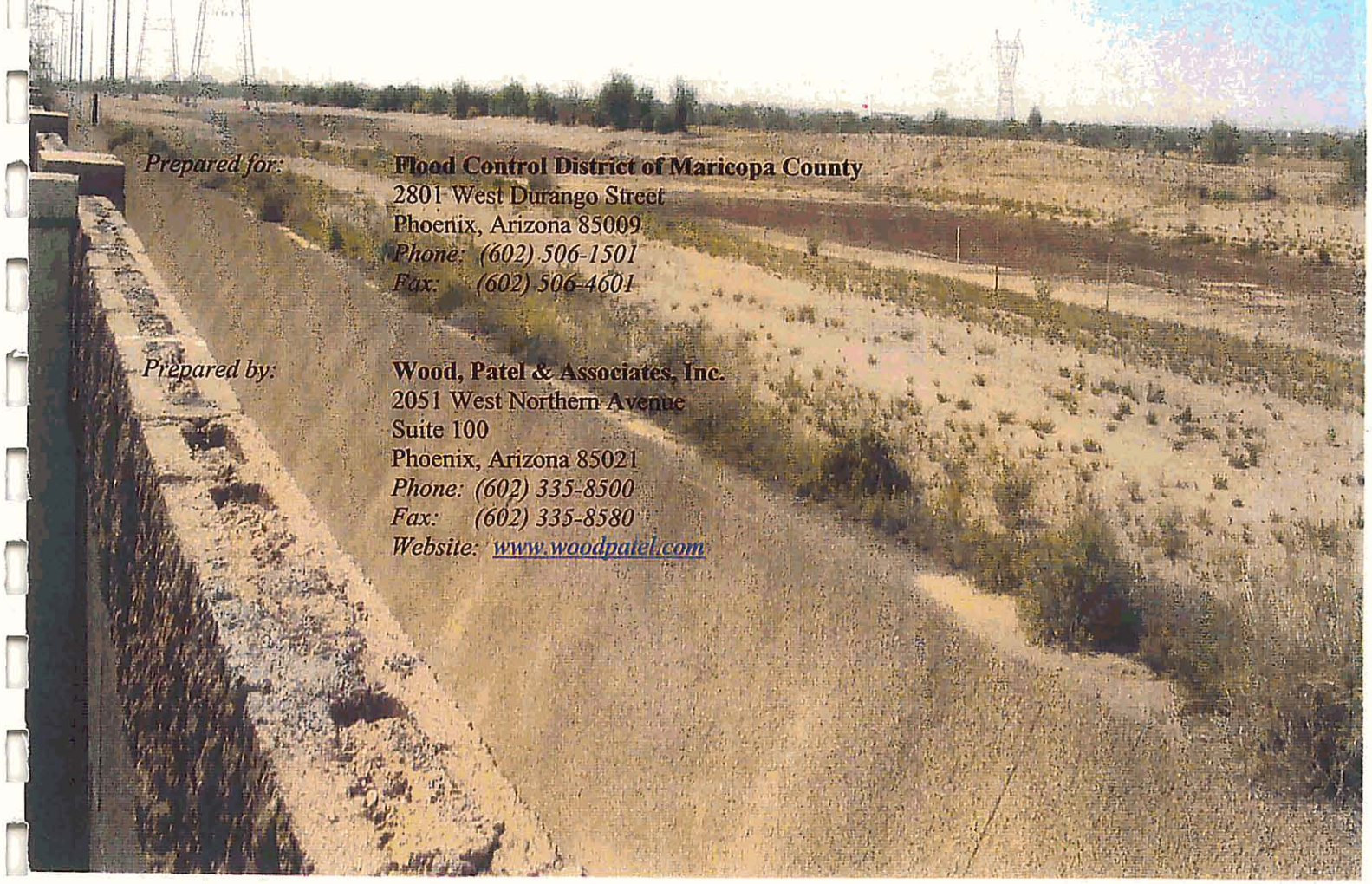
PRE-DESIGN CONCEPT STUDY REPORT
FOR
SIPHON DRAW DRAINAGE IMPROVEMENTS
(ADDITIONAL MESA ALTERNATIVES)

CONTRACT FCD 2003 C019
ASSIGNMENT NO. 4

July 2005
WP #031902.04



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Re: **Siphon Draw Drainage Improvements**
Pre-Design Concept Study
Contract FCD 2003 C 019
Assignment No. 4
WP# 031902.04

Dear Ms. Terry:

Wood, Patel & Associates, Inc. (Wood/Patel) is pleased to submit two copies of this final report for the *Pre-Design Concept Study for Siphon Draw Drainage Improvements.*

Our contract and scope of services required a concept type pre-design study and letter report. Due to the complex nature of the preferred alternative and associated hydraulic elements, it was felt that by expanding the report content with additional text and exhibits it would be more valuable to the District.

Please note that the preferred alternative consists of 11 different large to medium size retention areas, two major split structures, complex flow spillover structures, diversions, and conveyance system. Due to the scope limitations and agreed upon work effort with the District, hydraulic analysis was performed using a simplified approach. In addition, work efforts towards Section 404 requirements and landscaping evaluation were excluded from the scope.

To address some land requirement issues raised by Sunland Springs Village development, the preferred alternative includes two channel options along the north side of the SRP transmission line corridor. These options are earthen and concrete lined channels.

We have enjoyed this complex and challenging assignment and truly believe our knowledge can benefit the District for the next phase of work, including the final design efforts.

Please feel free to call if we can be of any further assistance.

Sincerely,

WOOD, PATEL & ASSOCIATES, INC.

Ashok C. Patel, P.E., R.L.S., CFM
Principal

ACP/ac

cc: Keith Nath, P.E., City of Mesa (one copy of report)

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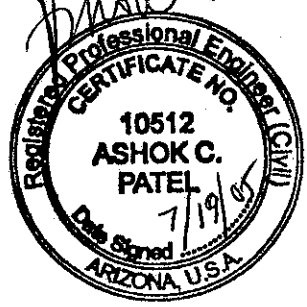

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1.0 INTRODUCTION

Project History

The East Mesa Area Drainage Master Plan (ADMP) (FCD #95-32) was completed by Dibble & Associates in July 1998 for the Flood Control District of Maricopa County (FCDMC). Siphon Draw Detention Basin, Sunland Springs Channel (Meridian Road Collection System), and Elliot Road Channel were among the recommended improvements with high priorities. Since the completion of the ADMP, development has occurred which impacts the facilities that were recommended. In 2003, Wood, Patel & Associates, Inc. (Wood/Patel) was contracted to provide pre-design plans for the Siphon Draw Drainage Improvements which included Siphon Draw Detention Basin, Meridian Road Collection System, and Elliot Road Channel Phase 2 (from 104th St. to Meridian Road).

The objectives of the pre-design study were to investigate alternatives for providing flood protection west of Meridian Road along the project corridor. Specifically, the pre-design study modified the ADMP hydrologic model to include the changes in land use into the existing drainage systems; revised the model hydrologic conditions in Pinal County; evaluated the ADMP-recommended improvements of Siphon Draw Drainage System; identified potential detention basin locations and sizes; determined appropriate collection and conveyance system locations, alignments, cross sections, and Right-Of-Way (ROW) requirements east of the 104th Street alignment; and developed probable cost estimates for each of the alternatives.

The pre-design study also investigated various conveyance cross-sections for each segment of the conveyance system. Design plans were prepared for the preferred alternative to the 20 percent level. All potential detention basins were located within Pinal County as consistent with the ADMP. For details of the study, please see the draft report titled *Siphon Draw Drainage Improvements Pre-Design Study Report* by Wood/Patel (August 2004).

Subsequent to the completion of alternatives evaluation, it was learned that neither City of Apache Junction nor Pinal County showed any support in pursuing any of the food control alternatives within the Pinal County area. FCDMC, in association with the City of Mesa, expressed an interest to evaluate possible flood attenuation and conveyance alternatives within the City of Mesa. Plate 1 shows the project location and vicinity map.

Sunland Springs Village (SSV) is located on the northwest corner of Meridian Road and Paloma Avenue alignment (Salt River Project (SRP) power line corridor). Its zoning was approved based upon the assumption that a channel and a basin will be built along Meridian Road per the East Mesa ADMP. Since that alternative is not possible, SSV cannot proceed in completing its south portion of development as approved by the City of Mesa. Therefore, it is mutually beneficial that SSV, FCDMC, and the City of Mesa work together to find a feasible flood mitigation alternative.

Pre-Design Concept Study

Wood/Patel has been requested to provide engineering services to support the evaluation of additional alternatives within the City of Mesa to manage the storm water near the boundary of Pinal and Maricopa Counties. This portion of the work effort is limited to providing a final letter report which addresses a brief history of the project, describes new alternatives, and discusses modifications to the alternatives to address SRP and City of Mesa issues. The Pre-Design Concept Study provides a description of the preferred alternative, concept layout (plan view) of detention basins and pertinent hydraulic elements. An estimate is included for a probable cost of construction.

Scope of Work

In accordance with the Scope of Work, the following sub-tasks have been performed for the Pre-Design Concept Study:

1. Coordinating and meeting with FCDMC, City of Mesa, Apache Junction, SSV and their consultants;

2. Collecting data;

3. Evaluating a channel and a detention basin corridor parallel to the SRP power line corridor to convey all off-site flow, which enters at the southeast corner of SSV and Meridian Road, and possibly some of the SSV onsite flows. Preliminary hydraulic analyses, cost estimates, and ROW requirements were developed for the possible improvements;

4. Evaluating a basin at the northwest corner of Meridian Road and the SRP power line corridor including hydrologic and hydraulic analyses. Cost estimates and ROW requirements were developed for the possible improvements;

5. Evaluating a basin at the southwest corner of the SRP power line corridor and the west boundary of Meridian Pointe subdivision within the City of Mesa parcel including hydrologic and hydraulic analyses. Cost estimates and ROW requirements were developed for the possible improvements;

6. Evaluating a basin at the southwest corner of Siphon Draw Wash Corridor and the west boundary of Meridian Pointe subdivision including hydrologic and hydraulic analyses. Cost estimates and ROW requirements were developed for the possible improvements;

7. Exploring the possibility of using the SRP Transmission Line Easement for detention;

8. Making modifications to the existing pipe structures near 104th Street and Elliot Road;

9. Preparing a letter summary report including exhibits and probable opinion of cost.

It should be noted that the scope required a concept type study by the FCDMC. The anticipated effort is significantly less than a typical pre-design study.

The study has only used readily available data such as topographic maps, utilities, boundary surveys, aerial photographs, and unit prices. No field work, including topographic survey or potholing, was performed.

2.0 DEVELOPMENT OF ALTERNATIVES

Since Elliot Road detention basins and outfall channel (storm drain) have been constructed at the downstream boundary of the Pre-Design Concept Study (104th Street), one of the major constraints to the alternatives development is that the design flow for the system at this point should be less than the 78-inch pipe capacity of 508 cfs as established by the East Mesa ADMP based on the ultimate conditions of the watershed. Potential detention basins must be located within Maricopa County as discussed in the previous section.

A total of three alternatives were evaluated for management of storm water from Pinal County. Three detention basin sites were identified and evaluated: Basin A is located on the southeast corner of the SSV; Basin B is located on the west of Mountain Road and the south of Siphon Draw Wash; and Basin C is located on the south of Paloma Avenue alignment (SRP power line corridor) and the west of Mountain Road. The design parameters for the three basins are shown on Plates 2 to 4.

The **first alternative** (see Plate 2) considered two offline detention basins: Basin A and Basin B. For the 100-year, 24-hour design storm, an estimated peak discharge of 1,681 cfs from areas east of Meridian Road will concentrate at the southeast corner of SSV. A base flow of 350 cfs will bypass Basin A through a 78-inch storm drain, then, it will combine with the bleed-off flow from Basin A. The combined flow will continue westerly through the 78-inch pipe, which is then directed south at Mountain Road to Siphon Draw Wash through a proposed open channel. The flow rate discharged into the Siphon Draw Wash is estimated to be 415 cfs, and that flow will continue westerly to 104th Street through Siphon Draw Wash.

Siphon Draw Wash and its tributaries collect flows from areas east of Meridian Road and the flow concentrates east of Meridian Road within Siphon Draw Wash Corridor (686 cfs) through Meridian Pointe subdivision. This flow crosses Meridian Road through three culverts into Siphon Draw Wash. At Mountain Road, a base flow of 80 cfs bypasses Basin B and flows south to the Elliot Road storm drain through a 54-inch pipe. The remainder flow from Siphon Draw Wash will be discharged into Basin B. Bleed-off flow from Basin B will combine with flow in the Elliot Road storm drain and the combined flow (122 cfs) will continue west to 104th Street through a 54-inch pipe.

The **second alternative** (see Plate 3) considered three offline detention basins: Basin A, Basin B, and Basin C. For the 100-year, 24-hour design storm, an estimated peak discharge of 1,681 cfs from areas east of Meridian Road will concentrate on the southeast corner of the SSV. A base flow of 750 cfs will bypass Basin A through an open channel and the remainder flow will be discharged into Basin A, then the base flow will combine with the bleed-off flow from Basin A. The combined flow will continue westerly in an open channel to Basin C. A base flow of 350 cfs will bypass Basin C through an open channel, and the remainder flow will be discharged into Basin C. The base flow then will combine with the bleed-off flow from Basin C. The combined flow will continue to south along Mountain Road to Siphon Draw Wash through a proposed open channel. The flow rate discharged into the Siphon Draw Wash is estimated to be about 400 cfs.

Flow into Siphon Draw Wash from areas east of Meridian Road and its operations are the same as alternative one.

The **third alternative** (see Plate 4) has offline detention basins B and C plus a series of small offline detention basins within SRP power line corridor along the south boundary of the SSV. Basins B and C are sub-divided by the proposed pads for SRP power line poles and towers. For the 100-year, 24-hour design storm, an estimated peak discharge of 1,681 cfs from areas east of Meridian Road will concentrate on the southeast corner of the SSV in a sediment basin A. An open channel conveys this flow westerly to Mountain Road, collects runoff from north areas of SSV, and at the same time diverts flow above the channel capacity to the basins within SRP power line corridor on both the east and west sides of Mountain Road. A base flow of 300 cfs will bypass Basins C through an open channel and the remainder will be discharged into Basin C. The base flow will continue south into Siphon Draw Wash along Mountain Road. The bleed-off flow from Basin C will directly flow into storm drain F along Mountain Road.

Siphon Draw Wash and its tributaries collect flows from areas east of Meridian Road and the flow concentrates east of Meridian Road within Siphon Draw Wash Corridor (686 cfs) through Meridian Pointe subdivision. This flow crosses Meridian Road through three culverts into Siphon Draw Wash. At Mountain Road, the combined base flow of 80 cfs from Siphon Draw Wash and bleed-off flow from Basins C bypasses Basins B and flows south to the Elliot Road storm drain through a 54-inch pipe. At the junction of Siphon Draw Wash and open channel E, a base flow of 200 cfs will divert into Siphon Draw Wash and continue westerly to 104th Street. The remaining flow from Siphon Draw Wash will be discharged into Basins B. Bleed-off flow

from Basin B will combine with flow in the Elliot Road storm drain and the combined flow (149 cfs) will continue west to 104th Street through a 54-inch pipe.

For illustration purposes, a base alternative (see Plate 5) was also evaluated. This base alternative assumed that no further action will be taken by the FCDMC and the City of Mesa, and that the developer will be obligated to convey the design storm water from areas east of Meridian Road to downstream washes as per natural and historical conditions. The existing channel is located along the north side of the SRP power line corridor from Meridian Road to the west of Signal Butte Road. The design flow for the existing channel is established to be 1,750 cfs (per report by Clouse Engineering, June 1996).

3.0 EVALUATION OF ALTERNATIVES

The probable cost to implement each alternative was estimated to assist with alternative selection. Among all the three alternatives evaluated, Alternative 3 is identified to be the preferred alternative by the City of Mesa, the FCDMC, and the SSV. Plate 6 illustrates the preferred alternative concept plan. The estimate of probable cost can be found in Table 2 and Table 3, and the cost estimation sheets for all alternatives are included in Appendix C.

Note that the cost estimates were prepared for alternative selection purposes. All common items were excluded from the total cost. Therefore, the cost estimates are not the total construction cost of any alternatives.

4.0 HYDROLOGIC MODELING

The hydrologic analyses were performed using the HEC-1 software. Three HEC-1 hydrologic models were developed for the three post project condition alternatives. Existing condition land uses were assumed within Pinal County, and future condition land uses were used within Maricopa County. For the purpose of this Pre-Design Concept Study, the FCDMC agreed that it would be acceptable to make no physical divisions to any of the HEC-1 sub-basins. Instead, flow diversions were used for all sub-basin split flow evaluations. The HEC-1 hydrologic input and output files for the three alternatives are included on the floppy disk. The HEC-1 model output file for the preferred alternative is included in Appendix A. The peak flows at the key concentration locations are summarized in Table 1 for all of the models, and are shown on Plate 6 for the preferred alternative.

Hydraulics

Due to the scope limitations and agreed upon work effort with the District, detailed hydraulic analysis using StormCad, HEC-RAS or other software were not performed. The hydraulic elements were sized based upon simplified hydraulic calculations (see Appendix D), such as channel and pipe normal depths, culvert hydraulics and weir flow equations. For complex split structures and drop structures, element sizes were estimated based upon judgment.

Storage Volume Requirements

All basins depicted for the preferred alternative concept plan are preliminarily sized based on the off-line basin concept. Accordingly, the following volumes are required:

Basins	A	= 4 Ac-Ft (sedimentation purpose)
	T_1, T_2, T_3	= 33 Ac-Ft (off-line, flood storage)
	T_4, T_5, T_6, T_7	= 18 Ac-Ft (off-line, flood storage)
	C_1, C_2	= 90 Ac-Ft (off-line, flood storage)
	B_1, B_2	= 75 Ac-Ft (off-line, flood storage)

5.0 PREFERRED ALTERNATIVE

Subsequent to the selection of the preferred alternative (alternative 3), Wood/Patel refined this alternative with more site specific details. Some modifications to alternative 3 were also needed to account for the input received from SRP. The refined alternative number 3 includes sediment basin A, offline detention basins B and C plus a series of small offline detention basins within SRP power line corridor along the south boundary of the SSV. Basin B consists of B1 and B2, and is divided by the Western Area Power Administration (WAPA) easement. Basin C consists of basin C1 and C2, and it is divided by the future SRP power line corridor.

For the 100-year, 24-hour design storm, an estimated peak discharge of 1,681 cfs from areas east of Meridian Road will concentrate on the southeast corner of the SSV in sediment basin A. An open channel conveys this flow westerly to Mountain Road, collects runoff from north areas of SSV, and at the same time diverts flow above the channel capacity to the basins within SRP power line corridor on both east and west sides of Mountain Road. Where a base flow of 300 cfs will bypass Basins C1 and C2 through an open channel E and the remainder flow will be discharged into Basins C1 and C2. The base flow will continue south into Siphon Draw Wash along Mountain Road. The bleed-off flow from Basins C1 and C2 will directly flow into storm drain F along Mountain Road (extension).

Siphon Draw Wash and its tributaries collect flows from areas east of Meridian Road and the flow concentrates east of Meridian Road within Siphon Draw Wash Corridor (686 cfs), which are conveyed through the Meridian Pointe subdivision. This flow crosses Meridian Road through three culverts into Siphon Draw Wash corridor. At Mountain Road (extension), the combined flow consisting of 80 cfs from Siphon Draw Wash plus bleed-off flow from Basins C1 and C2 bypasses Basins B1 and B2 and flows south to the Elliot Road storm drain through a 54-inch storm drain F. At the junction of Siphon Draw Wash and open channel E, a flow of 200 cfs (Section 404) will be diverted into Siphon Draw Wash and will continue westerly to 104th Street. The remaining flow from Siphon Draw Wash will be discharged into Basins B1 and B2. Bleed-off flow from Basins B1 and B2 will combine with flow in the Elliot Road storm drain and the combined flow (149 cfs) will continue west to 104th Street through a 54-inch storm drain F.

The preliminary opinion of probable cost for the preferred alternative with earthen channel D is $11,833,500 and with concrete channel D is $12,329,100. These costs include all hydraulic

elements associated with the preferred alternative concept plan including contingencies (construction, design, field, and allowances for change orders). The land acquisition costs are excluded from the estimate. Exhibit A presents preliminary concept plans. To clarify the hydraulic function of various elements, the following summary is provided:

Sediment Basin A

A channel along Meridian Road is constructed by SSV to collect all offsite flows (1681 cfs) from the upper watershed. The channel flow will be directed into sediment Basin A to intercept sediment from the more frequent storms. Therefore, the sediment basin will require frequent periodic cleaning. The basin discharges into channel D.

Channel D

For channel D, two options have been considered: earthen and concrete.

The channel takes the outflow (1681 cfs) from sediment Basin A and directs it to the 3- 10'x5' box culvert and collects runoff from the SSV contributing area to the north (210 cfs). There are three spillover structures proposed along the south bank of the channel; it allows 516 cfs (about 33 Ac-Ft storage volume) to spillover into the detention basins (T1, T2, and T3) located within the SRP corridor.

