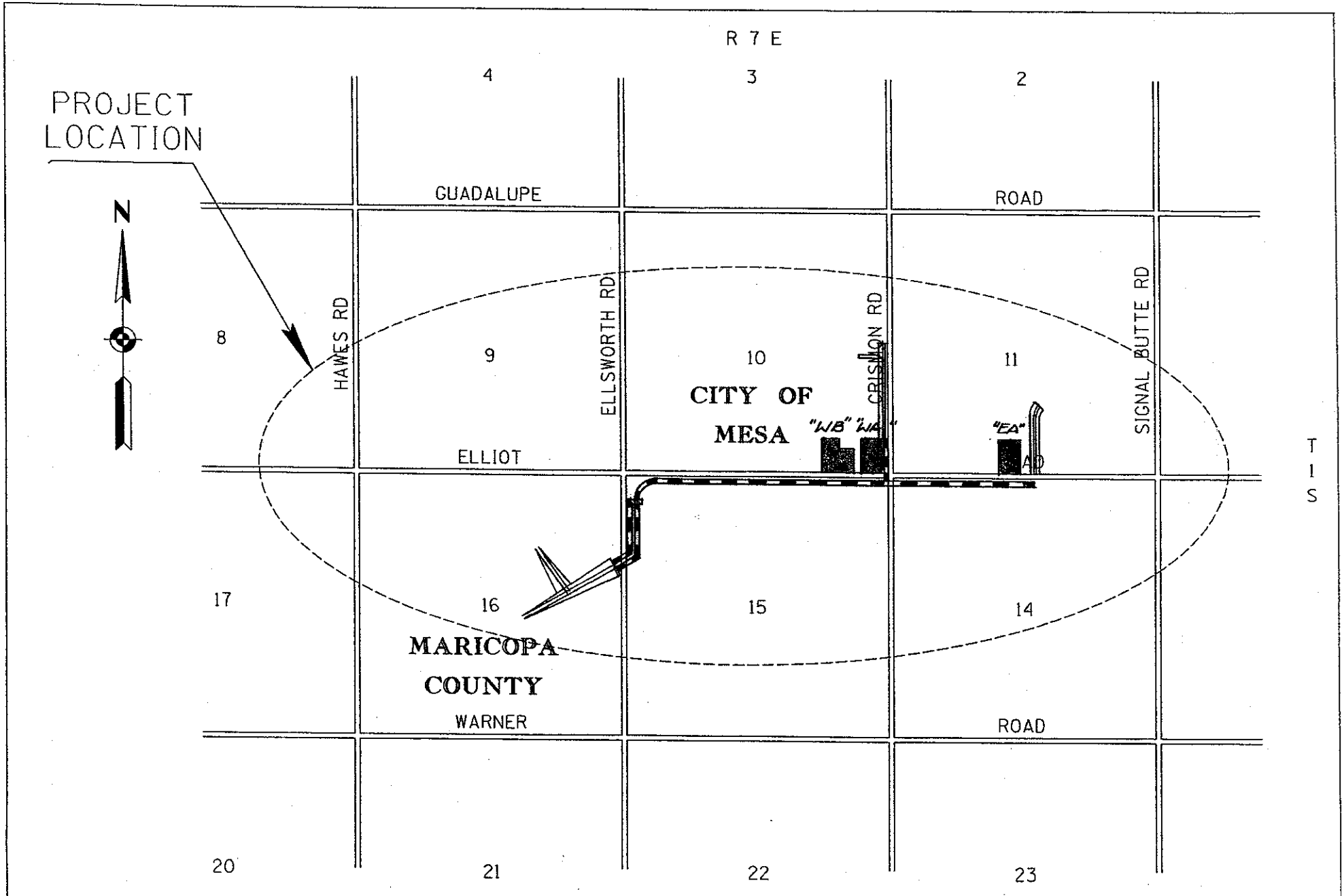
The purpose of this report is to document significant matters relating to the design of the plans for the Flood Control District of Maricopa County (FCDMC) contract FCD 98-44, Elliot Road Detention Basins and Outfall Channel.

The design contract includes performing channel alternatives analysis, preparing plans and special provisions for the Elliot Road Detention Basins and Outfall Channel. More specifically, it includes the detention basins, inlet works, outlet works, and outfall pipe from the detention basins along Elliot Road to the west side of Ellsworth Road. From there, flows will be distributed to their historical drainage corridors by means of a distributary outfall channel system.

The detention basins are located north of Elliot Road on the east and west sides of the Crismon Road alignment in the City of Mesa (see Figure 1). The westerly basins WA and WB are designed to attenuate the peak flow from the Crismon Road Channel, and the easterly basin EA is designed to attenuate the peak flow from drainage from the east.

The ultimate goal of the proposed drainage system is to collect runoff from Crismon Road Channel and the channel along 104th Street alignment and provide peak attenuation through the basins with a controlled outflow. The basins are also designed for future park uses including open space for soccer and football, sand volleyball, basketball courts, and playground equipment.

The design of the basins and outfall channel includes considerations for landscaping, aesthetic, GM's security concerns, and future park/trail system for the City of Mesa.



VICINITY MAP

Not to Scale

Figure 1

2.0 PROJECT PHASING

The construction of the project documented in this report will be phased for construction.

Phase I of the project will consist of the outfall channels west of Ellsworth Road, the storm drain in Ellsworth Road north to Elliot Road and in Elliot Road from Ellsworth Road to 104th Street Alignment, the 104th Street channel, all three detention basins and Crismon Road storm drain from Elliot Road to approximately 1/8 mile north.

Phase II of the project will continue the Crismon Road storm drain north to a concrete weir splitter structure and an open unlined channel from the structure north approximately 3/8 of a mile to tie into the existing channel at the Mesquite Canyon development.

Phase III of the project will be the landscaping and irrigation along the south side of Elliot Road for the area between the future back of curb and the proposed drainage easement.

3.0 HYDROLOGY

The Elliot Road Detention Basins and Outfall Channel project is part of the East Mesa Area Drainage Master Plan. The hydrology for the East Mesa ADMP was first prepared by the FCDMC (October 1998). The FCDMC subsequently modified the existing conditions hydrology to incorporate the selected design hydrologic criteria and the future condition land use from the new MAG 1997 land use maps. Dibble and Associates then modified the FCDMC model to reflect changes in flow routing from the planned channels, storm drains, and detention basins for the City of Mesa. In May 1999, Dibble and Associates revised the hydrology again to model the three detention basins concept (EA on east side of Crismon Road, and WA and WB on west side of Crismon Road). The FCDMC reviewed the revised model and approved it in May 1999.

Wood, Patel & Associates, Inc performed an extensive review of the portion of the hydrologic model pertaining to this project. Several issues were identified in the model and were corrected by the FCDMC. This model was then agreed upon and established as the baseline model and is included in Appendix I.

The hydrologic model has been modified throughout the design process to reflect the

optimized design concept including refined detention basins, by-pass flow rates, spillway, outfall and downstream pipe parameters.

The objectives of the optimization concept are to minimize the total capital improvement costs including detention basins and outfall channel (conduit), while at the same time minimizing the number of flooding events that impact the basins. As a result of the optimization, the east basin by-pass flow rate is 30 cfs, which is in excess of the 25-year storm. The Crismon Road channel by-pass flow rate is 410 cfs, which is approximately the 25-year storm. The WA portion of the west basin retains floodwater in excess of the 25-year storm before spillover into the WB portion occurs. The optimized hydrologic model output file is included in Appendix I. The design flows at key locations for this model are summarized in Table 1, Appendix I. In addition, a plot showing the relationship of the hydrograph into basin WA to the hydrograph from WA to WB is included in Appendix I. This plot demonstrates that flow begins to overtop the spillway from basin WA into basin WB at approximately the same time that the peak flow into basin WA occurs.

4.0 HYDRAULICS

Hydraulic calculations for 104th Street Channel were analyzed by using Dodson Hydrocalc Hydraulics (Version 1.2a). Storm drain hydraulic grade lines for closed conduits were computed using StormCad (Version 1.5). The Crismon Road Channel and the Outfall Channel were analyzed using the U.S. Army Corps of Engineers HEC-RAS (Version 2.2).

It is the intent to allow cast-in-place concrete pipe (CIPP) as an alternate pipe material for portions of this project, the hydraulics for the closed conduit portions of this system were analyzed using RCP pipe with a Manning's "n" value of 0.012 (per FCDMC). If CIPP is selected as a pipe alternative, the inside diameter of the pipe shall be increased by 6".

The Crismon channel weir structure was analyzed using the Side Weir Hydraulic Profile Analysis Program, 1994 Version, prepared by California State University Long Beach Foundation provided to Wood/Patel by the FCDMC. The channel upstream of the weir section was modeled using the US Army Corps of Engineers HEC RAS River Analysis Program, Version 2.2. The channel velocities in the unlined reach are less than 5fps. Freeboard in the channel is maintained at a minimum of 1'. The channel weir is designed to bypass 363cfs before the flow in the channel begins to overtop the splitter channel weir

and begins to flow into the basin. The structure is designed to bypass 410cfs at the design flow of 712cfs (100year, 24hour).

A low flow bypass system is required at the upstream end of the Crismon Channel at the SRP transmission line corridor. A hard lined 2' depression will be designed in the bottom of the channel to direct low flows to the west. The capacity of 2-24" pipes with the WSEL at the top of the depression (channel invert) is 24cfs. A HEC-RAS model was used to establish the 100-year, 24-hour WSEL at the pipe location. At this WSEL, the capacity of the 2-24" pipes is 76cfs.

Wood/Patel learned during the design evaluation process that the post basin/pipe flows would be concentrated along the selected alignment as shown in the East Mesa Area Drainage Master Plan, FCD #95-32, July 1998, by Dibble and Associates, in a way that might be construed as adversely impacting properties downstream of the outfall. In an attempt to mitigate this potential problem, several elements have been added to the plans. These elements include the postponing of the Crismon Road channel construction to reduce the interim flow at Elliot Road and Ellsworth Road and the addition of a distributary channel west of Ellsworth Road to direct the flows to their historical pathways. The ADMP selected outfall alignment is identified as the south branch of the historical drainage path and the splitter channel is identified as the north branch of the historical drainage path for the distributary outfall channel system.

The hydrologic model of the East Mesa ADMP for the existing conditions provided by FCDMC was used to generate the 100-year peak flow at the southeast corner of Ellsworth Road and Elliot Road.

Three different runoff events (2-yr, 5-yr and 100-yr) were evaluated to determine "interim" flows for the project.

From this analysis, it was concluded that:

1. The 100-year flow at Ellsworth Road and Elliot Road is reduced in the interim condition.

2. Essentially all of the reduction in flow in the interim model for events in excess of

the 2-year storm is attributable to the phasing of the Crismon Road channel to postpone the connection with the Santa Rita Ranch and Mesquite Canyon channel until an outfall is available west of Ellsworth Road.

Based on this hydrology , a hydraulic analysis was performed for the outfall system and it was concluded that the floodplain for the interim condition has been slightly reduced from the existing condition for both the north and south branches.

A copy of the complete outfall channel analysis was submitted as part of this project to the FCDMC in November 1999 under the title "Preliminary Floodplain Delineation West of Ellsworth Road".

5.0 UTILITIES

Utilities shown on the plans are derived from utility maps obtained from the companies and from field surveys locating any visible surface facilities/appurtenances.

The following utility companies were contacted and indicated that they did not have facilities in the area:

MCI	US Sprint
AT&T	Cable America
SRVWUA	

The FCDMC will distribute plans to utility companies for their review. Wood/Patel recommends that, at a minimum, plans should be submitted to the following utilities:

US West	Southwest Gas
SRP Electric	APS
COM, Water and Sewer	

Potholing of utilities has been completed for this alignment and is incorporated in the Plans.

6.0 RIGHT-OF-WAY

The existing right-of-way shown on the plans is based on information provided by the FCDMC. The future right-of-way shown on the plans is based upon input from the COM. For the most part, the proposed storm drain alignment for this project lies outside of existing and future right-of-way. The storm drain/channel alignments will be constructed within drainage easements along the outfall west of Ellsworth Road, Ellsworth Road, Elliot Road, Crismon Road, and 104th Street. Temporary construction easements (TCE's) will be required along portions of the alignment to facilitate construction.

An exhibit was prepared for the Outfall Channel and North Diversion Channel right-of-way requirements based on the results of the analysis performed for the interim condition. This exhibit has been forwarded to the Arizona State Land Department by the FCDMC.

7.0 SURVEY

The topographic data used for this project was prepared by Kenney Aerial Mapping, with methods to National Map Accuracy Standards. One-foot contour intervals are based on ground control survey data provided by Wood, Patel & Associates, Inc. based on control data provided by Project Engineering Consultants, Ltd. The horizontal control coordinates are state plane ground coordinates based on NAD83. The vertical control is based on NGVD 1929.

8.0 SOILS

Speedie and Associates, Geotechnical Subconsultant for this project, performed a geotechnical investigation and prepared a report for the project dated January 6, 2000 (Project No. 990509SA).

Subsoil conditions consist of interbedded composites of clays, silts and sands with subordinate amounts of gravel and with varying degrees of calcareous cementation to depths of up to 21 feet below existing grade. Based on visual and tactile observation, the soils were in a "dry" to "moist" state at the time of investigation.

Analysis of the field and laboratory data indicates that subsoils at the site are generally

favorable for the support of the proposed structures on shallow foundations and for slab-on-grade construction subject to remedial earthwork. They also appear to be suitable for construction of the basins and channels to the intended depths and side slopes. The presence of cemented or very dense/hard soils may impede excavation progress within basin and channel areas and require the use of heavier equipment. Laboratory-measured, minimum soil resistivity measurements indicate a severe degree of corrosiveness. However, metal pipe will not be allowed as an alternate pipe material for this project.

The swell potential of the upper clayey soils is a concern. The potential is usually strong enough to cause differential movements of slabs-on-grade such as floors and sidewalks but not enough to cause damage to structures unless lightly loaded. As the consolidation test indicated, the clay soils swelled even when strained with a 2,200 psf load and subjected to inundation. For complete geotechnical analysis and recommendations, see the report referenced above.

9.0 FINAL PLANS

The final plans have been developed per the standards as set forth in the scope of work and input from the City of Mesa. The plans are prepared to FCDMC drafting design guidelines on standard sheets provided by the FCDMC.

10.0 TRAFFIC CONTROL

The Elliot Road Detention Basins and Outfall Channel are to be constructed parallel to Ellsworth Road and Elliot Road with major crossings of Ellsworth Road (2-102" pipes) and Elliot Road (90" pipe). Minor crossings of Elliot Road (4 locations) of 18" & 24" pipes also occur.

The section of Ellsworth Road is carrying approximately 6,000 vehicles per day. Elliot Road is carrying approximately 3,000 vehicles per day. These volumes were obtained from the Maricopa Association of Governments, 1995 Average Weekday Traffic. These roads will remain in service.

To construct the pipes crossing under Ellsworth Road, temporary widening will be required on the west side of the existing roadway to construct the -pipes under half the roadway.

Temporary concrete barrier will be required on the side of the work area. A second phase of the crossing to construct the other half of the pipes under the west side of Ellsworth Road will also require temporary paving and temporary concrete barrier to protect the work area.

The pipes parallel to Ellsworth Road and Elliot Road are located off the roadways. The pipes may be constructed with the roadways in service.

To construct the minor crossings (18"-24" pipes), flag traffic on Elliot Road during working hours. Backfill or plate the trench during non-working hours.

To construct the pipe crossing under Elliot Road at Crismon Road, temporary widening will be required on the north side of the existing roadway to construct the pipe under half the roadway. Temporary concrete barrier will be required on the side of the work area. To construct the pipe on the north half of Elliot Road, temporary paving and temporary concrete barrier will be required.

There are power poles located on the west side of Ellsworth Road and north side of Elliot Road. If during temporary pavement widening these poles fall within the clear zone as specified in Table 3.1 in the Roadway Design Guide, they should be protected with a crash cushion or temporary concrete barrier.

In addition to these specific traffic control requirements, an area wide advanced signing plan will be required to divert traffic to other routes in an attempt to reduce traffic that will pass through the construction zones.

Two-lane, two-way traffic will be maintained on Ellsworth Road and Elliot Road except during flagging operations. Flagging will be permitted during off-peak hours and should be coordinated with shift changes at the General Motors Proving Ground.

There are no driveways or other intersections located within the project limits. The construction does not impact the Elliot Road/Ellsworth Road intersection.

All traffic control shall comply with Part VI of the Manual on Uniform Traffic Control Devices and any additional MCDOT requirements.

The design speed for detours and pavement widening shall be 45 mph.

11.0 OPINION OF PROBABLE COSTS

The opinion of probable construction costs for the project based on the final plans is included under separate cover with this submittal.

12.0 DESIGN DOCUMENTATION SUMMARY

The 60" storm drain stubbed out near the Ellsworth Road/Elliot Road intersection is intended to provide drainage for the areas north and east of the Ellsworth Road/Elliot Road intersection, identified in the hydrology model as the following subareas: 61A, 61B, 66D and 67E, with a peak discharge of 106 cfs. The 78" storm drain that extends to the 104th Street Alignment on the south side of Elliot Road is intended to provide drainage for the subareas identified in the hydrology model as: CAP 1A, CAP 1B and 65A, with a peak discharge of 508 cfs. This flow is based the effect of the upstream improvements as proposed in the East Mesa ADMP including Sunland Springs Channel, Siphon Draw Detention Basin and completion of the Elliot Road Channel.

APPENDIX I

HYDROLOGY

- Table 1, Design Flows (Optimized Model)
- Hydrograph into Basin "WA" and from Basin "WA" to Basin "WB"
- Basin Volume Stage Tables
- 100-Year, 24-Hour Storm HEC-1 Output (Optimized Model)
- 100-Year, 24-Hour Storm HEC-1 Output & Plate 9 and 10, HEC-1 Schematic (Baseline Model)

HYDROLOGY

- **Table 1, Design Flows (Future Condition Optimized Model)**

Table 1. Design Flows - Optimized Option

HEC-1 file: Final8.out

Elliot Road Detention Basins and Outfall Channel - Design Flows

	Location	Hydrograph Name	Q100 (cfs)	Contributing Subbasins	Inflow Hydrograph
	65A detention basin outlet	C65A2	508	65A	CAP1A,CAP1B
	E. side of Meridian Rd.	65AT-1	508	N/A	
	E. side of EA in Storm Drain	65AT-2	508	N/A	
	Flow from NE area to EA	CP65B	415	65AW, 65B	
	Diversion into EA at Elliot Rd.	DIRS65	385	N/A	
	By-pass to Storm Drain at E. of EA	DI65B	30	N/A	
	EA by-pass & Strom Drain at E.of EA	CP65A	538	N/A	
	W. of EA in Storm Drain	65AT-3	538	N/A	
	Release of EA to Strom Drain	RS65A	10	N/A	
	Release of EA & Storm Drain	CP65	548	N/A	
	E. side of Crismon Rd in Storm Drain	65T66	548	N/A	
	N. side of WA at Crismon Rd.	CP66C2	712	66A-C,67A-D	ADOT-E,SUP2
	By-pass along Crismon Rd.	DI66	410	N/A	
	Diversion into WA at Crismon Rd.	DB66	302	N/A	
	Spillover of WA to WB	D-WB	160	N/A	
	Crismon Rd by-pass & Storm Drain	CP66C	956	N/A	
	Release of WA to Storm Drain	B-WA	22	N/A	
	W. side of WA in Storm Drain	66CTD	956	N/A	
	E. side of WB in Storm Drain	C-WA	973	N/A	
	W. side of WB in Storm Drain	RC-WA	973	N/A	
	Release of WB to Storm Drain	RS66D2	28	N/A	
	Release of WB & Storm Drain	CP66D	986	N/A	
	E. side of Ellsworth Rd in Storm Drain	66T66D	986	N/A	
	At Ellsworth Rd.	C66D	1101	1A-B,66D,67E	

Elliot Road Outfall Channel - Design Flows

Station	Location	Hydrograph Name	Q100 (cfs)
	E. side of Meridian Rd.	65AT-1	508
	E. side of EA in Storm Drain	65AT-2	508
	EA by-pass & Strom Drain at E.of EA	CP65A	538
	W. of EA in Storm Drain	65AT-3	538
	Release of EA & Storm Drain	CP65	548
	E. side of Crismon Rd in Storm Drain	65T66	548
	Crismon Rd by-pass & Storm Drain	CP66C	956
	W. side of WA in Storm Drain	66CTD	956
	E. side of WB in Storm Drain	C-WA	973
	W. side of WB in Storm Drain	RC-WA	973
	Release of WB & Storm Drain	CP66D	986
	E. side of Ellsworth Rd in Storm Drain	66T66D	986
	At Ellsworth Rd.	C66D	1101
	2/3 mile S. of Elliot	*C70A2*	*1213*
	Santan Freeway Channel	*C76A*	*1365*

Basins Design Parameters

East Basin:
WSEL = 1439.00 ft
Vol = 35.30 Ac-Ft

West Basin A:
WSEL = 1425.42 ft
Vol = 70.19 Ac-Ft

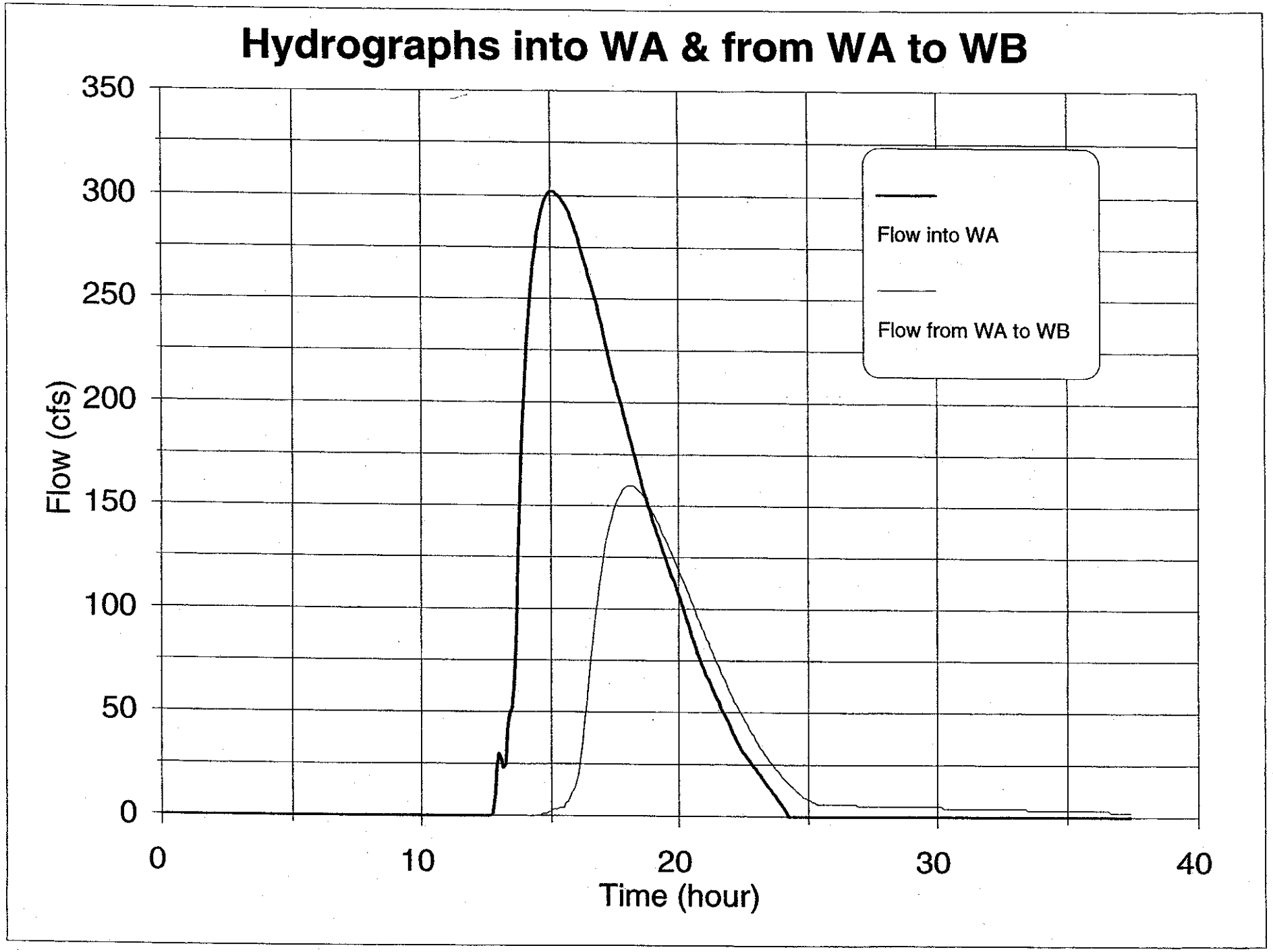
West Basin B:
WSEL = 1422.68 ft
Vol = 56.52 Ac-Ft

Crismon Road By-Pass Channel - Design Flows

Station	Location	Hydrograph Name	Q100 (cfs)		
	N. side of WA at Crismon Rd.	CP66C2	712		
	By-pass along Crismon Rd.	DI66	410		

HYDROLOGY

- Hydrograph into Basin "WA" and from Basin "WA" to Basin "WB"


Hydrographs into WA & from WA to WB
350
300
250
200
150
100
50
0
Flow (cfs)
0
10
20
30
40
Time (hour)
Flow into WA
Flow from WA to WB

HYDROLOGY

- **Basin Volume Stage Tables**

Elliot Road Detention Basins and Outfall Channel

Contract FCD 98-44 01/28/00

W/P Job No. 99891

Basin Volume/Stage

East Basin

Elevation	Area		Incremental Volume	Total Volume
ft	sf	ac	ac-ft	ac-ft
1428	0	0.00	0.0	0.0
1429	100	0.00	0.0	0.0
1430	5000	0.11	0.1	0.1
1431	57779	1.33	0.7	0.8
1432	99831	2.29	1.8	2.6
1433	144465	3.32	2.8	5.4
1434	194194	4.46	3.9	9.3
1435	207068	4.75	4.6	13.9
1436	219780	5.05	4.9	18.8
1437	232826	5.34	5.2	24.0
1438	245872	5.64	5.5	29.5
1439	258918	5.94	5.8	35.3
1440	271964	6.24	6.1	41.4

Basin Storage Summary

Water Surface	Elev. ft	Volume Provided ac-ft
100yr-WSEL	1439	35.30

Basin Volume/Stage

West Basin A

Elevation	Area		Incremental Volume	Total Volume
ft	sf	ac	ac-ft	ac-ft
1414	0	0.00	0.0	0.0
1415	0	0.00	0.0	0.0
1416	20139	0.46	0.2	0.2
1417	100996	2.32	1.4	1.6
1418	181205	4.16	3.2	4.9
1419	263413	6.05	5.1	10.0
1420	350189.0	8.04	7.0	17.0
1421	390434.0	8.96	8.5	25.5
1422	406550.0	9.33	9.1	34.7
1423	422536.0	9.70	9.5	44.2
1424	439512.0	10.09	9.9	54.1
1425	458795.0	10.53	10.3	64.4
1426	478795.0	10.99	10.8	75.1

Basin Storage Summary

Water Surface	Elev. (ft)	Volume Provided (ac-ft)
100yr-WSEL	1425.54	70.19

70.19
54.5

Elliot Road Detention Basins and Outfall Channel

Contract FCD 98-44 01/28/00

W/P Job No. 99891

Basin Volume/Stage

West Basin B

Elevation	Area		Incremental Volume	Total Volume
ft	sf	ac	ac-ft	ac-ft
1410	0	0.00	0.0	0.0
1411	0	0.00	0.0	0.0
1412	0	0.00	0.0	0.0
1413	19538	0.45	0.2	0.2
1414	90394	2.08	1.3	1.5
1415	161625	3.71	2.9	4.4
1416	223350	5.13	4.4	8.8
1417	270911	6.22	5.7	14.5
1418	296823	6.81	6.5	21.0
1419	310781	7.13	7.0	28.0
1420	325103	7.46	7.3	35.3
1421	339850	7.80	7.6	42.9
1422	354597	8.14	8.0	50.9
1423	369597	8.48	8.3	59.2

Basin Storage Summary

Water Surface	Elev. ft	Volume Provided ac-ft
100yr-WSEL	1422.68	56.52

HYDROLOGY

- 100-Year, 24-Hour Storm HEC-1 Output
  (Future Condition Optimized Model)

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1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *              JUN   1998               *
 *           VERSION 4.1                 *
 *                                       *
 *  RUN DATE   27JAN00  TIME  17:43:30   *
 *                                       *
 *****************************************
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*****************************************
*                                       *
*   U.S. ARMY CORPS OF ENGINEERS        *
*   HYDROLOGIC ENGINEERING CENTER       *
*         609 SECOND STREET             *
*      DAVIS, CALIFORNIA 95616          *
*          (916) 756-1104               *
*                                       *
*****************************************
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X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX        XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

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1                                   HEC-1 INPUT                                   PAGE  1

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

    1           ID   PRODUCED BY DIBBLE AND ASSOCIATES AND HOSKIN ENGINEERING CONSULTANTS.
    2           ID   File Name: Final8.Dat
    3           ID   Revised - Jan. 2000 by SZ (Wood/Patel) From Final7.dat - new Z-V & Sideweir
    4           ID   Revised - Jan. 2000 by SZ (Wood/Patel) from Final6.dat - 60% review comments
    5           ID   Revised - Dec. 1999 by SZ (Wood/Patel) from Final5.dat
    6           ID   Revised - Dec. 1999 by SZ (Wood/Patel) from Final4.dat
    7           ID   Revised - Nov. 1999 by SZ (Wood/Patel) from Final3.dat
    8           ID   Revised - June 1999 by SZ (Wood/Patel) for Final Model from Opt1.dat.
    9           ID   Revised - May 1999 by SZ (Wood/Patel) for Option 1, Based on Model SDIB.DAT
   10           ID   REVISED - MAY, 1999 BY VAS TO INCORPORATE INCREASE OF SUBBASIN RETENTION AND
   11           ID            REVISIONS TO THE REGIONAL DETENTION BASIN STORAGE
   12           ID   REVISED - FEB, 1999 BY VALERIE SWICK, FCD OF MARICOPA COUNTY
   13           ID   REVISED - MAY, 1998 BY D&A
   14           ID
   15           ID   REVISED BY VALERIE SWICK, FEB. 26, 1998
   16           ID
   17           ID   FLOWS FROM DETENTION BASIN LOCATED AT NE CORNER OF ELLIOT AND ELLSWORTH ROADS
   18           ID   IS ROUTED TO THE SOUTHWEST BY SIPHON DRAW TO SUBBASIN 70A. FROM THERE THEY
   19           ID   WILL BE ROUTED BY A CHANNEL TO THE EMF. FLOWS FROM SUBBASINS ADJACENT TO
   20           ID   SANTAN FREEWAY ALIGNMENT WILL BE ROUTED SOUTH TO SUBBASIN 70A WHERE THEY WILL
   21           ID   BE COMBINED WITH FLOW IN SIPHON DRAW.
   22           ID
   23           ID   EAST MESA AREA DRAINAGE MASTER PLAN
   24           ID   AREA SOUTH OF SUPERSTITION (U.S. HWY 60)
   25           ID   AUGUST 1997
   26           ID   SOUTHEAST MESA HIGH RESOLUTION MODEL
   27           ID
   28           ID   ***********FUTURE CONDITION MODEL OF THE WATERSHED************************
   29           ID
   30           ID  ************ATTENTION*************************************************************
   31           ID    SUBBASINS 75, 79A, 79B, 78E,  LANDUSES WERE NOT
   32           ID    CHANGED BECAUSE IT WAS FELT THAT THEIR FUTURE CONDITIONS LANDUSES WOULD BE
   33           ID    SIMILAR TO THE EXISTING CONDITIONS LANDUSES.
   34           ID    RETENTION VOLUMES WILL ALSO NOT BE UTILIZED FOR SUBBASINS 75, 79A, 79B, 78E
   35           ID    SOME QUEEN CREEK SUBBASINS WILL ALSO NOT HAVE RETENTION VOLUMES, EITHER
   36           ID    BECAUSE THEY LIE IN PINAL COUNTY AND WE DONT KNOW PINAL COUNTIES PLANS OR
   37           ID    THEY LIE IN THE SANTAN MOUNTAINS AND WON'T GET DEVELOPED
   38           ID    WILLIAMS GATEWAY AIRPORT (SUBBASINS 80A, 80B, 81A, AND 81B) ARE MODELED AS
   39           ID    FUTURE CONDITIONS AND HAVE RETENTION VOLUMES FOR THE 100YR 2HR STORM
   40           ID  ******************************************************************************
   41           ID   FILENAME:  SDIB8.DAT
   42           ID
   43           ID   THIS MODEL REPRESENTS THE FUTURE CONDITION OF THE WATERSHED.
   44           ID   TOTAL DRAINAGE AREA IS APPROXIMATELY 213 SQ. MI.
   45           ID   THIS MODEL USES A Kn VALUE OF 0.09 FOR DESERT LAND USE DUE TO SHEET FLOW
   46           ID   CONDITIONS.
   47           ID
   48           ID   100-YEAR 24-HOUR FREQUENCY
   49           ID   AREAL REDUCTIONS FROM FCD HYDROLOGY MANUAL
   50           ID   THIS MODEL INCLUDES INFLOW FROM NORTH OF THE SUPERSTITION FREEWAY
   51           ID   AND EAST OF THE CAP
```

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 52          ID
 53          ID   DATA FROM THE QUEEN CREEK ADMS HAS BEEN ADDED TO CALCULATE FLOWS INTO THE
 54          ID   EMF.   MUSKINGUM ROUTING NSTEPS WERE ADJUSTED TO BE WITHIN THE SUGGESTED
 55          ID   RANGE.
1                                        HEC-1 INPUT                                          PAGE  2

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

 56          ID
 57          ID   METHODOLOGY
 58          ID   THE US CORPS OF ENGINEERS FLOOD HYDROLOGY MODEL HEC-1 DATED SEP1990 VER 4.0
 59          ID   SCS TYPE II RAINFALL DISTRIBUTION
 60          ID   S-GRAPH HYDROGRAPH
 61          ID   GREEN AND AMPT INFILTRATION EQUATION USED FOR CALCULATING LOSSES
 62          ID   NORMAL DEPTH STORAGE CHANNEL ROUTING
 63          ID   APPROXIMATE DIRECTION, LOCATION, AND LENGTH OF THE WASHES HAVE BEEN
 64          ID   EVALUATED BASED ON FIELD INVESTIGATION, USGS MAPS, LANDIS AERIAL SURVEYS
 65          ID   DATED 1994
 66          ID   THE NOAA TECHNICAL MEMORANDUM NOAA ATLAS 2 DEPTH AREA RATIOS
 67          ID
 68          ID   ORIGINAL STUDY PERFORMED BY LISA C. YOUNG AND AFSHIN AHOURAIYAN, UPDATED BY
 69          ID   DAVID DEGERNESS (OCT-DEC, 1996). REVIEWED BY VALERIE A. SWICK
 70          ID   AND AMIR MOTAMEDI OF THE FLOOD CONTROL DISTRICT
 71          ID   HYDROLOGY BRANCH ENGINEERING DIVISION, FLOOD CONTROL
 72          ID   DISTRICT OF MARICOPA COUNTY, DECEMBER - JULY 1995.
 73          ID
 74          ID   ASSUMED VELOCITY OF 1 FT/SEC FOR SHEET FLOW, 2-3 FT/SEC FOR WASH/NATURAL
 75          ID   CHANNEL, 3 FT/SEC FOR ROAD AND GRASS CHANNEL, 10FT/SEC FOR CONCRETE CHANNEL
 76          ID
 77          ID   VELOCITIES FOR ADMP IMPROVEMENT CHANNELS FROM DIBBLE AND ASSOCIATES
 78          ID   SUGGESTED ALTERNATIVES (JULY 1, 1997)
 79          ID
 80          ID
 81          ID   NOTE: MUST USE NDIBF.DSS AS THE DSS FILE TO IMPORT FLOWS ACROSS THE
 82          ID         SUPERSTITION FREEWAY.
 83          ID
 84          ID   DDM MCUHP2 SE MESA ADMP - SOUTH OF SUPERSTITION FWY, FUTURE CONDITIONS
             *DIAGRAM
 85          IT       5  1APR97    0000     600
 86          IO       5
 87          IN      15
 88          JD    3.60    0.01
 89          PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
 90          PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
 91          PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
 92          PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
 93          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
 94          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
 95          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
 96          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
 97          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
 98          PC    .983    .986    .989    .992    .995    .998   1.000
 99          JD    3.38   10.00
100          JD    3.24   30.00
101          JD    3.10   60.00
102          JD    3.05   90.00
             *
             * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                          PAGE  3

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

103          KK    SOSS
104          KM   INFLOW FROM SOSSAMAN BASIN VIA SOSSAMAN CHANNEL
105          KM   QI CARDS ARE BASED ON THE PEAK OF 1800CFS TO SOSSAMAN CHANNEL
106          BA   12.50
107          ZR  *QI A=SOSSAMAN DRAIN B=AT SUPERSTITION C=FLOW E=5MIN F=100YR
             *
             * DDM   ***** Preserved *****

108          KK   RSOSS
109          KM   ROUTE FLOWS VIA SOSSAMAN CHANNEL TO BASELINE ROAD
110          RS       1    FLOW      -1
111          RC    .030    .025    .030    3500    .005
112          RX       0       5      10      35      75     110     115     120
113          RY      10      10      10       4       4      10      10      10
             *
             * DDM   ***** Updated *****

114          KK     59A
115          KM   BASIN 59A
116          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
117          KM    L=        .9  Lca=        .3   S=   34.9  Kn= .070  LAG=  29.7
118          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
119          BA     .26
120          LG     .23     .25    4.55     .42   33.00
121          UI     30.     77.    144.    186.    246.    364.    293.    226.    172.    123.
122          UI     64.     48.     30.     15.      9.      9.      9.      0.      0.      0.
123          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
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                 *
                 * DDM   ***** Preserved *****

 124             KK    R59A
 125             KM   RETAIN THE 100 YEAR 2 HOUR RUNOFF VOLUME
 126             DT    D59A       2
 127             DI       0   10000
 128             DQ       0   10000
                 *
                 * DDM   ***** Preserved *****

 129             KK    C59A
 130             KM    SOSSAMAN DRAIN AT BASELINE ROAD
 131             HC       2
                 * DDM   ***** Preserved *****

 132             KK  59A59B
 133             KM   ROUTE S59A TO 59B VIA SOSSAMAN CHANNEL
 134             KM   BLOCK WALL ON LEFT BANK, SOSSAMAN ROAD ON RIGHT BANK
 135             RS       4    FLOW       -1
 136             RC    .025    .018    .013    6500   .0015
 137             RX       0       3      13      38      78     103     128     203
 138             RY      16      10      10       0       0      10       8      10
                 *
                 * DDM   ***** Updated *****
1                                          HEC-1 INPUT                                                    PAGE  4

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

 139             KK     59B
 140             KM   BASIN 59B
 141             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 142             KM    L=       1.2  Lca=        .7   S=   33.9  Kn= .087  LAG=  58.3
 143             KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 144             BA     .94
 145             LG     .22     .24    4.65     .41   24.00
 146             UI     54.     54.     93.    193.    244.    284.    318.    361.    415.    501.
 147             UI    653.    666.    546.    473.    422.    364.    319.    273.    233.    172.
 148             UI    110.     94.     89.     68.     54.     54.     19.     17.     17.     17.
 149             UI     17.     17.     17.     17.      0.      0.      0.      0.      0.      0.
 150             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                 *
                 * DDM   ***** Preserved *****

 151             KK    R59B
 152             KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
 153             DT    D59B      63
 154             DI       0   10000
 155             DQ       0   10000
                 *
                 * DDM   ***** Preserved *****

 156             KK    C59B
 157             KM   SOSSAMAN CHANNEL AT GUADALUPE ROAD
 158             HC       2
                 *
                 * DDM   ***** Preserved *****

 159             KK  59BT60
 160             KM     ROUTE 59B TO 60 GUADALUPE CHANNEL.  Assumed v=5ft/sec for NSTP calculation
 161             RS       4    FLOW       -1
 162             RC     .02    .013     .02    5500   .0005
 163             RX       0     518     522     522     560     560     580    2580
 164             RY     8.5     8.5     8.5       0       0       8       7       6
                 *
                 * DDM   ***** Updated *****

 165             KK      60
 166             KM   BASIN 60
 167             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 168             KM    L=       2.4  Lca=       1.4   S=   31.8  Kn= .087  LAG= 102.0
 169             KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 170             BA    2.30
 171             LG     .18     .24    4.65     .43   35.00
 172             UI     76.     76.     76.     76.    130.    250.    286.    330.    364.    395.
 173             UI    422.    452.    484.    522.    571.    607.    689.    820.    915.   1008.
 174             UI    885.    793.    723.    669.    626.    591.    536.    496.    459.    424.
 175             UI    387.    362.    324.    276.    219.    169.    134.    134.    126.    125.
 176             UI    121.     76.     76.     76.     76.     56.     23.     23.     23.     23.
 177             UI     23.     23.     23.     23.     23.     23.     23.     23.     23.     23.
 178             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 179             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                 *
                 * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                    PAGE  5

LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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180          KK     R60
181          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
182          DT     D60     170
183          DI       0   10000
184          DQ       0   10000
             *
             * DDM   ***** Preserved *****

185          KK  EMFGUA
186          KM     COMBINE S59 AND S60 AT EMF, GUADALUPE ROAD
187          HC       2
             *
             * DDM   ***** Preserved *****

188          KK  GUATEL
189          KM   ROUTE EMF FLOW FROM GUADALUPE ROAD TO ELLIOT ROAD
190          RS       3    FLOW      -1
191          RC     .03    .022     .03    6000   .0003
192          RX       0     500     520     553     693     726     740     742
193          RY      14      12      11       0       0      11      11      12
             *
             * DDM   ***** Updated *****

194          KK      64
195          KM   BASIN 64
196          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
197          KM    L=      1.2  Lca=       .6   S=   25.4  Kn= .051  LAG=  34.4
198          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
199          BA     .81
200          LG     .18     .25    4.70     .41   54.00
201          UI     79.    155.    338.    438.    543.    709.    988.    778.    624.    493.
202          UI    388.    253.    139.    120.     79.     45.     24.     24.     24.     24.
203          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
204          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****

205          KK     R64
206          KM   R64 IS WHAT REMAINS AFTER THE DIVERSION OF FLOW UP TO 67 AC-FT. THIS IS SENT
207          KM   TO TAPE 21 FOR RECALL INTO FCD'S EMF MODELS.  KK BLOCK THERE MUST BE UPDATED
208          KM   TO REFLECT THE CHANGE OF WHAT GETS SENT TO THE TAPE 21.
209          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
210          DT     D64      67
211          DI       0   10000
212          DQ       0   10000
             *
             * DDM   ***** Preserved *****

213          KK  EMFELL
214          KM     COMBINE EMF FLOW WITH FLOW FROM SUBBASIN 64 AT ELLIOT ROAD
215          HC       2
             *
             * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                    PAGE  6

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

216          KK  ELTWAR
217          KM   ROUTE EMF FLOW AT ELLIOT ROAD TO WARNER ROAD VIA THE EMF
218          RS       2    FLOW      -1
219          RC     .03    .022     .03    5500   .0003
220          RX       0     500     520     553     693     726     740     742
221          RY      14      12      11       0       0      11      11      12
             *
             *

222          KK     62A
223          KM   BASIN 62A
224          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
225          KM    L=       .8  Lca=       .5   S=   30.0  Kn= .020  LAG=  10.2
226          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
227          BA     .38
228          LG     .10     .25    4.50     .52   80.00
229          UI    335.   1057.   1010.    367.     93.     38.      0.      0.      0.      0.
230          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****

231          KK    R62A
232          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
233          DT    D62A      33
234          DI       0   10000
235          DQ       0   10000
             *
             * DDM   ***** Preserved *****

236          KK   62ATB
237          KM   ROUTE 62A TO 62B BY A CHANNEL ALONG BASELINE ROAD THROUGH SANTAN FWY
238          RS       1    FLOW      -1
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 239        RC    .030    .030    .030    1200    .002
 240        RX       0     200     250     275     295     320     370     570
 241        RY      10       8       7       0       0       7       8      10
            *

 242        KK     62B
 243        KM   BASIN 62B
 244        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 245        KM    L=        .6  Lca=        .3   S=   47.5  Kn= .021  LAG=   8.0
 246        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 247        BA     .23
 248        LG     .11     .25    4.65     .46   78.00
 249        UI    334.    940.    431.     83.      0.      0.      0.      0.      0.      0.
 250        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *

 251        KK    R62B
 252        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
 253        DT    D62B      19
 254        DI       0   10000
 255        DQ       0   10000
            *
            * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                    PAGE  7

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

 256        KK    C62B
 257        KM   COMBINE FLOW FROM BASIN 62A AND 62B
 258        HC       2
            * DDM   ***** Preserved *****

 259        KK   62BTD
 260        KM   ROUTE 62B TO 62D VIA HAWES ROAD
 261        RS       6    FLOW      -1
 262        RC    .045     .04    .045    5280   .0041
 263        RX       0     100     125     127     177     179     224     324
 264        RY       3       2    1.50       0       0     1.5       2       3
            *
            * DDM   ***** Updated *****

 265        KK     62D
 266        KM   BASIN 62D
 267        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 268        KM    L=        .9  Lca=        .3   S=   30.7  Kn= .045  LAG=  21.3
 269        KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
 270        BA     .46
 271        LG     .23     .25    4.65     .40   50.00
 272        UI     76.    300.    519.    753.    475.    369.    286.    203.    163.    111.
 273        UI     85.     63.     47.     36.     26.     14.     14.     14.     14.      0.
 274        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 275        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            * DDM   ***** Preserved *****

 276        KK    R62D
 277        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
 278        DT    D62D      35
 279        DI       0   10000
 280        DQ       0   10000
            * DDM   ***** Preserved *****

 281        KK   CP62D
 282        KM   COMBINE FLOWS FROM SUBBASINS 62B AND 62D
 283        HC       2
            *
            * DDM   ***** Preserved *****

 284        KK   62DTF
 285        KM   ROUTE 62D TO 62F VIA HAWES ROAD
 286        RS       4    FLOW      -1
 287        RC    .045    .024    .045    3600   .0033
 288        RX       0     500     750     753     793     796    1046    1546
 289        RY       3     1.5    1.25       0       0    1.25     1.5       3
            *
            * DDM   ***** Updated *****
1                                          HEC-1 INPUT                                                    PAGE  8

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

 290        KK     62F
 291        KM   BASIN 62F
 292        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 293        KM    L=        .6  Lca=        .4   S=   31.9  Kn= .042  LAG=  18.1
 294        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 295        BA     .26
 296        LG     .21     .25    4.65     .41   54.00
 297        UI     66.    224.    350.    546.    371.    235.     98.     56.     18.     15.
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298   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
299   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
      *
      * DDM   ***** Preserved *****

300   KK    R62F
301   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
302   DT    D62F      18
303   DI       0   10000
304   DQ       0   10000
      *
      * DDM   ***** Preserved *****

305   KK   CP62F
306   KM   COMBINE FLOWS FROM 62D AND 62F
307   HC       2
      *
      * DDM   ***** Preserved *****

308   KK   62T63
309   KM   ROUTE CP62F TO SUBBASIN 63 VIA WASH.
310   KM   WASH CROSSES HAWES, NORTH OF ELLIOT
311   RS       7    FLOW      -1
312   RC    .045     .04    .045    6000  0.0055
313   RX       0     500     750     770     780     800    1050    1550
314   RY       5       4       3       0       0       3       4       5
      *
      * DDM   ***** Inserted *****

315   KK      63
316   KM   BASIN 63
317   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
318   KM    L=      1.4  Lca=       .7   S=   28.2  Kn= .035  LAG=  26.8
319   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
320   BA     .91
321   LG     .18     .25    4.65     .43   55.00
322   UI    114.    346.    595.    780.   1159.   1291.    930.    689.    485.    241.
323   UI    170.    113.     35.     35.     35.     35.      0.      0.      0.      0.
324   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
      *
      * DDM   ***** Preserved *****
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LINE  ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

325   KK     R63
326   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
327   DT     D63      71
328   DI       0   10000
329   DQ       0   10000
      *
      * DDM   ***** Preserved *****

330   KK    CP63
331   KM   COMBINE FLOWS FROM SUBBASIN 63 AND CP62F
332   HC       2
      *
      * DDM   ***** Preserved *****

333   KK   63T71
334   KM   ROUTE CP63 TO S71 VIA SHEET FLOW
335   KM   SOSSAMAN SOUTH OF ELLIOT
336   RS       6    FLOW      -1
337   RC    .055    .045    .055    5280   .0005
338   RX       0    1000    1005    1010    1013    1043    1543    2043
339   RY       6       5       0       0       3       5       2       5
      *
      *
      * DDM   ***** Updated *****

340   KK     68B
341   KM   BASIN 68B
342   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
343   KM    L=       .6  Lca=       .3   S=   32.3  Kn= .020  LAG=   7.7
344   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
345   BA     .25
346   LG     .10     .25    5.20     .36   80.00
347   UI    377.   1018.    412.     72.      0.      0.      0.      0.      0.      0.
348   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
      *

349   KK     R68
350   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
351   DT    D68B      24
352   DI       0   10000
353   DQ       0   10000
      *

354   KK  68BT69
```

```
355          KM   ROUTE S68B TO S69 VIA WASH CROSSING HAWES
356          RS       3    FLOW      -1
357          RC    .045     .04    .045    2750   .0036
358          RX       0     500     950    1003    1007    1057    1511    2011
359          RY       4     3.5       3       0       0       2     2.5       3
             *
1                                          HEC-1 INPUT                                                          PAGE 10
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

360          KK      69
361          KM   BASIN 69
362          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
363          KM    L=        .7  Lca=        .3   S=   22.4  Kn= .020  LAG=   9.0
364          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
365          BA     .09
366          LG     .10     .25    4.70     .45   80.00
367          UI    104.    320.    213.     54.     11.      0.      0.      0.      0.      0.
368          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****

369          KK     R69
370          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
371          DT     D69       9
372          DI       0   10000
373          DQ       0   10000
             *
             * DDM   ***** Preserved *****

374          KK     C69
375          KM   COMBINE FLOWS FROM SUBBASIN 68B AND 69
376          HC       2
             *
             * DDM   ***** Preserved *****

377          KK   69T71
378          KM   ROUTE S69 TO S71 VIA WASH AND SHEET FLOW, INCREASE OVERBANK N VALUES
379          RS       7    FLOW      -1
380          RC    .055    .045    .055    6000   .0033
381          RX       0     500    1000    1001    1002    1500    2000    2500
382          RY       4       3       2       0       0       2       3       4
             *
             * DDM   ***** Inserted *****

383          KK      71
384          KM   BASIN 71
385          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
386          KM    L=       1.6  Lca=        .8   S=   26.4  Kn= .020  LAG=  16.8
387          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
388          BA    1.09
389          LG     .10     .25    4.65     .47   80.00
390          UI    331.   1085.   1805.   2349.   1459.    780.    329.    144.     67.     67.
391          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
392          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

393          KK     R71
394          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
395          DT     D71     106
396          DI       0   10000
397          DQ       0   10000
             *
             * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                          PAGE 11
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

398          KK     C71
399          KM   original wording "COMBINE S71 WITH S69 AND S68B"
400          KM   was revised by Dibble to be "COMBINE FLOWS FROM S63, S68B, S69 AND S71,
401          KM   WHICH COMBINES HYDROGRAPHS 63T71, 69T71 AND R71"
402          KM   CONCENTRATION POINT IS ALONG SOSSAMAN AT THE MESQUITE ST ALIGNMENT
403          HC       3
             *

404          KK   71T72
405          KM   ROUTE C71 TO S72 VIA DIKE
406          KM    WASH WEST OF INTERSECTION OF SOSSAMAN & WARNER
407          RS       4    FLOW      -1
408          RC    .055    .045    .055    3750   .0037
409          RX       0     500    1000    1007    1017    1025    1530    2030
410          RY       9     8.5       8       0       0       8     8.5       9
             *
             * DDM   ***** Inserted *****

411          KK      72
412          KM   BASIN 72
```

```
413          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
414          KM    L=      1.6  Lca=       .9   S=   13.1  Kn= .020  LAG=  20.3
415          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
416          BA     .84
417          LG     .10      .25     5.40      .33    80.00
418          UI    161.     600.     906.    1496.   1347.     912.     566.     247.     153.      50.
419          UI     43.      43.       0.       0.      0.       0.       0.       0.       0.       0.
420          UI      0.       0.       0.       0.      0.       0.       0.       0.       0.       0.
             *
             * DDM   ***** Preserved *****

421          KK     R72
422          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
423          DT     D72      83
424          DI       0   10000
425          DQ       0   10000
             *
             * DDM   ***** Preserved *****

426          KK  EMFWAR
427          KM   COMBINE ROUTED FLOW FROM 71 WITH 72 WITH EMF (HYDROGRAPH ELTWAR)
428          HC       3
             * DDM   ***** Preserved *****

429          KK  WARTKN
430          KM   ROUTE EMF WARNER ROAD FLOW TO KNOX ROAD
431          RS       1    FLOW      -1
432          RC     .03     .022     .03     2500   .0003
433          RX       0      500     520      553     693     726     740     742
434          RY      14       12      11        0       0      11      11      12
             *
1                                          HEC-1 INPUT                                                    PAGE 12

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

435          KK     70B
436          KM   BASIN 70B
437          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
438          KM    L=      1.6  Lca=      1.1   S=   29.9  Kn= .022  LAG=  20.7
439          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
440          BA     .38
441          LG     .11      .15     8.00      .12    76.00
442          UI     68.     259.     390.     636.    615.     418.     267.     119.      73.      30.
443          UI     19.      19.       0.       0.      0.       0.       0.       0.       0.       0.
444          UI      0.       0.       0.       0.      0.       0.       0.       0.       0.       0.
             *
             * DDM   ***** Preserved *****

445          KK    R70B
446          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
447          DT    D70B      38
448          DI       0   10000
449          DQ       0   10000
             *

450          KK  70BT76
451          KM   ROUTE 70B TO 76B VIA WASH CROSSING SOSSAMAN, SOUTH OF WARNER ROAD
452          RS       6    FLOW      -1
453          RC    .045     .04     .045     5500   .0041
454          RX       0     500     1000     1003    1007    1011    1511    2011
455          RY       4     3.5        3        0       0       2     2.5       3
             *

456          KK     76B
457          KM   BASIN 76B
458          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
459          KM    L=      1.8  Lca=       .9   S=   27.4  Kn= .021  LAG=  18.9
460          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
461          BA     .64
462          LG     .10      .15     8.80      .09    78.00
463          UI    148.     515.     789.    1294.    957.     629.     303.     157.      70.      35.
464          UI     35.       0.       0.       0.      0.       0.       0.       0.       0.       0.
465          UI      0.       0.       0.       0.      0.       0.       0.       0.       0.       0.
             *
             * DDM   ***** Preserved *****

466          KK    R76B
467          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
468          DT    D76B      66
469          DI       0   10000
470          DQ       0   10000
             *

471          KK    KNOX
472          KM   COMBINE FLOWS AT KNOX ROAD
473          HC       2
             *
1                                          HEC-1 INPUT                                                    PAGE 13
```

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

 474        KK  EMFKNX
 475        KM   COMBINE FLOWS INTO THE EMF AT KNOX ROAD
 476        KM   THIS COMBINES HYDROGRAPHS WARTKN, 70BT76 and R76B.
 477        HC       2
            *

 478        KK  KNXTRY
 479        KM   ROUTE EMF KNOX ROAD FLOW TO RAY ROAD
 480        RS       1    FLOW      -1
 481        RC     .03    .022     .03    3000   .0003
 482        RX       0     500     520     553     693     726     740     742
 483        RY      14      12      11       0       0      11      11      12
            *

 484        KK     65A
 485        KM   BASIN 65A
 486        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 487        KM    L=       1.6  Lca=        .9   S=   51.2  Kn= .053  LAG=  41.5
 488        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 489        BA    2.54
 490        LG     .15     .25    5.10     .35   59.00
 491        UI    206.    248.    735.   1001.   1188.   1423.   1760.   2487.   2309.   1835.
 492        UI   1546.   1269.   1035.    777.    457.    351.    292.    206.    143.     63.
 493        UI     63.     63.     63.     63.      0.      0.      0.      0.      0.      0.
 494        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *

 495        KK    R65A
 496        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
 497        DT    D65A     174
 498        DI       0   10000
 499        DQ       0   10000
            * DDM   ***** Preserved *****

 500        KK   CAP1A
 501        KM   INFLOW FROM EAST OF THE CAP THROUGH 2 - 72" PIPE OVERCHUTES
 502        KM   STATION #131+90 AND 158+00 SALT-GILA AQUEDUCT REACH 2
 503        KM   QI CARDS BASED ON PEAK OUTFLOW FROM OVERCHUTES OF 217 CFS.
 504        IN      60
 505        BA     .01
 506        QI       0      65     217     217     217     217     217     217     217     217
 507        QI     217     217     217     217     217     217     217     217     217     217
 508        QI     217     217     217     217     217
            *
            * DDM   ***** Preserved *****

 509        KK  RCAP1A
 510        KM   ROUTE FLOW FROM CAP OVERCHUTE TO A POINT ON THE MARICOPA/PINAL COUNTY LINE
 511        KM   2000 FEET NORTH OF THE GUADALUPE ROAD COUNTY LINE INTERSECTION. ROUTING WILL
 512        KM   BE BY A NATURAL CHANNEL.  THIS IS THEN ROUTED FOR 1200 FT
 513        KM   IN A CHANNEL (DIBBLE ID MN3) TO THE POINT WERE THE ROUTED CAP1B FLOW
 514        KM   INTERCEPTS THE CHANNEL. ORIGINAL SLOPE =.01
 515        RS      13    FLOW      -1
 516        RC    .045     .04    .045    4900    .010
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 517        RX       0    .500    1000    1006    1026    1032    1511    2011
 518        RY       4     3.5       3       0       0       3     3.5       4
            *

 519        KK  RRCP1A
 520        KM   REACH MN-5 AND CULVERT MNC-1
 521        KM   ROUTE FLOW FROM WHERE RCAP1A FLOWS INTO THE NEW CHANNEL ALONG MERIDIAN ROAD
 522        KM   USES REVISED ROUTING PARAMETERS, CHANNEL MN-5 SHAPE
 523        RS       1    FLOW      -1
 524        RC   0.025   0.015   0.025    2350   .0017
 525        RX       0       8      16      27      43      53      61      69
 526        RY     5.1     5.2     5.3       0       0     5.3     5.2     5.1
            *

 527        KK   CAP1B
 528        KM   INFLOW FROM EAST OF THE CAP THROUGH 2 - 72" PIPE OVERCHUTES
 529        KM   STATION #131+90 AND 158+00 SALT-GILA AQUEDUCT REACH 2
 530        KM   QI CARDS BASED ON PEAK OUTFLOW FROM OVERCHUTES OF 217 CFS.
 531        IN      60
 532        BA     .01
 533        QI       0      65     217     217     217     217     217     217     217     217
 534        QI     217     217     217     217     217     217     217     217     217     217
 535        QI     217     217     217     217     217
            *

 536        KK  RCAP1B
 537        KM   ROUTE FLOW FROM CAP1B OVERCHUTE TO A POINT ALONG THE MARICOPA/PINAL COUNTY
 538        KM   LINE 1000 FEET NORTH OF THE INTERSECTION OF GUADALUPE ROAD AND THE COUNTY
 539        KM   LINE. ROUTING WILL BE BY A NATURAL CHANNEL. ORIGINAL SLOPE=.01
```

```
540   RS      14    FLOW      -1
541   RC    .045     .04    .045    4900    .010
542   RX       0     500    1000    1006    1026    1032    1511    2011
543   RY       4     3.5       3       0       0       3     3.5       4
      *

544   KK   C65A1
545   KM   COMBINE FLOWS FROM SUBBASIN 65A(EAST OF MERIDIAN RD) AND CAP1A AND CAP1B
546   HC       3
      *

547   KK  65ATB1
548   KM   REACH MN-4, MN-3B AND MN-3A
549   KM   ROUTE FLOW FROM BASIN 65A TO OFF-LINE DETENTION BASIN DIVERSION STRUCTURE
550   KM   USES REVISED ROUTING PARAMETERS, CHANNEL MN-3A SHAPE.
551   RS       1    FLOW      -1
552   RC   0.025   0.015   0.025    3760   .0015
553   RX     0.0     8.0    16.0      34      56      74      82      90
554   RY     8.8     8.9     9.0       0       0     9.0     8.9     8.8
      *
1                                   HEC-1 INPUT                                    PAGE 15

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

555   KK  DIDB65
556   KM   DETENTION BASIN DIVERSION STRUCTURE
557   KM   DIVERT FLOW FROM CHANNEL TO OFF-LINE BASIN
      * KO     2       2
558   DT   DB65A
559   DI       0     100     434     582     854    1206    1624    2096    3188
560   DQ       0       0       0     148     420     772    1190    1662    2754
      *

561   KK  65B1T2
562   KM   REACH MN-2
563   KM   ROUTE FLOW FROM BASIN DIVERSION STRUCTURE TO BASIN OUTLET
564   RS       1    FLOW      -1       0
565   RC    .025    .015    .025     700   .0019
566   RX     0.0     8.0    16.0      25      35      44      52      60
567   RY     8.7     8.8     4.5       0       0     4.5     8.8     8.7
      *

568   KK  DIB65P
569   KM         RETURN DIVERT TO DETENTION BASIN
570   DR   DB65A
      *

571   KK   DB65A
572   KM   SIPHON DRAW BASIN
573   KM   OFF-LINE DETENTION BASIN LOCATED AT ELLIOT AND MERIDIAN ROAD
574   KM   WITH  36" OUTLET PIPE AND 235' WEIR
      * KO    2       2
575   RS       1    STOR       0
576   SA       0    4.67   15.05   27.12   37.88   42.12
577   SE      90      91      93      95      97      98
578   SL    91.5    7.07     .62      .5
579   SS    97.0     235     2.5     1.5
      *

580   KK   C65A2
581   KM   RECOMBINE FLOWS FROM DETENTION BASIN AND SUNLAND SPRINGS CHANNEL.
582   HC       2
      *

583   KK  65AT-1
584   KM   REACH MN-1
585   KM   ROUTE FROM DETENTION BASIN OUTLET TO ELLIOT ROAD AND MERIDIAN ROAD
586   KM   CONCRETE CHANNEL ON EAST SIDE OF MERIDIAN ROAD ALGN.
587   RS       1    FLOW      -1
588   RC    .025    .015    .025     630   .0014
589   RX       0       8      16      26      38      48      56      64
590   RY     4.7     4.8     4.9       0       0     4.9     4.8     4.7
      *
1                                   HEC-1 INPUT                                    PAGE 16

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

591   KK  65AT-2
592   KM   REACH ET-10, ET-11, ET-12 plus culverts ETC-4 AND ETC-3.
593   KM   ROUTE FROM ELLIOT AND MERIDIAN, ALONG ELLIOT ROAD IN ELLIOT CHANNEL
594   KM   TO ABOUT 0.6 MILES EAST OF CRISMON ROAD.
595   KM   EARTH CHANNEL PORTION ON NORTH SIDE OF ELLIOT
      * KO     1
596   RS       3    FLOW      -1
597   RC    .025    .025    .025    7680   .0005
598   RX       0       8      22      58      71     107     115     123
599   RY     6.1     6.0     5.9       0       0     5.9     6.0     6.1
      *
```

```
600     KK    65AW
601     KM   BASIN 65AW
602     KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
603     KM    L=        .9  Lca=        .6   S=   54.7  Kn= .049  LAG=  26.1
604     KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
605     BA     .43
606     LG     .24      .25     5.30      .29    32.00
607     UI     56.     176.     295.     391.     603.     594.     432.     316.     210.     101.
608     UI     73.      43.      17.      17.      17.       0.       0.       0.       0.       0.
609     UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
        *

610     KK   R65AW
611     KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
612     DT   D65AW      31
613     DI       0   10000
614     DQ       0   10000
        *

615     KK  65AT65
616     KM   ROUTE C65A TO BASIN 65B VIA A WASH, (THIS WASH IS NORTH OF SIPHON DRAW)
617     KM   THIS IS THE PART OF 65A WHICH IS WEST OF THE MERIDIAN RD ALIGNMENT
        * KO    3
618     RS      11    FLOW      -1
619     RC    .045     .04    .045    9500    .007
620     RX       0     500    1000    1003    1053    1056    1511    2011
621     RY       4     3.5       3       0       0       2     2.5       3
        *

622     KK     65B
623     KM   BASIN 65B
624     KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
625     KM    L=       2.0  Lca=       1.2   S=   37.5  Kn= .036  LAG=  36.6
626     KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
627     BA    1.37
628     LG     .18      .25     6.00      .24    53.00
629     UI    126.     218.     506.     669.     809.    1014.    1468.    1422.    1102.     901.
630     UI    720.     562.     337.     218.     182.     126.      71.      39.      39.      39.
631     UI     39.       0.       0.       0.       0.       0.       0.       0.       0.       0.
632     UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
        *
        * DDM   ***** Preserved *****
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LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

633     KK    R65B
634     KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
635     DT    D65B     120
636     DI       0   10000
637     DQ       0   10000
        *

638     KK   CP65B
        * KO     1
639     KM   COMBINE FLOW FROM SUBBASIN 65AW (WEST OF MERIDIAN RD) WITH FLOW FROM
640     KM   SUBBASIN 65B
641     HC       2
        *

642     KK   DI65B
643     KM        DIVERSION STRUCTURE TO ROUTE PEAK FLOW TO NEW
644     KM        ELLIOT BASIN (EAST)
645     KM        By-pass 30 cfs to Elliot Channel, and Divert Remaining to E Basin
        *       The Existing Model By-pass 51 cfs. SZ, 5-17-99
646     DT  DIRS65
647     DI       0    15.0      30   100.0     200   350.0     500     700     900   1500.
648     DQ       0       0       0    70.0     170   320.0     470     670     870   1470.
        *

649     KK   CP65A
650     KM   COMBINE FLOWS FROM ELLIOT CHANNEL AT NON DIVERTED FLOWS (51CFS) FROM
651     KM   SUBBASIN 65B
652     HC       2
        *

653     KK  65AT-3
        * KM REACH ET-9 plus culvert ETC-2
        * KM ROUTE FROM ABOUT 0.6 MILES EAST OF CRISMON ROAD
        * KM   TO ABOUT 0.18 MILES EAST OF CRISMON ROAD (CP65)
        * KM CONCRETE CHANNEL PORTION ON SOUTH SIDE OF ELLIOT
        * RD  2340  0.0019   0.013            CIRC     7.5
654     KM        E. 104th St to E. of EA (Sta. 83+10 to Sta. 90+50)
        *       RD card used for routing
655     RD     740  0.0064   0.012            CIRC     6.5
        *

656     KK   DR65B
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```
                 * KO     1
657              KM        RETURN DIVERT TO EAST DETENTION BASIN
658              DR  DIRS65
                 *

659              KK   RS65A
660              KM   ELLIOT BASIN, EAST
661              KM        Bleed-off Pipe Size = 12", SZ, 5-17-99
                 *       Since the bleed-off pipe length is short, no routing is provided.
                 *       The Existing Pipe Size = 24"
                 * KO     1
662              RS       1    STOR       0
1                                          HEC-1 INPUT                                                    PAGE 18

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

663              SV       0    5.40    9.30   13.90   18.80   24.00   29.50   35.30   41.40   48.00
664              SE  1429.0  1433.0  1434.0  1435.0  1436.0  1437.0  1438.0  1439.0  1440.0  1441.0
665              SL  1430.0  0.7854     .62      .5
666              SS  1439.0     200     2.5     1.5
                 *

667              KK    CP65
                 *       "CP65B" changed to "CP65" -- SZ, 5-14, 1999
668              KM   COMBINE FLOWS FROM EAST ELLIOT BASIN AND ELLIOT CHANNEL
669              KM   BEFORE COMBINING WITH FLOWS FROM THE BYPASS CRISMON CHANNEL
                 * KO     1
670              HC       2
                 *

671              KK   65T66
                 * KM REACH ET-8
                 * KM ROUTING IN ELLIOT CHANNEL FROM ABOUT
                 * KM   0.18 MILES EAST OF CRISMON ROAD (CP65) TO CRISMON ROAD (CP66).
                 *       Moved from "65AT-3" to here
672              KM        E. of EA to W. of EA (Sta. 76+06 to Sta. 83+10)
                 *       RD card used for routing
                 * RD   940  0.0060   0.013            CIRC     9.5
673              RD     704  0.0064   0.012            CIRC     7.5
                 *

674              KK  65T66A
675              KM        W. of EA to E. of Crismon Rd. (Sta. 69+00 to Sta. 76+06)
                 *       New additional routing operation
                 *       RD card used for routing
676              RD     706  0.0047   0.012            CIRC     7.5
                 *

677              KK  65T66B
678              KM        E. of Crismon Rd.to W. of Crismon Rd. (Sta. 61+25 to Sta. 69+00)
                 *       New additional routing operation
                 *       RD card used for routing
679              RD     775  0.0048   0.012            CIRC     9.5
                 *

680              KK  ADOT-E
681              KM   INFLOW FROM NORTH OF THE SUPERSTITION FREEWAY ENTERING 67A
682              KM   FROM EAST ADOT DETENTION BASIN 4105.
                 *     KO       1
683              BA    0.01
684              ZR  =QI A=ADOT EAST BASIN B=AT SUPERSTITION C=FLOW E=5MIN F=100YR
                 *

685              KK  AET67A
686              KM    ROUTE SUPERSTITION FLOW THROUGH 67A TO BASELINE ROAD
687              IN      15
688              RS       6    FLOW      -1
689              RC    .045    .040    .045    5500    .010
690              RX       0     100     110     120     130     140     150     250
691              RY       5       4       3       1       1       3       4       5
                 *
1                                          HEC-1 INPUT                                                    PAGE 19

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

692              KK     67A
693              KM   BASIN 67A
694              KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
695              KM    L=      1.0  Lca=       .7   S=   42.9  Kn= .042  LAG=  25.7
696              KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
697              BA     .30
698              LG     .21     .25    4.70     .39   43.00
699              UI     39.    126.    208.    277.    433.    400.    292.    213.    134.     67.
700              UI     47.     25.     12.     12.     12.      0.      0.      0.      0.      0.
701              UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                 *

702              KK    R67A
703              KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
```

```
704          DT    D67A      21
705          DI       0   10000
706          DQ       0   10000
             *

707          KK    C67A
708          KM    COMBINE FLOWS FROM ADOT-E AND SUBBASIN 67A
709          HC       2
             *

710          KK   67ATC
711          KM   ROUTE 67A TO 67C VIA WASH CROSSING BASELINE
712          RS       7    FLOW      -1
713          RC    .055    .045    .055    6300   .0071
714          RX       0     500     980    1003    1007    1031    1511    2011
715          RY       4     3.5       3       0       0       3     3.5       4
             *

716          KK    SUP2
717          KM   INFLOW FROM NORTH OF SUPERSTITION FREEWAY, DISCHARGING INTO 67B
             *     KO       1
718          BA    0.01
719          ZR  =QI A=ADOT WEST BASIN B=AT SUPERSTITION C=FLOW E=5MIN F=100YR
             *

720          KK   RSUP2
721          KM   ROUTE SUP2 THROUGH SUBBASIN 67B
             * KO                2
722          IN      15
723          RS       5    FLOW      -1
724          RC    .045    .045    .045    4500   .0056
725          RX       0     500    1000    1003    1007    1011    1511    2011
726          RY       4     3.5       3       0       0       2     2.5       3
             *
```



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

727          KK     67B
728          KM   BASIN 67B
729          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
730          KM    L=      1.2  Lca=       .9   S=   28.0  Kn= .034  LAG=  26.4
731          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
732          BA     .53
733          LG     .17     .25    4.90     .38   56.00
734          UI     68.    210.    356.    470.    713.    741.    536.    395.    269.    131.
735          UI     94.     59.     21.     21.     21.      0.      0.      0.      0.      0.
736          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

737          KK    R67B
738          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
739          DT    D67B      41
740          DI       0   10000
741          DQ       0   10000
             *

742          KK    C67B
743          KM   COMBINE FLOWS FROM SUP2 AND SUBBASIN 67B
             * KO              2
744          HC       2
             *

745          KK   67BTC
746          KM   REACH CN-4, CN-5 plus culvert CNC-4.
747          KM   ROUTE FLOW IN THE CRISMON CHANNEL FROM BASELINE ROAD (C67B) TO
748          KM      GUADALUPE ROAD (C67C)
749          RS       2    FLOW      -1
750          RC    .025    .015    .025    5180   .0019
751          RX       0       8      16    24.4    36.4    44.8    52.8    60.8
752          RY     4.0     4.1     4.2       0       0     4.2     4.1     4.0
             *

753          KK     67C
754          KM   BASIN 67C
755          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
756          KM    L=      1.2  Lca=       .7   S=   40.2  Kn= .049  LAG=  32.3
757          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
758          BA     .93
759          LG     .25     .25    5.10     .32   31.00
760          UI     96.    213.    432.    557.    702.   1006.   1133.    842.    667.    518.
761          UI    365.    193.    157.     96.     59.     30.     30.     30.     30.      0.
762          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
763          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

764          KK    R67C
765          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
766          DT    D67C      67
```

```
767          DI       0   10000
768          DQ       0   10000
             *
1                                          HEC-1 INPUT                                                    PAGE 21

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

769          KK    C67C
770          KM   COMBINE SUBBASINS 67C AND 67A AND 67B
771          HC       3
             *

772          KK  67CT67
773          KM   REACH CN-3 plus culvert CNC-3
774          KM   ROUTE FLOW IN THE CRISMON CHANNEL FROM C67C (@ GUADALUPE ROAD & CRISMON ROAD)
775          KM    TO C67D (AT APPROX. 1/2 MILE SOUTH OF GUADALUPE ROAD).
             *       Sta. 39+00 to Guadalupe Rd.
776          RS       1    FLOW      -1
777          RC    .025    .015    .025    2420   .0018
778          RX       0       6      12      24      64      76      82      88
779          RY       4       3       2       0       0       2       3       4
             *

780          KK     67D
781          KM   BASIN 67D
782          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
783          KM    L=        .6  Lca=        .4   S=   34.7  Kn= .050  LAG=  20.5
784          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
785          BA     .13
786          LG     .25     .25    5.20     .30   30.00
787          UI     23.     87.    132.    216.    202.    137.     86.     38.     23.      9.
788          UI      6.      6.      0.      0.      0.      0.      0.      0.      0.      0.
789          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

790          KK    R67D
791          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
792          DT    D67D       9
793          DI       0   10000
794          DQ       0   10000
             *

795          KK    C67D
796          KM    COMBINE HYDROGRAPHS AT CP67D
797          HC       2
             *

798          KK  67DT66
799          KM   REACH CN-2 plus culvert CNC-2
800          KM   ROUTE FLOW IN THE CRISMON CHANNEL FROM APPROX. 1/2 MILE SOUTH
801          KM    OF GUADALUPE ROAD TO THE INFLOW SPILLWAY FOR THE ELLIOT DETENTION BASIN.
             *       Sta. 20+00 to Sta. 39+00
802          RS       1    FLOW      -1
803          RC    .032    .032    .032    1900  0.0035
804          RX       0       6      12      24      64      76      82      88
805          RY       4       3       2       0       0       2       3       4
             *
1                                          HEC-1 INPUT                                                    PAGE 22

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

806          KK     66A
807          KM   BASIN 66A
808          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
809          KM    L=        .7  Lca=        .3   S=   55.9  Kn= .047  LAG=  17.1
810          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
811          BA     .26
812          LG     .24     .25    6.00     .22   35.00
813          UI     78.    256.    417.    576.    363.    205.     84.     39.     16.     16.
814          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
815          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****

816          KK    R66A
817          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
818          DT    D66A      21
819          DI       0   10000
820          DQ       0   10000
             * DDM   ***** Preserved *****

821          KK   66ATB
822          KM   ROUTE S66A TO 66B VIA WASH CROSSING BASELINE
823          RS       7    FLOW      -1
824          RC    .045     .04    .045    7500   .0077
825          RX       0     500     980    1003    1007    1031    1511    2011
826          RY       4     3.5       3       0       0       3     3.5       4
             *
```

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                 * DDM   ***** Updated *****

827              KK     66B
828              KM   BASIN 66B
829              KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
830              KM    L=      1.6  Lca=      1.0   S=   43.3  Kn= .050  LAG=  42.8
831              KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
832              BA     .67
833              LG     .25      .25     5.00      .33   30.00
834              UI     53.      56.     185.     248.    297.     352.     426.     590.     636.     496.
835              UI    419.     346.     286.     232.    152.      93.      86.      58.      53.      21.
836              UI     16.      16.      16.      16.     16.       0.       0.       0.       0.       0.
837              UI      0.       0.       0.       0.      0.       0.       0.       0.       0.       0.
                 *
                 * DDM   ***** Preserved *****

838              KK    R66B
839              KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
840              DT    D66B      48
841              DI       0   10000
842              DQ       0   10000
                 * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                    PAGE 23

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

843              KK   CP66B
844              KM   COMBINE S66A AND S66B
845              HC       2
                 *
                 * DDM   ***** Preserved *****

846              KK   66BTC
847              KM   ROUTE 66B TO 66C VIA WASH
848              RS       7    FLOW      -1
849              RC    .045     .04     .045    6000    .0150
850              RX       0     500      995    1003     1007    1016    1511    2011
851              RY       4     3.5        3       0        0       3     3.5       4
                 *
                 * DDM   ***** Updated *****

852              KK     66C
853              KM   BASIN 66C
854              KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
855              KM    L=      1.1  Lca=       .7   S=   46.5  Kn= .039  LAG=  24.3
856              KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
857              BA     .50
858              LG     .19      .25     5.40      .29   48.00
859              UI     69.     243.     385.     528.    817.     635.     463.     325.     159.     103.
860              UI     63.      21.      21.      21.      0.       0.       0.       0.       0.       0.
861              UI      0.       0.       0.       0.      0.       0.       0.       0.       0.       0.
                 *
                 * DDM   ***** Preserved *****

862              KK    R66C
863              KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
864              DT    D66C      42
865              DI       0   10000
866              DQ       0   10000
                 *
                 * DDM   ***** Preserved *****

867              KK  CP66C1
868              KM   Split up hydrograph combination in order to separate flows.
869              KM   Combine Hydrographs 66BTC (from Sub. 66A)and R66C (from Sub. 66C)
                 * KO      2        2
870              HC       2
                 *

871              KK  CP66C2
872              KM   Combine Hydrograph CP66C1 (from Subbasins 66A, 66B and 66C)
873              KM     plus hydrograph 67DT66 ( C67D )
                 * KO      1
874              HC       2
                 *
1                                          HEC-1 INPUT                                                    PAGE 24

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

875              KK    DI66
876              KM    DIVERT FLOW TO DETENTION BASIN WA
877              KM    By-pass Flow Reduced to 410 cfs from 458, SZ, 5-17-99
                 * KO      1        2
878              DT    DB66
879              DI       0     150      363   411.0   456.0     513     577     643     712    1000
880              DQ       0       0        0    32.0     71.     122     179     239     302     590
                 *
```

```
881          KK  66C1T2
882          KM    ROUTE FLOW FROM DIVERSION STRUCTURE TO ELLIOT CHANNEL at ELLIOT ROAD.
883          KM    REACH CN-1 plus culvert CNC-1
884          KM        A single pipe size and an overall slope are used to represent this
885          KM        1,070 ft long reach which has pipe sizes of 78", 84" and 90", and
886          KM        about 250' long sideweir and transition open channel.
887          KM        RD card used for routing (Sta. 9+30 to Sta. 20+00)
888          RD    1070  0.0130   0.012            CIRC       7
             *

889          KK   CP66C
890          KM   COMBINE FLOWS FROM ELLIOT CHANNEL AND CRISMON BYPASS CHANNEL
             * KO      1
891          HC       2
             *

892          KK   66CTD
             * KM REACH BT-7
893          KM   ROUTE FLOWS FROM INTERSECTION OF CRISMON AND ELLIOT CHANNELS
894          KM      AT THE INTERSECTION OF ELLIOT ROAD and CRISMON ROAD TO THE ELLIOT BASIN
895          KM      WA Bleed-off Outlet, WHICH IS ABOUT 390 ft WEST OF CRISMON ROAD.
             *       RD card used for routing (Sta. 57+35 to Sta. 61+25)
896          RD     390  0.0052   0.012            CIRC     9.5
             *

897          KK    DR66
             * KO      1
898          KM          RETURN DIVERT TO DETENTION BASIN FROM DIVERSION STRUCTURE
899          DR    DB66
             *

900          KK  RS66D1
             * KO      1
901          KM   ELLIOT BASIN, WEST A
902          KM   TWO PONDS OPERATING IN SERIES.
903          KM        Bottom Elevation Lowered to 1415.0 ft from 1420, and 18" Bleed-off
904          KM        Pipe Added from WA to Elliot Channel
             *       Since the bleed-off pipe length is short, no routing is provided.
             *       Existing SS = 1423   20   2.5   1.5, SZ, 5-18-99
905          RS       1    STOR      0
906          SV       0    1.60   10.00   25.50   34.70   44.20   54.10   64.40   75.10   86.00
907          SE  1415.0    1417    1419    1421    1422    1423    1424    1425    1426    1427
908          SL  1416.0  1.7672     .62      .5
909          SS  1423.5      20     3.0     1.5
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

910          KK    B-WA
911          KM        Bleed-off Flow from WA to Elliot Channel = 18" Pipe, SZ, 6-15-99
912          KM        Divert Flow to WB by Weir Spillover (SS card on RS66D1)
             *       RS66D1 is the total routed flow = SL + SS
             *       This operation is designed to separate weir flow from pipe flow
913          DT    D-WB
914          DI       0       5      10      15   17.59   40.87   80.62  131.76  192.12  260.43
915          DQ       0       0       0       0       0    21.2    60.0   110.2   169.7   237.2
             *

916          KK    C-WA
917          KM        Combine Bleed-off Flow from WA with Flow in Elliot Channel
             *       Added by SZ, 5-17-99
918          HC       2
             *

919          KK   RC-WA
920          KM        Route Flow from WA Outlet to WB Outlet in Elliot Channel
             *       Added by SZ, 5-17-99
             * RS     1    FLOW      -1
             * RC  .025    .015    .025     800   .0017
             * RX     0       8      16      28      44      56      64      72
             * RY   5.7     5.8     6.0       0       0     6.0     5.8     5.7
921          KM      WA Bleed-off Outlet to WB Bleed-off Outlet.
             *       RD card used for routing (Sta. 48+80 to Sta. 57+35)
922          RD     855  0.0052   0.012            CIRC     9.5
             *

923          KK   DR-WA
924          KM        Return Diverted Flow (Spillway) to WB from WA, SZ 5-7-99
             * KO      1
925          DR    D-WB
             *

926          KK  RS66D2
             * KO      1
927          KM   ELLIOT BASIN, WEST B
928          KM   TWO PONDS OPERATING IN SERIES.
929          KM        Bottom Elevation Lowered to 1413.5 ft from 1414, and 36" Bleed-off
930          KM        Pipe Reduced to 18" from WB to Elliot Channel
```

```
                 *       Since the bleed-off pipe length is short, no routing is provided.
                 *       Existing SS = 1420.5   80   2.5   1.5, SZ, 5-18-99
931              RS       1    STOR       0
932              SV       0    4.40     8.80    14.50    21.00    28.00    35.30    42.90    50.90    59.20
933              SE  1412.0    1415     1416     1417     1418     1419     1420     1421     1422     1423
934              SL  1413.0  1.7672      .62       .5
935              SS  1422.6      50      2.5      1.5
                 *
1                                                HEC-1 INPUT                                                    PAGE 26

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

936              KK   CP66D
937              KM       COMBINE FLOWS FROM WEST ELLIOT BASIN AND ELLIOT CHANNEL
938              KM       AT THE OUTLET PIPE.
                 * KO     1
939              HC       2
                 *

940              KK  66T66D
                 * KM REACH ET-6
941              KM        ROUTE FROM DETENTION BASIN WB OUTLET TO ELLSWORTH RD
942              KM        2350 -> 3200,  SZ, 5-17-99
                 *       First portion
                 *       RD card used for routing (Sta. 36+44 to 48+80)
943              RD    1236  0.0052   0.012            CIRC     9.5
                 *

944              KK  66-66D
                 * KM REACH ET-6
945              KM        ROUTE FROM DETENTION BASIN WB OUTLET TO ELLSWORTH RD
946              KM        2350 -> 3200,  SZ, 5-17-99
                 *       Second portion
                 *       RD card used for routing (Sta. 12+46 to Sta. 36+44)
947              RD    2398  0.0040   0.012            CIRC     9.5
                 *

948              KK     66D
949              KM   BASIN 66D
950              KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
951              KM    L=       1.0  Lca=        .7   S=   28.6  Kn= .020  LAG=  13.2
952              KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
953              BA     .31
954              LG     .10      .17     6.80      .19   80.00
955              UI    162.     480.     845.     540.    232.     89.     24.      0.      0.      0.
956              UI      0.       0.       0.       0.      0.      0.      0.      0.      0.      0.
                 *
                 * DDM   ***** Preserved *****

957              KK    R66D
958              KM   RETENTION REDUCED BY 77% FROM 31 TO 7 AC-FT
959              KM   DUE TO DEVELOPMENT USING DETENTION BASIN
                 *   The developer does not participate in the basin so the retention volume
                 *   increased to 31 A-F
960              DT    D66D      31
961              DI       0   10000
962              DQ       0   10000
                 * DDM   ***** Updated *****

963              KK     61A
964              KM   BASIN 61A
965              KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
966              KM    L=       .9  Lca=        .4   S=   36.8  Kn= .037  LAG=  19.1
967              KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
968              BA     .52
969              LG     .19      .25     4.20      .56   52.00
1                                                HEC-1 INPUT                                                    PAGE 27

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

970              UI    117.     412.     628.    1037.    786.    517.    261.    132.     62.     28.
971              UI     28.       0.       0.       0.      0.      0.      0.      0.      0.      0.
972              UI      0.       0.       0.       0.      0.      0.      0.      0.      0.      0.
                 *
                 * DDM   ***** Preserved *****

973              KK    R61A
974              KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
975              DT    D61A      42
976              DI       0   10000
977              DQ       0   10000
                 * DDM   ***** Preserved *****

978              KK   61ATB
979              KM   ROUTING 61A TO 61B VIA ELLSWORTH ROAD
980              RS       6    FLOW      -1
981              RC    .035     .024    .035    5280    .005
982              RX       0      500     750     752     802     852    1102    1602
983              RY       3        2     1.5     1.2     1.2     1.5       2       3
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                 * DDM   ***** Updated *****

984              KK     61B
985              KM   BASIN 61B
986              KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
987              KM    L=      1.4  Lca=       .7   S=   39.7  Kn= .047  LAG=  33.6
988              KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
989              BA    1.09
990              LG     .24     .25    4.80     .37   35.00
991              UI    109.    223.    475.    615.    765.   1049.   1335.   1025.    822.    643.
992              UI    495.    288.    187.    143.    109.     36.     34.     34.     34.     34.
993              UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
994              UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                 *
                 * DDM   ***** Preserved *****

995              KK    R61B
996              KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
997              DT    D61B      81
998              DI       0   10000
999              DQ       0   10000
                 * DDM   ***** Preserved *****

1000             KK   CP61B
1001             KM   COMBINE FLOWS FROM S61A AND S61B
1002             HC       2
                 * DDM   ***** Preserved *****

1003             KK  61T66D
1004             KM   ROUTE CP61B TO SUBBASIN 66D ALONG ELLSWORTH ROAD. ROUTING WILL BE
1005             KM   THE SAME AS WAS GIVEN FOR SUBBASIN 61A
1006             RS       6    FLOW      -1
1007             RC    .035    .024    .035    5280    .008
1008             RX       0     500     750     752     802     852    1102    1602
1009             RY       3       2     1.5     1.2     1.2     1.5       2       3
                 *
                 * DDM   ***** Updated *****
1                                          HEC-1 INPUT                                          PAGE 28

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

1010             KK     67E
1011             KM   BASIN 67E
1012             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1013             KM    L=      1.2  Lca=       .7   S=   32.3  Kn= .038  LAG=  26.9
1014             KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1015             BA     .58
1016             LG     .19     .25    5.40     .30   50.00
1017             UI     73.    219.    378.    496.    732.    830.    597.    443.    315.    157.
1018             UI    110.     73.     24.     22.     22.     22.      0.      0.      0.      0.
1019             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                 *
                 * DDM   ***** Preserved *****

1020             KK    R67E
1021             KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1022             KM   DUE TO DEVELOPMENT USING DETENTION BASIN
1023             DT   D67E       50
1024             DI       0   10000
1025             DQ       0   10000
                 * DDM   ***** Preserved *****

1026             KK    C67E
1027             KM   COMBINE FLOWS FROM ELLSWORTH ROAD JUST NORTH OF ELLIOT ROAD
1028             HC       2
                 *

1029             KK    C66D
1030             KM   COMBINE ELLIOT CHANNEL FLOW WITH HYDROGRAPH C67E @ ELLIOT RD & ELLSWORTH RD.
1031             HC       3
                 *

1032             KK  66T70A
1033             KM        Pipe Routing, Reach ET-5
                 *       SE corner curve of Elliot Rd. & Ellsworth Rd.
                 *       RD card used for routing (Junction Structure to Sta. 12+46)
1034             RD     253  0.0015   0.012            CIRC     9.5
                 *

1035             KK  66T70B
1036             KM        Pipe Routing, Reach ET-5
                 *       Elliot Rd. to Culvert along Ellsworth Rd. 2-102" pipe = 144" pipe
                 *       RD card used for routing (Sta. 85+65 to Sta. 97+51)
1037             RD    1186  0.0015   0.012            CIRC      12
                 *

1038             KK   CULVT
1039             KM        Pipe Routing, Culvert
                 *       2-102" pipe culvert crossing Ellsworth Rd.
```

```
                 *      RD card used for routing
1040             RD     196  0.0008   0.012            CIRC      12
                 *
1                                          HEC-1 INPUT                                                    PAGE 29

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


1041             KK  66T70C
1042             KM   REACH ET-4, ET-5( COMPRISED OF ET-5A AND ET-5B).
1043             KM   ROUTE FROM ELLSWORTH Culvert TO SANTAN FREEWAY.
1044             RS       2    FLOW      -1
1045             RC    .032    .032    .032    2490   .0008
1046             RX       0      10      20      56      76     112     120     130
1047             RY     6.2     6.1     6.0       0       0     6.0     6.1     6.2
                 *

1048             KK     62C
1049             KM   BASIN 62C
1050             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1051             KM    L=        .6  Lca=        .3   S=   24.2  Kn= .049  LAG=  19.8
1052             KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1053             BA     .55
1054             LG     .23     .25    4.65     .40   47.00
1055             UI    112.    406.    615.   1024.    853.    571.    330.    154.     83.     28.
1056             UI     28.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1057             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                 *
                 * DDM   ***** Preserved *****

1058             KK    R62C
1059             KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1060             DT    D62C      31
1061             DI       0   10000
1062             DQ       0   10000
                 * DDM   ***** Preserved *****

1063             KK   62CTE
1064             KM   ROUTE BASIN 62C TO BASIN 62E BY CHANNEL ON EAST SIDE OF PROPOSED SANTAN
1065             KM   FREEWAY ALIGNMENT
1066             RS       2    FLOW      -1
1067             RC    .030    .030    .030    2000   .0003
1068             RX       0       5      10      25      45      55      60      65
1069             RY       8       7     6.5       0       0     6.5       7       8
                 * DDM   ***** Updated *****

1070             KK     62E
1071             KM   BASIN 62E
1072             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1073             KM    L=        .6  Lca=        .3   S=   31.9  Kn= .050  LAG=  20.4
1074             KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1075             BA     .15
1076             LG     .25     .25    4.65     .39   45.00
1077             UI     29.    108.    163.    268.    246.    167.    104.     46.     28.     10.
1078             UI      8.      8.      0.      0.      0.      0.      0.      0.      0.      0.
1079             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                 *
                 * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                    PAGE 30

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


1080             KK    R62E
1081             KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1082             DT    D62E      12
1083             DI       0   10000
1084             DQ       0   10000
                 *
                 * DDM   ***** Preserved *****

1085             KK   CP62E
1086             KM   COMBINE FLOWS FROM SUBBASIN 62C AND SUBBASIN 62E
1087             HC       2
                 *
                 * DDM   ***** Preserved *****

1088             KK  62T68A
1089             KM   ROUTE FLOW FROM CP62E TO SUBBASIN 68A BY CHANNEL ALONG PROPOSED ALIGNMENT
1090             KM   OF THE SANTAN FREEWAY
                 * ZW   A=62T68A   B=NORTH OF ELLIOT  C=FLOW    F=100YR FUTURE
1091             RS       2    FLOW      -1
1092             RC    .030    .030    .030    3280  .00015
1093             RX       0       5      10      20      30      40      45      50
1094             RY      20      15      15       0       0      15      15      20
                 *
                 * DDM   ***** Updated *****

1095             KK     68A
1096             KM   BASIN 68A
```

```
1097    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1098    KM    L=        .7  Lca=        .4   S=   37.7  Kn= .032  LAG=  13.7
1099    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1100    BA     .35
1101    LG     .16      .25     5.70      .27    66.00
1102    UI    168.     506.     914.     635.     301.     114.      34.      26.       0.       0.
1103    UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
        *

1104    KK    R68A
1105    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1106    DT    D68A      31
1107    DI       0   10000
1108    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1109    KK   CP68A
1110    KM   COMBINE FLOW FROM SUBBASIN 68A WITH THE ROUTED FLOW FROM C62E
        * KO     3       2
        * ZW  A=COMBINED FLOW, CP68A  B=FROM BASIN AND ROUTE  C=FLOW   F=100YR FUTURE
1111    HC       2
        *
        * DDM   ***** Preserved *****
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LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1112    KK  68T70A
1113    KM   ROUTE FLOW FROM CP68A AT ELLIOT AND SANTAN FREEWAY ALIGNMENT TO SUBBASIN
1114    KM   70A, AT THE POINT WHERE SIPHON DRAW INTERSECTS THE FREEWAY ALIGNMENT
1115    KM   CHANNEL IS NATURAL AND ONLY APPROXIMATE IN ROUTING PARAMETERS
1116    RS       2    FLOW      -1
1117    RC    .030    .030    .030    3960   .0006
1118    RX       0       5      10      20      30      40      45      50
1119    RY      10       5       4       0       0       4       5      10
        *
        * DDM   ***** Inserted *****

1120    KK     70A
1121    KM   BASIN 70A
1122    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1123    KM    L=        .9  Lca=        .4   S=   23.5  Kn= .025  LAG=  12.7
1124    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1125    BA     .54
1126    LG     .13      .15     7.60      .13    67.00
1127    UI    306.     899.    1524.     903.     346.     120.      44.       0.       0.       0.
1128    UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
        *
        * DDM   ***** Preserved *****

1129    KK    R70A
1130    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1131    DT    D70A      52
1132    DI       0   10000
1133    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1134    KK    C70A
1135    KM   COMBINE FLOWS FROM C68A AND SUBBASIN 70A
1136    HC       2
        *
        * DDM   ***** Preserved *****

1137    KK   C70A2
1138    KM   COMBINE FLOWS FROM CONCENTRATION POINT C70A WITH THOSE COMING FROM DETENTION
1139    KM   BASIN 66, LOCATED ON ELLIOT ROAD, ALONG SAN TAN @ 2/3 MILE SO. OF ELLIOT RD.
1140    HC       2
        *

1141    KK  70T76A
1142    KM   DISBLE DRAINAGE FACILITY
1143    KM   ROUTE FLOW ALONG NEW SANTAN FREEWAY ALIGNMENT
1144    KM   REACH ET-3A, ET-3B
1145    RS       2    FLOW      -1
1146    RC    .025    .025    .025    4500  0.0005
1147    RX       0       8      16      59      91     134     142     150
1148    RY     7.4     7.3     7.2       0       0     7.2     7.1     7.0
        *
```



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

1149    KK     76A
1150    KM   BASIN 76A
1151    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1152    KM    L=       2.9  Lca=       1.7   S=   24.1  Kn= .030  LAG=  42.9
```

```
1153   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1154   BA    1.91
1155   LG     .15     .15    8.80     .08   56.00
1156   UI    150.    159.    528.    707.    847.   1004.   1213.   1673.   1826.   1424.
1157   UI   1201.    992.    822.    667.    444.    266.    247.    171.    150.     65.
1158   UI     46.     46.     46.     46.     46.      0.      0.      0.      0.      0.
1159   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *
       * DDM   ***** Preserved *****

1160   KK    R76A
1161   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1162   DT    D76A     185
1163   DI       0   10000
1164   DQ       0   10000
       *

1165   KK    C76A
1166   KM    COMBINE HYDROGRAPHS 70T76A (SANTAN FREEWAY CHANNEL FLOWS) WITH SUBBASIN 76A
1167   HC       2
       *

1168   KK  76ATPR
1169   KM   DIBBLE DRAINAGE FACILITY
1170   KM   ROUTE FLOW ALONG NEW SANTAN FREEWAY ALIGNMENT TO NEW POWERLINE FLOODWAY ALGN.
1171   KM   REACH ET-2A, ET-2B
1172   RS       2    FLOW      -1
1173   RC    .025    .025    .025    5750  0.0005
1174   RX       0       8      16      61      93     138     146     154
1175   RY     7.7     7.6     7.5       0       0     7.5     7.4     7.3
       *

1176   KK     73A
1177   KM   BASIN 73A
1178   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1179   KM    L=       2.3  Lca=       1.0   S=   34.9  Kn= .093  LAG=  94.5
1180   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1181   BA     .95
1182   LG     .35     .36    5.00     .27     .00
1183   UI     34.     34.     34.     34.     84.    117.    134.    158.    171.    185.
1184   UI    197.    214.    232.    254.    274.    317.    381.    429.    424.    369.
1185   UI    332.    303.    282.    263.    240.    220.    202.    185.    169.    157.
1186   UI    134.    107.     90.     60.     60.     57.     55.     54.     34.     34.
1187   UI     34.     34.     16.     10.     10.     10.     10.     10.     10.     10.
1188   UI     10.     10.     10.     10.     10.     10.      0.      0.      0.      0.
1189   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *
1                                        HEC-1 INPUT                                          PAGE 33

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

1190   KK   73ATB
1191   KM   ROUTE 73A TO 73B VIA WASH RUNNING DIAGONALLY ACROSS 73B
1192   RS       3    FLOW      -1
1193   RC     .06     .05     .06    2700   .0074
1194   RX       0     500    1000    1003    1007    1011    1511    2011
1195   RY       4     3.5       3       0       0       2     2.5       3
       *

1196   KK     73B
1197   KM   BASIN 73B
1198   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1199   KM    L=        .6  Lca=        .4   S=   26.3  Kn= .050  LAG=  21.6
1200   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1201   BA     .42
1202   LG     .27     .25    5.30     .27   21.00
1203   UI     67.    268.    402.    621.    719.    486.    332.    162.     94.     50.
1204   UI     20.     20.      0.      0.      0.      0.      0.      0.      0.      0.
1205   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *
       * DDM   ***** Preserved *****

1206   KK    R73B
1207   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1208   DT    D73B      29
1209   DI       0   10000
1210   DQ       0   10000
       *
       * DDM   ***** Preserved *****

1211   KK   CP73B
1212   KM   COMBINE S73A AND S73B
1213   HC       2
       *

1214   KK   73BTC
1215   KM   ROUTE 73B TO 73C VIA WASH CROSSING MOUNTAIN ROAD
1216   KM    THEN ROUTED SOUTH ALONG GENERAL MOTORS BERM TO SW CORNER OF 73C
1217   RS       6    FLOW      -1
```

```
1218   RC    .035    .022    .035    5000   .0036
1219   RX       0     500     700     710     720     730     930    1430
1220   RY       8     7.5       5       0       0       5     7.5       8
       *

1221   KK     73C
1222   KM   BASIN 73C
1223   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1224   KM    L=       .6  Lca=       .3   S=   43.7  Kn= .020  LAG=   7.0
1225   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1226   BA     .58
1227   LG     .10     .25    5.30     .34   80.00
1228   UI   1073.   2551.    742.    111.      0.      0.      0.      0.      0.      0.
1229   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *
1                                        HEC-1 INPUT                                        PAGE 34

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

1230   KK    R73C
1231   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1232   DT    D73C      58
1233   DI       0   10000
1234   DQ       0   10000
       *
       * DDM   ***** Preserved *****

1235   KK   CP73C
1236   KM   COMBINE 73C AND 73B
1237   HC       2
       *
       * DDM   ***** Preserved *****

1238   KK  73T74C
1239   KM   ROUTE 73C TO 74C VIA GM BERM, WEST EDGE OF 74C
1240   RS       4    FLOW      -1
1241   RC    .035    .022    .035    3500   .0034
1242   RX       0     500    1000    1001    1016    1516    2016    2516
1243   RY       6     5.5       5       2       2     3.5     4.5     5.5
       *
       * DDM   ***** Updated *****

1244   KK     74A
1245   KM   BASIN 74A
1246   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1247   KM    L=      2.4  Lca=      1.0   S=   42.2  Kn= .095  LAG=  92.9
1248   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
       * KO     2       2
1249   BA     .75
1250   LG     .35     .36    5.00     .27     .00
1251   UI     27.     27.     27.     27.     73.     96.    111.    129.    140.    151.
1252   UI    163.    175.    193.    208.    228.    268.    317.    362.    327.    287.
1253   UI    260.    239.    222.    206.    187.    171.    160.    142.    132.    118.
1254   UI     99.     79.     56.     48.     47.     45.     45.     32.     27.     27.
1255   UI     27.     19.      8.      8.      8.      8.      8.      8.      8.      8.
1256   UI      8.      8.      8.      8.      8.      0.      0.      0.      0.      0.
1257   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1258   KK   DB74A
1259   KM   NEW BASIN REGRADED ON 18 DEC 97, by Dibble & Associates
1260   KM   revised to be on-line detention basin
1261   KM   DETENTION BASIN LOCATED EAST OF MERIDIAN ROAD & north of Powerline Floodway
1262   KM   WITH 24-INCH OUTFALL & 350-FT WEIR.
       * KO     2       2
1263   RS       1    STOR       0
1264   SA       0    1.43    5.38   11.14   18.97
1265   SE    76.0      78      80      82      84
1266   SL    77.0    3.14     .62      .5
1267   SS   82.20     350     2.5     1.5
       *
1                                        HEC-1 INPUT                                        PAGE 35

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

1268   KK   74ATB
1269   KM   ROUTE 74A TO 74B VIA WASH CROSSING COUNTY LINE
1270   RS       4    FLOW      -1
1271   RC    .045     .04    .045    3500   .0054
1272   RX       0     500    1000    1003    1007    1011    1511    2011
1273   RY       4     3.5       3       0       0       2     2.5       3
       *

1274   KK     74B
1275   KM   BASIN 74B
1276   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1277   KM    L=       .6  Lca=       .5   S=   32.1  Kn= .050  LAG=  23.3
1278   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
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```
1279    BA      .33
1280    LG      .30     .25    6.00     .18    5.00
1281    UI      48.    177.    273.    388.    563.    406.    289.    188.     87.     58.
1282    UI      28.     15.     15.      0.      0.      0.      0.      0.      0.      0.
1283    UI       0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
        * DDM   ***** Preserved *****

1284    KK    R74B
1285    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1286    DT    D74B      22
1287    DI       0   10000
1288    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1289    KK   CP74B
1290    KM   COMBINE S74A AND S74B
1291    HC       2
        *
        * DDM   ***** Preserved *****

1292    KK   74BTC
1293    KM   ROUTE 74B TO 74C VIA WASH CROSSING MOUNTAIN ROAD
1294    RS       4    FLOW      -1
1295    RC    .045     .04    .045    3500   .0051
1296    RX       0     500     980    1003    1007    1031    1511    2011
1297    RY       4     3.5       3       0       0       3     3.5       4
        *
        * DDM   ***** Updated *****

1298    KK     74C
1299    KM   BASIN 74C
1300    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1301    KM    L=        .7  Lca=       .5   S=   25.4  Kn= .020  LAG=  10.3
1302    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1303    BA     .34
1304    LG     .10     .15    7.00     .17   80.00
1305    UI    303.    950.    940.    348.     92.     35.      0.      0.      0.      0.
1306    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
        * DDM   ***** Preserved *****
```



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

1307    KK    R74C
1308    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1309    DT    D74C      35
1310    DI       0   10000
1311    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1312    KK   CP74C
1313    KM   COMBINE 74C AND 74B AND 73C
1314    HC       3
        *
        * DDM   ***** Preserved *****

1315    KK  74CT75
1316    KM    ROUTE CP74C TO S75 VIA POWERLINE FLOODWAY TO ELLSWORTH RD & RAY ROAD.
1317    KM    Vel of 10 ft/sec for NSTP calc.
1318    RS       3    FLOW      -1
1319    RC     .03    .013     .03   10560   .0049
1320    RX       0    1005    1023  1030.5  1036.5    1044    1062    2067
1321    RY       6       5       5       0       0       5       5       6
        *
        * DDM   ***** Updated *****

1322    KK      75
1323    KM   BASIN 75 , WHICH IS THE GENERAL MOTORS DESERT PROVING GROUNDS
1324    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1325    KM    L=      4.0  Lca=      3.0   S=   20.0  Kn= .087  LAG= 182.0
1326    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1327    BA    4.01            0.25
1328    KM         THE 0.25 FACTOR IS PER FCDMC, AMIR MOTAMEDI, WHO HAS TOURED THE
1329    KM         PROVING GROUNDS WITH GM PERSONNEL AND FIELD VERIFIED THIS FACTOR.
1330    LG     .34     .35    6.80     .13    3.00
1331    UI     74.     74.     74.     74.     74.     74.     74.     74.    180.    243.
1332    UI    247.    284.    284.    335.    342.    363.    375.    396.    412.    422.
1333    UI    437.    458.    475.    495.    519.    550.    567.    585.    622.    672.
1334    UI    737.    819.    865.    935.   1002.    935.    870.    813.    764.    726.
1335    UI    693.    664.    637.    614.    593.    574.    547.    519.    496.    473.
1336    UI    452.    437.    425.    387.    377.    363.    347.    341.    289.    284.
1337    UI    233.    213.    213.    147.    131.    131.    131.    130.    122.    122.
1338    UI    122.    122.    122.     75.     74.     74.     74.     74.     74.     74.
1339    UI     74.     43.     23.     23.     23.     23.     23.     23.     23.     23.
1340    UI     23.     23.     23.     23.     23.     23.     23.     23.     23.     23.
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1341    UI     23.     23.     23.     23.     23.     23.     23.     23.      0.      0.
1342    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1343    KK     C75
1344    KM   COMBINE FLOWS FROM C74C AND SUBBASIN 75
1345    HC       2
        *
        * DDM   ***** Preserved *****
1                                   HEC-1 INPUT                                          PAGE 37

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

1346    KK   75TPC
1347    KM   ROUTE 75 THROUGH POWERLINE FLOODWAY TO AIR FORCE CHANNEL
1348    RS       2    FLOW      -1
1349    RC     .03    .013     .03    3900   .0041
1350    RX       0    1005    1023  1030.5  1036.5    1044    1062    2067
1351    RY       6       5       5       0       0       5       5       6
        *
        * DDM   ***** Updated *****

1352    KK     77A
1353    KM   BASIN 77A
1354    KM   . THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1355    KM    L=      2.9  Lca=      1.5   S=   31.1  Kn= .092  LAG= 119.0
1356    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1357    BA    1.74
1358    LG     .35     .36    5.00     .27     .00
1359    UI     49.     49.     49.     49.     49.    108.    162.    185.    205.    230.
1360    UI    244.    264.    278.    293.    311.    333.    358.    380.    406.    462.
1361    UI    537.    584.    659.    601.    541.    496.    461.    430.    407.    385.
1362    UI    362.    334.    311.    293.    273.    252.    238.    226.    189.    161.
1363    UI    141.    104.     87.     87.     83.     81.     81.     73.     49.     49.
1364    UI     49.     49.     49.     22.     15.     15.     15.     15.     15.     15.
1365    UI     15.     15.     15.     15.     15.     15.     15.     15.     15.     15.
1366    UI     15.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1367    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1368    KK   77ATB
1369    KM   ROUTE 77A TO 77B VIA WASH CROSSING COUNTY LINE
1370    RS       3    FLOW      -1
1371    RC    .045     .04    .045    3000    .006
1372    RX       0     500     980    1003    1007    1031    1511    2011
1373    RY       4     3.5       3       0       0       3     3.5       4
        *
        * DDM   ***** Updated *****

1374    KK     77B
1375    KM   BASIN 77B
1376    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1377    KM    L=        .6  Lca=       .3   S=   26.3  Kn= .050  LAG=  19.3
1378    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1379    BA     .36
1380    LG     .30     .25    5.30     .24    5.00
1381    UI     78.    277.    421.    700.    544.    360.    189.     93.     46.     19.
1382    UI     19.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1383    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
        * DDM   ***** Preserved *****
1                                   HEC-1 INPUT                                          PAGE 38

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

1384    KK    R77B
1385    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1386    DT    D77B      16
1387    DI       0   10000
1388    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1389    KK   CP77B
1390    KM   COMBINE S77A AND S77B
1391    HC       2
        *
        * DDM   ***** Preserved *****

1392    KK   77BTC
1393    KM   ROUTE 77B TO 77C VIA WASH CROSSING MOUNTAIN ROAD, THEN SOUTH ALONG
1394    KM    WESTERN EDGE OF 77C
1395    RS       5    FLOW      -1
1396    RC    .045     .04    .045    4750   .0042
1397    RX       0     500     950    1003    1007    1061    1511    2011
1398    RY       4     3.5       3       0       0       3     3.5       4
        *
        * DDM   ***** Updated *****
```

```
1399    KK     77C
1400    KM   BASIN 77C
1401    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1402    KM    L=        .5  Lca=        .3   S=   32.3  Kn= .020  LAG=   7.2
1403    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1404    BA     .28
1405    LG     .10      .25     5.80      .27    79.00
1406    UI    492.    1219.     393.      60.       0.       0.       0.       0.       0.       0.
1407    UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
        *
        * DDM   ***** Preserved *****

1408    KK    R77C
1409    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1410    DT    D77C      28
1411    DI       0   10000
1412    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1413    KK    C77C
1414    KM   COMBINE FLOWS FROM C77B AND SUBBASIN 77C
1415    HC       2
        *
        * DDM   ***** Preserved *****
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1 HEC-1 INPUT PAGE 39

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

1416    KK  77CT78
1417    RS       3    FLOW      -1
1418    RC   0.035   0.022   0.035    2400   0.002
1419    RX       0     100     110     115     120     125     130     135
1420    RY       4       3     2.5       0       0     2.5       8       9
        *
        * DDM   ***** Updated *****

1421    KK     78A
1422    KM   BASIN 78A
1423    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1424    KM    L=       3.3  Lca=       1.3   S=   30.2  Kn= .090  LAG= 118.0
1425    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1426    BA    1.88
1427    LG     .35      .36     5.00      .27     .00
1428    UI     54.      54.      54.      54.     54.    124.    176.    203.    227.    252.
1429    UI    268.     290.     305.     322.    342.    366.    396.    417.    451.    515.
1430    UI    612.     641.     716.     643.    579.    531.    494.    464.    437.    417.
1431    UI    385.     356.     334.     315.    290.    270.    255.    233.    206.    159.
1432    UI    153.      95.      95.      95.     88.     88.     88.     65.     54.     54.
1433    UI     54.      54.      45.      16.     16.     16.     16.     16.     16.     16.
1434    UI     16.      16.      16.      16.     16.     16.     16.     16.     16.     16.
1435    UI      0.       0.       0.       0.      0.      0.      0.      0.      0.      0.
1436    UI      0.       0.       0.       0.      0.      0.      0.      0.      0.      0.
        *

1437    KK   78ATB
1438    KM   ROUTE FLOW FROM 78A TO 78B VIA WASH CROSSING COUNTY LINE
1439    RS       4    FLOW      -1
1440    RC    .045     .04    .045    3500   .0042
1441    RX       0     500     980    1003    1007    1031    1511    2011
1442    RY     4.5     3.5       3       0       0       3     3.5     4.5
        * DDM   ***** Updated *****

1443    KK     78B
1444    KM   BASIN 78B
1445    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1446    KM    L=        .6  Lca=        .4   S=   31.6  Kn= .050  LAG=  20.9
1447    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1448    KM    FCDMC REPORTS BASIN ALREADY BUILT-OUT, WITH RURAL 1 TO 2 ACRE LOTS
1449    KM    AND THERE IS NO RETENTION FOR THIS BASIN.
1450    BA     .39
1451    LG     .30      .15     8.40      .07    5.00
1452    UI     68.     262.     393.     635.    638.    433.    283.    126.     78.     34.
1453    UI     19.      19.       0.       0.      0.      0.      0.      0.      0.      0.
1454    UI      0.       0.       0.       0.      0.      0.      0.      0.      0.      0.
        *

1455    KK    C78B
1456    KM   COMBINE FLOW FROM SUBBASIN 78B AND SUBBASIN 78A
1457    HC       2
        *
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1 HEC-1 INPUT PAGE 40

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

1458    KK   78BTC
1459    KM   ROUTE 78B TO 78C VIA WASH CROSSING MOUNTAIN ROAD, THEN SOUTH ALONG
```

```
1460   KM    WESTERN EDGE OF 78C.
1461   RS       3    FLOW      -1
1462   RC    .035    .022    .035    4500    .0033
1463   RX       0     100     110     115     120     125     130     135
1464   RY       5       4     3.5       0       0     3.5       8       9
       *

1465   KK     78C
1466   KM   BASIN 78C
1467   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1468   KM    L=        .5  Lca=      .3   S=   31.7  Kn= .026  LAG=   9.0
1469   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1470   BA     .28
1471   LG     .13     .10   11.20     .03   64.00
1472   UI    319.    980.    652.    164.     34.      0.      0.      0.      0.      0.
1473   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1474   KK    R78C
1475   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1476   DT    D78C      24
1477   DI       0   10000
1478   DQ       0   10000
       *

1479   KK    C78C
1480   KM   COMBINE FLOWS FROM 78B, 78C & 77C @ WILLIAMS FIELD ROAD & SIGNAL BUTTE ROAD.
1481   HC       3
       *

1482   KK  78CT79
1483   KM   ROUTE 78C TO 79A AT ELLSWORTH VIA GM CHANNEL TO
1484   KM    WILLIAMS FIELD RD & ELLSWORTH ROAD.
1485   RS       4    FLOW      -1
1486   RC    .035    .022    .035   10560    .0044
1487   RX       0     500     800     805     820     825    1125    1625
1488   RY       7       6       5       0       0       5       6       7
       *

1489   KK     79A
1490   KM   BASIN 79A
1491   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1492   KM    L=       2.3  Lca=      1.2   S=   23.2  Kn= .090  LAG= 106.0
1493   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1494   BA    2.01
1495   LG     .35     .30    8.00     .08     .00
1496   UI     64.     64.     64.     64.     82.    209.    232.    262.    299.    321.
1497   UI    347.    367.    390.    421.    458.    489.    527.    610.    726.    792.
1498   UI    825.    727.    655.    600.    557.    523.    495.    451.    417.    390.
1499   UI    361.    328.    308.    285.    244.    190.    169.    113.    113.    109.
1500   UI    105.    105.     85.     64.     64.     64.     64.     37.     20.     20.
1501   UI     20.     20.     20.     20.     20.     20.     20.     20.     20.     20.
1
                                   HEC-1 INPUT                                          PAGE 41

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

1502   UI     20.     20.     20.      0.      0.      0.      0.      0.      0.      0.
1503   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1504   KK   C79A1
1505   KM   COMBINE FLOWS FROM 78C AND 79A @ WILLIAMS FIELD ROAD & ELLSWORTH ROAD.
1506   HC       2
       *

1507   KK     78F
1508   KM   BASIN 78F
1509   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1510   KM    L=       3.7  Lca=      2.1   S=   29.8  Kn= .090  LAG= 147.0
1511   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1512   BA    4.19
1513   LG     .35     .36    5.00     .27     .00
1514   UI     96.     96.     96.     96.     96.     96.    148.    315.    325.    368.
1515   UI    399.    442.    468.    495.    521.    541.    566.    595.    626.    663.
1516   UI    706.    737.    774.    845.    936.   1085.   1119.   1276.   1239.   1127.
1517   UI   1033.    968.    907.    862.    820.    782.    751.    712.    667.    629.
1518   UI    597.    570.    541.    502.    472.    454.    436.    368.    339.    276.
1519   UI    276.    174.    170.    170.    168.    158.    158.    158.    156.     96.
1520   UI     96.     96.     96.     96.     96.     79.     29.     29.     29.     29.
1521   UI     29.     29.     29.     29.     29.     29.     29.     29.     29.     29.
1522   UI     29.     29.     29.     29.     29.     29.     29.      0.      0.      0.
1523   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1524   KK    82A1
1525   KM   BASIN 82A1
1526   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1527   KM    L=       3.6  Lca=       .9   S=   33.9  Kn= .090  LAG= 103.0
1528   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1529   BA    3.12
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```
1530   LG     .35     .36    5.00     .27     .00
1531   UI    102.    102.    102.    102.    163.    335.    381.    436.    485.    526.
1532   UI    564.    599.    644.    693.    757.    801.    901.   1048.   1222.   1356.
1533   UI   1223.   1084.    987.    913.    852.    800.    742.    675.    629.    589.
1534   UI    529.    494.    459.    391.    304.    266.    180.    180.    173.    167.
1535   UI    167.    123.    102.    102.    102.    102.     36.     31.     31.     31.
1536   UI     31.     31.     31.     31.     31.     31.     31.     31.     31.     31.
1537   UI     31.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1538   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1539   KK   C82A1
1540   KM   COMBINE FLOWS FROM SUBBASINS 78F AND 82A1 NORTH OF PECOS ROAD AT
1541   KM   NEW DETENTION BASIN
1542   HC       2
       *
1                                    HEC-1 INPUT                                        PAGE 42

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

1543   KK  DB82A1
1544   KM   PECOS NORTH BASIN
1545   KM   NEW DETENTION BASIN LOCATED EAST OF MERIDIAN ROAD & 660' NORTH OF PECOS RD.
1546   KM   WITH 1-42" RCP OUTLET & 86' SPILLWAY AT ELEV=44
       * KO     2       2
1547   RS       1    STOR       0
1548   SV       0       8      34      73     113     153     195     237     280     346
1549   SE      36      37      38      39      40      41      42      43      44    46.1
1550   SL    33.5     9.6     .62      .5
1551   SS      44     195       3     1.5
       *

1552   KK    PS-9
1553   KM    REACH PS-9
1554   KM    OUTFLOW CHANNEL FROM NEW DETENTION BASIN 82A TO MAIN CHANNEL @ PECOS
1555   RS       1    FLOW      -1
1556   RC    .025    .025    .025     500   .0005
1557   RX       0       8      16      42      46      72      80      88
1558   RY     4.1     4.2     4.3       0       0     4.3     4.2     4.1
       *

1559   KK    CAP2
1560   KM   INFLOW FROM EAST OF THE CAP THROUGH 1 - 36" PIPE OVERCHUTE
1561   KM   STATION #536+00 SALT-GILA AQUEDUCT REACH 2
1562   KM   QI CARDS BASED ON OVERCHUTE CAPACITY OF 64 CFS
1563   IN      60
1564   BA     .01
1565   QI       0      20      64      64      64      64      64      64      64      64
1566   QI      64      64      64      64      64      64      64      64      64      64
1567   QI      64      64      64      64      64
       *

1568   KK   RCAP2
1569   KM   ROUTE CAP2 THROUGH 82A2 VIA WASH TO SUBBASIN 82A2
1570   IN      15
1571   RS      27    FLOW      -1
1572   RC    .045     .04    .045   24000     .05
1573   RX       0     500    1000    1010    1020    1030    1530    2030
1574   RY       8       5       3       0       0       3       5       8
       *

1575   KK    82A2
1576   KM   BASIN 82A2
1577   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1578   KM    L=      4.6  Lca=      2.9   S=   27.2  Kn= .089  LAG= 183.0
1579   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1580   BA    4.13
1581   LG     .35     .36    5.00     .27    1.00
1582   UI     76.     76.     76.     76.     76.     76.     76.     76.    177.    249.
1583   UI    250.    291.    291.    339.    349.    371.    381.    406.    420.    430.
1584   UI    448.    466.    483.    503.    529.    561.    578.    596.    631.    680.
1585   UI    743.    805.    911.    923.   1027.    979.    901.    845.    794.    751.
1586   UI    717.    686.    659.    635.    613.    594.    570.    540.    514.    487.
1587   UI    470.    455.    437.    407.    393.    372.    362.    349.    315.    291.
1                                    HEC-1 INPUT                                        PAGE 43

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

1588   UI    263.    218.    218.    179.    134.    134.    134.    134.    128.    125.
1589   UI    125.    125.    125.     96.     76.     76.     76.     76.     76.     76.
1590   UI     76.     67.     23.     23.     23.     23.     23.     23.     23.     23.
1591   UI     23.     23.     23.     23.     23.     23.     23.     23.     23.     23.
1592   UI     23.     23.     23.     23.     23.     23.     23.     23.     23.      0.
1593   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1594   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1595   KK  CP82A2
1596   KM   COMBINE FLOW FROM ROUTED CAP2 AND SUBBASIN 82A2
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```
1597    HC      2
        *

1598    KK    82A4
1599    KM   BASIN 82A4
1600    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1601    KM    L=      3.5  Lca=      1.5   S=   29.1  Kn= .090  LAG= 128.0
1602    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1603    BA    2.13
1604    LG     .35     .36    5.00     .27     .00
1605    UI     56.     56.     56.     56.     56.     70.    184.    193.    214.    248.
1606    UI    265.    281.    302.    316.    332.    352.    374.    401.    424.    447.
1607    UI    494.    557.    650.    691.    742.    667.    606.    560.    523.    490.
1608    UI    466.    443.    419.    389.    364.    343.    325.    299.    281.    267.
1609    UI    251.    214.    182.    161.    126.     99.     99.     97.     92.     92.
1610    UI     92.     69.     56.     56.     56.     56.     56.     27.     17.     17.
1611    UI     17.     17.     17.     17.     17.     17.     17.     17.     17.     17.
1612    UI     17.     17.     17.     17.     17.     17.      0.      0.      0.      0.
1613    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1614    KK  82A4T3
1615    KM   REACH MN-2
1616    KM   ROUTE FLOW FROM SUBBASIN 82A4 TO DETENTION BASIN 82A3
1617    RS      2    FLOW      -1
1618    RC    .025    .025    .025    1050   .0005
1619    RX      0       8      16      47     107     138     146     154
1620    RY    5.0     5.1     5.2       0       0     5.2     5.1     5.0
        *

1621    KK    82A3
1622    KM   BASIN 82A3
1623    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1624    KM    L=      3.6  Lca=      2.0   S=   28.3  Kn= .090  LAG= 145.0
1625    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1626    BA    2.02
1627    LG     .35     .36    5.00     .27     .00
1628    UI     47.     47.     47.     47.     47.     47.     82.    154.    162.    180.
1629    UI    200.    218.    230.    246.    257.    268.    280.    294.    310.    330.
1630    UI    351.    365.    387.    425.    477.    553.    566.    633.    583.    529.
1631    UI    492.    460.    434.    410.    392.    376.    361.    336.    316.    299.
1632    UI    284.    271.    250.    237.    228.    216.    190.    180.    136.    135.
1633    UI    101.     83.     83.     83.     78.     77.     77.     77.     52.     47.
1634    UI     47.     47.     47.     47.     42.     14.     14.     14.     14.     14.
1
                                   HEC-1 INPUT                                          PAGE 44

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

1635    UI     14.     14.     14.     14.     14.     14.     14.     14.     14.     14.
1636    UI     14.     14.     14.     14.     14.     14.      0.      0.      0.      0.
1637    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1638    KK  CP82A3
1639    KM   COMBINE FLOW FROM SUBBASIN 82A4 AND SUBBASIN 82A3 BEFORE DETENTION BASIN
1640    HC      2
        *

1641    KK  CP82A5
1642    KM   COMBINE FLOWS FROM CAP OVERCHUTE AND SUBBASIN 82A
1643    HC      2
        *

1644    KK   DB82B
1645    KM   PECOS SOUTH BASIN
1646    KM   NEW DETENTION BASIN LOCATED EAST OF MERIDIAN ROAD & 660' SOUTH OF PECOS RD.
1647    KM   WITH 1-66" RCP OUTLET & 80' SPILLWAY AT ELEV 41
        * KO     2       2
1648    RS       1    STOR       0
1649    SV       0     3.5     9.6    25.7    62.7   110.5   158.7   207.5   257.3     320
1650    SE    31.5      33      34      35      36      37      38      39      40    42.1
1651    SL      33    23.7     .62      .5
1652    SS      41      80       3     1.5
        *

1653    KK   MN-1
1654    KM   REACH MN-1  plus culvert PSC-7
1655    KM   ROUTE FLOW FROM NEW DETENTION BASIN 82B TO MAIN LINE CHANNEL @ PECOS
1656    RS       1    FLOW      -1
1657    RC    .025    .025    .025    1030   .0005
1658    RX      0       8      16      47      55      87      95     103
1659    RY    5.1     5.2     5.3       0       0     5.3     5.2     5.1
        *

1660    KK  CP82A6
1661    KM         COMBINE FLOWS AFTER DETENTION BASINS.
1662    HC      2
        *

1663    KK  82TBOX
```

```
1664    KM   REACH PS-8
1665    KM   ROUTE FLOW FROM DETENTION BASIN DB82B TO 1000' FOOT LONG BOX CULVERT (PSC-6).
1666    RS       1    FLOW      -1
1667    RC    .025    .025    .025     750   .0005
1668    RX       0       8      16    47.2      67      98     106     114
1669    RY     5.0     5.1     5.2       0       0     5.2     5.1     5.0
        *
1                                   HEC-1 INPUT                                    PAGE 45

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


1670    KK  BOXCLV
1671    KM   REACH PSC-6
1672    KM   ROUTE FLOW THROUGH BOX CULVERT
1673    RS       1    FLOW      -1
1674    RC    .015    .012    .015    1000   .0020
1675    RX       0       8      16   16.01   28.01   28.02      36      44
1676    RY     4.8     4.9       5       0       0       5     4.9     4.8
        *

1677    KK  BOXT78
1678    KM   REACH PS-5, PS-6, PS-7 plus culverts PSC-5 & PSC-4
1679    KM   ROUTE FLOW FROM 1000' BOX CULVERT TO C78D  (SIGNAL BUTTE ROAD)
1680    RS       1    FLOW      -1
1681    RC    .025    .025    .025    3400   .0005
1682    RX       0       8      16      47      67      98     106     114
1683    RY     5.4     5.3     5.2       0       0     5.2     5.3     5.4
        *

1684    KK     78D
1685    KM   BASIN 78D
1686    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1687    KM    L=      1.2  Lca=       .5   S=   21.7  Kn= .030  LAG=  19.5
1688    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1689    BA     .89
1690    LG     .15     .15    8.00     .11   55.00
1691    UI    189.    678.   1029.   1713.   1367.    909.    496.    240.    123.     47.
1692    UI     47.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1693    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1694    KK    R78D
1695    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1696    DT    D78D      84
1697    DI       0   10000
1698    DQ       0   10000
        *
        * DDM   ***** Updated *****

1699    KK     82B
1700    KM   BASIN 82B
1701    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1702    KM    L=       .9  Lca=       .4   S=   21.2  Kn= .030  LAG=  17.2
1703    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1704    BA     .92
1705    LG     .15     .25    5.00     .36   55.00
1706    UI    266.    879.   1420.   2004.   1268.    727.    294.    142.     55.     55.
1707    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1708    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
1                                   HEC-1 INPUT                                    PAGE 46

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


1709    KK     R82
1710    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1711    DT     D82       1
1712    DI       0   10000
1713    DQ       0   10000
        *

1714    KK   DTTRW
1715    KM    DIVERTING 110.7 ACRE-FEET DUE TO ON-SITE RETENTION
1716    KM   VOLUMES WERE DERIVED FROM DRAINAGE REPORT - REFERENCE 7.
1717    DT     TRW   110.7
1718    DI       0   10000
1719    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1720    KK    C78D
1721    KM    COMBINE FLOWS FROM 78D, 82B AND ROUTED FLOW 82T78D
1722    KM     @ PECOS ROAD AND SIGNAL BUTTE ROAD.
1723    HC       3
        *
        * DDM   ***** Preserved *****

1724    KK   78DTE
```

```
1725   KM   REACH PS-2, PS-3, PS-4 plus culverts PSC-3 AND PSC-2.
1726   KM   ROUTE FLOWS FROM 78D (PECOS RD AND SIGNAL BUTTE RD) TO 78E (PECOS AND CRISMON
1727   RS       2    FLOW      -1
1728   RC    .025   0.025   0.025    5100   .0005
1729   RX       0       8      16    53.2    93.2   130.4   138.4   146.4
1730   RY     6.0     6.1     6.2       0       0     6.3     6.1     6.0
       *

1731   KK     78E
1732   KM   BASIN 78E
1733   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1734   KM    L=      1.1  Lca=       .5   S=   17.4  Kn= .087  LAG=  57.4
1735   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1736   BA    1.01
1737   LG     .35     .26    8.80     .06    1.00
1738   UI     59.     59.    108.    212.    271.    313.    351.    402.    460.    565.
1739   UI    741.    698.    577.    502.    447.    382.    335.    289.    241.    166.
1740   UI    104.    100.     97.     60.     59.     45.     18.     18.     18.     18.
1741   UI     18.     18.     18.     18.      0.      0.      0.      0.      0.      0.
1742   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1743   KK      83
1744   KM   BASIN 83
1745   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1746   KM    L=      2.0  Lca=       .5   S=   15.0  Kn= .030  LAG=  25.8
1747   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1748   BA    1.01
1749   LG     .15     .25    5.00     .36   55.00
1750   UI    131.    423.    700.    931.   1454.   1362.    993.    726.    464.    226.
1                                    HEC-1 INPUT                                          PAGE 47

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

1751   UI    161.     89.     40.     40.     40.      0.      0.      0.      0.      0.
1752   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1753   KK     R83
1754   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1755   DT     D83      83
1756   DI       0   10000
1757   DQ       0   10000
       *

1758   KK    C78E
1759   KM   COMBINE FLOWS FROM 78D AND 78E (CRISMON ROAD)
1760   HC       3
       *

1761   KK  78ET84
1762   KM   REACH PS-1
1763   KM   ROUTE FLOWS WEST ALONG PECOS IN A PROPOSED CHANNEL
1764   KM   ROUTE FLOWS FROM CRISMON ROAD TO ELLSWORTH ROAD.
1765   RS       2    FLOW      -1
1766   RC    .025   0.025   0.025    4840   .0005
1767   RX       0       8      16    53.2    93.2   130.4   138.4   146.4
1768   RY     6.0     6.1     6.2       0       0     6.2     6.1     6.0
       *

1769   KK      84
1770   KM   BASIN 84
1771   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1772   KM    L=      2.0  Lca=       .5   S=   12.5  Kn= .030  LAG=  26.7
1773   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1774   BA     .99
1775   LG     .15     .25    4.70     .40   55.00
1776   UI    125.    380.    651.    855.   1278.   1399.   1008.    747.    520.    258.
1777   UI    182.    120.     38.     38.     38.      0.      0.      0.      0.      0.
1778   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1779   KK     R84
1780   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1781   DT     D84      85
1782   DI       0   10000
1783   DQ       0   10000
       *

1784   KK     C84
1785   KM   COMBINE FLOWS FROM 78E AND 84  AT ELLSWORTH AND PECOS ROAD
1786   KM   CHANNEL EAST SIDE OF GATEWAY WILLIAMS FLOWING TO THE NORTH
1787   HC       2
       *
       * DDM   ***** Preserved *****
1                                    HEC-1 INPUT                                          PAGE 48

LINE   ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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```
KK  84T79B
KM   REACH EH-3B
KM   ROUTE FLOWS FROM THE CORNER OF PECOS AND ELLSWORTH ROADS TO
KM   THE SOUTH OF WILLIAMS FIELD ROAD AND ELLSWORTH ROAD
KM   (THIS IS THE COMBINE POINT FROM BASIN 79B)
RS       1    FLOW      -1
RC    .015    .015    .015    3383   .0010
RX       0       8      16      30      55      69      77      85
RY     6.7     6.8     6.9       0       0     6.9     6.8     6.7
*

KK     79B
KM   BASIN 79B
KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM    L=      1.4  Lca=       .6   S=    9.0  Kn= .090  LAG=  77.7
KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
BA    1.00
LG     .35     .25    9.70     .05     .00
UI     43.     43.     43.     85.    150.    179.    207.    232.    250.    275.
UI    306.    335.    388.    479.    557.    515.    444.    396.    360.    331.
UI    295.    267.    240.    216.    192.    155.    123.     76.     76.     71.
UI     71.     48.     43.     43.     36.     13.     13.     13.     13.     13.
UI     13.     13.     13.     13.     13.     13.      0.      0.      0.      0.
UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
*

KK   C79B1
KM    FLOWS FROM SOUTH CHANNEL ALONG ELLSWORTH ROAD.
HC       2
*

KK  79BTB2
KM   REACH EH-3A
KM   ROUTE FLOWS FROM THE COMBINE POINT OF SUB-BASIN 79B TO
KM   WILLIAMS FIELD ROAD AND ELLSWORTH ROAD
RS       2    FLOW      -1
RC    .025    .015    .025    5000   .0010
RX       0       8      16      30      55      69      77      85
RY     6.7     6.8     6.9       0       0     6.9     6.8     6.7
*

KK   C79B2
KM   COMBINE 79A AND ROUTED 79B (WHICH IS HYDROGRAPH C79B1)
HC       2
*

KK  79TPC2
KM   REACH EH-1, EH-2, plus culvert EHC-1
KM   ROUTE FLOWS THROUGH WILLIAMS-GATEWAY (SUBBASIN 80A) BY WAY OF NEW NORTH
KM   PERIMETER CHANNEL ABOUT 1/2 MILE WEST OF ELLSWORTH ROAD
RS       1    FLOW      -1
RC    .025    .015    .025    4760   .0014
RX       0       8      16      33      61      78      86      94
RY     8.4     8.5     8.4       0       0     8.4     8.5     8.4
*
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1

HEC-1 INPUT PAGE 49

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

KK   CPPWR
KM   COMBINE FLOWS FROM 75 AND 79 IN THE POWERLINE FLOODWAY ALONG RAY ROAD
KM   AT ABOUT 1/2 MILE WEST OF ELLSWORTH ROAD
HC       2
*

KK  PWRT80
KM   REACH PR-3, PR-4, plus culvert PRC-2
KM   ROUTE FLOWS FROM PLF COMBINE TO CATCH POINT AT 80A VIA PLF IMPROVEMENT
RS       1    FLOW      -1
RC    .025    .015    .025    3680   .0014
RX       0       8      16      34      62      79      87      95
RY     8.5     8.6     8.7       0       0     8.7     8.6     8.5
*

KK     80A
KM   BASIN 80A
KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
KM    L=      3.8  Lca=      2.2   S=   14.2  Kn= .030  LAG=  58.2
KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
BA    2.64
LG     .15     .15    9.70     .06   55.00
UI    153.    153.    265.    544.    690.    802.    899.   1020.   1171.   1421.
UI   1851.   1871.   1534.   1330.   1185.   1024.    896.    770.    653.    479.
UI    305.    265.    251.    187.    153.    153.     50.     47.     47.     47.
UI     47.     47.     47.     47.      0.      0.      0.      0.      0.      0.
UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
*

KK    R80A
```

```
1856          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1857          DT    D80A       33
1858          DI       0    10000
1859          DQ       0    10000
              *

1860          KK   CP80A
1861          KM   COMBINE FLOW IN THE POWERLINE FLOODWAY WITH FLOW COMING FROM SUBBASIN 80A
1862          KM   THE LOCATION FOR THIS COMBINATION AT THE NW CORNER OF SUBBASIN 80A
1863          HC       2
              *

1864          KK  PWRSAN
1865          KM   REACH PR-1, PR-2 plus culvert PRC-1
1866          KM   ROUTE FLOWS FROM COMBINE POINT AT 80A VIA PLF RE-ALIGNMENT.
1867          RS       1    FLOW      -1
1868          RC    .015    .015    .015    3500   .0014
1869          RX       0       8      16      74     154     212     220     228
1870          RY     9.5     9.6     9.7       0       0     9.7     9.6     9.5
              *
1                                          HEC-1 INPUT                                          PAGE 50

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

1871          KK   CPSAN
1872          KM   COMBINE FLOWS FROM THE POWERLINE FLOODWAY AND THE PROPOSED SANTAN FREEWAY
1873          KM   DRAINAGE CHANNEL
1874          HC       2
              *

1875          KK  PWREMF
1876          KM   ROUTE FLOW FROM RE-ALIGNED POWERLINE FLOODWAY TO EMF VIA
1877          KM   NEW CHANNEL ALONG SANTAN FREEWAY ALIGNMENT
1878          KM   REACH ET-1
              * KO                                        21
1879          RS       1    FLOW      -1
1880          RC    .025    .025    .025    3850   .0005
1881          RX       0       8      16      74     154     212     220     228
1882          RY     9.5     9.6     9.7       0       0     9.7     9.6     9.5
              *

1883          KK  EMFPOW
1884          KM   COMBINE FLOW FROM THE POWERLINE FLOODWAY WITH FLOW IN THE EMF
1885          HC       2
              *

1886          KK  POWTWI
1887          KM   ROUTE EMF FLOW TO WILLIAMS FIELD ROAD VIA THE EMF
1888          KM   THIS SECTION IS CONCRETE LINED TO PAST POWER ROAD BRIDGE
1889          RS       2    FLOW      -1
1890          RC     .03    .012     .03    4750   .0003
1891          RX       0     500     520     553     693     726     740     742
1892          RY      14      12      11       0       0      11      11      12
              *

1893          KK    80B
1894          KM   BASIN 80B
1895          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1896          KM    L=      1.5  Lca=       .9   S=   18.4  Kn= .044  LAG=  41.9
1897          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1898          BA    1.12
1899          LG     .13     .17    6.80     .18   48.00
1900          UI     90.    105.    319.    433.    515.    614.    754.   1063.   1032.    814.
1901          UI    687.    563.    464.    359.    213.    155.    136.     90.     73.     28.
1902          UI     28.     28.     28.     28.     28.      0.      0.      0.      0.      0.
1903          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1904          KK    R80B
1905          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1906          DT    D80B       4
1907          DI       0    10000
1908          DQ       0    10000
              *
1                                          HEC-1 INPUT                                          PAGE 51

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

1909          KK  MPWILL
1910          KM   COMBINE FLOWS INTO THE EMF WEST OF WILLIAMS AFB FROM 80B, EMF POWERLINE AND
1911          KM   EMFRAY
1912          HC       2
              *

1913          KK  WILTSP
1914          KM   ROUTE EMF FLOW FROM WILLIAMS FIELD ROAD TO THE SOUTHERN PACIFIC RAILROAD
1915          KM     (AT RITTENHOUSE ROAD)
1916          RS       3    FLOW      -1
```

```
1917   RC     .03    .022     .03    5000   .0003
1918   RX       0     500     520     553     693     726     740     742
1919   RY      14      12      11       0       0      11      11      12
       *
       * DDM   ***** Updated *****

1920   KK     81A
1921   KM   BASIN 81A
1922   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1923   KM    L=      3.3  Lca=      1.9   S=   16.4  Kn= .029  LAG=  49.0
1924   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1925   BA    1.81
1926   LG     .14     .25    4.70     .41   58.00
1927   UI    125.    125.    341.    523.    642.    737.    863.   1019.   1359.   1576.
1928   UI   1258.   1066.    922.    777.    656.    545.    386.    222.    209.    177.
1929   UI    125.    117.     38.     38.     38.     38.     38.     38.     38.      0.
1930   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1931   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *
       * DDM   ***** Preserved *****

1932   KK    R81A
1933   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1934   DT    D81A       5
1935   DI       0   10000
1936   DQ       0   10000
       *