At the inlet of the box structure, a side weir is proposed to divert 170 cfs peak flow to west into detention basins T4, T5, T6, and T7 (about 18 Ac-Ft storage volume). The detained flow is released by a bleed-off pipe into the existing wash near Signal Butte Road. As a result, the peak discharge delivered at the 3-10'x5' box structure is reduced from 1681 cfs to 1220 cfs.

Splitter Structure - ST1

At the south end of the 3-10'x5' box culvert a splitter structure (ST1) diverts the total flow of 1,050 cfs in two directions. The first 300 cfs from the 3-10'x5' box culvert is directed by the splitter structure ST1 into the proposed earthen channel E. The earthen channel outfalls to splitter structure 2 (ST2) at Siphon Draw Wash along the east line of the Meridian Pointe subdivision.

The flow in excess of 300 cfs overtops the west wall of the concrete channel and weirs into an inlet structure to a 10'x 6' box culvert. The box outlet takes flow into detention basins C1 and C2 (estimated 90 Ac-Ft). These basins are connected by an equalizer structure consisting of 1-10'x

4' box culvert. These basins are evacuated by a storm drain located at the southeast corner of Basin C2.

Splitter Structure - ST2

A second splitter structure (ST2) is located across Siphon Draw Wash at the west end of Meridian Pointe subdivision and collects flows from Siphon Draw Wash (686 cfs), excess flow from the Meridian Pointe subdivision as well as from channel E (300 cfs). The combined peak flow of 1,051 cfs at the splitter structure ST2 diverted in three directions as listed below:

- Initial flow of 200 cfs is directed into the existing Siphon Draw Wash. This flow will help in maintaining the natural vegetation (Section 404) in the wash corridor.

- An inlet structure to 54-inch storm drain F is located at the south side of splitter structure ST2. The surface inlet structure will intercept about 30 cfs of the surface flow.

- The remainder flow of 771 cfs will overtop the weir structure located on the southwest corner of the splitter structure and will be discharged into detention basins B1 and B2 (estimated 75 Ac-Ft). These basins are connected by 1-10'x 4' equalizer box culvert. The basins drain via a 48-inch storm drain located at the southwest corner of Basin B1 into the Elliot Road storm drain G.

Existing Flood Control Facility at 104th Street and Elliot Road

As part of Phase I Improvements of Elliot Road Basins and Outfall Channel (FCD Contract 98-44, PCN No. 4420431), several flood control improvements have been constructed near the intersection of 104th Street and Elliot Road.

1. 78-inch SD (concrete pipe) on the south side of Elliot Road's south right-of-way with a conveyance capacity of 508 cfs.

2. 78-inch SD (concrete pipe) on the north side of Elliot Road's north right-of-way with a conveyance capacity of 385 cfs.

3. Interceptor channel along the east side of 104th Street.

4. Splitter structure on the northeast corner of 104th Street and Elliot Road intersection.

Due to the design concept changes resulting from this Pre-Design Concept Study, design modifications will be required for the existing splitter structure noted above in item 4. Please refer to Appendix B for the details on the design change required.

6.0 SRP COORDINATION

Several elements of the proposed detention basins/channels from the Pre-Design Concept Study are impacted by existing and proposed SRP/WAPA corridors. To understand SRP's needs, a coordination meeting was arranged.

Wood/Patel met with SRP on May 5, 2005 to get input on their transmission corridor constraints and requirements. Those requirements are listed below based on their input:

250 ft. wide SRP Corridor

1. The east-west 250 ft. SRP corridor along the south side of the SSV is going to change with the newly planned transmission facility. New poles/towers will be placed and the old ones may be removed. These towers are typically spread about 800 ft. to 1,000 ft. apart. Wood/Patel used 900 ft. spacing as shown on the concept drawing. Based on SRP's recommendations a 110 ft. x 200 ft. flat pad is located at the future pole/tower locations.

2. The side slope for the depressed areas in between the pads could be as steep as 1:1. The concept drawing shows that slope to be 4:1.

3. A 35 ft. wide access path is required along the south edge of the SRP corridor to accommodate maintenance access.

4. A 25 ft. wide space is required along the north edge of the SRP corridor for the maintenance road.

5. To allow the storm drainage to spill over into the corridor depressions (retention basins), a hard lined spill over weir will be placed as shown on the concept drawing. The weir will be designed such that it will flood no more than 1 ft. in a 100-year type storm event.

6. The depressions will be drained by gravity via 12-inch bleed-off pipe.

7. SRP maintenance ramps at a slope maximum of 10% will be provided at both the east and west end of the depressions.

North-South Planned SRP Corridor east of Browning Substation

1. A 150 ft. x 200 ft. flat pad is required near the SEC of the substation as depicted on the concept drawing.

2. A 20 ft. wide maintenance road will be required along the west edge of the planned SRP corridor as depicted on the concept drawing.

3. A portion of the corridor outside of the pad and maintenance road will be used for the detention area. The side slope of the detention area should be no steeper than 1:1. The concept drawing depicts a side slope of 4:1 with maintenance ramps on a 10% slope.

Western Area Power Administration (WAPA) Corridor

It is Wood/Patel's understanding that the WAPA corridor constraints and requirements are similar to those of SRP. The concept plan depicts the detention basin layout based on that understanding.

1. A 20 ft. wide maintenance road will be required along the west edge of the future transmission line corridor as depicted on the concept drawing.

2. A portion of the corridor outside of the pad and maintenance road will be used for the detention area. The side slope of the detention area should be no steeper than 1:1. The concept drawing depicts a side slope of 4:1 with maintenance ramps on a 10% slope.

Subsequent to the SRP submittal, Wood/Patel received their comments on June 24, 2005 regarding the corridor constraints.

Due to the timing issues for the final submittal (June 30th), SRP comments have not been incorporated into this Pre-Design Concept Study. These comments are identified below:

1. The 250 ft. corridor will become a 300 ft. corridor after the new 50 ft. right-of-way acquisition from SSV by SRP.

2. A 20 ft. wide easement may be required by SRP along the west edge of Meridian Pointe from the SRP corridor to Siphon Draw Wash. This easement is to be negotiated with and obtained from the City of Mesa.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The recommended drainage system is Alternative 3, which is the combination of sediment basin A, offline detention Basins B1, B2, C1, and C2, storm drain elements F and G, and open channel elements D and E. Additional elements include several detention basins within SRP power line corridor along south boundary of the SSV.

The detention basin footprints include 4:1 side slopes with access and maintenance roads. Based upon the input from FCDMC and City of Mesa, landscape/aesthetics were not evaluated as part of this study. This decision was dictated primarily because of the land constraints.

This report includes only RGRCP as a choice for the pipe material. There are a number of locations where alternative material types can be explored to reduce the improvement costs.

Ongoing maintenance of the designed or recommended drainage systems is required to preserve the design integrity and purpose of the drainage system. Failure to provide maintenance can prevent the drainage system from performing to its intended design purpose and can result in reduced performance. As part of the final design process, a regular maintenance program needs to be implemented to have the drainage system perform to the level of protection as presented in this report.

TABLE 1

Peak Flow Summary Table

Table 1
Peak Flow (cfs) Summary from HEC-1 Models

	Major concentration points/Locations	Hydrograph Name	HEC-1 Model Names					
			FINAL8.DAT	EMADMP98	S60EM_BP.DAT	S60EMOP1.DAT	S60EMOP2.DAT	S60EMOP3.DAT
	Model number		**1**	**2**	**3**	**4**	**5**	**6**
						Alternative 1	**Alternative 2**	**Alternative 3**
	CAP overchute A	CAP1A	217	217	710	710	710	710
	CAP overchute B	CAP1B	217	217	710	710	710	710
	Subbasin 65A	65A	2503	2503	1235	1235	1235	1235
	Total flow to Basin A at Meridian Rd.	B1FLOW	N/A	N/A	N/A	1681	1681	1681
	Flow at Mountain Rd. before splits	CBAS1/CMOUNT	N/A	N/A	N/A	415	805	1736
	Flow at D/S of Basin C to SDW	CBAS3	N/A	N/A	N/A	414	400	355
	Total flow into SDW at Meridian Rd.	SD_TOT	N/A	N/A	N/A	686	686	686
	Total flow at D/S of Basin B into Pipe	CBAS2	N/A	N/A	N/A	122	122	149
	Basin EA by-pass flow to Elliot Rd.	DI65B	30	N/A	30	370	370	370
	EA by-pass & storm drain at 104th St	**CP65A**	**538**	**509**	**N/A**	**491**	**491**	**493**
	Release of EA & storm drain	CP65	548	851	1097	504	502	500
	Crismon Rd by-pass & storm drain	CP66C	956	991	1427	908	908	823
	W. side of WB in storm drain	RC-WA	973	991	1386	921	921	830
	Release of WB & storm drain	CP66D	986	1074	1386	921	921	830
	E. side of Ellsworth Rd in storm drain	66T66D	986	1074	1385	920	920	830
	At Ellsworth Rd.	C66D	1101	1162	1502	1056	1055	957
	Box culvert at Ellsworth Rd.	CULVT	1100	1162	1581	1044	1044	947
	Santan Freeway Channel at Outlet	OUTLET	N/A	1162	1588	1167	1167	1064
	2/3 mile S. of Elliot	C70A	1213	1346	1609	1191	1191	1099
	Santan Freeway Channel	C76A	1365	1346	1615	1278	1278	1235

Model Explanation

1 FINAL8.DAT = HEC-1 model used for Elliot Basin and Outfall Channel design;
2 EMADMP98 = Peak flows found in the ADMP report for East Mesa, 1998;
3 S60EM_BP.DAT = HEC-1 model for the pre-project condition - Siphon Draw Basin project;
4 S60EMOP1.DAT =HEC-1 model for Alternative 1;
5 S60EMOP2.DAT =HEC-1 model for Alternative 2;
6 S60EMOP3.DAT =HEC-1 model for Alternative 3 (Preferred Alternative).

TABLES 2 & 3

Cost Summary Tables

Siphon Draw Drainage Improvements - Additional Alternatives June 30, 2005

Flood Control District of Maricopa County W/P # 031902.04

FCD 2003 C019

TABLE 2 COST SUMMARY

(Estimates of Probable Cost Based on Concept Analysis)**

Alternative	MAJOR ELEMENTS	LAND REQUIREMENT (acres)	COMMENTS
1	$7,311,000	34	Deeper Basins "A"&"B"
2	$7,530,000	53	Deeper Basin "B"
3*	$7,966,000	46	Deeper BasinS "B"&"C"
3a*	$8,818,000	40	Concrete channel "D" for Alt. 3

* -- Basins for these options may not have enough land for K & G purpose.

** -- Note that the cost estimates were performed for selected drainage elements only for alternative selection purposes. All common items were excluded from these costs. Therefore, the cost estimates shown are not the true total construction cost of any alternatives.

TABLE 3 COST SUMMARY (a)
(Interim Alternative -No Action by FCDMC/Mesa)

Alternative	MAJOR ELEMENTS	LAND REQUIREMENT	COMMENTS
Interim Alternative	$2,347,000	24	Earth channel "D" & "H" only
Interim Alternative-a	$4,330,000	12	Concrete channel "D" & "H" only

(a) No action by FCDMC/Mesa conditions. Developer may have to safely convey flood water to D/S washes prior to building new homes for the southern portion of the Sunland Springs Village. This option should be considered as an interim alternative since it is not a complete solution. It does not address the peak flow attenuation and the floodplains D/S of Signal Butte will remain the same as they are.

TABLE 4

Probable Cost for Preferred Alternative

Siphon Draw Drainage Improvements Alternatives
Flood Control District of Maricopa County W/P # 031902.04
FCD 2003 C019

Table 4a Preliminary Opinion of Probable Cost for Preferred Alternative (Concrete Channel "D")

MAJOR SYSTEM ELEMENTS

ITEM	DESCRIPTION	UNIT PRICE	UNIT	QUANTITY	AMOUNT
1	Excavation (Channel "D")	$6	CY	27,400	$164,400
2	Concrete Lining (Channel "D")	$500	CY	2,327	$1,163,500
3	Excavation (Basin "A")	$6	CY	15,000	$90,000
4	Excavation (Basin "T1")	$6	CY	40,000	$240,000
5	Excavation (Basin "T2")	$6	CY	32,500	$195,000
6	Excavation (Basin "T3")	$6	CY	16,200	$97,200
7	Excavation (Basin "T4")	$6	CY	13,000	$78,000
8	Excavation (Basin "T5")	$6	CY	14,500	$87,000
9	Excavation (Basin "T6")	$6	CY	22,400	$134,400
10	Excavation (Basin "T7")	$6	CY	6,500	$39,000
11	Excavation (Basin "C1")	$6	CY	60,000	$360,000
12	Excavation (Basin "C2")	$6	CY	130,400	$782,400
13	Excavation (Basin "B1")	$6	CY	75,700	$454,200
14	Excavation (Basin "B2")	$6	CY	84,000	$504,000
15	3 - 10' x 5' Box Culvert ("Box 1")	$500	CY	200	$100,000
16	1 - 10' x 4' Box Culvert ("Box 2")	$500	CY	90	$45,000
17	1 - 10' x 6' Box Culvert ("Box 3")	$500	CY	185	$92,500
18	2-10'x4' Culverts ("C1" to "C2"&"B1" to "B2")	$500	CY	200	$100,000
19	60" RGRCP Pipe to Basin "T4"	$180	LF	70	$12,600
20	54" RGRCP Pipe "F" and "G"	$150	LF	6,500	$975,000
21	48" RGRCP Pipes "T4" to "T5" & "B2" to "G"	$135	LF	500	$67,500
22	42" RGRCP Pipe "T5" to "T6"	$120	LF	200	$24,000
23	24" RGRCP Pipe "T6" to "T7"	$55	LF	200	$11,000
24	18" RGRCP Pipe for Basins T1,T2,T3,T7	$45	LF	850	$38,250
25	12" RGRCP Pipe for Basin A	$35	LF	200	$7,000
26	Concrete Weirs "T1","T2", and "T3"	$500	CY	540	$270,000
27	Concrete Splitter Structure ST1 ("D3" to "C2")	$500	CY	340	$170,000
28	Concrete Splitter Structure ST2 (SDW to "B2")	$500	CY	340	$170,000
29	Gunite Channel to from "D3" to Basin "T4"	$500	CY	400	$200,000
30	Gunite Channel from "ST2" to SDW	$500	CY	200	$100,000
31	Manholes	$6,000.00	EA	17	$102,000
32	Inlet to Pipe "F"	$5,000.00	EA	1	$5,000
33	Flap Gate	$3,000.00	EA	3	$9,000
34	Loose Riprap	$60	CY	1,500	$90,000
35	Landscaping	$0.50	SF	2,482,920	$1,241,460
		SUBTOTAL MAJOR SYSTEM ELEMENTS			$8,219,410
		CONTINGENCIES:			
		Construction		20%	$1,643,882
		Design & Field Engineering		18%	$1,775,393
		Change Orders		7%	$690,430
		TOTAL MAJOR SYSTEM ELEMENTS			**$12,329,100**

1. Construction Contingencies @ 25% of the Total Construction Cost
2. Design and Field Engineering Costs @ 18% of the sum of Total Construction Cost and Construction Contingencies
3. Change Orders @ 7% of the sum of Total Construction Cost and Construction Contingencies

LAND REQUIREMENT:

ITEM	DESCRIPTION	UNIT	QUANTITY
1	City of Mesa Plant Site	AC	36.0
2	SRP Corridor (basins area)	AC	23.4
3	Sunland Springs Village	AC	8.0