1937   KK   81ATB
1938   KM   ROUTE SUBBASIN 81A TO 81B VIA ROAD NETWORK FOR ON-BASE HOUSING
1939   RS       9    FLOW      -1
1940   RC    .013    .013    .013    8000   .0035
1941   RX       0     500     750     753    1053    1056    1303    1803
1942   RY       3     1.5       1      .6      .6       1     1.5       3
       *

1943   KK     81B
1944   KM   BASIN 81B
1945   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1946   KM    L=      1.1  Lca=      .4   S=    6.9  Kn= .033  LAG=  24.7
1947   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1948   BA     .84
1949   LG     .10     .25    4.70     .45   67.00
1950   UI    115.    393.    631.    857.   1343.   1088.    796.    566.    296.    185.
```



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

1951   UI    115.     39.     35.     35.      0.      0.      0.      0.      0.      0.
1952   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1953   KK    R81B
1954   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1955   DT    D81B      35
1956   DI       0   10000
1957   DQ       0   10000
       *
       * DDM   ***** Preserved *****

1958   KK     C81
1959   KM   COMBINE FLOWS FROM SUBBASINS 81A AND 81B BEFORE ENTERING INTO THE EMF
1960   HC       2
       *
       *
       * DDM   ***** Updated *****

1961   KK  EMFRT1       Hydrograph name changed by Dibble & Associates to avoid two
1962   KM               different hydrographs with the same name.
1963   KM   COMBINE 81A AND 81B AND RITTENHOUSE(HYDROGRAPH WILTSP, WHICH IS FROM EMFWIL)
1964   HC       2
       *
       *
       * THE NEXT KK BLOCKS COME FROM THE QUEEN CREEK ADMS
       *
       * DDM   ***** Preserved *****

1965   KK  SUB258
1966   KM   IN PINAL COUNTY, NO RETENTION
1967   KM        RUNOFF FROM SUBBASIN 258
1968   BA    3.68
1969   LS              78
1970   UD    3.87
       *
       *

1971   KK    R258
1972   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1973   DT    D258     121
1974   DI       0   10000
```

```
1975        DQ       0   10000
            *

1976        KK   RO259
1977        KM        ROUTE SUB258 TO CO262
1978        RM       8    1.57    0.20
            *
            * DDM   ***** Preserved *****
1                                   HEC-1 INPUT                                    PAGE 53

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

1979        KK  SUB260
1980        KM        RUNOFF FROM SUBBASIN 260
1981        BA    0.98
1982        LS              75
1983        UD    1.21
            *

1984        KK    R260
1985        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1986        DT    D260      27
1987        DI       0   10000
1988        DQ       0   10000
            *
            * DDM   ***** Preserved *****

1989        KK   CO262
1990        KM        COMBINE SUB260 AND RO259
1991        HC       2
            * DDM   ***** Preserved *****

1992        KK   RO263
1993        KM        ROUTE CO262 TO CO266
1994        RM       8    1.56    0.20
            *
            * DDM   ***** Preserved *****

1995        KK  SUB264
1996        KM        RUNOFF FROM SUBBASIN 264
1997        BA    0.99
1998        LS              76
1999        UD    1.47
            *
            * DDM   ***** Preserved *****

2000        KK    R264
2001        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2002        DT    D264      29
2003        DI       0   10000
2004        DQ       0   10000
            *
            * DDM   ***** Preserved *****

2005        KK   CO266
2006        KM        COMBINE SUB264 AND RO263
2007        HC       2
            *
            * DDM   ***** Preserved *****

2008        KK   RO267
2009        KM        ROUTE CO266 TO CO270
2010        RM      16    3.31    0.20
            *
            * DDM   ***** Preserved *****
1                                   HEC-1 INPUT                                    PAGE 54

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

2011        KK  SUB268
2012        KM        RUNOFF FROM SUBBASIN 268
2013        BA    0.96
2014        LS              76
2015        UD    2.27
            *
            * DDM   ***** Preserved *****

2016        KK    R268
2017        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2018        DT    D268      28
2019        DI       0   10000
2020        DQ       0   10000
            *
            * DDM   ***** Preserved *****

2021        KK   CO270
2022        KM        COMBINE RUNOFF FROM RO267 AND SUB268
2023        HC       2
```

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

2024                KK   RO283
2025                KM        ROUTE CO282 TO CONCENTRATION POINT AT QUEEN CREEK ROAD
2026                RM      14    2.78    0.20
                    *
                    * THIS IS THE END OF THE QUEEN CREEK ADMS INSERT
                    *
                    * DDM   ***** Updated *****

2027                KK     88A
2028                KM   BASIN 88A
2029                KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2030                KM    L=        .8  Lca=        .2   S=   13.2  Kn= .020  LAG=   9.2
2031                KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2032                BA     .50
2033                LG     .10      .25    5.00     .40   80.00
2034                UI    549.   1709.   1208.    323.     71.      0.      0.      0.      0.      0.
2035                UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                    *
                    * DDM   ***** Preserved *****

2036                KK    R88A
2037                KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2038                DT    D88A      50
2039                DI       0   10000
2040                DQ       0   10000
                    *
1                                                HEC-1 INPUT                                                PAGE 55

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

2041                KK  88AT89
2042                KM   REACH RH-2b,RH-2a,RH-1,EXISTING CHANNEL (FCD 97-34), plus culvert RHC-1
2043                KM   ROUTE 88A TO 89A VIA THE PROPOSED CHANNEL ALONG QUEEN CREEK ROAD
2044                KM   FROM CRISMON ROAD TO ELLSWORTH ROAD
2045                RS       1    FLOW      -1
2046                RC    .025     .025    .025    5135   .0010
2047                RX       0        8      16      45      55      85      93     101
2048                RY     4.7      4.8     4.9       0       0     4.9     4.8     4.7
                    *

2049                KK     89A
2050                KM   BASIN 89A
2051                KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2052                KM    L=       1.0  Lca=        .6   S=   19.0  Kn= .020  LAG=  13.5
2053                KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2054                BA     .50
2055                LG     .10      .25    4.65     .47   80.00
2056                UI    247.    742.   1328.    891.    408.    158.     41.     38.      0.      0.
2057                UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                    *

2058                KK    R89A
2059                KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2060                DT    D89A      50
2061                DI       0   10000
2062                DQ       0   10000
                    *

2063                KK    C89A
2064                KM   COMBINE FLOWS FROM 88A AND 89A AT QUEEN CREEK ROAD AND ELLSWORTH ROAD
2065                HC       2
                    *

2066                KK  89ATRI
2067                KM   ROUTE 89A TO RITTENHOUSE ROAD VIA THE PROPOSED CHANNEL ALONG QUEEN CREEK ROAD
2068                KM    FROM ELLSWORTH ROAD TO RITTENHOUSE ROAD
2069                KM   REVISED 02.24.98 WITH RITTENHOUSE CHANNEL DESIGN.
2070                RS       1    FLOW      -1
2071                RC    .025     .025    .025    3145   .0005
2072                RX       0       10      26      39      49      72      78     100
2073                RY    12.2      9.7     5.7       0       0     5.7     9.7    12.2
                    *

2074                KK    C283
2075                KM   COMBINE FLOWS FROM QUEEN CREEK ADMS AND EC ADMP AT QUEEN CREEK ROAD AND
2076                KM   RITTENHOUSE ROAD.
                    * KO              2
2077                HC       2
                    *
1                                                HEC-1 INPUT                                                PAGE 56

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

2078                KK  283T90
2079                KM   ROUTE FLOWS FROM CONCENTRATION POINT 283 AT QUEEN CREAK ROAD NORTH IN
```

```
2080    KM   RITTENHOUSE CHANNEL TO THE HALF MILE STREET BETWEEN QUEEN CREEK ROAD AND
2081    KM   GERMANN ROAD (RYAN STREET)
2082    KM
2083    KM   REVISED 02.24.98 WITH RITTENHOUSE CHANNEL DESIGN (TYPICAL SECTION #5).
2084    KM
        * KO            2
2085    RS      1    FLOW      -1
2086    RC    .025    .025    .025    4400   .0005
2087    RX      0      22      28      51      61      83      90     108
2088    RY    11.2     9.7     5.7      0       0     5.7     9.7    11.2
        *

2089    KK     90A
2090    KM   BASIN 90A
2091    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2092    KM    L=       .6  Lca=       .2   S=   24.2  Kn= .038  LAG=  12.8
2093    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2094    BA     .48
2095    LG     .10     .25    4.60     .49   62.00
2096    UI    269.    789.   1351.    812.    319.    113.     39.      0.      0.      0.
2097    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

2098    KK    R90A
2099    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2100    DT    D90A      42
2101    DI       0   10000
2102    DQ       0   10000
        *

2103    KK    C90A
2104    KM   COMBINE FLOWS FLOW C283 AND SUBBASIN 90 AT RYAN STREET ALIGNMENT
        * KO            2
2105    HC       2
        *

2106    KK   90ATB
2107    KM   ROUTE FLOWS FROM SUBBASIN 90A TO 90B VIA CHANNEL
2108    KM   REVISED 02.24.98 WITH RITTENHOUSE CHANNEL DESIGN (TYPICAL SECTION #4).
2109    KM
        * KO            2
2110    RS      1    FLOW      -1
2111    RC    .025    .025    .025    4400   .0005
2112    RX      0      22      28      51      61      83      90     108
2113    RY    11.2     9.7     5.7      0       0     5.7     9.7    11.2
        *
```



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

2114    KK     87A
2115    KM   BASIN 87A
2116    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2117    KM    L=       1.0  Lca=       .5   S=   24.8  Kn= .020  LAG=  11.7
2118    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2119    BA     .49
2120    LG     .10     .25    5.00     .40   80.00
2121    UI    333.    979.   1448.    720.    221.     66.      0.      0.      0.      0.
2122    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

2123    KK    R87A
2124    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2125    DT    D87A      49
2126    DI       0   10000
2127    DQ       0   10000
        *

2128    KK   87ATB
2129    KM   ROUTE 87A TO 87B VIA SHEET FLOW
2130    RS      3    FLOW      -1
2131    RC    .040    .040    .040    2640   .0056
2132    RX      0     500    1000    1005    1006    1011    1511    2011
2133    RY      1      .5       0       0       0      .5       1     1.5
        *

2134    KK     87B
2135    KM   BASIN 87B
2136    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2137    KM    L=       .9  Lca=       .5   S=   11.6  Kn= .020  LAG=  12.8
2138    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2139    BA     .49
2140    LG     .10     .25    5.00     .40   80.00
2141    UI    275.    809.   1385.    833.    327.    116.     40.      0.      0.      0.
2142    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

2143    KK    R87B
2144    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
```

```
2145    DT    D87B      49
2146    DI       0   10000
2147    DQ       0   10000
        *

2148    KK     C87
2149    KM   COMBINE FLOW FROM SUBBASINS 87A AND 87B
2150    HC       2
        *
1                                   HEC-1 INPUT                                    PAGE 58

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

2151    KK  87T88B
2152    KM     ROUTE S87 TO S88 VIA GERMANN ROAD
2153    RS       6    FLOW      -1
2154    RC    .045    .025    .045    5280    .002
2155    RX       0    1000    1005    1010    1050    1060    1560    2060
2156    RY      14      13      18      12      11      14    14.5      15
        *

2157    KK     88B
2158    KM   BASIN 88B
2159    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2160    KM    L=        .9  Lca=        .6   S=   21.2  Kn= .020  LAG=  12.8
2161    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2162    BA     .50
2163    LG     .10     .25    5.00     .40   80.00
2164    UI    279.    819.   1402.    843.    331.    117.     40.      0.      0.      0.
2165    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

2166    KK    R88B
2167    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2168    DT    D88B      50
2169    DI       0   10000
2170    DQ       0   10000
        *

2171    KK    C88B
2172    KM   COMBINE FLOWS FROM SUBBASINS 88A AND 88B
2173    HC       2
        *

2174    KK  88T89B
2175    KM     ROUTE S88 (CRISMON ROAD) TO S89B (ELLSWORTH ROAD) VIA GERMANN ROAD
2176    RS       6    FLOW      -1
2177    RC    .045    .025    .045    5280    .004
2178    RX       0    1000    1005    1010    1050    1060    1560    2060
2179    RY      14      13      18      12      11      14    14.5      15
        *

2180    KK     89B
2181    KM   BASIN 89B
2182    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2183    KM    L=        .9  Lca=        .5   S=   23.2  Kn= .020  LAG=  11.7
2184    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2185    BA     .50
2186    LG     .10     .25    4.80     .43   80.00
2187    UI    336.    987.   1460.    726.    223.     67.      0.      0.      0.      0.
2188    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
1                                   HEC-1 INPUT                                    PAGE 59

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

2189    KK    R89B
2190    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2191    DT    D89B      49
2192    DI       0   10000
2193    DQ       0   10000
        *

2194    KK    C89B
2195    KM   COMBINE FLOWS FROM SUBBASINS 89A AND 89B
2196    HC       2
        *

2197    KK  89TB90
2198    KM     ROUTE S89B (ELLSWORTH ROAD) TO S90B (AT RITTENHOUSE ROAD) VIA GERMANN ROAD
2199    RS      10    FLOW      -1
2200    RC    .045    .025    .045    8818   .0045
2201    RX       0    1000    1005    1010    1050    1060    1560    2060
2202    RY      14      13      18      12      11      14    14.5      15
        *
        * DDM   ***** Updated *****

2203    KK     90B
```

```
2204   KM   BASIN 90B
2205   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2206   KM    L=      2.0  Lca=      1.2   S=   15.3  Kn= .042  LAG=  49.8
2207   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2208   BA     .82
2209   LG     .22      .25    4.65     .38   31.00
2210   UI     56.      56.    147.    232.    283.    327.    379.    444.    588.    709.
2211   UI    583.     490.    427.    359.    306.    259.    187.    117.     96.     91.
2212   UI     56.      56.     28.     17.     17.     17.     17.     17.     17.      0.
2213   UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
2214   UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
       *
       * DDM   ***** Preserved *****

2215   KK    R90B
2216   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2217   DT    D90B      23
2218   DI       0   10000
2219   DQ       0   10000
       * DDM   ***** Preserved *****

2220   KK     C90
2221   KM   COMBINE FLOWS FROM 90A AND 90B
2222   HC       3
       *

2223   KK   90T91
2224   KM   REVISED 02.24.98 WITH RITTENHOUSE CHANNEL DESIGN (TYPICAL SECTION #3).
2225   KM
2226   RS       1    FLOW      -1
2227   RC    .025     .025    .025    6400   .0005
2228   RX       0       30      36      60      88     108     114     132
1                                     HEC-1 INPUT                                    PAGE 60

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

2229   RY     9.7      7.5       6       0       0       6     7.5     9.7
       *

2230   KK      85
2231   KM   BASIN 85
2232   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2233   KM    L=      2.0  Lca=       .5   S=   15.0  Kn= .030  LAG=  25.8
2234   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2235   BA    1.00
2236   LG     .15      .25    4.35     .51   55.00
2237   UI    131.     422.    698.    929.   1452.   1359.    991.    725.    463.    226.
2238   UI    161.      89.     40.     40.     40.      0.      0.      0.      0.      0.
2239   UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
       *
       * DDM   ***** Preserved *****

2240   KK     R85
2241   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2242   DT     D85      84
2243   DI       0   10000
2244   DQ       0   10000
       * DDM   ***** Preserved *****

2245   KK   85T86
2246   KM     ROUTE S85 TO S86 VIA WAFB SOUTH PERIMETER CHANNEL
2247   RS       4    FLOW      -1
2248   RC   0.055   0.035   0.055    5280   .0039
2249   RX       0     500    1000    1013    1028    1041    1541    2041
2250   RY     5.5       5     4.5       0       0     4.5       5     5.5
       *
       * DDM   ***** Updated *****

2251   KK      86
2252   KM   BASIN 86
2253   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2254   KM    L=      2.0  Lca=       .5   S=   15.0  Kn= .030  LAG=  25.8
2255   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2256   BA    1.00
2257   LG     .15      .25    4.55     .45   55.00
2258   UI    131.     420.    695.    925.   1446.   1354.    987.    722.    461.    225.
2259   UI    160.      89.     40.     40.     40.      0.      0.      0.      0.      0.
2260   UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
       *
       * DDM   ***** Preserved *****

2261   KK     R86
2262   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2263   DT     D86      85
2264   DI       0   10000
2265   DQ       0   10000
       *
       * DDM   ***** Preserved *****
1                                     HEC-1 INPUT                                    PAGE 61
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2266        KK     C86
2267        KM     COMBINE 85 AND 86 AT PECOS ROAD AND SOSSAMAN ROAD
2268        HC       2
            *
            * DDM   ***** Preserved *****

2269        KK   86T91
2270        KM     ROUTE S86 TO S91 VIA WAFB SOUTH PERIMETER CHANNEL. Grassy v=3ft/sec
2271        RS       6    FLOW      -1
2272        RC    0.05   0.035    0.05    5500   .0025
2273        RX       0     500    1000    1013    1028    1041    1541    2041
2274        RY     5.5       5     4.5       0       0     4.5       5     5.5
            *
            * DDM   ***** Updated *****

2275        KK      91
2276        KM   BASIN 91
2277        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2278        KM    L=      1.4  Lca=       .6   S=   18.4  Kn= .030  LAG=  22.7
2279        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2280        BA     .46
2281        LG     .15     .25    4.65     .42   55.00
2282        UI     68.    262.    399.    586.    792.    554.    390.    234.    116.     73.
2283        UI     28.     21.     21.      0.      0.      0.      0.      0.      0.      0.
2284        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *

2285        KK   RET91
2286        KM   RETAIN 100YR 2HR VOLUME
2287        DT     D91      38
2288        DI       0   10000
2289        DQ       0   10000
            *
            * DDM   ***** Preserved *****

2290        KK    CP91
2291        KM     COMBINE 91, 90, AND 86 AT EMF NEAR THE RITTENHOUSE CHANNEL
2292        HC       3
            *
            * DDM   ***** Preserved *****

2293        KK  91TEMF
2294        KM   ROUTE 91 TO EMF
2295        RS       4    FLOW      -1
2296        RC   0.035   0.022   0.035    4000   0.003
2297        RX       0     200     230     240     270     280     310     410
2298        RY       9       7       6       0       0       6       7       9
            *
            * DDM   ***** Preserved *****
1                                    HEC-1 INPUT                                    PAGE 62

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

2299        KK  EMFRIT   Revised by Dibble & Associates to remove combination at "RITTEN"
2300        KM   COMBINE HYDROGRAPHS EMFRT1 AND 91TEMF
2301        HC       2
            *
            *
            *
            *
2302        KM      *******  \/ \/ \/ modifications by Dibble & Associates \/ \/ \/ **********
2303        KM
2304        KM   On 12.16.97 - made changes to sub-basins 62C & 62D per County
2305        KM   On 12.17.97 - revised detention Basin DB82A1
2306        KM   On 12.18.97 - Siphon Draw basin to be on-line facility, rearranged sequence
2307        KM   On 12.19.97 - Basin MN4B near Powerline Floodway, data based on grading plan
2308        KM                - Revised Channel Routing parameters for Area 1
2309        KM   On 01.05.98 - Revised Detention Basin DB82A1 & DB82B.
2310        KM                - Coordinated file with FB.
2311        KM   On 01.12.98 - Revised Hydrology per County '97 Land Use Parameters
2312        KM                - File Updated by DDMS
2313        KM                - Retention revised per County '97 Land Use Parameters
2314        KM   On 01.14.98 - Revised routing along the Santan Alignment
2315        KM   On 01.19.98 - Revised channel routing parameters, Area 2 for channel design.
2316        KM   On 01.26.98 - Revised channel routing slopes in non-ADMP design areas to
2317        KM                  match the MAG97 values found in file FUTSOUTH.DAT from FCDMC
2318        KM   On 01.26.98 - Revised wording at CAP1A and CAP1B to reflect 217 cfs per
2319        KM                  overchute location, not per pipe.  This per Valerie Swick.
2320        KM   On 01.27.98 - Copied the KK 91 to KK EMFRIT sequence from FUTSOUTH.DAT
2321        KM                  and revised diagram sequence to add in Santan Fwy channel.
2322        KM   On 01.27.98 - Slope and NSTEPS values for some natural channels input from
2323        KM                  the District-supplied file "FUTSOUTH.DAT".
2324        KM   On 01.28.98 - Revised hydrograph names near EMF at Rittenhouse area.
2325        KM   On 02.12.98 - Revised minor station error in channel route 65AT66, RX record
2326        KM   On 02.23.98 - Revised per
2327        KM                  FCDMC comments:  Reworded KM record for route 65AT66.
```

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2328          KM                                Length for route 65T66 revised to 2400 feet.
2329          KM                                KM added to 78B to explain why no retention.
2330          KM                                Added channel route for CP82A4 to CP82A5.
2331          KM                                Added 0.25 ratio @ Basin 75, removed retention
2332          KM   On 02.24.98 - Revised Rittenhouse Channel routing to reflect plans
2333          KM                 per FCD Contract No. 97-34 (Phase 2)
2334          KM
2335          KM   On 03.03.98 - Received This File as FINAL HYDROLOGY from the FCDMC
2336          KM   On 03.04.98 - Revised flow routing to show the PLF connecting to
2337          KM                 the Santan Channel.  Also re-ordered subbasin 80a
2338          KM                 to enter the system at the proper location.
2339          KM   On 03.06.98 - Revised KM record for EMPKNX to delete reference to C76A.
2340          KM   On 03.10.98 - Revised preliminary channel sizes from design data.
2341          KM                 Added routing reaches represented in design. (Area 1).
2342          KM   On 03.12.98 - Regraded Crismon Basin to avoid ADWR jurisdictional dam.
2343          KM   On 03.13.98 - Revised Siphon Draw Basin to avoid ADWR jurisdictional dam.
2344          KM   On 03.24.98 - Revised normal depth channel routing per Area 2 channel design.
2345          KM   On 04.22.98 - Submitted Hydrology to County.
2346          KM   On 05.20.98 - Revised Hydrology per County Comments
2347          KM   On 06.11.98 - Revised channel properties to reflect earth channels
2348          KM   On 06.12.98 - Submitted file to County (This is a pre-final submittal)
1                                          HEC-1 INPUT                                          PAGE 63

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

2349          KM
2350          KM   On 06.18.98 - Added combine at Knox Road for better flowrate resolution.
2351          KM
2352          KM   On 07.17.98 - Revised per FCD review comments.  Channel routings revised to
2353          KM                 follow the ADMP Preliminary Design Plans.  More verbal
2354          KM                 descriptions for channel routings added.
2355          KM
2356          KM   On 07.24.98 - This is the final submittal HEC-1 input file.
2357          KM
2358          KM   On 08.06.98 -Back checked entire file against FCDMC review comments printout.
2359          KM
2360          KM   On 10.21.98 -Revised routing at Elliot basin for prelim. 30% design.
2361          KM
2362          KM   On 10.27.98 -Revised divert for retention at Elliot Basin.
2363          KM
2364          KM   On 01.15.99 -File submitted as part of Elliot Basin Addendum to the ADMP.
2365          KM
2366          KM      *******  ^^^^^ modifications by Dibble & Associates ^^^^^   **************
              *
2367          ZZ
1
              SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

  103        SOSS
                V
                V
  108       RSOSS
                .
                .
  114           .          59A
                .            .
                .            .
  126           .            .-------->    D59A
  124           .        R59A
                .            .
                .            .
  129       C59A............
                V
                V
  132     59A59B
                .
                .
  139           .          59B
                .            .
                .            .
  153           .            .-------->    D59B
  151           .        R59B
                .            .
                .            .
  156       C59B............
                V
                V
  159     59BT60
                .
                .
  165           .          60
                .            .
                .            .
  182           .            .-------->     D60
  180           .        R60
                .            .
```

```
                .          .
185     EMFGUA............
              V
              V
188     GUATEL
                .
                .
194             .          64
                .          .
                .          .
210             .          .-------->     D64
205             .        R64
                .          .
                .          .
213     EMFELL............
              V
              V
216     ELTWAR
                .
                .
222             .        62A
                .          .
                .          .
233             .          .-------->    D62A
231             .      R62A
                .        V
                .        V
236             .     62ATB
                .          .
                .          .
242             .          .        62B
                .          .          .
                .          .          .
253             .          .          .-------->    D62B
251             .          .      R62B
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256             .      C62B............
                .        V
                .        V
259             .     62BTD
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265             .          .        62D
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278             .          .          .-------->    D62D
276             .          .      R62D
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281             .     CP62D............
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                .        V
284             .     62DTF
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290             .          .        62F
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302             .          .          .-------->    D62F
300             .          .      R62F
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305             .     CP62F............
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308             .     62T63
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315             .          .        63
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327             .          .          .-------->     D63
325             .          .       R63
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330             .      CP63............
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333             .     63T71
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340             .          .       68B
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351             .          .          .-------->    D68B
349             .          .       R68
                .          .         V
                .          .         V
354             .          .     68BT69
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360             .          .          .          69
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                .          .          .           .-------->     D69
371             .          .          .
369             .          .          .          R69
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374             .          .        C69............
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377             .          .      69T71
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383             .          .          .          71
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                .          .          .           .-------->     D71
395             .          .          .
393             .          .          .          R71
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398             .        C71........................
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404             .      71T72
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411             .          .        72
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423             .          .          .-------->     D72
421             .          .        R72
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426     EMFWAR..........................
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429     WARTKN
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435             .        70B
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447             .          .-------->     D70B
445             .       R70B
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450             .     70BT76
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456             .          .        76B
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468             .          .          .-------->     D76B
466             .          .       R76B
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471             .       KNOX............
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474     EMFKNX............
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            V
478     KNXTRY
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484             .        65A
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497             .          .-------->     D65A
495             .       R65A
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500             .          .      CAP1A
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509             .          .     RCAP1A
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519             .          .     RRCP1A
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527             .          .          .       CAP1B
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536             .          .          .      RCAP1B
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544             .       C65A1........................
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547              .     65ATB1
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558              .          .-------->   DB65A
555              .     DIDB65
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561              .     65B1T2
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570              .          .          .<--------   DB65A
568              .          .     DIB65P
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571              .          .     DB65A
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580              .     C65A2............
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583              .     65AT-1
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591              .     65AT-2
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600              .          .       65AW
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                 .          .          .
612              .          .          .-------->   D65AW
610              .          .     R65AW
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615              .          .     65AT65
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622              .          .          .         65B
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635              .          .          .          .-------->   D65B
633              .          .          .       R65B
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638              .          .     CP65B............
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646              .          .          .-------->  DIRS65
642              .          .     DI65B
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649              .     CP65A............
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653              .    65AT-3
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659              .          .     RS65A
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667              .      CP65............
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671              .     65T66
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                 .          V
674              .    65T66A
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                 .          V
677              .    65T66B
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680              .          .    ADOT-2
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685              .          .    AET67A
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692              .          .          .         67A
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704              .          .          .          .-------->   D67A
702              .          .          .       R67A
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707                 C67A............
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                      V
710                67ATC
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716                   .        SUP2
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720                   .       RSUP2
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727                   .           .         67B
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739                   .           .           .-------->    D67B
737                   .           .       R67B
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742                   .       C67B............
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745                   .       67BTC
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753                   .           .         67C
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766                   .           .           .-------->    D67C
764                   .           .       R67C
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769                C67C........................
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772               67CT67
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792                   .           .-------->    D67D
790                   .       R67D
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795                C67D............
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798               67DT66
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806                   .         66A
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818                   .           .-------->    D66A
816                   .       R66A
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821                   .       66ATB
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827                   .           .         66B
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838                   .           .       R66B
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846                   .       66BTC
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852                   .           .         66C
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864                   .           .           .-------->    D66C
862                   .           .       R66C
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867                   .       CP66C1............
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871               CP66C2............
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878                   .-------->    DB66
875                DI66
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  881            .          .     66C1T2
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                 .        V
  892            .     66CTD
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  919            .    RC-WA
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  925            .          .          .<-------    D-WB
  923            .          .    DR-WA
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                 .          .        V
  926            .          .   RS66D2
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  957            .          .    R66D
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 1000            .          .       .     CP61B............
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 1010            .          .       .         .       67E
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 1023            .          .       .         .         .------->    D67E
 1020            .          .       .         .      R67E
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1160             .        .      R76A
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1165             .     C76A............
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1168             .    76ATPR
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1176             .        .        73A
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1190             .        .     73ATB
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1208             .        .         .          .-------->    D73B
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1211             .        .     CP73B............
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1214             .        .     73BTC
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1232            .         .         .         .-------->   D73C
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1235            .         .     CP73C............
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1238            .         .    73T74C
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1244            .         .         .        74A
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1258            .         .         .      DB74A
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1274            .         .         .         .          74B
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1289            .         .         .      CP74B............
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1292            .         .         .      74BTC
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1479            C78C......................
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1482            78CT79
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1489                  79A
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1507                  78F
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1524                     .         82A1
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1670                 BOXCLV
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1720             .         .         .         .      C78D.......................
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1724             .         .         .         .    78DTR
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1731             .         .         .         .         .        78E
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 1886      POWTWI
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 1893           .        80B
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 1906           .          .-------->    D80B
 1904           .       R80B
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 1913      WILTSP
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 1920           .        81A
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 1934           .          .-------->    D81A
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 1943           .          .         81B
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 1961      EMFRT1...........
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 1965           .     SUB258
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 1973           .          .-------->    D258
 1971           .       R258
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 1976           .      RO259
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 1979           .          .      SUB260
                .          .           .
                .          .           .
 1986           .          .           .-------->    D260
 1984           .          .       R260
                .          .           .
                .          .           .
 1989           .      CO262...........
                .          V
                .          V
 1992           .      RO263
                .          .
                .          .
 1995           .          .      SUB264
                .          .           .
                .          .           .
 2002           .          .           .-------->    D264
 2000           .          .       R264
                .          .           .
                .          .           .
 2005           .      CO266...........
                .          V
                .          V
 2008           .      RO267
                .          .
                .          .
 2011           .          .      SUB268
                .          .           .
                .          .           .
 2018           .          .           .-------->    D268
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2016                R268
2021          CO270............
                 V
                 V
2024          RO283
2027                88A
2038                .-------->    D88A
2036                R88A
                     V
                     V
2041             88AT89
2049                         89A
2060                         .-------->    D89A
2058                      R89A
2063                C89A............
                     V
                     V
2066             89ATRI
2074          C283............
                 V
                 V
2078         283T90
2089                90A
2100                .-------->    D90A
2098                R90A
2103          C90A............
                 V
                 V
2106          90ATB
2114                87A
2125                .-------->    D87A
2123                R87A
                     V
                     V
2128             87ATB
2134                         87B
2145                         .-------->    D87B
2143                      R87B
2148                C87............
                     V
                     V
2151            87T88B
2157                         88B
2168                         .-------->    D88B
2166                      R88B
2171             C88B............
                     V
                     V
2174            88T89B
2180                         89B
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 2191          .          .          .          .-------->    D89B
 2189          .          .          .       R89B
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               .          .          .          .
 2194          .          .       C89B...........
               .          .          V
               .          .          V
 2197          .          .     89TB90
               .          .          .
               .          .          .
 2203          .          .          .        90B
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               .          .          .          .
 2217          .          .          .          .-------->    D90B
 2215          .          .          .       R90B
               .          .          .          .
               .          .          .          .
 2220          .        C90........................
               .          V
               .          V
 2223          .      90T91
               .          .
               .          .
 2230          .          .         85
               .          .          .
               .          .          .
 2242          .          .          .-------->    D85
 2240          .          .       R85
               .          .          V
               .          .          V
 2245          .          .     85T86
               .          .          .
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 2251          .          .          .         86
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 2263          .          .          .          .-------->    D86
 2261          .          .          .       R86
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 2266          .          .       C86...........
               .          .          V
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 2269          .          .     86T91
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 2275          .          .          .         91
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 2287          .          .          .          .-------->    D91
 2285          .          .          .      RET91
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 2290          .       CP91........................
               .          V
               .          V
 2293          .     91TEMF
               .          .
               .          .
 2299     EMFRIT............
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(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   27JAN00  TIME  17:43:30  *
*                                      *
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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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PRODUCED BY DIBBLE AND ASSOCIATES AND HOSKIN ENGINEERING CONSULTANTS.
File Name: Final8.Dat
Revised - Jan. 2000 by SZ (Wood/Patel) From Final7.dat - new Z-V & Sideweir
Revised - Jan. 2000 by SZ (Wood/Patel) from Final6.dat - 60% review comments
Revised - Dec. 1999 by SZ (Wood/Patel) from Final5.dat
Revised - Dec. 1999 by SZ (Wood/Patel) from Final4.dat
Revised - Nov. 1999 by SZ (Wood/Patel) from Final3.dat
Revised - June 1999 by SZ (Wood/Patel) for Final Model from Opt1.dat.
Revised - May 1999 by SZ (Wood/Patel) for Option 1, Based on Model SDIB.DAT
REVISED - MAY, 1999 BY VAS TO INCORPORATE INCREASE OF SUBBASIN RETENTION AND
          REVISIONS TO THE REGIONAL DETENTION BASIN STORAGE
REVISED - FEB, 1999 BY VALERIE SWICK, FCD OF MARICOPA COUNTY
REVISED - MAY, 1998 BY D&A
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                    REVISED BY VALERIE SWICK, FEB. 26, 1998

                    FLOWS FROM DETENTION BASIN LOCATED AT NE CORNER OF ELLIOT AND ELLSWORTH ROADS
                    IS ROUTED TO THE SOUTHWEST BY SIPHON DRAW TO SUBBASIN 70A. FROM THERE THEY
                    WILL BE ROUTED BY A CHANNEL TO THE EMF. FLOWS FROM SUBBASINS ADJACENT TO
                    SANTAN FREEWAY ALIGNMENT WILL BE ROUTED SOUTH TO SUBBASIN 70A WHERE THEY WILL
                    BE COMBINED WITH FLOW IN SIPHON DRAW.

                    EAST MESA AREA DRAINAGE MASTER PLAN
                    AREA SOUTH OF SUPERSTITION (U.S. HWY 60)
                    AUGUST 1997
                    SOUTHEAST MESA HIGH RESOLUTION MODEL

                    ***********FUTURE CONDITION MODEL OF THE WATERSHED************************

                   ************ATTENTION*************************************************************
                     SUBBASINS 75, 79A, 79B, 78E,  LANDUSES WERE NOT
                     CHANGED BECAUSE IT WAS FELT THAT THEIR FUTURE CONDITIONS LANDUSES WOULD BE
                     SIMILAR TO THE EXISTING CONDITIONS LANDUSES.
                     RETENTION VOLUMES WILL ALSO NOT BE UTILIZED FOR SUBBASINS 75, 79A, 79B, 78E
                     SOME QUEEN CREEK SUBBASINS WILL ALSO NOT HAVE RETENTION VOLUMES, EITHER
                     BECAUSE THEY LIE IN PINAL COUNTY AND WE DONT KNOW PINAL COUNTIES PLANS OR
                     THEY LIE IN THE SANTAN MOUNTAINS AND WON'T GET DEVELOPED
                     WILLIAMS GATEWAY AIRPORT (SUBBASINS 80A, 80B, 81A, AND 81B) ARE MODELED AS
                     FUTURE CONDITIONS AND HAVE RETENTION VOLUMES FOR THE 100YR 2HR STORM
                   ******************************************************************************
                    FILENAME:  SDIBB.DAT

                    THIS MODEL REPRESENTS THE FUTURE CONDITION OF THE WATERSHED.
                    TOTAL DRAINAGE AREA IS APPROXIMATELY 213 SQ. MI.
                    THIS MODEL USES A Kn VALUE OF 0.09 FOR DESERT LAND USE DUE TO SHEET FLOW
                    CONDITIONS.

                    100-YEAR 24-HOUR FREQUENCY
                    AREAL REDUCTIONS FROM FCD HYDROLOGY MANUAL
                    THIS MODEL INCLUDES INFLOW FROM NORTH OF THE SUPERSTITION FREEWAY
                    AND EAST OF THE CAP

                    DATA FROM THE QUEEN CREEK ADMS HAS BEEN ADDED TO CALCULATE FLOWS INTO THE
                    EMF.   MUSKINGUM ROUTING NSTEPS WERE ADJUSTED TO BE WITHIN THE SUGGESTED
                    RANGE.

                    METHODOLOGY
                    THE US CORPS OF ENGINEERS FLOOD HYDROLOGY MODEL HEC-1 DATED SEP1990 VER 4.0
                    SCS TYPE II RAINFALL DISTRIBUTION
                    S-GRAPH HYDROGRAPH
                    GREEN AND AMPT INFILTRATION EQUATION USED FOR CALCULATING LOSSES
                    NORMAL DEPTH STORAGE CHANNEL ROUTING
                    APPROXIMATE DIRECTION, LOCATION, AND LENGTH OF THE WASHES HAVE BEEN
                    EVALUATED BASED ON FIELD INVESTIGATION, USGS MAPS, LANDIS AERIAL SURVEYS
                    DATED 1994
                    THE NOAA TECHNICAL MEMORANDUM NOAA ATLAS 2 DEPTH AREA RATIOS

                    ORIGINAL STUDY PERFORMED BY LISA C. YOUNG AND AFSHIN AHOURAIYAN, UPDATED BY
                    DAVID DEGERNESS (OCT-DEC, 1996). REVIEWED BY VALERIE A. SWICK
                    AND AMIR MOTAMEDI OF THE FLOOD CONTROL DISTRICT
                    HYDROLOGY BRANCH ENGINEERING DIVISION, FLOOD CONTROL
                    DISTRICT OF MARICOPA COUNTY, DECEMBER - JULY 1995.

                    ASSUMED VELOCITY OF 1 FT/SEC FOR SHEET FLOW, 2-3 FT/SEC FOR WASH/NATURAL
                    CHANNEL, 3 FT/SEC FOR ROAD AND GRASS CHANNEL, 10FT/SEC FOR CONCRETE CHANNEL

                    VELOCITIES FOR ADMP IMPROVEMENT CHANNELS FROM DIBBLE AND ASSOCIATES
                    SUGGESTED ALTERNATIVES (JULY 1, 1997)


                    NOTE: MUST USE NDIBF.DSS AS THE DSS FILE TO IMPORT FLOWS ACROSS THE
                          SUPERSTITION FREEWAY.

                    DDM MCUHP2 SE MESA ADMP - SOUTH OF SUPERSTITION FWY, FUTURE CONDITIONS

 86 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     1APR97  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        600  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     3APR97  ENDING DATE
                     NDTIME       0155  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   49.92 HOURS

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

88 JD      INDEX STORM NO. 1
                STRM        3.60  PRECIPITATION DEPTH
                TRDA         .01  TRANSPOSITION DRAINAGE AREA

89 PI        PRECIPITATION PATTERN
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
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                .03      .09      .09      .09      .01      .01      .01      .01      .01      .01
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99 JD      INDEX STORM NO. 2
                STRM        3.38  PRECIPITATION DEPTH
                TRDA       10.00  TRANSPOSITION DRAINAGE AREA

0 PI         PRECIPITATION PATTERN
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
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100 JD     INDEX STORM NO. 3
                STRM        3.24  PRECIPITATION DEPTH
                TRDA       30.00  TRANSPOSITION DRAINAGE AREA

0 PI         PRECIPITATION PATTERN
                .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
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.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
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101 JD INDEX STORM NO. 4
STRM 3.10 PRECIPITATION DEPTH
TRDA 60.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

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102 JD INDEX STORM NO. 5
STRM 3.05 PRECIPITATION DEPTH
TRDA 90.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

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.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
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   -----DSS---ZOPEN:  Existing File Opened,  File: NDIBF.DSS
                    Unit:  71;  DSS Version: 6-JG
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Mar 31, 1997  2400  (  35519 1440)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:    601
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Apr 3, 1997  0200  (  35522  120)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
        After ZRDINF, Record found: T
        Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    2   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35520
        JULS: 31MAR97       JULSD: 01APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  289
        After ZRDINF, Record found: T
        Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  290   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35521
        JULS: 31MAR97       JULSD: 02APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  577
        After ZRDINF, Record found: T
        Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  578   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35522
        JULS: 31MAR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   24  ILIM:  601
      ----- Exiting ZRRTS, Number of data values:    601,  Status:  0
        Offset:       0,  Units: CFS     ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Mar 31, 1997  2400  (  35519 1440)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
```

```
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS      ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
 Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:    601
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Apr 3, 1997  0200  (  35522  120)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
 -----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
 -----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    2   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35520
        JULS: 31MAR97       JULSD: 01APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  289
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
 -----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  290   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35521
        JULS: 31MAR97       JULSD: 02APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  577
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
 -----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  578   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35522
        JULS: 31MAR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   24  ILIM:  601
      ----- Exiting ZRRTS, Number of data values:    601,  Status:  0
        Offset:       0,  Units: CFS      ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
 Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Mar 31, 1997  2400  (  35519 1440)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
 -----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS      ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
 Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:    601
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Apr 3, 1997  0200  (  35522  120)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
 -----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  601    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
```

```
      ---ZRRTSB Calculations:  NPOS:   288  NDATA:  288  NREAD:    1  ILIM:    1
      After ZRDINF, Record found: T
      Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
    ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:    2   NVALS:  601    JULS:   35519  ISTIME:  1440
      NLDATA:  288   JULSD:   35520
      JULS: 31MAR97       JULSD: 01APR97
      Quality Read: F,  Quality Requested: F
      ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  289
      After ZRDINF, Record found: T
      Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
    ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:  290   NVALS:  601    JULS:   35519  ISTIME:  1440
      NLDATA:  288   JULSD:   35521
      JULS: 31MAR97       JULSD: 02APR97
      Quality Read: F,  Quality Requested: F
      ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  577
      After ZRDINF, Record found: T
      Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
    ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:  578   NVALS:  601    JULS:   35519  ISTIME:  1440
      NLDATA:  288   JULSD:   35522
      JULS: 31MAR97       JULSD: 03APR97
      Quality Read: F,  Quality Requested: F
      ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   24  ILIM:  601
    ----- Exiting ZRRTS, Number of data values:    601,  Status:  0
      Offset:        0,  Units: CFS      ,  Type:INST-VAL

WARNING --- ROUTED OUTFLOW (   1157.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1196.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1223.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1238.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1242.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1238.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1230.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1218.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1205.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1192.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1178.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1165.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1152.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1140.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1158.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1193.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1219.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1234.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1238.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1235.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1227.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1217.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1204.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1191.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1177.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1164.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   1152.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE
```

```
WARNING --- ROUTED OUTFLOW (   1140.) IS GREATER THAN MAXIMUM OUTFLOW (   1140.) IN STORAGE-OUTFLOW TABLE
                                          HYDROGRAPH MULTIPLIED BY   .25
                                          HYDROGRAPH MULTIPLIED BY   .25
                                          HYDROGRAPH MULTIPLIED BY   .25
                                          HYDROGRAPH MULTIPLIED BY   .25
                                          HYDROGRAPH MULTIPLIED BY   .25
WARNING --- ROUTED OUTFLOW (    316.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    342.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    359.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    369.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    371.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    367.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    359.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    347.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    332.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    317.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    302.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    666.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    689.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    709.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    726.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    740.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    750.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    755.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    756.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    754.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    749.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    743.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    737.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    730.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    722.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    711.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    697.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    680.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (    662.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   6408.) IS GREATER THAN MAXIMUM OUTFLOW (   6388.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   6501.) IS GREATER THAN MAXIMUM OUTFLOW (   6388.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   6519.) IS GREATER THAN MAXIMUM OUTFLOW (   6388.) IN STORAGE-OUTFLOW TABLE
WARNING --- ROUTED OUTFLOW (   6472.) IS GREATER THAN MAXIMUM OUTFLOW (   6388.) IN STORAGE-OUTFLOW TABLE
1
                                   RUNOFF SUMMARY
                             FLOW IN CUBIC FEET PER SECOND
                          TIME IN HOURS,  AREA IN SQUARE MILES

                                          PEAK   TIME OF    AVERAGE FLOW FOR MAXIMUM PERIOD    BASIN    MAXIMUM    TIME OF
        OPERATION        STATION          FLOW    PEAK                                        AREA     STAGE    MAX STAGE
+                                                          6-HOUR      24-HOUR      72-HOUR

        HYDROGRAPH AT
+                        SOSS            1800.   12.58       574.         205.         107.     12.50
```

+	ROUTED TO	RSOSS	1787.	12.75	572.	204.	107.	12.50
+	HYDROGRAPH AT	59A	292.	12.33	40.	12.	6.	.26
+	DIVERSION TO	D59A	4.	8.42	3.	1.	0.	.26
+	HYDROGRAPH AT	R59A	292.	12.33	40.	11.	5.	.26
+	2 COMBINED AT	C59A	1898.	12.67	606.	215.	112.	12.76
+	ROUTED TO	59A59B	1882.	12.83	603.	215.	112.	12.76
+	HYDROGRAPH AT	59B	606.	12.83	126.	37.	18.	.94
+	DIVERSION TO	D59B	606.	12.83	118.	32.	15.	.94
+	HYDROGRAPH AT	R59B	57.	13.58	17.	6.	3.	.94
+	2 COMBINED AT	C59B	1882.	12.83	612.	219.	114.	13.70
+	ROUTED TO	59BT60	1710.	13.33	608.	219.	113.	13.70
+	HYDROGRAPH AT	60	1026.	13.50	345.	108.	52.	2.30
+	DIVERSION TO	D60	1026.	13.50	312.	86.	41.	2.30
+	HYDROGRAPH AT	R60	234.	15.00	70.	23.	11.	2.30
+	2 COMBINED AT	EMPGUA	1710.	13.33	654.	238.	122.	16.00
+	ROUTED TO	GUATEL	1618.	13.67	623.	237.	121.	16.00
+	HYDROGRAPH AT	64	887.	12.42	150.	49.	24.	.81
+	DIVERSION TO	D64	887.	12.42	121.	34.	16.	.81
+	HYDROGRAPH AT	R64	330.	12.83	50.	16.	7.	.81
+	2 COMBINED AT	EMPELL	1687.	13.58	661.	250.	127.	16.81
+	ROUTED TO	ELTWAR	1463.	14.00	633.	249.	126.	16.81
+	HYDROGRAPH AT	62A	782.	12.00	86.	30.	14.	.38
+	DIVERSION TO	D62A	782.	12.00	58.	17.	8.	.38
+	HYDROGRAPH AT	R62A	509.	12.17	43.	13.	6.	.38
+	ROUTED TO	62ATB	372.	12.25	43.	13.	6.	.38
+	HYDROGRAPH AT	62B	530.	12.00	53.	18.	9.	.23
+	DIVERSION TO	D62B	442.	11.92	33.	10.	5.	.23
+	HYDROGRAPH AT	R62B	458.	12.08	29.	9.	4.	.23
+	2 COMBINED AT	C62B	547.	12.17	70.	21.	10.	.61
+	ROUTED TO	62BTD	364.	12.58	67.	21.	10.	.61

+	HYDROGRAPH AT	62D	587.	12.17	83.	27.	13.	.46
+	DIVERSION TO	D62D	587.	12.17	63.	18.	8.	.46
+	HYDROGRAPH AT	R62D	209.	12.58	31.	9.	4.	.46
+	2 COMBINED AT	CP62D	564.	12.58	95.	30.	14.	1.07
+	ROUTED TO	62DTF	339.	13.17	94.	30.	14.	1.07
+	HYDROGRAPH AT	62F	409.	12.17	48.	16.	8.	.26
+	DIVERSION TO	D62F	409.	12.17	32.	9.	4.	.26
+	HYDROGRAPH AT	R62F	277.	12.25	23.	7.	3.	.26
+	2 COMBINED AT	CP62F	359.	13.17	113.	36.	18.	1.33
+	ROUTED TO	62T63	349.	13.50	111.	36.	18.	1.33
+	HYDROGRAPH AT	63	1141.	12.33	170.	56.	27.	.91
+	DIVERSION TO	D63	1141.	12.33	128.	36.	17.	.91
+	HYDROGRAPH AT	R63	559.	12.58	66.	20.	10.	.91
+	2 COMBINED AT	CP63	589.	12.58	172.	56.	27.	2.24
+	ROUTED TO	63T71	256.	15.42	151.	56.	27.	2.24
+	HYDROGRAPH AT	68B	567.	12.00	57.	19.	9.	.25
+	DIVERSION TO	D68B	567.	12.00	43.	12.	6.	.25
+	HYDROGRAPH AT	R68	207.	12.17	24.	7.	4.	.25
+	ROUTED TO	68BT69	90.	12.50	23.	7.	4.	.25
+	HYDROGRAPH AT	69	204.	12.00	21.	7.	4.	.09
+	DIVERSION TO	D69	204.	12.00	16.	5.	2.	.09
+	HYDROGRAPH AT	R69	93.	12.17	9.	3.	1.	.09
+	2 COMBINED AT	C69	108.	12.42	31.	10.	5.	.34
+	ROUTED TO	69T71	58.	14.08	28.	10.	5.	.34
+	HYDROGRAPH AT	71	1887.	12.17	248.	85.	41.	1.09
+	DIVERSION TO	D71	1887.	12.17	187.	53.	26.	1.09
+	HYDROGRAPH AT	R71	862.	12.33	102.	32.	15.	1.09
+	3 COMBINED AT	C71	807.	12.33	246.	95.	46.	3.67
+	ROUTED TO	71T72	576.	12.58	243.	95.	46.	3.67
+	HYDROGRAPH AT	72	1370.	12.17	195.	67.	32.	.84

+	DIVERSION TO	D72	1370.	12.17	147.	42.	20.	.84
+	HYDROGRAPH AT	R72	667.	12.42	80.	25.	12.	.84
+	3 COMBINED AT	EMFWAR	1653.	14.00	857.	353.	177.	21.32
+	ROUTED TO	WARTKN	1579.	14.25	854.	353.	176.	21.32
+	HYDROGRAPH AT	70B	628.	12.17	89.	30.	14.	.38
+	DIVERSION TO	D70B	628.	12.17	68.	19.	9.	.38
+	HYDROGRAPH AT	R70B	249.	12.50	35.	11.	5.	.38
+	ROUTED TO	70BT76	79.	14.00	34.	11.	5.	.38
+	HYDROGRAPH AT	76B	1119.	12.17	153.	52.	25.	.64
+	DIVERSION TO	D76B	1119.	12.17	118.	33.	16.	.64
+	HYDROGRAPH AT	R76B	457.	12.42	59.	18.	9.	.64
+	2 COMBINED AT	KNOX	447.	12.42	91.	29.	14.	1.02
+	2 COMBINED AT	EMFKNX	1680.	14.17	905.	376.	188.	22.34
+	ROUTED TO	KNXTRY	1597.	14.42	902.	375.	187.	22.34
+	HYDROGRAPH AT	65A	2503.	12.50	490.	162.	78.	2.54
+	DIVERSION TO	D65A	2503.	12.50	307.	88.	42.	2.54
+	HYDROGRAPH AT	R65A	2184.	12.67	254.	75.	36.	2.54
+	HYDROGRAPH AT	CAP1A	217.	2.00	217.	217.	212.	.01
+	ROUTED TO	RCAP1A	218.	2.33	217.	217.	211.	.01
+	ROUTED TO	RRCP1A	217.	2.67	217.	217.	210.	.01
+	HYDROGRAPH AT	CAP1B	217.	2.00	217.	217.	212.	.01
+	ROUTED TO	RCAP1B	218.	2.33	217.	217.	211.	.01
+	3 COMBINED AT	C65A1	2618.	12.67	688.	509.	457.	2.56
+	ROUTED TO	65ATB1	2130.	12.83	687.	509.	455.	2.56
+	DIVERSION TO	DB65A	1696.	12.83	253.	75.	36.	2.56
+	HYDROGRAPH AT	DIDB65	434.	3.58	434.	434.	419.	2.56
+	ROUTED TO	65B1T2	434.	3.42	434.	434.	419.	2.56
+	HYDROGRAPH AT	DIB65P	1696.	12.83	253.	75.	36.	2.56
+	ROUTED TO	DB65A	74.	17.17	74.	65.	35.	2.56
+	2 COMBINED AT	C65A2	508.	17.17	508.	499.	454.	2.56

+	ROUTED TO	65AT-1	508.	17.17	508.	499.	454.	2.56
+	ROUTED TO	65AT-2	508.	17.75	508.	499.	446.	2.56
+	HYDROGRAPH AT	65AW	535.	12.25	67.	21.	10.	.43
+	DIVERSION TO	D65AW	535.	12.25	58.	16.	8.	.43
+	HYDROGRAPH AT	R65AW	99.	12.75	16.	5.	2.	.43
+	ROUTED TO	65AT65	30.	14.17	14.	5.	2.	.43
+	HYDROGRAPH AT	65B	1490.	12.42	261.	85.	41.	1.37
+	DIVERSION TO	D65B	1490.	12.42	219.	60.	29.	1.37
+	HYDROGRAPH AT	R65B	416.	13.00	76.	24.	12.	1.37
+	2 COMBINED AT	CP65B	415.	13.00	87.	29.	14.	1.80
+	DIVERSION TO	DIRS65	385.	13.00	58.	15.	7.	1.80
+	HYDROGRAPH AT	DI65B	30.	12.92	30.	14.	7.	1.80
+	2 COMBINED AT	CP65A	538.	17.75	537.	512.	452.	4.36
+	ROUTED TO	65AT-3	538.	17.75	537.	512.	452.	4.36
+	HYDROGRAPH AT	DR65B	385.	13.00	58.	15.	7.	1.80
+	ROUTED TO	RS65A	10.	17.83	10.	9.	6.	1.80
+	2 COMBINED AT	CP65	548.	17.75	547.	521.	458.	4.36
+	ROUTED TO	65T66	548.	17.75	547.	521.	458.	4.36
+	ROUTED TO	65T66A	548.	17.83	547.	521.	458.	4.36
+	ROUTED TO	65T66B	548.	17.83	547.	521.	458.	4.36
+	HYDROGRAPH AT	ADOT-E	246.	14.42	175.	64.	31.	.01
+	ROUTED TO	AET67A	245.	14.67	175.	64.	31.	.01
+	HYDROGRAPH AT	67A	375.	12.25	50.	16.	8.	.30
+	DIVERSION TO	D67A	375.	12.25	38.	11.	5.	.30
+	HYDROGRAPH AT	R67A	158.	12.58	18.	5.	3.	.30
+	2 COMBINED AT	C67A	255.	14.67	183.	69.	34.	.31
+	ROUTED TO	67ATC	254.	15.00	183.	69.	34.	.31
+	HYDROGRAPH AT	SUP2	422.	13.00	381.	215.	104.	.01
+	ROUTED TO	RSUP2	395.	16.25	378.	215.	104.	.01
+	HYDROGRAPH AT	67B	688.	12.25	101.	33.	16.	.53

+	DIVERSION TO	D67B	688.	12.25	74.	21.	10.	.53
+	HYDROGRAPH AT	R67B	385.	12.50	42.	13.	6.	.53
+	2 COMBINED AT	C67B	424.	12.50	394.	228.	110.	.54
+	ROUTED TO	67BTC	411.	16.42	394.	228.	110.	.54
+	HYDROGRAPH AT	67C	973.	12.42	139.	43.	20.	.93
+	DIVERSION TO	D67C	973.	12.42	125.	34.	16.	.93
+	HYDROGRAPH AT	R67C	121.	13.08	27.	9.	4.	.93
+	3 COMBINED AT	C67C	669.	15.08	591.	304.	148.	1.78
+	ROUTED TO	67CT67	669.	15.17	591.	304.	148.	1.78
+	HYDROGRAPH AT	67D	179.	12.17	19.	6.	3.	.13
+	DIVERSION TO	D67D	179.	12.17	17.	5.	2.	.13
+	HYDROGRAPH AT	R67D	35.	12.50	4.	1.	1.	.13
+	2 COMBINED AT	C67D	671.	15.17	593.	305.	148.	1.91
+	ROUTED TO	67DT66	671.	15.25	593.	305.	148.	1.91
+	HYDROGRAPH AT	66A	432.	12.17	44.	14.	7.	.26
+	DIVERSION TO	D66A	432.	12.17	39.	11.	5.	.26
+	HYDROGRAPH AT	R66A	64.	12.42	9.	3.	1.	.26
+	ROUTED TO	66ATB	20.	13.25	9.	3.	1.	.26
+	HYDROGRAPH AT	66B	580.	12.58	99.	30.	15.	.67
+	DIVERSION TO	D66B	580.	12.58	90.	24.	12.	.67
+	HYDROGRAPH AT	R66B	79.	13.42	19.	6.	3.	.67
+	2 COMBINED AT	CP66B	94.	13.42	26.	9.	4.	.93
+	ROUTED TO	66BTC	71.	13.83	26.	9.	4.	.93
+	HYDROGRAPH AT	66C	681.	12.25	90.	29.	14.	.50
+	DIVERSION TO	D66C	681.	12.25	77.	21.	10.	.50
+	HYDROGRAPH AT	R66C	122.	12.75	25.	8.	4.	.50
+	2 COMBINED AT	CP66C1	120.	12.75	47.	16.	8.	1.43
+	2 COMBINED AT	CP66C2	712.	15.08	627.	320.	155.	3.34
+	DIVERSION TO	DB66	302.	15.08	225.	67.	32.	3.34
+	HYDROGRAPH AT	DI66	410.	15.08	402.	253.	123.	3.34

+	ROUTED TO	66C1T2	410.	15.08	402.	253.	123.	3.34
+	2 COMBINED AT	CP66C	956.	15.50	948.	769.	580.	7.70
+	ROUTED TO	66CTD	956.	15.50	948.	769.	580.	7.70
+	HYDROGRAPH AT	DR66	302.	15.08	225.	67.	32.	3.34
+	ROUTED TO	RS66D1	182.	18.17	136.	54.	30.	3.34
+	DIVERSION TO	D-WB	160.	18.17	115.	35.	17.	3.34
+	HYDROGRAPH AT	B-WA	22.	18.17	22.	19.	13.	3.34
+	2 COMBINED AT	C-WA	973.	16.25	968.	785.	592.	11.04
+	ROUTED TO	RC-WA	973.	15.58	968.	785.	592.	11.04
+	HYDROGRAPH AT	DR-WA	160.	18.17	115.	35.	17.	3.34
+	ROUTED TO	RS66D2	28.	22.92	26.	23.	14.	3.34
+	2 COMBINED AT	CP66D	986.	17.92	980.	804.	606.	11.04
+	ROUTED TO	66T66D	986.	17.92	980.	804.	606.	11.04
+	ROUTED TO	66-66D	986.	18.00	980.	804.	605.	11.04
+	HYDROGRAPH AT	66D	633.	12.08	73.	25.	12.	.31
+	DIVERSION TO	D66D	633.	12.08	55.	16.	8.	.31
+	HYDROGRAPH AT	R66D	283.	12.25	30.	9.	4.	.31
+	HYDROGRAPH AT	61A	764.	12.17	92.	30.	15.	.52
+	DIVERSION TO	D61A	764.	12.17	76.	21.	10.	.52
+	HYDROGRAPH AT	R61A	150.	12.42	28.	9.	4.	.52
+	ROUTED TO	61ATB	80.	13.33	27.	9.	4.	.52
+	HYDROGRAPH AT	61B	1122.	12.42	168.	52.	25.	1.09
+	DIVERSION TO	D61B	1122.	12.42	150.	41.	20.	1.09
+	HYDROGRAPH AT	R61B	156.	13.08	36.	12.	6.	1.09
+	2 COMBINED AT	CP61B	204.	13.08	60.	20.	10.	1.61
+	ROUTED TO	61T66D	155.	13.83	58.	20.	10.	1.61
+	HYDROGRAPH AT	67E	743.	12.33	107.	35.	17.	.58
+	DIVERSION TO	D67E	743.	12.33	91.	25.	12.	.58
+	HYDROGRAPH AT	R67E	140.	12.83	30.	10.	5.	.58
+	2 COMBINED AT	C67E	185.	13.83	82.	29.	14.	2.19

+	3 COMBINED AT	C66D	1101.	14.17	1048.	834.	620.	13.54
+	ROUTED TO	66T70A	1101.	14.17	1048.	834.	620.	13.54
+	ROUTED TO	66T70B	1101.	14.25	1048.	834.	620.	13.54
+	ROUTED TO	CULVT	1100.	14.25	1048.	834.	620.	13.54
+	ROUTED TO	66T70C	1098.	14.42	1048.	834.	617.	13.54
+	HYDROGRAPH AT	62C	803.	12.17	95.	31.	15.	.55
+	DIVERSION TO	D62C	724.	12.08	55.	16.	8.	.55
+	HYDROGRAPH AT	R62C	763.	12.25	52.	15.	7.	.55
+	ROUTED TO	62CTE	400.	12.50	51.	15.	7.	.55
+	HYDROGRAPH AT	62E	223.	12.17	27.	9.	4.	.15
+	DIVERSION TO	D62E	223.	12.17	22.	6.	3.	.15
+	HYDROGRAPH AT	R62E	50.	12.50	8.	2.	1.	.15
+	2 COMBINED AT	CP62E	432.	12.50	58.	17.	8.	.70
+	ROUTED TO	62T68A	220.	12.92	55.	17.	8.	.70
+	HYDROGRAPH AT	68A	675.	12.08	74.	25.	12.	.35
+	DIVERSION TO	D68A	675.	12.08	55.	16.	8.	.35
+	HYDROGRAPH AT	R68A	309.	12.25	30.	9.	4.	.35
+	2 COMBINED AT	CP68A	283.	12.25	82.	26.	12.	1.05
+	ROUTED TO	68T70A	226.	13.25	80.	26.	12.	1.05
+	HYDROGRAPH AT	70A	1107.	12.08	120.	40.	19.	.54
+	DIVERSION TO	D70A	1107.	12.08	94.	26.	13.	.54
+	HYDROGRAPH AT	R70A	353.	12.25	43.	13.	6.	.54
+	2 COMBINED AT	C70A	322.	12.33	120.	39.	19.	1.59
+	2 COMBINED AT	C70A2	1213.	14.25	1113.	867.	633.	15.13
+	ROUTED TO	70T76A	1204.	14.58	1111.	866.	628.	15.13
+	HYDROGRAPH AT	76A	2065.	12.58	411.	131.	63.	1.91
+	DIVERSION TO	D76A	2065.	12.58	338.	93.	45.	1.91
+	HYDROGRAPH AT	R76A	751.	13.08	123.	38.	18.	1.91
+	2 COMBINED AT	C76A	1365.	13.25	1193.	897.	642.	17.04
+	ROUTED TO	76ATPR	1287.	14.75	1184.	896.	636.	17.04

+	HYDROGRAPH AT	73A	355.	13.33	90.	23.	11.	.95
+	ROUTED TO	73ATB	286.	13.83	90.	23.	11.	.95
+	HYDROGRAPH AT	73B	562.	12.17	59.	17.	8.	.42
+	DIVERSION TO	D73B	562.	12.17	55.	15.	7.	.42
+	HYDROGRAPH AT	R73B	47.	12.58	7.	2.	1.	.42
+	2 COMBINED AT	CP73B	294.	13.83	96.	25.	12.	1.37
+	ROUTED TO	73BTC	293.	14.00	95.	25.	12.	1.37
+	HYDROGRAPH AT	73C	1353.	12.00	134.	46.	22.	.58
+	DIVERSION TO	D73C	1353.	12.00	103.	29.	14.	.58
+	HYDROGRAPH AT	R73C	410.	12.17	54.	17.	8.	.58
+	2 COMBINED AT	CP73C	405.	12.17	146.	41.	20.	1.95
+	ROUTED TO	73T74C	322.	14.33	144.	41.	20.	1.95
+	HYDROGRAPH AT	74A	289.	13.33	72.	18.	9.	.75
+	ROUTED TO	DB74A	56.	14.42	37.	18.	9.	.75
+	ROUTED TO	74ATB	47.	15.25	36.	18.	9.	.75
+	HYDROGRAPH AT	74B	435.	12.25	41.	11.	5.	.33
+	DIVERSION TO	D74B	435.	12.25	41.	11.	5.	.33
+	HYDROGRAPH AT	R74B	1.	15.33	0.	0.	0.	.33
+	2 COMBINED AT	CP74B	47.	15.33	37.	18.	9.	1.08
+	ROUTED TO	74BTC	46.	15.58	36.	18.	9.	1.08
+	HYDROGRAPH AT	74C	746.	12.00	82.	28.	14.	.34
+	DIVERSION TO	D74C	746.	12.00	62.	18.	8.	.34
+	HYDROGRAPH AT	R74C	335.	12.17	34.	10.	5.	.34
+	3 COMBINED AT	CP74C	374.	14.33	201.	68.	32.	3.37
+	ROUTED TO	74CT75	369.	14.50	199.	68.	32.	3.37
+	HYDROGRAPH AT	75	251.	14.75	114.	30.	15.	4.01
+	2 COMBINED AT	C75	604.	14.67	307.	96.	46.	7.38
+	ROUTED TO	75TPC	602.	14.75	306.	96.	46.	7.38
+	HYDROGRAPH AT	77A	526.	13.75	164.	41.	20.	1.74
+	ROUTED TO	77ATB	451.	14.17	163.	41.	20.	1.74

+	HYDROGRAPH AT	77B	504.	12.17	42.	11.	5.	.36
+	DIVERSION TO	D77B	504.	12.17	32.	8.	4.	.36
+	HYDROGRAPH AT	R77B	257.	12.33	11.	3.	1.	.36
+	2 COMBINED AT	CP77B	452.	14.17	173.	44.	21.	2.10
+	ROUTED TO	77BTC	443.	14.50	172.	44.	21.	2.10
+	HYDROGRAPH AT	77C	660.	12.00	65.	22.	11.	.28
+	DIVERSION TO	D77C	660.	12.00	50.	14.	7.	.28
+	HYDROGRAPH AT	R77C	212.	12.08	26.	8.	4.	.28
+	2 COMBINED AT	C77C	458.	14.50	195.	51.	25.	2.38
+	ROUTED TO	77CT78	452.	14.67	194.	51.	25.	2.38
+	HYDROGRAPH AT	78A	568.	13.75	177.	44.	21.	1.88
+	ROUTED TO	78ATB	466.	14.42	177.	44.	21.	1.88
+	HYDROGRAPH AT	78B	610.	12.17	65.	17.	8.	.39
+	2 COMBINED AT	C78B	610.	12.25	237.	60.	29.	2.27
+	ROUTED TO	78BTC	503.	12.50	237.	60.	29.	2.27
+	HYDROGRAPH AT	78C	646.	12.00	69.	22.	11.	.28
+	DIVERSION TO	D78C	610.	12.00	43.	12.	6.	.28
+	HYDROGRAPH AT	R78C	512.	12.08	35.	10.	5.	.28
+	3 COMBINED AT	C78C	907.	14.67	456.	120.	57.	4.93
+	ROUTED TO	78CT79	899.	14.92	453.	119.	57.	4.93
+	HYDROGRAPH AT	79A	902.	13.50	266.	67.	32.	2.01
+	2 COMBINED AT	C79A1	1422.	13.58	708.	184.	89.	6.94
+	HYDROGRAPH AT	78F	1028.	14.17	384.	97.	47.	4.19
+	HYDROGRAPH AT	82A1	1069.	13.50	291.	73.	35.	3.12
+	2 COMBINED AT	C82A1	1637.	13.50	667.	168.	81.	7.31
+	ROUTED TO	DB82A1	163.	15.92	153.	134.	107.	7.31
+	ROUTED TO	PS-9	162.	15.92	153.	134.	107.	7.31
+	HYDROGRAPH AT	CAP2	64.	20.00	64.	64.	49.	.01
+	ROUTED TO	RCAP2	64.	21.17	64.	64.	47.	.01
+	HYDROGRAPH AT	82A2	839.	14.75	374.	99.	47.	4.13

+	2 COMBINED AT	CP82A2	876.	14.75	414.	155.	95.	4.14
+	HYDROGRAPH AT	82A4	597.	13.83	199.	50.	24.	2.13
+	ROUTED TO	82A4T3	590.	14.00	198.	50.	24.	2.13
+	HYDROGRAPH AT	82A3	508.	14.17	188.	48.	23.	2.02
+	2 COMBINED AT	CP82A3	1057.	14.08	381.	96.	46.	4.15
+	2 COMBINED AT	CP82A5	1594.	14.08	784.	249.	140.	8.29
+	ROUTED TO	DB82B	329.	16.83	312.	244.	138.	8.29
+	ROUTED TO	MN-1	329.	16.92	312.	244.	138.	8.29
+	2 COMBINED AT	CP82A6	470.	17.00	454.	369.	240.	15.60
+	ROUTED TO	82TBOX	470.	17.00	454.	369.	240.	15.60
+	ROUTED TO	BOXCLV	470.	17.08	454.	369.	240.	15.60
+	ROUTED TO	BOXT78	470.	17.33	454.	369.	240.	15.60
+	HYDROGRAPH AT	78D	1488.	12.17	186.	60.	29.	.89
+	DIVERSION TO	D78D	1488.	12.17	154.	42.	20.	.89
+	HYDROGRAPH AT	R78D	334.	12.50	55.	17.	8.	.89
+	HYDROGRAPH AT	82B	1496.	12.17	174.	57.	27.	.92
+	DIVERSION TO	D82	14.	1.08	2.	1.	0.	.92
+	HYDROGRAPH AT	R82	1496.	12.17	174.	57.	27.	.92
+	DIVERSION TO	TRW	1496.	12.17	174.	55.	27.	.92
+	HYDROGRAPH AT	DTTRW	6.	18.92	5.	1.	1.	.92
+	3 COMBINED AT	C78D	488.	17.33	471.	380.	246.	17.41
+	ROUTED TO	78DTE	488.	17.67	471.	379.	245.	17.41
+	HYDROGRAPH AT	78E	799.	12.75	149.	38.	18.	1.01
+	HYDROGRAPH AT	83	1321.	12.25	190.	62.	30.	1.01
+	DIVERSION TO	D83	1321.	12.25	150.	42.	20.	1.01
+	HYDROGRAPH AT	R83	523.	12.58	66.	21.	10.	1.01
+	3 COMBINED AT	C78E	1178.	12.75	557.	423.	269.	19.43
+	ROUTED TO	78ET84	966.	13.17	550.	422.	268.	19.43
+	HYDROGRAPH AT	84	1254.	12.25	185.	61.	29.	.99
+	DIVERSION TO	D84	1254.	12.25	154.	43.	21.	.99

+	HYDROGRAPH AT	R84	314.	12.75	57.	18.	9.	.99
+	2 COMBINED AT	C84	1085.	13.08	593.	436.	274.	20.42
+	ROUTED TO	84T79B	1059.	13.17	591.	436.	274.	20.42
+	HYDROGRAPH AT	79B	643.	13.08	152.	38.	18.	1.00
+	2 COMBINED AT	C79B1	1638.	13.17	704.	467.	290.	21.42
+	ROUTED TO	79BTB2	1596.	13.25	703.	467.	290.	21.42
+	2 COMBINED AT	C79B2	2748.	13.50	1322.	627.	367.	28.36
+	ROUTED TO	79TPC2	2718.	13.50	1318.	627.	367.	28.36
+	2 COMBINED AT	CPPWR	2918.	13.58	1552.	698.	400.	35.74
+	ROUTED TO	PWRT80	2899.	13.67	1549.	698.	400.	35.74
+	HYDROGRAPH AT	80A	2344.	12.83	575.	182.	88.	2.64
+	DIVERSION TO	D80A	71.	8.83	53.	17.	8.	2.64
+	HYDROGRAPH AT	R80A	2344.	12.83	575.	166.	80.	2.64
+	2 COMBINED AT	CP80A	3709.	13.33	1997.	831.	470.	38.38
+	ROUTED TO	PWRSAN	3700.	13.42	1994.	831.	470.	38.38
+	2 COMBINED AT	CPSAN	4100.	13.67	2868.	1652.	1065.	55.42
+	ROUTED TO	PWREMF	4070.	13.83	2857.	1651.	1061.	55.42
+	2 COMBINED AT	EMFPOW	5027.	14.33	3509.	1954.	1211.	77.76
+	ROUTED TO	POWTWI	5007.	14.50	3504.	1953.	1207.	77.76
+	HYDROGRAPH AT	80B	1150.	12.50	214.	68.	33.	1.12
+	DIVERSION TO	D80B	15.	4.00	8.	2.	1.	1.12
+	HYDROGRAPH AT	R80B	1150.	12.50	214.	66.	32.	1.12
+	2 COMBINED AT	MFWILL	5047.	14.42	3570.	1999.	1233.	78.88
+	ROUTED TO	WILTSP	5018.	14.67	3565.	1999.	1227.	78.88
+	HYDROGRAPH AT	81A	1594.	12.67	346.	115.	55.	1.81
+	DIVERSION TO	D81A	28.	2.67	10.	3.	1.	1.81
+	HYDROGRAPH AT	R81A	1594.	12.67	346.	112.	54.	1.81
+	ROUTED TO	81ATB	1470.	13.00	346.	112.	54.	1.81
+	HYDROGRAPH AT	81B	1168.	12.25	173.	59.	28.	.84
+	DIVERSION TO	D81B	444.	11.92	55.	18.	8.	.84

HYDROLOGY

- 100-Year, 24-Hour Storm HEC-1 Output & Plate 9 and 10, HEC-1 Schematic (Future Condition Baseline Model)

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1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              JUN   1998               *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   07SEP99  TIME  16:30:22   *
*                                       *
*****************************************
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*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
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X     X  XXXXXXX   XXXXX          X
X     X  X       X     X        XX
X     X  X       X               X
XXXXXXX  XXXX    X       XXXXX   X
X     X  X       X               X
X     X  X       X     X         X
X     X  XXXXXXX   XXXXX        XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

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1                                          HEC-1 INPUT                                                    PAGE  1

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

    1           ID   PRODUCED BY DIBBLE AND ASSOCIATES AND HOSKIN ENGINEERING CONSULTANTS.
    2           ID   REVISED - MAY, 1999 BY VAS TO INCORPORATE INCREASE OF SUBBASIN RETENTION AND
    3           ID            REVISIONS TO THE REGIONAL DETENTION BASIN STORAGE
    4           ID   REVISED - FEB, 1999 BY VALERIE SWICK, FCD OF MARICOPA COUNTY
    5           ID   REVISED - MAY, 1998 BY D&A
    6           ID
    7           ID   REVISED BY VALERIE SWICK, FEB. 26, 1998
    8           ID
    9           ID   FLOWS FROM DETENTION BASIN LOCATED AT NE CORNER OF ELLIOT AND ELLSWORTH ROADS
   10           ID   IS ROUTED TO THE SOUTHWEST BY SIPHON DRAW TO SUBBASIN 70A. FROM THERE THEY
   11           ID   WILL BE ROUTED BY A CHANNEL TO THE EMF. FLOWS FROM SUBBASINS ADJACENT TO
   12           ID   SANTAN FREEWAY ALIGNMENT WILL BE ROUTED SOUTH TO SUBBASIN 70A WHERE THEY WILL
   13           ID   BE COMBINED WITH FLOW IN SIPHON DRAW.
   14           ID
   15           ID   EAST MESA AREA DRAINAGE MASTER PLAN
   16           ID   AREA SOUTH OF SUPERSTITION (U.S. HWY 60)
   17           ID   AUGUST 1997
   18           ID   SOUTHEAST MESA HIGH RESOLUTION MODEL
   19           ID
   20           ID   ***********FUTURE CONDITION MODEL OF THE WATERSHED************************
   21           ID
   22           ID  ************ATTENTION*****************************************************
   23           ID    SUBBASINS 75, 79A, 79B, 78E,  LANDUSES WERE NOT
   24           ID    CHANGED BECAUSE IT WAS FELT THAT THEIR FUTURE CONDITIONS LANDUSES WOULD BE
   25           ID    SIMILAR TO THE EXISTING CONDITIONS LANDUSES.
   26           ID    RETENTION VOLUMES WILL ALSO NOT BE UTILIZED FOR SUBBASINS 75, 79A, 79B, 78E
   27           ID    SOME QUEEN CREEK SUBBASINS WILL ALSO NOT HAVE RETENTION VOLUMES, EITHER
   28           ID    BECAUSE THEY LIE IN PINAL COUNTY AND WE DONT KNOW PINAL COUNTIES PLANS OR
   29           ID    THEY LIE IN THE SANTAN MOUNTAINS AND WON'T GET DEVELOPED
   30           ID    WILLIAMS GATEWAY AIRPORT (SUBBASINS 80A, 80B, 81A, AND 81B) ARE MODELED AS
   31           ID    FUTURE CONDITIONS AND HAVE RETENTION VOLUMES FOR THE 100YR 2HR STORM
   32           ID  ***********************************************************************
   33           ID   FILENAME:  SDIBB.DAT
   34           ID
   35           ID   THIS MODEL REPRESENTS THE FUTURE CONDITION OF THE WATERSHED.
   36           ID   TOTAL DRAINAGE AREA IS APPROXIMATELY 213 SQ. MI.
   37           ID   THIS MODEL USES A Kn VALUE OF 0.09 FOR DESERT LAND USE DUE TO SHEET FLOW
   38           ID   CONDITIONS.
   39           ID
   40           ID   100-YEAR 24-HOUR FREQUENCY
   41           ID   AREAL REDUCTIONS FROM FCD HYDROLOGY MANUAL
   42           ID   THIS MODEL INCLUDES INFLOW FROM NORTH OF THE SUPERSTITION FREEWAY
   43           ID   AND EAST OF THE CAP
   44           ID
   45           ID   DATA FROM THE QUEEN CREEK ADMS HAS BEEN ADDED TO CALCULATE FLOWS INTO THE
   46           ID   EMF.   MUSKINGUM ROUTING NSTEPS WERE ADJUSTED TO BE WITHIN THE SUGGESTED
   47           ID   RANGE.
   48           ID
   49           ID   METHODOLOGY
   50           ID   THE US CORPS OF ENGINEERS FLOOD HYDROLOGY MODEL HEC-1 DATED SEP1990 VER 4.0
   51           ID   SCS TYPE II RAINFALL DISTRIBUTION
   52           ID   S-GRAPH HYDROGRAPH
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 53          ID   GREEN AND AMPT INFILTRATION EQUATION USED FOR CALCULATING LOSSES
 54          ID   NORMAL DEPTH STORAGE CHANNEL ROUTING
 55          ID   APPROXIMATE DIRECTION, LOCATION, AND LENGTH OF THE WASHES HAVE BEEN
1                                          HEC-1 INPUT                                                    PAGE  2

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

 56          ID   EVALUATED BASED ON FIELD INVESTIGATION, USGS MAPS, LANDIS AERIAL SURVEYS
 57          ID   DATED 1994
 58          ID   THE NOAA TECHNICAL MEMORANDUM NOAA ATLAS 2 DEPTH AREA RATIOS
 59          ID
 60          ID   ORIGINAL STUDY PERFORMED BY LISA C. YOUNG AND AFSHIN AHOURAIYAN, UPDATED BY
 61          ID   DAVID DEGERNESS (OCT-DEC, 1996). REVIEWED BY VALERIE A. SWICK
 62          ID   AND AMIR MOTAMEDI OF THE FLOOD CONTROL DISTRICT
 63          ID   HYDROLOGY BRANCH ENGINEERING DIVISION, FLOOD CONTROL
 64          ID   DISTRICT OF MARICOPA COUNTY, DECEMBER - JULY 1995.
 65          ID
 66          ID   ASSUMED VELOCITY OF 1 FT/SEC FOR SHEET FLOW, 2-3 FT/SEC FOR WASH/NATURAL
 67          ID   CHANNEL, 3 FT/SEC FOR ROAD AND GRASS CHANNEL, 10FT/SEC FOR CONCRETE CHANNEL
 68          ID
 69          ID   VELOCITIES FOR ADMP IMPROVEMENT CHANNELS FROM DIBBLE AND ASSOCIATES
 70          ID   SUGGESTED ALTERNATIVES (JULY 1, 1997)
 71          ID
 72          ID
 73          ID   NOTE: MUST USE NDIBF.DSS AS THE DSS FILE TO IMPORT FLOWS ACROSS THE
 74          ID         SUPERSTITION FREEWAY.
 75          ID
 76          ID   DDM MCUHP2 SE MESA ADMP - SOUTH OF SUPERSTITION FWY, FUTURE CONDITIONS
             *DIAGRAM
 77          IT       5  1APR97    0000     800
 78          IO       5
 79          IN      15
 80          JD    3.60    0.01
 81          PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
 82          PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
 83          PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
 84          PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
 85          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
 86          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
 87          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
 88          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
 89          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
 90          PC    .983    .986    .989    .992    .995    .998   1.000
 91          JD    3.38   10.00
 92          JD    3.24   30.00
 93          JD    3.10   60.00
 94          JD    3.05   90.00
             *
             * DDM   ***** Preserved *****

 95          KK    SOSS
 96          KM   INFLOW FROM SOSSAMAN BASIN VIA SOSSAMAN CHANNEL
 97          KM   QI CARDS ARE BASED ON THE PEAK OF 1800CFS TO SOSSAMAN CHANNEL
 98          BA   12.50
 99          ZR  =QI A=SOSSAMAN DRAIN B=AT SUPERSTITION C=FLOW E=5MIN F=100YR
             *
             * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                    PAGE  3

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

100          KK   RSOSS
101          KM   ROUTE FLOWS VIA SOSSAMAN CHANNEL TO BASELINE ROAD
102          RS       1    FLOW      -1
103          RC    .030    .025    .030    3500    .005
104          RX       0       5      10      35      75     110     115     120
105          RY      10      10      10       4       4      10      10      10
             *
             * DDM   ***** Updated *****

106          KK     59A
107          KM   BASIN 59A
108          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
109          KM    L=        .9  Lca=        .3   S=   34.9  Kn= .070  LAG=  29.7
110          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
111          BA     .26
112          LG     .23     .25    4.55     .42   33.00
113          UI     30.     77.    144.    186.    246.    364.    293.    226.    172.    123.
114          UI     64.     48.     30.     15.      9.      9.      9.      0.      0.      0.
115          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****

116          KK    R59A
117          KM   RETAIN THE 100 YEAR 2 HOUR RUNOFF VOLUME
118          DT    D59A       2
119          DI       0   10000
120          DQ       0   10000
             *
```

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

121              KK     C59A
122              KM     SOSSAMAN DRAIN AT BASELINE ROAD
123              HC        2
                 * DDM    ***** Preserved *****

124              KK   59A59B
125              KM    ROUTE S59A TO 59B VIA SOSSAMAN CHANNEL
126              KM    BLOCK WALL ON LEFT BANK, SOSSAMAN ROAD ON RIGHT BANK
127              RS        4    FLOW       -1
128              RC     .025     .018     .013     6500    .0015
129              RX        0        3       13       38       78      103      128      203
130              RY       16       10       10        0        0       10        8       10
                 *
                 * DDM    ***** Updated *****

131              KK      59B
132              KM    BASIN 59B
133              KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
134              KM     L=       1.2  Lca=        .7   S=    33.9  Kn= .087  LAG=  58.3
135              KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
136              BA      .94
137              LG      .22      .24     4.65      .41    24.00
138              UI      54.      54.      93.     193.     244.     284.     318.     361.     415.     501.
139              UI     653.     666.     546.     473.     422.     364.     319.     273.     233.     172.
1                                                HEC-1 INPUT                                                    PAGE  4

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

140              UI     110.      94.      89.      68.      54.      54.      19.      17.      17.      17.
141              UI      17.      17.      17.      17.       0.       0.       0.       0.       0.       0.
142              UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                 *
                 * DDM    ***** Preserved *****

143              KK     R59B
144              KM    RETAIN 100 YR 2 HR RUNOFF VOLUME
145              DT     D59B      63
146              DI        0   10000
147              DQ        0   10000
                 *
                 * DDM    ***** Preserved *****

148              KK     C59B
149              KM    SOSSAMAN CHANNEL AT GUADALUPE ROAD
150              HC        2
                 *
                 * DDM    ***** Preserved *****

151              KK   59BT60
152              KM      ROUTE 59B TO 60 GUADALUPE CHANNEL.  Assumed v=5ft/sec for NSTP calculation
153              RS        4    FLOW       -1
154              RC      .02     .013      .02     5500    .0005
155              RX        0      518      522      522      560      560      580     2580
156              RY      8.5      8.5      8.5        0        0        8        7        6
                 *
                 * DDM    ***** Updated *****

157              KK       60
158              KM    BASIN 60
159              KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
160              KM     L=       2.4  Lca=       1.4   S=    31.8  Kn= .087  LAG= 102.0
161              KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
162              BA     2.30
163              LG      .18      .24     4.65      .43    35.00
164              UI      76.      76.      76.      76.     130.     250.     286.     330.     364.     395.
165              UI     422.     452.     484.     522.     571.     607.     689.     820.     915.    1008.
166              UI     885.     793.     723.     669.     626.     591.     536.     496.     459.     424.
167              UI     387.     362.     324.     276.     219.     169.     134.     134.     126.     125.
168              UI     121.      76.      76.      76.      76.      56.      23.      23.      23.      23.
169              UI      23.      23.      23.      23.      23.      23.      23.      23.      23.      23.
170              UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
171              UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                 *
                 * DDM    ***** Preserved *****

172              KK      R60
173              KM    RETAIN 100 YR 2 HR RUNOFF VOLUME
174              DT      D60      170
175              DI        0   10000
176              DQ        0   10000
                 *
                 * DDM    ***** Preserved *****
1                                                HEC-1 INPUT                                                    PAGE  5

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

177              KK   EMFGUA
```

```
178          KM     COMBINE SS9 AND S60 AT EMF, GUADALUPE ROAD
179          HC       2
             *
             * DDM   ***** Preserved *****

180          KK  GUATEL
181          KM   ROUTE EMF FLOW FROM GUADALUPE ROAD TO ELLIOT ROAD
182          RS       3    FLOW      -1
183          RC     .03    .022     .03    6000   .0003
184          RX       0     500     520     553     693     726     740     742
185          RY      14      12      11       0       0      11      11      12
             *
             * DDM   ***** Updated *****

186          KK      64
187          KM   BASIN 64
188          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
189          KM    L=      1.2  Lca=       .6   S=   25.4  Kn= .051  LAG=  34.4
190          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
191          BA     .81
192          LG     .18     .25    4.70     .41   54.00
193          UI     79.    155.    338.    438.    543.    709.    988.    778.    624.    493.
194          UI    388.    253.    139.    120.     79.     45.     24.     24.     24.     24.
195          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
196          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****

197          KK     R64
198          KM   R64 IS WHAT REMAINS AFTER THE DIVERSION OF FLOW UP TO 67 AC-FT. THIS IS SENT
199          KM   TO TAPE 21 FOR RECALL INTO FCD'S EMF MODELS.  KK BLOCK THERE MUST BE UPDATED
200          KM   TO REFLECT THE CHANGE OF WHAT GETS SENT TO THE TAPE 21.
201          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
202          DT    D64      67
203          DI      0   10000
204          DQ      0   10000
             *
             * DDM   ***** Preserved *****

205          KK  EMFELL
206          KM     COMBINE EMF FLOW WITH FLOW FROM SUBBASIN 64 AT ELLIOT ROAD
207          HC       2
             *
             * DDM   ***** Preserved *****

208          KK  ELTWAR
209          KM   ROUTE EMF FLOW AT ELLIOT ROAD TO WARNER ROAD VIA THE EMF
210          RS       2    FLOW      -1
211          RC     .03    .022     .03    5500   .0003
212          RX       0     500     520     553     693     726     740     742
213          RY      14      12      11       0       0      11      11      12
             *
             *
1                                          HEC-1 INPUT                                          PAGE  6

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

214          KK     62A
215          KM   BASIN 62A
216          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
217          KM    L=       .8  Lca=       .5   S=   30.0  Kn= .020  LAG=  10.2
218          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
219          BA     .38
220          LG     .10     .25    4.50     .52   80.00
221          UI    335.   1057.   1010.    367.     93.     38.      0.      0.      0.      0.
222          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****

223          KK    R62A
224          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
225          DT    D62A      33
226          DI      0   10000
227          DQ      0   10000
             *
             * DDM   ***** Preserved *****

228          KK   62ATB
229          KM   ROUTE 62A TO 62B BY A CHANNEL ALONG BASELINE ROAD THROUGH SANTAN FWY
230          RS       1    FLOW      -1
231          RC    .030    .030    .030    1200    .002
232          RX       0     200     250     275     295     320     370     570
233          RY      10       8       7       0       0       7       8      10
             *

234          KK     62B
235          KM   BASIN 62B
236          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
237          KM    L=       .6  Lca=       .3   S=   47.5  Kn= .021  LAG=   8.0
```

```
238          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
239          BA     .23
240          LG     .11      .25     4.65      .46    78.00
241          UI    334.     940.     431.      83.       0.       0.       0.       0.       0.       0.
242          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
             *

243          KK    R62B
244          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
245          DT    D62B      19
246          DI       0   10000
247          DQ       0   10000
             *
             * DDM   ***** Preserved *****

248          KK    C62B
249          KM   COMBINE FLOW FROM BASIN 62A AND 62B
250          HC       2
             * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE  7

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

251          KK   62BTD
252          KM   ROUTE 62B TO 62D VIA HAWES ROAD
253          RS       6    FLOW      -1
254          RC    .045     .04     .045    5280    .0041
255          RX       0     100      125     127      177      179      224      324
256          RY       3       2     1.50       0        0      1.5        2        3
             *
             * DDM   ***** Updated *****

257          KK     62D
258          KM   BASIN 62D
259          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
260          KM    L=        .9  Lca=        .3   S=   30.7  Kn= .045  LAG=  21.3
261          KM    PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
262          BA     .46
263          LG     .23      .25     4.65      .40    50.00
264          UI     76.     300.     519.     753.     475.     369.     286.     203.     163.     111.
265          UI     85.      63.      47.      36.      26.      14.      14.      14.      14.       0.
266          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
267          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
             *
             * DDM   ***** Preserved *****

268          KK    R62D
269          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
270          DT    D62D      35
271          DI       0   10000
272          DQ       0   10000
             * DDM   ***** Preserved *****

273          KK   CP62D
274          KM   COMBINE FLOWS FROM SUBBASINS 62B AND 62D
275          HC       2
             *
             * DDM   ***** Preserved *****

276          KK   62DTF
277          KM   ROUTE 62D TO 62F VIA HAWES ROAD
278          RS       4    FLOW      -1
279          RC    .045    .024     .045    3600    .0033
280          RX       0     500      750     753      793      796     1046     1546
281          RY       3     1.5     1.25       0        0     1.25      1.5        3
             *
             * DDM   ***** Updated *****

282          KK     62F
283          KM   BASIN 62F
284          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
285          KM    L=        .6  Lca=        .4   S=   31.9  Kn= .042  LAG=  18.1
286          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
287          BA     .26
288          LG     .21      .25     4.65      .41    54.00
289          UI     66.     224.     350.     546.     371.     235.      98.      56.      18.      15.
290          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
1                                          HEC-1 INPUT                                          PAGE  8

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

291          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
             *
             * DDM   ***** Preserved *****

292          KK    R62F
293          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
294          DT    D62F      18
295          DI       0   10000
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296          DQ       0   10000
             *
             * DDM   ***** Preserved *****

297          KK   CP62F
298          KM   COMBINE FLOWS FROM 62D AND 62F
299          HC       2
             *
             * DDM   ***** Preserved *****

300          KK   62T63
301          KM   ROUTE CP62F TO SUBBASIN 63 VIA WASH.
302          KM   WASH CROSSES HAWES, NORTH OF ELLIOT
303          RS       7    FLOW      -1
304          RC    .045     .04    .045    6000  0.0055
305          RX       0     500     750     770     780     800    1050    1550
306          RY       5       4       3       0       0       3       4       5
             *
             * DDM   ***** Inserted *****

307          KK      63
308          KM   BASIN 63
309          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
310          KM    L=      1.4  Lca=       .7   S=   28.2  Kn= .035  LAG=  26.8
311          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
312          BA     .91
313          LG     .18     .25    4.65     .43   55.00
314          UI    114.    346.    595.    780.   1159.   1291.    930.    689.    485.    241.
315          UI    170.    113.     35.     35.     35.     35.      0.      0.      0.      0.
316          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****

317          KK    R63
318          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
319          DT    D63      71
320          DI      0   10000
321          DQ      0   10000
             *
             * DDM   ***** Preserved *****

322          KK    CP63
323          KM   COMBINE FLOWS FROM SUBBASIN 63 AND CP62F
324          HC       2
             *
             * DDM   ***** Preserved *****
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

325          KK   63T71
326          KM   ROUTE CP63 TO S71 VIA SHEET FLOW
327          KM   SOSSAMAN SOUTH OF ELLIOT
328          RS       6    FLOW      -1
329          RC    .055    .045    .055    5280   .0005
330          RX       0    1000    1005    1010    1013    1043    1543    2043
331          RY       6       5       0       0       3       5       2       5
             *
             *
             * DDM   ***** Updated *****

332          KK     68B
333          KM   BASIN 68B
334          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
335          KM    L=       .6  Lca=       .3   S=   32.3  Kn= .020  LAG=   7.7
336          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
337          BA     .25
338          LG     .10     .25    5.20     .36   80.00
339          UI    377.   1018.    412.     72.      0.      0.      0.      0.      0.      0.
340          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

341          KK     R68
342          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
343          DT    D68B      24
344          DI      0   10000
345          DQ      0   10000
             *

346          KK  68BT69
347          KM   ROUTE S68B TO S69 VIA WASH CROSSING HAWES
348          RS       3    FLOW      -1
349          RC    .045     .04    .045    2750   .0036
350          RX       0     500     950    1003    1007    1057    1511    2011
351          RY       4     3.5       3       0       0       2     2.5       3
             *

352          KK      69
353          KM   BASIN 69
```

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354          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
355          KM    L=       .7  Lca=       .3   S=   22.4  Kn= .020  LAG=   9.0
356          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
357          BA     .09
358          LG     .10     .25    4.70     .45   80.00
359          UI    104.    320.    213.     54.     11.      0.      0.      0.      0.      0.
360          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 10

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

361          KK     R69
362          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
363          DT     D69       9
364          DI       0   10000
365          DQ       0   10000
             *
             * DDM   ***** Preserved *****

366          KK     C69
367          KM   COMBINE FLOWS FROM SUBBASIN 68B AND 69
368          HC       2
             *
             * DDM   ***** Preserved *****

369          KK   69T71
370          KM   ROUTE S69 TO S71 VIA WASH AND SHEET FLOW, INCREASE OVERBANK N VALUES
371          RS       7    FLOW      -1
372          RC    .055    .045    .055    6000   .0033
373          RX       0     500    1000    1001    1002    1500    2000    2500
374          RY       4       3       2       0       0       2       3       4
             *
             * DDM   ***** Inserted *****

375          KK      71
376          KM   BASIN 71
377          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
378          KM    L=      1.6  Lca=       .8   S=   26.4  Kn= .020  LAG=  16.8
379          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
380          BA    1.09
381          LG     .10     .25    4.65     .47   80.00
382          UI    331.   1085.   1805.   2349.   1459.    780.    329.    144.     67.     67.
383          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
384          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

385          KK     R71
386          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
387          DT     D71     106
388          DI       0   10000
389          DQ       0   10000
             *
             * DDM   ***** Preserved *****

390          KK     C71
391          KM   original wording "COMBINE S71 WITH S69 AND S68B"
392          KM   was revised by Dibble to be "COMBINE FLOWS FROM S63, S68B, S69 AND S71,
393          KM   WHICH COMBINES HYDROGRAPHS 63T71, 69T71 AND R71"
394          KM   CONCENTRATION POINT IS ALONG SOSSAMAN AT THE MESQUITE ST ALIGNMENT
395          HC       3
             *
1                                          HEC-1 INPUT                                          PAGE 11

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

396          KK   71T72
397          KM   ROUTE C71 TO S72 VIA DIKE
398          KM    WASH WEST OF INTERSECTION OF SOSSAMAN & WARNER
399          RS       4    FLOW      -1
400          RC    .055    .045    .055    3750   .0037
401          RX       0     500    1000    1007    1017    1025    1530    2030
402          RY       9     8.5       8       0       0       8     8.5       9
             *
             * DDM   ***** Inserted *****

403          KK      72
404          KM   BASIN 72
405          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
406          KM    L=      1.6  Lca=       .9   S=   13.1  Kn= .020  LAG=  20.3
407          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
408          BA     .84
409          LG     .10     .25    5.40     .33   80.00
410          UI    161.    600.    906.   1496.   1347.    912.    566.    247.    153.     50.
411          UI     43.     43.      0.      0.      0.      0.      0.      0.      0.      0.
412          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
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                 * DDM   ***** Preserved *****

413              KK     R72
414              KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
415              DT     D72      83
416              DI       0   10000
417              DQ       0   10000
                 *
                 * DDM   ***** Preserved *****

418              KK  EMFWAR
419              KM   COMBINE ROUTED FLOW FROM 71 WITH 72 WITH EMF (HYDROGRAPH ELTWAR)
420              HC       3
                 * DDM   ***** Preserved *****

421              KK  WARTKN
422              KM   ROUTE EMF WARNER ROAD FLOW TO KNOX ROAD
423              RS       1    FLOW      -1
424              RC     .03    .022     .03    2500   .0003
425              RX       0     500     520     553     693     726     740     742
426              RY      14      12      11       0       0      11      11      12
                 *

427              KK     70B
428              KM   BASIN 70B
429              KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
430              KM    L=      1.6  Lca=      1.1   S=   29.9  Kn= .022  LAG=  20.7
431              KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
432              BA     .38
433              LG     .11     .15    8.00     .12   76.00
434              UI     68.    259.    390.    636.    615.    418.    267.    119.     73.     30.
435              UI     19.     19.      0.      0.      0.      0.      0.      0.      0.      0.
436              UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                 *
                 * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 12

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

437              KK    R70B
438              KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
439              DT    D70B      38
440              DI       0   10000
441              DQ       0   10000
                 *

442              KK  70BT76
443              KM   ROUTE 70B TO 76B VIA WASH CROSSING SOSSAMAN, SOUTH OF WARNER ROAD
444              RS       6    FLOW      -1
445              RC    .045     .04    .045    5500   .0041
446              RX       0     500    1000    1003    1007    1011    1511    2011
447              RY       4     3.5       3       0       0       2     2.5       3
                 *

448              KK     76B
449              KM   BASIN 76B
450              KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
451              KM    L=      1.8  Lca=       .9   S=   27.4  Kn= .021  LAG=  18.9
452              KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
453              BA     .64
454              LG     .10     .15    8.80     .09   78.00
455              UI    148.    515.    789.   1294.    957.    629.    303.    157.     70.     35.
456              UI     35.      0.      0.      0.      0.      0.      0.      0.      0.      0.
457              UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                 *
                 * DDM   ***** Preserved *****

458              KK    R76B
459              KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
460              DT    D76B      66
461              DI       0   10000
462              DQ       0   10000
                 *

463              KK    KNOX
464              KM   COMBINE FLOWS AT KNOX ROAD
465              HC       2
                 *

466              KK  EMFKNX
467              KM   COMBINE FLOWS INTO THE EMF AT KNOX ROAD
468              KM   THIS COMBINES HYDROGRAPHS WARTKN, 70BT76 and R76B.
469              HC       2
                 *

470              KK  KNXTRY
471              KM   ROUTE EMF KNOX ROAD FLOW TO RAY ROAD
472              RS       1    FLOW      -1
473              RC     .03    .022     .03    3000   .0003
```

```
474          RX      0     500     520     553     693     726     740     742
475          RY     14      12      11       0       0      11      11      12
             *
1                                        HEC-1 INPUT                                                    PAGE 13

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

476          KK     65A
477          KM   BASIN 65A
478          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
479          KM    L=      1.6  Lca=       .9   S=   51.2  Kn= .053  LAG=  41.5
480          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
481          BA    2.54
482          LG     .15     .25    5.10     .35   59.00
483          UI    206.    248.    735.   1001.   1188.   1423.   1760.   2487.   2309.   1835.
484          UI   1546.   1269.   1035.    777.    457.    351.    292.    206.    143.     63.
485          UI     63.     63.     63.     63.      0.      0.      0.      0.      0.      0.
486          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

487          KK    R65A
488          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
489          DT    D65A     174
490          DI       0   10000
491          DQ       0   10000
             * DDM   ***** Preserved *****

492          KK   CAP1A
493          KM   INFLOW FROM EAST OF THE CAP THROUGH 2 - 72" PIPE OVERCHUTES
494          KM   STATION #131+90 AND 158+00 SALT-GILA AQUEDUCT REACH 2
495          KM   QI CARDS BASED ON PEAK OUTFLOW FROM OVERCHUTES OF 217 CFS.
496          IN      60
497          BA     .01
498          QI       0      65     217     217     217     217     217     217     217     217
499          QI     217     217     217     217     217     217     217     217     217     217
500          QI     217     217     217     217     217
             *
             * DDM   ***** Preserved *****

501          KK  RCAP1A
502          KM   ROUTE FLOW FROM CAP OVERCHUTE TO A POINT ON THE MARICOPA/PINAL COUNTY LINE
503          KM   2000 FEET NORTH OF THE GUADALUPE ROAD COUNTY LINE INTERSECTION. ROUTING WILL
504          KM   BE BY A NATURAL CHANNEL.  THIS IS THEN ROUTED FOR 1200 FT
505          KM   IN A CHANNEL (DIBBLE ID MN3) TO THE POINT WERE THE ROUTED CAP1B FLOW
506          KM   INTERCEPTS THE CHANNEL. ORIGINAL SLOPE =.01
507          RS      13    FLOW      -1
508          RC    .045     .04    .045    4900    .010
509          RX       0     500    1000    1006    1026    1032    1511    2011
510          RY       4     3.5       3       0       0       3     3.5       4
             *

511          KK  RRCP1A
512          KM   REACH MN-5 AND CULVERT MNC-1
513          KM   ROUTE FLOW FROM WHERE RCAP1A FLOWS INTO THE NEW CHANNEL ALONG MERIDIAN ROAD
514          KM   USES REVISED ROUTING PARAMETERS, CHANNEL MN-5 SHAPE
515          RS       1    FLOW      -1
516          RC   0.025   0.015   0.025    2350   .0017
517          RX       0       8      16      27      43      53      61      69
518          RY     5.1     5.2     5.3       0       0     5.3     5.2     5.1
             *
1                                        HEC-1 INPUT                                                    PAGE 14

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

519          KK   CAP1B
520          KM   INFLOW FROM EAST OF THE CAP THROUGH 2 - 72" PIPE OVERCHUTES
521          KM   STATION #131+90 AND 158+00 SALT-GILA AQUEDUCT REACH 2
522          KM   QI CARDS BASED ON PEAK OUTFLOW FROM OVERCHUTES OF 217 CFS.
523          IN      60
524          BA     .01
525          QI       0      65     217     217     217     217     217     217     217     217
526          QI     217     217     217     217     217     217     217     217     217     217
527          QI     217     217     217     217     217
             *

528          KK  RCAP1B
529          KM   ROUTE FLOW FROM CAP1B OVERCHUTE TO A POINT ALONG THE MARICOPA/PINAL COUNTY
530          KM   LINE 1000 FEET NORTH OF THE INTERSECTION OF GUADALUPE ROAD AND THE COUNTY
531          KM   LINE. ROUTING WILL BE BY A NATURAL CHANNEL. ORIGINAL SLOPE=.01
532          RS      14    FLOW      -1
533          RC    .045     .04    .045    4900    .010
534          RX       0     500    1000    1006    1026    1032    1511    2011
535          RY       4     3.5       3       0       0       3     3.5       4
             *

536          KK   C65A1
537          KM   COMBINE FLOWS FROM SUBBASIN 65A(EAST OF MERIDIAN RD) AND CAP1A AND CAP1B
538          HC       3
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                 *
539              KK  65ATB1
540              KM   REACH MN-4, MN-3B AND MN-3A
541              KM   ROUTE FLOW FROM BASIN 65A TO OFF-LINE DETENTION BASIN DIVERSION STRUCTURE
542              KM   USES REVISED ROUTING PARAMETERS, CHANNEL MN-3A SHAPE.
543              RS       1    FLOW      -1
544              RC   0.025   0.015   0.025    3760   .0015
545              RX     0.0     8.0    16.0      34      56      74      82      90
546              RY     8.8     8.9     9.0       0       0     9.0     8.9     8.8
                 *

547              KK  DIDB65
548              KM   DETENTION BASIN DIVERSION STRUCTURE
549              KM   DIVERT FLOW FROM CHANNEL TO OFF-LINE BASIN
                 * KO     2       2
550              DT   DB65A
551              DI       0     100     434     582     854    1206    1624    2096    3188
552              DQ       0       0       0     148     420     772    1190    1662    2754
                 *

553              KK  65B1T2
554              KM   REACH MN-2
555              KM   ROUTE FLOW FROM BASIN DIVERSION STRUCTURE TO BASIN OUTLET
556              RS       1    FLOW      -1       0
557              RC    .025    .015    .025     700   .0019
558              RX     0.0     8.0    16.0      25      35      44      52      60
559              RY     8.7     8.8     4.5       0       0     4.5     8.8     8.7
                 *
1                                          HEC-1 INPUT                                          PAGE 15

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

560              KK  DIB65P
561              KM         RETURN DIVERT TO DETENTION BASIN
562              DR   DB65A
                 *

563              KK   DB65A
564              KM   SIPHON DRAW BASIN
565              KM   OFF-LINE DETENTION BASIN LOCATED AT ELLIOT AND MERIDIAN ROAD
566              KM   WITH  36" OUTLET PIPE AND 235' WEIR
                 * KO     2       2
567              RS       1    STOR      -1
568              SA       0    4.67   15.05   27.12   37.88   42.12
569              SE      90      91      93      95      97      98
570              SL    91.5    7.07     .62      .5
571              SS    97.0     235     2.5     1.5
                 *

572              KK   C65A2
573              KM   RECOMBINE FLOWS FROM DETENTION BASIN AND SUNLAND SPRINGS CHANNEL.
574              HC       2
                 *

575              KK  65AT-1
576              KM   REACH MN-1
577              KM   ROUTE FROM DETENTION BASIN OUTLET TO ELLIOT ROAD AND MERIDIAN ROAD
578              KM   CONCRETE CHANNEL ON EAST SIDE OF MERIDIAN ROAD ALGN.
579              RS       1    FLOW      -1
580              RC    .025    .015    .025     630   .0014
581              RX       0       8      16      26      38      48      56      64
582              RY     4.7     4.8     4.9       0       0     4.9     4.8     4.7
                 *

583              KK  65AT-2
584              KM   REACH ET-10, ET-11, ET-12 plus culverts ETC-4 AND ETC-3.
585              KM   ROUTE FROM ELLIOT AND MERIDIAN, ALONG ELLIOT ROAD IN ELLIOT CHANNEL
586              KM   TO ABOUT 0.6 MILES EAST OF CRISMON ROAD.
587              KM   EARTH CHANNEL PORTION ON NORTH SIDE OF ELLIOT
588              RS       3    FLOW      -1
589              RC    .025    .025    .025    7680   .0005
590              RX       0       8      22      58      71     107     115     123
591              RY     6.1     6.0     5.9       0       0     5.9     6.0     6.1
                 *

592              KK    65AW
593              KM   BASIN 65AW
594              KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
595              KM    L=        .9  Lca=       .6   S=   54.7  Kn= .049  LAG=  26.1
596              KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
597              BA     .43
598              LG     .24     .25    5.30     .29   32.00
599              UI     56.    176.    295.    391.    603.    594.    432.    316.    210.    101.
600              UI     73.     43.     17.     17.     17.      0.      0.      0.      0.      0.
601              UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                 *
1                                          HEC-1 INPUT                                          PAGE 16
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 602        KK   R65AW
 603        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
 604        DT   D65AW      31
 605        DI       0   10000
 606        DQ       0   10000
            *

 607        KK  65AT65
 608        KM   ROUTE C65A TO BASIN 65B VIA A WASH,(THIS WASH IS NORTH OF SIPHON DRAW)
 609        KM   THIS IS THE PART OF 65A WHICH IS WEST OF THE MERIDIAN RD ALIGNMENT
            * KO     3
 610        RS      11    FLOW      -1
 611        RC    .045     .04    .045    9500    .007
 612        RX       0     500    1000    1003    1053    1056    1511    2011
 613        RY       4     3.5       3       0       0       2     2.5       3
            *

 614        KK     65B
 615        KM   BASIN 65B
 616        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 617        KM    L=      2.0  Lca=      1.2   S=   37.5  Kn= .036  LAG=  36.6
 618        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 619        BA    1.37
 620        LG     .18     .25    6.00     .24   53.00
 621        UI    126.    218.    506.    669.    809.   1014.   1468.   1422.   1102.    901.
 622        UI    720.    562.    337.    218.    182.    126.     71.     39.     39.     39.
 623        UI     39.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 624        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            * DDM   ***** Preserved *****

 625        KK    R65B
 626        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
 627        DT    D65B     120
 628        DI       0   10000
 629        DQ       0   10000
            *

 630        KK   CP65B
            * KO     1       2
 631        KM   COMBINE FLOW FROM SUBBASIN 65AW (WEST OF MERIDIAN RD) WITH FLOW FROM
 632        KM   SUBBASIN 65B
 633        HC       2
            *

 634        KK   DI65B
 635        KM        DIVERSION STRUCTURE TO ROUTE PEAK FLOW TO NEW
 636        KM        ELLIOT BASIN (EAST)
 637        DT  DIRS65
 638        DI       0    25.5      51   178.5     306   433.5     561     688     816   943.5
 639        DQ       0       0       0   127.5     255   382.5     510   637.5     765   892.5
            *
1                                          HEC-1 INPUT                                        PAGE 17

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

 640        KK   CP65A
 641        KM   COMBINE FLOWS FROM ELLIOT CHANNEL AT NON DIVERTED FLOWS (51CFS) FROM
 642        KM   SUBBASIN 65B
 643        HC       2
            *

 644        KK  65AT-3
 645        KM   REACH ET-9 plus culvert ETC-2
 646        KM   ROUTE FROM ABOUT 0.6 MILES EAST OF CRISMON ROAD
 647        KM     TO ABOUT 0.18 MILES EAST OF CRISMON ROAD (CP65)
 648        KM   CONCRETE CHANNEL PORTION ON SOUTH SIDE OF ELLIOT
 649        RS       1    FLOW      -1
 650        RC    .025    .015    .025    2340   .0019
 651        RX       0       8      16      26      36      46      54      62
 652        RY     4.7     4.8     4.9       0       0     4.9     4.8     4.7
            *

 653        KK   65T66
 654        KM   REACH ET-8
 655        KM   ROUTING IN ELLIOT CHANNEL FROM ABOUT
 656        KM     0.18 MILES EAST OF CRISMON ROAD (CP65) TO CRISMON ROAD (CP66).
 657        RS       1    FLOW      -1
 658        RC    .025    .015    .025     940  0.0018
 659        RX       0       8      16      28      40      52      60      68
 660        RY     5.9     6.0     6.1       0       0     6.1     6.0     5.9
            *

 661        KK   DR65B
            * KO     2
 662        KM        RETURN DIVERT TO EAST DETENTION BASIN
```

```
                *
539             KK  65ATB1
540             KM   REACH MN-4, MN-3B AND MN-3A
541             KM   ROUTE FLOW FROM BASIN 65A TO OFF-LINE DETENTION BASIN DIVERSION STRUCTURE
542             KM   USES REVISED ROUTING PARAMETERS, CHANNEL MN-3A SHAPE.
543             RS       1    FLOW      -1
544             RC   0.025   0.015   0.025    3760   .0015
545             RX     0.0     8.0    16.0      34      56      74      82      90
546             RY     8.8     8.9     9.0       0       0     9.0     8.9     8.8
                *

547             KK  DIDB65
548             KM   DETENTION BASIN DIVERSION STRUCTURE
549             KM   DIVERT FLOW FROM CHANNEL TO OFF-LINE BASIN
                * KO     2       2
550             DT   DB65A
551             DI       0     100     434     582     854    1206    1624    2096    3188
552             DQ       0       0       0     148     420     772    1190    1662    2754
                *

553             KK  65B1T2
554             KM   REACH MN-2
555             KM   ROUTE FLOW FROM BASIN DIVERSION STRUCTURE TO BASIN OUTLET
556             RS       1    FLOW      -1       0
557             RC    .025    .015    .025     700   .0019
558             RX     0.0     8.0    16.0      25      35      44      52      60
559             RY     8.7     8.8     4.5       0       0     4.5     8.8     8.7
                *
1                                          HEC-1 INPUT                                          PAGE 15
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

560             KK  DIB65P
561             KM          RETURN DIVERT TO DETENTION BASIN
562             DR   DB65A
                *

563             KK   DB65A
564             KM   SIPHON DRAW BASIN
565             KM   OFF-LINE DETENTION BASIN LOCATED AT ELLIOT AND MERIDIAN ROAD
566             KM   WITH  36" OUTLET PIPE AND 235' WEIR
                * KO     2       2
567             RS       1    STOR      -1
568             SA       0    4.67   15.05   27.12   37.88   42.12
569             SR      90      91      93      95      97      98
570             SL    91.5    7.07     .62      .5
571             SS    97.0     235     2.5     1.5
                *

572             KK   C65A2
573             KM   RECOMBINE FLOWS FROM DETENTION BASIN AND SUNLAND SPRINGS CHANNEL.
574             HC       2
                *

575             KK  65AT-1
576             KM   REACH MN-1
577             KM   ROUTE FROM DETENTION BASIN OUTLET TO ELLIOT ROAD AND MERIDIAN ROAD
578             KM   CONCRETE CHANNEL ON EAST SIDE OF MERIDIAN ROAD ALGN.
579             RS       1    FLOW      -1
580             RC    .025    .015    .025     630   .0014
581             RX       0       8      16      26      38      48      56      64
582             RY     4.7     4.8     4.9       0       0     4.9     4.8     4.7
                *

583             KK  65AT-2
584             KM   REACH ET-10, ET-11, ET-12 plus culverts ETC-4 AND ETC-3.
585             KM   ROUTE FROM ELLIOT AND MERIDIAN, ALONG ELLIOT ROAD IN ELLIOT CHANNEL
586             KM   TO ABOUT 0.6 MILES EAST OF CRISMON ROAD.
587             KM   EARTH CHANNEL PORTION ON NORTH SIDE OF ELLIOT
588             RS       3    FLOW      -1
589             RC    .025    .025    .025    7680   .0005
590             RX       0       8      22      58      71     107     115     123
591             RY     6.1     6.0     5.9       0       0     5.9     6.0     6.1
                *

592             KK    65AW
593             KM   BASIN 65AW
594             KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
595             KM    L=        .9  Lca=        .6   S=   54.7  Kn= .049  LAG=  26.1
596             KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
597             BA     .43
598             LG     .24     .25    5.30     .29   32.00
599             UI     56.    176.    295.    391.    603.    594.    432.    316.    210.    101.
600             UI     73.     43.     17.     17.     17.      0.      0.      0.      0.      0.
601             UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *
1                                          HEC-1 INPUT                                          PAGE 16
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 602          KK   R65AW
 603          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
 604          DT   D65AW      31
 605          DI       0   10000
 606          DQ       0   10000
              *

 607          KK  65AT65
 608          KM   ROUTE C65A TO BASIN 65B VIA A WASH, (THIS WASH IS NORTH OF SIPHON DRAW)
 609          KM   THIS IS THE PART OF 65A WHICH IS WEST OF THE MERIDIAN RD ALIGNMENT
              * KO     3
 610          RS      11    FLOW      -1
 611          RC    .045     .04    .045    9500    .007
 612          RX       0     500    1000    1003    1053    1056    1511    2011
 613          RY       4     3.5       3       0       0       2     2.5       3
              *

 614          KK     65B
 615          KM   BASIN 65B
 616          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 617          KM    L=      2.0  Lca=      1.2   S=   37.5  Kn= .036  LAG=  36.6
 618          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 619          BA    1.37
 620          LG     .18     .25    6.00     .24   53.00
 621          UI    126.    218.    506.    669.    809.   1014.   1468.   1422.   1102.    901.
 622          UI    720.    562.    337.    218.    182.    126.     71.     39.     39.     39.
 623          UI     39.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 624          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * DDM   ***** Preserved *****

 625          KK    R65B
 626          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
 627          DT    D65B     120
 628          DI       0   10000
 629          DQ       0   10000
              *

 630          KK   CP65B
              * KO     1       2
 631          KM   COMBINE FLOW FROM SUBBASIN 65AW (WEST OF MERIDIAN RD) WITH FLOW FROM
 632          KM   SUBBASIN 65B
 633          HC       2
              *

 634          KK   DI65B
 635          KM        DIVERSION STRUCTURE TO ROUTE PEAK FLOW TO NEW
 636          KM        ELLIOT BASIN (EAST)
 637          DT  DIRS65
 638          DI       0    25.5      51   178.5     306   433.5     561     688     816   943.5
 639          DQ       0       0       0   127.5     255   382.5     510   637.5     765   892.5
              *
1                                          HEC-1 INPUT                                          PAGE 17
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 640          KK   CP65A
 641          KM   COMBINE FLOWS FROM ELLIOT CHANNEL AT NON DIVERTED FLOWS (51CFS) FROM
 642          KM   SUBBASIN 65B
 643          HC       2
              *

 644          KK  65AT-3
 645          KM   REACH ET-9 plus culvert ETC-2
 646          KM   ROUTE FROM ABOUT 0.6 MILES EAST OF CRISMON ROAD
 647          KM     TO ABOUT 0.18 MILES EAST OF CRISMON ROAD (CP65)
 648          KM   CONCRETE CHANNEL PORTION ON SOUTH SIDE OF ELLIOT
 649          RS       1    FLOW      -1
 650          RC    .025    .015    .025    2340   .0019
 651          RX       0       8      16      26      36      46      54      62
 652          RY     4.7     4.8     4.9       0       0     4.9     4.8     4.7
              *

 653          KK   65T66
 654          KM   REACH ET-8
 655          KM   ROUTING IN ELLIOT CHANNEL FROM ABOUT
 656          KM     0.18 MILES EAST OF CRISMON ROAD (CP65) TO CRISMON ROAD (CP66).
 657          RS       1    FLOW      -1
 658          RC    .025    .015    .025     940  0.0018
 659          RX       0       8      16      28      40      52      60      68
 660          RY     5.9     6.0     6.1       0       0     6.1     6.0     5.9
              *

 661          KK   DR65B
              * KO     2
 662          KM        RETURN DIVERT TO EAST DETENTION BASIN
```

```
663          DR  DIRS65
             *

664          KK   RS65A
665          KM   ELLIOT BASIN , EAST
             * KO      1
666          RS       1    STOR      -1
667          SV       0     .25    3.44    7.58   11.95   17.68   23.41
668          SE   31.27   32.77   33.77   34.77   35.77   37.27   38.27
669          SL   31.27    3.14     .62      .5
670          SS      38     200     2.5     1.5
             *

671          KK   CP65B
672          KM   COMBINE FLOWS FROM EAST ELLIOT BASIN AND ELLIOT CHANNEL
673          KM   BEFORE COMBINING WITH FLOWS FROM THE BYPASS CRISMON CHANNEL
674          HC       2
             *
             *
1                                          HEC-1 INPUT                                          PAGE 18

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

675          KK  ADOT-E
676          KM   INFLOW FROM NORTH OF THE SUPERSTITION FREEWAY ENTERING 67A
677          KM   FROM EAST ADOT DETENTION BASIN 4105.
             * KO      1
678          BA    0.01
679          ZR  =QI A=ADOT EAST BASIN B=AT SUPERSTITION C=FLOW E=5MIN F=100YR
             *

680          KK  AET67A
681          KM    ROUTE SUPERSTITION FLOW THROUGH 67A TO BASELINE ROAD
682          IN      15
683          RS       6    FLOW      -1
684          RC    .045    .040    .045    5500    .010
685          RX       0     100     110     120     130     140     150     250
686          RY       5       4       3       1       1       3       4       5
             *

687          KK     67A
688          KM   BASIN 67A
689          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
690          KM    L=      1.0  Lca=       .7   S=   42.9  Kn= .042  LAG=  25.7
691          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
692          BA     .30
693          LG     .21     .25    4.70     .39   43.00
694          UI     39.    126.    208.    277.    433.    400.    292.    213.    134.     67.
695          UI     47.     25.     12.     12.     12.      0.      0.      0.      0.      0.
696          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

697          KK    R67A
698          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
699          DT    D67A      21
700          DI       0   10000
701          DQ       0   10000
             *

702          KK    C67A
703          KM    COMBINE FLOWS FROM ADOT-E AND SUBBASIN 67A
704          HC       2
             *

705          KK   67ATC
706          KM   ROUTE 67A TO 67C VIA WASH CROSSING BASELINE
707          RS       7    FLOW      -1
708          RC    .055    .045    .055    6300   .0071
709          RX       0     500     980    1003    1007    1031    1511    2011
710          RY       4     3.5       3       0       0       3     3.5       4
             *
1                                          HEC-1 INPUT                                          PAGE 19

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

711          KK    SUP2
712          KM   INFLOW FROM NORTH OF SUPERSTITION FREEWAY, DISCHARGING INTO 67B
             * KO              2
713          BA    0.01
714          ZR  =QI A=ADOT WEST BASIN B=AT SUPERSTITION C=FLOW E=5MIN F=100YR
             *

715          KK   RSUP2
716          KM   ROUTE SUP2 THROUGH SUBBASIN 67B
             * KO                2
717          IN      15
718          RS       5    FLOW      -1
719          RC    .045    .045    .045    4500   .0056
```

```
720   RX      0     500    1000    1003    1007    1011    1511    2011
721   RY      4     3.5       3       0       0       2     2.5       3
      *

722   KK     67B
723   KM    BASIN 67B
724   KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
725   KM     L=       1.2  Lca=       .9   S=   28.0  Kn= .034  LAG=  26.4
726   KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
727   BA      .53
728   LG      .17     .25    4.90     .38   56.00
729   UI      68.    210.    356.    470.    713.    741.    536.    395.    269.    131.
730   UI      94.     59.     21.     21.     21.      0.      0.      0.      0.      0.
731   UI       0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
      *

732   KK    R67B
733   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
734   DT    D67B      41
735   DI       0   10000
736   DQ       0   10000
      *

737   KK    C67B
738   KM   COMBINE FLOWS FROM SUP2 AND SUBBASIN 67B
      * KO              2
739   HC       2
      *

740   KK   67BTC
741   KM   REACH CN-4, CN-5 plus culvert CNC-4.
742   KM   ROUTE FLOW IN THE CRISMON CHANNEL FROM BASELINE ROAD (C67B) TO
743   KM      GUADALUPE ROAD (C67C)
744   RS       2    FLOW      -1
745   RC    .025    .015    .025    5180   .0019
746   RX       0       8      16    24.4    36.4    44.8    52.8    60.8
747   RY     4.0     4.1     4.2       0       0     4.2     4.1     4.0
      *
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HEC-1 INPUT

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

748   KK     67C
749   KM    BASIN 67C
750   KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
751   KM     L=       1.2  Lca=       .7   S=   40.2  Kn= .049  LAG=  32.3
752   KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
753   BA      .93
754   LG      .25     .25    5.10     .32   31.00
755   UI      96.    213.    432.    557.    702.   1006.   1133.    842.    667.    518.
756   UI     365.    193.    157.     96.     59.     30.     30.     30.     30.      0.
757   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
758   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
      *

759   KK    R67C
760   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
761   DT    D67C      67
762   DI       0   10000
763   DQ       0   10000
      *

764   KK    C67C
765   KM   COMBINE SUBBASINS 67C AND 67A AND 67B
766   HC       3
      *

767   KK  67CT67
768   KM   REACH CN-3 plus culvert CNC-3
769   KM   ROUTE FLOW IN THE CRISMON CHANNEL FROM C67C (@ GUADALUPE ROAD & CRISMON ROAD)
770   KM    TO C67D (AT APPROX. 1/2 MILE SOUTH OF GUADALUPE ROAD).
771   RS       1    FLOW      -1
772   RC    .025    .015    .025    2420   .0018
773   RX       0       8      16      26      39      50      58      66
774   RY     5.0     5.1     5.2       0       0     5.2     5.1     5.0
      *

775   KK     67D
776   KM    BASIN 67D
777   KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
778   KM     L=        .6  Lca=       .4   S=   34.7  Kn= .050  LAG=  20.5
779   KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
780   BA      .13
781   LG      .25     .25    5.20     .30   30.00
782   UI      23.     87.    132.    216.    202.    137.     86.     38.     23.      9.
783   UI      6.      6.      0.      0.      0.      0.      0.      0.      0.      0.
784   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
      *
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```
785          KK    R67D
786          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
787          DT    D67D       9
788          DI       0   10000
789          DQ       0   10000
             *
1                                        HEC-1 INPUT                                                    PAGE 21
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

790          KK    C67D
791          KM    COMBINE HYDROGRAPHS AT CP67D
792          HC       2
             *

793          KK  67DT66
794          KM   REACH CN-2 plus culvert CNC-2
795          KM   ROUTE FLOW IN THE CRISMON CHANNEL FROM APPROX. 1/2 MILE SOUTH
796          KM    OF GUADALUPE ROAD TO THE INFLOW SPILLWAY FOR THE ELLIOT DETENTION BASIN.
797          RS       1    FLOW      -1
798          RC    .025    .015    .025    2000  0.0018
799          RX       0       8      16    26.8    39.8      51      59      67
800          RY     5.2     5.3     5.4       0       0     5.4     5.3     5.2
             *

801          KK     66A
802          KM   BASIN 66A
803          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
804          KM    L=       .7  Lca=        .3   S=   55.9  Kn= .047  LAG=  17.1
805          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
806          BA     .26
807          LG     .24     .25    6.00     .22   35.00
808          UI     78.    256.    417.    576.    363.    205.     84.     39.     16.     16.
809          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
810          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****

811          KK    R66A
812          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
813          DT    D66A      21
814          DI       0   10000
815          DQ       0   10000
             * DDM   ***** Preserved *****

816          KK   66ATB
817          KM   ROUTE S66A TO 66B VIA WASH CROSSING BASELINE
818          RS       7    FLOW      -1
819          RC    .045     .04    .045    7500   .0077
820          RX       0     500     980    1003    1007    1031    1511    2011
821          RY       4     3.5       3       0       0       3     3.5       4
             *
             * DDM   ***** Updated *****

822          KK     66B
823          KM   BASIN 66B
824          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
825          KM    L=      1.6  Lca=      1.0   S=   43.3  Kn= .050  LAG=  42.8
826          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
827          BA     .67
828          LG     .25     .25    5.00     .33   30.00
829          UI     53.     56.    185.    248.    297.    352.    426.    590.    636.    496.
830          UI    419.    346.    286.    232.    152.     93.     86.     58.     53.     21.
831          UI     16.     16.     16.     16.     16.      0.      0.      0.      0.      0.
1                                        HEC-1 INPUT                                                    PAGE 22
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

832          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****

833          KK    R66B
834          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
835          DT    D66B      48
836          DI       0   10000
837          DQ       0   10000
             * DDM   ***** Preserved *****

838          KK   CP66B
839          KM   COMBINE S66A AND S66B
840          HC       2
             *
             * DDM   ***** Preserved *****

841          KK   66BTC
842          KM   ROUTE 66B TO 66C VIA WASH
843          RS       7    FLOW      -1
844          RC    .045     .04    .045    6000   .0150
```

```
845   RX      0     500     995    1003    1007    1016    1511    2011
846   RY      4     3.5       3       0       0       3     3.5       4
      *
      * DDM   ***** Updated *****

847   KK     66C
848   KM   BASIN 66C
849   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
850   KM    L=      1.1  Lca=        .7   S=   46.5  Kn= .039  LAG=  24.3
851   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
852   BA     .50
853   LG     .19     .25    5.40     .29   48.00
854   UI     69.    243.    385.    528.    817.    635.    463.    325.    159.    103.
855   UI     63.     21.     21.     21.      0.      0.      0.      0.      0.      0.
856   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
      *
      * DDM   ***** Preserved *****

857   KK    R66C
858   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
859   DT    D66C      42
860   DI       0   10000
861   DQ       0   10000
      *
      * DDM   ***** Preserved *****

862   KK  CP66C1
863   KM   Split up hydrograph combination in order to separate flows.
864   KM   Combine Hydrographs 66BTC (from Sub. 66A)and R66C (from Sub. 66C)
      * KO      2       2
865   HC       2
      *
1                                    HEC-1 INPUT                                    PAGE 23

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

866   KK  CP66C2
867   KM   Combine Hydrograph CP66C1 (from Subbasins 66A, 66B and 66C)
868   KM     plus hydrograph 67DT66 ( C67D )
      * KO      2       2
869   HC       2
      *

870   KK    DI66
871   KM    DIVERT FLOW TO DETENTION BASIN
872   KM    DETENTION BASIN DIVERSION STRUCTURE (WEST BASIN)
      * KO      1       2
873   DT    DB66
874   DI       0     229     458     500     543   585.5     628   670.5     713   755.5
875   DQ       0       0       0    42.5      85   127.5     170   212.5     255   297.5
      *

876   KK  66C1T2
877   KM    ROUTE FLOW FROM DIVERSION STRUCTURE TO ELLIOT CHANNEL at ELLIOT ROAD.
878   KM    REACH CN-1 plus culvert CNC-1
879   KM    >>>>>>>>>>>>>>> CHANNEL NEEDS TO BE UPSIZED DUE TO CHANGES IN ELLIOT BASIN
880   KM    >>>>>>>>>>>>>>> CHANNEL MODIFIED FROM MASTERPLAN <<<<<<<<<<<<<<<<<<<<<<<<
881   RS       1    FLOW      -1
882   RC    .025    .015    .025     980   .0021
883   RX       0       8      16    24.2    28.2    36.4    44.4    52.4
884   RY     4.5     4.2     4.1       0       0     4.1     4.2     4.5
      *

885   KK   CP66C
886   KM   COMBINE FLOWS FROM ELLIOT CHANNEL AND CRISMON BYPASS CHANNEL
887   HC       2
      *

888   KK   66CTD
889   KM   REACH RT-7
890   KM   ROUTE FLOWS FROM INTERSECTION OF CRISMON AND ELLIOT CHANNELS
891   KM      AT THE INTERSECTION OF ELLIOT ROAD and CRISMON ROAD TO THE ELLIOT BASIN
892   KM      OUTLET CHANNEL, WHICH IS ABOUT 0.5 MILES WEST OF CRISMON ROAD.
893   RS       1    FLOW      -1
894   RC    .025    .015    .025    2720   .0017
895   RX       0       8      16      28      44      56      64      72
896   RY     5.7     5.8     6.0       0       0     6.0     5.8     5.7
      *

897   KK    DR66
      * KO      2
898   KM         RETURN DIVERT TO DETENTION BASIN FROM DIVERSION STRUCTURE
899   DR    DB66
      *
1                                    HEC-1 INPUT                                    PAGE 24

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

```
900     KK  RS66D1
        * KO     1
901     KM   ELLIOT BASIN , EAST
902     KM   TWO PONDS OPERATING IN SERIES.
903     RS       1    STOR      -1
904     SV       0      .3      2.9     11.5      16    20.5    25.1    29.8    34.6    39.5
905     SE    1420    1421     1422     1423  1423.5    1424  1424.5    1425  1425.5    1426
906     SL    1419     7.0      .62       .5
907     SS    1423      20      2.5      1.5
        *

908     KK  RS66D2
        * KO     1
909     KM   ELLIOT BASIN , WEST
910     KM   TWO PONDS OPERATING IN SERIES.
911     RS       1    STOR      -1
912     SV       0     1.4      6.5     13.5    20.9    28.6    32.6    36.7    40.8    45.1
913     SE    1414    1415     1416     1417    1418    1419  1419.5    1420  1420.5    1421
914     SL    1414     7.1      .62       .5
915     SS  1420.5      80      2.5      1.5
        *

916     KK   CP66D
917     KM       COMBINE FLOWS FROM WEST ELLIOT BASIN AND ELLIOT CHANNEL
918     KM       AT THE OUTLET PIPE.
919     HC       2
        *

920     KK  66T66D
921     KM   REACH ET-6
922     KM   ROUTE FROM DETENTION BASIN OUTLET TO ELLSWORTH RD
923     KM   KM ELLIOT BASIN WEST OF CRISMON
924     RS       1    FLOW      -1
925     RC    .025    .015     .025    2350   .0017
926     RX       0       8       16      27      46      58      66      74
927     RY     5.7     5.8      5.9       0       0     5.9     5.8     5.7
        *

928     KK     66D
929     KM   BASIN 66D
930     KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
931     KM    L=      1.0  Lca=       .7   S=   28.6  Kn= .020  LAG=  13.2
932     KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
933     BA     .31
934     LG     .10     .17    6.80     .19   80.00
935     UI    162.    480.    845.    540.    232.     89.     24.      0.      0.      0.
936     UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
        * DDM   ***** Preserved *****
```



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

937     KK    R66D
938     KM   RETENTION REDUCED BY 77% FROM 31 TO 7 AC-FT
939     KM   DUE TO DEVELOPMENT USING DETENTION BASIN
940     DT    D66D       7
941     DI       0   10000
942     DQ       0   10000
        * DDM   ***** Updated *****

943     KK     61A
944     KM   BASIN 61A
945     KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
946     KM    L=       .9  Lca=       .4   S=   36.8  Kn= .037  LAG=  19.1
947     KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
948     BA     .52
949     LG     .19     .25    4.20     .56   52.00
950     UI    117.    412.    628.   1037.    786.    517.    261.    132.     62.     28.
951     UI     28.      0.      0.      0.      0.      0.      0.      0.      0.      0.
952     UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
        * DDM   ***** Preserved *****

953     KK    R61A
954     KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
955     DT    D61A      42
956     DI       0   10000
957     DQ       0   10000
        * DDM   ***** Preserved *****

958     KK   61ATB
959     KM   ROUTING 61A TO 61B VIA ELLSWORTH ROAD
960     RS       6    FLOW      -1
961     RC    .035    .024     .035    5280    .005
962     RX       0     500      750     752     802     852    1102    1602
963     RY       3       2      1.5     1.2     1.2     1.5       2       3
        * DDM   ***** Updated *****
```

```
964   KK    61B
965   KM   BASIN 61B
966   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
967   KM    L=      1.4  Lca=       .7   S=   39.7  Kn= .047  LAG=  33.6
968   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
969   BA    1.09
970   LG     .24     .25    4.80     .37   35.00
971   UI    109.    223.    475.    615.    765.   1049.   1335.   1025.    822.    643.
972   UI    495.    288.    187.    143.    109.     36.     34.     34.     34.     34.
973   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
974   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
      *
      * DDM   ***** Preserved *****
```



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

975   KK    R61B
976   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
977   DT    D61B      81
978   DI       0   10000
979   DQ       0   10000
      * DDM   ***** Preserved *****

980   KK   CP61B
981   KM   COMBINE FLOWS FROM S61A AND S61B
982   HC       2
      * DDM   ***** Preserved *****

983   KK  61T66D
984   KM   ROUTE CP61B TO SUBBASIN 66D ALONG ELLSWORTH ROAD. ROUTING WILL BE
985   KM   THE SAME AS WAS GIVEN FOR SUBBASIN 61A
986   RS       6    FLOW      -1
987   RC    .035    .024    .035    5280    .008
988   RX       0     500     750     752     802     852    1102    1602
989   RY       3       2     1.5     1.2     1.2     1.5       2       3
      *
      * DDM   ***** Updated *****

990   KK     67E
991   KM   BASIN 67E
992   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
993   KM    L=      1.2  Lca=       .7   S=   32.3  Kn= .038  LAG=  26.9
994   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
995   BA     .58
996   LG     .19     .25    5.40     .30   50.00
997   UI     73.    219.    378.    496.    732.    830.    597.    443.    315.    157.
998   UI    110.     73.     24.     22.     22.     22.      0.      0.      0.      0.
999   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
      *
      * DDM   ***** Preserved *****

1000  KK    R67E
1001  KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1002  KM   DUE TO DEVELOPMENT USING DETENTION BASIN
1003  DT   D67E       50
1004  DI       0   10000
1005  DQ       0   10000
      * DDM   ***** Preserved *****

1006  KK    C67E
1007  KM   COMBINE FLOWS FROM ELLSWORTH ROAD JUST NORTH OF ELLIOT ROAD
1008  HC       2
      *

1009  KK    C66D
1010  KM   COMBINE ELLIOT CHANNEL FLOW WITH HYDROGRAPH C67E @ ELLIOT RD & ELLSWORTH RD.
1011  HC       3
      *
```



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

1012  KK  66T70B
1013  KM   REACH ET-4, ET-5( COMPRISED OF ET-5A AND ET-5B).
1014  KM   ROUTE FROM ELLIOT & ELLSWORTH, ALONG ELLSWORTH, THEN TO SANTAN FREEWAY.
1015  RS       2    FLOW      -1
1016  RC    .025    .025    .025    4350   .0005
1017  RX       0       8      16      56      88     130     138     146
1018  RY     6.6     6.7     6.8       0       0     6.8     6.7     6.6
      *

1019  KK     62C
1020  KM   BASIN 62C
1021  KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1022  KM    L=       .6  Lca=       .3   S=   24.2  Kn= .049  LAG=  19.8
1023  KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1024  BA     .55
```

```
 900          KK  RS66D1
              * KO     1
 901          KM   ELLIOT BASIN , EAST
 902          KM   TWO PONDS OPERATING IN SERIES.
 903          RS       1    STOR      -1
 904          SV       0      .3     2.9    11.5      16    20.5    25.1    29.8    34.6    39.5
 905          SE    1420    1421    1422    1423  1423.5    1424  1424.5    1425  1425.5    1426
 906          SL    1419     7.0     .62      .5
 907          SS    1423      20     2.5     1.5
              *

 908          KK  RS66D2
              * KO     1
 909          KM   ELLIOT BASIN , WEST
 910          KM   TWO PONDS OPERATING IN SERIES.
 911          RS       1    STOR      -1
 912          SV       0     1.4     6.5    13.5    20.9    28.6    32.6    36.7    40.8    45.1
 913          SE    1414    1415    1416    1417    1418    1419  1419.5    1420  1420.5    1421
 914          SL    1414     7.1     .62      .5
 915          SS  1420.5      80     2.5     1.5
              *

 916          KK   CP66D
 917          KM       COMBINE FLOWS FROM WEST ELLIOT BASIN AND ELLIOT CHANNEL
 918          KM       AT THE OUTLET PIPE.
 919          HC       2
              *

 920          KK  66T66D
 921          KM   REACH ET-6
 922          KM   ROUTE FROM DETENTION BASIN OUTLET TO ELLSWORTH RD
 923          KM   KM ELLIOT BASIN WEST OF CRISMON
 924          RS       1    FLOW      -1
 925          RC    .025    .015    .025    2350   .0017
 926          RX       0       8      16      27      46      58      66      74
 927          RY     5.7     5.8     5.9       0       0     5.9     5.8     5.7
              *

 928          KK     66D
 929          KM   BASIN 66D
 930          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 931          KM    L=       1.0  Lca=        .7   S=   28.6  Kn= .020  LAG=  13.2
 932          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 933          BA     .31
 934          LG     .10     .17    6.80     .19   80.00
 935          UI    162.    480.    845.    540.    232.     89.     24.      0.      0.      0.
 936          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * DDM   ***** Preserved *****
```



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

 937          KK    R66D
 938          KM   RETENTION REDUCED BY 77% FROM 31 TO 7 AC-FT
 939          KM   DUE TO DEVELOPMENT USING DETENTION BASIN
 940          DT    D66D       7
 941          DI       0   10000
 942          DQ       0   10000
              * DDM   ***** Updated *****

 943          KK     61A
 944          KM   BASIN 61A
 945          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 946          KM    L=        .9  Lca=        .4   S=   36.8  Kn= .037  LAG=  19.1
 947          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 948          BA     .52
 949          LG     .19     .25    4.20     .56   52.00
 950          UI    117.    412.    628.   1037.    786.    517.    261.    132.     62.     28.
 951          UI     28.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 952          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * DDM   ***** Preserved *****

 953          KK    R61A
 954          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
 955          DT    D61A      42
 956          DI       0   10000
 957          DQ       0   10000
              * DDM   ***** Preserved *****

 958          KK   61ATB
 959          KM   ROUTING 61A TO 61B VIA ELLSWORTH ROAD
 960          RS       6    FLOW      -1
 961          RC    .035    .024    .035    5280    .005
 962          RX       0     500     750     752     802     852    1102    1602
 963          RY       3       2     1.5     1.2     1.2     1.5       2       3
              * DDM   ***** Updated *****
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```
964          KK     61B
965          KM   BASIN 61B
966          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
967          KM    L=      1.4  Lca=       .7   S=   39.7  Kn= .047  LAG=  33.6
968          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
969          BA    1.09
970          LG     .24      .25    4.80     .37   35.00
971          UI    109.     223.    475.    615.    765.   1049.   1335.   1025.    822.    643.
972          UI    495.     288.    187.    143.    109.     36.     34.     34.     34.     34.
973          UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
974          UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 26