APPENDIX A

HEC-1 Model Input and Output Files for Preferred Alternative

```
129          ID  **********************************************************************
130          ID   FILENAME:  SDIBB.DAT
131          ID
132          ID   THIS MODEL REPRESENTS THE FUTURE CONDITION OF THE WATERSHED.
133          ID   TOTAL DRAINAGE AREA IS APPROXIMATELY 213 SQ. MI.
134          ID   THIS MODEL USES A Kn VALUE OF 0.09 FOR DESERT LAND USE DUE TO SHEET FLOW
135          ID   CONDITIONS.
136          ID
137          ID   100-YEAR 24-HOUR FREQUENCY
138          ID   AREAL REDUCTIONS FROM FCD HYDROLOGY MANUAL
139          ID   THIS MODEL INCLUDES INFLOW FROM NORTH OF THE SUPERSTITION FREEWAY
140          ID   AND EAST OF THE CAP
141          ID
142          ID   DATA FROM THE QUEEN CREEK ADMS HAS BEEN ADDED TO CALCULATE FLOWS INTO THE
143          ID   EMF.   MUSKINGUM ROUTING NSTEPS WERE ADJUSTED TO BE WITHIN THE SUGGESTED
144          ID   RANGE.
145          ID
146          ID   METHODOLOGY
147          ID   THE US CORPS OF ENGINEERS FLOOD HYDROLOGY MODEL HEC-1 DATED SEP1990 VER 4.0
148          ID   SCS TYPE II RAINFALL DISTRIBUTION
149          ID   S-GRAPH HYDROGRAPH
150          ID   GREEN AND AMPT INFILTRATION EQUATION USED FOR CALCULATING LOSSES
151          ID   NORMAL DEPTH STORAGE CHANNEL ROUTING
152          ID   APPROXIMATE DIRECTION, LOCATION, AND LENGTH OF THE WASHES HAVE BEEN
153          ID   EVALUATED BASED ON FIELD INVESTIGATION, USGS MAPS, LANDIS AERIAL SURVEYS
154          ID   DATED 1994
155          ID   THE NOAA TECHNICAL MEMORANDUM NOAA ATLAS 2 DEPTH AREA RATIOS
156          ID
157          ID   ORIGINAL STUDY PERFORMED BY LISA C. YOUNG AND AFSHIN AHOURAIYAN, UPDATED BY
158          ID   DAVID DEGERNESS (OCT-DEC, 1996). REVIEWED BY VALERIE A. SWICK
159          ID   AND AMIR MOTAMEDI OF THE FLOOD CONTROL DISTRICT
160          ID   HYDROLOGY BRANCH ENGINEERING DIVISION, FLOOD CONTROL
161          ID   DISTRICT OF MARICOPA COUNTY, DECEMBER - JULY 1995.
162          ID
163          ID   ASSUMED VELOCITY OF 1 FT/SEC FOR SHEET FLOW, 2-3 FT/SEC FOR WASH/NATURAL
164          ID   CHANNEL, 3 FT/SEC FOR ROAD AND GRASS CHANNEL, 10FT/SEC FOR CONCRETE CHANNEL
165          ID
1                                        HEC-1 INPUT                                    PAGE  4

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

166          ID   VELOCITIES FOR ADMP IMPROVEMENT CHANNELS FROM DIBBLE AND ASSOCIATES
167          ID   SUGGESTED ALTERNATIVES (JULY 1, 1997)
168          ID
169          ID   **************************************************************************
170          ID   **** THE FOLLOWING NOTE WAS ADDED BY PRIMATECH ENGINEERS ON 06-12-2001 ****
171          ID   **************************************************************************
172          ID   NOTE: MUST USE NEBUILD.DSS AS THE DSS FILE TO IMPORT FLOWS ACROSS THE
173          ID         SUPERSTITION FREEWAY.
174          ID   **************************************************************************
175          ID
176          ID
177          ID   NOTE: MUST USE NDIBF.DSS AS THE DSS FILE TO IMPORT FLOWS ACROSS THE
178          ID         SUPERSTITION FREEWAY.
179          ID
180          ID   DDM MCUHP2 SE MESA ADMP - SOUTH OF SUPERSTITION FWY, FUTURE CONDITIONS
             *DIAGRAM
181          IT       5  1APR97    0000    1000
182          IO       5
183          IN      15
184          JD    3.60    0.01
185          PC    .000    .002    .005    .008    .011    .014    .017    .020    .023    .026
186          PC    .029    .032    .035    .038    .041    .044    .048    .052    .056    .060
187          PC    .064    .068    .072    .076    .080    .085    .090    .095    .100    .105
188          PC    .110    .115    .120    .126    .133    .140    .147    .155    .163    .172
189          PC    .181    .191    .203    .218    .236    .257    .283    .387    .663    .707
190          PC    .735    .758    .776    .791    .804    .815    .825    .834    .842    .849
191          PC    .856    .863    .869    .875    .881    .887    .893    .898    .903    .908
192          PC    .913    .918    .922    .926    .930    .934    .938    .942    .946    .950
193          PC    .953    .956    .959    .962    .965    .968    .971    .974    .977    .980
194          PC    .983    .986    .989    .992    .995    .998   1.000
195          JD    3.38   10.0
196          JD    3.24   30.0
197          JD    3.10   60.0
198          JD    3.05   90.0
199          JD    3.00  120.0
200          JD    2.97  150.0
             *
201          KK    SOSS
202          KM   INFLOW FROM SOSSAMAN BASIN VIA SOSSAMAN CHANNEL
203          KM   QI CARDS ARE BASED ON THE PEAK OF 1800CFS TO SOSSAMAN CHANNEL
204          BA   12.50
205          ZR  =QI A=SOSSAMAN DRAIN B=AT SUPERSTITION C=FLOW E=5MIN F=100YR
             *
             * DDM   ***** Preserved *****
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206          KK   RSOSS
207          KM   ROUTE FLOWS VIA SOSSAMAN CHANNEL TO BASELINE ROAD
208          RS       1    FLOW      -1
209          RC    .030    .025    .030    3500    .005
210          RX       0       5      10      35      75     110     115     120
211          RY      10      10      10       4       4      10      10      10
             *
             * DDM   ***** Updated *****
1                                    HEC-1 INPUT                                    PAGE  5

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


212          KK    59A
213          KM   BASIN 59A
214          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
215          KM    L=       .9  Lca=       .3   S=   34.9  Kn= .070  LAG=  29.7
216          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
217          BA     .26
218          LG     .23     .25    4.55     .42   33.00
219          UI     30.     77.    144.    186.    246.    364.    293.    226.    172.    123.
220          UI     64.     48.     30.     15.      9.      9.      9.      0.      0.      0.
221          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

222          KK    R59A
223          KM   RETAIN THE 100 YEAR 2 HOUR RUNOFF VOLUME
224          DT    D59A       2
225          DI       0   10000
226          DQ       0   10000
             *

227          KK    C59A
228          KM    SOSSAMAN DRAIN AT BASELINE ROAD
229          HC       2
             *

230          KK  59A59B
231          KM    ROUTE S59A TO 59B VIA SOSSAMAN CHANNEL
232          KM    BLOCK WALL ON LEFT BANK, SOSSAMAN ROAD ON RIGHT BANK
233          RS       4    FLOW      -1
234          RC    .025    .018    .013    6500   .0015
235          RX       0       3      13      38      78     103     128     203
236          RY      16      10      10       0       0      10       8      10
             *
             * DDM   ***** Updated *****

237          KK    59B
238          KM   BASIN 59B
239          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
240          KM    L=      1.2  Lca=       .7   S=   33.9  Kn= .087  LAG=  58.3
241          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
242          BA     .94
243          LG     .22     .24    4.65     .41   24.00
244          UI     54.     54.     93.    193.    244.    284.    318.    361.    415.    501.
245          UI    653.    666.    546.    473.    422.    364.    319.    273.    233.    172.
246          UI    110.     94.     89.     68.     54.     54.     19.     17.     17.     17.
247          UI     17.     17.     17.     17.      0.      0.      0.      0.      0.      0.
248          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****
1                                    HEC-1 INPUT                                    PAGE  6

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


249          KK    R59B
250          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
251          DT    D59B       63
252          DI       0   10000
253          DQ       0   10000
             *
             * DDM   ***** Preserved *****

254          KK    C59B
255          KM   SOSSAMAN CHANNEL AT GUADALUPE ROAD
256          HC       2
             *
             * DDM   ***** Preserved *****

257          KK  59BT60
258          KM     ROUTE 59B TO 60 GUADALUPE CHANNEL.  Assumed v=5ft/sec for NSTP calculation
259          RS       4    FLOW      -1
260          RC     .02    .013     .02    5500   .0005
261          RX       0     518     522     522     560     560     580    2580
262          RY     8.5     8.5     8.5       0       0       8       7       6
             *
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                * DDM   ***** Updated *****

  263           KK      60
  264           KM    BASIN 60
  265           KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  266           KM     L=       2.4  Lca=       1.4   S=   31.8  Kn= .087  LAG= 102.0
  267           KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  268           BA     2.30
  269           LG      .18      .24     4.65      .43    35.00
  270           UI      76.      76.      76.      76.     130.     250.     286.     330.     364.     395.
  271           UI     422.     452.     484.     522.     571.     607.     689.     820.     915.    1008.
  272           UI     885.     793.     723.     669.     626.     591.     536.     496.     459.     424.
  273           UI     387.     362.     324.     276.     219.     169.     134.     134.     126.     125.
  274           UI     121.      76.      76.      76.      76.      56.      23.      23.      23.      23.
  275           UI      23.      23.      23.      23.      23.      23.      23.      23.      23.      23.
  276           UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
  277           UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                *
                * DDM   ***** Preserved *****

  278           KK     R60
  279           KM    RETAIN 100 YR 2 HR RUNOFF VOLUME
  280           DT     D60     170
  281           DI       0   10000
  282           DQ       0   10000
                *
                * DDM   ***** Preserved *****
1                                       HEC-1 INPUT                                                    PAGE  7

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

  283           KK  EMFGUA
  284           KM     COMBINE S59 AND S60 AT EMF, GUADALUPE ROAD
                * KO                                      21
  285           HC       2
                *
                * DDM   ***** Preserved *****

  286           KK  GUATEL
  287           KM    ROUTE EMF FLOW FROM GUADALUPE ROAD TO ELLIOT ROAD
  288           RS       3    FLOW      -1
  289           RC     .03    .022      .03    6000   .0003
  290           RX       0     500      520     553     693     726     740     742
  291           RY      14      12       11       0       0      11      11      12
                *
                * DDM   ***** Updated *****

  292           KK      64
  293           KM    BASIN 64
  294           KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  295           KM     L=       1.2  Lca=        .6   S=   25.4  Kn= .051  LAG=  34.4
  296           KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  297           BA      .81
  298           LG      .18      .25     4.70      .41    54.00
  299           UI      79.     155.     338.     438.     543.     709.     988.     778.     624.     493.
  300           UI     388.     253.     139.     120.      79.      45.      24.      24.      24.      24.
  301           UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
  302           UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                *
                * DDM   ***** Preserved *****

  303           KK     R64
  304           KM    R64 IS WHAT REMAINS AFTER THE DIVERSION OF FLOW UP TO 67 AC-FT. THIS IS SENT
  305           KM    TO TAPE 21 FOR RECALL INTO FCD'S EMF MODELS.  KK BLOCK THERE MUST BE UPDATED
  306           KM    TO REFLECT THE CHANGE OF WHAT GETS SENT TO THE TAPE 21.
  307           KM    RETAIN 100 YR 2 HR RUNOFF VOLUME
                * KO                                      21
  308           DT     D64      67
  309           DI       0   10000
  310           DQ       0   10000
                *
                * DDM   ***** Preserved *****

  311           KK  EMFELL
  312           KM     COMBINE EMF FLOW WITH FLOW FROM SUBBASIN 64 AT ELLIOT ROAD
  313           HC       2
                *
                * DDM   ***** Preserved *****

  314           KK  ELTWAR
  315           KM    ROUTE EMF FLOW AT ELLIOT ROAD TO WARNER ROAD VIA THE EMF
  316           RS       2    FLOW      -1
  317           RC     .03    .022      .03    5500   .0003
  318           RX       0     500      520     553     693     726     740     742
  319           RY      14      12       11       0       0      11      11      12
                *
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  320     KK     62B
  321     KM    BASIN 62B
  322     KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  323     KM     L=        .6  Lca=        .3   S=    47.5  Kn= .021  LAG=    8.0
  324     KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  325     BA      .23
  326     LG      .11      .25     4.65      .46    78.00
  327     UI     334.     940.     431.      83.       0.       0.       0.       0.       0.       0.
  328     UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
          *
  329     KK     R62B
  330     KM    RETAIN 100 YR 2 HR RUNOFF VOLUME
  331     DT     D62B      19
  332     DI        0   10000
  333     DQ        0   10000
          *
          * DDM   ***** Preserved *****
  334     KK    62BTD
  335     KM    ROUTE 62B TO 62D VIA HAWES ROAD
  336     RS        6    FLOW      -1
  337     RC     .045      .04     .045     5280    .0041
  338     RX        0      100      125      127      177      179      224      324
  339     RY        3        2     1.50        0        0      1.5        2        3
          *
          * DDM   ***** Updated *****
  340     KK     62D
  341     KM    BASIN 62D
  342     KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  343     KM     L=        .9  Lca=        .3   S=    30.7  Kn= .045  LAG=   21.3
  344     KM     PHOENIX MOUNTAIN S-GRAPH WAS USED FOR THIS BASIN
  345     BA      .46
  346     LG      .23      .25     4.65      .40    50.00
  347     UI      76.     300.     519.     753.     475.     369.     286.     203.     163.     111.
  348     UI      85.      63.      47.      36.      26.      14.      14.      14.      14.       0.
  349     UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
  350     UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
          *
          * DDM   ***** Preserved *****
  351     KK     R62D
  352     KM    RETAIN 100 YR 2 HR RUNOFF VOLUME
  353     DT     D62D      35
  354     DI        0   10000
  355     DQ        0   10000
          * DDM   ***** Preserved *****
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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

  356     KK    CP62D
  357     KM    COMBINE FLOWS FROM SUBBASINS 62B AND 62D
  358     HC        2
          *
          * DDM   ***** Preserved *****
  359     KK    62DTF
  360     KM    ROUTE 62D TO 62F VIA HAWES ROAD
  361     RS        4    FLOW      -1
  362     RC     .045     .024     .045     3600    .0033
  363     RX        0      500      750      753      793      796     1046     1546
  364     RY        3      1.5     1.25        0        0     1.25      1.5        3
          *
          * DDM   ***** Updated *****
  365     KK     62F
  366     KM    BASIN 62F
  367     KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  368     KM     L=        .6  Lca=        .4   S=    31.9  Kn= .042  LAG=   18.1
  369     KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  370     BA      .26
  371     LG      .21      .25     4.65      .41    54.00
  372     UI      66.     224.     350.     546.     371.     235.      98.      56.      18.      15.
  373     UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
  374     UI       0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
          *
          * DDM   ***** Preserved *****
  375     KK     R62F
```

```
376          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
377          DT    D62F      18
378          DI       0   10000
379          DQ       0   10000
             *
             * DDM   ***** Preserved *****

380          KK   CP62F
381          KM   COMBINE FLOWS FROM 62D AND 62F
382          HC       2
             *
             * DDM   ***** Preserved *****

383          KK   62T63
384          KM   ROUTE CP62F TO SUBBASIN 63 VIA WASH.
385          KM   WASH CROSSES HAWES, NORTH OF ELLIOT
386          RS       7    FLOW      -1
387          RC    .045     .04    .045    6000  0.0055
388          RX       0     500     750     770     780     800    1050    1550
389          RY       5       4       3       0       0       3       4       5
             *
             * DDM   ***** Inserted *****
1                                        HEC-1 INPUT                                        PAGE 10

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


390          KK      63
391          KM   BASIN 63
392          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
393          KM    L=       1.4  Lca=       .7   S=   28.2  Kn= .035  LAG=  26.8
394          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
395          BA     .91
396          LG     .18     .25    4.65     .43   55.00
397          UI    114.    346.    595.    780.   1159.   1291.    930.    689.    485.    241.
398          UI    170.    113.     35.     35.     35.     35.      0.      0.      0.      0.
399          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****

400          KK     R63
401          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
402          DT     D63      71
403          DI       0   10000
404          DQ       0   10000
             *
             * DDM   ***** Preserved *****

405          KK    CP63
406          KM   COMBINE FLOWS FROM SUBBASIN 63 AND CP62F
407          HC       2
             *
             * DDM   ***** Preserved *****

408          KK   63T71
409          KM   ROUTE CP63 TO S71 VIA SHEET FLOW
410          KM   SOSSAMAN SOUTH OF ELLIOT
411          RS       6    FLOW      -1
412          RC    .055    .045    .055    5280   .0005
413          RX       0    1000    1005    1010    1013    1043    1543    2043
414          RY       6       5       0       0       3       5       2       5
             *
             *
             * DDM   ***** Updated *****

415          KK     68B
416          KM   BASIN 68B
417          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
418          KM    L=        .6  Lca=       .3   S=   32.3  Kn= .020  LAG=   7.7
419          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
420          BA     .25
421          LG     .10     .25    5.20     .36   80.00
422          UI    377.   1018.    412.     72.      0.      0.      0.      0.      0.
423          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
1                                        HEC-1 INPUT                                        PAGE 11

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


424          KK     R68
425          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
426          DT    D68B      24
427          DI       0   10000
428          DQ       0   10000
             *
```

```
429          KK  68BT69
430          KM   ROUTE S68B TO S69 VIA WASH CROSSING HAWES
431          RS       3    FLOW       -1
432          RC    .045     .04     .045     2750    .0036
433          RX       0     500      950     1003     1007     1057     1511     2011
434          RY       4     3.5        3        0        0        2      2.5        3
             *

435          KK      69
436          KM   BASIN 69
437          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
438          KM    L=        .7  Lca=         .3   S=    22.4  Kn= .020  LAG=    9.0
439          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
440          BA     .09
441          LG     .10      .25     4.70      .45    80.00
442          UI    104.     320.     213.      54.      11.       0.       0.       0.       0.       0.
443          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
             *
             * DDM   ***** Preserved *****

444          KK     R69
445          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
446          DT     D69       9
447          DI       0   10000
448          DQ       0   10000
             *
             * DDM   ***** Preserved *****

449          KK     C69
450          KM   COMBINE FLOWS FROM SUBBASIN 68B AND 69
451          HC       2
             *
             * DDM   ***** Preserved *****

452          KK   69T71
453          KM   ROUTE S69 TO S71 VIA WASH AND SHEET FLOW, INCREASE OVERBANK N VALUES
454          RS       7    FLOW       -1
455          RC    .055    .045     .055     6000    .0033
456          RX       0     500     1000     1001     1002     1500     2000     2500
457          RY       4       3        2        0        0        2        3        4
             *
             * DDM   ***** Inserted *****
```



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

458          KK      71
459          KM   BASIN 71
460          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
461          KM    L=      1.6  Lca=         .8   S=    26.4  Kn= .020  LAG=   16.8
462          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
463          BA    1.09
464          LG     .10      .25     4.65      .47    80.00
465          UI    331.    1085.    1805.    2349.    1459.     780.     329.     144.      67.      67.
466          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
467          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
             *

468          KK     R71
469          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
470          DT     D71     106
471          DI       0   10000
472          DQ       0   10000
             *
             * DDM   ***** Preserved *****

473          KK     C71
474          KM   original wording "COMBINE S71 WITH S69 AND S68B"
475          KM   was revised by Dibble to be "COMBINE FLOWS FROM S63, S68B, S69 AND S71,
476          KM   WHICH COMBINES HYDROGRAPHS 63T71, 69T71 AND R71"
477          KM   CONCENTRATION POINT IS ALONG SOSSAMAN AT THE MESQUITE ST ALIGNMENT
478          HC       3
             *

479          KK   71T72
480          KM   ROUTE C71 TO S72 VIA DIKE
481          KM    WASH WEST OF INTERSECTION OF SOSSAMAN & WARNER
482          RS       4    FLOW       -1
483          RC    .055    .045     .055     3750    .0037
484          RX       0     500     1000     1007     1017     1025     1530     2030
485          RY       9     8.5        8        0        0        8      8.5        9
             *
             * DDM   ***** Inserted *****

486          KK      72
487          KM   BASIN 72
```

```
488          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
489          KM    L=      1.6  Lca=       .9   S=   13.1  Kn= .020  LAG=  20.3
490          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
491          BA     .84
492          LG     .10     .25    5.40     .33   80.00
493          UI    161.    600.    906.   1496.   1347.    912.    566.    247.    153.     50.
494          UI     43.     43.      0.      0.      0.      0.      0.      0.      0.      0.
495          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                        PAGE 13

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

496          KK     R72
497          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
498          DT     D72      83
499          DI       0   10000
500          DQ       0   10000
             *
             * CONCENTRATION POINT ADDED PRIOR TO EMF COMBINE SO THAT FLOWS CAN BE SENT TO
             * TAPE21.

501          KK   CPWAR
             * KO                                    21
502          HC       2
             *
             * DDM   ***** Preserved *****

503          KK  EMFWAR
504          KM   COMBINE ROUTED FLOW FROM 71 WITH 72 WITH EMF (HYDROGRAPH ELTWAR)
505          HC       2
             * DDM   ***** Preserved *****

506          KK  WARTKN
507          KM   ROUTE EMF WARNER ROAD FLOW TO KNOX ROAD
508          RS       1    FLOW      -1
509          RC     .03    .022     .03    2500   .0003
510          RX       0     500     520     553     693     726     740     742
511          RY      14      12      11       0       0      11      11      12
             *

512          KK     70B
513          KM   BASIN 70B
514          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
515          KM    L=      1.6  Lca=       1.1   S=   29.9  Kn= .022  LAG=  20.7
516          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
517          BA     .38
518          LG     .11     .15    8.00     .12   76.00
519          UI     68.    259.    390.    636.    615.    418.    267.    119.     73.     30.
520          UI     19.     19.      0.      0.      0.      0.      0.      0.      0.      0.
521          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****

522          KK    R70B
523          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
524          DT    D70B      38
525          DI       0   10000
526          DQ       0   10000
             *

527          KK  70BT76
528          KM   ROUTE 70B TO 76B VIA WASH CROSSING SOSSAMAN, SOUTH OF WARNER ROAD
529          RS       6    FLOW      -1
530          RC    .045     .04    .045    5500   .0041
531          RX       0     500    1000    1003    1007    1011    1511    2011
532          RY       4     3.5       3       0       0       2     2.5       3
             *
1                                        HEC-1 INPUT                                        PAGE 14

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

533          KK     76B
534          KM   BASIN 76B
535          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
536          KM    L=      1.8  Lca=       .9   S=   27.4  Kn= .021  LAG=  18.9
537          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
538          BA     .64
539          LG     .10     .15    8.80     .09   78.00
540          UI    148.    515.    789.   1294.    957.    629.    303.    157.     70.     35.
541          UI     35.      0.      0.      0.      0.      0.      0.      0.      0.      0.
542          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *
             * DDM   ***** Preserved *****
```

```
          KK    R76B
          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
          DT    D76B      66
          DI       0   10000
          DQ       0   10000
          *

          KK    KNOX
          KM   COMBINE FLOWS AT KNOX ROAD
          * KO                                    21
          HC       2
          *

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

          KK     65A
          KM   BASIN 65A
          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
          KM    L=     1.60  Lca=       .90   S=    51.2  Kn= .089  LAG=  69.7
          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
          BA   2.535
          LG     .35     .36    5.10     .26    1.00
          UI    122.    122.    122.    345.    457.    572.    635.    703.    775.    875.
          UI    972.   1166.   1460.   1573.   1316.   1148.   1032.    937.    826.    739.
          UI    654.    583.    493.    362.    244.    217.    201.    198.    122.    122.
          UI    122.     52.     38.     38.     38.     38.     38.     38.     38.     38.
          UI     38.      0.      0.      0.      0.      0.      0.      0.      0.      0.
          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
          *

          KK   REMA1
          KM   DIVERT 37% OF FLOW TO SUBBASIN 65A1
          DT    65A1
          DI       0     100     200     500    1000    2000    4000
          DQ       0      37      74     185     370     740    1480
          *
1                                        HEC-1 INPUT                                        PAGE 15

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

          KK   REMA2
          KM   DIVERT 28.6% OF REMA1 FLOW (18% of 65A) TO SUBBASIN 65A2a
          DT   65A2a
          DI       0     100     200     500    1000    2000    4000
          DQ       0    28.6    57.2     143     286     572    1144
          *

          KK   REMA3
          KM   DIVERT 15.6% OF REMA2 FLOW (7% of 65A) TO SUBBASIN 65A2b
          DT   65A2b
          DI       0     100     200     500    1000    2000    4000
          DQ       0    15.6    31.2      78     156     312     624
          *

          KK    65A3
          KM   DIVERT 13.2% OF REMA3 FLOW (5% of 65A) TO SUBBASIN 65A2c
          DT   65A2c
          DI       0     100     200     500    1000    2000    4000
          DQ       0    13.2    26.4      66     132     264     528
          *

          KK   CAP1A
          KM   INFLOW FROM EAST OF THE CAP THROUGH 2 - 72" PIPE OVERCHUTES
          KM   STATION #131+90 AND 158+00 SALT-GILA AQUEDUCT REACH 2
          BA   0.965
          ZR  =QI A=CAP1A B=OVERCHUTE C=FLOW E=5MIN F=100YEAR
          *

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

          KK  RRCP1A
```

```
 604          KM   REACH MN-5 AND CULVERT MNC-1
 605          KM   ROUTE FLOW FROM WHERE RCAP1A FLOWS INTO THE NEW CHANNEL ALONG MERIDIAN ROAD
 606          KM   USES REVISED ROUTING PARAMETERS, CHANNEL MN-5 SHAPE
 607          RS       1    FLOW      -1
 608          RC   0.025   0.015   0.025    2350   .0017
 609          RX       0       8      16      27      43      53      61      69
 610          RY     5.1     5.2     5.3       0       0     5.3     5.2     5.1
              *
1                                        HEC-1 INPUT                                        PAGE 16

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


 611          KK   C65A1
 612          KM   COMBINE FLOWS FROM SUBBASIN 65A3 and CAP1A
              * KO     1
 613          HC       2    1.81
              *

 614          KK   RCHL1
 615          KM   ROUTE FLOW FROM GUADALUPE BASIN TO D/S of 65A2c
 616          RS       2    FLOW      -1
 617          RC   0.025   0.015   0.025    1500   .0015
 618          RX     0.0     8.0    16.0      34      56      74      82      90
 619          RY     8.8     8.9     9.0       0       0     9.0     8.9     8.8
              *