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

975          KK    R61B
976          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
977          DT    D61B      81
978          DI       0   10000
979          DQ       0   10000
             * DDM   ***** Preserved *****

980          KK   CP61B
981          KM   COMBINE FLOWS FROM S61A AND S61B
982          HC       2
             * DDM   ***** Preserved *****

983          KK  61T66D
984          KM   ROUTE CP61B TO SUBBASIN 66D ALONG ELLSWORTH ROAD. ROUTING WILL BE
985          KM   THE SAME AS WAS GIVEN FOR SUBBASIN 61A
986          RS       6    FLOW      -1
987          RC    .035    .024    .035    5280    .008
988          RX       0     500     750     752     802     852    1102    1602
989          RY       3       2     1.5     1.2     1.2     1.5       2       3
             *
             * DDM   ***** Updated *****

990          KK     67E
991          KM   BASIN 67E
992          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
993          KM    L=      1.2  Lca=       .7   S=   32.3  Kn= .038  LAG=  26.9
994          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
995          BA     .58
996          LG     .19      .25    5.40     .30   50.00
997          UI     73.     219.    378.    496.    732.    830.    597.    443.    315.    157.
998          UI    110.      73.     24.     22.     22.     22.      0.      0.      0.      0.
999          UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****

1000         KK    R67E
1001         KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1002         KM   DUE TO DEVELOPMENT USING DETENTION BASIN
1003         DT   D67E       50
1004         DI       0   10000
1005         DQ       0   10000
             * DDM   ***** Preserved *****

1006         KK    C67E
1007         KM   COMBINE FLOWS FROM ELLSWORTH ROAD JUST NORTH OF ELLIOT ROAD
1008         HC       2
             *

1009         KK    C66D
1010         KM   COMBINE ELLIOT CHANNEL FLOW WITH HYDROGRAPH C67E @ ELLIOT RD & ELLSWORTH RD.
1011         HC       3
             *
1                                          HEC-1 INPUT                                          PAGE 27

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

1012         KK  66T70B
1013         KM   REACH ET-4, ET-5( COMPRISED OF ET-5A AND ET-5B).
1014         KM   ROUTE FROM ELLIOT & ELLSWORTH, ALONG ELLSWORTH, THEN TO SANTAN FREEWAY.
1015         RS       2    FLOW      -1
1016         RC    .025    .025    .025    4350   .0005
1017         RX       0       8      16      56      88     130     138     146
1018         RY     6.6     6.7     6.8       0       0     6.8     6.7     6.6
             *

1019         KK     62C
1020         KM   BASIN 62C
1021         KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1022         KM    L=       .6  Lca=       .3   S=   24.2  Kn= .049  LAG=  19.8
1023         KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1024         BA     .55
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1025    LG     .23     .25    4.65     .40   47.00
1026    UI    112.    406.    615.   1024.    853.    571.    330.    154.     83.     28.
1027    UI     28.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1028    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
        * DDM   ***** Preserved *****

1029    KK    R62C
1030    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1031    DT    D62C      31
1032    DI       0   10000
1033    DQ       0   10000
        * DDM   ***** Preserved *****

1034    KK   62CTE
1035    KM   ROUTE BASIN 62C TO BASIN 62E BY CHANNEL ON EAST SIDE OF PROPOSED SANTAN
1036    KM   FREEWAY ALIGNMENT
1037    RS       2    FLOW      -1
1038    RC    .030    .030    .030    2000   .0003
1039    RX       0       5      10      25      45      55      60      65
1040    RY       8       7     6.5       0       0     6.5       7       8
        * DDM   ***** Updated *****

1041    KK     62E
1042    KM   BASIN 62E
1043    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1044    KM    L=        .6  Lca=        .3   S=   31.9  Kn= .050  LAG=  20.4
1045    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1046    BA     .15
1047    LG     .25     .25    4.65     .39   45.00
1048    UI     29.    108.    163.    268.    246.    167.    104.     46.     28.     10.
1049    UI      8.      8.      0.      0.      0.      0.      0.      0.      0.      0.
1050    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
        * DDM   ***** Preserved *****
```



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

1051    KK    R62E
1052    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1053    DT    D62E      12
1054    DI       0   10000
1055    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1056    KK   CP62E
1057    KM   COMBINE FLOWS FROM SUBBASIN 62C AND SUBBASIN 62E
1058    HC       2
        *
        * DDM   ***** Preserved *****

1059    KK  62T68A
1060    KM   ROUTE FLOW FROM CP62E TO SUBBASIN 68A BY CHANNEL ALONG PROPOSED ALIGNMENT
1061    KM   OF THE SANTAN FREEWAY
        * ZW   A=62T68A   B=NORTH OF ELLIOT  C=FLOW    F=100YR FUTURE
1062    RS       2    FLOW      -1
1063    RC    .030    .030    .030    3280  .00015
1064    RX       0       5      10      20      30      40      45      50
1065    RY      20      15      15       0       0      15      15      20
        *
        * DDM   ***** Updated *****

1066    KK     68A
1067    KM   BASIN 68A
1068    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1069    KM    L=        .7  Lca=        .4   S=   37.7  Kn= .032  LAG=  13.7
1070    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1071    BA     .35
1072    LG     .16     .25    5.70     .27   66.00
1073    UI    168.    506.    914.    635.    301.    114.     34.     26.      0.      0.
1074    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1075    KK    R68A
1076    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1077    DT    D68A      31
1078    DI       0   10000
1079    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1080    KK   CP68A
1081    KM   COMBINE FLOW FROM SUBBASIN 68A WITH THE ROUTED FLOW FROM C62E
        * KO      3       2
        * ZW  A=COMBINED FLOW, CP68A  B=FROM BASIN AND ROUTE  C=FLOW   F=100YR FUTURE
1082    HC       2
        *
```

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                    * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                    PAGE 29

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

1083                KK  68T70A
1084                KM   ROUTE FLOW FROM CP68A AT ELLIOT AND SANTAN FREEWAY ALIGNMENT TO SUBBASIN
1085                KM   70A, AT THE POINT WHERE SIPHON DRAW INTERSECTS THE FREEWAY ALIGNMENT
1086                KM   CHANNEL IS NATURAL AND ONLY APPROXIMATE IN ROUTING PARAMETERS
1087                RS       2    FLOW      -1
1088                RC    .030    .030    .030    3960   .0006
1089                RX       0       5      10      20      30      40      45      50
1090                RY      10       5       4       0       0       4       5      10
                    *
                    * DDM   ***** Inserted *****

1091                KK     70A
1092                KM   BASIN 70A
1093                KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1094                KM    L=       .9  Lca=       .4   S=   23.5  Kn= .025  LAG=  12.7
1095                KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1096                BA     .54
1097                LG     .13     .15    7.60     .13   67.00
1098                UI    306.    899.   1524.    903.    346.    120.     44.      0.      0.      0.
1099                UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                    *
                    * DDM   ***** Preserved *****

1100                KK    R70A
1101                KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1102                DT    D70A      52
1103                DI       0   10000
1104                DQ       0   10000
                    *
                    * DDM   ***** Preserved *****

1105                KK    C70A
1106                KM   COMBINE FLOWS FROM C68A AND SUBBASIN 70A
1107                HC       2
                    *
                    * DDM   ***** Preserved *****

1108                KK   C70A2
1109                KM   COMBINE FLOWS FROM CONCENTRATION POINT C70A WITH THOSE COMING FROM DETENTION
1110                KM   BASIN 66, LOCATED ON ELLIOT ROAD, ALONG SAN TAN @ 2/3 MILE SO. OF ELLIOT RD.
1111                HC       2
                    *

1112                KK  70T76A
1113                KM   DIBBLE DRAINAGE FACILITY
1114                KM   ROUTE FLOW ALONG NEW SANTAN FREEWAY ALIGNMENT
1115                KM   REACH ET-3A, ET-3B
1116                RS       2    FLOW      -1
1117                RC    .025    .025    .025    4500  0.0005
1118                RX       0       8      16      59      91     134     142     150
1119                RY     7.4     7.3     7.2       0       0     7.2     7.1     7.0
                    *
1                                          HEC-1 INPUT                                                    PAGE 30

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

1120                KK     76A
1121                KM   BASIN 76A
1122                KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1123                KM    L=      2.9  Lca=      1.7   S=   24.1  Kn= .030  LAG=  42.9
1124                KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1125                BA    1.91
1126                LG     .15     .15    8.80     .08   56.00
1127                UI    150.    159.    528.    707.    847.   1004.   1213.   1673.   1826.   1424.
1128                UI   1201.    992.    822.    667.    444.    266.    247.    171.    150.     65.
1129                UI     46.     46.     46.     46.     46.      0.      0.      0.      0.      0.
1130                UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                    *
                    * DDM   ***** Preserved *****

1131                KK    R76A
1132                KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1133                DT    D76A     185
1134                DI       0   10000
1135                DQ       0   10000
                    *

1136                KK    C76A
1137                KM    COMBINE HYDROGRAPHS 70T76A (SANTAN FREEWAY CHANNEL FLOWS) WITH SUBBASIN 76A
1138                HC       2
                    *

1139                KK  76ATPR
```

```
1140    KM   DIBBLE DRAINAGE FACILITY
1141    KM   ROUTE FLOW ALONG NEW SANTAN FREEWAY ALIGNMENT TO NEW POWERLINE FLOODWAY ALGN.
1142    KM   REACH ET-2A, ET-2B
1143    RS       2    FLOW      -1
1144    RC    .025    .025    .025    5750  0.0005
1145    RX       0       8      16      61      93     138     146     154
1146    RY     7.7     7.6     7.5       0       0     7.5     7.4     7.3
        *

1147    KK     73A
1148    KM   BASIN 73A
1149    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1150    KM    L=      2.3  Lca=      1.0   S=   34.9  Kn= .093  LAG=  94.5
1151    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1152    BA     .95
1153    LG     .35     .36    5.00     .27     .00
1154    UI     34.     34.     34.     34.     84.    117.    134.    158.    171.    185.
1155    UI    197.    214.    232.    254.    274.    317.    381.    429.    424.    369.
1156    UI    332.    303.    282.    263.    240.    220.    202.    185.    169.    157.
1157    UI    134.    107.     90.     60.     60.     57.     55.     54.     34.     34.
1158    UI     34.     34.     16.     10.     10.     10.     10.     10.     10.     10.
1159    UI     10.     10.     10.     10.     10.     10.      0.      0.      0.      0.
1160    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
1                                        HEC-1 INPUT                                          PAGE 31

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

1161    KK   73ATB
1162    KM   ROUTE 73A TO 73B VIA WASH RUNNING DIAGONALLY ACROSS 73B
1163    RS       3    FLOW      -1
1164    RC     .06     .05     .06    2700   .0074
1165    RX       0     500    1000    1003    1007    1011    1511    2011
1166    RY       4     3.5       3       0       0       2     2.5       3
        *

1167    KK     73B
1168    KM   BASIN 73B
1169    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1170    KM    L=       .6  Lca=       .4   S=   26.3  Kn= .050  LAG=  21.6
1171    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1172    BA     .42
1173    LG     .27     .25    5.30     .27   21.00
1174    UI     67.    268.    402.    621.    719.    486.    332.    162.     94.     50.
1175    UI     20.     20.      0.      0.      0.      0.      0.      0.      0.      0.
1176    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
        * DDM   ***** Preserved *****

1177    KK    R73B
1178    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1179    DT    D73B      29
1180    DI       0   10000
1181    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1182    KK   CP73B
1183    KM   COMBINE S73A AND S73B
1184    HC       2
        *

1185    KK   73BTC
1186    KM   ROUTE 73B TO 73C VIA WASH CROSSING MOUNTAIN ROAD
1187    KM    THEN ROUTED SOUTH ALONG GENERAL MOTORS BERM TO SW CORNER OF 73C
1188    RS       6    FLOW      -1
1189    RC    .035    .022    .035    5000   .0036
1190    RX       0     500     700     710     720     730     930    1430
1191    RY       8     7.5       5       0       0       5     7.5       8
        *

1192    KK     73C
1193    KM   BASIN 73C
1194    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1195    KM    L=       .6  Lca=       .3   S=   43.7  Kn= .020  LAG=   7.0
1196    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1197    BA     .58
1198    LG     .10     .25    5.30     .34   80.00
1199    UI   1073.   2551.    742.    111.      0.      0.      0.      0.      0.      0.
1200    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
1                                        HEC-1 INPUT                                          PAGE 32

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

1201    KK    R73C
1202    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1203    DT    D73C      58
```

```
1204    DI       0   10000
1205    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1206    KK   CP73C
1207    KM   COMBINE 73C AND 73B
1208    HC       2
        *
        * DDM   ***** Preserved *****

1209    KK  73T74C
1210    KM   ROUTE 73C TO 74C VIA GM BERM, WEST EDGE OF 74C
1211    RS       4    FLOW      -1
1212    RC    .035    .022    .035    3500   .0034
1213    RX       0     500    1000    1001    1016    1516    2016    2516
1214    RY       6     5.5       5       2       2     3.5     4.5     5.5
        *
        * DDM   ***** Updated *****

1215    KK     74A
1216    KM   BASIN 74A
1217    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1218    KM    L=       2.4  Lca=       1.0   S=   42.2  Kn= .095  LAG=  92.9
1219    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
        * KO     2       2
1220    BA     .75
1221    LG     .35     .36    5.00     .27     .00
1222    UI     27.     27.     27.     27.     73.     96.    111.    129.    140.    151.
1223    UI    163.    175.    193.    208.    228.    268.    317.    362.    327.    287.
1224    UI    260.    239.    222.    206.    187.    171.    160.    142.    132.    118.
1225    UI     99.     79.     56.     48.     47.     45.     45.     32.     27.     27.
1226    UI     27.     19.      8.      8.      8.      8.      8.      8.      8.      8.
1227    UI      8.      8.      8.      8.      8.      0.      0.      0.      0.      0.
1228    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1229    KK   DB74A
1230    KM   NEW BASIN REGRADED ON 18 DEC 97, by Dibble & Associates
1231    KM   revised to be on-line detention basin
1232    KM   DETENTION BASIN LOCATED EAST OF MERIDIAN ROAD & north of Powerline Floodway
1233    KM   WITH 24-INCH OUTFALL & 350-FT WEIR.
        * KO     2       2
1234    RS       1    STOR      -1
1235    SA       0    1.43    5.38   11.14   18.97
1236    SE    76.0      78      80      82      84
1237    SL    77.0    3.14     .62      .5
1238    SS   82.20     350     2.5     1.5
        *
1                                   HEC-1 INPUT                                    PAGE 33

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

1239    KK   74ATB
1240    KM   ROUTE 74A TO 74B VIA WASH CROSSING COUNTY LINE
1241    RS       4    FLOW      -1
1242    RC    .045     .04    .045    3500   .0054
1243    RX       0     500    1000    1003    1007    1011    1511    2011
1244    RY       4     3.5       3       0       0       2     2.5       3
        *

1245    KK     74B
1246    KM   BASIN 74B
1247    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1248    KM    L=        .6  Lca=        .5   S=   32.1  Kn= .050  LAG=  23.3
1249    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1250    BA     .33
1251    LG     .30     .25    6.00     .18    5.00
1252    UI     48.    177.    273.    388.    563.    406.    289.    188.     87.     58.
1253    UI     28.     15.     15.      0.      0.      0.      0.      0.      0.      0.
1254    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
        * DDM   ***** Preserved *****

1255    KK    R74B
1256    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1257    DT    D74B      22
1258    DI       0   10000
1259    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1260    KK   CP74B
1261    KM   COMBINE S74A AND S74B
1262    HC       2
        *
        * DDM   ***** Preserved *****

1263    KK   74BTC
```

```
1264    KM   ROUTE 74B TO 74C VIA WASH CROSSING MOUNTAIN ROAD
1265    RS       4     FLOW      -1
1266    RC    .045      .04     .045     3500    .0051
1267    RX       0      500      980     1003     1007     1031     1511     2011
1268    RY       4      3.5        3        0        0        3      3.5        4
        *
        * DDM   ***** Updated *****

1269    KK     74C
1270    KM   BASIN 74C
1271    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1272    KM    L=        .7  Lca=        .5   S=   25.4  Kn= .020  LAG=  10.3
1273    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1274    BA     .34
1275    LG     .10      .15    7.00     .17   80.00
1276    UI    303.     950.    940.    348.     92.     35.      0.      0.      0.      0.
1277    UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
        * DDM   ***** Preserved *****
1                                    HEC-1 INPUT                                          PAGE 34

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

1278    KK    R74C
1279    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1280    DT    D74C      35
1281    DI       0   10000
1282    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1283    KK   CP74C
1284    KM   COMBINE 74C AND 74B AND 73C
1285    HC       3
        *
        * DDM   ***** Preserved *****

1286    KK  74CT75
1287    KM    ROUTE CP74C TO S75 VIA POWERLINE FLOODWAY TO ELLSWORTH RD & RAY ROAD.
1288    KM    Vel of 10 ft/sec for NSTP calc.
1289    RS       3     FLOW      -1
1290    RC     .03     .013     .03    10560    .0049
1291    RX       0     1005    1023   1030.5   1036.5    1044     1062     2067
1292    RY       6        5       5        0        0       5        5        6
        *
        * DDM   ***** Updated *****

1293    KK      75
1294    KM   BASIN 75 , WHICH IS THE GENERAL MOTORS DESERT PROVING GROUNDS
1295    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1296    KM    L=      4.0  Lca=      3.0   S=   20.0  Kn= .087  LAG= 182.0
1297    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1298    BA    4.01            0.25
1299    KM          THE 0.25 FACTOR IS PER FCDMC, AMIR MOTAMEDI, WHO HAS TOURED THE
1300    KM          PROVING GROUNDS WITH GM PERSONNEL AND FIELD VERIFIED THIS FACTOR.
1301    LG     .34      .35    6.80     .13    3.00
1302    UI     74.      74.     74.     74.     74.     74.     74.     74.    180.    243.
1303    UI    247.     284.    284.    335.    342.    363.    375.    396.    412.    422.
1304    UI    437.     458.    475.    495.    519.    550.    567.    585.    622.    672.
1305    UI    737.     819.    865.    935.   1002.    935.    870.    813.    764.    726.
1306    UI    693.     664.    637.    614.    593.    574.    547.    519.    496.    473.
1307    UI    452.     437.    425.    387.    377.    363.    347.    341.    289.    284.
1308    UI    233.     213.    213.    147.    131.    131.    131.    130.    122.    122.
1309    UI    122.     122.    122.     75.     74.     74.     74.     74.     74.     74.
1310    UI     74.      43.     23.     23.     23.     23.     23.     23.     23.     23.
1311    UI     23.      23.     23.     23.     23.     23.     23.     23.     23.     23.
1312    UI     23.      23.     23.     23.     23.     23.     23.     23.      0.      0.
1313    UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1314    KK     C75
1315    KM   COMBINE FLOWS FROM C74C AND SUBBASIN 75
1316    HC       2
        *
        * DDM   ***** Preserved *****
1                                    HEC-1 INPUT                                          PAGE 35

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

1317    KK   75TPC
1318    KM   ROUTE 75 THROUGH POWERLINE FLOODWAY TO AIR FORCE CHANNEL
1319    RS       2     FLOW      -1
1320    RC     .03     .013     .03     3900    .0041
1321    RX       0     1005    1023   1030.5   1036.5    1044     1062     2067
1322    RY       6        5       5        0        0       5        5        6
        *
        * DDM   ***** Updated *****
```

```
1323    KK     77A
1324    KM   BASIN 77A
1325    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1326    KM    L=       2.9  Lca=       1.5   S=   31.1  Kn= .092  LAG= 119.0
1327    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1328    BA    1.74
1329    LG     .35     .36    5.00     .27     .00
1330    UI     49.     49.     49.     49.     49.    108.    162.    185.    205.    230.
1331    UI    244.    264.    278.    293.    311.    333.    358.    380.    406.    462.
1332    UI    537.    584.    659.    601.    541.    496.    461.    430.    407.    385.
1333    UI    362.    334.    311.    293.    273.    252.    238.    226.    189.    161.
1334    UI    141.    104.     87.     87.     83.     81.     81.     73.     49.     49.
1335    UI     49.     49.     49.     22.     15.     15.     15.     15.     15.     15.
1336    UI     15.     15.     15.     15.     15.     15.     15.     15.     15.     15.
1337    UI     15.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1338    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1339    KK   77ATB
1340    KM   ROUTE 77A TO 77B VIA WASH CROSSING COUNTY LINE
1341    RS       3    FLOW      -1
1342    RC    .045     .04    .045    3000    .006
1343    RX       0     500     980    1003    1007    1031    1511    2011
1344    RY       4     3.5       3       0       0       3     3.5       4
        *
        * DDM   ***** Updated *****

1345    KK     77B
1346    KM   BASIN 77B
1347    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1348    KM    L=        .6  Lca=        .3   S=   26.3  Kn= .050  LAG=  19.3
1349    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1350    BA     .36
1351    LG     .30     .25    5.30     .24    5.00
1352    UI     78.    277.    421.    700.    544.    360.    189.     93.     46.     19.
1353    UI     19.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1354    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
        * DDM   ***** Preserved *****
```



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

1355    KK    R77B
1356    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1357    DT    D77B      16
1358    DI       0   10000
1359    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1360    KK   CP77B
1361    KM   COMBINE S77A AND S77B
1362    HC       2
        *
        * DDM   ***** Preserved *****

1363    KK   77BTC
1364    KM   ROUTE 77B TO 77C VIA WASH CROSSING MOUNTAIN ROAD, THEN SOUTH ALONG
1365    KM    WESTERN EDGE OF 77C
1366    RS       5    FLOW      -1
1367    RC    .045     .04    .045    4750   .0042
1368    RX       0     500     950    1003    1007    1061    1511    2011
1369    RY       4     3.5       3       0       0       3     3.5       4
        *
        * DDM   ***** Updated *****

1370    KK     77C
1371    KM   BASIN 77C
1372    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1373    KM    L=        .5  Lca=        .3   S=   32.3  Kn= .020  LAG=   7.2
1374    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1375    BA     .28
1376    LG     .10     .25    5.80     .27   79.00
1377    UI    492.   1219.    393.     60.      0.      0.      0.      0.      0.      0.
1378    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
        * DDM   ***** Preserved *****

1379    KK    R77C
1380    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1381    DT    D77C      28
1382    DI       0   10000
1383    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1384    KK    C77C
1385    KM   COMBINE FLOWS FROM C77B AND SUBBASIN 77C
```

```
1386    HC       2
        *
        * DDM   ***** Preserved *****
1                                   HEC-1 INPUT                                    PAGE 37

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

1387    KK  77CT78
1388    RS       3    FLOW      -1
1389    RC   0.035   0.022   0.035    2400   0.002
1390    RX       0     100     110     115     120     125     130     135
1391    RY       4       3     2.5       0       0     2.5       8       9
        *
        * DDM   ***** Updated *****

1392    KK     78A
1393    KM   BASIN 78A
1394    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1395    KM    L=      3.3  Lca=      1.3   S=   30.2  Kn= .090  LAG= 118.0
1396    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1397    BA    1.88
1398    LG     .35     .36    5.00     .27     .00
1399    UI     54.     54.     54.     54.     54.    124.    176.    203.    227.    252.
1400    UI    268.    290.    305.    322.    342.    366.    396.    417.    451.    515.
1401    UI    612.    641.    716.    643.    579.    531.    494.    464.    437.    417.
1402    UI    385.    356.    334.    315.    290.    270.    255.    233.    206.    159.
1403    UI    153.     95.     95.     95.     88.     88.     88.     65.     54.     54.
1404    UI     54.     54.     45.     16.     16.     16.     16.     16.     16.     16.
1405    UI     16.     16.     16.     16.     16.     16.     16.     16.     16.     16.
1406    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1407    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1408    KK   78ATB
1409    KM   ROUTE FLOW FROM 78A TO 78B VIA WASH CROSSING COUNTY LINE
1410    RS       4    FLOW      -1
1411    RC    .045     .04    .045    3500   .0042
1412    RX       0     500     980    1003    1007    1031    1511    2011
1413    RY     4.5     3.5       3       0       0       3     3.5     4.5
        * DDM   ***** Updated *****

1414    KK     78B
1415    KM   BASIN 78B
1416    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1417    KM    L=       .6  Lca=       .4   S=   31.6  Kn= .050  LAG=  20.9
1418    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1419    KM    FCDMC REPORTS BASIN ALREADY BUILT-OUT, WITH RURAL 1 TO 2 ACRE LOTS
1420    KM    AND THERE IS NO RETENTION FOR THIS BASIN.
1421    BA     .39
1422    LG     .30     .15    8.40     .07    5.00
1423    UI     68.    262.    393.    635.    638.    433.    283.    126.     78.     34.
1424    UI     19.     19.      0.      0.      0.      0.      0.      0.      0.      0.
1425    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1426    KK    C78B
1427    KM   COMBINE FLOW FROM SUBBASIN 78B AND SUBBASIN 78A
1428    HC       2
        *
1                                   HEC-1 INPUT                                    PAGE 38

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

1429    KK   78BTC
1430    KM   ROUTE 78B TO 78C VIA WASH CROSSING MOUNTAIN ROAD, THEN SOUTH ALONG
1431    KM    WESTERN EDGE OF 78C.
1432    RS       3    FLOW      -1
1433    RC    .035    .022    .035    4500   .0033
1434    RX       0     100     110     115     120     125     130     135
1435    RY       5       4     3.5       0       0     3.5       8       9
        *

1436    KK     78C
1437    KM   BASIN 78C
1438    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1439    KM    L=       .5  Lca=       .3   S=   31.7  Kn= .026  LAG=   9.0
1440    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1441    BA     .28
1442    LG     .13     .10   11.20     .03   64.00
1443    UI    319.    980.    652.    164.     34.      0.      0.      0.      0.      0.
1444    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1445    KK    R78C
1446    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1447    DT    D78C      24
1448    DI       0   10000
1449    DQ       0   10000
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                *

1450            KK    C78C
1451            KM   COMBINE FLOWS FROM 78B, 78C & 77C @ WILLIAMS FIELD ROAD & SIGNAL BUTTE ROAD.
1452            HC       3
                *

1453            KK  78CT79
1454            KM   ROUTE 78C TO 79A AT ELLSWORTH VIA GM CHANNEL TO
1455            KM    WILLIAMS FIELD RD & ELLSWORTH ROAD.
1456            RS       4    FLOW      -1
1457            RC    .035    .022    .035   10560   .0044
1458            RX       0     500     800     805     820     825    1125    1625
1459            RY       7       6       5       0       0       5       6       7
                *

1460            KK     79A
1461            KM   BASIN 79A
1462            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1463            KM    L=      2.3  Lca=      1.2   S=   23.2  Kn= .090  LAG= 106.0
1464            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1465            BA    2.01
1466            LG     .35     .30    8.00     .08     .00
1467            UI     64.     64.     64.     64.     82.    209.    232.    262.    299.    321.
1468            UI    347.    367.    390.    421.    458.    489.    527.    610.    726.    792.
1469            UI    825.    727.    655.    600.    557.    523.    495.    451.    417.    390.
1470            UI    361.    328.    308.    285.    244.    190.    169.    113.    113.    109.
1471            UI    105.    105.     85.     64.     64.     64.     64.     37.     20.     20.
1472            UI     20.     20.     20.     20.     20.     20.     20.     20.     20.     20.
1                                                HEC-1 INPUT                                          PAGE 39

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

1473            UI     20.     20.     20.      0.      0.      0.      0.      0.      0.      0.
1474            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *

1475            KK   C79A1
1476            KM   COMBINE FLOWS FROM 78C AND 79A @ WILLIAMS FIELD ROAD & ELLSWORTH ROAD.
1477            HC       2
                *

1478            KK     78F
1479            KM   BASIN 78F
1480            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1481            KM    L=      3.7  Lca=      2.1   S=   29.8  Kn= .090  LAG= 147.0
1482            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1483            BA    4.19
1484            LG     .35     .36    5.00     .27     .00
1485            UI     96.     96.     96.     96.     96.     96.    148.    315.    325.    368.
1486            UI    399.    442.    468.    495.    521.    541.    566.    595.    626.    663.
1487            UI    706.    737.    774.    845.    936.   1085.   1119.   1276.   1239.   1127.
1488            UI   1033.    968.    907.    862.    820.    782.    751.    712.    667.    629.
1489            UI    597.    570.    541.    502.    472.    454.    436.    368.    339.    276.
1490            UI    276.    174.    170.    170.    168.    158.    158.    158.    156.     96.
1491            UI     96.     96.     96.     96.     96.     79.     29.     29.     29.     29.
1492            UI     29.     29.     29.     29.     29.     29.     29.     29.     29.     29.
1493            UI     29.     29.     29.     29.     29.     29.     29.      0.      0.      0.
1494            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *

1495            KK    82A1
1496            KM   BASIN 82A1
1497            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1498            KM    L=      3.6  Lca=       .9   S=   33.9  Kn= .090  LAG= 103.0
1499            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1500            BA    3.12
1501            LG     .35     .36    5.00     .27     .00
1502            UI    102.    102.    102.    102.    163.    335.    381.    436.    485.    526.
1503            UI    564.    599.    644.    693.    757.    801.    901.   1048.   1222.   1356.
1504            UI   1223.   1084.    987.    913.    852.    800.    742.    675.    629.    589.
1505            UI    529.    494.    459.    391.    304.    266.    180.    180.    173.    167.
1506            UI    167.    123.    102.    102.    102.    102.     36.     31.     31.     31.
1507            UI     31.     31.     31.     31.     31.     31.     31.     31.     31.     31.
1508            UI     31.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1509            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *

1510            KK   C82A1
1511            KM   COMBINE FLOWS FROM SUBBASINS 78F AND 82A1 NORTH OF PECOS ROAD AT
1512            KM   NEW DETENTION BASIN
1513            HC       2
                *
1                                                HEC-1 INPUT                                          PAGE 40

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

1514            KK  DB82A1
1515            KM   PECOS NORTH BASIN
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1516   KM   NEW DETENTION BASIN LOCATED EAST OF MERIDIAN ROAD & 660' NORTH OF PECOS RD.
1517   KM   WITH 1-42" RCP OUTLET & 86' SPILLWAY AT ELEV=44
       * KO     2       2
1518   RS       1    STOR      -1
1519   SV       0       8      34      73     113     153     195     237     280     346
1520   SE      36      37      38      39      40      41      42      43      44    46.1
1521   SL    33.5     9.6     .62      .5
1522   SS      44     195       3     1.5
       *

1523   KK    PS-9
1524   KM    REACH PS-9
1525   KM    OUTFLOW CHANNEL FROM NEW DETENTION BASIN 82A TO MAIN CHANNEL @ PECOS
1526   RS       1    FLOW      -1
1527   RC    .025    .025    .025     500   .0005
1528   RX       0       8      16      42      46      72      80      88
1529   RY     4.1     4.2     4.3       0       0     4.3     4.2     4.1
       *

1530   KK    CAP2
1531   KM   INFLOW FROM EAST OF THE CAP THROUGH 1 - 36" PIPE OVERCHUTE
1532   KM   STATION #536+00 SALT-GILA AQUEDUCT REACH 2
1533   KM   QI CARDS BASED ON OVERCHUTE CAPACITY OF 64 CFS
1534   IN     60
1535   BA    .01
1536   QI      0      20      64      64      64      64      64      64      64      64
1537   QI     64      64      64      64      64      64      64      64      64      64
1538   QI     64      64      64      64      64
       *

1539   KK   RCAP2
1540   KM   ROUTE CAP2 THROUGH 82A2 VIA WASH TO SUBBASIN 82A2
1541   IN     15
1542   RS     27    FLOW      -1
1543   RC   .045     .04    .045   24000     .05
1544   RX      0     500    1000    1010    1020    1030    1530    2030
1545   RY      8       5       3       0       0       3       5       8
       *

1546   KK    82A2
1547   KM   BASIN 82A2
1548   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1549   KM    L=      4.6  Lca=      2.9   S=   27.2  Kn= .089  LAG= 183.0
1550   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1551   BA    4.13
1552   LG     .35     .36    5.00     .27    1.00
1553   UI     76.     76.     76.     76.     76.     76.     76.     76.    177.    249.
1554   UI    250.    291.    291.    339.    349.    371.    381.    406.    420.    430.
1555   UI    448.    466.    483.    503.    529.    561.    578.    596.    631.    680.
1556   UI    743.    805.    911.    923.   1027.    979.    901.    845.    794.    751.
1557   UI    717.    686.    659.    635.    613.    594.    570.    540.    514.    487.
1558   UI    470.    455.    437.    407.    393.    372.    362.    349.    315.    291.
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LINE   ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1559   UI    263.    218.    218.    179.    134.    134.    134.    134.    128.    125.
1560   UI    125.    125.    125.     96.     76.     76.     76.     76.     76.     76.
1561   UI     76.     67.     23.     23.     23.     23.     23.     23.     23.     23.
1562   UI     23.     23.     23.     23.     23.     23.     23.     23.     23.     23.
1563   UI     23.     23.     23.     23.     23.     23.     23.     23.     23.      0.
1564   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1565   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1566   KK  CP82A2
1567   KM   COMBINE FLOW FROM ROUTED CAP2 AND SUBBASIN 82A2
1568   HC      2
       *

1569   KK    82A4
1570   KM   BASIN 82A4
1571   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1572   KM    L=      3.5  Lca=      1.5   S=   29.1  Kn= .090  LAG= 128.0
1573   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1574   BA    2.13
1575   LG     .35     .36    5.00     .27     .00
1576   UI     56.     56.     56.     56.     56.     70.    184.    193.    214.    248.
1577   UI    265.    281.    302.    316.    332.    352.    374.    401.    424.    447.
1578   UI    494.    557.    650.    691.    742.    667.    606.    560.    523.    490.
1579   UI    466.    443.    419.    389.    364.    343.    325.    299.    281.    267.
1580   UI    251.    214.    182.    161.    126.     99.     99.     97.     92.     92.
1581   UI     92.     69.     56.     56.     56.     56.     56.     27.     17.     17.
1582   UI     17.     17.     17.     17.     17.     17.     17.     17.     17.     17.
1583   UI     17.     17.     17.     17.     17.     17.      0.      0.      0.      0.
1584   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1585   KK  82A4T3
1586   KM   REACH MN-2
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1587    KM   ROUTE FLOW FROM SUBBASIN 82A4 TO DETENTION BASIN 82A3
1588    RS       2    FLOW      -1
1589    RC    .025    .025    .025    1050   .0005
1590    RX       0       8      16      47     107     138     146     154
1591    RY     5.0     5.1     5.2       0       0     5.2     5.1     5.0
        *

1592    KK    82A3
1593    KM   BASIN 82A3
1594    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1595    KM    L=      3.6  Lca=      2.0   S=   28.3  Kn= .090  LAG= 145.0
1596    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1597    BA    2.02
1598    LG     .35     .36    5.00     .27     .00
1599    UI     47.     47.     47.     47.     47.     47.     82.    154.    162.    180.
1600    UI    200.    218.    230.    246.    257.    268.    280.    294.    310.    330.
1601    UI    351.    365.    387.    425.    477.    553.    566.    633.    583.    529.
1602    UI    492.    460.    434.    410.    392.    376.    361.    336.    316.    299.
1603    UI    284.    271.    250.    237.    228.    216.    190.    180.    136.    135.
1604    UI    101.     83.     83.     83.     78.     77.     77.     77.     52.     47.
1605    UI     47.     47.     47.     47.     42.     14.     14.     14.     14.     14.
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LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1606    UI     14.     14.     14.     14.     14.     14.     14.     14.     14.     14.
1607    UI     14.     14.     14.     14.     14.     14.      0.      0.      0.      0.
1608    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1609    KK  CP82A3
1610    KM   COMBINE FLOW FROM SUBBASIN 82A4 AND SUBBASIN 82A3 BEFORE DETENTION BASIN
1611    HC       2
        *

1612    KK  CP82A5
1613    KM   COMBINE FLOWS FROM CAP OVERCHUTE AND SUBBASIN 82A
1614    HC       2
        *

1615    KK   DB82B
1616    KM   PECOS SOUTH BASIN
1617    KM   NEW DETENTION BASIN LOCATED EAST OF MERIDIAN ROAD & 660' SOUTH OF PECOS RD.
1618    KM   WITH 1-66" RCP OUTLET & 80' SPILLWAY AT ELEV 41
        * KO     2       2
1619    RS       1    STOR      -1
1620    SV       0     3.5     9.6    25.7    62.7   110.5   158.7   207.5   257.3     320
1621    SE    31.5      33      34      35      36      37      38      39      40    42.1
1622    SL      33    23.7     .62      .5
1623    SS      41      80       3     1.5
        *

1624    KK   MN-1
1625    KM   REACH MN-1  plus culvert PSC-7
1626    KM   ROUTE FLOW FROM NEW DETENTION BASIN 82B TO MAIN LINE CHANNEL @ PECOS
1627    RS       1    FLOW      -1
1628    RC    .025    .025    .025    1030   .0005
1629    RX       0       8      16      47      55      87      95     103
1630    RY     5.1     5.2     5.3       0       0     5.3     5.2     5.1
        *

1631    KK  CP82A6
1632    KM         COMBINE FLOWS AFTER DETENTION BASINS.
1633    HC       2
        *

1634    KK  82TBOX
1635    KM   REACH PS-8
1636    KM   ROUTE FLOW FROM DETENTION BASIN DB82B TO 1000' FOOT LONG BOX CULVERT (PSC-6).
1637    RS       1    FLOW      -1
1638    RC    .025    .025    .025     750   .0005
1639    RX       0       8      16    47.2      67      98     106     114
1640    RY     5.0     5.1     5.2       0       0     5.2     5.1     5.0
        *
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LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1641    KK  BOXCLV
1642    KM   REACH PSC-6
1643    KM   ROUTE FLOW THROUGH BOX CULVERT
1644    RS       1    FLOW      -1
1645    RC    .015    .012    .015    1000   .0020
1646    RX       0       8      16   16.01   28.01   28.02      36      44
1647    RY     4.8     4.9       5       0       0       5     4.9     4.8
        *

1648    KK  BOXT78
1649    KM   REACH PS-5, PS-6, PS-7 plus culverts PSC-5 & PSC-4
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1650   KM   ROUTE FLOW FROM 1000' BOX CULVERT TO C78D  (SIGNAL BUTTE ROAD)
1651   RS       1    FLOW      -1
1652   RC    .025    .025    .025    3400   .0005
1653   RX       0       8      16      47      67      98     106     114
1654   RY     5.4     5.3     5.2       0       0     5.2     5.3     5.4
       *

1655   KK     78D
1656   KM   BASIN 78D
1657   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1658   KM    L=      1.2  Lca=       .5   S=   21.7  Kn= .030  LAG=  19.5
1659   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1660   BA     .89
1661   LG     .15     .15    8.00     .11   55.00
1662   UI    189.    678.   1029.   1713.   1367.    909.    496.    240.    123.     47.
1663   UI     47.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1664   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1665   KK    R78D
1666   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1667   DT    D78D      84
1668   DI       0   10000
1669   DQ       0   10000
       *
       * DDM   ***** Updated *****

1670   KK     82B
1671   KM   BASIN 82B
1672   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1673   KM    L=       .9  Lca=       .4   S=   21.2  Kn= .030  LAG=  17.2
1674   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1675   BA     .92
1676   LG     .15     .25    5.00     .36   55.00
1677   UI    266.    879.   1420.   2004.   1268.    727.    294.    142.     55.     55.
1678   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1679   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *
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LINE   ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1680   KK     R82
1681   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1682   DT     D82       1
1683   DI       0   10000
1684   DQ       0   10000
       *

1685   KK   DTTRW
1686   KM    DIVERTING 110.7 ACRE-FEET DUE TO ON-SITE RETENTION
1687   KM   VOLUMES WERE DERIVED FROM DRAINAGE REPORT - REFERENCE 7.
1688   DT     TRW   110.7
1689   DI       0   10000
1690   DQ       0   10000
       *
       * DDM   ***** Preserved *****

1691   KK    C78D
1692   KM    COMBINE FLOWS FROM 78D, 82B AND ROUTED FLOW 82T78D
1693   KM     @ PECOS ROAD AND SIGNAL BUTTE ROAD.
1694   HC       3
       *
       * DDM   ***** Preserved *****

1695   KK   78DTE
1696   KM   REACH PS-2, PS-3, PS-4 plus culverts PSC-3 AND PSC-2.
1697   KM   ROUTE FLOWS FROM 78D (PECOS RD AND SIGNAL BUTTE RD) TO 78E (PECOS AND CRISMON
1698   RS       2    FLOW      -1
1699   RC    .025   0.025   0.025    5100   .0005
1700   RX       0       8      16    53.2    93.2   130.4   138.4   146.4
1701   RY     6.0     6.1     6.2       0       0     6.3     6.1     6.0
       *

1702   KK     78E
1703   KM   BASIN 78E
1704   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1705   KM    L=      1.1  Lca=       .5   S=   17.4  Kn= .087  LAG=  57.4
1706   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1707   BA    1.01
1708   LG     .35     .26    8.80     .06    1.00
1709   UI     59.     59.    108.    212.    271.    313.    351.    402.    460.    565.
1710   UI    741.    698.    577.    502.    447.    382.    335.    289.    241.    166.
1711   UI    104.    100.     97.     60.     59.     45.     18.     18.     18.     18.
1712   UI     18.     18.     18.     18.      0.      0.      0.      0.      0.      0.
1713   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1714   KK     83
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1715        KM   BASIN 83
1716        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1717        KM    L=      2.0  Lca=       .5   S=   15.0  Kn= .030  LAG=  25.8
1718        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1719        BA    1.01
1720        LG     .15      .25    5.00     .36   55.00
1721        UI    131.     423.    700.    931.   1454.   1362.    993.    726.    464.    226.
1                                          HEC-1 INPUT                                          PAGE 45

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

1722        UI    161.      89.     40.     40.     40.      0.      0.      0.      0.      0.
1723        UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
            *

1724        KK     R83
1725        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1726        DT     D83      83
1727        DI       0   10000
1728        DQ       0   10000
            *

1729        KK    C78E
1730        KM   COMBINE FLOWS FROM 78D AND 78E (CRISMON ROAD)
1731        HC       3
            *

1732        KK  78ET84
1733        KM   REACH PS-1
1734        KM   ROUTE FLOWS WEST ALONG PECOS IN A PROPOSED CHANNEL
1735        KM   ROUTE FLOWS FROM CRISMON ROAD TO ELLSWORTH ROAD.
1736        RS       2    FLOW      -1
1737        RC    .025   0.025   0.025    4840   .0005
1738        RX       0       8      16    53.2    93.2   130.4   138.4   146.4
1739        RY     6.0     6.1     6.2       0       0     6.2     6.1     6.0
            *

1740        KK      84
1741        KM   BASIN 84
1742        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1743        KM    L=      2.0  Lca=       .5   S=   12.5  Kn= .030  LAG=  26.7
1744        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1745        BA     .99
1746        LG     .15      .25    4.70     .40   55.00
1747        UI    125.     380.    651.    855.   1278.   1399.   1008.    747.    520.    258.
1748        UI    182.     120.     38.     38.     38.      0.      0.      0.      0.      0.
1749        UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
            *

1750        KK     R84
1751        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1752        DT     D84      85
1753        DI       0   10000
1754        DQ       0   10000
            *

1755        KK     C84
1756        KM    COMBINE FLOWS FROM 78E AND 84  AT ELLSWORTH AND PECOS ROAD
1757        KM    CHANNEL EAST SIDE OF GATEWAY WILLIAMS FLOWING TO THE NORTH
1758        HC       2
            *
            * DDM    ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 46

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

1759        KK  84T79B
1760        KM   REACH EH-3B
1761        KM   ROUTE FLOWS FROM THE CORNER OF PECOS AND ELLSWORTH ROADS TO
1762        KM   THE SOUTH OF WILLIAMS FIELD ROAD AND ELLSWORTH ROAD
1763        KM   (THIS IS THE COMBINE POINT FROM BASIN 79B)
1764        RS       1    FLOW      -1
1765        RC    .015    .015    .015    3383   .0010
1766        RX       0       8      16      30      55      69      77      85
1767        RY     6.7     6.8     6.9       0       0     6.9     6.8     6.7
            *

1768        KK     79B
1769        KM   BASIN 79B
1770        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1771        KM    L=      1.4  Lca=       .6   S=    9.0  Kn= .090  LAG=  77.7
1772        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1773        BA    1.00
1774        LG     .35      .25    9.70     .05     .00
1775        UI     43.      43.     43.     85.    150.    179.    207.    232.    250.    275.
1776        UI    306.     335.    388.    479.    557.    515.    444.    396.    360.    331.
1777        UI    295.     267.    240.    216.    192.    155.    123.     76.     76.     71.
1778        UI     71.      48.     43.     43.     36.     13.     13.     13.     13.     13.
1779        UI     13.      13.     13.     13.     13.     13.      0.      0.      0.      0.
```

```
1650    KM   ROUTE FLOW FROM 1000' BOX CULVERT TO C78D  (SIGNAL BUTTE ROAD)
1651    RS       1    FLOW      -1
1652    RC    .025    .025    .025    3400   .0005
1653    RX       0       8      16      47      67      98     106     114
1654    RY     5.4     5.3     5.2       0       0     5.2     5.3     5.4
        *

1655    KK     78D
1656    KM   BASIN 78D
1657    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1658    KM    L=      1.2  Lca=       .5   S=   21.7  Kn= .030  LAG=  19.5
1659    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1660    BA     .89
1661    LG     .15     .15    8.00     .11   55.00
1662    UI    189.    678.   1029.   1713.   1367.    909.    496.    240.    123.     47.
1663    UI     47.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1664    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1665    KK    R78D
1666    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1667    DT    D78D      84
1668    DI       0   10000
1669    DQ       0   10000
        *
        * DDM   ***** Updated *****

1670    KK     82B
1671    KM   BASIN 82B
1672    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1673    KM    L=       .9  Lca=       .4   S=   21.2  Kn= .030  LAG=  17.2
1674    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1675    BA     .92
1676    LG     .15     .25    5.00     .36   55.00
1677    UI    266.    879.   1420.   2004.   1268.    727.    294.    142.     55.     55.
1678    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1679    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
```



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

1680    KK     R82
1681    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1682    DT    D82       1
1683    DI       0   10000
1684    DQ       0   10000
        *

1685    KK   DTTRW
1686    KM    DIVERTING 110.7 ACRE-FEET DUE TO ON-SITE RETENTION
1687    KM   VOLUMES WERE DERIVED FROM DRAINAGE REPORT - REFERENCE 7.
1688    DT     TRW   110.7
1689    DI       0   10000
1690    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1691    KK    C78D
1692    KM    COMBINE FLOWS FROM 78D, 82B AND ROUTED FLOW 82T78D
1693    KM     @ PECOS ROAD AND SIGNAL BUTTE ROAD.
1694    HC       3
        *
        * DDM   ***** Preserved *****

1695    KK   78DTE
1696    KM   REACH PS-2, PS-3, PS-4 plus culverts PSC-3 AND PSC-2.
1697    KM   ROUTE FLOWS FROM 78D (PECOS RD AND SIGNAL BUTTE RD) TO 78E (PECOS AND CRISMON
1698    RS       2    FLOW      -1
1699    RC    .025   0.025   0.025    5100   .0005
1700    RX       0       8      16    53.2    93.2   130.4   138.4   146.4
1701    RY     6.0     6.1     6.2       0       0     6.3     6.1     6.0
        *

1702    KK     78E
1703    KM   BASIN 78E
1704    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1705    KM    L=      1.1  Lca=       .5   S=   17.4  Kn= .087  LAG=  57.4
1706    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1707    BA    1.01
1708    LG     .35     .26    8.80     .06    1.00
1709    UI     59.     59.    108.    212.    271.    313.    351.    402.    460.    565.
1710    UI    741.    698.    577.    502.    447.    382.    335.    289.    241.    166.
1711    UI    104.    100.     97.     60.     59.     45.     18.     18.     18.     18.
1712    UI     18.     18.     18.     18.      0.      0.      0.      0.      0.      0.
1713    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1714    KK      83
```

```
1715          KM   BASIN 83
1716          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1717          KM    L=      2.0  Lca=       .5   S=   15.0  Kn= .030  LAG=  25.8
1718          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1719          BA    1.01
1720          LG     .15     .25    5.00     .36   55.00
1721          UI    131.    423.    700.    931.   1454.   1362.    993.    726.    464.    226.
1                                          HEC-1 INPUT                                          PAGE 45

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

1722          UI    161.     89.     40.     40.     40.      0.      0.      0.      0.      0.
1723          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1724          KK     R83
1725          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1726          DT     D83      83
1727          DI       0   10000
1728          DQ       0   10000
              *

1729          KK    C78E
1730          KM   COMBINE FLOWS FROM 78D AND 78E (CRISMON ROAD)
1731          HC       3
              *

1732          KK  78ET84
1733          KM   REACH PS-1
1734          KM   ROUTE FLOWS WEST ALONG PECOS IN A PROPOSED CHANNEL
1735          KM   ROUTE FLOWS FROM CRISMON ROAD TO ELLSWORTH ROAD.
1736          RS       2    FLOW      -1
1737          RC    .025   0.025   0.025    4840   .0005
1738          RX       0       8      16    53.2    93.2   130.4   138.4   146.4
1739          RY     6.0     6.1     6.2       0       0     6.2     6.1     6.0
              *

1740          KK      84
1741          KM   BASIN 84
1742          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1743          KM    L=      2.0  Lca=       .5   S=   12.5  Kn= .030  LAG=  26.7
1744          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1745          BA     .99
1746          LG     .15     .25    4.70     .40   55.00
1747          UI    125.    380.    651.    855.   1278.   1399.   1008.    747.    520.    258.
1748          UI    182.    120.     38.     38.     38.      0.      0.      0.      0.      0.
1749          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1750          KK     R84
1751          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1752          DT     D84      85
1753          DI       0   10000
1754          DQ       0   10000
              *

1755          KK     C84
1756          KM    COMBINE FLOWS FROM 78E AND 84  AT ELLSWORTH AND PECOS ROAD
1757          KM    CHANNEL EAST SIDE OF GATEWAY WILLIAMS FLOWING TO THE NORTH
1758          HC       2
              *
              * DDM    ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 46

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

1759          KK  84T79B
1760          KM   REACH BH-3B
1761          KM   ROUTE FLOWS FROM THE CORNER OF PECOS AND ELLSWORTH ROADS TO
1762          KM   THE SOUTH OF WILLIAMS FIELD ROAD AND ELLSWORTH ROAD
1763          KM   (THIS IS THE COMBINE POINT FROM BASIN 79B)
1764          RS       1    FLOW      -1
1765          RC    .015    .015    .015    3383   .0010
1766          RX       0       8      16      30      55      69      77      85
1767          RY     6.7     6.8     6.9       0       0     6.9     6.8     6.7
              *

1768          KK     79B
1769          KM   BASIN 79B
1770          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1771          KM    L=      1.4  Lca=       .6   S=    9.0  Kn= .090  LAG=  77.7
1772          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1773          BA    1.00
1774          LG     .35     .25    9.70     .05     .00
1775          UI     43.     43.     43.     85.    150.    179.    207.    232.    250.    275.
1776          UI    306.    335.    388.    479.    557.    515.    444.    396.    360.    331.
1777          UI    295.    267.    240.    216.    192.    155.    123.     76.     76.     71.
1778          UI     71.     48.     43.     43.     36.     13.     13.     13.     13.     13.
1779          UI     13.     13.     13.     13.     13.     13.      0.      0.      0.      0.
```

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1780   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1781   KK   C79B1
1782   KM    FLOWS FROM SOUTH CHANNEL ALONG ELLSWORTH ROAD.
1783   HC       2
       *

1784   KK  79BTB2
1785   KM   REACH BH-3A
1786   KM   ROUTE FLOWS FROM THE COMBINE POINT OF SUB-BASIN 79B TO
1787   KM   WILLIAMS FIELD ROAD AND ELLSWORTH ROAD
1788   RS       2    FLOW      -1
1789   RC    .025    .015    .025    5000   .0010
1790   RX       0       8      16      30      55      69      77      85
1791   RY     6.7     6.8     6.9       0       0     6.9     6.8     6.7
       *

1792   KK   C79B2
1793   KM   COMBINE 79A AND ROUTED 79B (WHICH IS HYDROGRAPH C79B1)
1794   HC       2
       *

1795   KK  79TPC2
1796   KM   REACH BH-1, BH-2, plus culvert BHC-1
1797   KM   ROUTE FLOWS THROUGH WILLIAMS-GATEWAY (SUBBASIN 80A) BY WAY OF NEW NORTH
1798   KM   PERIMETER CHANNEL ABOUT 1/2 MILE WEST OF ELLSWORTH ROAD
1799   RS       1    FLOW      -1
1800   RC    .025    .015    .025    4760   .0014
1801   RX       0       8      16      33      61      78      86      94
1802   RY     8.4     8.5     8.4       0       0     8.4     8.5     8.4
       *
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LINE   ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1803   KK   CPPWR
1804   KM   COMBINE FLOWS FROM 75 AND 79 IN THE POWERLINE FLOODWAY ALONG RAY ROAD
1805   KM   AT ABOUT 1/2 MILE WEST OF ELLSWORTH ROAD
1806   HC       2
       *

1807   KK  PWRT80
1808   KM   REACH PR-3, PR-4, plus culvert PRC-2
1809   KM   ROUTE FLOWS FROM PLF COMBINE TO CATCH POINT AT 80A VIA PLF IMPROVEMENT
1810   RS       1    FLOW      -1
1811   RC    .025    .015    .025    3680   .0014
1812   RX       0       8      16      34      62      79      87      95
1813   RY     8.5     8.6     8.7       0       0     8.7     8.6     8.5
       *

1814   KK     80A
1815   KM   BASIN 80A
1816   KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1817   KM    L=      3.8  Lca=      2.2   S=   14.2  Kn= .030  LAG=  58.2
1818   KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1819   BA    2.64
1820   LG     .15     .15    9.70     .06   55.00
1821   UI    153.    153.    265.    544.    690.    802.    899.   1020.   1171.   1421.
1822   UI   1851.   1871.   1534.   1330.   1185.   1024.    896.    770.    653.    479.
1823   UI    305.    265.    251.    187.    153.    153.     50.     47.     47.     47.
1824   UI     47.     47.     47.     47.      0.      0.      0.      0.      0.      0.
1825   UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
       *

1826   KK    R80A
1827   KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1828   DT    D80A      33
1829   DI       0   10000
1830   DQ       0   10000
       *

1831   KK   CP80A
1832   KM   COMBINE FLOW IN THE POWERLINE FLOODWAY WITH FLOW COMING FROM SUBBASIN 80A
1833   KM   THE LOCATION FOR THIS COMBINATION AT THE NW CORNER OF SUBBASIN 80A
1834   HC       2
       *

1835   KK  PWRSAN
1836   KM   REACH PR-1, PR-2 plus culvert PRC-1
1837   KM   ROUTE FLOWS FROM COMBINE POINT AT 80A VIA PLF RE-ALIGNMENT.
1838   RS       1    FLOW      -1
1839   RC    .015    .015    .015    3500   .0014
1840   RX       0       8      16      74     154     212     220     228
1841   RY     9.5     9.6     9.7       0       0     9.7     9.6     9.5
       *
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LINE   ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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1842        KK   CPSAN
1843        KM   COMBINE FLOWS FROM THE POWERLINE FLOODWAY AND THE PROPOSED SANTAN FREEWAY
1844        KM   DRAINAGE CHANNEL
1845        HC       2
            *

1846        KK  PWREMF
1847        KM   ROUTE FLOW FROM RE-ALIGNED POWERLINE FLOODWAY TO EMF VIA
1848        KM   NEW CHANNEL ALONG SANTAN FREEWAY ALIGNMENT
1849        KM   REACH RT-1
            * KO                                    21
1850        RS       1    FLOW      -1
1851        RC    .025    .025    .025    3850   .0005
1852        RX       0       8      16      74     154     212     220     228
1853        RY     9.5     9.6     9.7       0       0     9.7     9.6     9.5
            *

1854        KK  EMFPOW
1855        KM   COMBINE FLOW FROM THE POWERLINE FLOODWAY WITH FLOW IN THE EMF
1856        HC       2
            *

1857        KK  POWTWI
1858        KM   ROUTE EMF FLOW TO WILLIAMS FIELD ROAD VIA THE EMF
1859        KM   THIS SECTION IS CONCRETE LINED TO PAST POWER ROAD BRIDGE
1860        RS       2    FLOW      -1
1861        RC     .03    .012     .03    4750   .0003
1862        RX       0     500     520     553     693     726     740     742
1863        RY      14      12      11       0       0      11      11      12
            *

1864        KK     80B
1865        KM   BASIN 80B
1866        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1867        KM    L=      1.5  Lca=       .9   S=   18.4  Kn= .044  LAG=  41.9
1868        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1869        BA    1.12
1870        LG     .13     .17    6.80     .18   48.00
1871        UI     90.    105.    319.    433.    515.    614.    754.   1063.   1032.    814.
1872        UI    687.    563.    464.    359.    213.    155.    136.     90.     73.     28.
1873        UI     28.     28.     28.     28.     28.      0.      0.      0.      0.      0.
1874        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *

1875        KK    R80B
1876        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1877        DT    D80B       4
1878        DI       0   10000
1879        DQ       0   10000
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1880        KK  MFWILL
1881        KM   COMBINE FLOWS INTO THE EMF WEST OF WILLIAMS AFB FROM 80B, EMF POWERLINE AND
1882        KM   EMFRAY
1883        HC       2
            *

1884        KK  WILTSP
1885        KM   ROUTE EMF FLOW FROM WILLIAMS FIELD ROAD TO THE SOUTHERN PACIFIC RAILROAD
1886        KM     (AT RITTENHOUSE ROAD)
1887        RS       3    FLOW      -1
1888        RC     .03    .022     .03    5000   .0003
1889        RX       0     500     520     553     693     726     740     742
1890        RY      14      12      11       0       0      11      11      12
            *
            * DDM   ***** Updated *****

1891        KK     81A
1892        KM   BASIN 81A
1893        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1894        KM    L=      3.3  Lca=      1.9   S=   16.4  Kn= .029  LAG=  49.0
1895        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1896        BA    1.81
1897        LG     .14     .25    4.70     .41   58.00
1898        UI    125.    125.    341.    523.    642.    737.    863.   1019.   1359.   1576.
1899        UI   1258.   1066.    922.    777.    656.    545.    386.    222.    209.    177.
1900        UI    125.    117.     38.     38.     38.     38.     38.     38.     38.      0.
1901        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1902        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            * DDM   ***** Preserved *****

1903        KK    R81A
1904        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
```

```
1905    DT    D81A       5
1906    DI       0   10000
1907    DQ       0   10000
        *

1908    KK   81ATB
1909    KM   ROUTE SUBBASIN 81A TO 81B VIA ROAD NETWORK FOR ON-BASE HOUSING
1910    RS       9    FLOW      -1
1911    RC    .013    .013    .013    8000   .0035
1912    RX       0     500     750     753    1053    1056    1303    1803
1913    RY       3     1.5       1      .6      .6       1     1.5       3
        *

1914    KK     81B
1915    KM   BASIN 81B
1916    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1917    KM    L=      1.1  Lca=       .4   S=    6.9  Kn= .033  LAG=  24.7
1918    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1919    BA     .84
1920    LG     .10     .25    4.70     .45   67.00
1921    UI    115.    393.    631.    857.   1343.   1088.    796.    566.    296.    185.
1                                     HEC-1 INPUT                                          PAGE 50

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

1922    UI    115.     39.     35.     35.      0.      0.      0.      0.      0.      0.
1923    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

1924    KK    R81B
1925    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1926    DT    D81B      35
1927    DI       0   10000
1928    DQ       0   10000
        *
        * DDM   ***** Preserved *****

1929    KK     CB1
1930    KM   COMBINE FLOWS FROM SUBBASINS 81A AND 81B BEFORE ENTERING INTO THE EMF
1931    HC       2
        *
        *
        * DDM   ***** Updated *****

1932    KK  EMFRT1       Hydrograph name changed by Dibble & Associates to avoid two
1933    KM               different hydrographs with the same name.
1934    KM   COMBINE 81A AND 81B AND RITTENHOUSE(HYDROGRAPH WILTSP, WHICH IS FROM EMFWIL)
1935    HC       2
        *
        *
        * THE NEXT KK BLOCKS COME FROM THE QUEEN CREEK ADMS
        *
        * DDM   ***** Preserved *****

1936    KK  SUB258
1937    KM   IN PINAL COUNTY, NO RETENTION
1938    KM        RUNOFF FROM SUBBASIN 258
1939    BA    3.68
1940    LS              78
1941    UD    3.87
        *
        *

1942    KK    R258
1943    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1944    DT    D258     121
1945    DI       0   10000
1946    DQ       0   10000
        *

1947    KK   RO259
1948    KM        ROUTE SUB258 TO CO262
1949    RM       8    1.57    0.20
        *
        * DDM   ***** Preserved *****
1                                     HEC-1 INPUT                                          PAGE 51

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

1950    KK  SUB260
1951    KM        RUNOFF FROM SUBBASIN 260
1952    BA    0.98
1953    LS              75
1954    UD    1.21
        *

1955    KK    R260
1956    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1957    DT    D260      27
```

```
1958    DI        0   10000
1959    DQ        0   10000
        *
        * DDM   ***** Preserved *****

1960    KK   CO262
1961    KM        COMBINE SUB260 AND RO259
1962    HC        2
        * DDM   ***** Preserved *****

1963    KK   RO263
1964    KM        ROUTE CO262 TO CO266
1965    RM        8    1.56    0.20
        *
        * DDM   ***** Preserved *****

1966    KK  SUB264
1967    KM        RUNOFF FROM SUBBASIN 264
1968    BA    0.99
1969    LS              76
1970    UD    1.47
        *
        * DDM   ***** Preserved *****

1971    KK    R264
1972    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1973    DT    D264      29
1974    DI        0   10000
1975    DQ        0   10000
        *
        * DDM   ***** Preserved *****

1976    KK   CO266
1977    KM        COMBINE SUB264 AND RO263
1978    HC        2
        *
        * DDM   ***** Preserved *****

1979    KK   RO267
1980    KM        ROUTE CO266 TO CO270
1981    RM       16    3.31    0.20
        *
        * DDM   ***** Preserved *****
```



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

1982    KK  SUB268
1983    KM        RUNOFF FROM SUBBASIN 268
1984    BA    0.96
1985    LS              76
1986    UD    2.27
        *
        * DDM   ***** Preserved *****

1987    KK    R268
1988    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1989    DT    D268      28
1990    DI        0   10000
1991    DQ        0   10000
        *
        * DDM   ***** Preserved *****

1992    KK   CO270
1993    KM        COMBINE RUNOFF FROM RO267 AND SUB268
1994    HC        2
        *
        * DDM   ***** Preserved *****

1995    KK   RO283
1996    KM        ROUTE CO282 TO CONCENTRATION POINT AT QUEEN CREEK ROAD
1997    RM       14    2.78    0.20
        *
        * THIS IS THE END OF THE QUEEN CREEK ADMS INSERT
        *
        * DDM   ***** Updated *****

1998    KK     88A
1999    KM   BASIN 88A
2000    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2001    KM    L=        .8  Lca=        .2   S=   13.2  Kn= .020  LAG=   9.2
2002    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2003    BA     .50
2004    LG     .10      .25    5.00      .40   80.00
2005    UI    549.    1709.   1208.    323.     71.      0.      0.      0.      0.      0.
2006    UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
        * DDM   ***** Preserved *****
```

```
2007        KK    R88A
2008        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2009        DT    D88A      50
2010        DI       0   10000
2011        DQ       0   10000
            *
1                                        HEC-1 INPUT                                                    PAGE 53

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


2012        KK  88AT89
2013        KM   REACH RH-2b,RH-2a,RH-1,EXISTING CHANNEL (FCD 97-34), plus culvert RHC-1
2014        KM   ROUTE 88A TO 89A VIA THE PROPOSED CHANNEL ALONG QUEEN CREEK ROAD
2015        KM   FROM CRISMON ROAD TO ELLSWORTH ROAD
2016        RS       1    FLOW      -1
2017        RC    .025    .025    .025    5135   .0010
2018        RX       0       8      16      45      55      85      93     101
2019        RY     4.7     4.8     4.9       0       0     4.9     4.8     4.7
            *

2020        KK     89A
2021        KM   BASIN 89A
2022        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2023        KM    L=      1.0  Lca=       .6   S=   19.0  Kn= .020  LAG=  13.5
2024        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2025        BA     .50
2026        LG     .10     .25    4.65     .47   80.00
2027        UI    247.    742.   1328.    891.    408.    158.     41.     38.      0.      0.
2028        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *

2029        KK    R89A
2030        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2031        DT    D89A      50
2032        DI       0   10000
2033        DQ       0   10000
            *

2034        KK    C89A
2035        KM   COMBINE FLOWS FROM 88A AND 89A AT QUEEN CREEK ROAD AND ELLSWORTH ROAD
2036        HC       2
            *

2037        KK  89ATRI
2038        KM   ROUTE 89A TO RITTENHOUSE ROAD VIA THE PROPOSED CHANNEL ALONG QUEEN CREEK ROAD
2039        KM    FROM ELLSWORTH ROAD TO RITTENHOUSE ROAD
2040        KM   REVISED 02.24.98 WITH RITTENHOUSE CHANNEL DESIGN.
2041        RS       1    FLOW      -1
2042        RC    .025    .025    .025    3145   .0005
2043        RX       0      10      26      39      49      72      78     100
2044        RY    12.2     9.7     5.7       0       0     5.7     9.7    12.2
            *

2045        KK    C283
2046        KM   COMBINE FLOWS FROM QUEEN CREEK ADMS AND EC ADMP AT QUEEN CREEK ROAD AND
2047        KM   RITTENHOUSE ROAD.
            * KO              2
2048        HC       2
            *
1                                        HEC-1 INPUT                                                    PAGE 54

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


2049        KK  283T90
2050        KM   ROUTE FLOWS FROM CONCENTRATION POINT 283 AT QUEEN CREAK ROAD NORTH IN
2051        KM   RITTENHOUSE CHANNEL TO THE HALF MILE STREET BETWEEN QUEEN CREEK ROAD AND
2052        KM   GERMANN ROAD (RYAN STREET)
2053        KM
2054        KM   REVISED 02.24.98 WITH RITTENHOUSE CHANNEL DESIGN (TYPICAL SECTION #5).
2055        KM
            * KO              2
2056        RS       1    FLOW      -1
2057        RC    .025    .025    .025    4400   .0005
2058        RX       0      22      28      51      61      83      90     108
2059        RY    11.2     9.7     5.7       0       0     5.7     9.7    11.2
            *

2060        KK     90A
2061        KM   BASIN 90A
2062        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2063        KM    L=       .6  Lca=       .2   S=   24.2  Kn= .038  LAG=  12.8
2064        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2065        BA     .48
2066        LG     .10     .25    4.60     .49   62.00
2067        UI    269.    789.   1351.    812.    319.    113.     39.      0.      0.      0.
2068        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
```

```
2069    KK    R90A
2070    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2071    DT    D90A      42
2072    DI       0   10000
2073    DQ       0   10000
        *

2074    KK    C90A
2075    KM   COMBINE FLOWS FLOW C283 AND SUBBASIN 90 AT RYAN STREET ALIGNMENT
        * KO              2
2076    HC       2
        *

2077    KK   90ATB
2078    KM   ROUTE FLOWS FROM SUBBASIN 90A TO 90B VIA CHANNEL
2079    KM   REVISED 02.24.98 WITH RITTENHOUSE CHANNEL DESIGN (TYPICAL SECTION #4).
2080    KM
        * KO              2
2081    RS       1    FLOW      -1
2082    RC    .025    .025    .025    4400    .0005
2083    RX       0      22      28      51       61      83      90     108
2084    RY    11.2     9.7     5.7       0        0     5.7     9.7    11.2
        *
1                                        HEC-1 INPUT                                                    PAGE 55

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

2085    KK     87A
2086    KM   BASIN 87A
2087    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2088    KM    L=       1.0  Lca=        .5   S=   24.8  Kn= .020  LAG=  11.7
2089    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2090    BA     .49
2091    LG     .10      .25    5.00     .40   80.00
2092    UI    333.     979.   1448.    720.    221.     66.      0.      0.      0.      0.
2093    UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

2094    KK    R87A
2095    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2096    DT    D87A      49
2097    DI       0   10000
2098    DQ       0   10000
        *

2099    KK   87ATB
2100    KM   ROUTE 87A TO 87B VIA SHEET FLOW
2101    RS       3    FLOW      -1
2102    RC    .040    .040    .040    2640    .0056
2103    RX       0     500    1000    1005    1006    1011    1511    2011
2104    RY       1      .5       0       0       0      .5       1     1.5
        *

2105    KK     87B
2106    KM   BASIN 87B
2107    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2108    KM    L=       .9  Lca=        .5   S=   11.6  Kn= .020  LAG=  12.8
2109    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2110    BA     .49
2111    LG     .10      .25    5.00     .40   80.00
2112    UI    275.     809.   1385.    833.    327.    116.     40.      0.      0.      0.
2113    UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

2114    KK    R87B
2115    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2116    DT    D87B      49
2117    DI       0   10000
2118    DQ       0   10000
        *

2119    KK     C87
2120    KM   COMBINE FLOW FROM SUBBASINS 87A AND 87B
2121    HC       2
        *
1                                        HEC-1 INPUT                                                    PAGE 56

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

2122    KK  87T88B
2123    KM     ROUTE S87 TO S88 VIA GERMANN ROAD
2124    RS       6    FLOW      -1
2125    RC    .045    .025    .045    5280    .002
2126    RX       0    1000    1005    1010    1050    1060    1560    2060
2127    RY      14      13      18      12      11      14    14.5      15
        *

2128    KK     88B
```

```
2129    KM   BASIN 88B
2130    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2131    KM    L=        .9  Lca=        .6   S=   21.2  Kn= .020  LAG=  12.8
2132    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2133    BA     .50
2134    LG     .10      .25    5.00     .40   80.00
2135    UI    279.     819.   1402.    843.    331.    117.     40.      0.      0.      0.
2136    UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

2137    KK    R88B
2138    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2139    DT    D88B      50
2140    DI       0   10000
2141    DQ       0   10000
        *

2142    KK    C88B
2143    KM   COMBINE FLOWS FROM SUBBASINS 88A AND 88B
2144    HC       2
        *

2145    KK  88T89B
2146    KM     ROUTE S88 (CRISMON ROAD) TO S89B (ELLSWORTH ROAD) VIA GERMANN ROAD
2147    RS       6    FLOW      -1
2148    RC    .045    .025    .045    5280    .004
2149    RX       0    1000    1005    1010    1050    1060    1560    2060
2150    RY      14      13      18      12      11      14    14.5      15
        *

2151    KK     89B
2152    KM   BASIN 89B
2153    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2154    KM    L=        .9  Lca=        .5   S=   23.2  Kn= .020  LAG=  11.7
2155    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2156    BA     .50
2157    LG     .10      .25    4.80     .43   80.00
2158    UI    336.     987.   1460.    726.    223.     67.      0.      0.      0.      0.
2159    UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
1                                        HEC-1 INPUT                                        PAGE 57

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

2160    KK    R89B
2161    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2162    DT    D89B      49
2163    DI       0   10000
2164    DQ       0   10000
        *

2165    KK    C89B
2166    KM   COMBINE FLOWS FROM SUBBASINS 89A AND 89B
2167    HC       2
        *

2168    KK  89TB90
2169    KM    ROUTE S89B (ELLSWORTH ROAD) TO S90B (AT RITTENHOUSE ROAD) VIA GERMANN ROAD
2170    RS      10    FLOW      -1
2171    RC    .045    .025    .045    8818   .0045
2172    RX       0    1000    1005    1010    1050    1060    1560    2060
2173    RY      14      13      18      12      11      14    14.5      15
        *
        * DDM   ***** Updated *****

2174    KK     90B
2175    KM   BASIN 90B
2176    KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2177    KM    L=       2.0  Lca=      1.2   S=   15.3  Kn= .042  LAG=  49.8
2178    KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2179    BA     .82
2180    LG     .22      .25    4.65     .38   31.00
2181    UI     56.      56.    147.    232.    283.    327.    379.    444.    588.    709.
2182    UI    583.     490.    427.    359.    306.    259.    187.    117.     96.     91.
2183    UI     56.      56.     28.     17.     17.     17.     17.     17.     17.      0.
2184    UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
2185    UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
        *
        * DDM   ***** Preserved *****

2186    KK    R90B
2187    KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2188    DT    D90B      23
2189    DI       0   10000
2190    DQ       0   10000
        * DDM   ***** Preserved *****

2191    KK     C90
2192    KM   COMBINE FLOWS FROM 90A AND 90B
```

```
2193        HC       3
            *

2194        KK   90T91
2195        KM   REVISED 02.24.98 WITH RITTENHOUSE CHANNEL DESIGN (TYPICAL SECTION #3).
2196        KM
2197        RS       1    FLOW      -1
2198        RC    .025    .025    .025    6400   .0005
2199        RX       0      30      36      60      88     108     114     132
1                                          HEC-1 INPUT                                                    PAGE 58

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

2200        RY     9.7     7.5       6       0       0       6     7.5     9.7
            *

2201        KK      85
2202        KM   BASIN 85
2203        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2204        KM    L=      2.0  Lca=       .5   S=   15.0  Kn= .030  LAG=  25.8
2205        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2206        BA    1.00
2207        LG     .15     .25    4.35     .51   55.00
2208        UI    131.    422.    698.    929.   1452.   1359.    991.    725.    463.    226.
2209        UI    161.     89.     40.     40.     40.      0.      0.      0.      0.      0.
2210        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            * DDM   ***** Preserved *****

2211        KK     R85
2212        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2213        DT     D85      84
2214        DI       0   10000
2215        DQ       0   10000
            * DDM   ***** Preserved *****

2216        KK   85T86
2217        KM     ROUTE S85 TO S86 VIA WAFB SOUTH PERIMETER CHANNEL
2218        RS       4    FLOW      -1
2219        RC   0.055   0.035   0.055    5280   .0039
2220        RX       0     500    1000    1013    1028    1041    1541    2041
2221        RY     5.5       5     4.5       0       0     4.5       5     5.5
            *
            * DDM   ***** Updated *****

2222        KK      86
2223        KM   BASIN 86
2224        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2225        KM    L=      2.0  Lca=       .5   S=   15.0  Kn= .030  LAG=  25.8
2226        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2227        BA    1.00
2228        LG     .15     .25    4.55     .45   55.00
2229        UI    131.    420.    695.    925.   1446.   1354.    987.    722.    461.    225.
2230        UI    160.     89.     40.     40.     40.      0.      0.      0.      0.      0.
2231        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *
            * DDM   ***** Preserved *****

2232        KK     R86
2233        KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2234        DT     D86      85
2235        DI       0   10000
2236        DQ       0   10000
            *
            * DDM   ***** Preserved *****
1                                          HEC-1 INPUT                                                    PAGE 59

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

2237        KK     C86
2238        KM     COMBINE 85 AND 86 AT PECOS ROAD AND SOSSAMAN ROAD
2239        HC       2
            *
            * DDM   ***** Preserved *****

2240        KK   86T91
2241        KM     ROUTE S86 TO S91 VIA WAFB SOUTH PERIMETER CHANNEL. Grassy v=3ft/sec
2242        RS       6    FLOW      -1
2243        RC    0.05   0.035    0.05    5500   .0025
2244        RX       0     500    1000    1013    1028    1041    1541    2041
2245        RY     5.5       5     4.5       0       0     4.5       5     5.5
            *
            * DDM   ***** Updated *****

2246        KK      91
2247        KM   BASIN 91
2248        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2249        KM    L=      1.4  Lca=       .6   S=   18.4  Kn= .030  LAG=  22.7
2250        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
```

```
2251    BA     .46
2252    LG     .15     .25    4.65     .42   55.00
2253    UI     68.    262.    399.    586.    792.    554.    390.    234.    116.     73.
2254    UI     28.     21.     21.      0.      0.      0.      0.      0.      0.      0.
2255    UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
        *

2256    KK   RET91
2257    KM   RETAIN 100YR 2HR VOLUME
2258    DT     D91      38
2259    DI       0   10000
2260    DQ       0   10000
        *
        * DDM   ***** Preserved *****

2261    KK    CP91
2262    KM     COMBINE 91, 90, AND 86 AT EMF NEAR THE RITTENHOUSE CHANNEL
2263    HC       3
        *
        * DDM   ***** Preserved *****

2264    KK  91TEMF
2265    KM   ROUTE 91 TO EMF
2266    RS       4    FLOW      -1
2267    RC   0.035   0.022   0.035    4000   0.003
2268    RX       0     200     230     240     270     280     310     410
2269    RY       9       7       6       0       0       6       7       9
        *
        * DDM   ***** Preserved *****
```



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

2270    KK  EMFRIT   Revised by Dibble & Associates to remove combination at "RITTEN"
2271    KM   COMBINE HYDROGRAPHS EMFRT1 AND 91TEMF
2272    HC       2
        *
        *
        *
        *
2273    KM      *******  \/ \/ \/ modifications by Dibble & Associates \/ \/ \/ **********
2274    KM
2275    KM   On 12.16.97 - made changes to sub-basins 62C & 62D per County
2276    KM   On 12.17.97 - revised detention Basin DB82A1
2277    KM   On 12.18.97 - Siphon Draw basin to be on-line facility, rearranged sequence
2278    KM   On 12.19.97 - Basin MN4B near Powerline Floodway, data based on grading plan
2279    KM              - Revised Channel Routing parameters for Area 1
2280    KM   On 01.05.98 - Revised Detention Basin DB82A1 & DB82B.
2281    KM              - Coordinated file with FB.
2282    KM   On 01.12.98 - Revised Hydrology per County '97 Land Use Parameters
2283    KM              - File Updated by DDMS
2284    KM              - Retention revised per County '97 Land Use Parameters
2285    KM   On 01.14.98 - Revised routing along the Santan Alignment
2286    KM   On 01.19.98 - Revised channel routing parameters, Area 2 for channel design.
2287    KM   On 01.26.98 - Revised channel routing slopes in non-ADMP design areas to
2288    KM                 match the MAG97 values found in file FUTSOUTH.DAT from FCDMC
2289    KM   On 01.26.98 - Revised wording at CAP1A and CAP1B to reflect 217 cfs per
2290    KM                 overchute location, not per pipe.  This per Valerie Swick.
2291    KM   On 01.27.98 - Copied the KK 91 to KK EMFRIT sequence from FUTSOUTH.DAT
2292    KM                 and revised diagram sequence to add in Santan Fwy channel.
2293    KM   On 01.27.98 - Slope and NSTEPS values for some natural channels input from
2294    KM                 the District-supplied file "FUTSOUTH.DAT".
2295    KM   On 01.28.98 - Revised hydrograph names near EMF at Rittenhouse area.
2296    KM   On 02.12.98 - Revised minor station error in channel route 65AT66, RX record
2297    KM   On 02.23.98 - Revised per
2298    KM                 FCDMC comments:  Reworded KM record for route 65AT66.
2299    KM                                  Length for route 65T66 revised to 2400 feet.
2300    KM                                  KM added to 78B to explain why no retention.
2301    KM                                  Added channel route for CP82A4 to CP82A5.
2302    KM                                  Added 0.25 ratio @ Basin 75, removed retention
2303    KM   On 02.24.98 - Revised Rittenhouse Channel routing to reflect plans
2304    KM                 per FCD Contract No. 97-34 (Phase 2)
2305    KM
2306    KM   On 03.03.98 - Received This File as FINAL HYDROLOGY from the FCDMC
2307    KM   On 03.04.98 - Revised flow routing to show the PLF connecting to
2308    KM                 the Santan Channel.  Also re-ordered subbasin 80a
2309    KM                 to enter the system at the proper location.
2310    KM   On 03.06.98 - Revised KM record for EMFKNX to delete reference to C76A.
2311    KM   On 03.10.98 - Revised preliminary channel sizes from design data.
2312    KM                 Added routing reaches represented in design. (Area 1).
2313    KM   On 03.12.98 - Regraded Crismon Basin to avoid ADWR jurisdictional dam.
2314    KM   On 03.13.98 - Revised Siphon Draw Basin to avoid ADWR jurisdictional dam.
2315    KM   On 03.24.98 - Revised normal depth channel routing per Area 2 channel design.
2316    KM   On 04.22.98 - Submitted Hydrology to County.
2317    KM   On 05.20.98 - Revised Hydrology per County Comments
2318    KM   On 06.11.98 - Revised channel properties to reflect earth channels
2319    KM   On 06.12.98 - Submitted file to County (This is a pre-final submittal)
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2320          KM
2321          KM   On 06.18.98 - Added combine at Knox Road for better flowrate resolution.
2322          KM
2323          KM   On 07.17.98 - Revised per FCD review comments.  Channel routings revised to
2324          KM                  follow the ADMP Preliminary Design Plans.  More verbal
2325          KM                  descriptions for channel routings added.
2326          KM
2327          KM   On 07.24.98 - This is the final submittal HEC-1 input file.
2328          KM
2329          KM   On 08.06.98 -Back checked entire file against FCDMC review comments printout.
2330          KM
2331          KM   On 10.21.98 -Revised routing at Elliot basin for prelim. 30% design.
2332          KM
2333          KM   On 10.27.98 -Revised divert for retention at Elliot Basin.
2334          KM
2335          KM   On 01.15.99 -File submitted as part of Elliot Basin Addendum to the ADMP.
2336          KM
2337          KM      *******  ^^^^^ modifications by Dibble & Associates ^^^^^   **************
              *
2338          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

  95         SOSS
                V
                V
 100        RSOSS
                .
                .
 106            .         59A
                .           .
                .           .
 118            .           .------->    D59A
 116            .        R59A
                .           .
                .           .
 121        C59A............
                V
                V
 124       59A59B
                .
                .
 131            .         59B
                .           .
                .           .
 145            .           .------->    D59B
 143            .        R59B
                .           .
                .           .
 148        C59B............
                V
                V
 151       59BT60
                .
                .
 157            .          60
                .           .
                .           .
 174            .           .------->     D60
 172            .         R60
                .           .
                .           .
 177      EMFGUA............
                V
                V
 180      GUATEL
                .
                .
 186            .          64
                .           .
                .           .
 202            .           .------->     D64
 197            .         R64
                .           .
                .           .
 205      EMFELL............
                V
                V
 208      ELTWAR
                .
                .
 214            .         62A
                .           .
                .           .
```

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225          .          .-------->    D62A
223          .      R62A
             .         V
             .         V
228          .     62ATB
             .         .
             .         .
234          .         .        62B
             .         .          .
             .         .          .
245          .         .          .-------->    D62B
243          .         .      R62B
             .         .          .
             .         .          .
248          .      C62B............
             .         V
             .         V
251          .     62BTD
             .         .
             .         .
257          .         .        62D
             .         .          .
             .         .          .
270          .         .          .-------->    D62D
268          .         .      R62D
             .         .          .
             .         .          .
273          .     CP62D...........
             .         V
             .         V
276          .     62DTF
             .         .
             .         .
282          .         .        62F
             .         .          .
             .         .          .
294          .         .          .-------->    D62F
292          .         .      R62F
             .         .          .
             .         .          .
297          .     CP62F...........
             .         V
             .         V
300          .     62T63
             .         .
             .         .
307          .         .         63
             .         .          .
             .         .          .
319          .         .          .-------->     D63
317          .         .        R63
             .         .          .
             .         .          .
322          .      CP63...........
             .         V
             .         V
325          .     63T71
             .         .
             .         .
332          .         .        68B
             .         .          .
             .         .          .
343          .         .          .-------->    D68B
341          .         .        R68
             .         .          V
             .         .          V
346          .         .     68BT69
             .         .          .
             .         .          .
352          .         .          .         69
             .         .          .          .
             .         .          .          .
363          .         .          .          .-------->     D69
361          .         .          .        R69
             .         .          .          .
             .         .          .          .
366          .         .        C69...........
             .         .          V
             .         .          V
369          .         .     69T71
             .         .          .
             .         .          .
375          .         .          .         71
             .         .          .          .
             .         .          .          .
387          .         .          .          .-------->     D71
385          .         .          .        R71
             .         .          .          .
             .         .          .          .
390          .      C71........................
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                 .          V
                 .          V
 396             .      71T72
                 .          .
                 .          .
 403             .          .          72
                 .          .           .
                 .          .           .
 415             .          .           .-------->     D72
 413             .          .        R72
                 .          .           .
                 .          .           .
 418       EMFWAR.......................
                 V
                 V
 421       WARTKN
                 .
                 .
 427             .       70B
                 .          .
                 .          .
 439             .          .-------->    D70B
 437             .      R70B
                 .          V
                 .          V
 442             .     70BT76
                 .          .
                 .          .
 448             .          .         76B
                 .          .           .
                 .          .           .
 460             .          .           .-------->    D76B
 458             .          .        R76B
                 .          .           .
                 .          .           .
 463             .      KNOX............
                 .          .
                 .          .
 466       EMFKNX............
                 V
                 V
 470       KNXTRY
                 .
                 .
 476             .        65A
                 .          .
                 .          .
 489             .          .-------->    D65A
 487             .      R65A
                 .          .
                 .          .
 492             .          .      CAP1A
                 .          .          V
                 .          .          V
 501             .          .     RCAP1A
                 .          .          V
                 .          .          V
 511             .          .     RRCP1A
                 .          .           .
                 .          .           .
 519             .          .           .      CAP1B
                 .          .           .          V
                 .          .           .          V
 528             .          .           .     RCAP1B
                 .          .           .          .
                 .          .           .          .
 536             .     C65A1........................
                 .          V
                 .          V
 539             .     65ATB1
                 .          .
                 .          .
 550             .          .-------->    DB65A
 547             .     DIDB65
                 .          V
                 .          V
 553             .     65B1T2
                 .          .
                 .          .
 562             .          .           .<--------    DB65A
 560             .          .     DIB65P
                 .          .          V
                 .          .          V
 563             .          .      DB65A
                 .          .           .
                 .          .           .
 572             .     C65A2............
                 .          V
                 .          V
 575             .     65AT-1
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                .          V
                .          V
583             .     65AT-2
                .          .
                .          .
592             .          .       65AW
                .          .          .
                .          .          .
604             .          .          .-------->  D65AW
602             .          .     R65AW
                .          .          V
                .          .          V
607             .          .    65AT65
                .          .          .
                .          .          .
614             .          .          .        65B
                .          .          .          .
                .          .          .          .
627             .          .          .          .-------->   D65B
625             .          .          .       R65B
                .          .          .          .
                .          .          .          .
630             .          .     CP65B............
                .          .          .
                .          .          .
637             .          .          .-------> DIRS65
634             .          .     DI65B
                .          .          .
                .          .          .
640             .     CP65A............
                .          V
                .          V
644             .     65AT-3
                .          V
                .          V
653             .     65T66
                .          .
                .          .
663             .          .          .<-------- DIRS65
661             .          .     DR65B
                .          .          V
                .          .          V
664             .          .     RS65A
                .          .          .
                .          .          .
671             .     CP65B............
                .          .
                .          .
675             .          .    ADOT-E
                .          .          V
                .          .          V
680             .          .    AET67A
                .          .          .
                .          .          .
687             .          .          .        67A
                .          .          .          .
                .          .          .          .
699             .          .          .          .-------->   D67A
697             .          .          .       R67A
                .          .          .          .
                .          .          .          .
702             .          .      C67A............
                .          .          V
                .          .          V
705             .          .     67ATC
                .          .          .
                .          .          .
711             .          .          .       SUP2
                .          .          .          V
                .          .          .          V
715             .          .          .      RSUP2
                .          .          .          .
                .          .          .          .
722             .          .          .          .        67B
                .          .          .          .          .
                .          .          .          .          .
734             .          .          .          .          .-------->   D67B
732             .          .          .          .       R67B
                .          .          .          .          .
                .          .          .          .          .
737             .          .          .       C67B............
                .          .          .          V
                .          .          .          V
740             .          .          .      67BTC
                .          .          .          .
                .          .          .          .
748             .          .          .          .        67C
                .          .          .          .          .
                .          .          .          .          .
761             .          .          .          .          .-------->   D67C
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759                                                R67C
764                        C67C.......................
                              V
                              V
767                       67CT67
775                                        67D
787                                                .-------->    D67D
785                                       R67D
790                        C67D............
                              V
                              V
793                       67DT66
801                                        66A
813                                                .-------->    D66A
811                                       R66A
                                             V
                                             V
816                                      66ATB
822                                                      66B
835                                                          .-------->    D66B
833                                                     R66B
838                                      CP66B............
                                             V
                                             V
841                                      66BTC
847                                                      66C
859                                                          .-------->    D66C
857                                                     R66C
862                                    CP66C1............
866                       CP66C2............
873                                .-------->    DB66
870                        DI66
                              V
                              V
876                       66C1T2
885                  CP66C............
                        V
                        V
888                  66CTD
899                                <--------    DB66
897                        DR66
                              V
                              V
900                       RS66D1
                              V
                              V
908                       RS66D2
916                  CP66D............
                        V
                        V
920                 66T66D
928                        66D
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940                  .-------> D66D
937              R66D
                     .
943                  .      61A
                     .       .
955                  .       .-------> D61A
953                  .     R61A
                     .       V
                     .       V
958                  .     61ATB
                     .       .
964                  .       .      61B
                     .       .       .
977                  .       .       .-------> D61B
975                  .       .     R61B
                     .       .       .
980                  .     CP61B.............
                     .       V
                     .       V
983                  .     61T66D
                     .       .
990                  .       .      67E
                     .       .       .
1003                 .       .       .-------> D67E
1000                 .       .     R67E
                     .       .       .
1006                 .     C67E.............
                     .       .
1009             C66D........................
                   V
                   V
1012           66T70B
                     .
1019             62C
                     .
1031                 .-------> D62C
1029             R62C
                   V
                   V
1034            62CTE
                     .
1041                 .      62E
                     .       .
1053                 .       .-------> D62E
1051                 .     R62E
                     .       .
1056            CP62E............
                   V
                   V
1059            62T68A
                     .
1066                 .      68A
                     .       .
1077                 .       .-------> D68A
1075                 .     R68A
                     .       .
1080            CP68A............
                   V
                   V
1083            68T70A
                     .
1091                 .      70A
                     .       .
1102                 .       .-------> D70A
1100                 .     R70A
                     .       .
1105            C70A............
                     .
1108           C70A2............
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                 .          V
                 .          V
1112             .     70T76A
                 .          .
                 .          .
1120             .          .        76A
                 .          .          .
                 .          .          .
1133             .          .          .-------->    D76A
1131             .          .       R76A
                 .          .          .
                 .          .          .
1136             .     C76A............
                 .          V
                 .          V
1139             .     76ATPR
                 .          .
                 .          .
1147             .          .        73A
                 .          .          V
                 .          .          V
1161             .          .      73ATB
                 .          .          .
                 .          .          .
1167             .          .          .         73B
                 .          .          .           .
                 .          .          .           .
1179             .          .          .           .-------->    D73B
1177             .          .          .        R73B
                 .          .          .           .
                 .          .          .           .
1182             .          .      CP73B............
                 .          .          V
                 .          .          V
1185             .          .      73BTC
                 .          .          .
                 .          .          .
1192             .          .          .         73C
                 .          .          .           .
                 .          .          .           .
1203             .          .          .           .-------->    D73C
1201             .          .          .        R73C
                 .          .          .           .
                 .          .          .           .
1206             .          .      CP73C............
                 .          .          V
                 .          .          V
1209             .          .     73T74C
                 .          .          .
                 .          .          .
1215             .          .          .         74A
                 .          .          .           V
                 .          .          .           V
1229             .          .          .       DB74A
                 .          .          .           V
                 .          .          .           V
1239             .          .          .       74ATB
                 .          .          .           .
                 .          .          .           .
1245             .          .          .           .         74B
                 .          .          .           .           .
                 .          .          .           .           .
1257             .          .          .           .           .-------->    D74B
1255             .          .          .           .       R74B
                 .          .          .           .           .
                 .          .          .           .           .
1260             .          .          .       CP74B............
                 .          .          .           V
                 .          .          .           V
1263             .          .          .       74BTC
                 .          .          .           .
                 .          .          .           .
1269             .          .          .           .         74C
                 .          .          .           .           .
                 .          .          .           .           .
1280             .          .          .           .           .-------->    D74C
1278             .          .          .           .       R74C
                 .          .          .           .           .
                 .          .          .           .           .
1283             .          .      CP74C........................
                 .          .          V
                 .          .          V
1286             .          .     74CT75
                 .          .          .
                 .          .          .
1293             .          .          .         75
                 .          .          .           .
                 .          .          .           .
1314             .          .        C75............
                 .          .          V
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                 .         .         V
1317             .         .     75TPC
                 .         .         .
                 .         .         .
1323             .         .         .      77A
                 .         .         .       V
                 .         .         .       V
1339             .         .         .     77ATB
                 .         .         .         .
                 .         .         .         .
1345             .         .         .         .        77B
                 .         .         .         .         .
                 .         .         .         .         .
1357             .         .         .         .         .-------->    D77B
1355             .         .         .         .      R77B
                 .         .         .         .         .
                 .         .         .         .         .
1360             .         .         .      CP77B............
                 .         .         .       V
                 .         .         .       V
1363             .         .         .     77BTC
                 .         .         .         .
                 .         .         .         .
1370             .         .         .         .        77C
                 .         .         .         .         .
                 .         .         .         .         .
1381             .         .         .         .         .-------->    D77C
1379             .         .         .         .      R77C
                 .         .         .         .         .
                 .         .         .         .         .
1384             .         .         .      C77C............
                 .         .         .       V
                 .         .         .       V
1387             .         .         .     77CT78
                 .         .         .         .
                 .         .         .         .
1392             .         .         .         .        78A
                 .         .         .         .         V
                 .         .         .         .         V
1408             .         .         .         .      78ATB
                 .         .         .         .         .
                 .         .         .         .         .
1414             .         .         .         .         .         78B
                 .         .         .         .         .          .
                 .         .         .         .         .          .
1426             .         .         .         .      C78B............
                 .         .         .         .         V
                 .         .         .         .         V
1429             .         .         .         .      78BTC
                 .         .         .         .         .
                 .         .         .         .         .
1436             .         .         .         .         .         78C
                 .         .         .         .         .          .
                 .         .         .         .         .          .
1447             .         .         .         .         .          .-------->    D78C
1445             .         .         .         .         .       R78C
                 .         .         .         .         .          .
                 .         .         .         .         .          .
1450             .         .         .      C78C........................
                 .         .         .       V
                 .         .         .       V
1453             .         .         .     78CT79
                 .         .         .         .
                 .         .         .         .
1460             .         .         .         .        79A
                 .         .         .         .         .
                 .         .         .         .         .
1475             .         .         .      C79A1............
                 .         .         .         .
                 .         .         .         .
1478             .         .         .         .        78F
                 .         .         .         .         .
                 .         .         .         .         .
1495             .         .         .         .         .         82A1
                 .         .         .         .         .          .
                 .         .         .         .         .          .
1510             .         .         .         .      C82A1............
                 .         .         .         .         V
                 .         .         .         .         V
1514             .         .         .         .     DB82A1
                 .         .         .         .         V
                 .         .         .         .         V
1523             .         .         .         .      PS-9
                 .         .         .         .         .
                 .         .         .         .         .
1530             .         .         .         .         .         CAP2
                 .         .         .         .         .           V
                 .         .         .         .         .           V
1539             .         .         .         .         .        RCAP2
                 .         .         .         .         .           .
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1546                                  82A2
                                        .
1566                            CP82A2.........
                                        .
1569                                  82A4
                                        V
                                        V
1585                                82A4T3
                                        .
1592                                        .        82A3
                                        .            .
1609                                CP82A3.........
                                        .
1612                            CP82A5.........
                                      V
                                      V
1615                             DB82B
                                      V
                                      V
1624                             MN-1
                                        .
1631                      CP82A6.........
                                V
                                V
1634                      82TBOX
                                V
                                V
1641                      BOXCLV
                                V
                                V
1648                      BOXT78
                                .
1655                             78D
                                        .
                                        .-------->   D78D
1667
1665                             R78D
                                        .
1670                                  82B
                                        .
                                        .-------->   D82
1682
1680                                  R82
                                        .
                                        .-------->   TRW
1688
1685                                DTTRW
                                        .
1691                      C78D........................
                                V
                                V
1695                      78DTR
                                .
1702                             78E
                                        .
1714                                  83
                                        .
                                        .-------->   D83
1726
1724                                  R83
                                        .
1729                      C78E........................
                                V
                                V
1732                      78ET84
                                .
1740                             84
                                        .
                                        .-------->   D84
1752
1750                             R84
                                        .
1755                        C84............
                                V
                                V
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1759          .           .           .           .       84T79B
              .           .           .           .           .
              .           .           .           .           .          79B
1768          .           .           .           .           .           .
              .           .           .           .           .           .
1781          .           .           .           .      C79B1............
              .           .           .           .           V
              .           .           .           .           V
1784          .           .           .           .      79BTB2
              .           .           .           .           .
              .           .           .           .           .
1792          .           .           .      C79B2............
              .           .           .           V
              .           .           .           V
1795          .           .           .      79TPC2
              .           .           .           .
              .           .           .           .
1803          .           .      CPPWR............
              .           .           V
              .           .           V
1807          .           .      PWRT80
              .           .           .
              .           .           .
1814          .           .           .        80A
              .           .           .           .
              .           .           .           .
1828          .           .           .           .-------->   D80A
1826          .           .           .       R80A
              .           .           .           .
              .           .           .           .
1831          .           .      CP80A............
              .           .           V
              .           .           V
1835          .           .      PWRSAN
              .           .           .
              .           .           .
1842          .      CPSAN............
              .           V
              .           V
1846          .      PWREMF
              .           .
              .           .
1854     EMFPOW............
              V
              V
1857     POWTWI
              .
              .
1864          .        80B
              .           .
              .           .
1877          .           .-------->   D80B
1875          .       R80B
              .           .
              .           .
1880     MFWILL............
              V
              V
1884     WILTSP
              .
              .
1891          .        81A
              .           .
              .           .
1905          .           .-------->   D81A
1903          .       R81A
              .           V
              .           V
1908          .      81ATB
              .           .
              .           .
1914          .           .        81B
              .           .           .
              .           .           .
1926          .           .           .-------->   D81B
1924          .           .       R81B
              .           .           .
              .           .           .
1929          .        C81............
              .           .
              .           .
1932     EMFRT1............
              .
              .
1936          .     SUB258
              .           .
              .           .
1944          .           .-------->   D258
1942          .       R258
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                 .        V
                 .        V
1947             .     RO259
                 .        .
                 .        .
1950             .        .     SUB260
                 .        .        .
                 .        .        .
1957             .        .        .-------->    D260
1955             .        .     R260
                 .        .        .
                 .        .        .
1960             .     CO262............
                 .        V
                 .        V
1963             .     RO263
                 .        .
                 .        .
1966             .        .     SUB264
                 .        .        .
                 .        .        .
1973             .        .        .-------->    D264
1971             .        .     R264
                 .        .        .
                 .        .        .
1976             .     CO266............
                 .        V
                 .        V
1979             .     RO267
                 .        .
                 .        .
1982             .        .     SUB268
                 .        .        .
                 .        .        .
1989             .        .        .-------->    D268
1987             .        .     R268
                 .        .        .
                 .        .        .
1992             .     CO270............
                 .        V
                 .        V
1995             .     RO283
                 .        .
                 .        .
1998             .        .      88A
                 .        .        .
                 .        .        .
2009             .        .        .-------->    D88A
2007             .        .     R88A
                 .        .        V
                 .        .        V
2012             .        .    88AT89
                 .        .        .
                 .        .        .
2020             .        .        .        89A
                 .        .        .         .
                 .        .        .         .
2031             .        .        .         .-------->    D89A
2029             .        .        .       R89A
                 .        .        .         .
                 .        .        .         .
2034             .        .     C89A............
                 .        .        V
                 .        .        V
2037             .        .    89ATRI
                 .        .        .
                 .        .        .
2045             .     C283............
                 .        V
                 .        V
2049             .    283T90
                 .        .
                 .        .
2060             .        .      90A
                 .        .        .
                 .        .        .
2071             .        .        .-------->    D90A
2069             .        .     R90A
                 .        .        .
                 .        .        .
2074             .     C90A............
                 .        V
                 .        V
2077             .    90ATB
                 .        .
                 .        .
2085             .        .      87A
                 .        .        .
                 .        .        .
2096             .        .        .-------->    D87A
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2094                R87A
                      V
                      V
2099               87ATB
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2105                     87B
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2116                     .-------> D87B
2114                 R87B
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2119                C87............
                      V
                      V
2122              87T88B
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2128                     88B
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2139                     .-------> D88B
2137                 R88B
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2142                C88B...........
                      V
                      V
2145              88T89B
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2151                     89B
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2162                     .-------> D89B
2160                 R89B
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2165                C89B...........
                      V
                      V
2168              89TB90
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2174                     90B
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2188                     .-------> D90B
2186                 R90B
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2191            C90........................
                  V
                  V
2194            90T91
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2201                85
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                      .
2213                  .-------> D85
2211                R85
                      V
                      V
2216              85T86
                      .
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2222                     86
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                         .
2234                     .-------> D86
2232                 R86
                         .
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2237                C86............
                      V
                      V
2240              86T91
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                      .
2246                     91
                         .
                         .
2258                     .-------> D91
2256               RET91
                         .
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2261            CP91........................
                  V
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                    .          V
 2264               .       91TEMP
                    .          .
                    .          .
 2270       EMFRIT............

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1*****************************************                    *****************************************
*                                         *                    *                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)     *                    *   U.S. ARMY CORPS OF ENGINEERS        *
*              JUN   1998                 *                    *   HYDROLOGIC ENGINEERING CENTER       *
*           VERSION 4.1                   *                    *         609 SECOND STREET             *
*                                         *                    *      DAVIS, CALIFORNIA 95616          *
*  RUN DATE   07SEP99  TIME  16:30:22     *                    *         (916) 756-1104                *
*                                         *                    *                                       *
*****************************************                    *****************************************

                    PRODUCED BY DIBBLE AND ASSOCIATES AND HOSKIN ENGINEERING CONSULTANTS.
                    REVISED - MAY, 1999 BY VAS TO INCORPORATE INCREASE OF SUBBASIN RETENTION AND
                              REVISIONS TO THE REGIONAL DETENTION BASIN STORAGE
                    REVISED - FEB, 1999 BY VALERIE SWICK, FCD OF MARICOPA COUNTY
                    REVISED - MAY, 1998 BY D&A

                    REVISED BY VALERIE SWICK, FEB. 26, 1998

                    FLOWS FROM DETENTION BASIN LOCATED AT NE CORNER OF ELLIOT AND ELLSWORTH ROADS
                    IS ROUTED TO THE SOUTHWEST BY SIPHON DRAW TO SUBBASIN 70A. FROM THERE THEY
                    WILL BE ROUTED BY A CHANNEL TO THE EMF. FLOWS FROM SUBBASINS ADJACENT TO
                    SANTAN FREEWAY ALIGNMENT WILL BE ROUTED SOUTH TO SUBBASIN 70A WHERE THEY WILL
                    BE COMBINED WITH FLOW IN SIPHON DRAW.

                    EAST MESA AREA DRAINAGE MASTER PLAN
                    AREA SOUTH OF SUPERSTITION (U.S. HWY 60)
                    AUGUST 1997
                    SOUTHEAST MESA HIGH RESOLUTION MODEL

                    ***********FUTURE CONDITION MODEL OF THE WATERSHED************************

                  ************ATTENTION*************************************************************
                     SUBBASINS 75, 79A, 79B, 78E,  LANDUSES WERE NOT
                     CHANGED BECAUSE IT WAS FELT THAT THEIR FUTURE CONDITIONS LANDUSES WOULD BE
                     SIMILAR TO THE EXISTING CONDITIONS LANDUSES.
                     RETENTION VOLUMES WILL ALSO NOT BE UTILIZED FOR SUBBASINS 75, 79A, 79B, 78E
                     SOME QUEEN CREEK SUBBASINS WILL ALSO NOT HAVE RETENTION VOLUMES, EITHER
                     BECAUSE THEY LIE IN PINAL COUNTY AND WE DONT KNOW PINAL COUNTIES PLANS OR
                     THEY LIE IN THE SANTAN MOUNTAINS AND WON'T GET DEVELOPED
                     WILLIAMS GATEWAY AIRPORT (SUBBASINS 80A, 80B, 81A, AND 81B) ARE MODELED AS
                     FUTURE CONDITIONS AND HAVE RETENTION VOLUMES FOR THE 100YR 2HR STORM
                  ***************************************************************************
                    FILENAME:  SDIBB.DAT

                    THIS MODEL REPRESENTS THE FUTURE CONDITION OF THE WATERSHED.
                    TOTAL DRAINAGE AREA IS APPROXIMATELY 213 SQ. MI.
                    THIS MODEL USES A Kn VALUE OF 0.09 FOR DESERT LAND USE DUE TO SHEET FLOW
                    CONDITIONS.

                    100-YEAR 24-HOUR FREQUENCY
                    AREAL REDUCTIONS FROM FCD HYDROLOGY MANUAL
                    THIS MODEL INCLUDES INFLOW FROM NORTH OF THE SUPERSTITION FREEWAY
                    AND EAST OF THE CAP

                    DATA FROM THE QUEEN CREEK ADMS HAS BEEN ADDED TO CALCULATE FLOWS INTO THE
                    EMF.   MUSKINGUM ROUTING NSTEPS WERE ADJUSTED TO BE WITHIN THE SUGGESTED
                    RANGE.

                    METHODOLOGY
                    THE US CORPS OF ENGINEERS FLOOD HYDROLOGY MODEL HEC-1 DATED SEP1990 VER 4.0
                    SCS TYPE II RAINFALL DISTRIBUTION
                    S-GRAPH HYDROGRAPH
                    GREEN AND AMPT INFILTRATION EQUATION USED FOR CALCULATING LOSSES
                    NORMAL DEPTH STORAGE CHANNEL ROUTING
                    APPROXIMATE DIRECTION, LOCATION, AND LENGTH OF THE WASHES HAVE BEEN
                    EVALUATED BASED ON FIELD INVESTIGATION, USGS MAPS, LANDIS AERIAL SURVEYS
                    DATED 1994
                    THE NOAA TECHNICAL MEMORANDUM NOAA ATLAS 2 DEPTH AREA RATIOS

                    ORIGINAL STUDY PERFORMED BY LISA C. YOUNG AND AFSHIN AHOURAIYAN, UPDATED BY
                    DAVID DEGERNESS (OCT-DEC, 1996). REVIEWED BY VALERIE A. SWICK
                    AND AMIR MOTAMEDI OF THE FLOOD CONTROL DISTRICT
                    HYDROLOGY BRANCH ENGINEERING DIVISION, FLOOD CONTROL
                    DISTRICT OF MARICOPA COUNTY, DECEMBER - JULY 1995.

                    ASSUMED VELOCITY OF 1 FT/SEC FOR SHEET FLOW, 2-3 FT/SEC FOR WASH/NATURAL
                    CHANNEL, 3 FT/SEC FOR ROAD AND GRASS CHANNEL, 10FT/SEC FOR CONCRETE CHANNEL

                    VELOCITIES FOR ADMP IMPROVEMENT CHANNELS FROM DIBBLE AND ASSOCIATES
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                    SUGGESTED ALTERNATIVES (JULY 1, 1997)

                    NOTE: MUST USE NDIBF.DSS AS THE DSS FILE TO IMPORT FLOWS ACROSS THE
                          SUPERSTITION FREEWAY.

                    DDM MCUHP2 SE MESA ADMP - SOUTH OF SUPERSTITION FWY, FUTURE CONDITIONS

 78 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     1APR97  STARTING DATE
                      ITIME       0000  STARTING TIME
                         NQ        800  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     3APR97  ENDING DATE
                     NDTIME       1835  ENDING TIME
                      ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   66.58 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

 80 JD          INDEX STORM NO. 1
                      STRM        3.60  PRECIPITATION DEPTH
                      TRDA         .01  TRANSPOSITION DRAINAGE AREA

 81 PI            PRECIPITATION PATTERN
                    .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
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 91 JD          INDEX STORM NO. 2
                      STRM        3.38  PRECIPITATION DEPTH
                      TRDA       10.00  TRANSPOSITION DRAINAGE AREA

  0 PI            PRECIPITATION PATTERN
                    .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
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 92 JD        INDEX STORM NO. 3
                  STRM        3.24  PRECIPITATION DEPTH
                  TRDA       30.00  TRANSPOSITION DRAINAGE AREA

  0 PI          PRECIPITATION PATTERN
                  .00      .00      .00      .00      .00      .00      .00      .00      .00      .00
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 93 JD        INDEX STORM NO. 4
                  STRM        3.10  PRECIPITATION DEPTH
                  TRDA       60.00  TRANSPOSITION DRAINAGE AREA

  0 PI          PRECIPITATION PATTERN
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 94 JD        INDEX STORM NO. 5
                  STRM        3.05  PRECIPITATION DEPTH
                  TRDA       90.00  TRANSPOSITION DRAINAGE AREA

  0 PI          PRECIPITATION PATTERN
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-----DSS---ZOPEN:  Existing File Opened,  File: NDIBF.DSS
                   Unit:  71;  DSS Version: 6-JG
      ----- Entering ZRRTSX for unit 71 -----
Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW//5MIN/100YR/
      Time Window set.  Interval:      5  Number of data values:        1
      Starting date and time:  Mar 31, 1997  2400  ( 35519 1440)
      Ending   date and time:  Mar 31, 1997  2400  ( 35519 1440)
      Input time offset:       0
      After ZRDINF, Record found: T
      Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:  0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:    1   NVALS:    1   JULS:    35519  ISTIME:  1440
      NLDATA:  288   JULSD:   35519
      JULS: 31MAR97        JULSD: 31MAR97
      Quality Read: F,  Quality Requested: F
      ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:     1  ILIM:      1
     ----- Exiting ZRRTS, Number of data values:        1,  Status:  0
      Offset:          0,  Units: CFS      ,  Type:INST-VAL
      ----- Entering ZRRTSX for unit 71 -----
Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW//5MIN/100YR/
      Time Window set.  Interval:      5  Number of data values:      744
      Starting date and time:  Mar 31, 1997  2400  ( 35519 1440)
      Ending   date and time:  Apr 3, 1997  1355  ( 35522  835)
      Input time offset:       0
      After ZRDINF, Record found: T
      Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:  0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:    1   NVALS:  744   JULS:    35519  ISTIME:  1440
      NLDATA:  288   JULSD:   35519
      JULS: 31MAR97        JULSD: 31MAR97
      Quality Read: F,  Quality Requested: F
      ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:     1  ILIM:      1
      After ZRDINF, Record found: T
      Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:  0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:    2   NVALS:  744   JULS:    35519  ISTIME:  1440
      NLDATA:  288   JULSD:   35520
      JULS: 31MAR97        JULSD: 01APR97
      Quality Read: F,  Quality Requested: F
      ---ZRRTSB Calculations:  NPOS:     1  NDATA:  288  NREAD:  288  ILIM:  289
      After ZRDINF, Record found: T
      Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
      Number of actual data:  288  Header length:   0
      Compression:  0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
     ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
      NSTART:  290   NVALS:  744   JULS:    35519  ISTIME:  1440
      NLDATA:  288   JULSD:   35521
      JULS: 31MAR97        JULSD: 02APR97
      Quality Read: F,  Quality Requested: F
      ---ZRRTSB Calculations:  NPOS:     1  NDATA:  288  NREAD:  288  ILIM:  577
      After ZRDINF, Record found: T
      Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
```

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        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  578   NVALS:  744    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35522
        JULS: 31MAR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations;  NPOS:    1  NDATA:  288  NREAD:  167  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
        Offset:        0,  Units: CFS      ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Apr 3, 1997  1355  (  35522  835)
        Ending   date and time:  Apr 3, 1997  1355  (  35522  835)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35522
        JULS: 03APR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  167  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:        0,  Units: CFS      ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Apr 3, 1997  1355  (  35522  835)
        Ending   date and time:  Apr 6, 1997  0350  (  35525  230)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35522
        JULS: 03APR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  167  NDATA:  288  NREAD:  122  ILIM:  122
        After ZRDINF, Record found: T
        Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/04APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/04APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  123   NVALS:  744    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35523
        JULS: 03APR97       JULSD: 04APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  410
        After ZRDINF, Record found: T
        Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/05APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/05APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  411   NVALS:  744    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35524
        JULS: 03APR97       JULSD: 05APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  698
        After ZRDINF, Record found: T
        Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/06APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    2:  /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/06APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  699   NVALS:  744    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35525
        JULS: 03APR97       JULSD: 06APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   46  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
        Offset:        0,  Units: CFS      ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Mar 31, 1997  2400  (  35519 1440)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
```

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        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:        0,  Units: CFS      ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Apr 3, 1997  1355  (  35522  835)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    2   NVALS:  744    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35520
        JULS: 31MAR97       JULSD: 01APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  289
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  290   NVALS:  744    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35521
        JULS: 31MAR97       JULSD: 02APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  577
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  578   NVALS:  744    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35522
        JULS: 31MAR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  167  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
        Offset:        0,  Units: CFS      ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Apr 3, 1997  1355  (  35522  835)
        Ending   date and time:  Apr 3, 1997  1355  (  35522  835)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35522
        JULS: 03APR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  167  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:        0,  Units: CFS      ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Apr 3, 1997  1355  (  35522  835)
        Ending   date and time:  Apr 6, 1997  0350  (  35525  230)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
```