 620          KK  D65A2c
 621          KM         RETURN FLOW FROM SUBBASIN 65A2c
 622          DR   65A2c
              *

 623          KK   CHAN1
              * KO     1
 624          KM   TOTAL FLOW AT MERIDIAN ROAD CHANNEL (U/P Stream)
 625          HC       2    1.94
              *

 626          KK   RCHL2
 627          KM   ROUTE FLOW FROM 65A2c TO 65A2b
 628          RS       2    FLOW      -1
 629          RC   0.025   0.015   0.025    1300   .0015
 630          RX     0.0     8.0    16.0      34      56      74      82      90
 631          RY     8.8     8.9     9.0       0       0     9.0     8.9     8.8
              *

 632          KK   CAP1B
 633          KM   INFLOW FROM EAST OF THE CAP THROUGH 2 - 72" PIPE OVERCHUTES
 634          KM   STATION #131+90 AND 158+00 SALT-GILA AQUEDUCT REACH 2
 635          BA   0.965
 636          ZR  =QI  A=CAP1B  B=OVERCHUTE  C=FLOW  E=5MIN F=100YEAR
              *

 637          KK  RCAP1B
 638          KM   ROUTE FLOW FROM CAP1B OVERCHUTE TO A POINT ALONG THE MARICOPA/PINAL COUNTY
 639          KM   LINE 1000 FEET NORTH OF THE INTERSECTION OF GUADALUPE ROAD AND THE COUNTY
 640          KM   LINE. ROUTING WILL BE BY A NATURAL CHANNEL. ORIGINAL SLOPE=.01
 641          RS      14    FLOW      -1
 642          RC    .045     .04    .045    4900    .010
 643          RX       0     500    1000    1006    1026    1032    1511    2011
 644          RY       4     3.5       3       0       0       3     3.5       4
              *
1                                        HEC-1 INPUT                                        PAGE 17

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


 645          KK   CHAN2
              * KO     1
 646          KM   TOTAL FLOW AT MERIDIAN ROAD CHANNEL (Middle Reach)
 647          HC       2    2.91
              *

 648          KK  D65A2b
 649          KM         RETURN FLOW FROM SUBBASIN 65A2b
 650          DR   65A2b
              *

 651          KK  B1FLOW
 652          KM   TOTAL FLOW AT MERIDIAN ROAD FOR BASIN 1
 653          HC       2    3.09
              *

 654          KK   RCHL3
 655          KM   ROUTE FLOW FROM BASIN1 TO MOUNTAIN ROAD BASIN 3
 656          RS       3    FLOW      -1
 657          RC   0.040   0.035   0.040    2500   .0050
```

```
658          RX     0.0     8.0    16.0      34      56      74      82      90
659          RY     8.8     8.9     9.0       0       0     9.0     8.9     8.8
             *

660          KK     65B
661          KM   BASIN 65B
662          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
663          KM    L=      2.0  Lca=      1.2   S=   37.5  Kn= .036  LAG=  36.6
664          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
665          BA    1.37
666          LG     .18     .25    6.00     .24   53.00
667          UI    126.    218.    506.    669.    809.   1014.   1468.   1422.   1102.    901.
668          UI    720.    562.    337.    218.    182.    126.     71.     39.     39.     39.
669          UI     39.      0.      0.      0.      0.      0.      0.      0.      0.      0.
670          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

671          KK    R65B
672          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME minus the volume within SRP (19 Ac-Ft)
673          DT    D65B     101
674          DI       0   10000
675          DQ       0   10000
             *

676          KK   NW65B
677          KM   Divert 18% flow to Meridian Pointe subdivision
678          DT  MPOINT
679          DI       0   10000
680          DQ       0    1800
             *
```



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

681          KK    N65B
682          KM   Divert 74% to southwest(79% of 65B), 26% (21% of 65B) to the SRP Corridor
683          DT   DW65B
684          DI       0   10000
685          DQ       0    7400
             *

686          KK  CMOUNT
687          KM   COMBINE FLOWS FROM CHANNEL AND SUBBASIN "F" of Sunland Spring
             * KO     1
688          HC       2    3.38
             *

689          KK   DMNT1
690          KM        Divert about 33 Ac-Ft to East Mountain Road Basins within SRP Corridor
             * KO     1
691          DT   DSRP1
692          DI       0      50     150   350.0     500   750.0     800    1220    1500   2000.
693          DQ       0       0       0     0.0     0.0     0.0     0.0     0.0     280    780.
             *

694          KK   DMNT2
695          KM        Divert about 18 Ac-Ft to West Mountain Road Basins within SRP Corridor
696          DT   DSRP2
697          DI       0      50   350.0     500     800    1000    1050    1500   2000.
698          DQ       0       0     0.0     0.0     0.0     0.0     0.0     450    950.
             *

699          KK  SRP1IN
700          KM        RETURN FLOW TO SRP BASIN 1
701          DR   DSRP1
             *

702          KK    SRP1
703          KM   3 Basins with SRP COrridor East Mountain Rd, Total Vol = 33 Ac-Ft
704          KM   OFF-LINE DETENTION BASIN
705          KM   WITH  12" OUTLET PIPE AND 100' WEIR, Simplified E-V Rationship
706          RS       1    STOR       0
707          SV       0    1.50     3.5     6.5     9.5    12.5      16      24      33      38
708          SE    82.0    83.0    84.0      85      86      87      88      90      92      93
709          SL    82.5   0.785     .62      .5
710          SS    92.0     100     2.5     1.5
             *

711          KK   CSRP1
712          KM   COMBINE FLOWS FROM BASIN SRP1 OUTLET AND BYPASS
713          HC       2
             *
```



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LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
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```
714          KK   BPAS3
715          KM        By-pass 300 cfs to channel, and Divert Remaining to Basin 3
716          DT   D_BAS3
717          DI        0       50      150    300.0      500    700.0      800     1000     1500    2000.
718          DQ        0        0        0      0.0      200    400.0      500      700     1200    1700.
             *

719          KK   RCHL_E
720          KM    ROUTE FLOW through Channel E from SRP Corridor to Siphon Draw Wash
721          RS        1     FLOW       -1
722          RC    0.040    0.035    0.040     1600    .0050
723          RX      0.0      8.0     16.0       34       56       74       82       90
724          RY      9.0      9.0      9.0        0        0      9.0      9.0      9.0
             *

725          KK   BAS3IN
726          KM          RETURN FLOW TO BASIN 3
727          DR   D_BAS3
             *

728          KK    BASN3
729          KM    WEST Mountain Road, North of Siphon Draw Wash
730          KM    OFF-LINE DETENTION BASIN
731          KM    WITH  30" OUTLET PIPE AND 100' WEIR
732          RS        1     STOR       0
733          SV        0        7       13       27       41       56       72       87      100      120
734          SE     70.0     70.5     71.0       72       73       74       75       76       77       78
735          SL     70.5    4.909      .62       .5
736          SS     77.0      100      2.5      1.5
             *

737          KK    CBAS3
738          KM    COMBINE FLOWS FROM BASIN OUTLET AND BYPASS
739          HC        2
             *

740          KK   D65A2a
741          KM          RETURN FLOW FROM SUBBASIN 65A2a
742          DR    65A2a
             *

743          KK   DB65A1
744          KM          RETURN FLOW FROM SUBBASIN 65A1
745          DR     65A1
             *

746          KK   SD_TOT
747          KM    TOTAL FLOW INTO SIPHON DRAW WASH
748          HC        2    1.39
             *
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LINE         ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

749          KK    RSDW1
750          KM    ROUTE FLOW FROM MERIDIAN ROAD TO MOUNTAIN ROAD THROUGH DRAINAGE CORRIDOR
751          RS        2     FLOW       -1
752          RC     .045     .035     .045     3000    .0070
753          RX      0.0     30.0     88.0      100      150      162      220      250
754          RY      9.0      8.0      4.5        0        0      4.5      8.0      9.0
             *

755          KK     E65B
756          KM          RETURN FLOW FROM SUBBASIN 65B Meridian Pointe area
757          DR   MPOINT
             *

758          KK   SDWASH
759          KM    TOTAL FLOW AT SIPHON DRAW WASH AND MOUNTAIN ROAD
760          HC        3
             *

761          KK    BPSDW
762          KM        By-pass 200 cfs to SIPHON DRAW WASH, and Remaining to Basin B & pipe
763          DT   DSOUTH
764          DI        0       50       80    200.0      400    600.0      800     1000     1500    2000.
765          DQ        0        0        0      0.0      200    400.0      600      800     1300    1800.
             *

766          KK    RCHL4
767          KM    ROUTE FLOW FROM BASIN3 TO 104TH STREET
768          RS        3     FLOW       -1
769          RC    0.040    0.035    0.040     5500    .0050
770          RX      0.0      8.0     16.0       34       56       74       82       90
771          RY      8.8      8.9      9.0        0        0      9.0      8.9      8.8
```

```
                *
  772           KK    65AW
  773           KM   BASIN 65AW
  774           KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
  775           KM    L=        .9  Lca=        .6   S=    54.7  Kn= .049  LAG=  26.1
  776           KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
  777           BA     .43
  778           LG     .24      .25     5.30      .29    32.00
  779           UI     56.     176.     295.     391.     603.     594.     432.     316.     210.     101.
  780           UI     73.      43.      17.      17.      17.       0.       0.       0.       0.       0.
  781           UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                *

  782           KK   R65AW
  783           KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
  784           DT   D65AW      31
  785           DI       0   10000
  786           DQ       0   10000
                *
1                                          HEC-1 INPUT                                                    PAGE 21

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

  787           KK  65AT65
  788           KM   ROUTE C65A TO BASIN 65B VIA A WASH,(THIS WASH IS NORTH OF SIPHON DRAW)
  789           KM   THIS IS THE PART OF 65A WHICH IS WEST OF THE MERIDIAN RD ALIGNMENT
  790           RS      11    FLOW      -1
  791           RC    .045     .04    .045     9500     .007
  792           RX       0     500    1000     1003     1053     1056     1511     2011
  793           RY       4     3.5       3        0        0        2      2.5        3
                *

  794           KK    W65B
  795           KM         RETURN FLOW FROM SUBBASIN E65B
  796           DR   DW65B
                *

  797           KK   CP65B
  798           KM   COMBINE FLOW FROM SUBBASIN 65AW (WEST OF MERIDIAN RD) WITH FLOW FROM
  799           KM   SUBBASIN 65B, AND FLOW FROM BASIN1
  800           HC       3    4.60
                *

  801           KK   DI65B
  802           KM        DIVERSION STRUCTURE TO ROUTE PEAK FLOW TO ELLIOT BASIN (EAST)
  803           KM        By-pass 370 cfs to Elliot Storm Drain, and Divert Remaining to E Basin
  804           DT  DIRS65
  805           DI       0     100     200   370.0     500   600.0     800    1000    1300   1800.
  806           DQ       0       0       0     0.0     130   230.0     430     630     930   1430.
                *

  807           KK   S_TOT
  808           KM         RETURN FLOW TO Siphon Draw Wash Basin B and Pipe
  809           DR  DSOUTH
                *

  810           KK   BPAS2
  811           KM        By-pass 80 cfs to Pipe, and Remaining to Basin B
  812           DT  D_BAS2
  813           DI       0      50      80   200.0     400   600.0     800    1000    1500   2000.
  814           DQ       0       0       0   120.0     320   520.0     720     920    1420   1920.
                *

  815           KK  PIPE_F
  816           KM   ROUTE FLOW FROM SIPHON DRAW WASH TO ELLIOT ROAD THROUGH PIPE
  817           RK    1400  0.0050   0.012            CIRC       5
                *

  818           KK  BAS2IN
  819           KM         RETURN FLOW TO Siphon Draw Wash Basin
  820           DR  D_BAS2
                *
1                                          HEC-1 INPUT                                                    PAGE 22

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

  821           KK  SD_BAS
  822           KM   SIPHON DRAW WASH BASIN
  823           KM   OFF-LINE DETENTION BASIN LOCATED AT W. MOUNTAIN ROAD & S. SIHON DRAW WASH
  824           KM   WITH  30" OUTLET PIPE AND 100' WEIR
  825           RS       1    STOR       0
  826           SV       0    3.00       6       13       20       36       53       72       82       92
  827           SE    65.0    65.5      66       67       68       70       72       74       75       76
  828           SL    65.5   4.909     .62       .5
```

```
829          SS    75.0     100     2.5     1.5
             *

830          KK   CBAS2
831          KM   COMBINE FLOWS FROM BASIN OUTLET AND BYPASS
832          HC       2
             *

833          KK   RSDW2
834          KM   ROUTE FLOW FROM MOUNTAIN ROAD TO 104TH STREET THROUGH PIPE ALONG ELLIOT ROAD
835          RD    6500  0.0060   0.012            CIRC     4.5
             *

836          KK   CP65A
837          KM   COMBINE FLOW FROM CP65B AND FLOW FROM ELLIOT ROAD PIPE
838          HC       2
             *

839          KK  65AT-3
840          KM   ROUTE FROM 104th ST TO E. BASIN OUTLET
841          RD    1500  0.0065   0.012            CIRC     7.0
             *

842          KK   DR65B
843          KM        RETURN DIVERT TO EAST DETENTION BASIN
844          DR  DIRS65
             *

845          KK   RS65A
846          KM   ELLIOT BASIN, EAST
847          RS       1    STOR       0
848          SV       0    5.40    9.30   13.90   18.80   24.00   29.50   35.30   41.40   48.00
849          SE  1429.0  1433.0  1434.0  1435.0  1436.0  1437.0  1438.0  1439.0  1440.0  1441.0
850          SL  1430.0  0.7854     .62      .5
851          SS  1439.0     200     2.5     1.5
             *

852          KK    CP65
853          KM   COMBINE FLOWS FROM EAST ELLIOT BASIN AND ELLIOT STORM DRAIN
854          KM   BEFORE COMBINING WITH FLOWS FROM THE BYPASS CRISMON CHANNEL
855          HC       2
             *
1                                        HEC-1 INPUT                                        PAGE 23

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

856          KK   65T66
857          KM   ROUTE FROM E. BASIN OUTLET TO CRISMON ROAD.
858          RD    1200  0.0065   0.012            CIRC     7.5
             *

859          KK  ADOT-E
860          KM   INFLOW FROM NORTH OF THE SUPERSTITION FREEWAY ENTERING 67A
861          KM   FROM EAST ADOT DETENTION BASIN 4105.
862          BA    0.01
863          ZR  =QI A=ADOT EAST BASIN B=AT SUPERSTITION C=FLOW E=5MIN F=100YR
             *

864          KK  AET67A
865          KM    ROUTE SUPERSTITION FLOW THROUGH 67A TO BASELINE ROAD
866          IN      15
867          RS       6    FLOW      -1
868          RC    .045    .040    .045    5500    .010
869          RX       0     100     110     120     130     140     150     250
870          RY       5       4       3       1       1       3       4       5
             *

871          KK     67A
872          KM   BASIN 67A
873          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
874          KM    L=       1.0  Lca=       .7   S=   42.9  Kn= .042  LAG=  25.7
875          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
876          BA     .30
877          LG     .21     .25    4.70     .39   43.00
878          UI     39.    126.    208.    277.    433.    400.    292.    213.    134.     67.
879          UI     47.     25.     12.     12.     12.      0.      0.      0.      0.      0.
880          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
             *

881          KK    R67A
882          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
883          DT    D67A      21
884          DI       0   10000
885          DQ       0   10000
             *
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 886          KK    C67A
 887          KM    COMBINE FLOWS FROM ADOT-E AND SUBBASIN 67A
 888          HC       2
              *

 889          KK   67ATC
 890          KM   ROUTE 67A TO 67C VIA WASH CROSSING BASELINE
 891          RS       7    FLOW      -1
 892          RC    .055    .045    .055    6300   .0071
 893          RX       0     500     980    1003    1007    1031    1511    2011
 894          RY       4     3.5       3       0       0       3     3.5       4
              *
1                                      HEC-1 INPUT                                    PAGE 24

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

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

 899          KK   RSUP2
 900          KM   ROUTE SUP2 THROUGH SUBBASIN 67B
              * KO                2
 901          IN      15
 902          RS       5    FLOW      -1
 903          RC    .045    .045    .045    4500   .0056
 904          RX       0     500    1000    1003    1007    1011    1511    2011
 905          RY       4     3.5       3       0       0       2     2.5       3
              *

 906          KK     67B
 907          KM   BASIN 67B
 908          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 909          KM    L=      1.2  Lca=       .9   S=   28.0  Kn= .034  LAG=  26.4
 910          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 911          BA     .53
 912          LG     .17     .25    4.90     .38   56.00
 913          UI     68.    210.    356.    470.    713.    741.    536.    395.    269.    131.
 914          UI     94.     59.     21.     21.     21.      0.      0.      0.      0.      0.
 915          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

 916          KK    R67B
 917          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
 918          DT    D67B      41
 919          DI       0   10000
 920          DQ       0   10000
              *

 921          KK    C67B
 922          KM   COMBINE FLOWS FROM SUP2 AND SUBBASIN 67B
              * KO             2
 923          HC       2
              *

 924          KK   67BTC
 925          KM   REACH CN-4, CN-5 plus culvert CNC-4.
 926          KM   ROUTE FLOW IN THE CRISMON CHANNEL FROM BASELINE ROAD (C67B) TO
 927          KM      GUADALUPE ROAD (C67C)
 928          RS       2    FLOW      -1
 929          RC    .025    .015    .025    5180   .0019
 930          RX       0       8      16    24.4    36.4    44.8    52.8    60.8
 931          RY     4.0     4.1     4.2       0       0     4.2     4.1     4.0
              *
1                                      HEC-1 INPUT                                    PAGE 25

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

 932          KK     67C
 933          KM   BASIN 67C
 934          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 935          KM    L=      1.2  Lca=       .7   S=   40.2  Kn= .049  LAG=  32.3
 936          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 937          BA     .93
 938          LG     .25     .25    5.10     .32   31.00
 939          UI     96.    213.    432.    557.    702.   1006.   1133.    842.    667.    518.
 940          UI    365.    193.    157.     96.     59.     30.     30.     30.     30.      0.
 941          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
 942          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

 943          KK    R67C
```

```
 944          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
 945          DT    D67C      67
 946          DI       0   10000
 947          DQ       0   10000
              *

 948          KK    C67C
 949          KM   COMBINE SUBBASINS 67C AND 67A AND 67B
 950          HC       3
              *

 951          KK  67CT67
 952          KM   REACH CN-3 plus culvert CNC-3
 953          KM   ROUTE FLOW IN THE CRISMON CHANNEL FROM C67C (@ GUADALUPE ROAD & CRISMON ROAD)
 954          KM    TO C67D (AT APPROX. 1/2 MILE SOUTH OF GUADALUPE ROAD).
              *       Sta. 39+00 to Guadalupe Rd.
 955          RS       1    FLOW      -1
 956          RC    .025    .015    .025    2420    .0018
 957          RX       0       6      12      24      64      76      82      88
 958          RY       4       3       2       0       0       2       3       4
              *

 959          KK     67D
 960          KM   BASIN 67D
 961          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 962          KM    L=        .6  Lca=        .4   S=   34.7  Kn= .050  LAG=  20.5
 963          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 964          BA     .13
 965          LG     .25     .25    5.20     .30   30.00
 966          UI     23.     87.    132.    216.    202.    137.     86.     38.     23.      9.
 967          UI     6.      6.      0.      0.      0.      0.      0.      0.      0.      0.
 968          UI     0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

 969          KK    R67D
 970          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
 971          DT    D67D       9
 972          DI       0   10000
 973          DQ       0   10000
              *
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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 974          KK    C67D
 975          KM    COMBINE HYDROGRAPHS AT CP67D
 976          HC       2
              *

 977          KK  67DT66
 978          KM   REACH CN-2 plus culvert CNC-2
 979          KM   ROUTE FLOW IN THE CRISMON CHANNEL FROM APPROX. 1/2 MILE SOUTH
 980          KM    OF GUADALUPE ROAD TO THE INFLOW SPILLWAY FOR THE ELLIOT DETENTION BASIN.
              *       Sta. 20+00 to Sta. 39+00
 981          RS       1    FLOW      -1
 982          RC    .032    .032    .032    1900  0.0035
 983          RX       0       6      12      24      64      76      82      88
 984          RY       4       3       2       0       0       2       3       4
              *

 985          KK     66A
 986          KM   BASIN 66A
 987          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
 988          KM    L=        .7  Lca=        .3   S=   55.9  Kn= .047  LAG=  17.1
 989          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 990          BA     .26
 991          LG     .24     .25    6.00     .22   35.00
 992          UI     78.    256.    417.    576.    363.    205.     84.     39.     16.     16.
 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    R66A
 996          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
 997          DT    D66A      21
 998          DI       0   10000
 999          DQ       0   10000
              * DDM   ***** Preserved *****

1000          KK   66ATB
1001          KM   ROUTE S66A TO 66B VIA WASH CROSSING BASELINE
1002          RS       7    FLOW      -1
1003          RC    .045     .04    .045    7500    .0077
1004          RX       0     500     980    1003    1007    1031    1511    2011
1005          RY       4     3.5       3       0       0       3     3.5       4
```