```
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35522
        JULS: 03APR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  167  NDATA:  288  NREAD:  122  ILIM:  122
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/04APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/04APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  123   NVALS:  744    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35523
        JULS: 03APR97       JULSD: 04APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  410
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/05APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/05APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  411   NVALS:  744    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35524
        JULS: 03APR97       JULSD: 05APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  698
        After ZRDINF, Record found: T
        Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/06APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT EAST BASIN/AT SUPERSTITION/FLOW/06APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  699   NVALS:  744    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35525
        JULS: 03APR97       JULSD: 06APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   46  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
        Offset:        0,  Units: CFS      ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Mar 31, 1997  2400  (  35519 1440)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:        0,  Units: CFS      ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Mar 31, 1997  2400  (  35519 1440)
        Ending   date and time:  Apr 3, 1997  1355  (  35522  835)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/31MAR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35519
        JULS: 31MAR97       JULSD: 31MAR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  288  NDATA:  288  NREAD:    1  ILIM:    1
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/01APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    2   NVALS:  744    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35520
        JULS: 31MAR97       JULSD: 01APR97
        Quality Read: F,  Quality Requested: F
```

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        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  289
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
 -----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/02APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  290   NVALS:  744    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35521
        JULS: 31MAR97       JULSD: 02APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  577
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
 -----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  578   NVALS:  744    JULS:   35519  ISTIME:  1440
        NLDATA:  288   JULSD:   35522
        JULS: 31MAR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  167  ILIM:  744
      ----- Exiting ZRRTS, Number of data values:    744,  Status:  0
        Offset:       0,  Units: CFS      ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
 Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:      1
        Starting date and time:  Apr 3, 1997  1355  (  35522  835)
        Ending   date and time:  Apr 3, 1997  1355  (  35522  835)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
 -----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:    1    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35522
        JULS: 03APR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  167  NDATA:  288  NREAD:    1  ILIM:    1
      ----- Exiting ZRRTS, Number of data values:      1,  Status:  0
        Offset:       0,  Units: CFS      ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
 Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW//5MIN/100YR/
        Time Window set.  Interval:     5  Number of data values:    744
        Starting date and time:  Apr 3, 1997  1355  (  35522  835)
        Ending   date and time:  Apr 6, 1997  0350  (  35525  230)
        Input time offset:      0
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
 -----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/03APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:    1   NVALS:  744    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35522
        JULS: 03APR97       JULSD: 03APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:  167  NDATA:  288  NREAD:  122  ILIM:  122
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/04APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
 -----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/04APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  123   NVALS:  744    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35523
        JULS: 03APR97       JULSD: 04APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  410
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/05APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
 -----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/05APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  411   NVALS:  744    JULS:   35522  ISTIME:   835
        NLDATA:  288   JULSD:   35524
        JULS: 03APR97       JULSD: 05APR97
        Quality Read: F,  Quality Requested: F
        ---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:  288  ILIM:  698
        After ZRDINF, Record found: T
        Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/06APR1997/5MIN/100YR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
 -----DSS--- ZREAD Unit  71; Vers.    1:  /ADOT WEST BASIN/AT SUPERSTITION/FLOW/06APR1997/5MIN/100YR/
      ----DSS---Debug:  Enter ZRRTSB;  Unit:  71
        NSTART:  699   NVALS:  744    JULS:   35522  ISTIME:   835
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NLDATA:  288   JULSD:   35525
JULS: 03APR97        JULSD: 06APR97
Quality Read: F,  Quality Requested: F
---ZRRTSB Calculations:  NPOS:    1  NDATA:  288  NREAD:   46  ILIM:  744
----- Exiting ZRRTS, Number of data values:    744,  Status:  0
Offset:        0,  Units: CFS      ,  Type:INST-VAL

                                        HYDROGRAPH MULTIPLIED BY   .25

                                        HYDROGRAPH MULTIPLIED BY   .25

                                        HYDROGRAPH MULTIPLIED BY   .25

                                        HYDROGRAPH MULTIPLIED BY   .25

                                        HYDROGRAPH MULTIPLIED BY   .25

WARNING --- ROUTED OUTFLOW (    316.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    342.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    359.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    369.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    371.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    367.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    359.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    347.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    332.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    317.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    302.) IS GREATER THAN MAXIMUM OUTFLOW (    298.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    666.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    689.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    709.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    726.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    740.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    750.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    755.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    756.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    754.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    749.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    743.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    737.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    730.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    722.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    711.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    697.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    680.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (    662.) IS GREATER THAN MAXIMUM OUTFLOW (    654.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   6412.) IS GREATER THAN MAXIMUM OUTFLOW (   6388.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   6554.) IS GREATER THAN MAXIMUM OUTFLOW (   6388.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   6622.) IS GREATER THAN MAXIMUM OUTFLOW (   6388.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   6619.) IS GREATER THAN MAXIMUM OUTFLOW (   6388.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   6557.) IS GREATER THAN MAXIMUM OUTFLOW (   6388.) IN STORAGE-OUTFLOW TABLE

WARNING --- ROUTED OUTFLOW (   6453.) IS GREATER THAN MAXIMUM OUTFLOW (   6388.) IN STORAGE-OUTFLOW TABLE
1
                                        RUNOFF SUMMARY
                                   FLOW IN CUBIC FEET PER SECOND
                                TIME IN HOURS,  AREA IN SQUARE MILES
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	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	SOSS	1800.	12.58	574.	205.	86.	12.50		
+	ROUTED TO	RSOSS	1787.	12.75	572.	204.	85.	12.50		
+	HYDROGRAPH AT	59A	292.	12.33	40.	12.	4.	.26		
+	DIVERSION TO	D59A	4.	8.42	3.	1.	0.	.26		
+	HYDROGRAPH AT	R59A	292.	12.33	40.	11.	4.	.26		
+	2 COMBINED AT	C59A	1898.	12.67	606.	215.	89.	12.76		
+	ROUTED TO	S9A59B	1882.	12.83	603.	215.	89.	12.76		
+	HYDROGRAPH AT	59B	606.	12.83	126.	37.	14.	.94		
+	DIVERSION TO	D59B	606.	12.83	118.	32.	11.	.94		
+	HYDROGRAPH AT	R59B	57.	13.58	17.	6.	2.	.94		
+	2 COMBINED AT	C59B	1882.	12.83	612.	219.	91.	13.70		
+	ROUTED TO	59BT60	1710.	13.33	608.	219.	90.	13.70		
+	HYDROGRAPH AT	60	1026.	13.50	345.	108.	39.	2.30		
+	DIVERSION TO	D60	1026.	13.50	312.	86.	31.	2.30		
+	HYDROGRAPH AT	R60	234.	15.00	70.	23.	8.	2.30		
+	2 COMBINED AT	EMPGUA	1710.	13.33	654.	238.	97.	16.00		
+	ROUTED TO	GUATEL	1618.	13.67	623.	237.	96.	16.00		
+	HYDROGRAPH AT	64	887.	12.42	150.	49.	18.	.81		
+	DIVERSION TO	D64	887.	12.42	121.	34.	12.	.81		
+	HYDROGRAPH AT	R64	330.	12.83	50.	16.	6.	.81		
+	2 COMBINED AT	EMPELL	1687.	13.58	661.	250.	101.	16.81		
+	ROUTED TO	ELTWAR	1463.	14.00	633.	249.	100.	16.81		
+	HYDROGRAPH AT	62A	782.	12.00	86.	30.	11.	.38		
+	DIVERSION TO	D62A	782.	12.00	58.	17.	6.	.38		
+	HYDROGRAPH AT	R62A	509.	12.17	43.	13.	5.	.38		
+	ROUTED TO	62ATB	372.	12.25	43.	13.	5.	.38		
+	HYDROGRAPH AT	62B	530.	12.00	53.	18.	7.	.23		
+	DIVERSION TO	D62B	442.	11.92	33.	10.	3.	.23		
	HYDROGRAPH AT									

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+                    R62B     458.  12.08    29.    9.    3.   .23
     2 COMBINED AT
+                    C62B     547.  12.17    70.   21.    8.   .61
     ROUTED TO
+                   62BTD     364.  12.58    67.   21.    8.   .61
     HYDROGRAPH AT
+                     62D     587.  12.17    83.   27.   10.   .46
     DIVERSION TO
+                    D62D     587.  12.17    63.   18.    6.   .46
     HYDROGRAPH AT
+                    R62D     209.  12.58    31.    9.    3.   .46
     2 COMBINED AT
+                   CP62D     564.  12.58    95.   30.   11.  1.07
     ROUTED TO
+                   62DTF     339.  13.17    94.   30.   11.  1.07
     HYDROGRAPH AT
+                     62F     409.  12.17    48.   16.    6.   .26
     DIVERSION TO
+                    D62F     409.  12.17    32.    9.    3.   .26
     HYDROGRAPH AT
+                    R62F     277.  12.25    23.    7.    2.   .26
     2 COMBINED AT
+                   CP62F     359.  13.17   113.   36.   13.  1.33
     ROUTED TO
+                   62T63     349.  13.50   111.   36.   13.  1.33
     HYDROGRAPH AT
+                      63    1141.  12.33   170.   56.   20.   .91
     DIVERSION TO
+                     D63    1141.  12.33   128.   36.   13.   .91
     HYDROGRAPH AT
+                     R63     559.  12.58    66.   20.    7.   .91
     2 COMBINED AT
+                    CP63     589.  12.58   172.   56.   20.  2.24
     ROUTED TO
+                   63T71     256.  15.42   151.   56.   20.  2.24
     HYDROGRAPH AT
+                     68B     567.  12.00    57.   19.    7.   .25
     DIVERSION TO
+                    D68B     567.  12.00    43.   12.    4.   .25
     HYDROGRAPH AT
+                     R68     207.  12.17    24.    7.    3.   .25
     ROUTED TO
+                  68BT69      90.  12.50    23.    7.    3.   .25
     HYDROGRAPH AT
+                      69     204.  12.00    21.    7.    3.   .09
     DIVERSION TO
+                     D69     204.  12.00    16.    5.    2.   .09
     HYDROGRAPH AT
+                     R69      93.  12.17     9.    3.    1.   .09
     2 COMBINED AT
+                     C69     108.  12.42    31.   10.    4.   .34
     ROUTED TO
+                   69T71      58.  14.08    28.   10.    4.   .34
     HYDROGRAPH AT
+                      71    1887.  12.17   248.   85.   31.  1.09
     DIVERSION TO
+                     D71    1887.  12.17   187.   53.   19.  1.09
     HYDROGRAPH AT
+                     R71     862.  12.33   102.   32.   12.  1.09
     3 COMBINED AT
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+		C71	807.	12.33	246.	95.	34.	3.67
+	ROUTED TO	71T72	576.	12.58	243.	95.	34.	3.67
+	HYDROGRAPH AT	72	1370.	12.17	195.	67.	24.	.84
+	DIVERSION TO	D72	1370.	12.17	147.	42.	15.	.84
+	HYDROGRAPH AT	R72	667.	12.42	80.	25.	9.	.84
+	3 COMBINED AT	EMPWAR	1653.	14.00	857.	353.	138.	21.32
+	ROUTED TO	WARTKN	1579.	14.25	854.	353.	138.	21.32
+	HYDROGRAPH AT	70B	628.	12.17	89.	30.	11.	.38
+	DIVERSION TO	D70B	628.	12.17	68.	19.	7.	.38
+	HYDROGRAPH AT	R70B	249.	12.50	35.	11.	4.	.38
+	ROUTED TO	70BT76	79.	14.00	34.	11.	4.	.38
+	HYDROGRAPH AT	76B	1119.	12.17	153.	52.	19.	.64
+	DIVERSION TO	D76B	1119.	12.17	118.	33.	12.	.64
+	HYDROGRAPH AT	R76B	457.	12.42	59.	18.	7.	.64
+	2 COMBINED AT	KNOX	447.	12.42	91.	29.	10.	1.02
+	2 COMBINED AT	EMPKNX	1680.	14.17	905.	376.	146.	22.34
+	ROUTED TO	KNXTRY	1597.	14.42	902.	375.	146.	22.34
+	HYDROGRAPH AT	65A	2503.	12.50	490.	162.	59.	2.54
+	DIVERSION TO	D65A	2503.	12.50	307.	88.	32.	2.54
+	HYDROGRAPH AT	R65A	2184.	12.67	254.	75.	27.	2.54
+	HYDROGRAPH AT	CAP1A	217.	2.00	217.	217.	213.	.01
+	ROUTED TO	RCAP1A	218.	2.33	217.	217.	212.	.01
+	ROUTED TO	RRCP1A	217.	2.67	217.	217.	212.	.01
+	HYDROGRAPH AT	CAP1B	217.	2.00	217.	217.	213.	.01
+	ROUTED TO	RCAP1B	218.	2.33	217.	217.	212.	.01
+	3 COMBINED AT	C65A1	2618.	12.67	688.	509.	451.	2.56
+	ROUTED TO	65ATB1	2130.	12.83	687.	509.	450.	2.56
+	DIVERSION TO	DB65A	1696.	12.83	253.	75.	27.	2.56
+	HYDROGRAPH AT	DIDB65	434.	3.58	434.	434.	423.	2.56
+	ROUTED TO	65B1T2	434.	3.42	434.	434.	423.	2.56
	HYDROGRAPH AT							

+		DIB65P	1696.	12.83	253.	75.	27.	2.56
	ROUTED TO							
+		DB65A	75.	17.08	75.	66.	27.	2.56
	2 COMBINED AT							
+		C65A2	509.	17.08	509.	500.	450.	2.56
	ROUTED TO							
+		65AT-1	509.	17.08	509.	500.	450.	2.56
	ROUTED TO							
+		65AT-2	509.	17.67	509.	500.	444.	2.56
	HYDROGRAPH AT							
+		65AW	535.	12.25	67.	21.	7.	.43
	DIVERSION TO							
+		D65AW	535.	12.25	58.	16.	6.	.43
	HYDROGRAPH AT							
+		R65AW	99.	12.75	16.	5.	2.	.43
	ROUTED TO							
+		65AT65	30.	14.17	14.	5.	2.	.43
	HYDROGRAPH AT							
+		65B	1490.	12.42	261.	85.	31.	1.37
	DIVERSION TO							
+		D65B	1490.	12.42	219.	60.	22.	1.37
	HYDROGRAPH AT							
+		R65B	416.	13.00	76.	24.	9.	1.37
	2 COMBINED AT							
+		CP65B	415.	13.00	87.	29.	10.	1.80
	DIVERSION TO							
+		DIRS65	364.	13.00	41.	10.	4.	1.80
	HYDROGRAPH AT							
+		DI65B	51.	13.00	47.	18.	7.	1.80
	2 COMBINED AT							
+		CP65A	560.	16.08	552.	517.	450.	4.36
	ROUTED TO							
+		65AT-3	560.	16.08	552.	517.	450.	4.36
	ROUTED TO							
+		65T66	560.	16.08	552.	517.	449.	4.36
	HYDROGRAPH AT							
+		DR65B	364.	13.00	41.	10.	4.	1.80
	ROUTED TO							
+		RS65A	37.	14.42	31.	10.	4.	1.80
	2 COMBINED AT							
+		CP65B	592.	15.33	581.	526.	453.	4.36
	HYDROGRAPH AT							
+		ADOT-E	246.	14.42	175.	64.	23.	.01
	ROUTED TO							
+		AET67A	245.	14.67	175.	64.	23.	.01
	HYDROGRAPH AT							
+		67A	375.	12.25	50.	16.	6.	.30
	DIVERSION TO							
+		D67A	375.	12.25	38.	11.	4.	.30
	HYDROGRAPH AT							
+		R67A	158.	12.58	18.	5.	2.	.30
	2 COMBINED AT							
+		C67A	255.	14.67	183.	69.	25.	.31
	ROUTED TO							
+		67ATC	254.	15.00	183.	69.	25.	.31
	HYDROGRAPH AT							
+		SUP2	422.	13.00	381.	215.	78.	.01
	ROUTED TO							
+		RSUP2	395.	16.25	378.	215.	78.	.01
	HYDROGRAPH AT							

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+                    67B    688.  12.25    101.    33.    12.    .53
     DIVERSION TO
+                   D67B    688.  12.25     74.    21.     7.    .53
     HYDROGRAPH AT
+                   R67B    385.  12.50     42.    13.     5.    .53
     2 COMBINED AT
+                   C67B    424.  12.50    394.   228.    83.    .54
     ROUTED TO
+                 67BTC    411.  16.42    394.   228.    83.    .54
     HYDROGRAPH AT
+                    67C    973.  12.42    139.    43.    15.    .93
     DIVERSION TO
+                   D67C    973.  12.42    125.    34.    12.    .93
     HYDROGRAPH AT
+                   R67C    121.  13.08     27.     9.     3.    .93
     3 COMBINED AT
+                   C67C    669.  15.08    591.   304.   111.   1.78
     ROUTED TO
+                 67CT67    669.  15.17    591.   304.   111.   1.78
     HYDROGRAPH AT
+                    67D    179.  12.17     19.     6.     2.    .13
     DIVERSION TO
+                   D67D    179.  12.17     17.     5.     2.    .13
     HYDROGRAPH AT
+                   R67D     35.  12.50      4.     1.     0.    .13
     2 COMBINED AT
+                   C67D    671.  15.17    593.   305.   111.   1.91
     ROUTED TO
+                 67DT66    671.  15.17    593.   305.   111.   1.91
     HYDROGRAPH AT
+                    66A    432.  12.17     44.    14.     5.    .26
     DIVERSION TO
+                   D66A    432.  12.17     39.    11.     4.    .26
     HYDROGRAPH AT
+                   R66A     64.  12.42      9.     3.     1.    .26
     ROUTED TO
+                 66ATB     20.  13.25      9.     3.     1.    .26
     HYDROGRAPH AT
+                    66B    580.  12.58     99.    30.    11.    .67
     DIVERSION TO
+                   D66B    580.  12.58     90.    24.     9.    .67
     HYDROGRAPH AT
+                   R66B     79.  13.42     19.     6.     2.    .67
     2 COMBINED AT
+                  CP66B     94.  13.42     26.     9.     3.    .93
     ROUTED TO
+                 66BTC     71.  13.83     26.     9.     3.    .93
     HYDROGRAPH AT
+                    66C    681.  12.25     90.    29.    10.    .50
     DIVERSION TO
+                   D66C    681.  12.25     77.    21.     8.    .50
     HYDROGRAPH AT
+                   R66C    122.  12.75     25.     8.     3.    .50
     2 COMBINED AT
+                 CP66C1    120.  12.75     47.    16.     6.   1.43
     2 COMBINED AT
+                 CP66C2    713.  15.00    628.   320.   116.   3.34
     DIVERSION TO
+                   DB66    255.  15.00    170.    44.    16.   3.34
     HYDROGRAPH AT
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+	DI66	458.	13.83	458.	275.	100.	3.34
ROUTED TO							
+	66C1T2	458.	13.75	458.	275.	100.	3.34
2 COMBINED AT							
+	CP66C	1049.	15.33	1038.	796.	552.	7.70
ROUTED TO							
+	66CTD	1049.	15.42	1038.	796.	552.	7.70
HYDROGRAPH AT							
+	DR66	255.	15.00	170.	44.	16.	3.34
ROUTED TO							
+	RS66D1	192.	16.83	140.	65.	46.	3.34
ROUTED TO							
+	RS66D2	88.	20.00	85.	64.	45.	3.34
2 COMBINED AT							
+	CP66D	1113.	17.08	1105.	860.	597.	7.70
ROUTED TO							
+	66T66D	1113.	17.08	1105.	860.	596.	7.70
HYDROGRAPH AT							
+	66D	633.	12.08	73.	25.	9.	.31
DIVERSION TO							
+	D66D	16.	9.17	10.	4.	1.	.31
HYDROGRAPH AT							
+	R66D	633.	12.08	73.	21.	8.	.31
HYDROGRAPH AT							
+	61A	764.	12.17	92.	30.	11.	.52
DIVERSION TO							
+	D61A	764.	12.17	76.	21.	8.	.52
HYDROGRAPH AT							
+	R61A	150.	12.42	28.	9.	3.	.52
ROUTED TO							
+	61ATB	80.	13.33	27.	9.	3.	.52
HYDROGRAPH AT							
+	61B	1122.	12.42	168.	52.	19.	1.09
DIVERSION TO							
+	D61B	1122.	12.42	150.	41.	15.	1.09
HYDROGRAPH AT							
+	R61B	156.	13.08	36.	12.	4.	1.09
2 COMBINED AT							
+	CP61B	204.	13.08	60.	20.	7.	1.61
ROUTED TO							
+	61T66D	155.	13.83	58.	20.	7.	1.61
HYDROGRAPH AT							
+	67E	743.	12.33	107.	35.	13.	.58
DIVERSION TO							
+	D67E	743.	12.33	91.	25.	9.	.58
HYDROGRAPH AT							
+	R67E	140.	12.83	30.	10.	3.	.58
2 COMBINED AT							
+	C67E	185.	13.83	82.	29.	10.	2.19
3 COMBINED AT							
+	C66D	1250.	14.00	1179.	902.	613.	10.20
ROUTED TO							
+	66T70B	1234.	14.42	1177.	902.	609.	10.20
HYDROGRAPH AT							
+	62C	803.	12.17	95.	31.	11.	.55
DIVERSION TO							
+	D62C	724.	12.08	55.	16.	6.	.55
HYDROGRAPH AT							
+	R62C	763.	12.25	52.	15.	5.	.55
ROUTED TO							

+	62CTE	400.	12.50	51.	15.	5.	.55
HYDROGRAPH AT +	62E	223.	12.17	27.	9.	3.	.15
DIVERSION TO +	D62E	223.	12.17	22.	6.	2.	.15
HYDROGRAPH AT +	R62E	50.	12.50	8.	2.	1.	.15
2 COMBINED AT +	CP62E	432.	12.50	58.	17.	6.	.70
ROUTED TO +	62T68A	220.	12.92	55.	17.	6.	.70
HYDROGRAPH AT +	68A	675.	12.08	74.	25.	9.	.35
DIVERSION TO +	D68A	675.	12.08	55.	16.	6.	.35
HYDROGRAPH AT +	R68A	309.	12.25	30.	9.	3.	.35
2 COMBINED AT +	CP68A	283.	12.25	82.	26.	9.	1.05
ROUTED TO +	68T70A	226.	13.25	80.	26.	9.	1.05
HYDROGRAPH AT +	70A	1107.	12.08	120.	40.	14.	.54
DIVERSION TO +	D70A	1107.	12.08	94.	26.	9.	.54
HYDROGRAPH AT +	R70A	353.	12.25	43.	13.	5.	.54
2 COMBINED AT +	C70A	322.	12.33	120.	39.	14.	1.59
2 COMBINED AT +	C70A2	1347.	14.25	1237.	935.	621.	11.79
ROUTED TO +	70T76A	1335.	14.58	1236.	935.	618.	11.79
HYDROGRAPH AT +	76A	2065.	12.58	411.	131.	47.	1.91
DIVERSION TO +	D76A	2065.	12.58	338.	93.	34.	1.91
HYDROGRAPH AT +	R76A	751.	13.08	123.	38.	14.	1.91
2 COMBINED AT +	C76A	1458.	13.25	1314.	966.	628.	13.70
ROUTED TO +	76ATPR	1405.	14.83	1306.	966.	624.	13.70
HYDROGRAPH AT +	73A	355.	13.33	90.	23.	8.	.95
ROUTED TO +	73ATB	286.	13.83	90.	23.	8.	.95
HYDROGRAPH AT +	73B	562.	12.17	59.	17.	6.	.42
DIVERSION TO +	D73B	562.	12.17	55.	15.	5.	.42
HYDROGRAPH AT +	R73B	47.	12.58	7.	2.	1.	.42
2 COMBINED AT +	CP73B	294.	13.83	96.	25.	9.	1.37
ROUTED TO +	73BTC	293.	14.00	95.	25.	9.	1.37
HYDROGRAPH AT +	73C	1353.	12.00	134.	46.	17.	.58
DIVERSION TO							

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+                    D73C   1353.  12.00   103.   29.   11.   .58
     HYDROGRAPH AT
+                    R73C    410.  12.17    54.   17.    6.   .58
     2 COMBINED AT
+                   CP73C    405.  12.17   146.   41.   15.  1.95
     ROUTED TO
+                 73T74C    322.  14.33   144.   41.   15.  1.95
     HYDROGRAPH AT
+                     74A    289.  13.33    72.   18.    6.   .75
     ROUTED TO
+                   DB74A     56.  14.42    37.   18.    6.   .75
     ROUTED TO
+                   74ATB     48.  15.25    37.   18.    6.   .75
     HYDROGRAPH AT
+                     74B    435.  12.25    41.   11.    4.   .33
     DIVERSION TO
+                    D74B    435.  12.25    41.   11.    4.   .33
     HYDROGRAPH AT
+                    R74B      1.  15.33     0.    0.    0.   .33
     2 COMBINED AT
+                   CP74B     47.  15.33    37.   18.    7.  1.08
     ROUTED TO
+                   74BTC     46.  15.58    36.   18.    6.  1.08
     HYDROGRAPH AT
+                     74C    746.  12.00    82.   28.   10.   .34
     DIVERSION TO
+                    D74C    746.  12.00    62.   18.    6.   .34
     HYDROGRAPH AT
+                    R74C    335.  12.17    34.   10.    4.   .34
     3 COMBINED AT
+                   CP74C    374.  14.33   201.   68.   24.  3.37
     ROUTED TO
+                 74CT75    369.  14.50   199.   68.   24.  3.37
     HYDROGRAPH AT
+                     75    251.  14.75   114.   30.   11.  4.01
     2 COMBINED AT
+                    C75    604.  14.67   307.   96.   35.  7.38
     ROUTED TO
+                   75TPC    602.  14.75   307.   96.   35.  7.38
     HYDROGRAPH AT
+                     77A    526.  13.75   164.   41.   15.  1.74
     ROUTED TO
+                   77ATB    451.  14.17   163.   41.   15.  1.74
     HYDROGRAPH AT
+                     77B    504.  12.17    42.   11.    4.   .36
     DIVERSION TO
+                    D77B    504.  12.17    32.    8.    3.   .36
     HYDROGRAPH AT
+                    R77B    257.  12.33    11.    3.    1.   .36
     2 COMBINED AT
+                   CP77B    452.  14.17   173.   44.   16.  2.10
     ROUTED TO
+                   77BTC    443.  14.50   172.   44.   16.  2.10
     HYDROGRAPH AT
+                     77C    660.  12.00    65.   22.    8.   .28
     DIVERSION TO
+                    D77C    660.  12.00    50.   14.    5.   .28
     HYDROGRAPH AT
+                    R77C    212.  12.08    26.    8.    3.   .28
     2 COMBINED AT
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+	C77C	458.	14.50	195.	51.	18.	2.38
ROUTED TO +	77CT78	452.	14.67	194.	51.	18.	2.38
HYDROGRAPH AT +	78A	568.	13.75	177.	44.	16.	1.88
ROUTED TO +	78ATB	466.	14.42	177.	44.	16.	1.88
HYDROGRAPH AT +	78B	610.	12.17	65.	17.	6.	.39
2 COMBINED AT +	C78B	610.	12.25	237.	60.	22.	2.27
ROUTED TO +	78BTC	503.	12.50	237.	60.	22.	2.27
HYDROGRAPH AT +	78C	646.	12.00	69.	22.	8.	.28
DIVERSION TO +	D78C	610.	12.00	43.	12.	4.	.28
HYDROGRAPH AT +	R78C	512.	12.08	35.	10.	4.	.28
3 COMBINED AT +	C78C	907.	14.67	456.	120.	43.	4.93
ROUTED TO +	78CT79	899.	14.92	453.	119.	43.	4.93
HYDROGRAPH AT +	79A	902.	13.50	266.	67.	24.	2.01
2 COMBINED AT +	C79A1	1422.	13.58	708.	184.	66.	6.94
HYDROGRAPH AT +	78F	1028.	14.17	384.	97.	35.	4.19
HYDROGRAPH AT +	82A1	1069.	13.50	291.	73.	26.	3.12
2 COMBINED AT +	C82A1	1637.	13.50	667.	168.	61.	7.31
ROUTED TO +	DB82A1	163.	15.92	153.	134.	99.	7.31
ROUTED TO +	PS-9	162.	15.92	153.	134.	99.	7.31
HYDROGRAPH AT +	CAP2	64.	20.00	64.	64.	53.	.01
ROUTED TO +	RCAP2	64.	21.17	64.	64.	52.	.01
HYDROGRAPH AT +	82A2	839.	14.75	374.	99.	36.	4.13
2 COMBINED AT +	CP82A2	876.	14.75	414.	155.	87.	4.14
HYDROGRAPH AT +	82A4	597.	13.83	199.	50.	18.	2.13
ROUTED TO +	82A4T3	590.	14.00	198.	50.	18.	2.13
HYDROGRAPH AT +	82A3	508.	14.17	188.	48.	17.	2.02
2 COMBINED AT +	CP82A3	1057.	14.08	381.	96.	35.	4.15
2 COMBINED AT +	CP82A5	1594.	14.08	784.	249.	121.	8.29
ROUTED TO +	DB82B	329.	16.83	312.	244.	120.	8.29
ROUTED TO +	MN-1	329.	16.92	312.	244.	120.	8.29
2 COMBINED AT							

+	2 COMBINED AT	CP82A2	876.	14.75	414.	155.	95.	4.14
+	HYDROGRAPH AT	82A4	597.	13.83	199.	50.	24.	2.13
+	ROUTED TO	82A4T3	590.	14.00	198.	50.	24.	2.13
+	HYDROGRAPH AT	82A3	508.	14.17	188.	48.	23.	2.02
+	2 COMBINED AT	CP82A3	1057.	14.08	381.	96.	46.	4.15
+	2 COMBINED AT	CP82A5	1594.	14.08	784.	249.	140.	8.29
+	ROUTED TO	DB82B	329.	16.83	312.	244.	138.	8.29
+	ROUTED TO	MN-1	329.	16.92	312.	244.	138.	8.29
+	2 COMBINED AT	CP82A6	470.	17.00	454.	369.	240.	15.60
+	ROUTED TO	82TBOX	470.	17.00	454.	369.	240.	15.60
+	ROUTED TO	BOXCLV	470.	17.08	454.	369.	240.	15.60
+	ROUTED TO	BOXT78	470.	17.33	454.	369.	240.	15.60
+	HYDROGRAPH AT	78D	1488.	12.17	186.	60.	29.	.89
+	DIVERSION TO	D78D	1488.	12.17	154.	42.	20.	.89
+	HYDROGRAPH AT	R78D	334.	12.50	55.	17.	8.	.89
+	HYDROGRAPH AT	82B	1496.	12.17	174.	57.	27.	.92
+	DIVERSION TO	D82	14.	1.08	2.	1.	0.	.92
+	HYDROGRAPH AT	R82	1496.	12.17	174.	57.	27.	.92
+	DIVERSION TO	TRW	1496.	12.17	174.	55.	27.	.92
+	HYDROGRAPH AT	DTTRW	6.	18.92	5.	1.	1.	.92
+	3 COMBINED AT	C78D	488.	17.33	471.	380.	246.	17.41
+	ROUTED TO	78DTE	488.	17.67	471.	379.	245.	17.41
+	HYDROGRAPH AT	78E	799.	12.75	149.	38.	18.	1.01
+	HYDROGRAPH AT	83	1321.	12.25	190.	62.	30.	1.01
+	DIVERSION TO	D83	1321.	12.25	150.	42.	20.	1.01
+	HYDROGRAPH AT	R83	523.	12.58	66.	21.	10.	1.01
+	3 COMBINED AT	C78E	1178.	12.75	557.	423.	269.	19.43
+	ROUTED TO	78ET84	966.	13.17	550.	422.	268.	19.43
+	HYDROGRAPH AT	84	1254.	12.25	185.	61.	29.	.99
+	DIVERSION TO	D84	1254.	12.25	154.	43.	21.	.99

+	HYDROGRAPH AT	R84	314.	12.75	57.	18.	9.	.99
+	2 COMBINED AT	C84	1085.	13.08	593.	436.	274.	20.42
+	ROUTED TO	84T79B	1059.	13.17	591.	436.	274.	20.42
+	HYDROGRAPH AT	79B	643.	13.08	152.	38.	18.	1.00
+	2 COMBINED AT	C79B1	1638.	13.17	704.	467.	290.	21.42
+	ROUTED TO	79BTB2	1596.	13.25	703.	467.	290.	21.42
+	2 COMBINED AT	C79B2	2748.	13.50	1322.	627.	367.	28.36
+	ROUTED TO	79TPC2	2718.	13.50	1318.	627.	367.	28.36
+	2 COMBINED AT	CPPWR	2918.	13.58	1552.	698.	400.	35.74
+	ROUTED TO	PWRT80	2899.	13.67	1549.	698.	400.	35.74
+	HYDROGRAPH AT	80A	2344.	12.83	575.	182.	88.	2.64
+	DIVERSION TO	D80A	71.	8.83	53.	17.	8.	2.64
+	HYDROGRAPH AT	R80A	2344.	12.83	575.	166.	80.	2.64
+	2 COMBINED AT	CP80A	3709.	13.33	1997.	831.	470.	38.38
+	ROUTED TO	PWRSAN	3700.	13.42	1994.	831.	470.	38.38
+	2 COMBINED AT	CPSAN	4100.	13.67	2868.	1652.	1065.	55.42
+	ROUTED TO	PWREMF	4070.	13.83	2857.	1651.	1061.	55.42
+	2 COMBINED AT	EMFPOW	5027.	14.33	3509.	1954.	1211.	77.76
+	ROUTED TO	POWTWI	5007.	14.50	3504.	1953.	1207.	77.76
+	HYDROGRAPH AT	80B	1150.	12.50	214.	68.	33.	1.12
+	DIVERSION TO	D80B	15.	4.00	8.	2.	1.	1.12
+	HYDROGRAPH AT	R80B	1150.	12.50	214.	66.	32.	1.12
+	2 COMBINED AT	MFWILL	5047.	14.42	3570.	1999.	1233.	78.88
+	ROUTED TO	WILTSP	5018.	14.67	3565.	1999.	1227.	78.88
+	HYDROGRAPH AT	81A	1594.	12.67	346.	115.	55.	1.81
+	DIVERSION TO	D81A	28.	2.67	10.	3.	1.	1.81
+	HYDROGRAPH AT	R81A	1594.	12.67	346.	112.	54.	1.81
+	ROUTED TO	81ATB	1470.	13.00	346.	112.	54.	1.81
+	HYDROGRAPH AT	81B	1168.	12.25	173.	59.	28.	.84
+	DIVERSION TO	D81B	444.	11.92	55.	18.	8.	.84

+	HYDROGRAPH AT	R81B	1168.	12.25	145.	41.	20.	.84
+	2 COMBINED AT	C81	1604.	13.00	483.	152.	73.	2.65
+	2 COMBINED AT	EMFRT1	5193.	14.67	3849.	2114.	1288.	81.53
+	HYDROGRAPH AT	SUB258	449.	16.17	355.	141.	68.	3.68
+	DIVERSION TO	D258	449.	16.17	244.	61.	29.	3.68
+	HYDROGRAPH AT	R258	405.	17.42	229.	81.	39.	3.68
+	ROUTED TO	RO259	327.	19.67	222.	81.	39.	3.68
+	HYDROGRAPH AT	SUB260	250.	13.25	106.	33.	16.	.98
+	DIVERSION TO	D260	250.	13.25	54.	14.	7.	.98
+	HYDROGRAPH AT	R260	172.	14.00	60.	20.	10.	.98
+	2 COMBINED AT	CO262	350.	19.67	242.	99.	48.	4.66
+	ROUTED TO	RO263	329.	21.42	238.	99.	48.	4.66
+	HYDROGRAPH AT	SUB264	232.	13.50	111.	35.	17.	.99
+	DIVERSION TO	D264	232.	13.50	58.	15.	7.	.99
+	HYDROGRAPH AT	R264	170.	14.33	63.	21.	10.	.99
+	2 COMBINED AT	CO266	349.	21.33	255.	118.	57.	5.65
+	ROUTED TO	RO267	321.	24.92	249.	118.	57.	5.65
+	HYDROGRAPH AT	SUB268	163.	14.42	101.	34.	17.	.96
+	DIVERSION TO	D268	163.	14.42	56.	14.	7.	.96
+	HYDROGRAPH AT	R268	133.	15.42	60.	20.	10.	.96
+	2 COMBINED AT	CO270	338.	24.92	259.	136.	66.	6.61
+	ROUTED TO	RO283	322.	27.83	255.	136.	66.	6.61
+	HYDROGRAPH AT	88A	1103.	12.00	115.	40.	19.	.50
+	DIVERSION TO	D88A	1103.	12.00	89.	25.	12.	.50
+	HYDROGRAPH AT	R88A	426.	12.17	46.	14.	7.	.50
+	ROUTED TO	88AT89	103.	12.50	43.	14.	7.	.50
+	HYDROGRAPH AT	89A	976.	12.08	114.	39.	19.	.50
+	DIVERSION TO	D89A	976.	12.08	89.	25.	12.	.50
+	HYDROGRAPH AT	R89A	316.	12.33	45.	14.	7.	.50
+	2 COMBINED AT	C89A	400.	12.33	86.	28.	14.	1.00

+	ROUTED TO 89ATRI	197.	12.67	83.	28.	14.	1.00
+	2 COMBINED AT C283	323.	27.83	256.	155.	78.	7.61
+	ROUTED TO 283T90	317.	28.17	254.	154.	78.	7.61
+	HYDROGRAPH AT 90A	907.	12.08	94.	32.	15.	.48
+	DIVERSION TO D90A	907.	12.08	76.	21.	10.	.48
+	HYDROGRAPH AT R90A	236.	12.33	33.	10.	5.	.48
+	2 COMBINED AT C90A	317.	28.17	254.	162.	83.	8.09
+	ROUTED TO 90ATB	312.	28.58	253.	161.	83.	8.09
+	HYDROGRAPH AT 87A	1008.	12.08	112.	39.	19.	.49
+	DIVERSION TO D87A	1008.	12.08	87.	25.	12.	.49
+	HYDROGRAPH AT R87A	387.	12.25	44.	14.	7.	.49
+	ROUTED TO 87ATB	117.	12.83	42.	14.	7.	.49
+	HYDROGRAPH AT 87B	989.	12.08	113.	39.	19.	.49
+	DIVERSION TO D87B	989.	12.08	87.	25.	12.	.49
+	HYDROGRAPH AT R87B	373.	12.25	45.	14.	7.	.49
+	2 COMBINED AT C87	350.	12.25	84.	28.	13.	.98
+	ROUTED TO 87T88B	200.	12.83	82.	28.	13.	.98
+	HYDROGRAPH AT 88B	1001.	12.08	114.	39.	19.	.50
+	DIVERSION TO D88B	1001.	12.08	89.	25.	12.	.50
+	HYDROGRAPH AT R88B	344.	12.25	45.	14.	7.	.50
+	2 COMBINED AT C88B	295.	12.25	122.	41.	20.	1.48
+	ROUTED TO 88T89B	264.	13.08	119.	41.	20.	1.48
+	HYDROGRAPH AT 89B	1014.	12.08	113.	39.	19.	.50
+	DIVERSION TO D89B	1014.	12.08	87.	25.	12.	.50
+	HYDROGRAPH AT R89B	415.	12.25	45.	14.	7.	.50
+	2 COMBINED AT C89B	407.	12.25	159.	55.	26.	1.98
+	ROUTED TO 89TB90	311.	13.75	154.	55.	26.	1.98
+	HYDROGRAPH AT 90B	637.	12.67	122.	37.	18.	.82
+	DIVERSION TO D90B	377.	12.33	39.	12.	6.	.82
+	HYDROGRAPH AT R90B	637.	12.67	95.	26.	12.	.82

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          3 COMBINED AT
+                          C90      760.   12.75        326.       233.       118.      10.89
          ROUTED TO
+                        90T91      543.   13.50        308.       230.       118.      10.89
          HYDROGRAPH AT
+                           85     1270.   12.25        184.        61.        29.       1.00
          DIVERSION TO
+                          D85     1270.   12.25        152.        42.        20.       1.00
          HYDROGRAPH AT
+                          R85      358.   12.67         58.        19.         9.       1.00
          ROUTED TO
+                        85T86      213.   13.00         56.        19.         9.       1.00
          HYDROGRAPH AT
+                           86     1284.   12.25        185.        61.        29.       1.00
          DIVERSION TO
+                          D86     1284.   12.25        154.        43.        21.       1.00
          HYDROGRAPH AT
+                          R86      331.   12.67         57.        18.         9.       1.00
          2 COMBINED AT
+                          C86      353.   13.00        110.        36.        17.       2.00
          ROUTED TO
+                        86T91      329.   13.25        106.        36.        17.       2.00
          HYDROGRAPH AT
+                           91      644.   12.25         86.        28.        14.        .46
          DIVERSION TO
+                          D91      644.   12.25         69.        19.         9.        .46
          HYDROGRAPH AT
+                        RET91      200.   12.58         30.         9.         4.        .46
          3 COMBINED AT
+                          CP91     805.   13.42        414.       265.       134.      13.35
          ROUTED TO
+                       91TEMF      800.   13.50        412.       264.       134.      13.35
          2 COMBINED AT
+                       EMFRIT     5465.   14.67       4051.      2279.      1375.      94.88
1
                                   SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
                                       (FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)
                                                                          INTERPOLATED TO
                                                                       COMPUTATION INTERVAL
          ISTAQ     ELEMENT      DT       PEAK    TIME TO     VOLUME      DT       PEAK    TIME TO     VOLUME
                                                    PEAK                                     PEAK

                                (MIN)     (CFS)     (MIN)      (IN)    (MIN)     (CFS)     (MIN)       (IN)

          FOR STORM = 1  STORM AREA (SQ MI) =        .01
            65AT-3  MANE          .65    541.95   1069.33      8.11     5.00    541.95   1070.00       8.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1886E+04 EXCESS= .0000E+00 OUTFLOW= .1886E+04 BASIN STORAGE= .4484E+00 PERCENT ERROR=    .0

          FOR STORM = 2  STORM AREA (SQ MI) =      10.00
            65AT-3  MANE          .66    537.59   1065.81      8.01     5.00    537.59   1065.00       8.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1863E+04 EXCESS= .0000E+00 OUTFLOW= .1863E+04 BASIN STORAGE= .4467E+00 PERCENT ERROR=    .0

          FOR STORM = 3  STORM AREA (SQ MI) =      30.00
            65AT-3  MANE          .66    534.29   1068.46      7.95     5.00    534.29   1070.00       7.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1848E+04 EXCESS= .0000E+00 OUTFLOW= .1848E+04 BASIN STORAGE= .4461E+00 PERCENT ERROR=    .0

          FOR STORM = 4  STORM AREA (SQ MI) =      60.00
            65AT-3  MANE          .66    530.70   1070.54      7.88     5.00    530.70   1070.00       7.88

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1832E+04 EXCESS= .0000E+00 OUTFLOW= .1832E+04 BASIN STORAGE= .4457E+00 PERCENT ERROR=    .0

          FOR STORM = 5  STORM AREA (SQ MI) =      90.00
            65AT-3  MANE          .66    529.39   1071.07      7.85     5.00    529.39   1075.00       7.85
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CONTINUITY SUMMARY (AC-FT) - INFLOW= .1827E+04 EXCESS= .0000E+00 OUTFLOW= .1826E+04 BASIN STORAGE= .4456E+00 PERCENT ERROR=    .0

          FOR STORM = 1  STORM AREA (SQ MI) =        .01
             65T66  MANE          .61    553.55   1070.53      8.24      5.00    553.55   1070.00        8.24

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1916E+04 EXCESS= .0000E+00 OUTFLOW= .1916E+04 BASIN STORAGE= .4245E+00 PERCENT ERROR=    .0

          FOR STORM = 2  STORM AREA (SQ MI) =      10.00
             65T66  MANE          .61    547.49   1069.80      8.11      5.00    547.49   1070.00        8.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1887E+04 EXCESS= .0000E+00 OUTFLOW= .1886E+04 BASIN STORAGE= .4190E+00 PERCENT ERROR=    .0

          FOR STORM = 3  STORM AREA (SQ MI) =      30.00
             65T66  MANE          .61    542.85   1069.80      8.01      5.00    542.85   1070.00        8.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1863E+04 EXCESS= .0000E+00 OUTFLOW= .1863E+04 BASIN STORAGE= .4165E+00 PERCENT ERROR=    .0

          FOR STORM = 4  STORM AREA (SQ MI) =      60.00
             65T66  MANE          .61    537.61   1070.04      7.91      5.00    537.61   1070.00        7.91

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1839E+04 EXCESS= .0000E+00 OUTFLOW= .1839E+04 BASIN STORAGE= .4160E+00 PERCENT ERROR=    .0

          FOR STORM = 5  STORM AREA (SQ MI) =      90.00
             65T66  MANE          .61    534.73   1050.41      7.87      5.00    534.73   1050.00        7.87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1831E+04 EXCESS= .0000E+00 OUTFLOW= .1830E+04 BASIN STORAGE= .4159E+00 PERCENT ERROR=    .0

          FOR STORM = 1  STORM AREA (SQ MI) =        .01
             65T66A  MANE         .69    553.55   1071.12      8.24      5.00    553.55   1075.00        8.24

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1916E+04 EXCESS= .0000E+00 OUTFLOW= .1916E+04 BASIN STORAGE= .4817E+00 PERCENT ERROR=    .0

          FOR STORM = 2  STORM AREA (SQ MI) =      10.00
             65T66A  MANE         .69    547.49   1070.01      8.11      5.00    547.49   1070.00        8.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1886E+04 EXCESS= .0000E+00 OUTFLOW= .1886E+04 BASIN STORAGE= .4754E+00 PERCENT ERROR=    .0

          FOR STORM = 3  STORM AREA (SQ MI) =      30.00
             65T66A  MANE         .69    542.85   1070.44      8.01      5.00    542.85   1070.00        8.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1863E+04 EXCESS= .0000E+00 OUTFLOW= .1862E+04 BASIN STORAGE= .4725E+00 PERCENT ERROR=    .0

          FOR STORM = 4  STORM AREA (SQ MI) =      60.00
             65T66A  MANE         .69    537.61   1070.46      7.90      5.00    537.61   1070.00        7.90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1839E+04 EXCESS= .0000E+00 OUTFLOW= .1838E+04 BASIN STORAGE= .4721E+00 PERCENT ERROR=    .0

          FOR STORM = 5  STORM AREA (SQ MI) =      90.00
             65T66A  MANE         .69    534.73   1050.74      7.87      5.00    534.73   1050.00        7.87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1830E+04 EXCESS= .0000E+00 OUTFLOW= .1829E+04 BASIN STORAGE= .4719E+00 PERCENT ERROR=    .0

          FOR STORM = 1  STORM AREA (SQ MI) =        .01
             65T66B  MANE         .73    553.55   1073.70      8.24      5.00    553.55   1075.00        8.24

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1916E+04 EXCESS= .0000E+00 OUTFLOW= .1915E+04 BASIN STORAGE= .5081E+00 PERCENT ERROR=    .0

          FOR STORM = 2  STORM AREA (SQ MI) =      10.00
             65T66B  MANE         .73    547.49   1070.25      8.11      5.00    547.49   1070.00        8.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1886E+04 EXCESS= .0000E+00 OUTFLOW= .1885E+04 BASIN STORAGE= .5015E+00 PERCENT ERROR=    .0

          FOR STORM = 3  STORM AREA (SQ MI) =      30.00
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65T66B  MANE          .73    542.85   1070.61      8.01      5.00    542.85   1070.00       8.01

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1862E+04 EXCESS= .0000E+00 OUTFLOW= .1862E+04 BASIN STORAGE= .4984E+00 PERCENT ERROR=    .0

FOR STORM = 4  STORM AREA (SQ MI) =      60.00
65T66B  MANE          .73    537.61   1070.50      7.90      5.00    537.61   1070.00       7.90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1838E+04 EXCESS= .0000E+00 OUTFLOW= .1838E+04 BASIN STORAGE= .4979E+00 PERCENT ERROR=    .0

FOR STORM = 5  STORM AREA (SQ MI) =      90.00
65T66B  MANE          .73    534.73   1051.13      7.86      5.00    534.72   1050.00       7.87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1829E+04 EXCESS= .0000E+00 OUTFLOW= .1829E+04 BASIN STORAGE= .4978E+00 PERCENT ERROR=    .0

FOR STORM = 1  STORM AREA (SQ MI) =        .01
66C1T2  MANE          .75    410.00    886.49      2.90      5.00    410.00    890.00       2.90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5167E+03 EXCESS= .0000E+00 OUTFLOW= .5167E+03 BASIN STORAGE= .1154E-02 PERCENT ERROR=    .0

FOR STORM = 2  STORM AREA (SQ MI) =      10.00
66C1T2  MANE          .75    409.90    905.92      2.84      5.00    409.90    905.00       2.84

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5061E+03 EXCESS= .0000E+00 OUTFLOW= .5061E+03 BASIN STORAGE= .1153E-02 PERCENT ERROR=    .0

FOR STORM = 3  STORM AREA (SQ MI) =      30.00
66C1T2  MANE          .75    409.43    910.63      2.79      5.00    409.42    910.00       2.79

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4967E+03 EXCESS= .0000E+00 OUTFLOW= .4967E+03 BASIN STORAGE= .1154E-02 PERCENT ERROR=    .0

FOR STORM = 4  STORM AREA (SQ MI) =      60.00
66C1T2  MANE          .75    405.84    960.82      2.75      5.00    405.83    960.00       2.75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4896E+03 EXCESS= .0000E+00 OUTFLOW= .4896E+03 BASIN STORAGE= .1154E-02 PERCENT ERROR=    .0

FOR STORM = 5  STORM AREA (SQ MI) =      90.00
66C1T2  MANE          .75    405.48    921.35      2.74      5.00    405.47    925.00       2.74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4874E+03 EXCESS= .0000E+00 OUTFLOW= .4874E+03 BASIN STORAGE= .1154E-02 PERCENT ERROR=    .0

FOR STORM = 1  STORM AREA (SQ MI) =        .01
66CTD  MANE          .32    962.35    930.36      5.92      5.00    962.35    930.00       5.92

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2432E+04 EXCESS= .0000E+00 OUTFLOW= .2432E+04 BASIN STORAGE= .2477E+00 PERCENT ERROR=    .0

FOR STORM = 2  STORM AREA (SQ MI) =      10.00
66CTD  MANE          .32    955.85    929.98      5.82      5.00    955.85    930.00       5.82

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2391E+04 EXCESS= .0000E+00 OUTFLOW= .2391E+04 BASIN STORAGE= .2445E+00 PERCENT ERROR=    .0

FOR STORM = 3  STORM AREA (SQ MI) =      30.00
66CTD  MANE          .32    950.60    934.88      5.74      5.00    950.60    935.00       5.74

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2359E+04 EXCESS= .0000E+00 OUTFLOW= .2358E+04 BASIN STORAGE= .2430E+00 PERCENT ERROR=    .0

FOR STORM = 4  STORM AREA (SQ MI) =      60.00
66CTD  MANE          .32    942.78    960.65      5.67      5.00    942.78    960.00       5.67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2327E+04 EXCESS= .0000E+00 OUTFLOW= .2327E+04 BASIN STORAGE= .2428E+00 PERCENT ERROR=    .0

FOR STORM = 5  STORM AREA (SQ MI) =      90.00
66CTD  MANE          .32    938.93    945.48      5.64      5.00    938.93    945.00       5.64

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2316E+04 EXCESS= .0000E+00 OUTFLOW= .2316E+04 BASIN STORAGE= .2427E+00 PERCENT ERROR=    .0
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FOR STORM = 1  STORM AREA (SQ MI) =        .01
   RC-WA  MANE          .69    982.30    960.48      4.22      5.00    982.30    960.00        4.22

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2488E+04 EXCESS= .0000E+00 OUTFLOW= .2487E+04 BASIN STORAGE= .5576E+00 PERCENT ERROR=    .0

FOR STORM = 2  STORM AREA (SQ MI) =      10.00
   RC-WA  MANE          .69    973.97    976.00      4.15      5.00    973.94    975.00        4.15

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2446E+04 EXCESS= .0000E+00 OUTFLOW= .2445E+04 BASIN STORAGE= .5505E+00 PERCENT ERROR=    .0

FOR STORM = 3  STORM AREA (SQ MI) =      30.00
   RC-WA  MANE          .70    968.53    936.07      4.10      5.00    968.53    935.00        4.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2412E+04 EXCESS= .0000E+00 OUTFLOW= .2412E+04 BASIN STORAGE= .5472E+00 PERCENT ERROR=    .0

FOR STORM = 4  STORM AREA (SQ MI) =      60.00
   RC-WA  MANE          .70    960.75    964.74      4.04      5.00    960.75    965.00        4.04

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2381E+04 EXCESS= .0000E+00 OUTFLOW= .2380E+04 BASIN STORAGE= .5466E+00 PERCENT ERROR=    .0

FOR STORM = 5  STORM AREA (SQ MI) =      90.00
   RC-WA  MANE          .70    956.83    950.20      4.02      5.00    956.83    950.00        4.02

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2370E+04 EXCESS= .0000E+00 OUTFLOW= .2370E+04 BASIN STORAGE= .5465E+00 PERCENT ERROR=    .0

FOR STORM = 1  STORM AREA (SQ MI) =        .01
  66T66D  MANE         1.00    996.45   1035.65      4.34      5.00    996.45   1035.00        4.34

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2554E+04 EXCESS= .0000E+00 OUTFLOW= .2553E+04 BASIN STORAGE= .8302E+00 PERCENT ERROR=    .0

FOR STORM = 2  STORM AREA (SQ MI) =      10.00
  66T66D  MANE         1.00    986.48   1076.80      4.25      5.00    986.47   1075.00        4.25

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2504E+04 EXCESS= .0000E+00 OUTFLOW= .2503E+04 BASIN STORAGE= .8169E+00 PERCENT ERROR=    .0

FOR STORM = 3  STORM AREA (SQ MI) =      30.00
  66T66D  MANE         1.00    979.81   1076.23      4.19      5.00    979.81   1075.00        4.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2466E+04 EXCESS= .0000E+00 OUTFLOW= .2466E+04 BASIN STORAGE= .8096E+00 PERCENT ERROR=    .0

FOR STORM = 4  STORM AREA (SQ MI) =      60.00
  66T66D  MANE         1.00    971.40   1091.16      4.12      5.00    971.40   1090.00        4.12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2429E+04 EXCESS= .0000E+00 OUTFLOW= .2428E+04 BASIN STORAGE= .7998E+00 PERCENT ERROR=    .0

FOR STORM = 5  STORM AREA (SQ MI) =      90.00
  66T66D  MANE         1.01    966.31   1119.46      4.10      5.00    966.31   1120.00        4.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2415E+04 EXCESS= .0000E+00 OUTFLOW= .2415E+04 BASIN STORAGE= .7942E+00 PERCENT ERROR=    .0

FOR STORM = 1  STORM AREA (SQ MI) =        .01
  66-66D  MANE         2.15    996.44   1038.25      4.33      5.00    996.43   1035.00        4.33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2553E+04 EXCESS= .0000E+00 OUTFLOW= .2552E+04 BASIN STORAGE= .1789E+01 PERCENT ERROR=    .0

FOR STORM = 2  STORM AREA (SQ MI) =      10.00
  66-66D  MANE         2.16    986.47   1079.20      4.25      5.00    986.47   1080.00        4.25

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2503E+04 EXCESS= .0000E+00 OUTFLOW= .2501E+04 BASIN STORAGE= .1761E+01 PERCENT ERROR=    .0

FOR STORM = 3  STORM AREA (SQ MI) =      30.00
  66-66D  MANE         2.16    979.80   1078.50      4.18      5.00    979.80   1080.00        4.19

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2466E+04 EXCESS= .0000E+00 OUTFLOW= .2464E+04 BASIN STORAGE= .1745E+01 PERCENT ERROR=    .0
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FOR STORM = 4  STORM AREA (SQ MI) =      60.00
  66-66D  MANE        2.17    971.39   1093.35      4.12      5.00    971.39   1095.00       4.12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2429E+04 EXCESS= .0000E+00 OUTFLOW= .2427E+04 BASIN STORAGE= .1724E+01 PERCENT ERROR=    .0

FOR STORM = 5  STORM AREA (SQ MI) =      90.00
  66-66D  MANE        2.17    966.29   1120.50      4.10      5.00    966.29   1120.00       4.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2414E+04 EXCESS= .0000E+00 OUTFLOW= .2413E+04 BASIN STORAGE= .1712E+01 PERCENT ERROR=    .0

FOR STORM = 1  STORM AREA (SQ MI) =        .01
  66T70A  MANE         .32   1249.44    815.07      3.66      5.00   1249.36    815.00       3.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2642E+04 EXCESS= .0000E+00 OUTFLOW= .2642E+04 BASIN STORAGE= .2795E+00 PERCENT ERROR=    .0

FOR STORM = 2  STORM AREA (SQ MI) =      10.00
  66T70A  MANE         .33   1126.01    840.13      3.56      5.00   1125.95    840.00       3.56

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2571E+04 EXCESS= .0000E+00 OUTFLOW= .2571E+04 BASIN STORAGE= .2750E+00 PERCENT ERROR=    .0

FOR STORM = 3  STORM AREA (SQ MI) =      30.00
  66T70A  MANE         .33   1070.82    873.53      3.49      5.00   1070.80    875.00       3.49

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2521E+04 EXCESS= .0000E+00 OUTFLOW= .2521E+04 BASIN STORAGE= .2725E+00 PERCENT ERROR=    .0

FOR STORM = 4  STORM AREA (SQ MI) =      60.00
  66T70A  MANE         .33   1023.49    965.10      3.42      5.00   1023.49    965.00       3.42

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2471E+04 EXCESS= .0000E+00 OUTFLOW= .2470E+04 BASIN STORAGE= .2693E+00 PERCENT ERROR=    .0

FOR STORM = 5  STORM AREA (SQ MI) =      90.00
  66T70A  MANE         .34   1014.21   1073.54      3.39      5.00   1014.19   1070.00       3.40

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2452E+04 EXCESS= .0000E+00 OUTFLOW= .2452E+04 BASIN STORAGE= .2674E+00 PERCENT ERROR=    .0

FOR STORM = 1  STORM AREA (SQ MI) =        .01
  66T70B  MANE        1.46   1247.83    819.73      3.66      5.00   1247.61    820.00       3.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2642E+04 EXCESS= .0000E+00 OUTFLOW= .2641E+04 BASIN STORAGE= .1270E+01 PERCENT ERROR=    .0

FOR STORM = 2  STORM AREA (SQ MI) =      10.00
  66T70B  MANE        1.49   1125.36    844.42      3.56      5.00   1125.24    845.00       3.56

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2571E+04 EXCESS= .0000E+00 OUTFLOW= .2570E+04 BASIN STORAGE= .1250E+01 PERCENT ERROR=    .0

FOR STORM = 3  STORM AREA (SQ MI) =      30.00
  66T70B  MANE        1.51   1070.67    874.04      3.49      5.00   1070.65    875.00       3.49

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2521E+04 EXCESS= .0000E+00 OUTFLOW= .2520E+04 BASIN STORAGE= .1239E+01 PERCENT ERROR=    .0

FOR STORM = 4  STORM AREA (SQ MI) =      60.00
  66T70B  MANE        1.52   1023.39    967.13      3.42      5.00   1023.35    965.00       3.42

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2470E+04 EXCESS= .0000E+00 OUTFLOW= .2469E+04 BASIN STORAGE= .1224E+01 PERCENT ERROR=    .0

FOR STORM = 5  STORM AREA (SQ MI) =      90.00
  66T70B  MANE        1.52   1014.16   1074.01      3.39      5.00   1014.14   1075.00       3.39

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2451E+04 EXCESS= .0000E+00 OUTFLOW= .2450E+04 BASIN STORAGE= .1215E+01 PERCENT ERROR=    .0

FOR STORM = 1  STORM AREA (SQ MI) =        .01
  CULVT   MANE         .31   1246.83    820.00      3.66      5.00   1246.80    820.00       3.66

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2641E+04 EXCESS= .0000E+00 OUTFLOW= .2641E+04 BASIN STORAGE= .2699E+00 PERCENT ERROR=    .0