```
                *
                * DDM   ***** Updated *****

1006            KK     66B
1007            KM   BASIN 66B
1008            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1009            KM    L=      1.6  Lca=      1.0   S=   43.3  Kn= .050  LAG=  42.8
1010            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1011            BA     .67
1012            LG     .25     .25    5.00     .33   30.00
1013            UI     53.     56.    185.    248.    297.    352.    426.    590.    636.    496.
1014            UI    419.    346.    286.    232.    152.     93.     86.     58.     53.     21.
1                                     HEC-1 INPUT                                              PAGE 27

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

1015            UI     16.     16.     16.     16.     16.      0.      0.      0.      0.      0.
1016            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *
                * DDM   ***** Preserved *****

1017            KK    R66B
1018            KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1019            DT    D66B      48
1020            DI       0   10000
1021            DQ       0   10000
                * DDM   ***** Preserved *****

1022            KK   CP66B
1023            KM   COMBINE S66A AND S66B
1024            HC       2
                *
                * DDM   ***** Preserved *****

1025            KK   66BTC
1026            KM   ROUTE 66B TO 66C VIA WASH
1027            RS       7    FLOW      -1
1028            RC    .045     .04    .045    6000   .0150
1029            RX       0     500     995    1003    1007    1016    1511    2011
1030            RY       4     3.5       3       0       0       3     3.5       4
                *
                * DDM   ***** Updated *****

1031            KK     66C
1032            KM   BASIN 66C
1033            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1034            KM    L=      1.1  Lca=       .7   S=   46.5  Kn= .039  LAG=  24.3
1035            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1036            BA     .50
1037            LG     .19     .25    5.40     .29   48.00
1038            UI     69.    243.    385.    528.    817.    635.    463.    325.    159.    103.
1039            UI     63.     21.     21.     21.      0.      0.      0.      0.      0.      0.
1040            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *
                * DDM   ***** Preserved *****

1041            KK    R66C
1042            KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1043            DT    D66C      42
1044            DI       0   10000
1045            DQ       0   10000
                *
                * DDM   ***** Preserved *****

1046            KK  CP66C1
1047            KM   Split up hydrograph combination in order to separate flows.
1048            KM   Combine Hydrographs 66BTC (from Sub. 66A)and R66C (from Sub. 66C)
                * KO      2       2
1049            HC       2
                *
1                                     HEC-1 INPUT                                              PAGE 28

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

1050            KK  CP66C2
1051            KM   Combine Hydrograph CP66C1 (from Subbasins 66A, 66B and 66C)
1052            KM     plus hydrograph 67DT66 ( C67D )
                * KO      1
1053            HC       2
                *

1054            KK    DI66
1055            KM    DIVERT FLOW TO DETENTION BASIN WA
1056            KM    By-pass Flow Reduced to 410 cfs from 458, SZ, 5-17-99
                * KO      1       2
1057            DT    DB66
```

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1058          DI       0     150     363   411.0   456.0     513     577     643     712    1000
1059          DQ       0       0       0    32.0     71.     122     179     239     302     590
              *

1060          KK  66C1T2
1061          KM    ROUTE FLOW FROM DIVERSION STRUCTURE TO ELLIOT CHANNEL at ELLIOT ROAD.
1062          KM    REACH CN-1 plus culvert CNC-1
1063          KM        A single pipe size and an overall slope are used to represent this
1064          KM        1,070 ft long reach which has pipe sizes of 78", 84" and 90", and
1065          KM        about 250' long sideweir and transition open channel.
1066          KM        RD card used for routing (Sta. 9+30 to Sta. 20+00)
1067          RD    1070  0.0130   0.012            CIRC       7
              *

1068          KK   CP66C
1069          KM   COMBINE FLOWS FROM ELLIOT CHANNEL AND CRISMON BYPASS CHANNEL
              * KO     1
1070          HC       2
              *

1071          KK   66CTD
1072          KM   ROUTE FLOWS FROM INTERSECTION OF CRISMON AND ELLIOT CHANNELS
1073          KM      AT THE INTERSECTION OF ELLIOT ROAD and CRISMON ROAD TO THE ELLIOT BASIN
1074          KM      WA Bleed-off Outlet, WHICH IS ABOUT 390 ft WEST OF CRISMON ROAD.
1075          KM     To make the routing work, L changed from 390 to 60 ft
1076          RD     600  0.0015   0.012            CIRC     9.5
              *

1077          KK    DR66
              * KO     1
1078          KM          RETURN DIVERT TO DETENTION BASIN FROM DIVERSION STRUCTURE
1079          DR    DB66
              *

1080          KK  RS66D1
              * KO     1
1081          KM   ELLIOT BASIN, WEST A
1082          KM   TWO PONDS OPERATING IN SERIES.
1083          KM        Bottom Elevation Lowered to 1415.0 ft from 1420, and 18" Bleed-off
1084          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
1                                    HEC-1 INPUT                                          PAGE 29

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

1085          RS       1    STOR       0
1086          SV       0    1.60   10.00   25.50   34.70   44.20   54.10   64.40   75.10   86.00
1087          SE  1415.0    1417    1419    1421    1422    1423    1424    1425    1426    1427
1088          SL  1416.0  1.7672     .62      .5
1089          SS  1423.5      20     3.0     1.5
              *

1090          KK    B-WA
1091          KM        Bleed-off Flow from WA to Elliot Channel = 18" Pipe, SZ, 6-15-99
1092          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
1093          DT    D-WB
1094          DI       0       5      10      15   17.59   40.87   80.62  131.76  192.12  260.43
1095          DQ       0       0       0       0       0    21.2    60.0   110.2   169.7   237.2
              *

1096          KK    C-WA
1097          KM        Combine Bleed-off Flow from WA with Flow in Elliot Channel
              *       Added by SZ, 5-17-99
1098          HC       2
              *

1099          KK   RC-WA
1100          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
1101          KM      WA Bleed-off Outlet to WB Bleed-off Outlet.
              *       RD card used for routing (Sta. 48+80 to Sta. 57+35)
1102          RD     855  0.0052   0.012            CIRC     9.5
              *

1103          KK   DR-WA
1104          KM        Return Diverted Flow (Spillway) to WB from WA, SZ 5-7-99
              * KO     1
1105          DR    D-WB
              *
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1106          KK  RS66D2
              * KO     1
1107          KM   ELLIOT BASIN, WEST B
1108          KM   TWO PONDS OPERATING IN SERIES.
1109          KM        Bottom Elevation Lowered to 1413.5 ft from 1414, and 36" Bleed-off
1110          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
1111          RS       1    STOR       0
1112          SV       0    4.40    8.80   14.50   21.00   28.00   35.30   42.90   50.90   59.20
1113          SE  1412.0    1415    1416    1417    1418    1419    1420    1421    1422    1423
1114          SL  1413.0  1.7672     .62      .5
1115          SS  1422.6      50     2.5     1.5
              *
1                                        HEC-1 INPUT                                        PAGE 30

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


1116          KK   CP66D
1117          KM       COMBINE FLOWS FROM WEST ELLIOT BASIN AND ELLIOT CHANNEL
1118          KM       AT THE OUTLET PIPE.
              * KO     1
1119          HC       2
              *

1120          KK  66T66D
              * KM REACH ET-6
1121          KM        ROUTE FROM DETENTION BASIN WB OUTLET TO ELLSWORTH RD
1122          KM        2350 -> 3200,  SZ, 5-17-99
              *       First portion
              *       RD card used for routing (Sta. 36+44 to 48+80)
1123          RD    1236  0.0052   0.012            CIRC     9.5
              *

1124          KK  66-66D
              * KM REACH ET-6
1125          KM        ROUTE FROM DETENTION BASIN WB OUTLET TO ELLSWORTH RD
1126          KM        2350 -> 3200,  SZ, 5-17-99
              *       Second portion
              *       RD card used for routing (Sta. 12+46 to Sta. 36+44)
1127          RD    2398  0.0040   0.012            CIRC     9.5
              *

1128          KK     66D
1129          KM   BASIN 66D
1130          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1131          KM    L=       1.0  Lca=        .7   S=   28.6  Kn= .020  LAG=  13.2
1132          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1133          BA     .31
1134          LG     .10      .17    6.80     .19   80.00
1135          UI    162.     480.    845.    540.    232.     89.     24.      0.      0.      0.
1136          UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * DDM   ***** Preserved *****

1137          KK    R66D
1138          KM   RETENTION REDUCED BY 77% FROM 31 TO 7 AC-FT
1139          KM   DUE TO DEVELOPMENT USING DETENTION BASIN
              *   The developer does not participate in the basin so the retention volume
              *   increased to 31 A-F
1140          DT    D66D      31
1141          DI       0   10000
1142          DQ       0   10000
              * DDM   ***** Updated *****

1143          KK     61A
1144          KM   BASIN 61A
1145          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1146          KM    L=        .9  Lca=        .4   S=   36.8  Kn= .037  LAG=  19.1
1147          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1148          BA     .52
1149          LG     .19      .25    4.20     .56   52.00
1                                        HEC-1 INPUT                                        PAGE 31

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

1150          UI    117.     412.    628.   1037.    786.    517.    261.    132.     62.     28.
1151          UI     28.       0.      0.      0.      0.      0.      0.      0.      0.      0.
1152          UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * DDM   ***** Preserved *****

1153          KK    R61A
1154          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1155          DT    D61A      42
1156          DI       0   10000
```

```
1157          DQ       0   10000
              * DDM   ***** Preserved *****

1158          KK   61ATB
1159          KM   ROUTING 61A TO 61B VIA ELLSWORTH ROAD
1160          RS       6    FLOW      -1
1161          RC    .035    .024    .035    5280    .005
1162          RX       0     500     750     752     802     852    1102    1602
1163          RY       3       2     1.5     1.2     1.2     1.5       2       3
              * DDM   ***** Updated *****

1164          KK     61B
1165          KM   BASIN 61B
1166          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1167          KM    L=      1.4  Lca=       .7   S=   39.7  Kn= .047  LAG=  33.6
1168          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1169          BA    1.09
1170          LG     .24     .25    4.80     .37   35.00
1171          UI    109.    223.    475.    615.    765.   1049.   1335.   1025.    822.    643.
1172          UI    495.    288.    187.    143.    109.     36.     34.     34.     34.     34.
1173          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1174          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * DDM   ***** Preserved *****

1175          KK    R61B
1176          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1177          DT    D61B      81
1178          DI       0   10000
1179          DQ       0   10000
              * DDM   ***** Preserved *****

1180          KK   CP61B
1181          KM   COMBINE FLOWS FROM S61A AND S61B
1182          HC       2
              * DDM   ***** Preserved *****

1183          KK  61T66D
1184          KM   ROUTE CP61B TO SUBBASIN 66D ALONG ELLSWORTH ROAD. ROUTING WILL BE
1185          KM   THE SAME AS WAS GIVEN FOR SUBBASIN 61A
1186          RS       6    FLOW      -1
1187          RC    .035    .024    .035    5280    .008
1188          RX       0     500     750     752     802     852    1102    1602
1189          RY       3       2     1.5     1.2     1.2     1.5       2       3
              *
              * DDM   ***** Updated *****
1                                        HEC-1 INPUT                                                    PAGE 32

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

1190          KK     67E
1191          KM   BASIN 67E
1192          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1193          KM    L=      1.2  Lca=       .7   S=   32.3  Kn= .038  LAG=  26.9
1194          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1195          BA     .58
1196          LG     .19     .25    5.40     .30   50.00
1197          UI     73.    219.    378.    496.    732.    830.    597.    443.    315.    157.
1198          UI    110.     73.     24.     22.     22.     22.      0.      0.      0.      0.
1199          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * DDM   ***** Preserved *****

1200          KK    R67E
1201          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1202          KM   DUE TO DEVELOPMENT USING DETENTION BASIN
1203          DT   D67E       50
1204          DI       0   10000
1205          DQ       0   10000
              * DDM   ***** Preserved *****

1206          KK    C67E
1207          KM   COMBINE FLOWS FROM ELLSWORTH ROAD JUST NORTH OF ELLIOT ROAD
1208          HC       2
              *

1209          KK    C66D
1210          KM   COMBINE ELLIOT CHANNEL FLOW WITH HYDROGRAPH C67E @ ELLIOT RD & ELLSWORTH RD.
1211          HC       3
              *

1212          KK  66T70A
1213          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), L = 253
1214          RD     400  0.0004   0.012            CIRC     9.5
```

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                *
1215            KK  66T70B
1216            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)
1217            RD    1186  0.0015   0.012            CIRC      12
                *
1218            KK   CULVT
1219            KM       Pipe Routing, Culvert
                *       2-102" pipe culvert crossing Ellsworth Rd.
                *       RD card used for routing l = 196 ft
1220            RD     400  0.0002   0.012            CIRC      12
                *
1                                        HEC-1 INPUT                                        PAGE 33

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


1221            KK  66T70C
1222            KM   REACH ET-4, ET-5( COMPRISED OF ET-5A AND ET-5B).
1223            KM   ROUTE FROM ELLSWORTH Culvert TO SANTAN FREEWAY.
1224            RS      2    FLOW       -1
1225            RC    .032    .032     .032    2490    .0008
1226            RX       0      10       20      56      76      112      120      130
1227            RY     6.5     6.1      6.0       0       0      6.0      6.1      6.5
                *
1228            KK     62A
1229            KM   BASIN 62A
1230            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1231            KM    L=        .8  Lca=        .5   S=    30.0  Kn= .020  LAG=  10.2
1232            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1233            BA     .38
1234            LG     .10      .25     4.50     .52    80.00
1235            UI    335.    1057.    1010.    367.     93.      38.       0.       0.       0.       0.
1236            UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
                *
1237            KK    R62A
1238            KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1239            DT    D62A       33
1240            DI       0    10000
1241            DQ       0    10000
                *
1242            KK   62ATC
1243            KM   ROUTE 62A TO 62C BY A CHANNEL ALONG SANTAN FWY
1244            KM   Concrete Channel, Parameters are approximate
1245            RS      3    FLOW       -1
1246            RC    .016    .016     .016    5280    .0033
1247            RX     100     110      120     130     138      148      158      168
1248            RY      10      10        5       0       0        5       10       10
                *
1249            KK     62C
1250            KM   BASIN 62C
1251            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1252            KM    L=        .6  Lca=        .3   S=    24.2  Kn= .049  LAG=  19.8
1253            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1254            BA     .55
1255            LG     .23      .25     4.65     .40    47.00
1256            UI    112.     406.     615.    1024.    853.     571.     330.     154.      83.      28.
1257            UI     28.       0.       0.       0.       0.       0.       0.       0.       0.       0.
1258            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


1259            KK    R62C
1260            KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1261            DT    D62C       31
1262            DI       0    10000
1263            DQ       0    10000
                *
1264            KK    C62C
1265            KM   COMBINE FLOW FROM BASIN 62A AND 62C
1266            HC       2
                *
1267            KK   62CTE
1268            KM   ROUTE BASIN 62C TO BASIN 62E BY CHANNEL ON EAST SIDE OF PROPOSED SANTAN
```

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1269          KM   FREEWAY ALIGNMENT
1270          RS       2    FLOW       -1
1271          RC    .030    .030    .030    2000    .0003
1272          RX       0       5      10      25      45      55      60      65
1273          RY       9       7     6.5       0       0     6.5       7       9
              * DDM   ***** Updated *****

1274          KK     62E
1275          KM   BASIN 62E
1276          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1277          KM    L=       .6  Lca=       .3   S=   31.9  Kn= .050  LAG=  20.4
1278          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1279          BA     .15
1280          LG     .25     .25    4.65     .39   45.00
1281          UI     29.    108.    163.    268.    246.    167.    104.     46.     28.     10.
1282          UI      8.      8.      0.      0.      0.      0.      0.      0.      0.      0.
1283          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * DDM   ***** Preserved *****

1284          KK    R62E
1285          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1286          DT    D62E      12
1287          DI       0   10000
1288          DQ       0   10000
              *
              * DDM   ***** Preserved *****

1289          KK   CP62E
1290          KM   COMBINE FLOWS FROM SUBBASIN 62C AND SUBBASIN 62E
1291          HC       2
              *
              * DDM   ***** Preserved *****

1292          KK  62T68A
1293          KM   ROUTE FLOW FROM CP62E TO SUBBASIN 68A BY CHANNEL ALONG PROPOSED ALIGNMENT
1294          KM   OF THE SANTAN FREEWAY
              * ZW   A=62T68A   B=NORTH OF ELLIOT  C=FLOW    F=100YR FUTURE
1295          RS       2    FLOW       -1
1296          RC    .030    .030    .030    3280  .00015
1                                          HEC-1 INPUT                                                    PAGE 35

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

1297          RX       0       5      10      20      30      40      45      50
1298          RY      20      15      15       0       0      15      15      20
              *
              * DDM   ***** Updated *****

1299          KK     68A
1300          KM   BASIN 68A
1301          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1302          KM    L=       .7  Lca=       .4   S=   37.7  Kn= .032  LAG=  13.7
1303          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1304          BA     .35
1305          LG     .16     .25    5.70     .27   66.00
1306          UI    168.    506.    914.    635.    301.    114.     34.     26.      0.      0.
1307          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1308          KK    R68A
1309          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1310          DT    D68A      31
1311          DI       0   10000
1312          DQ       0   10000
              *
              * DDM   ***** Preserved *****

1313          KK   CP68A
1314          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
1315          HC       2
              *
              * DDM   ***** Preserved *****

1316          KK  68T70A
1317          KM   ROUTE FLOW FROM CP68A AT ELLIOT AND SANTAN FREEWAY ALIGNMENT TO SUBBASIN
1318          KM   70A, AT THE POINT WHERE SIPHON DRAW INTERSECTS THE FREEWAY ALIGNMENT
1319          KM   CHANNEL IS NATURAL AND ONLY APPROXIMATE IN ROUTING PARAMETERS
1320          RS       2    FLOW       -1
1321          RC    .030    .030    .030    3960   .0006
1322          RX       0       5      10      20      30      40      45      50
1323          RY      10       5       4       0       0       4       5      10
              *
              *    This combining operation is added for Elliot Basin Outlet
              *
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1324          KK  OUTLET
1325          KM   COMBINE FLOWS FROM 68T70A and Elliot Basin Outfall Channel
1326          HC       2
              *

1327          KK   R-OUT
1328          KM   ROUTE FLOW FROM OUTLET SOUTH ELLIOT AND SANTAN FREEWAY ALIGNMENT TO SUBBASIN
1329          KM   70A, AT THE POINT WHERE HAWES ROAD INTERSECTS THE FREEWAY ALIGNMENT
1330          KM   Concrete Channel, Parameters are approximate
1331          RS       1    FLOW      -1
1332          RC    .016    .016    .016    2640   .0030
1                                    HEC-1 INPUT                                                    PAGE 36

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

1333          RX     100     110     120     130     146     156     166     176
1334          RY      10      10       5       0       0       5      10      10
              *
              * DDM   ***** Inserted *****

1335          KK     70A
1336          KM   BASIN 70A
1337          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1338          KM    L=        .9  Lca=        .4   S=   23.5  Kn= .025  LAG=  12.7
1339          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1340          BA     .54
1341          LG     .13     .15    7.60     .13   67.00
1342          UI    306.    899.   1524.    903.    346.    120.     44.      0.      0.      0.
1343          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * DDM   ***** Preserved *****

1344          KK    R70A
1345          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1346          DT    D70A      52
1347          DI       0   10000
1348          DQ       0   10000
              *
              * DDM   ***** Preserved *****

1349          KK    C70A
1350          KM   COMBINE FLOWS FROM R_OUT AND SUBBASIN 70A
1351          HC       2
              *

1352          KK  70T76A
1353          KM   DIBBLE DRAINAGE FACILITY
1354          KM   ROUTE FLOW ALONG NEW SANTAN FREEWAY ALIGNMENT
1355          KM   REACH ET-3A, ET-3B
1356          RS       2    FLOW      -1
1357          RC    .025    .025    .025    4500  0.0005
1358          RX       0       8      16      59      91     134     142     150
1359          RY     7.4     7.3     7.2       0       0     7.2     7.1     7.0
              *

1360          KK     76A
1361          KM   BASIN 76A
1362          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1363          KM    L=       2.9  Lca=       1.7   S=   24.1  Kn= .030  LAG=  42.9
1364          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1365          BA    1.91
1366          LG     .15     .15    8.80     .08   56.00
1367          UI    150.    159.    528.    707.    847.   1004.   1213.   1673.   1826.   1424.
1368          UI   1201.    992.    822.    667.    444.    266.    247.    171.    150.     65.
1369          UI     46.     46.     46.     46.     46.      0.      0.      0.      0.      0.
1370          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * DDM   ***** Preserved *****
1                                    HEC-1 INPUT                                                    PAGE 37

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


1371          KK    R76A
1372          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1373          DT    D76A     185
1374          DI       0   10000
1375          DQ       0   10000
              *

1376          KK    C76A
1377          KM    COMBINE HYDROGRAPHS 70T76A (SANTAN FREEWAY CHANNEL FLOWS) WITH SUBBASIN 76A
1378          HC       2
              *
              * KK*DBSAN
              * KM DIVERT FROM SANTAN CHANNEL INTO THE RAY DETENTION BASIN
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```
                * KM ADDED BY CPE IN JUNE 2000.
                * KM USES A REALISTIC SIDE-WEIR EQUATION TO FORM POWER CURVE
                * KM WEIR CREST = 4.5 FT; WEIR LENGTH = 200FT; 4.0 FT DIV STRUCTURE.
                * KO     3
                * DT SANDB    1537
                * DI     0     750     772     819     892     999    1356    8138
                * DQ     0       0       7      31      78     154     439    6509
                *
1379            KK  76ATPR
1380            KM   DIBBLE DRAINAGE FACILITY
1381            KM   ROUTE FLOW ALONG NEW SANTAN FREEWAY ALIGNMENT TO NEW POWERLINE FLOODWAY ALGN.
1382            KM   REACH ET-2A, ET-2B
1383            RS       2    FLOW      -1
1384            RC    .025    .025    .025    5750  0.0005
1385            RX       0       8      16      61      93     138     146     154
1386            RY     7.7     7.6     7.5       0       0     7.5     7.4     7.3
                *
1387            KK  EMFSTN
1388            KM    COMBINE HYDROGRAPHS 76ATPR (SANTAN FREEWAY CHANNEL FLOWS) WITH flow in EMF
1389            HC       2
                *
1390            KK  KNXTRY
1391            KM   ROUTE EMF KNOX ROAD FLOW TO RAY ROAD
1392            RS       1    FLOW      -1
1393            RC     .03    .022     .03    3000   .0003
1394            RX       0     500     520     553     693     726     740     742
1395            RY      14      12      11       0       0      11      11      12
                *
1396            KK     73A
1397            KM   BASIN 73A
1398            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1399            KM    L=      2.3  Lca=      1.0   S=   34.9  Kn= .093  LAG=  94.5
1400            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1401            BA     .95
1402            LG     .35     .36    5.00     .27     .00
1403            UI     34.     34.     34.     34.     84.    117.    134.    158.    171.    185.
1404            UI    197.    214.    232.    254.    274.    317.    381.    429.    424.    369.
1                                             HEC-1 INPUT                                          PAGE 38

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

1405            UI    332.    303.    282.    263.    240.    220.    202.    185.    169.    157.
1406            UI    134.    107.     90.     60.     60.     57.     55.     54.     34.     34.
1407            UI     34.     34.     16.     10.     10.     10.     10.     10.     10.     10.
1408            UI     10.     10.     10.     10.     10.     10.      0.      0.      0.      0.
1409            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *
1410            KK   73ATB
1411            KM   ROUTE 73A TO 73B VIA WASH RUNNING DIAGONALLY ACROSS 73B
1412            RS       3    FLOW      -1
1413            RC     .06     .05     .06    2700   .0074
1414            RX       0     500    1000    1003    1007    1011    1511    2011
1415            RY       4     3.5       3       0       0       2     2.5       3
                *
1416            KK     73B
1417            KM   BASIN 73B
1418            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1419            KM    L=        .6  Lca=        .4   S=   26.3  Kn= .050  LAG=  21.6
1420            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1421            BA     .42
1422            LG     .27     .25    5.30     .27   21.00
1423            UI     67.    268.    402.    621.    719.    486.    332.    162.     94.     50.
1424            UI     20.     20.      0.      0.      0.      0.      0.      0.      0.      0.
1425            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *
                * DDM   ***** Preserved *****
1426            KK    R73B
1427            KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1428            DT    D73B      29
1429            DI       0   10000
1430            DQ       0   10000
                *
                * DDM   ***** Preserved *****
1431            KK   CP73B
1432            KM   COMBINE S73A AND S73B
1433            HC       2
                *
1434            KK   73BTC
```

```
1435          KM   ROUTE 73B TO 73C VIA WASH CROSSING MOUNTAIN ROAD
1436          KM    THEN ROUTED SOUTH ALONG GENERAL MOTORS BERM TO SW CORNER OF 73C
1437          RS       6     FLOW       -1
1438          RC    .035     .022     .035     5000    .0036
1439          RX       0      500      700      710      720      730      930     1430
1440          RY       8      7.5        5        0        0        5      7.5        8
              *
1                                        HEC-1 INPUT                                        PAGE 39

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


1441          KK     73C
1442          KM   BASIN 73C
1443          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1444          KM    L=        .6  Lca=        .3   S=    43.7  Kn= .020  LAG=    7.0
1445          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1446          BA     .58
1447          LG     .10      .25     5.30      .34    80.00
1448          UI   1073.    2551.     742.     111.       0.       0.       0.       0.       0.       0.
1449          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
              *

1450          KK    R73C
1451          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1452          DT    D73C       58
1453          DI       0    10000
1454          DQ       0    10000
              *
              * DDM   ***** Preserved *****

1455          KK   CP73C
1456          KM   COMBINE 73C AND 73B
1457          HC       2
              *
              * DDM   ***** Preserved *****

1458          KK  73T74C
1459          KM   ROUTE 73C TO 74C VIA GM BERM, WEST EDGE OF 74C
1460          RS       4     FLOW       -1
1461          RC    .035     .022     .035     3500    .0034
1462          RX       0      500     1000     1001     1016     1516     2016     2516
1463          RY       6      5.5        5        2        2      3.5      4.5      5.5
              *
              * DDM   ***** Updated *****

1464          KK     74A
1465          KM   BASIN 74A
1466          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1467          KM    L=      2.4  Lca=       1.0   S=    42.2  Kn= .095  LAG=   92.9
1468          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
              * KO     2        2
1469          BA     .75
1470          LG     .35      .36     5.00      .27      .00
1471          UI     27.      27.      27.      27.      73.      96.     111.     129.     140.     151.
1472          UI    163.     175.     193.     208.     228.     268.     317.     362.     327.     287.
1473          UI    260.     239.     222.     206.     187.     171.     160.     142.     132.     118.
1474          UI     99.      79.      56.      48.      47.      45.      45.      32.      27.      27.
1475          UI     27.      19.       8.       8.       8.       8.       8.       8.       8.       8.
1476          UI      8.       8.       8.       8.       8.       0.       0.       0.       0.       0.
1477          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
              *
1                                        HEC-1 INPUT                                        PAGE 40

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


1478          KK   DB74A
1479          KM   NEW BASIN REGRADED ON 18 DEC 97, by Dibble & Associates
1480          KM   revised to be on-line detention basin
1481          KM   DETENTION BASIN LOCATED EAST OF MERIDIAN ROAD & north of Powerline Floodway
1482          KM   WITH 24-INCH OUTFALL & 350-FT WEIR.
              * KO     2        2
1483          RS       1     STOR        0
1484          SA       0     1.43     5.38    11.14    18.97
1485          SE    76.0       78       80       82       84
1486          SL    77.0     3.14      .62       .5
1487          SS   82.20      350      2.5      1.5
              *

1488          KK   74ATB
1489          KM   ROUTE 74A TO 74B VIA WASH CROSSING COUNTY LINE
1490          RS       4     FLOW       -1
1491          RC    .045      .04     .045     3500    .0054
1492          RX       0      500     1000     1003     1007     1011     1511     2011
1493          RY       4      3.5        3        0        0        2      2.5        3
              *
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1494          KK     74B
1495          KM   BASIN 74B
1496          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1497          KM    L=        .6  Lca=        .5   S=    32.1  Kn= .050  LAG=  23.3
1498          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1499          BA     .33
1500          LG     .30      .25    6.00      .18    5.00
1501          UI     48.     177.    273.     388.    563.     406.     289.     188.      87.      58.
1502          UI     28.      15.     15.       0.      0.       0.       0.       0.       0.       0.
1503          UI      0.       0.      0.       0.      0.       0.       0.       0.       0.       0.
              *
              * DDM   ***** Preserved *****

1504          KK    R74B
1505          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1506          DT    D74B      22
1507          DI       0   10000
1508          DQ       0   10000
              *
              * DDM   ***** Preserved *****

1509          KK   CP74B
1510          KM   COMBINE S74A AND S74B
1511          HC       2
              *
              * DDM   ***** Preserved *****

1512          KK   74BTC
1513          KM   ROUTE 74B TO 74C VIA WASH CROSSING MOUNTAIN ROAD
1514          RS       4    FLOW      -1
1515          RC    .045     .04    .045    3500   .0051
1516          RX       0     500     980    1003    1007    1031    1511    2011
1517          RY       4     3.5       3       0       0       3     3.5       4
              *
              * DDM   ***** Updated *****
1                                        HEC-1 INPUT                                                PAGE 41

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


1518          KK     74C
1519          KM   BASIN 74C
1520          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1521          KM    L=        .7  Lca=        .5   S=    25.4  Kn= .020  LAG=  10.3
1522          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1523          BA     .34
1524          LG     .10      .15    7.00      .17   80.00
1525          UI    303.     950.    940.     348.     92.      35.       0.       0.       0.       0.
1526          UI      0.       0.      0.       0.      0.       0.       0.       0.       0.       0.
              *
              * DDM   ***** Preserved *****

1527          KK    R74C
1528          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1529          DT    D74C      35
1530          DI       0   10000
1531          DQ       0   10000
              *
              * DDM   ***** Preserved *****

1532          KK   CP74C
1533          KM   COMBINE 74C AND 74B AND 73C
1534          HC       3
              *
              * DDM   ***** Preserved *****

1535          KK  74CT75
1536          KM    ROUTE CP74C TO S75 VIA POWERLINE FLOODWAY TO ELLSWORTH RD & RAY ROAD.
1537          KM    Vel of 10 ft/sec for NSTP calc.
1538          RS       3    FLOW      -1
1539          RC     .03     .013     .03   10560   .0049
1540          RX       0     1005    1023  1030.5  1036.5    1044    1062    2067
1541          RY       6        5       5       0       0       5       5       6
              *
              * DDM   ***** Updated *****

1542          KK      75
1543          KM   BASIN 75 , WHICH IS THE GENERAL MOTORS DESERT PROVING GROUNDS
1544          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1545          KM    L=      4.0  Lca=      3.0   S=    20.0  Kn= .087  LAG= 182.0
1546          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1547          BA    4.01            0.25
1548          KM         THE 0.25 FACTOR IS PER FCDMC, AMIR MOTAMEDI, WHO HAS TOURED THE
1549          KM         PROVING GROUNDS WITH GM PERSONNEL AND FIELD VERIFIED THIS FACTOR.
1550          LG     .34      .35    6.80      .13    3.00
1551          UI     74.      74.     74.      74.     74.      74.      74.      74.     180.     243.
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1552          UI    247.    284.    284.    335.    342.    363.    375.    396.    412.    422.
1553          UI    437.    458.    475.    495.    519.    550.    567.    585.    622.    672.
1554          UI    737.    819.    865.    935.   1002.    935.    870.    813.    764.    726.
1555          UI    693.    664.    637.    614.    593.    574.    547.    519.    496.    473.
1556          UI    452.    437.    425.    387.    377.    363.    347.    341.    289.    284.
1557          UI    233.    213.    213.    147.    131.    131.    131.    130.    122.    122.
1558          UI    122.    122.    122.     75.     74.     74.     74.     74.     74.     74.
1559          UI     74.     43.     23.     23.     23.     23.     23.     23.     23.     23.
1 .                                    HEC-1 INPUT                                    PAGE 42

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

1560          UI     23.     23.     23.     23.     23.     23.     23.     23.     23.     23.
1561          UI     23.     23.     23.     23.     23.     23.     23.     23.      0.      0.
1562          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1563          KK     C75
1564          KM   COMBINE FLOWS FROM C74C AND SUBBASIN 75
1565          HC       2
              *
              * DDM   ***** Preserved *****

1566          KK   75TPC
1567          KM   ROUTE 75 THROUGH POWERLINE FLOODWAY TO AIR FORCE CHANNEL
1568          RS       2    FLOW      -1
1569          RC     .03    .013     .03    3900    .0041
1570          RX       0    1005    1023  1030.5  1036.5    1044    1062    2067
1571          RY       6       5       5       0       0       5       5       6
              *
              * DDM   ***** Updated *****

1572          KK     77A
1573          KM   BASIN 77A
1574          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1575          KM    L=      2.9  Lca=      1.5   S=   31.1  Kn= .092  LAG= 119.0
1576          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1577          BA    1.74
1578          LG     .35     .36    5.00     .27     .00
1579          UI     49.     49.     49.     49.     49.    108.    162.    185.    205.    230.
1580          UI    244.    264.    278.    293.    311.    333.    358.    380.    406.    462.
1581          UI    537.    584.    659.    601.    541.    496.    461.    430.    407.    385.
1582          UI    362.    334.    311.    293.    273.    252.    238.    226.    189.    161.
1583          UI    141.    104.     87.     87.     83.     81.     81.     73.     49.     49.
1584          UI     49.     49.     49.     22.     15.     15.     15.     15.     15.     15.
1585          UI     15.     15.     15.     15.     15.     15.     15.     15.     15.     15.
1586          UI     15.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1587          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1588          KK   77ATB
1589          KM   ROUTE 77A TO 77B VIA WASH CROSSING COUNTY LINE
1590          RS       3    FLOW      -1
1591          RC    .045     .04    .045    3000    .006
1592          RX       0     500     980    1003    1007    1031    1511    2011
1593          RY       4     3.5       3       0       0       3     3.5       4
              *
              * DDM   ***** Updated *****

1594          KK     77B
1595          KM   BASIN 77B
1596          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1597          KM    L=        .6  Lca=        .3   S=   26.3  Kn= .050  LAG=  19.3
1598          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1599          BA     .36
1600          LG     .30     .25    5.30     .24    5.00
1601          UI     78.    277.    421.    700.    544.    360.    189.     93.     46.     19.
1 .                                    HEC-1 INPUT                                    PAGE 43

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

1602          UI     19.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1603          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
              * DDM   ***** Preserved *****

1604          KK    R77B
1605          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1606          DT    D77B      16
1607          DI       0   10000
1608          DQ       0   10000
              *
              * DDM   ***** Preserved *****

1609          KK   CP77B
1610          KM   COMBINE S77A AND S77B
1611          HC       2
```

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                *
                * DDM   ***** Preserved *****

1612            KK   77BTC
1613            KM   ROUTE 77B TO 77C VIA WASH CROSSING MOUNTAIN ROAD, THEN SOUTH ALONG
1614            KM    WESTERN EDGE OF 77C
1615            RS       5    FLOW      -1
1616            RC    .045     .04    .045    4750   .0042
1617            RX       0     500     950    1003    1007    1061    1511    2011
1618            RY       4     3.5       3       0       0       3     3.5       4
                *
                * DDM   ***** Updated *****

1619            KK     77C
1620            KM   BASIN 77C
1621            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1622            KM    L=        .5  Lca=        .3   S=    32.3  Kn= .020  LAG=   7.2
1623            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1624            BA     .28
1625            LG     .10     .25    5.80     .27   79.00
1626            UI    492.   1219.    393.     60.      0.      0.      0.      0.      0.      0.
1627            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *
                * DDM   ***** Preserved *****

1628            KK    R77C
1629            KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1630            DT    D77C      28
1631            DI       0   10000
1632            DQ       0   10000
                *
                * DDM   ***** Preserved *****

1633            KK    C77C
1634            KM   COMBINE FLOWS FROM C77B AND SUBBASIN 77C
1635            HC       2
                *
                * DDM   ***** Preserved *****
1                                       HEC-1 INPUT                                         PAGE 44

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


1636            KK  77CT78
1637            RS       3    FLOW      -1
1638            RC   0.035   0.022   0.035    2400   0.002
1639            RX       0     100     110     115     120     125     130     135
1640            RY       4       3     2.5       0       0     2.5       8       9
                *
                * DDM   ***** Updated *****

1641            KK     78A
1642            KM   BASIN 78A
1643            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1644            KM    L=       3.3  Lca=       1.3   S=    30.2  Kn= .090  LAG= 118.0
1645            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1646            BA    1.88
1647            LG     .35     .36    5.00     .27     .00
1648            UI     54.     54.     54.     54.     54.    124.    176.    203.    227.    252.
1649            UI    268.    290.    305.    322.    342.    366.    396.    417.    451.    515.
1650            UI    612.    641.    716.    643.    579.    531.    494.    464.    437.    417.
1651            UI    385.    356.    334.    315.    290.    270.    255.    233.    206.    159.
1652            UI    153.     95.     95.     95.     88.     88.     88.     65.     54.     54.
1653            UI     54.     54.     45.     16.     16.     16.     16.     16.     16.     16.
1654            UI     16.     16.     16.     16.     16.     16.     16.     16.     16.     16.
1655            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1656            UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
                *

1657            KK   78ATB
1658            KM   ROUTE FLOW FROM 78A TO 78B VIA WASH CROSSING COUNTY LINE
1659            RS       4    FLOW      -1
1660            RC    .045     .04    .045    3500   .0042
1661            RX       0     500     980    1003    1007    1031    1511    2011
1662            RY     4.5     3.5       3       0       0       3     3.5     4.5
                * DDM   ***** Updated *****

1663            KK     78B
1664            KM   BASIN 78B
1665            KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1666            KM    L=        .6  Lca=        .4   S=    31.6  Kn= .050  LAG=  20.9
1667            KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1668            KM    FCDMC REPORTS BASIN ALREADY BUILT-OUT, WITH RURAL 1 TO 2 ACRE LOTS
1669            KM    AND THERE IS NO RETENTION FOR THIS BASIN.
1670            BA     .39
1671            LG     .30     .15    8.40     .07    5.00
1672            UI     68.    262.    393.    635.    638.    433.    283.    126.     78.     34.
```

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1673          UI     19.     19.      0.      0.      0.      0.      0.      0.      0.      0.
1674          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1675          KK    C78B
1676          KM    COMBINE FLOW FROM SUBBASIN 78B AND SUBBASIN 78A
1677          HC       2
              *
1                                        HEC-1 INPUT                                        PAGE 45

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

1678          KK    78BTC
1679          KM    ROUTE 78B TO 78C VIA WASH CROSSING MOUNTAIN ROAD, THEN SOUTH ALONG
1680          KM     WESTERN EDGE OF 78C.
1681          RS       3    FLOW      -1
1682          RC    .035    .022    .035    4500    .0033
1683          RX       0     100     110     115     120     125     130     135
1684          RY       5       4     3.5       0       0     3.5       8       9
              *

1685          KK     78C
1686          KM    BASIN 78C
1687          KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1688          KM     L=        .5  Lca=        .3   S=   31.7  Kn= .026  LAG=   9.0
1689          KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1690          BA      .28
1691          LG      .13     .10   11.20     .03   64.00
1692          UI     319.    980.    652.    164.     34.      0.      0.      0.      0.      0.
1693          UI       0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1694          KK     R78C
1695          KM    RETAIN 100 YR 2 HR RUNOFF VOLUME
1696          DT     D78C      24
1697          DI        0   10000
1698          DQ        0   10000
              *

1699          KK     C78C
1700          KM    COMBINE FLOWS FROM 78B, 78C & 77C @ WILLIAMS FIELD ROAD & SIGNAL BUTTE ROAD.
1701          HC       3
              *

1702          KK  78CT79
1703          KM    ROUTE 78C TO 79A AT ELLSWORTH VIA GM CHANNEL TO
1704          KM     WILLIAMS FIELD RD & ELLSWORTH ROAD.
1705          RS       4    FLOW      -1
1706          RC    .035    .022    .035   10560    .0044
1707          RX       0     500     800     805     820     825    1125    1625
1708          RY       7       6       5       0       0       5       6       7
              *

1709          KK     79A
1710          KM    BASIN 79A
1711          KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1712          KM     L=       2.3  Lca=       1.2   S=   23.2  Kn= .090  LAG= 106.0
1713          KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN.
1714          BA     2.01
1715          LG      .35     .30    8.00     .08     .00
1716          UI      64.     64.     64.     64.     82.    209.    232.    262.    299.    321.
1717          UI     347.    367.    390.    421.    458.    489.    527.    610.    726.    792.
1718          UI     825.    727.    655.    600.    557.    523.    495.    451.    417.    390.
1719          UI     361.    328.    308.    285.    244.    190.    169.    113.    113.    109.
1720          UI     105.    105.     85.     64.     64.     64.     64.     37.     20.     20.
1721          UI      20.     20.     20.     20.     20.     20.     20.     20.     20.     20.
1                                        HEC-1 INPUT                                        PAGE 46

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

1722          UI      20.     20.     20.      0.      0.      0.      0.      0.      0.      0.
1723          UI       0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1724          KK    C79A1
1725          KM    COMBINE FLOWS FROM 78C AND 79A @ WILLIAMS FIELD ROAD & ELLSWORTH ROAD.
1726          HC       2
              *

1727          KK     78F
1728          KM    BASIN 78F
1729          KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1730          KM     L=       3.7  Lca=       2.1   S=   29.8  Kn= .090  LAG= 147.0
1731          KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1732          BA     4.19
1733          LG      .35     .36    5.00     .27     .00
```