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FOR STORM = 2  STORM AREA (SQ MI) =      10.00
   CULVT  MANE          .32   1124.86    845.00      3.56      5.00   1124.86    845.00        3.56

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2570E+04 EXCESS= .0000E+00 OUTFLOW= .2569E+04 BASIN STORAGE= .2656E+00 PERCENT ERROR=    .0

FOR STORM = 3  STORM AREA (SQ MI) =      30.00
   CULVT  MANE          .32   1070.48    874.92      3.49      5.00   1070.47    875.00        3.49

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2520E+04 EXCESS= .0000E+00 OUTFLOW= .2520E+04 BASIN STORAGE= .2632E+00 PERCENT ERROR=    .0

FOR STORM = 4  STORM AREA (SQ MI) =      60.00
   CULVT  MANE          .32   1023.33    969.81      3.42      5.00   1023.32    970.00        3.42

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2469E+04 EXCESS= .0000E+00 OUTFLOW= .2469E+04 BASIN STORAGE= .2601E+00 PERCENT ERROR=    .0

FOR STORM = 5  STORM AREA (SQ MI) =      90.00
   CULVT  MANE          .32   1014.11   1074.85      3.39      5.00   1014.10   1075.00        3.39

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2451E+04 EXCESS= .0000E+00 OUTFLOW= .2450E+04 BASIN STORAGE= .2582E+00 PERCENT ERROR=    .0


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


-----DSS---ZCLOSE Unit:  71,   File: NDIBF.DSS
          Pointer Utilization:   .25
          Number of Records:     48
          File Size:     92.8  Kbytes
          Percent Inactive:    .0
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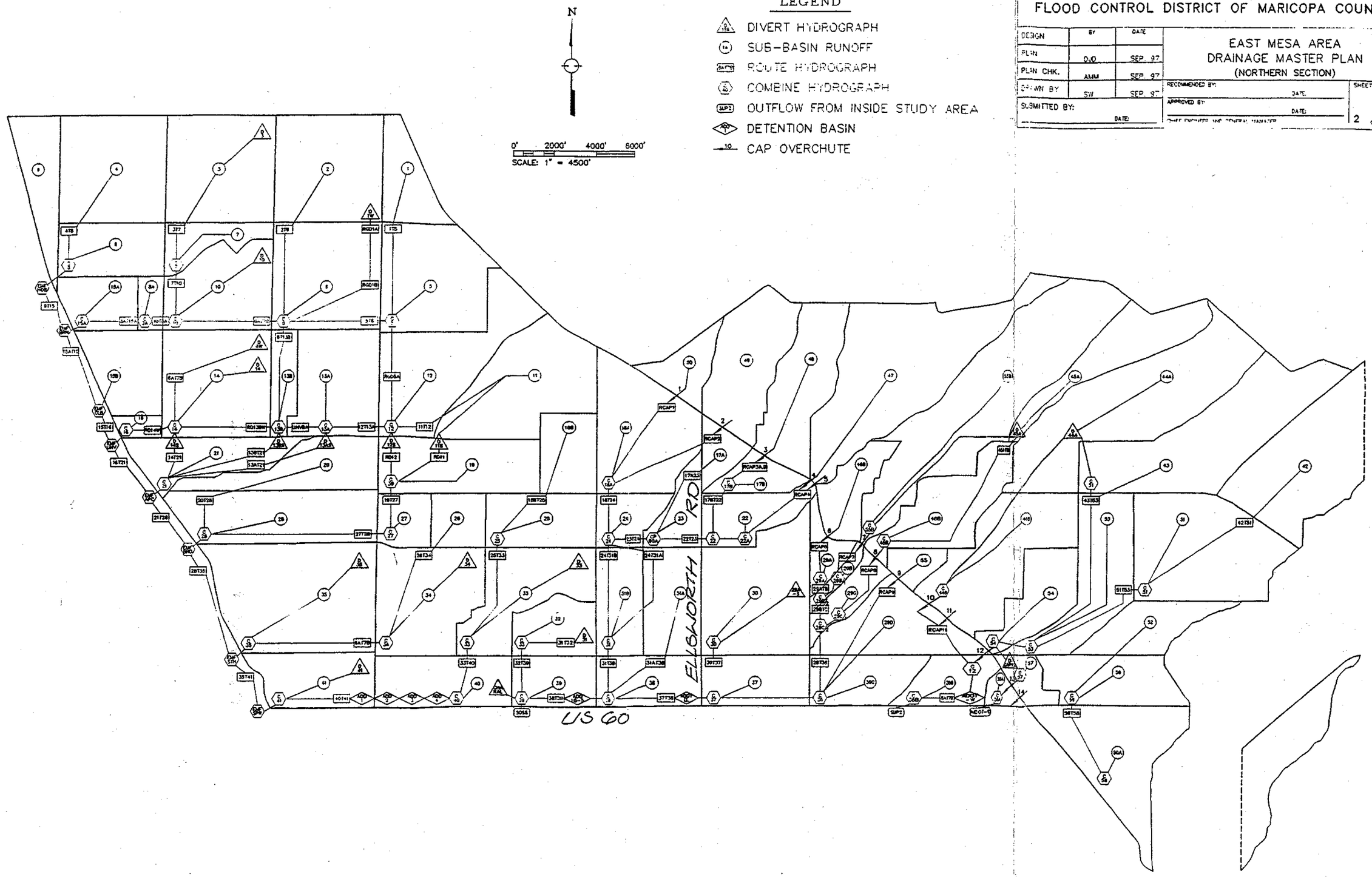


FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

	BY	DATE
DESIGN		
PLAN	DVD	SEP. 97
PLAN CHK.	AMM	SEP. 97
DRAWN BY	SW	SEP. 97

SUBMITTED BY: DATE:

EAST MESA AREA
DRAINAGE MASTER PLAN
(NORTHERN SECTION)

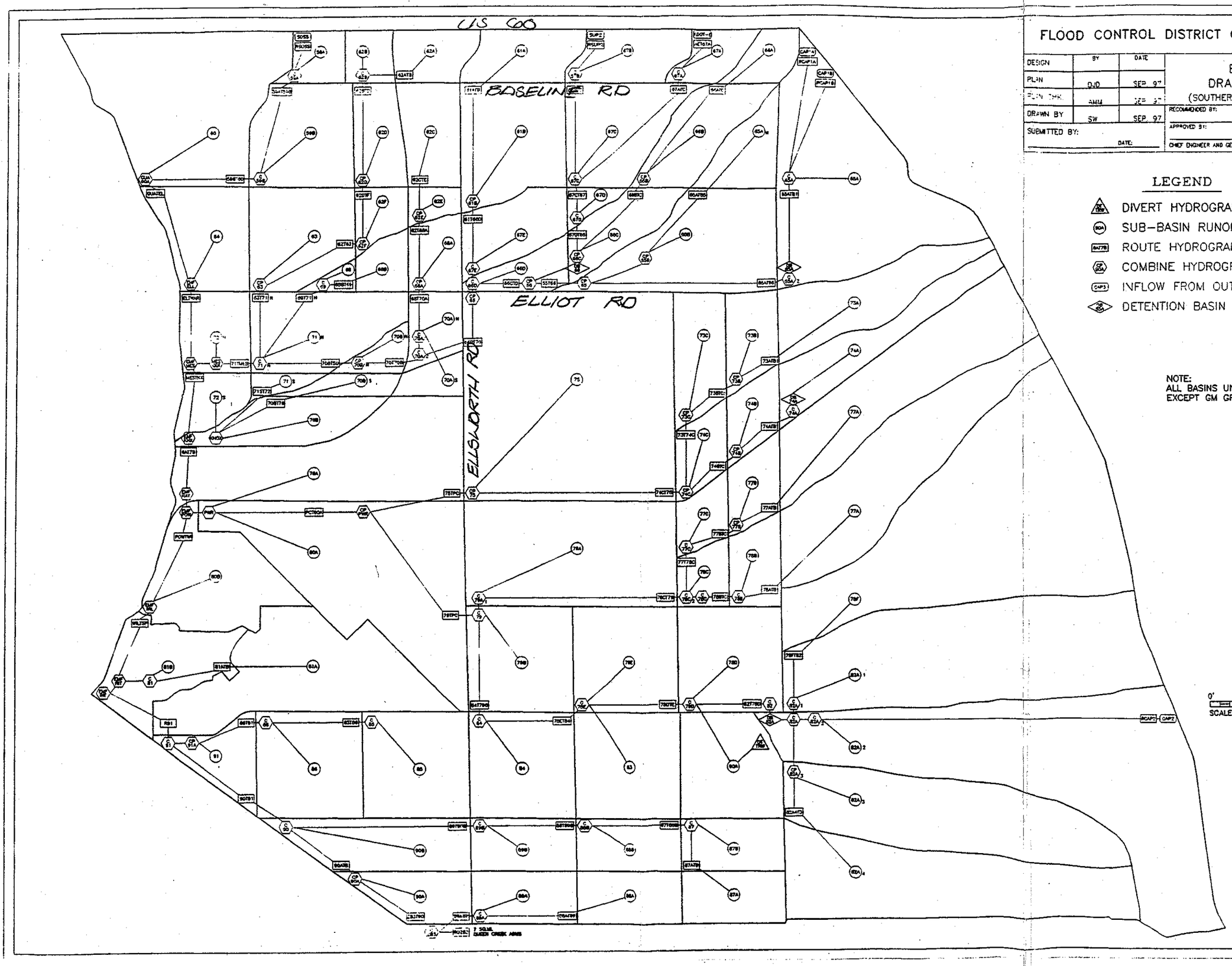
RECOMMENDED BY: DATE:

APPROVED BY: DATE:

CHIEF ENGINEER AND GENERAL MANAGER

SHEET 2 OF 2

Plate 9



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

	BY	DATE	
DESIGN			EAST MESA AREA DRAINAGE MASTER PLAN (SOUTHERN SECTION, FUTURE CONDITION)
PLAN	DJD	SEP. 97	
PLAN CHK	AMM	SEP. 97	
DRAWN BY	SW	SEP. 97	RECOMMENDED BY: DATE:
SUBMITTED BY: DATE:			APPROVED BY: DATE: CHIEF ENGINEER AND GENERAL MANAGER

SHEET 2 OF 2

LEGEND

- DIVERT HYDROGRAPH
- SUB-BASIN RUNOFF
- ROUTE HYDROGRAPH
- COMBINE HYDROGRAPH
- INFLOW FROM OUTSIDE STUDY AREA
- DETENTION BASIN

NOTE:
ALL BASINS UNDER FUTURE CONDITIONS EXCEPT GM GROUNDS AND PINAL COUNTY.

Plate 10

APPENDIX II

HYDRAULICS

- **Ellsworth Road StormCad Output**
- **Elliot Road StormCad Output**
- **Crismon Road StormCad Output**
- **Basin "EA" to 104th Street StormCad Output**
- **104th Street Splitter Structure & Bypass Pipe Calcs**
- **Elliot Road Dip Section Culvert Replacement**
- **Basin "WA" to "WB" Overflow Structure**
- **Crismon Road Channel, Splitter Structure & Bypass Pipe Calcs**
- **Outfall Channel**
- **Hydrology and Hydraulics Electronic Files**

HYDRAULICS

- **Ellsworth Road StormCad Output**

Elliot Road Detention Basins & Outfall Channel
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
Contract FCD 98-44

W/P # 99891
February 1, 2000

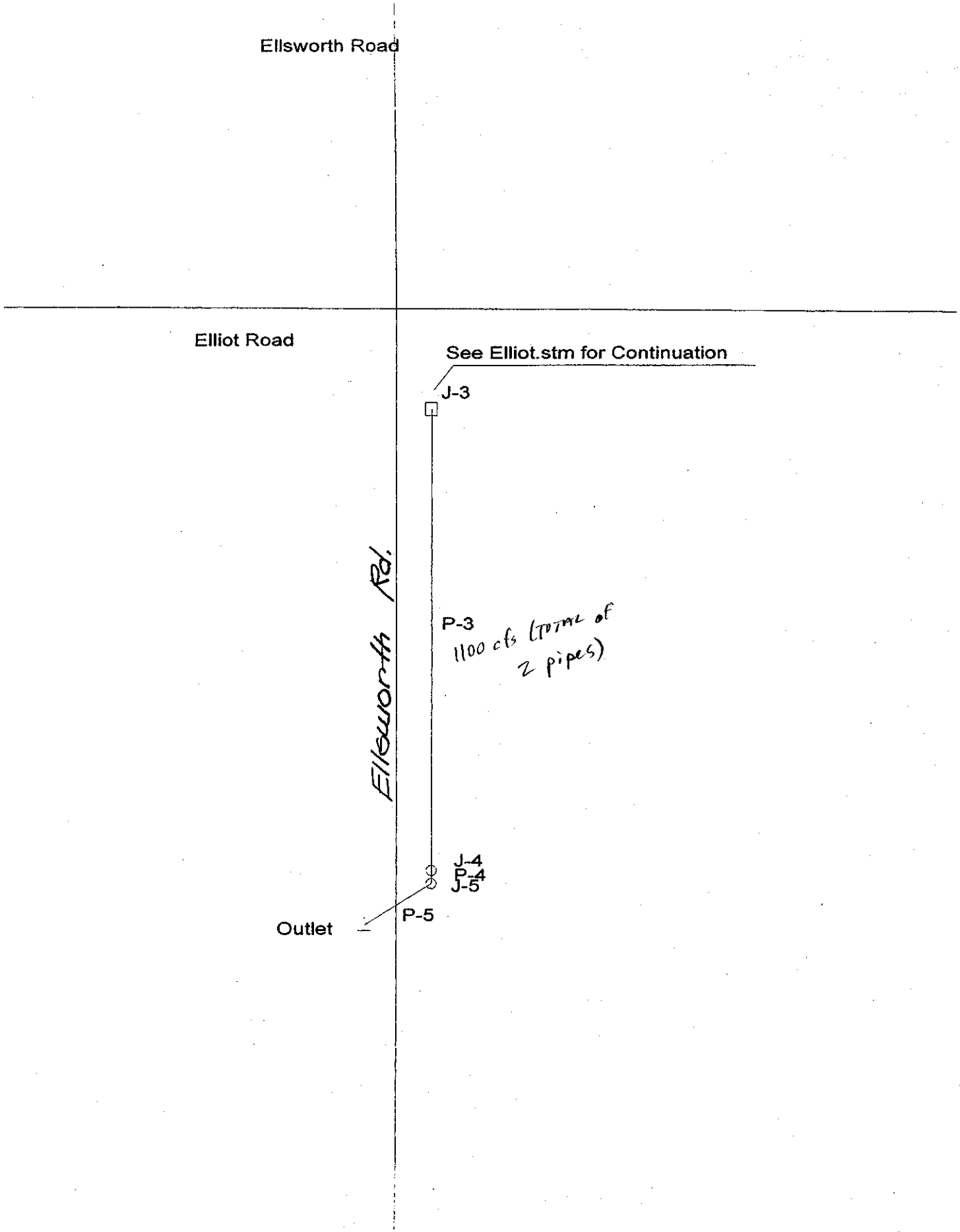
Junction Losses FCDMC Method

Junction losses based on the FCDMC Drainage Design Manual, Volume II, Hydraulics, January 28, 1996.
Junction Losses at laterals, formula (4.9a).

Location	*Junction Number*	*Downstream Pipe (in)*	*Downstream Flow (cfs)*	*Upstream Pipe (in)*	*Upstream Flow (cfs)*	*Lateral Pipe (in)*	*Lateral Flow (cfs)*	*Angle at Lateral*	*Junction Losses (ft)*
Dual Pipe Junction Structure	J-2	144.25	1101	114	986	60	106	0	1.31
Crismon Road Junction Structure	J-8	114	956	114	549	90	410	45	2.61

Note:

1. The downstream pipe at the dual pipe junction structure is an equivalent area to 2-102" pipes.


Ellsworth Road
Elliot Road
See Elliot.stm for Continuation
J-3
Ellsworth Rd.
P-3
1100 cfs (TOTAL of 2 pipes)
J-4
P-4
J-5
P-5
Outlet

Pipe Report

Upstream Node	Downstream Node	Pipe	Discharge (cfs)	Length (ft)	Constructed Slope (ft/ft)	Section Size	Roughness	Downstream Velocity (ft/s)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Upstream Ground Elevation (ft)	Downstream Ground Elevation (ft)	Upstream HGL (ft)	Downstream HGL (ft)	Upstream Energy Grade (ft)
J-3	J-4	P-3	550.50	1,151.00	0.001477	102 inch	0.012	9.84	1,390.05	1,388.35	1,404.05	1,401.04	1,399.00	1,396.49	1,400.46
J-4	J-5	P-4	550.50	35.00	0.001429	102 inch	0.012	9.91	1,388.35	1,388.30	1,401.04	1,401.00	1,396.42	1,396.35	1,397.94
J-5	Outlet	P-5	550.50	195.70	0.001533	102 inch	0.012	11.31	1,388.30	1,388.00	1,401.00	1,399.00	1,395.39	1,394.80	1,397.23

Ellsworth Road

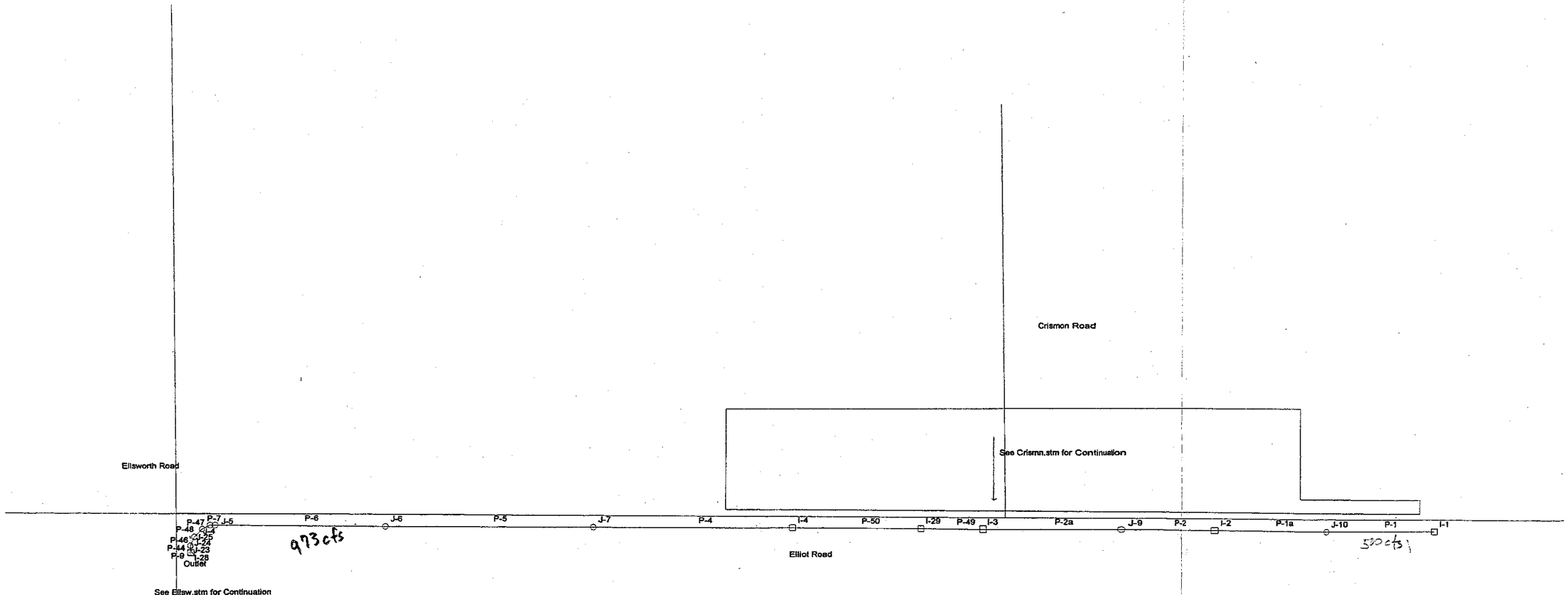
HYDRAULICS

- **Elliot Road StormCad Output**

Pipe Report

Upstream Node	Downstream Node	Pipe	Discharge (cfs)	Length (ft)	Constructed Slope (ft/ft)	Section Size	Roughness	Downstream Velocity (ft/s)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Upstream Ground Elevation (ft)	Downstream Ground Elevation (ft)	Upstream HGL (ft)	Downstream HGL (ft)	Upstream Energy Grade (ft)
I-1	J-10	P-1	508.00	707.10	0.006364	78 inch	0.012	15.48	1,429.00	1,424.50	1,441.19	1,437.06	1,436.40	1,430.77	1,440.04
J-10	I-2	P-1a	508.00	704.00	0.006392	90 inch	0.012	13.01	1,424.50	1,420.00	1,437.06	1,432.49	1,430.33	1,426.20	1,433.28
I-2	J-9	P-2	548.00	606.00	0.004670	90 inch	0.012	12.84	1,420.00	1,417.17	1,432.49	1,430.50	1,426.04	1,424.11	1,429.25
J-9	I-3	P-2a	548.00	875.10	0.004765	114 inch	0.012	7.73	1,417.17	1,413.00	1,430.50	1,427.00	1,423.87	1,423.14	1,425.50
I-3	I-29	P-49	956.00	390.00	0.005231	114 inch	0.012	17.62	1,413.00	1,410.96	1,427.00	1,424.30	1,420.53	1,417.75	1,424.44
I-29	I-4	P-50	956.00	820.00	0.005195	114 inch	0.012	13.49	1,410.96	1,406.70	1,424.30	1,420.08	1,418.49	1,416.65	1,422.40
I-4	J-7	P-4	973.00	1,271.00	0.005224	114 inch	0.012	13.73	1,406.70	1,400.06	1,420.08	1,413.44	1,416.51	1,411.58	1,419.43
J-7	J-6	P-5	973.00	1,319.00	0.004003	114 inch	0.012	13.73	1,400.06	1,394.78	1,413.44	1,408.78	1,411.43	1,406.31	1,414.36
J-6	J-5	P-6	973.00	1,079.00	0.004032	114 inch	0.012	13.73	1,394.78	1,390.43	1,408.78	1,403.81	1,406.17	1,401.98	1,409.10
J-5	J-4	P-7	973.00	25.40	0.001575	114 inch	0.012	13.73	1,390.43	1,390.39	1,403.81	1,403.80	1,401.84	1,401.74	1,404.77
J-4	J-25	P-47	973.00	59.30	0.001518	114 inch	0.012	13.73	1,390.39	1,390.30	1,403.80	1,403.80	1,401.59	1,401.36	1,404.52
J-25	J-24	P-48	973.00	69.40	0.001297	114 inch	0.012	13.73	1,390.30	1,390.21	1,403.80	1,403.60	1,401.22	1,400.95	1,404.14
J-24	J-23	P-46	973.00	59.30	0.001518	114 inch	0.012	13.73	1,390.21	1,390.12	1,403.60	1,403.50	1,400.80	1,400.57	1,403.73
J-23	I-28	P-44	973.00	44.90	0.001559	114 inch	0.012	13.73	1,390.12	1,390.05	1,403.50	1,404.10	1,400.42	1,400.25	1,403.35
I-28	Outlet	P-9	,093.00	5.10	0.000000	144 inch	0.012	12.20	1,390.05	1,390.05	1,404.10	1,404.10	1,398.94	1,398.92	1,401.24

Elliot Road



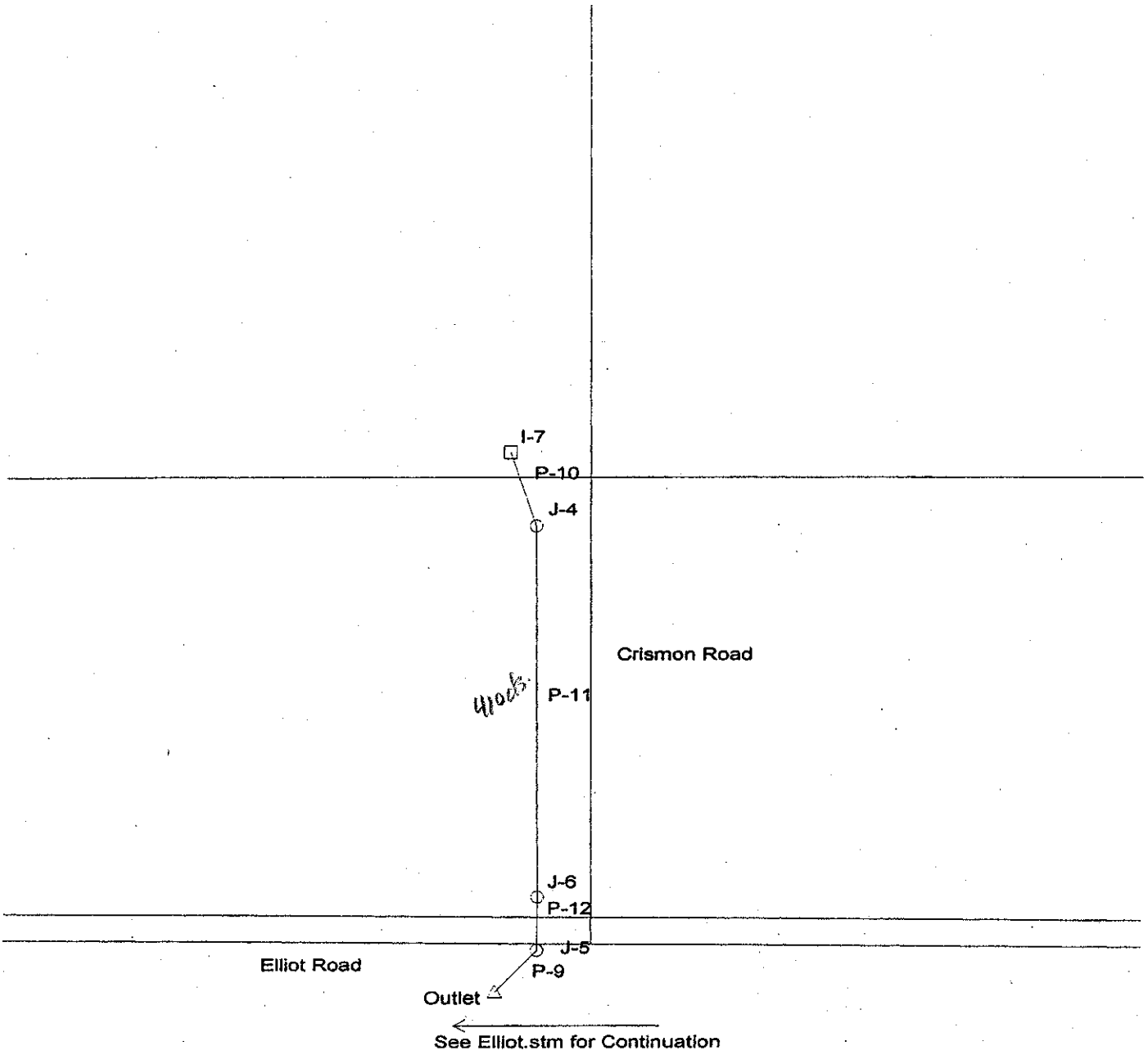
Project Title: Elliot Road Detention Basins and Outfall Channel
w:\...\hydraulics\final submittal\elliot.stm
04/18/00 10:42:19 AM

Wood/Patel
© Haestad Methods, Inc. 37 Brookside Road Waterbury, CT 06708 USA (203) 755-1666

Project Engineer: Wood/Patel
StormCAD v1.5 [158]
Page 1 of 1

HYDRAULICS

- **Crismon Road StormCad Output**


I-7
P-10
J-4
Crismon Road
P-11
J-6
P-12
J-5
Elliot Road
P-9
Outlet
See Elliot.stm for Continuation

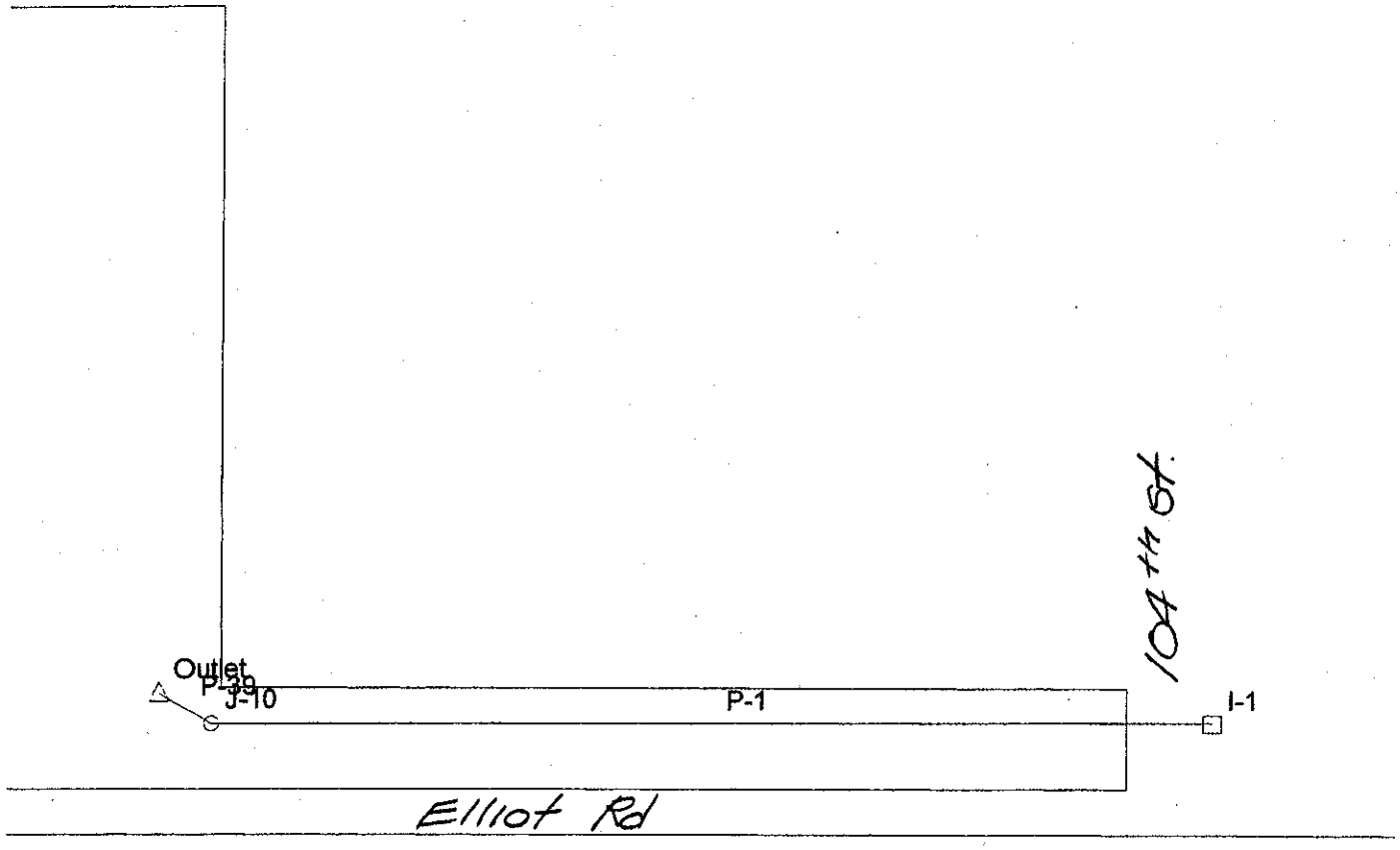
Pipe Report

Upstream Node	Downstream Node	Pipe	Discharge (cfs)	Length (ft)	Constructed Slope (ft/ft)	Section Size	Roughness	Downstream Velocity (ft/s)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Upstream Ground Elevation (ft)	Downstream Ground Elevation (ft)	Upstream HGL (ft)	Downstream HGL (ft)	Upstream Energy Grade (ft)
I-7	J-4	P-10	410.00	117.17	0.008620	78 inch	0.012	13.38	1,420.30	1,419.29	1,430.50	1,430.00	1,425.69	1,424.94	1,428.71
J-4	J-6	P-11	410.00	559.72	0.008629	90 inch	0.013	9.28	1,419.29	1,414.46	1,430.00	1,428.80	1,424.54	1,423.99	1,426.93
J-6	J-5	P-12	410.00	79.28	0.008577	90 inch	0.013	9.28	1,414.46	1,413.78	1,428.80	1,429.00	1,423.99	1,423.76	1,425.32
J-5	Outlet	P-9	410.00	89.70	0.008696	90 inch	0.012	9.28	1,413.78	1,413.00	1,429.00	1,426.30	1,423.36	1,423.14	1,424.70

Crismon Rd

HYDRAULICS

- **Basin "EA" to 104th Street StormCad Output**


Outlet
P-39
J-10
P-1
I-1
104th St.
Elliot Rd

Pipe Report

Upstream Node	Downstream Node	Pipe	Discharge (cfs)	Length (ft)	Constructed Slope (ft/ft)	Section Size	Roughness	Downstream Velocity (ft/s)	Upstream Invert Elevation (ft)	Downstream Invert Elevation (ft)	Upstream Ground Elevation (ft)	Downstream Ground Elevation (ft)	Upstream HGL (ft)	Downstream HGL (ft)	Upstream Energy Grade (ft)
I-1	J-10	P-1	385.00	861.80	0.003841	78 inch	0.012	12.49	1,434.50	1,431.19	1,445.00	1,440.00	1,440.56	1,436.88	1,442.78
J-10	Outlet	P-39	385.00	50.00	0.003800	78 inch	0.010	13.07	1,431.19	1,431.00	1,440.00	1,439.00	1,436.44	1,436.40	1,439.23

Elliot Road North

HYDRAULICS

- **104th Street Splitter Structure & Bypass Pipe Calcs**

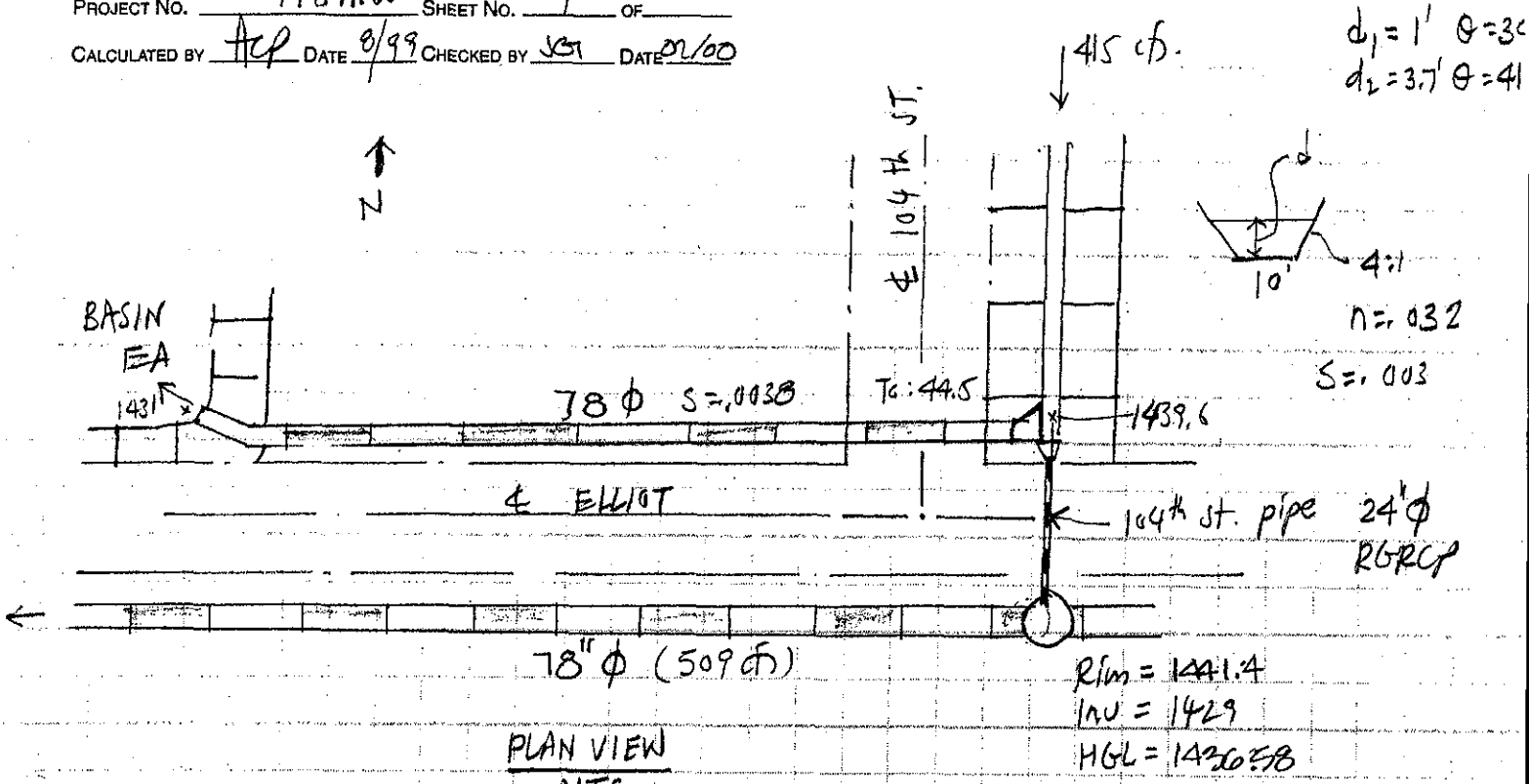
WOOD/PATEL

CIVIL ENGINEERS • HYDROLOGISTS • LAND SURVEYORS

PROJECT Elliot Basin - 104th ST. channel - Basin "EA"

PROJECT NO. 99891.00 SHEET NO. 1 OF

CALCULATED BY ACP DATE 8/99 CHECKED BY JGT DATE 02/00



PLAN VIEW
NTS

HYDRAULICS (for 90% plans)

1. 104th st. channel (including backwater)
2. 104th st pipe across Elliot (initial 30 cfs diversion)
3. Pipe betn Basin EA & 104th st. channel (Excess Q_{100} = 395 cfs)

TRAPEZOIDAL CHANNEL ANALYSIS
RATING CURVE COMPUTATION

February 1, 2000

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Channel Bottom Slope (ft/ft)	0.003
Manning's Roughness Coefficient (n-value)	0.03
Channel Left Side Slope (horizontal/vertical)	4.0
Channel Right Side Slope (horizontal/vertical)	4.0
Channel Bottom Width (ft)	10.0
Minimum Flow Depth (ft)	1.0
Maximum Flow Depth (ft)	5.0
Incremental Head (ft)	1.0

COMPUTATION RESULTS

Flow Depth (ft)	Flow Rate (cfs)	Flow Velocity (fps)	Froude Number	Velocity Head (ft)	Energy Head (ft)	Flow Area (sq ft)	Top Width (ft)
1.0	31.83	2.27	0.455	0.08	1.08	14.0	18.0
2.0	119.82	3.33	0.499	0.172	2.172	36.0	26.0
3.0	274.66	4.16	0.527	0.269	3.269	66.0	34.0
4.0	508.49	4.89	0.548	0.371	4.371	104.0	42.0
5.0	832.85	5.55	0.565	0.479	5.479	150.0	50.0

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Dodson & Associates, Inc., 5629 FM 1960 West, Suite 314, Houston, TX 77069
Phone:(281)440-3787, Fax:(281)440-4742, Email:software@dodson-hydro.com
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TRAPEZOIDAL CHANNEL ANALYSIS
STANDARD STEP WATER SURFACE PROFILE

August 31, 1999
104th Street Channel (Q100=415cfs)
Starting Water Surface from Culvert Inlet Condition
Dirt Channel with some landscaping

==========

PROGRAM INPUT DATA:

DESCRIPTION	VALUE
Flow Rate (cubic feet per second)	415.0
Channel Bottom Slope (feet per foot)	0.0030
Manning's Roughness Coefficient (n-value)	0.0300
Channel Side Slope - Left Side (horizontal/vertical)	4.00
Channel Side Slope - Right Side (horizontal/vertical)	4.00
Channel Bottom Width (feet)	10.0
Channel Flow-Line Elevation at Starting Station (feet)	1439.60
Water Surface Elevation at Starting Station (feet)	1443.70
Starting Channel Station (feet)	0.00

==========

PROGRAM RESULTS:

DESCRIPTION	VALUE
Normal Depth (feet)	3.64
Critical Depth (feet)	2.67

Station (ft)	Flowline (ft)	WS Elev. (ft)	Depth (ft)	Flow Area (sq ft)	Vel (fps)	Velocity Head(ft)	EGL Slope (ft/ft)
0.0	1439.60	1443.70	4.10	108.24	3.83	0.228	0.001794
100.0	1439.90	1443.87	3.97	102.65	4.04	0.254	0.002070
200.0	1440.20	1444.06	3.86	98.40	4.22	0.276	0.002320
300.0	1440.50	1444.29	3.79	95.33	4.35	0.294	0.002528
400.0	1440.80	1444.54	3.74	93.21	4.45	0.308	0.002686
450.0	1440.95	1444.67	3.72	92.45	4.49	0.313	0.002746

==========

TRAPEZOIDAL CHANNEL ANALYSIS COMPUTER PROGRAM, Version 1.3 (c) 1986
Dodson & Associates, Inc., 5629 FM 1960 W., #314, Houston, TX 77069
(713) 440-3787. A manual with equations & flow chart is available.

WOOD/PATEL

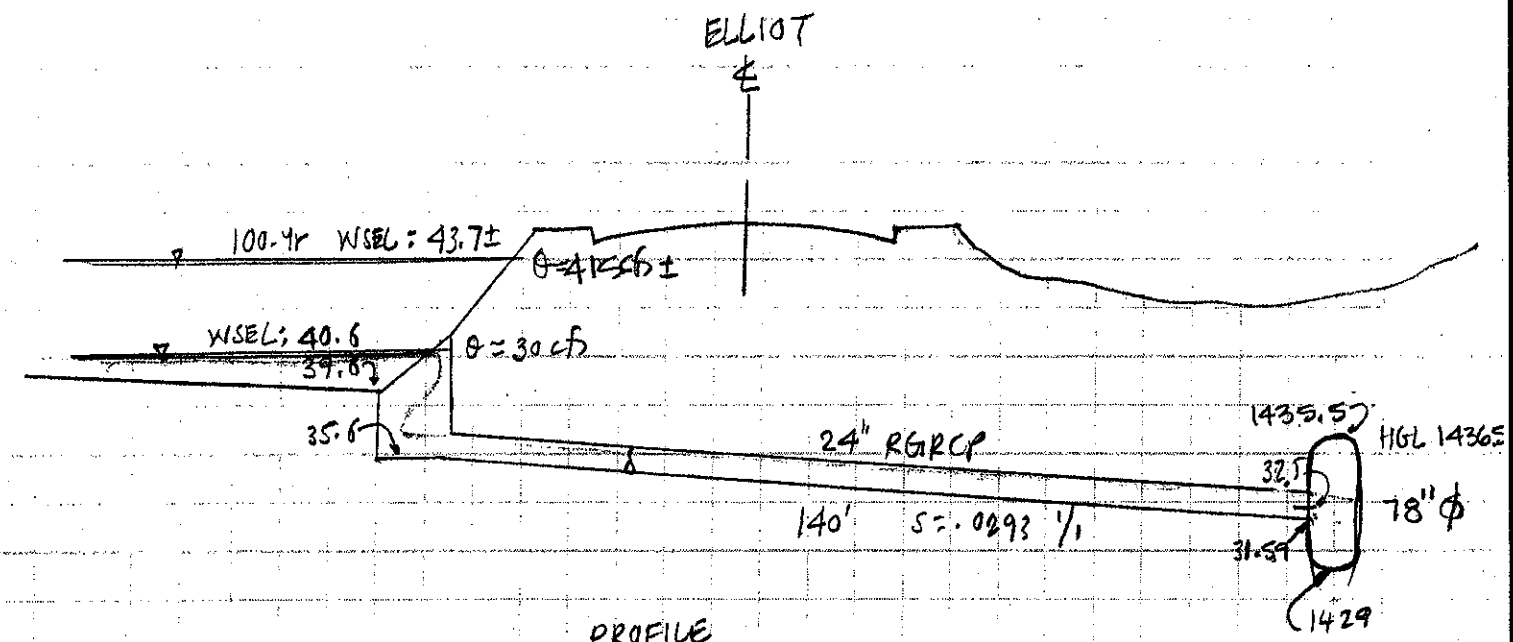
CIVIL ENGINEERS • HYDROLOGISTS • LAND SURVEYORS

PROJECT Elliot Basin 104th st channel

PROJECT NO. 99891 SHEET NO. _____ OF _____

CALCULATED BY _____ DATE _____ CHECKED BY KG DATE 5/2/00

① 104th st. Pipe across Elliot



PROFILE

LOOKING EAST

NTS

PIPE CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

February 1, 2000

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Diameter (ft)	2.0
FHWA Chart Number	1
FHWA Scale Number (Type of Culvert Entrance)	1
Manning's Roughness Coefficient (n-value)	0.012
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	162.0
Invert Elevation at Downstream end of Culvert (ft)	1,431.59
Invert Elevation at Upstream end of Culvert (ft)	1,435.6
Culvert Slope (ft/ft)	0.0248
Starting Flow Rate (cfs)	10.0
Incremental Flow Rate (cfs)	10.0
Ending Flow Rate (cfs)	50.0
Starting Tailwater Depth (ft)	1.0
Incremental Tailwater Depth (ft)	1.0
Ending Tailwater Depth (ft)	5.0

COMPUTATION RESULTS

Flow Rate (cfs)	Tailwater Depth (ft)	Headwater (ft) Inlet Control	Headwater (ft) Outlet Control	Normal Depth (ft)	Critical Depth (ft)	Depth at Outlet (ft)	Outlet Velocity (fps)
10.0	1.0	1.67	0.0	0.7	1.13	0.7	10.3
20.0	2.0	2.93	0.01	1.02	1.61	1.02	12.4
30.0	3.0	4.94	3.54	1.33	1.86	1.33	13.57
40.0	4.0	7.77	8.08	1.72	1.95	2.0	12.73
50.0	5.0	11.4	13.64	2.0	1.98	2.0	15.92

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WOOD/PATEL

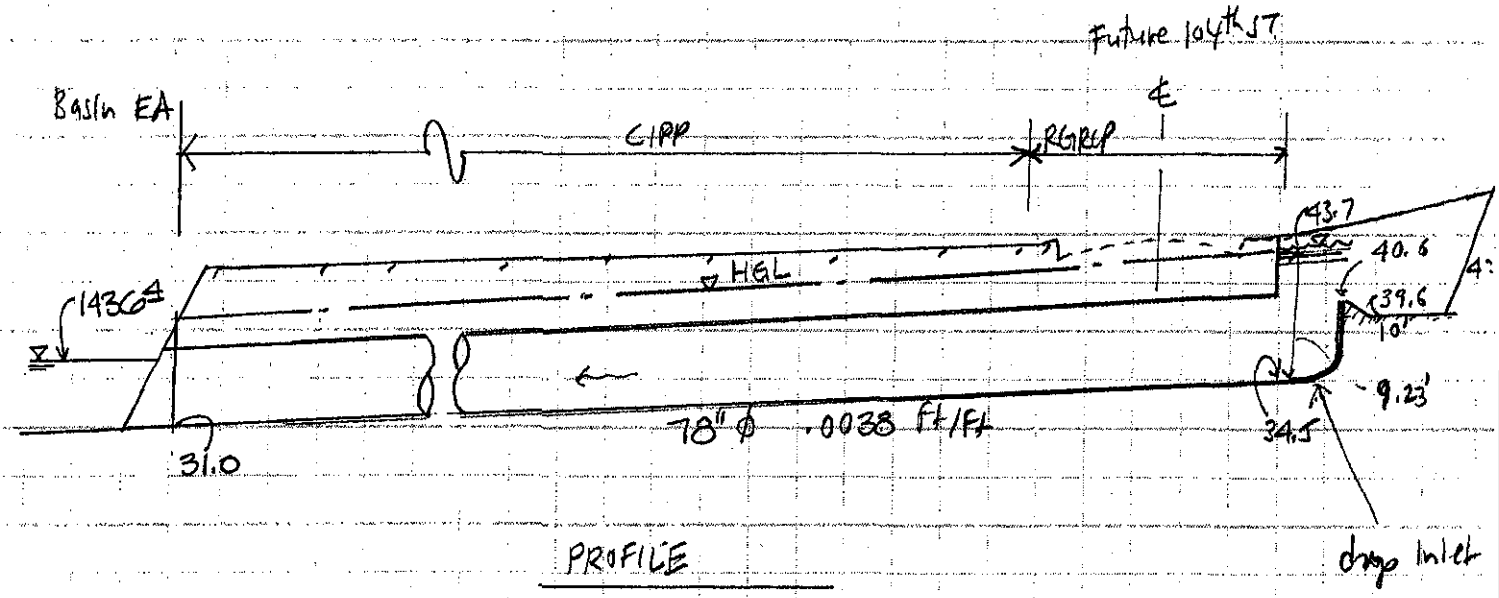
CIVIL ENGINEERS • HYDROLOGISTS • LAND SURVEYORS

PROJECT Elliot Road Detention Basin

PROJECT NO. _____ SHEET NO. _____ OF _____

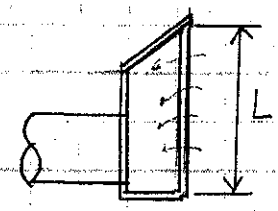
CALCULATED BY JET DATE 12/4/99 CHECKED BY _____ DATE _____

③ Pipe between Basin EA & 104th st. channel



PROFILE

LOOKING NORTH
NTS



DROP-PLAN VIEW

Drop Inlet: $Q_{100} = 385$ cfs

Weir length check:

$$Q = CLH^{3/2}$$

$$385 = 3 \times L \times (43.7 - 40.6)^{3/2}$$

$$\therefore L = 23.5'$$

Assume Tailwater = 1436.4 (bottom flowing full @ outlet)

100-yr HGL = 1439.00

HYDRAULICS

• Elliot Road Dip Section Culvert Replacement

PIPE CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

December 15, 1999

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Diameter (ft)	2.88
FHWA Chart Number	2
FHWA Scale Number (Type of Culvert Entrance)	2
Manning's Roughness Coefficient (n-value)	0.024
Entrance Loss Coefficient of Culvert Opening	0.8
Culvert Length (ft)	40.0
Invert Elevation at Downstream end of Culvert (ft)	1,424.95
Invert Elevation at Upstream end of Culvert (ft)	1,425.85
Culvert Slope (ft/ft)	0.0225
Starting Flow Rate (cfs)	40.0
Incremental Flow Rate (cfs)	1.0
Ending Flow Rate (cfs)	50.0
Starting Tailwater Depth (ft)	3.0
Incremental Tailwater Depth (ft)	0.0
Ending Tailwater Depth (ft)	3.0

COMPUTATION RESULTS

Flow Rate (cfs)	Tailwater Depth (ft)	Headwater (ft) Inlet Control	Headwater (ft) Outlet Control	Normal Depth (ft)	Critical Depth (ft)	Depth at Outlet (ft)	Outlet Velocity (fps)
40.0	3.0	3.64	3.76	1.99	2.08	2.88	6.14
41.0	3.0	3.83	3.85	2.03	2.11	2.88	6.29
42.0	3.0	4.01	3.93	2.07	2.13	2.07	8.4
43.0	3.0	4.17	4.02	2.11	2.16	2.11	8.42
44.0	3.0	4.31	4.11	2.15	2.18	2.15	8.45
45.0	3.0	4.41	4.21	2.19	2.21	2.19	8.47
46.0	3.0	4.51	4.3	2.23	2.23	2.23	8.49
47.0	3.0	4.62	4.4	2.28	2.25	2.28	8.5
48.0	3.0	4.72	4.5	2.33	2.27	2.33	8.51
49.0	3.0	4.82	4.6	2.38	2.3	2.38	8.5
50.0	3.0	4.93	4.7	2.44	2.32	2.44	8.49

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30"x42" PIPE AREA = 6.5 SF ≈ 2.88' Ø PIPE
30"x42" EXIST. CMP'S @ ELLIOT ROAD DIP SECTIONS
CAPACITY/PIPE @ HGEL = TOP OF BERM (4.2')
Capacity = 43cfs/pipe

PIPE CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

December 16, 1999

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Diameter (ft)	4.0
FHWA Chart Number	1
FHWA Scale Number (Type of Culvert Entrance)	3
Manning's Roughness Coefficient (n-value)	0.012
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	46.0
Invert Elevation at Downstream end of Culvert (ft)	1,418.4
Invert Elevation at Upstream end of Culvert (ft)	1,425.5
Culvert Slope (ft/ft)	0.1543
Starting Flow Rate (cfs)	100.0
Incremental Flow Rate (cfs)	1.0
Ending Flow Rate (cfs)	115.0
Starting Tailwater Depth (ft)	10.2
Incremental Tailwater Depth (ft)	0.0
Ending Tailwater Depth (ft)	10.2

COMPUTATION RESULTS

Flow Rate (cfs)	Tailwater Depth (ft)	Headwater (ft) Inlet Control	Headwater (ft) Outlet Control	Normal Depth (ft)	Critical Depth (ft)	Depth at Outlet (ft)	Outlet Velocity (fps)
100.0	10.2	4.48	4.77	1.09	3.03	4.0	7.96
101.0	10.2	4.5	4.8	1.1	3.04	4.0	8.04
102.0	10.2	4.54	4.83	1.11	3.06	4.0	8.12
103.0	10.2	4.58	4.87	1.11	3.07	4.0	8.2
104.0	10.2	4.62	4.9	1.12	3.09	4.0	8.28
105.0	10.2	4.66	4.94	1.12	3.1	4.0	8.36
106.0	10.2	4.71	4.97	1.13	3.12	4.0	8.44
107.0	10.2	4.75	5.01	1.13	3.13	4.0	8.51
108.0	10.2	4.79	5.04	1.14	3.14	4.0	8.59
109.0	10.2	4.84	5.08	1.14	3.16	4.0	8.67
110.0	10.2	4.88	5.12	1.15	3.17	4.0	8.75
111.0	10.2	4.92	5.15	1.15	3.18	4.0	8.83
112.0	10.2	4.97	5.19	1.16	3.2	4.0	8.91
113.0	10.2	5.01	5.23	1.16	3.21	4.0	8.99
114.0	10.2	5.06	5.27	1.17	3.22	4.0	9.07
115.0	10.2	5.11	5.3	1.18	3.24	4.0	9.15

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~~Prop. Culvert @ EMIBI 65100=~~

~~Exist. 5-30" pipes @ 11.~~ EXIST. CAPACITY = 43cfs/pipe @ Top of Berm W.S.E.

43x5 = [redacted] (INV. To Top/Berm = 4.15)

~~Prop. 2-48" pipes~~ (INV TO Top/Berm = 5')

CAPACITY = 107cfs/pipe = 214cfs ∴ OK

PIPE CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

December 16, 1999

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Diameter (ft)	3.5
FHWA Chart Number	1
FHWA Scale Number (Type of Culvert Entrance)	3
Manning's Roughness Coefficient (n-value)	0.012
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	46.0
Invert Elevation at Downstream end of Culvert (ft)	1,419.0
Invert Elevation at Upstream end of Culvert (ft)	1,428.0
Culvert Slope (ft/ft)	0.1957
Starting Flow Rate (cfs)	80.0
Incremental Flow Rate (cfs)	1.0
Ending Flow Rate (cfs)	95.0
Starting Tailwater Depth (ft)	7.0
Incremental Tailwater Depth (ft)	0.0
Ending Tailwater Depth (ft)	7.0

COMPUTATION RESULTS

Flow Rate (cfs)	Tailwater Depth (ft)	Headwater (ft) Inlet Control	Headwater (ft) Outlet Control	Normal Depth (ft)	Critical Depth (ft)	Depth at Outlet (ft)	Outlet Velocity (fps)
80.0	7.0	4.26	-0.14	0.96	2.79	0.96	37.11
81.0	7.0	4.32	-0.09	0.97	2.81	0.97	37.23
82.0	7.0	4.38	-0.05	0.98	2.83	0.98	37.34
83.0	7.0	4.43	0.0	0.98	2.84	0.98	37.45
84.0	7.0	4.49	0.05	0.99	2.86	0.99	37.65
85.0	7.0	4.55	0.1	0.99	2.87	0.99	37.75
86.0	7.0	4.61	0.15	1.0	2.89	1.0	37.86
87.0	7.0	4.66	0.2	1.01	2.9	1.01	37.96
88.0	7.0	4.72	0.25	1.01	2.92	1.01	38.14
89.0	7.0	4.79	0.3	1.02	2.93	1.02	38.24
90.0	7.0	4.85	0.35	1.03	2.94	1.03	38.33
91.0	7.0	4.91	0.41	1.03	2.96	1.03	38.5
92.0	7.0	4.97	0.46	1.04	2.97	1.04	38.59
93.0	7.0	5.03	0.51	1.04	2.98	1.04	38.76
94.0	7.0	5.1	0.57	1.05	3.0	1.05	38.85
95.0	7.0	5.16	0.62	1.05	3.01	1.05	38.93

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[redacted]

[redacted] CMP. Exist Capacity 43cfs/pipe @ Top of Berm WSEL

43cfs x 6 pipes = [redacted] (Inv to top of Berm = 4.15')

[redacted] (Inv to top of berm 5.0')

CAPACITY = 92cfs x 3 = 276 cfs ∴ ok

HYDRAULICS

- Basin "WA" to Basin "WB" Overflow Structure

WOOD/PATEL

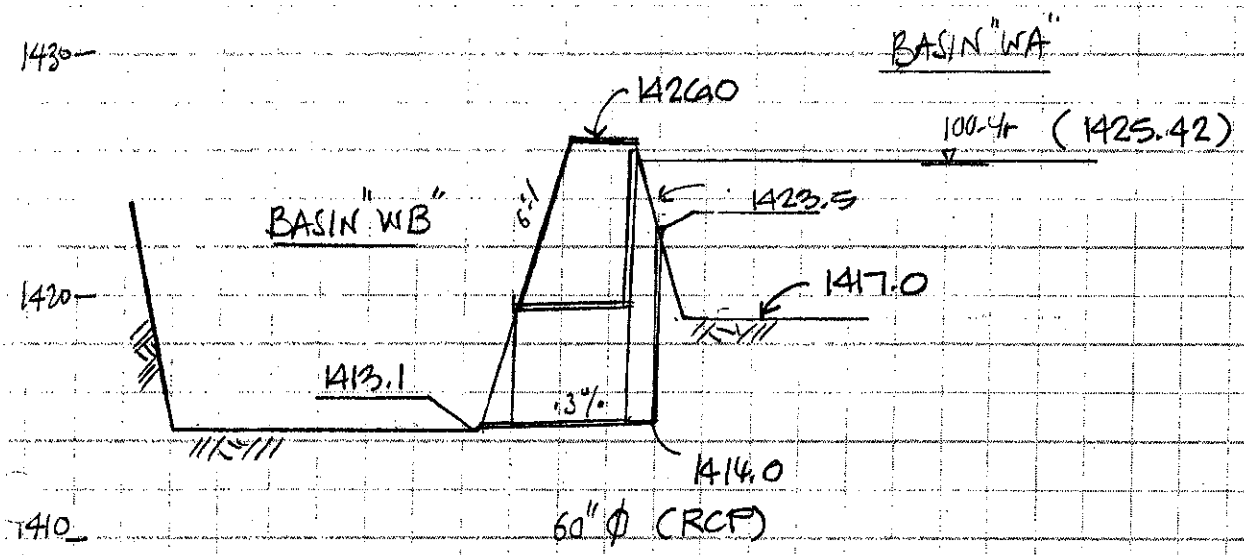
CIVIL ENGINEERS • HYDROLOGISTS • LAND SURVEYORS

PROJECT Pipe Beth Basin WA & WB

PROJECT NO. 99891 SHEET NO. ____ OF ____

CALCULATED BY Acf DATE 9/99 CHECKED BY BT DATE 0400

Overflow Structure & Pipe Hydraulics



CROSS-SECTION (Looking North)
NTS

Design Parameters:

Q_{100} overflow to Basin "WB" = 160 cfs

Provide drop inlet to allow overflow
Use 60" pipe to discharge into basin "WA"

WOOD/PATEL

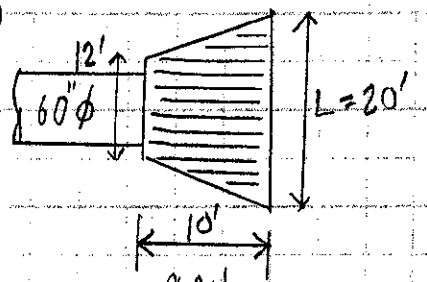
CIVIL ENGINEERS • HYDROLOGISTS • LAND SURVEYORS

PROJECT ELLIOT BASIN & CHANNEL

PROJECT NO. _____ SHEET NO. _____ OF _____

CALCULATED BY KCP DATE 9/99 CHECKED BY XST DATE 2/1/00

Drop Inlet:
(30% Design)



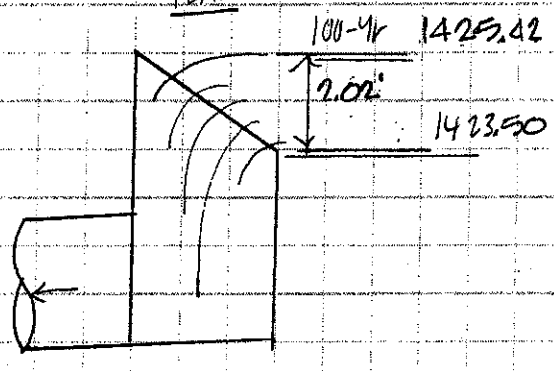
PLAN

Design $Q_{100} = 160$ cfs

Weir: $Q = CLH^{3/2}$

$160 = 3 \times L \times 2.02^{3/2}$

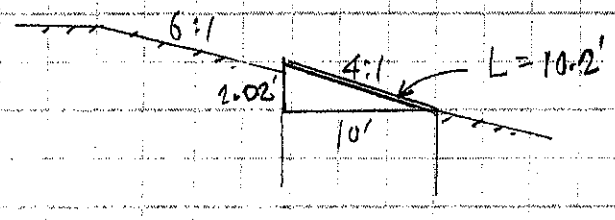
$\therefore L = 20.05$



ELEV

$\therefore$ Provide full length $\geq$ 20'

Check velocity thru' Grated Inlet:



Total surface Area of Grate $= 10.2 \times \left(\frac{12+20}{2}\right)$

$= 163.2$ SF.

Assume net opening (accounting for grates & trash)

$= 30\%$ of total area

$= 49$ SF

$\therefore$ Velocity thru' opening $= \frac{160 \text{ cfs}}{49} = 3.27$ fps

$\therefore$ ok

PIPE CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

December 6, 1999

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Diameter (ft)	5.0
FHWA Chart Number	2
FHWA Scale Number (Type of Culvert Entrance)	1
Manning's Roughness Coefficient (n-value)	0.012
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	86.0
Invert Elevation at Downstream end of Culvert (ft)	1,413.74
Invert Elevation at Upstream end of Culvert (ft)	1,414.0
Culvert Slope (ft/ft)	0.003
Starting Flow Rate (cfs)	185.0
Incremental Flow Rate (cfs)	0.0
Ending Flow Rate (cfs)	185.0
Starting Tailwater Depth (ft)	3.0
Incremental Tailwater Depth (ft)	1.0
Ending Tailwater Depth (ft)	5.0

COMPUTATION RESULTS

Flow Rate (cfs)	Tailwater Depth (ft)	Headwater (ft) Inlet Control	Headwater (ft) Outlet Control	Normal Depth (ft)	Critical Depth (ft)	Depth at Outlet (ft)	Outlet Velocity (fps)
185.0	3.0	6.81	6.78	5.0	3.89	5.0	9.42
185.0	4.0	6.81	6.78	5.0	3.89	5.0	9.42
185.0	5.0	6.81	7.18	5.0	3.89	5.0	9.42

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Check Overflow Structure from Basin WA to WB

Inlet Headwater = 1414.0 + 7.18 = 1421.18

Inlet Headwater (1421.18) is lower Than the grate (Weir Crest = 1423.5) ∴ OK

HYDRAULICS

- **Crismon Road Channel, Splitter Structure & Bypass Pipe Calcs**

ELLIOT ROAD DETENTION BASINS AND OUTFALL CHANNEL
Contract FCD 98-44

Crismon Channel Design

The Crismon channel weir structure was analyzed using the Side Weir Hydraulic Profile Analysis Program, 1994 Version, prepared by California State University Long Beach Foundation provided to Wood/Patel by the FCDMC. The channel upstream of the weir section was modeled using the US Army Corps of Engineers HEC-RAS River Analysis Program, Version 2.2. The channel velocities in the unlined channel reach are less than 5fps. Freeboard in the channel is maintained at a minimum of 1'. The channel weir is designed to bypass 363cfs before the flow in the channel begins to overtop the splitter channel weir and begins to flow into the basin. The structure is designed to bypass 410cfs at the design flow of 712cfs (100year, 24hour).

The weir performance was analyzed using the following procedure:

1. A pipe culvert analysis was performed for the channel bypass flow outfall pipe to establish the head required to pass the peak design bypass flow (410cfs) and to establish the head required for the design bypass flow (363cfs). A Stormcad model of the downstream pipe system was used to determine the tailwater elevation to use in the pipe culvert analysis.

2. The Orange County Side Weir Hydraulic Profile Analysis Program was used to verify the design elements of the weir. The headwater calculated in step1 was used to determine the flow depth at the downstream end of the weir. The channel parameters were input including length, slope, width, Manning's n, flow regime, weir wall height and the design flow in the channel at the downstream end of the weir. The Froude numbers were checked to verify that they were below the lower transitional limit of 0.86.

3. Based on the weir analysis, the water surface elevation at the upstream end of the weir was used as the downstream boundary condition for the HEC-RAS model of the Crismon Channel Reach upstream of the weir.

4. To determine the low flow bypass capacity of the channel a HEC-RAS model was run using the headwater calculated in step1 as the downstream boundary condition. Based on this analysis, the channel has the ability to bypass 363cfs before flow begins to overtop the weir.

A low flow bypass pipe system is required at the upstream end of the Crismon Channel at the SRP transmission line corridor to address 404 issues. A hard lined 2' drop will be designed in the bottom of the channel to direct low flows to the west. The capacity of 2-24" pipes at WSEL equal to the channel bottom (2'deep) is 24cfs. A HEC-RAS model was used to establish the 100-year, 24-hour WSEL at the pipes. At this WSEL the capacity of the 2-24" pipes is 76cfs.

PIPE CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

February 1, 2000

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Diameter (ft)	6.5
FHWA Chart Number	2
FHWA Scale Number (Type of Culvert Entrance)	1
Manning's Roughness Coefficient (n-value)	0.012
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	117.0
Invert Elevation at Downstream end of Culvert (ft)	1,419.29
Invert Elevation at Upstream end of Culvert (ft)	1,420.3
Culvert Slope (ft/ft)	0.0086
Starting Flow Rate (cfs)	348.0
Incremental Flow Rate (cfs)	6.2
Ending Flow Rate (cfs)	410.0
Starting Tailwater Depth (ft)	5.18
Incremental Tailwater Depth (ft)	0.05
Ending Tailwater Depth (ft)	5.68

COMPUTATION RESULTS

Flow Rate (cfs)	Tailwater Depth (ft)	Headwater (ft) Inlet Control	Headwater (ft) Outlet Control	Normal Depth (ft)	Critical Depth (ft)	Depth at Outlet (ft)	Outlet Velocity (fps)
348.0	*5.18	8.63	0.0	3.85	5.0	3.85	16.98
354.2	5.23	8.78	0.0	3.9	5.05	3.9	17.05
360.4	5.28	8.93	0.0	3.94	5.09	3.94	17.11
366.6	5.33	9.08	0.0	3.99	5.13	3.99	17.18
372.8	5.38	9.24	0.0	4.03	5.17	4.03	17.24
379.0	5.43	9.4	0.0	4.08	5.21	4.08	17.3
385.2	5.48	9.56	0.0	4.12	5.25	4.12	17.36
391.4	5.53	9.73	0.0	4.17	5.29	4.17	17.42
397.6	5.58	9.9	0.0	4.21	5.32	4.21	17.47
403.8	5.63	10.07	0.0	4.26	5.36	4.26	17.52
410.0	*5.68	10.24	0.0	4.31	5.39	4.31	17.57

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Headwater req'd to bypass 410cfs = 10.24'

Pipe Inv = 1420.31

Head reqd = 10.24

WSEL = 1430.55

Channel Inv = 1425.0

5.55' = Depth of flow at downstream end of channel

* Tailwater in pipe from Stormcad Model

SIDEWEIR HYDRAULIC PROFILE ANALYSIS

sideweir with two Q vs D values

0.00100 20.00 -1 0.015 1.00 145.0 1.

4.40 0.00

410. 5.55

DISTANCE	CHANNEL Q	CHANNEL DEPTH	WEIR HEIGHT	WEIR DEPTH	P + M	SPECIFIC ENERGY	FROUDE NUMBER	CD
0.1	410.	5.55	4.40	1.15	356.	5.77	0.28	0.536
12.0	446.	5.50	4.40	1.10	359.	5.76	0.30	0.536
23.1	480.	5.45	4.40	1.05	363.	5.75	0.33	0.536
35.1	514.	5.39	4.40	0.99	367.	5.75	0.36	0.536
46.5	544.	5.34	4.40	0.94	371.	5.74	0.39	0.536
59.5	575.	5.27	4.40	0.87	375.	5.73	0.42	0.536
70.3	598.	5.22	4.40	0.82	379.	5.73	0.44	0.536
82.0	621.	5.16	4.40	0.76	383.	5.72	0.47	0.536
94.6	643.	5.10	4.40	0.70	386.	5.72	0.49	0.536
108.1	664.	5.04	4.40	0.64	390.	5.72	0.52	0.536
122.5	684.	4.98	4.40	0.58	394.	5.71	0.54	0.536
137.8	701.	4.92	4.40	0.52	398.	5.71	0.57	0.536
143.1	707.	4.91	4.40	0.51	399.	5.71	0.57	0.536
145.0	712.	4.89	4.40	0.49	400.	5.71	0.58	0.536

SUMMARY REPORT

Q UP	Q DOWN	D UP	D DOWN
712.	410.	4.9	5.6

Processing Complete

Profile Output Table Standard Table 1
HEC-RAS Plan: proposed River Crsimon Reach: Proposed Channel

Fille: w:\1999Projects\99891-Elliot Basin-Channel\Hyrdaulics\HEC-RAS\Crismon\crismon90.prj

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Proposed Channel	1895	712	1425.14	1430.03	1429.03	1430.95	0.001291	7.69	92.62	24.87	0.69
Proposed Channel	1896	712	1425.15	1430.56		1431	0.000536	5.3	134.27	35.64	0.48
Proposed Channel	1900	712	1425.15	1430.71		1431.01	0.000347	4.4	161.87	41.61	0.39
Proposed Channel	1925	712	1425.17	1430.88		1431.03	0.000166	3.16	225.4	55.88	0.28
Proposed Channel	1950	712	1425.2	1430.94		1431.04	0.0001	2.49	285.55	69.81	0.22
Proposed Channel	1975	712	1425.22	1430.98		1431.05	0.000067	2.07	344.73	83.6	0.18
Proposed Channel	1995	712	1425.24	1430.99		1431.05	0.000055	1.88	379.05	91.75	0.16
Proposed Channel	2005	712	1427.41	1430.91		1431.09	0.000318	3.33	213.75	82.05	0.36
Proposed Channel	2015	712	1427.44	1430.91		1431.09	0.000328	3.37	211.4	81.69	0.37
Proposed Channel	2050	712	1427.56	1430.93		1431.12	0.001687	3.52	202.53	80.36	0.39
Proposed Channel	2100	712	1427.74	1431		1431.21	0.001893	3.66	194.46	79.18	0.41
Proposed Channel	2200	712	1428.09	1431.19		1431.43	0.002297	3.92	181.65	77.19	0.45
Proposed Channel	2300	712	1428.44	1431.42		1431.68	0.002664	4.13	172.48	75.8	0.48
Proposed Channel	2400	712	1428.79	1431.69		1431.97	0.002965	4.29	166.08	74.73	0.51
Proposed Channel	2500	712	1429.14	1431.98		1432.28	0.003173	4.39	162.23	74.16	0.52
Proposed Channel	2600	712	1429.49	1432.3		1432.61	0.00331	4.45	159.84	73.77	0.53
Proposed Channel	2700	712	1429.83	1432.63		1432.94	0.003354	4.48	159.04	73.58	0.54
Proposed Channel	2800	712	1430.18	1432.97		1433.28	0.003419	4.51	157.98	73.41	0.54
Proposed Channel	2900	712	1430.54	1433.31		1433.63	0.003497	4.54	156.79	73.27	0.55
Proposed Channel	3000	712	1430.88	1433.66		1433.98	0.003455	4.52	157.4	73.31	0.54
Proposed Channel	3100	712	1431.23	1434		1434.32	0.003476	4.53	157.07	73.26	0.55
Proposed Channel	3200	712	1431.58	1434.35		1434.67	0.003487	4.54	156.9	73.23	0.55
Proposed Channel	3300	712	1431.93	1434.7		1435.02	0.003493	4.54	156.8	73.22	0.55
Proposed Channel	3400	712	1432.29	1435.05		1435.37	0.003539	4.56	156.13	73.16	0.55
Proposed Channel	3500	712	1432.63	1435.4		1435.72	0.003473	4.53	157.11	73.27	0.55
Proposed Channel	3600	712	1432.98	1435.75	1434.91	1436.07	0.003486	4.54	156.92	73.24	0.55
Proposed Channel	3650	712	1433.16	1434.29	1435.09	1437.11	0.085921	13.46	52.88	53.57	2.39
Proposed Channel	3653	712	1435.26	1436.75	1436.75	1437.42	0.01383	6.57	108.35	81.83	1.01
Proposed Channel	3667	712	1435.26	1437.19		1437.56	0.005552	4.87	146.18	87.2	0.66
Proposed Channel	3670	712	1433.36	1437.48		1437.59	0.000777	2.67	266.88	89.49	0.27
Proposed Channel	3680	712	1433.26	1437.5		1437.6	0.000697	2.57	277.37	90.88	0.26
Proposed Channel	3700	712	1433.33	1437.51		1437.62	0.000736	2.62	271.96	90.13	0.27
Proposed Channel	3800	712	1433.68	1437.58		1437.71	0.000964	2.88	247.02	86.75	0.3
Proposed Channel	3890	712	1434	1437.66	1435.93	1437.81	0.001227	3.14	226.8	83.98	0.34

D/S Boundary Condition Sta 18+95
Channel Inv = 1425.14
U/S Depth from 4.89
Weir Calcs 1430.03 Beginning WSEL
HEC-RAS for Channel U/S of Weir

Elliot Road Detention Basins and Outfall Channel

Contract FCD 98-44

04/18/00
W/P Job No. 99891

Crismon Channel Hydraulic Parameters

Data Based on HCE RAS File: w:\1999Projects\Elliot Basin-Channel\hydraulics\HEC-RAS\Crismon\crismon22.prj
The 404 berm at the upstream end has been removed and a trough has been added. This diversion flow has not been removed from the downstream flow.
The flow depth, velocity and Froude number adjacent to the weir (Sta 17+51 to Sta 18+95) are from the Orange County Side Weir Program Output File.

Weir length = 145', Initial bypass=363cfs, Max Bypass = 410cfs

Channel CL Station	Left TOB Offset Station	Left TOB Elevation	LTOB offset	Channel Inv Offset Station E	Channel Inv Offset Station W	Channel Invert 0.0035	Right TOB Offset Station	Right TOB Elevation	RTOB offset	Water Surface Elevation	Freeboard (FB) Min Required	FB Provided Left	FB Provided Right	Channel Velocity	Froude Number	Flow Depth	Min FB Check 0.25(Y+(V^2/2g))
17+51	1000	1432.00	14.0	1014.0	1028.0	1425.00	1029.0	1432.00	Weir	1430.55	1.44	1.5	1.5	3.7	0.28	5.55	1.44
17+75	1000	1432.07	14.1	1014.1	1028.1	1425.02	1029.1	1432.07	Weir	1430.47	1.44	1.6	1.6	4.4	0.33	5.45	1.44
18+00	1000	1432.13	14.2	1014.2	1028.2	1425.05	1029.2	1432.13	Weir	1430.39	1.44	1.7	1.7	5.08	0.39	5.34	1.44
18+25	1000	1432.20	14.2	1014.2	1028.2	1425.07	1029.2	1432.20	Weir	1430.29	1.43	1.9	1.9	5.7	0.44	5.22	1.43
18+50	1000	1432.26	14.3	1014.3	1028.3	1425.10	1029.3	1432.26	Weir	1430.18	1.42	2.1	2.1	6.26	0.49	5.08	1.42
18+70	1000	1432.31	14.4	1014.4	1028.4	1425.12	1029.4	1432.31	Weir	1430.10	1.43	2.2	2.2	6.81	0.54	4.98	1.43
18+95	1000	1432.30	14.3	1014.3	1028.3	1425.14	1029.3	1432.30	Weir	1430.04	1.42	2.3	2.3	7.15	0.57	4.90	1.42
18+96	1000	1432.30	14.3	1014.3	1028.3	1425.15	1042.6	1432.30	14.3	1430.03	1.42	2.3	2.3	7.23	0.58	4.88	1.42
19+00	1000	1432.30	16.1	1016.1	1032.7	1425.15	1048.8	1432.30	16.1	1430.1	1.32	2.2	2.2	4.52	0.42	4.95	1.32
19+25	1000	1432.30	20.5	1020.5	1043.6	1425.17	1064.1	1432.30	20.5	1430.28	1.32	2.0	2.0	3.19	0.3	5.11	1.32
19+50	1000	1432.30	24.9	1024.9	1054.5	1425.20	1079.3	1432.30	24.9	1430.31	1.31	2.0	2.0	2.86	0.26	5.11	1.31
19+75	1000	1432.30	29.2	1029.2	1065.3	1425.22	1094.5	1432.30	29.2	1430.36	1.31	1.9	1.9	2.43	0.22	5.14	1.31
19+95	1000	1432.30	31.8	1031.8	1071.8	1425.24	1103.5	1432.30	31.8	1430.38	1.30	1.9	1.9	2.2	0.2	5.14	1.30
20+05	1000	1432.30	29.3	1029.3	1069.3	1427.41	1098.1	1432.20	28.7	1430.21	1.00	2.1	2.0	4.48	0.54	2.80	0.78
20+15	1000	1432.30	29.2	1029.2	1069.2	1427.44	1098.3	1432.30	29.2	1430.22	1.00	2.1	2.1	4.53	0.54	2.78	0.77
20+50	1000	1432.30	28.4	1028.4	1068.4	1427.56	1096.9	1432.30	28.4	1430.25	1.00	2.0	2.0	4.72	0.58	2.69	0.76
21+00	1000	1432.30	27.4	1027.4	1067.4	1427.74	1094.8	1432.30	27.4	1430.45	1.00	1.8	1.8	4.68	0.57	2.71	0.76
22+00	1000	1432.30	25.3	1025.3	1065.3	1428.09	1090.6	1432.30	25.3	1430.83	1.00	1.5	1.5	4.61	0.56	2.74	0.77
23+00	1000	1432.40	23.8	1023.8	1063.8	1428.44	1087.6	1432.40	23.8	1431.2	1.00	1.2	1.2	4.57	0.55	2.76	0.77
24+00	1000	1432.72	23.6	1023.6	1063.6	1428.79	1087.2	1432.72	23.6	1431.55	1.00	1.2	1.2	4.56	0.55	2.76	0.77
25+00	1000	1433.04	23.4	1023.4	1063.4	1429.14	1086.9	1433.04	23.4	1431.91	1.00	1.1	1.1	4.55	0.55	2.77	0.77
26+00	1000	1433.36	23.2	1023.2	1063.2	1429.49	1086.5	1433.36	23.2	1432.26	1.00	1.1	1.1	4.55	0.55	2.77	0.77
27+00	1000	1433.68	23.1	1023.1	1063.1	1429.83	1086.1	1433.68	23.1	1432.61	1.00	1.1	1.1	4.53	0.54	2.78	0.77
28+00	1000	1434.00	22.9	1022.9	1062.9	1430.18	1087.6	1434.30	24.7	1432.96	1.00	1.0	1.3	4.54	0.55	2.78	0.77
29+00	1000	1434.80	25.6	1025.6	1065.6	1430.53	1093.0	1435.10	27.4	1433.3	1.00	1.5	1.8	4.56	0.55	2.77	0.77
30+00	1000	1436.00	30.7	1030.7	1070.7	1430.88	1099.6	1435.70	28.9	1433.66	1.00	2.3	2.0	4.53	0.55	2.78	0.77
31+00	1000	1436.00	28.6	1028.6	1068.6	1431.23	1096.0	1435.80	27.4	1434	1.00	2.0	1.8	4.54	0.55	2.77	0.77
32+00	1000	1437.00	32.5	1032.5	1072.5	1431.58	1099.0	1436.00	26.5	1434.35	1.00	2.7	1.7	4.54	0.55	2.77	0.77
33+00	1000	1438.00	36.4	1036.4	1076.4	1431.93	1100.8	1436.00	24.4	1434.7	1.00	3.3	1.3	4.54	0.55	2.77	0.77
34+00	1000	1438.00	34.3	1034.3	1074.3	1432.28	1102.6	1437.00	28.3	1435.05	1.00	3.0	2.0	4.56	0.55	2.77	0.77
35+00	1000	1438.00	32.2	1032.2	1072.2	1432.63	1098.4	1437.00	26.2	1435.41	1.00	2.6	1.6	4.53	0.55	2.78	0.77
36+00	1000	1438.50	33.1	1033.1	1073.1	1432.98	1106.2	1438.50	33.1	1435.75	1.00	2.8	2.8	4.54	0.55	2.77	0.77
36+12	1000	1438.58	33.3	1033.3	1073.3	1433.03	1106.1	1438.50	32.8	1435.79	1.00	2.8	2.7	4.6	0.55	2.76	0.77
36+22	1000	1438.65	45.5	1045.5	1109.5	1431.07	1154.1	1438.50	44.6	1436	1.27	2.7	2.5	3.18	0.32	4.93	1.27
36+32	1000	1438.72	33.7	1033.7	1097.7	1433.10	1130.1	1438.50	32.4	1435.91	1.00	2.8	2.6	4.47	0.53	2.81	0.78
36+70	1000	1439.10	34.4	1034.4	1074.4	1433.36	1105.3	1438.50	30.8	1436.03	1.00	3.1	2.5	4.49	0.54	2.67	0.75
36+80	1000	1439.10	35.0	1035.0	1075.0	1433.26	1106.5	1438.50	31.4	1436.07	1.00	3.0	2.4	4.46	0.53	2.81	0.78
37+00	1000	1439.20	35.2	1035.2	1075.2	1433.33	1106.2	1438.50	31.0	1436.14	1.00	3.1	2.4	4.47	0.54	2.81	0.78
38+00	1000	1439.80	36.7	1036.7	1076.7	1433.68	1106.2	1438.60	29.5	1436.47	1.00	3.3	2.1	4.5	0.54	2.79	0.78
38+90	1000	1440.00	36.0	1036.0	1076.0	1433.99	1104.3	1438.70	28.2	1436.78	1.00	3.2	1.9	4.53	0.54	2.79	0.78

Notes:
Minimum freeboard is 1' or 0.25(Y+(V^2/2g)) whichever is greater.

PIPE CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

January 25, 2000

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Diameter (ft)	6.5
FHWA Chart Number	2
FHWA Scale Number (Type of Culvert Entrance)	1
Manning's Roughness Coefficient (n-value)	0.012
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	117.0
Invert Elevation at Downstream end of Culvert (ft)	1,419.29
Invert Elevation at Upstream end of Culvert (ft)	1,420.3
Culvert Slope (ft/ft)	0.0086
Starting Flow Rate (cfs)	360.0
Incremental Flow Rate (cfs)	1.0
Ending Flow Rate (cfs)	365.0
Starting Tailwater Depth (ft)	6.0
Incremental Tailwater Depth (ft)	0.02
Ending Tailwater Depth (ft)	6.1

COMPUTATION RESULTS

Flow Rate (cfs)	Tailwater Depth (ft)	Headwater (ft) Inlet Control	Headwater (ft) Outlet Control	Normal Depth (ft)	Critical Depth (ft)	Depth at Outlet (ft)	Outlet Velocity (fps)
360.0	6.0	8.92	0.0	3.94	5.09	3.94	17.11
361.0	6.02	8.94	0.0	3.95	5.09	3.95	17.12
362.0	6.04	8.97	0.0	3.95	5.1	3.95	17.13
363.0	6.06	8.99	0.0	3.96	5.11	3.96	17.14
364.0	6.08	9.02	0.0	3.97	5.11	3.97	17.16
365.0	6.1	9.04	0.0	3.98	5.12	3.98	17.16

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Tailwater for 363 cfs Lowflow Bypass = 8.99'

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1740	363.00	1419.30	1429.30	1421.46	1429.35	0.000039	1.82	200.00	20.00	0.10
Reach-1	1750	363.00	1426.30	1428.74		1429.60	0.002301	7.44	48.77	20.00	0.84
Reach-1	1751	363.00	1425.00	1429.39		1429.66	0.000393	4.13	87.87	20.00	0.35
Reach-1	1775	363.00	1425.02	1429.40		1429.67	0.000395	4.14	87.66	21.00	0.35
Reach-1	1800	363.00	1425.05	1429.41		1429.68	0.000401	4.16	87.25	21.00	0.35
Reach-1	1825	363.00	1425.07	1429.42		1429.69	0.000403	4.17	87.06	21.00	0.35
Reach-1	1850	363.00	1425.10	1429.43		1429.70	0.000409	4.19	86.64	21.00	0.35
Reach-1	1870	363.00	1425.12	1429.44		1429.71	0.000412	4.20	86.40	21.00	0.36
Reach-1	1895	363.00	1425.14	1429.45		1429.72	0.000415	4.21	86.22	21.00	0.36
Reach-1	1896	363.00	1425.15	1429.62		1429.74	0.000168	2.81	129.24	37.87	0.27
Reach-1	1900	363.00	1425.15	1429.63		1429.74	0.000146	2.62	138.62	41.01	0.25
Reach-1	1925	363.00	1425.17	1429.69		1429.75	0.000080	1.93	188.06	57.34	0.19
Reach-1	1950	363.00	1425.20	1429.71		1429.75	0.000062	1.73	210.32	62.45	0.17
Reach-1	1975	363.00	1425.22	1429.72		1429.75	0.000045	1.48	244.74	72.80	0.14
Reach-1	1995	363.00	1425.24	1429.73		1429.76	0.000037	1.34	270.11	80.37	0.13
Reach-1	2005	363.00	1427.41	1429.65		1429.79	0.000435	3.03	119.62	66.87	0.40
Reach-1	2015	363.00	1427.44	1429.66		1429.80	0.002059	3.08	118.04	66.58	0.41
Reach-1	2050	363.00	1427.56	1429.72		1429.88	0.002241	3.17	114.64	65.95	0.42
Reach-1	2100	363.00	1427.74	1429.83		1430.00	0.002525	3.30	110.06	65.14	0.45
Reach-1	2200	363.00	1428.09	1430.09		1430.28	0.002962	3.48	104.19	64.03	0.48
Reach-1	2300	363.00	1428.44	1430.39		1430.59	0.003234	3.59	101.13	63.49	0.50
Reach-1	2400	363.00	1428.79	1430.72		1430.93	0.003385	3.65	99.54	63.15	0.51
Reach-1	2500	363.00	1429.14	1431.06		1431.27	0.003450	3.67	98.93	63.07	0.52
Reach-1	2600	363.00	1429.49	1431.40		1431.61	0.003482	3.68	98.61	63.01	0.52
Reach-1	2700	363.00	1429.83	1431.75	1431.10	1431.96	0.003432	3.66	99.07	63.05	0.52

D/S Boundary Condition Sta 17+40
Channel Inv = 1420.31
Culvert Tailwater = 8.99
1429.3 Beginning WSEL

∴ 363 cfs Low Flow Bypass, ok.

Weir Channel to Box Culvert Capacity check

TRAPEZOIDAL CHANNEL ANALYSIS
NORMAL DEPTH COMPUTATION

January 25, 2000

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Flow Rate (cfs)	302.0
Channel Bottom Slope (ft/ft)	0.001
Manning's Roughness Coefficient (n-value)	0.015
Channel Left Side Slope (horizontal/vertical)	0.0
Channel Right Side Slope (horizontal/vertical)	2.0
Channel Bottom Width (ft)	10.0

COMPUTATION RESULTS

DESCRIPTION	VALUE
Normal Depth (ft)	3.88
Flow Velocity (fps)	5.6
Froude Number	0.567
Velocity Head (ft)	0.49
Energy Head (ft)	4.37
Cross-Sectional Area of Flow (sq ft)	53.94
Top Width of Flow (ft)	17.77

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Channel Invert 1425.0
Flow Depth 3.9
1428.9
Weir Wall 1429.4

1428.9 < 1429.4 ∴ OK

Box into Basin

BOX CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

January 25, 2000

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Span (ft)	8.0
Culvert Rise (ft)	6.0
FHWA Chart Number	8
FHWA Scale Number (Type of Culvert Entrance)	3
Manning's Roughness Coefficient (n-value)	0.015
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	110.0
Invert Elevation at Downstream end of Culvert (ft)	1,421.6
Invert Elevation at Upstream end of Culvert (ft)	1,422.0
Culvert Slope (ft/ft)	0.0036
Starting Flow Rate (cfs)	302.0
Incremental Flow Rate (cfs)	0.0
Ending Flow Rate (cfs)	302.0
Starting Tailwater Depth (ft)	1.0
Incremental Tailwater Depth (ft)	1.0
Ending Tailwater Depth (ft)	6.0

COMPUTATION RESULTS

Flow Rate (cfs)	Tailwater Depth (ft)	Headwater (ft) Inlet Control	Headwater (ft) Outlet Control	Normal Depth (ft)	Critical Depth (ft)	Depth at Outlet (ft)	Outlet Velocity (fps)
302.0	1.0	6.04	6.08	3.99	3.54	3.54	10.67
302.0	2.0	6.04	6.08	3.99	3.54	3.54	10.67
302.0	3.0	6.04	6.08	3.99	3.54	3.54	10.67
302.0	4.0	6.04	6.08	3.99	3.54	4.0	9.44
302.0	5.0	6.04	6.22	3.99	3.54	5.0	7.55
302.0	6.0	6.04	6.74	3.99	3.54	6.0	6.29

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Invert @ Inlet = 1422.0
Head Reqd = 6.74
1428.74
Weir Wall = 1429.4

1428.74 < 1429.4 ∴ OK

With 6' of tailwater in the basin, the headwater required is less than the weir wall height.

PIPE CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

January 31, 2000

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Diameter (ft)	2.0
FHWA Chart Number	1
FHWA Scale Number (Type of Culvert Entrance)	2
Manning's Roughness Coefficient (n-value)	0.012
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	61.0
Invert Elevation at Downstream end of Culvert (ft)	1,430.9
Invert Elevation at Upstream end of Culvert (ft)	1,431.07
Culvert Slope (ft/ft)	0.0028
Starting Flow Rate (cfs)	5.0
Incremental Flow Rate (cfs)	1.0
Ending Flow Rate (cfs)	16.0
Starting Tailwater Depth (ft)	1.6
Incremental Tailwater Depth (ft)	0.0
Ending Tailwater Depth (ft)	1.6

COMPUTATION RESULTS

Flow Rate (cfs)	Tailwater Depth (ft)	Headwater (ft) Inlet Control	Headwater (ft) Outlet Control	Normal Depth (ft)	Critical Depth (ft)	Depth at Outlet (ft)	Outlet Velocity (fps)
5.0	1.6	1.1	1.55	0.86	0.79	1.6	1.86
6.0	1.6	1.22	1.6	0.96	0.87	1.6	2.23
7.0	1.6	1.34	1.65	1.05	0.94	1.6	2.6
8.0	1.6	1.45	1.72	1.14	1.01	1.6	2.97
9.0	1.6	1.56	1.79	1.23	1.07	1.6	3.34
10.0	1.6	1.67	1.87	1.32	1.13	1.6	3.71
11.0	1.6	1.78	1.96	1.42	1.19	1.6	4.08
12.0	1.6	1.89	2.05	1.52	1.24	1.6	4.45
13.0	1.6	1.99	2.15	1.65	1.3	1.6	4.83
14.0	1.6	2.1	2.25	2.0	1.35	1.6	5.2
15.0	1.6	2.21	2.35	2.0	1.4	1.6	5.57
16.0	1.6	2.33	2.46	2.0	1.44	1.6	5.94

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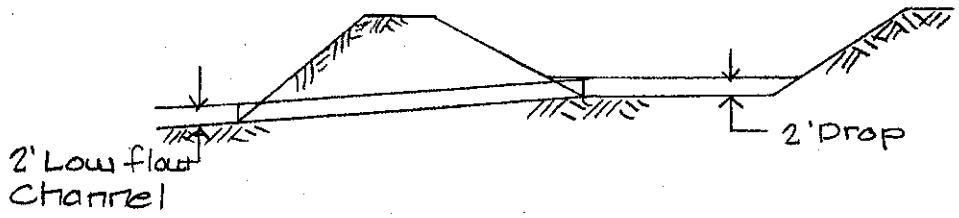

1-24" Pipe = 12cfs
2-24" Pipes - 24cfs

Capacity of 404 Low Flow Pipes @ WSEL = 2' Deep

PIPE CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

January 31, 2000

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Diameter (ft)	2.0
FHWA Chart Number	1
FHWA Scale Number (Type of Culvert Entrance)	2
Manning's Roughness Coefficient (n-value)	0.012
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	61.0
Invert Elevation at Downstream end of Culvert (ft)	1,430.9
Invert Elevation at Upstream end of Culvert (ft)	1,431.07
Culvert Slope (ft/ft)	0.0028
Starting Flow Rate (cfs)	30.0
Incremental Flow Rate (cfs)	1.0
Ending Flow Rate (cfs)	41.0
Starting Tailwater Depth (ft)	1.6
Incremental Tailwater Depth (ft)	0.0
Ending Tailwater Depth (ft)	1.6

COMPUTATION RESULTS

Flow Rate (cfs)	Tailwater Depth (ft)	Headwater (ft) Inlet Control	Headwater (ft) Outlet Control	Normal Depth (ft)	Critical Depth (ft)	Depth at Outlet (ft)	Outlet Velocity (fps)
30.0	1.6	4.14	3.4	2.0	1.86	2.0	9.55
31.0	1.6	4.32	3.52	2.0	1.88	2.0	9.87
32.0	1.6	4.51	3.63	2.0	1.89	2.0	10.19
33.0	1.6	4.7	3.76	2.0	1.9	2.0	10.5
34.0	1.6	4.9	3.89	2.0	1.91	2.0	10.82
35.0	1.6	5.1	4.02	2.0	1.92	2.0	11.14
36.0	1.6	5.31	4.14	2.0	1.93	2.0	11.46
37.0	1.6	5.53	4.28	2.0	1.94	2.0	11.78
38.0	1.6	5.75	4.42	2.0	1.94	2.0	12.1
39.0	1.6	5.98	4.56	2.0	1.95	2.0	12.41
40.0	1.6	6.21	4.7	2.0	1.95	2.0	12.73
41.0	1.6	6.45	4.85	2.0	1.96	2.0	13.05

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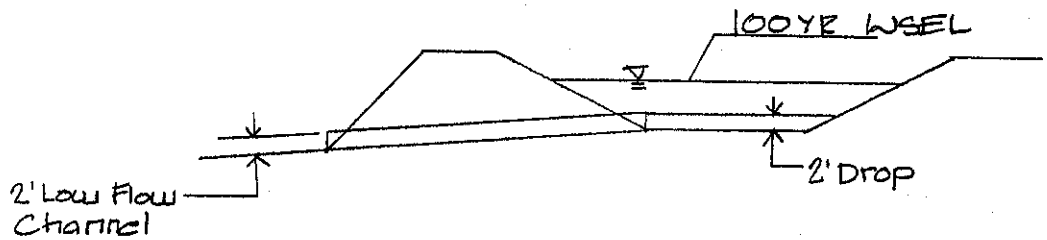

1-24" PIPE = 38 cfs

2-24" PIPES = 76 cfs

Capacity of 4 of 4 Pipes @ 100yr WSEL in Channel

Crismon22.prj

HEC-RAS Plan: proposed River: Crsimon Reach: Proposed Channel

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Proposed Channel	1890	713.00	1425.15	1430.03	1428.20	1430.40	0.000467	4.91	145.23	39.52	0.45
Proposed Channel	1900	713.00	1425.15	1430.10		1430.41	0.000391	4.52	157.89	43.05	0.42
Proposed Channel	1925	713.00	1425.17	1430.28		1430.43	0.000192	3.19	223.30	61.61	0.30
Proposed Channel	1950	713.00	1425.20	1430.31		1430.44	0.000147	2.86	249.43	66.63	0.28
Proposed Channel	1975	713.00	1425.22	1430.36		1430.45	0.000106	2.43	293.23	78.24	0.22
Proposed Channel	1995	713.00	1425.24	1430.38		1430.45	0.000086	2.20	324.23	86.26	0.20
Proposed Channel	2005	713.00	1427.41	1430.21		1430.52	0.000736	4.48	159.29	73.65	0.54
Proposed Channel	2015	713.00	1427.44	1430.22		1430.54	0.000762	4.53	157.38	73.33	0.54
Proposed Channel	2050	713.00	1427.56	1430.25		1430.60	0.003907	4.72	150.95	72.26	0.58
Proposed Channel	2100	713.00	1427.74	1430.45		1430.79	0.003810	4.68	152.30	72.51	0.57
Proposed Channel	2200	713.00	1428.09	1430.83		1431.16	0.003640	4.61	154.73	72.88	0.56
Proposed Channel	2300	713.00	1428.44	1431.20		1431.52	0.003563	4.57	155.92	73.13	0.55
Proposed Channel	2400	713.00	1428.79	1431.55		1431.88	0.003537	4.56	156.28	73.14	0.55
Proposed Channel	2500	713.00	1429.14	1431.91		1432.23	0.003515	4.55	156.67	73.26	0.55
Proposed Channel	2600	713.00	1429.49	1432.26		1432.58	0.003508	4.55	156.76	73.28	0.55
Proposed Channel	2700	713.00	1429.83	1432.61		1432.93	0.003460	4.53	157.48	73.32	0.54
Proposed Channel	2800	713.00	1430.18	1432.96		1433.27	0.003479	4.54	157.18	73.27	0.55
Proposed Channel	2900	713.00	1430.54	1433.30		1433.63	0.003530	4.56	156.43	73.21	0.55
Proposed Channel	3000	713.00	1430.88	1433.66		1433.98	0.003489	4.53	157.33	73.30	0.55
Proposed Channel	3100	713.00	1431.23	1434.00		1434.32	0.003484	4.54	157.10	73.26	0.55
Proposed Channel	3200	713.00	1431.58	1434.35		1434.67	0.003491	4.54	156.99	73.25	0.55
Proposed Channel	3300	713.00	1431.93	1434.70		1435.02	0.003496	4.54	156.92	73.24	0.55
Proposed Channel	3400	713.00	1432.29	1435.05		1435.37	0.003541	4.56	156.26	73.18	0.55
Proposed Channel	3500	713.00	1432.63	1435.41		1435.73	0.003474	4.53	157.25	73.29	0.55
Proposed Channel	3600	713.00	1432.98	1435.75		1436.07	0.003486	4.54	157.07	73.28	0.55
Proposed Channel	3612	713.00	1433.03	1435.79		1436.12	0.003575	4.60	155.14	72.38	0.55
Proposed Channel	3622	713.00	1431.03	1436.00		1436.15	0.001105	3.18	224.35	75.15	0.32
Proposed Channel	3650	713.00	1433.10	1435.91		1436.22	0.003326	4.47	159.68	73.70	0.53
Proposed Channel	3700	713.00	1433.24	1436.03		1436.35	0.003389	4.49	158.67	73.57	0.54
Proposed Channel	3750	713.00	1433.26	1436.07		1436.38	0.003317	4.48	159.85	73.74	0.53
Proposed Channel	3800	713.00	1433.33	1436.14		1436.45	0.003334	4.47	159.54	73.66	0.54
Proposed Channel	3900	713.00	1433.68	1436.47		1436.79	0.003407	4.50	158.32	73.47	0.54
Proposed Channel	3920	713.00	1434.00	1436.78	1435.93	1437.10	0.003464	4.53	157.48	73.39	0.54

Crismon Channel HEC-RAS UPSTREAM OF WEIR CHANNEL
D/S Boundary Condition based on Sideweir Depth @ Beginning (U/S end) of Weir

HYDRAULICS

- **Outfall Channel**

ELLIOT ROAD DETENTION BASINS AND OUTFALL CHANNEL Contract FCD 98-44

Outfall Channel

Wood/Patel learned during the design evaluation process that the post basin/pipe flows would be concentrated along the selected alignment as shown in the East Mesa Area Drainage Master Plan, FCD #95-32, July 1998, by Dibble and Associates, in a way that might be construed as adversely impacting properties downstream of the outfall. In an attempt to mitigate this potential problem, several elements have been added to the plans. These elements include the postponing of the Crismon Road channel construction to reduce the interim flow at Elliot Road and Ellsworth Road and the addition of a distributary channel west of Ellsworth Road to direct the flows to their historical pathways. In this report, the ADMP selected outfall alignment is identified as the south branch of the historical drainage path and the splitter channel is identified as the north branch of the historical drainage path for the distributary outfall channel system. The results of this analysis were used to prepare a report "Preliminary Floodplain Delineation West of Ellsworth Road" which was submitted to the FCDMC in November 1999. Please refer to that document for the detailed analysis and conclusions.

In summary, the report concluded that the 100-year, 24-hour flow at Elliot road and Ellsworth Road was reduced in the interim condition from 2268cfs to 2035cfs. An analysis was performed to determine the effects of the proposed system in the interim condition on the downstream floodway. It was concluded that the floodplain was reduced in both the north and south branches in the interim condition.

The sugar dike in the north branch of the diversion dike was designed based on a HEC RAS model for the outfall channel. The sugar dike crest elevation is based on the water surface elevation in the main channel at 450cfs. Once the flow increases above this flow, the sugar dike will be crested and will begin to erode. At the interim design flow of 800cfs, 500cfs will continue in the main channel and 300cfs will flow to the northwest in the diversion channel. See Preliminary Floodplain Delineation West of Ellsworth Road prepared by Wood/Patel for documentation on the outfall channel system.

HEC-RAS Plan: Interim River: S-Branch Reach: W-Ellsworth

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
W-Ellsworth	900	800.00	1388.00	1392.72	1390.86	1392.94	0.001190	4.50	227.73	76.59	0.37
W-Ellsworth	800	800.00	1387.70	1392.19		1392.47	0.001522	4.93	205.91	71.68	0.41
W-Ellsworth	700	800.00	1387.30	1391.32		1391.70	0.002387	5.74	174.90	66.94	0.50
W-Ellsworth	600	500.00	1387.00	1390.74		1390.92	0.001230	3.93	158.92	64.92	0.36
W-Ellsworth	500	500.00	1386.79	1389.89		1390.20	0.002612	5.05	121.23	58.12	0.51
W-Ellsworth	400	500.00	1386.49	1388.88	1388.50	1388.96	0.003019	3.25	300.79	427.28	0.37
W-Ellsworth	300	500.00	1385.71	1387.24		1387.31	0.004765	2.33	251.28	325.28	0.40
W-Ellsworth	200	500.00	1384.00	1385.68		1385.75	0.003699	2.84	251.48	259.87	0.39
W-Ellsworth	100	500.00	1382.00	1383.50	1383.15	1383.61	0.008002	3.88	195.57	291.22	0.56

WSEL @ INTERIM FLOWS (South Channel)

HEC-RAS Plan: Interim River: S-Branch Reach: W-Ellsworth

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
W-Ellsworth	900	450.00	1388.00	1391.81	1390.08	1391.95	0.000928	3.45	163.12	65.69	0.31
W-Ellsworth	800	450.00	1387.70	1391.45		1391.60	0.001020	3.58	156.11	63.19	0.33
W-Ellsworth	700	450.00	1387.30	1391.05		1391.19	0.001018	3.57	156.71	63.69	0.33
W-Ellsworth	600	450.00	1387.00	1390.59		1390.75	0.001186	3.75	149.06	63.07	0.35
W-Ellsworth	510	450.00	1386.79	1389.80		1390.07	0.002385	4.73	116.05	57.02	0.48
W-Ellsworth	400	450.00	1386.49	1388.83	1387.95	1388.90	0.002983	3.18	276.56	405.21	0.37
W-Ellsworth	300	450.00	1385.71	1387.18		1387.25	0.004855	2.26	231.85	315.27	0.40
W-Ellsworth	200	450.00	1384.00	1385.61		1385.67	0.003698	2.76	233.00	251.49	0.38
W-Ellsworth	100	450.00	1382.00	1383.44	1383.10	1383.55	0.008004	3.77	180.32	239.33	0.55

Crest of Sugar Dike set @ WSEL For 450cfs in main channel.
=1391.05

TRAPEZOIDAL CHANNEL ANALYSIS
NORMAL DEPTH COMPUTATION

December 6, 1999

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Flow Rate (cfs)	300.0
Channel Bottom Slope (ft/ft)	0.0007
Manning's Roughness Coefficient (n-value)	0.032
Channel Left Side Slope (horizontal/vertical)	3.0
Channel Right Side Slope (horizontal/vertical)	3.0
Channel Bottom Width (ft)	18.5

COMPUTATION RESULTS

DESCRIPTION	VALUE
Normal Depth (ft)	4.02
Flow Velocity (fps)	2.44
Froude Number	0.253
Velocity Head (ft)	0.09
Energy Head (ft)	4.12
Cross-Sectional Area of Flow (sq ft)	122.99
Top Width of Flow (ft)	42.64

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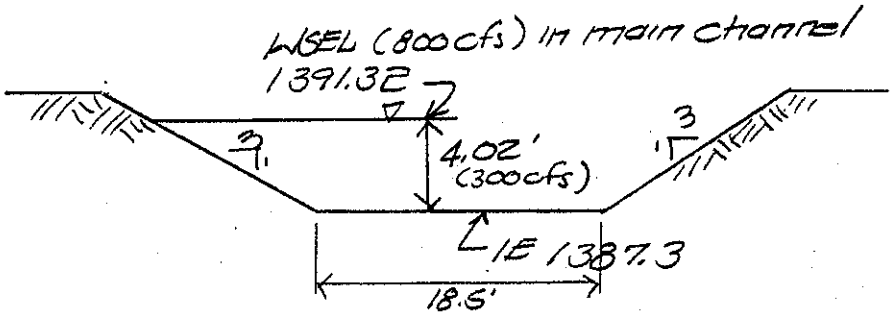
North Diversion Channel

Design Channel to Carry 300 cfs @ The Interim design flow depth in the main channel. (800 cfs)