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1734          UI     96.     96.     96.     96.     96.     96.    148.    315.    325.    368.
1735          UI    399.    442.    468.    495.    521.    541.    566.    595.    626.    663.
1736          UI    706.    737.    774.    845.    936.   1085.   1119.   1276.   1239.   1127.
1737          UI   1033.    968.    907.    862.    820.    782.    751.    712.    667.    629.
1738          UI    597.    570.    541.    502.    472.    454.    436.    368.    339.    276.
1739          UI    276.    174.    170.    170.    168.    158.    158.    158.    156.     96.
1740          UI     96.     96.     96.     96.     96.     79.     29.     29.     29.     29.
1741          UI     29.     29.     29.     29.     29.     29.     29.     29.     29.     29.
1742          UI     29.     29.     29.     29.     29.     29.     29.      0.      0.      0.
1743          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1744          KK    82A1
1745          KM    BASIN 82A1
1746          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1747          KM    L=      3.6  Lca=       .9   S=   33.9  Kn= .090  LAG= 103.0
1748          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1749          BA    3.12
1750          LG     .35     .36    5.00     .27     .00
1751          UI    102.    102.    102.    102.    163.    335.    381.    436.    485.    526.
1752          UI    564.    599.    644.    693.    757.    801.    901.   1048.   1222.   1356.
1753          UI   1223.   1084.    987.    913.    852.    800.    742.    675.    629.    589.
1754          UI    529.    494.    459.    391.    304.    266.    180.    180.    173.    167.
1755          UI    167.    123.    102.    102.    102.    102.     36.     31.     31.     31.
1756          UI     31.     31.     31.     31.     31.     31.     31.     31.     31.     31.
1757          UI     31.      0.      0.      0.      0.      0.      0.      0.      0.      0.
1758          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

1759          KK    C82A1
1760          KM    COMBINE FLOWS FROM SUBBASINS 78F AND 82A1 NORTH OF PECOS ROAD AT
1761          KM    NEW DETENTION BASIN
1762          HC       2
              *
1                                        HEC-1 INPUT                                        PAGE 47

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


1763          KK  DB82A1
1764          KM    PECOS NORTH BASIN
1765          KM    NEW DETENTION BASIN LOCATED EAST OF MERIDIAN ROAD & 660' NORTH OF PECOS RD.
1766          KM    WITH 1-42" RCP OUTLET & 86' SPILLWAY AT ELEV=44
              * KO      2       2
1767          RS        1    STOR       0
1768          SV        0       8      34      73     113     153     195     237     280     346
1769          SE       36      37      38      39      40      41      42      43      44    46.1
1770          SL     33.5     9.6     .62      .5
1771          SS       44     195       3     1.5
              *

1772          KK     PS-9
1773          KM     REACH PS-9
1774          KM     OUTFLOW CHANNEL FROM NEW DETENTION BASIN 82A TO MAIN CHANNEL @ PECOS
1775          RS        1    FLOW      -1
1776          RC     .025    .025    .025     500   .0005
1777          RX        0       8      16      42      46      72      80      88
1778          RY      5.5     4.2     4.3       0       0     4.3     4.2     4.5
              *

1779          KK     CAP2
1780          KM     INFLOW FROM EAST OF THE CAP THROUGH 1 - 36" PIPE OVERCHUTE
1781          KM     STATION #536+00 SALT-GILA AQUEDUCT REACH 2
1782          KM     QI CARDS BASED ON OVERCHUTE CAPACITY OF 64 CFS
1783          IN       60
1784          BA      .01
1785          QI        0      20      64      64      64      64      64      64      64      64
1786          QI       64      64      64      64      64      64      64      64      64      64
1787          QI       64      64      64      64      64
              *

1788          KK    RCAP2
1789          KM    ROUTE CAP2 THROUGH 82A2 VIA WASH TO SUBBASIN 82A2
1790          IN       15
1791          RS       27    FLOW      -1
1792          RC     .045     .04    .045   24000     .05
1793          RX        0     500    1000    1010    1020    1030    1530    2030
1794          RY        8       5       3       0       0       3       5       8
              *

1795          KK     82A2
1796          KM    BASIN 82A2
1797          KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1798          KM     L=      4.6  Lca=      2.9   S=   27.2  Kn= .089  LAG= 183.0
1799          KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1800          BA     4.13
1801          LG      .35     .36    5.00     .27    1.00
```

```
1802          UI    76.    76.    76.    76.    76.    76.    76.    76.   177.   249.
1803          UI   250.   291.   291.   339.   349.   371.   381.   406.   420.   430.
1804          UI   448.   466.   483.   503.   529.   561.   578.   596.   631.   680.
1805          UI   743.   805.   911.   923.  1027.   979.   901.   845.   794.   751.
1806          UI   717.   686.   659.   635.   613.   594.   570.   540.   514.   487.
1807          UI   470.   455.   437.   407.   393.   372.   362.   349.   315.   291.
1                                      HEC-1 INPUT                                    PAGE 48

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

1808          UI   263.   218.   218.   179.   134.   134.   134.   134.   128.   125.
1809          UI   125.   125.   125.    96.    76.    76.    76.    76.    76.    76.
1810          UI    76.    67.    23.    23.    23.    23.    23.    23.    23.    23.
1811          UI    23.    23.    23.    23.    23.    23.    23.    23.    23.    23.
1812          UI    23.    23.    23.    23.    23.    23.    23.    23.    23.     0.
1813          UI     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
1814          UI     0.     0.     0.     0.     0.     0.     0.     0.     0.     0.
              *

1815          KK  CP82A2
1816          KM   COMBINE FLOW FROM ROUTED CAP2 AND SUBBASIN 82A2
1817          HC       2
              *

1818          KK    82A4
1819          KM   BASIN 82A4
1820          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1821          KM    L=      3.5  Lca=      1.5   S=   29.1  Kn= .090  LAG= 128.0
1822          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1823          BA    2.13
1824          LG     .35     .36    5.00     .27     .00
1825          UI     56.     56.    56.     56.     56.    70.   184.   193.   214.   248.
1826          UI    265.    281.   302.    316.    332.   352.   374.   401.   424.   447.
1827          UI    494.    557.   650.    691.    742.   667.   606.   560.   523.   490.
1828          UI    466.    443.   419.    389.    364.   343.   325.   299.   281.   267.
1829          UI    251.    214.   182.    161.    126.    99.    99.    97.    92.    92.
1830          UI     92.     69.    56.     56.     56.    56.    56.    27.    17.    17.
1831          UI     17.     17.    17.     17.     17.    17.    17.    17.    17.    17.
1832          UI     17.     17.    17.     17.     17.    17.     0.     0.     0.     0.
1833          UI      0.      0.     0.      0.      0.     0.     0.     0.     0.     0.
              *

1834          KK  82A4T3
1835          KM   REACH MN-2
1836          KM   ROUTE FLOW FROM SUBBASIN 82A4 TO DETENTION BASIN 82A3
1837          RS       2    FLOW      -1
1838          RC    .025    .025    .025    1050   .0005
1839          RX       0       8      16      47     107     138     146     154
1840          RY     5.0     5.1     5.2       0       0     5.2     5.1     5.0
              *

1841          KK    82A3
1842          KM   BASIN 82A3
1843          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1844          KM    L=      3.6  Lca=      2.0   S=   28.3  Kn= .090  LAG= 145.0
1845          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1846          BA    2.02
1847          LG     .35     .36    5.00     .27     .00
1848          UI     47.     47.    47.     47.     47.    47.    82.   154.   162.   180.
1849          UI    200.    218.   230.    246.    257.   268.   280.   294.   310.   330.
1850          UI    351.    365.   387.    425.    477.   553.   566.   633.   583.   529.
1851          UI    492.    460.   434.    410.    392.   376.   361.   336.   316.   299.
1852          UI    284.    271.   250.    237.    228.   216.   190.   180.   136.   135.
1853          UI    101.     83.    83.     83.     78.    77.    77.    77.    52.    47.
1854          UI     47.     47.    47.     47.     42.    14.    14.    14.    14.    14.
1                                      HEC-1 INPUT                                    PAGE 49

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

1855          UI     14.     14.    14.     14.     14.    14.    14.    14.    14.    14.
1856          UI     14.     14.    14.     14.     14.    14.     0.     0.     0.     0.
1857          UI      0.      0.     0.      0.      0.     0.     0.     0.     0.     0.
              *

1858          KK  CP82A3
1859          KM   COMBINE FLOW FROM SUBBASIN 82A4 AND SUBBASIN 82A3 BEFORE DETENTION BASIN
1860          HC       2
              *

1861          KK  CP82A5
1862          KM   COMBINE FLOWS FROM CAP OVERCHUTE AND SUBBASIN 82A
1863          HC       2
              *

1864          KK   DB82B
1865          KM   PECOS SOUTH BASIN
1866          KM   NEW DETENTION BASIN LOCATED EAST OF MERIDIAN ROAD & 660' SOUTH OF PECOS RD.
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```
1867          KM   WITH 1-66" RCP OUTLET & 80' SPILLWAY AT ELEV 41
              * KO     2       2
1868          RS       1    STOR       0
1869          SV       0     3.5      9.6     25.7     62.7    110.5    158.7    207.5    257.3      320
1870          SE    31.5      33       34       35       36       37       38       39       40    42.1
1871          SL      33    23.7      .62       .5
1872          SS      41      80        3      1.5
              *

1873          KK   MN-1
1874          KM   REACH MN-1  plus culvert PSC-7
1875          KM   ROUTE FLOW FROM NEW DETENTION BASIN 82B TO MAIN LINE CHANNEL @ PECOS
1876          RS       1    FLOW       -1
1877          RC    .025    .025     .025     1030    .0005
1878          RX       0       8       16       47       55       87       95      103
1879          RY     5.1     5.2      5.3        0        0      5.3      5.2      5.1
              *

1880          KK  CP82A6
1881          KM         COMBINE FLOWS AFTER DETENTION BASINS.
1882          HC       2
              *

1883          KK  82TBOX
1884          KM   REACH PS-8
1885          KM   ROUTE FLOW FROM DETENTION BASIN DB82B TO 1000' FOOT LONG BOX CULVERT (PSC-6).
1886          RS       1    FLOW       -1
1887          RC    .025    .025     .025      750    .0005
1888          RX       0       8       16     47.2       67       98      106      114
1889          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

1890          KK  BOXCLV
1891          KM   REACH PSC-6
1892          KM   ROUTE FLOW THROUGH BOX CULVERT
1893          RS       1    FLOW       -1
1894          RC    .015    .012     .015     1000    .0020
1895          RX       0       8       16    16.01    28.01    28.02       36       44
1896          RY     5.5     5.2        5        0        0        5      5.2      5.5
              *

1897          KK  BOXT78
1898          KM   REACH PS-5, PS-6, PS-7 plus culverts PSC-5 & PSC-4
1899          KM   ROUTE FLOW FROM 1000' BOX CULVERT TO C78D  (SIGNAL BUTTE ROAD)
1900          RS       1    FLOW       -1
1901          RC    .025    .025     .025     3400    .0005
1902          RX       0       8       16       47       67       98      106      114
1903          RY     5.4     5.3      5.2        0        0      5.2      5.3      5.4
              *

1904          KK     78D
1905          KM   BASIN 78D
1906          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1907          KM    L=      1.2  Lca=       .5   S=   21.7  Kn= .030  LAG=  19.5
1908          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1909          BA     .89
1910          LG     .15      .15     8.00      .11    55.00
1911          UI    189.     678.    1029.    1713.    1367.     909.     496.     240.     123.      47.
1912          UI     47.       0.       0.       0.       0.       0.       0.       0.       0.       0.
1913          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
              *

1914          KK    R78D
1915          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1916          DT    D78D      84
1917          DI       0   10000
1918          DQ       0   10000
              *
              * DDM   ***** Updated *****

1919          KK     82B
1920          KM   BASIN 82B
1921          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1922          KM    L=       .9  Lca=       .4   S=   21.2  Kn= .030  LAG=  17.2
1923          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1924          BA     .92
1925          LG     .15      .25     5.00      .36    55.00
1926          UI    266.     879.    1420.    2004.    1268.     727.     294.     142.      55.      55.
1927          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
1928          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

1929      KK     R82
1930      KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1931      DT     D82       1
1932      DI       0   10000
1933      DQ       0   10000
          *

1934      KK   DTTRW
1935      KM    DIVERTING 110.7 ACRE-FEET DUE TO ON-SITE RETENTION
1936      KM   VOLUMES WERE DERIVED FROM DRAINAGE REPORT - REFERENCE 7.
1937      DT     TRW   110.7
1938      DI       0   10000
1939      DQ       0   10000
          *
          * DDM   ***** Preserved *****

1940      KK    C78D
1941      KM    COMBINE FLOWS FROM 78D, 82B AND ROUTED FLOW 82T78D
1942      KM     @ PECOS ROAD AND SIGNAL BUTTE ROAD.
1943      HC       3
          *
          * DDM   ***** Preserved *****

1944      KK   78DTE
1945      KM   REACH PS-2, PS-3, PS-4 plus culverts PSC-3 AND PSC-2.
1946      KM   ROUTE FLOWS FROM 78D (PECOS RD AND SIGNAL BUTTE RD) TO 78E (PECOS AND CRISMON
1947      RS       2    FLOW      -1
1948      RC    .025   0.025   0.025    5100    .0005
1949      RX       0       8      16    53.2    93.2   130.4   138.4   146.4
1950      RY     6.0     6.1     6.2       0       0     6.3     6.1     6.0
          *

1951      KK     78E
1952      KM   BASIN 78E
1953      KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1954      KM    L=      1.1  Lca=       .5   S=   17.4  Kn= .087  LAG=  57.4
1955      KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1956      BA    1.01
1957      LG     .35     .26    8.80     .06    1.00
1958      UI     59.     59.    108.    212.    271.    313.    351.    402.    460.    565.
1959      UI    741.    698.    577.    502.    447.    382.    335.    289.    241.    166.
1960      UI    104.    100.     97.     60.     59.     45.     18.     18.     18.     18.
1961      UI     18.     18.     18.     18.      0.      0.      0.      0.      0.      0.
1962      UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
          *

1963      KK      83
1964      KM   BASIN 83
1965      KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1966      KM    L=      2.0  Lca=       .5   S=   15.0  Kn= .030  LAG=  25.8
1967      KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1968      BA    1.01
1969      LG     .15     .25    5.00     .36   55.00
1970      UI    131.    423.    700.    931.   1454.   1362.    993.    726.    464.    226.
1
                                       HEC-1 INPUT                                    PAGE 52

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

1971      UI    161.     89.     40.     40.     40.      0.      0.      0.      0.      0.
1972      UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
          *

1973      KK     R83
1974      KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
1975      DT     D83       83
1976      DI       0   10000
1977      DQ       0   10000
          *

1978      KK    C78E
1979      KM   COMBINE FLOWS FROM 78D AND 78E (CRISMON ROAD)
1980      HC       3
          *

1981      KK  78ET84
1982      KM   REACH PS-1
1983      KM   ROUTE FLOWS WEST ALONG PECOS IN A PROPOSED CHANNEL
1984      KM   ROUTE FLOWS FROM CRISMON ROAD TO ELLSWORTH ROAD.
1985      RS       2    FLOW      -1
1986      RC    .025   0.025   0.025    4840    .0005
1987      RX       0       8      16    53.2    93.2   130.4   138.4   146.4
1988      RY     6.0     6.1     6.2       0       0     6.2     6.1     6.0
          *
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1989          KK      84
1990          KM    BASIN 84
1991          KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
1992          KM     L=       2.0  Lca=        .5    S=    12.5  Kn= .030  LAG=  26.7
1993          KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
1994          BA      .99
1995          LG      .15      .25     4.70      .40    55.00
1996          UI    125.     380.     651.     855.    1278.    1399.    1008.     747.     520.     258.
1997          UI    182.     120.      38.      38.      38.       0.       0.       0.       0.       0.
1998          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
              *

1999          KK      R84
2000          KM    RETAIN 100 YR 2 HR RUNOFF VOLUME
2001          DT      D84       85
2002          DI        0    10000
2003          DQ        0    10000
              *

2004          KK      C84
2005          KM     COMBINE FLOWS FROM 78E AND 84  AT ELLSWORTH AND PECOS ROAD
2006          KM     CHANNEL EAST SIDE OF GATEWAY WILLIAMS FLOWING TO THE NORTH
2007          HC        2
              *
              * DDM    ***** Preserved *****
1                                          HEC-1 INPUT                                          PAGE 53

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

2008          KK  84T79B
2009          KM   REACH EH-3B
2010          KM   ROUTE FLOWS FROM THE CORNER OF PECOS AND ELLSWORTH ROADS TO
2011          KM   THE SOUTH OF WILLIAMS FIELD ROAD AND ELLSWORTH ROAD
2012          KM   (THIS IS THE COMBINE POINT FROM BASIN 79B)
2013          RS        1     FLOW       -1
2014          RC     .015     .015     .015     3383    .0010
2015          RX        0        8       16       30       55       69       77       85
2016          RY      6.7      6.8      6.9        0        0      6.9      6.8      6.7
              *

2017          KK      79B
2018          KM    BASIN 79B
2019          KM     THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2020          KM     L=       1.4  Lca=        .6    S=     9.0  Kn= .090  LAG=  77.7
2021          KM     PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2022          BA     1.00
2023          LG      .35      .25     9.70      .05      .00
2024          UI     43.      43.      43.      85.     150.     179.     207.     232.     250.     275.
2025          UI    306.     335.     388.     479.     557.     515.     444.     396.     360.     331.
2026          UI    295.     267.     240.     216.     192.     155.     123.      76.      76.      71.
2027          UI     71.      48.      43.      43.      36.      13.      13.      13.      13.      13.
2028          UI     13.      13.      13.      13.      13.      13.       0.       0.       0.       0.
2029          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
              *

2030          KK    C79B1
2031          KM     FLOWS FROM SOUTH CHANNEL ALONG ELLSWORTH ROAD.
2032          HC        2
              *

2033          KK  79BTB2
2034          KM   REACH EH-3A
2035          KM   ROUTE FLOWS FROM THE COMBINE POINT OF SUB-BASIN 79B TO
2036          KM   WILLIAMS FIELD ROAD AND ELLSWORTH ROAD
2037          RS        2     FLOW       -1
2038          RC     .025     .015     .025     5000    .0010
2039          RX        0        8       16       30       55       69       77       85
2040          RY      6.7      6.8      6.9        0        0      6.9      6.8      6.7
              *

2041          KK    C79B2
2042          KM    COMBINE 79A AND ROUTED 79B (WHICH IS HYDROGRAPH C79B1)
2043          HC        2
              *

2044          KK  79TPC2
2045          KM   REACH EH-1, EH-2, plus culvert EHC-1
2046          KM   ROUTE FLOWS THROUGH WILLIAMS-GATEWAY (SUBBASIN 80A) BY WAY OF NEW NORTH
2047          KM   PERIMETER CHANNEL ABOUT 1/2 MILE WEST OF ELLSWORTH ROAD
2048          RS        1     FLOW       -1
2049          RC     .025     .015     .025     4760    .0014
2050          RX        0        8       16       33       61       78       86       94
2051          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

2052          KK   CPPWR
2053          KM   COMBINE FLOWS FROM 75 AND 79 IN THE POWERLINE FLOODWAY ALONG RAY ROAD
2054          KM   AT ABOUT 1/2 MILE WEST OF ELLSWORTH ROAD
2055          HC       2
              *
              * KK*DBPWR
              * KM DIVERT FROM POWERLINE CHANNEL INTO THE RAY DETENTION BASIN
              * KM USES A REALISTIC SIDE-WEIR EQUATION TO FORM POWER CURVE
              * KM WEIR CREST = 3.25FT; WEIR LENGTH =  750; 4.0FT DIV STRUCTURE.
              * KO     3
              * DT PWRDB    1537
              * DI     0     528     544     576     628     704     955    5730
              * DQ     0       0      11      40      89     162     410    5174
              *
2056          KK  PWRT80
2057          KM   REACH PR-3, PR-4, plus culvert PRC-2
2058          KM   ROUTE FLOWS FROM PLF COMBINE TO CATCH POINT AT 80A VIA PLF IMPROVEMENT
2059          RS       1    FLOW      -1
2060          RC    .025    .015    .025    3680   .0014
2061          RX       0       8      16      34      62      79      87      95
2062          RY     8.5     8.6     8.7       0       0     8.7     8.6     8.5
              *

2063          KK     80A
2064          KM   BASIN 80A
2065          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2066          KM    L=       3.8  Lca=      2.2   S=   14.2  Kn= .030  LAG=  58.2
2067          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2068          BA    2.64
2069          LG     .15     .15    9.70     .06   55.00
2070          UI    153.    153.    265.    544.    690.    802.    899.   1020.   1171.   1421.
2071          UI   1851.   1871.   1534.   1330.   1185.   1024.    896.    770.    653.    479.
2072          UI    305.    265.    251.    187.    153.    153.     50.     47.     47.     47.
2073          UI     47.     47.     47.     47.      0.      0.      0.      0.      0.      0.
2074          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2075          KK    R80A
2076          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2077          DT    D80A      33
2078          DI       0   10000
2079          DQ       0   10000
              *
              *  THE SECTION BELOW COMBINES THE ROUTED FLOW FROM SANTAN AND POWER,
              *  THEN ROUTES THRU THE RAY DB
              * KKDRSNDB
              * KM RETURNS THE DIVERSION FROM THE SANTAN CHANNEL
              * DR SANDB
              *
              * KKDRPWDB
              * KM RETURNS THE DIVERSION FROM THE POWERLINE CHANNEL
              * DR PWRDB
              *
              * KK CPRAY
              * KM COMBINES THE TWO ROUTED FLOWS IN THE RAY DETENTION BASIN
              * HC     2       1
              *
              * KK*RTRAY
              * KM ROUTES THE HYDROGRAPH OUT OF THE RAY BASIN
              * KM Currently incorporates a dummy set of outflow data
              * KO     1
              * RS     1    STOR      -1
              * SV     0    '244     493     747    1005    1269    1537
              * SE     0    1.54    3.08    4.63    6.17    7.71    9.25
              * SQ     0       1       2       3       4       5       6
              *
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LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

2080          KK   CP80A
2081          KM   COMBINE FLOW IN THE POWERLINE FLOODWAY WITH FLOW COMING FROM SUBBASIN 80A
2082          KM   THE LOCATION FOR THIS COMBINATION AT THE NW CORNER OF SUBBASIN 80A
2083          HC       2
              * HC     3
              *

2084          KK  PWRSAN
2085          KM   REACH PR-1, PR-2 plus culvert PRC-1
2086          KM   ROUTE FLOWS FROM COMBINE POINT AT 80A VIA PLF RE-ALIGNMENT.
2087          RS       1    FLOW      -1
2088          RC    .015    .015    .015    3500   .0014
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2089          RX       0       8      16      74     154     212     220     228
2090          RY     9.5     9.6     9.7       0       0     9.7     9.6     9.5
              *
2091          KK  EMFPOW
2092          KM   COMBINE FLOW FROM THE POWERLINE FLOODWAY WITH FLOW IN THE EMF
2093          HC       2
              *
2094          KK  POWTWI
2095          KM   ROUTE EMF FLOW TO WILLIAMS FIELD ROAD VIA THE EMF
2096          KM   THIS SECTION IS CONCRETE LINED TO PAST POWER ROAD BRIDGE
2097          RS       2    FLOW      -1
2098          RC     .03    .012     .03    4750   .0003
2099          RX       0     500     520     553     693     726     740     742
2100          RY      14      12      11       0       0      11      11      12
              *
2101          KK     80B
2102          KM   BASIN 80B
2103          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2104          KM    L=      1.5  Lca=       .9   S=   18.4  Kn= .044  LAG=  41.9
2105          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
              * KO                                    21
2106          BA    1.12
2107          LG     .13     .17    6.80     .18   48.00
2108          UI     90.    105.    319.    433.    515.    614.    754.   1063.   1032.    814.
2109          UI    687.    563.    464.    359.    213.    155.    136.     90.     73.     28.
2110          UI     28.     28.     28.     28.     28.      0.      0.      0.      0.      0.
2111          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
2112          KK    R80B
2113          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
              * KO                                    21
2114          DT    D80B       4
2115          DI       0   10000
2116          DQ       0   10000
              *
              *
              *    Subbasin 81B routed to EMFWIL per discussions with the FCDMC as part of the
              *    Chandler Heights/Rittenhouse Basin Design Project.         QAZ
              *
```



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

2117          KK     81B
2118          KM   BASIN 81B
2119          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2120          KM    L=      1.1  Lca=       .4   S=    6.9  Kn= .033  LAG=  24.7
2121          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2122          BA     .84
2123          LG     .10     .25    4.70     .45   67.00
2124          UI    115.    393.    631.    857.   1343.   1088.    796.    566.    296.    185.
2125          UI    115.     39.     35.     35.      0.      0.      0.      0.      0.      0.
2126          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
2127          KK    R81B
2128          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
              * KO      3                             21
2129          DT    D81B      35
2130          DI       0   10000
2131          DQ       0   10000
              *
              *      81B to be combined with 80B and exported to EMF routing model by 80B81B
              *      EMFWIL to combine 80B81B with flow from POWTWI for this model
              *      qaz
              *
2132          KK  80B81B
2133          KM       COMBINE FLOWS FROM 80B & 81B AND EXPORT TO ROUTING MODEL
              * KO                                    21
2134          HC       2
              *
2135          KK  EMFWIL
2136          KM   COMBINE FLOWS INTO THE EMF WEST OF WILLIAMS AFB FROM 80B, 81B, EMF POWERLINE
2137          HC       2
              *
2138          KK  WILTSP
2139          KM   ROUTE EMF FLOW FROM WILLIAMS FIELD ROAD TO THE SOUTHERN PACIFIC RAILROAD
2140          KM     (AT RITTENHOUSE ROAD)
2141          RS       3    FLOW      -1
```

```
2142          RC     .03     .022     .03     5000    .0003
2143          RX       0      500      520      553      693      726      740      742
2144          RY      14       12       11        0        0       11       11       12
              *
              * DDM   ***** Updated *****
              * KKEMFRT1      Hydrograph name changed by Dibble & Associates to avoid two
              * KM            different hydrographs with the same name.
              * KM COMBINE 81A & 81B AND RITTENHOUSE(HYDROGRAPH WILTSP, FROM EMFWIL)
              * HC     2
              *
              *
              * THE NEXT KK BLOCKS COME FROM THE QUEEN CREEK ADMS
              *
              *  ***********  UPDATED TO GREEN-AMPT  ***********
1                                        HEC-1 INPUT                                                    PAGE 57

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


2145          KK  SUB258
2146          KM   PINAL COUNTY BASIN.  PARAMETERS BASED ON EXISTING LAND-USE
2147          KM   TO MODEL PINAL COUNTY'S PRE .VS. POST DEVELOPMENT DRAINAGE CRITERIA
2148          KM   BASIN 258
2149          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2150          KM    L=      4.6  Lca=      2.5   S=   24.8  Kn= .062  LAG= 122.0
2151          KM    AGRICULTURAL S-GRAPH WAS USED FOR THIS BASIN
2152          BA    3.65
2153          LG     .34      .17    4.70     .42   18.00
2154          UI    110.     110.    110.    110.    110.    217.    232.    299.    386.    574.
2155          UI    583.     717.    579.    644.    772.    918.    802.    927.    927.    927.
2156          UI    927.     927.    927.    927.    834.    772.    772.    772.    866.    865.
2157          UI    583.     579.    583.    650.    605.    458.    421.    421.    381.    331.
2158          UI    315.     309.    352.    309.    211.    211.    190.    178.    178.    159.
2159          UI    136.     136.    136.    125.    101.    101.    101.    101.    101.     74.
2160          UI     63.      63.     63.     63.     63.     63.     63.     63.     29.     14.
2161          UI     14.      14.     14.     14.     14.     14.     14.     14.     14.     14.
2162          UI     14.      14.     14.     14.     14.     14.     14.     14.     14.     14.
2163          UI     14.      14.     14.     14.     14.     14.     14.     14.     14.     14.
2164          UI     14.      14.     14.     14.     14.     14.     14.     14.     14.      0.
2165          UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
2166          UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2167          KK   RO259
2168          KM        ROUTE SUB258 TO CO262
2169          RM       8    1.57    0.20
              *
              *
              *  ***********  UPDATED TO GREEN-AMPT  ***********

2170          KK  SUB260
2171          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2172          KM   BASIN 260
2173          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2174          KM    L=      1.0  Lca=       .5   S=   23.2  Kn= .045  LAG=  27.3
2175          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2176          BA     .98
2177          LG     .27      .25    4.80     .36   24.00
2178          UI    121.     355.    623.    813.   1175.   1413.   1018.    764.    555.    284.
2179          UI    199.     121.     55.     37.     37.     37.      0.      0.      0.      0.
2180          UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2181          KK  RETAIN
2182          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2183          DT  RETDIV      69
2184          DI       0   10000
2185          DQ       0   10000
              *
              * DDM   ***** Preserved *****
1                                        HEC-1 INPUT                                                    PAGE 58

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


2186          KK   CO262
2187          KM        COMBINE SUB260 AND RO259
2188          HC       2
              * DDM   ***** Preserved *****

2189          KK   RO263
2190          KM        ROUTE CO262 TO CO266
2191          RM       8    1.56    0.20
              *
              *  ***********  UPDATED TO GREEN-AMPT  ***********

2192          KK  SUB264
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2193          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2194          KM   BASIN 264
2195          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2196          KM    L=       1.0  Lca=        .6    S=    20.0  Kn= .050  LAG=  32.9
2197          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2198          BA    1.00
2199          LG     .25      .25    4.70     .38   31.00
2200          UI    102.     217.    450.     584.    730.   1015.   1235.    921.    734.    572.
2201          UI    426.     228.    171.     115.     82.     31.     31.     31.     31.      0.
2202          UI      0.       0.      0.       0.      0.      0.      0.      0.      0.      0.
2203          UI      0.       0.      0.       0.      0.      0.      0.      0.      0.      0.
              *

2204          KK  RETAIN
2205          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2206          DT  RETDIV      73
2207          DI       0   10000
2208          DQ       0   10000
              *
              * DDM   ***** Preserved *****

2209          KK   CO266
2210          KM        COMBINE SUB264 AND RO263
2211          HC      2
              *
              * DDM   ***** Preserved *****

2212          KK   RO267
2213          KM        ROUTE CO266 TO CO270
2214          RM      16    3.31    0.20
              *
              *  ***********  UPDATED TO GREEN-AMPT  ***********

2215          KK  SUB268
2216          KM   MARICOPA COUNTY BASIN.  PARAMETERS BASED ON FUTURE LAND-USE
2217          KM   BASIN 268
2218          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2219          KM    L=       2.0  Lca=       1.1    S=    13.4  Kn= .046  LAG=  55.1
2220          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2221          BA     .97
2222          LG     .23      .25    4.65     .39   34.00
2223          UI     59.      59.    122.     219.    281.    324.    365.    422.    489.    637.
1                                    HEC-1 INPUT                                                PAGE 59

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

2224          UI    762.     634.    536.     474.    408.    355.    301.    255.    185.    113.
2225          UI    102.      97.     63.      59.     45.     18.     18.     18.     18.     18.
2226          UI     18.      18.      0.       0.      0.      0.      0.      0.      0.      0.
2227          UI      0.       0.      0.       0.      0.      0.      0.      0.      0.      0.
              *

2228          KK  RETAIN
2229          KM    100-YR, 2HR RETENTION VOLUME FOR SUBBASIN LOCATED IN MARICOPA COUNTY
2230          DT  RETDIV      68
2231          DI       0   10000
2232          DQ       0   10000
              *
              * DDM   ***** Preserved *****

2233          KK   CO270
2234          KM        COMBINE RUNOFF FROM RO267 AND SUB268
2235          HC       2
              *
              * DDM   ***** Preserved *****

2236          KK   RO283
2237          KM        ROUTE CO282 TO CONCENTRATION POINT AT QUEEN CREEK ROAD
2238          RM      14    2.78    0.20
              *
              * THIS IS THE END OF THE QUEEN CREEK ADMS INSERT
              *
              * DDM   ***** Updated *****

2239          KK     88A
2240          KM   BASIN 88A
2241          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2242          KM    L=        .8  Lca=        .2    S=    13.2  Kn= .020  LAG=   9.2
2243          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2244          BA     .50
2245          LG     .10      .25    5.00     .40   80.00
2246          UI    549.    1709.   1208.     323.     71.      0.      0.      0.      0.      0.
2247          UI      0.       0.      0.       0.      0.      0.      0.      0.      0.      0.
              *
              * DDM   ***** Preserved *****

2248          KK    R88A
```

```
2249          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2250          DT    D88A      50
2251          DI       0   10000
2252          DQ       0   10000
              *

2253          KK  88AT89
2254          KM   REACH RH-2b,RH-2a,RH-1,EXISTING CHANNEL (FCD 97-34), plus culvert RHC-1
2255          KM   ROUTE 88A TO 89A VIA THE PROPOSED CHANNEL ALONG QUEEN CREEK ROAD
2256          KM   FROM CRISMON ROAD TO ELLSWORTH ROAD
2257          RS       1    FLOW      -1
2258          RC    .025    .025    .025    5135   .0010
2259          RX       0       8      16      45      55      85      93     101
2260          RY     4.7     4.8     4.9       0       0     4.9     4.8     4.7
              *
1                                        HEC-1 INPUT                                                    PAGE 60

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

2261          KK     89A
2262          KM   BASIN 89A
2263          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2264          KM    L=      1.0  Lca=       .6   S=   19.0  Kn= .020  LAG=  13.5
2265          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2266          BA     .50
2267          LG     .10     .25    4.65     .47   80.00
2268          UI    247.    742.   1328.    891.    408.    158.     41.     38.      0.      0.
2269          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2270          KK    R89A
2271          KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2272          DT    D89A      50
2273          DI       0   10000
2274          DQ       0   10000
              *

2275          KK    C89A
2276          KM   COMBINE FLOWS FROM 88A AND 89A AT QUEEN CREEK ROAD AND ELLSWORTH ROAD
2277          HC       2
              *

2278          KK  89ATRI
2279          KM   ROUTE 89A TO RITTENHOUSE ROAD VIA THE PROPOSED CHANNEL ALONG QUEEN CREEK ROAD
2280          KM    FROM ELLSWORTH ROAD TO RITTENHOUSE ROAD
2281          KM   REVISED 02.24.98 WITH RITTENHOUSE CHANNEL DESIGN.
2282          RS       1    FLOW      -1
2283          RC    .025    .025    .025    3145   .0005
2284          RX       0      10      26      39      49      72      78     100
2285          RY    12.2     9.7     5.7       0       0     5.7     9.7    12.2
              *

2286          KK    C283
2287          KM   COMBINE FLOWS FROM QUEEN CREEK ADMS AND EC ADMP AT QUEEN CREEK ROAD AND
2288          KM   RITTENHOUSE ROAD.
              * KO             2
2289          HC       2
              *

2290          KK  283T90
2291          KM   ROUTE FLOWS FROM CONCENTRATION POINT 283 AT QUEEN CREAK ROAD NORTH IN
2292          KM   RITTENHOUSE CHANNEL TO THE HALF MILE STREET BETWEEN QUEEN CREEK ROAD AND
2293          KM   GERMANN ROAD (RYAN STREET)
2294          KM
2295          KM   REVISED 02.24.98 WITH RITTENHOUSE CHANNEL DESIGN (TYPICAL SECTION #5).
2296          KM
              * KO             2
2297          RS       1    FLOW      -1
2298          RC    .025    .025    .025    4400   .0005
2299          RX       0      22      28      51      61      83      90     108
2300          RY    11.2     9.7     5.7       0       0     5.7     9.7    11.2
              *
1                                        HEC-1 INPUT                                                    PAGE 61

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

2301          KK     90A
2302          KM   BASIN 90A
2303          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2304          KM    L=       .6  Lca=       .2   S=   24.2  Kn= .038  LAG=  12.8
2305          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2306          BA     .48
2307          LG     .10     .25    4.60     .49   62.00
2308          UI    269.    789.   1351.    812.    319.    113.     39.      0.      0.      0.
2309          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

```
          *
2310      KK    R90A
2311      KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2312      DT    D90A      42
2313      DI       0   10000
2314      DQ       0   10000
          *
2315      KK    C90A
2316      KM   COMBINE FLOWS FLOW C283 AND SUBBASIN 90 AT RYAN STREET ALIGNMENT
          * KO             2
2317      HC       2
          *
2318      KK   90ATB
2319      KM   ROUTE FLOWS FROM SUBBASIN 90A TO 90B VIA CHANNEL
2320      KM   REVISED 02.24.98 WITH RITTENHOUSE CHANNEL DESIGN (TYPICAL SECTION #4).
2321      KM
          * KO             2
2322      RS       1    FLOW      -1
2323      RC    .025    .025    .025    4400   .0005
2324      RX       0      22      28      51      61      83      90     108
2325      RY    11.2     9.7     5.7       0       0     5.7     9.7    11.2
          *
2326      KK     87A
2327      KM   BASIN 87A
2328      KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2329      KM    L=       1.0  Lca=       .5   S=   24.8  Kn= .020  LAG=  11.7
2330      KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2331      BA     .49
2332      LG     .10     .25    5.00     .40   80.00
2333      UI    333.    979.   1448.    720.    221.     66.      0.      0.      0.      0.
2334      UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
          *
2335      KK    R87A
2336      KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2337      DT    D87A      49
2338      DI       0   10000
2339      DQ       0   10000
          *
                                        HEC-1 INPUT                                          PAGE 62

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

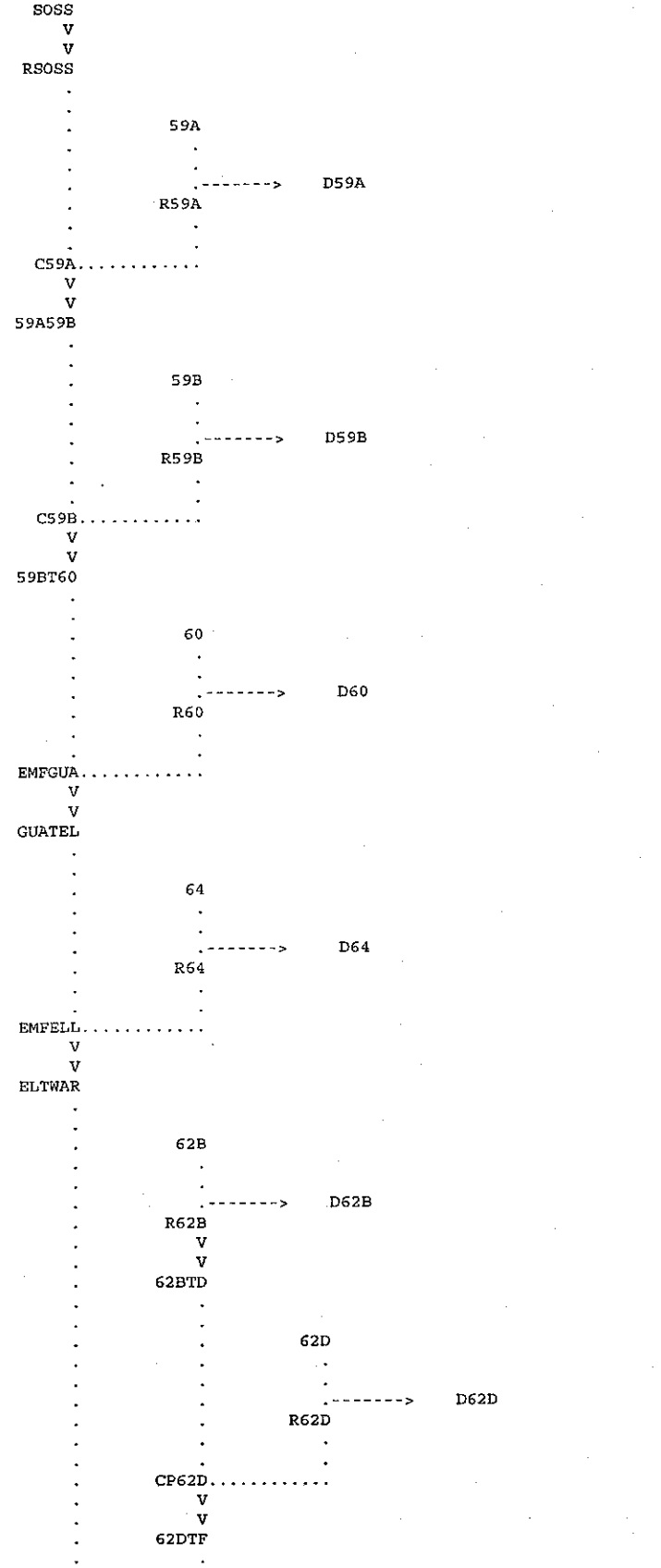
2340      KK   87ATB
2341      KM   ROUTE 87A TO 87B VIA SHEET FLOW
2342      RS       3    FLOW      -1
2343      RC    .040    .040    .040    2640   .0056
2344      RX       0     500    1000    1005    1006    1011    1511    2011
2345      RY       1      .5       0       0       0      .5       1     1.5
          *
2346      KK     87B
2347      KM   BASIN 87B
2348      KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2349      KM    L=        .9  Lca=       .5   S=   11.6  Kn= .020  LAG=  12.8
2350      KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2351      BA     .49
2352      LG     .10     .25    5.00     .40   80.00
2353      UI    275.    809.   1385.    833.    327.    116.     40.      0.      0.      0.
2354      UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
          *
2355      KK    R87B
2356      KM   RETAIN 100 YR 2 HR RUNOFF VOLUME
2357      DT    D87B      49
2358      DI       0   10000
2359      DQ       0   10000
          *
2360      KK     C87
2361      KM   COMBINE FLOW FROM SUBBASINS 87A AND 87B
2362      HC       2
          *
2363      KK  87T88B
2364      KM     ROUTE S87 TO S88 VIA GERMANN ROAD
2365      RS       6    FLOW      -1
2366      RC    .045    .025    .045    5280    .002
2367      RX       0    1000    1005    1010    1050    1060    1560    2060
2368      RY      14      13      18      12      11      14    14.5      15
          *
```

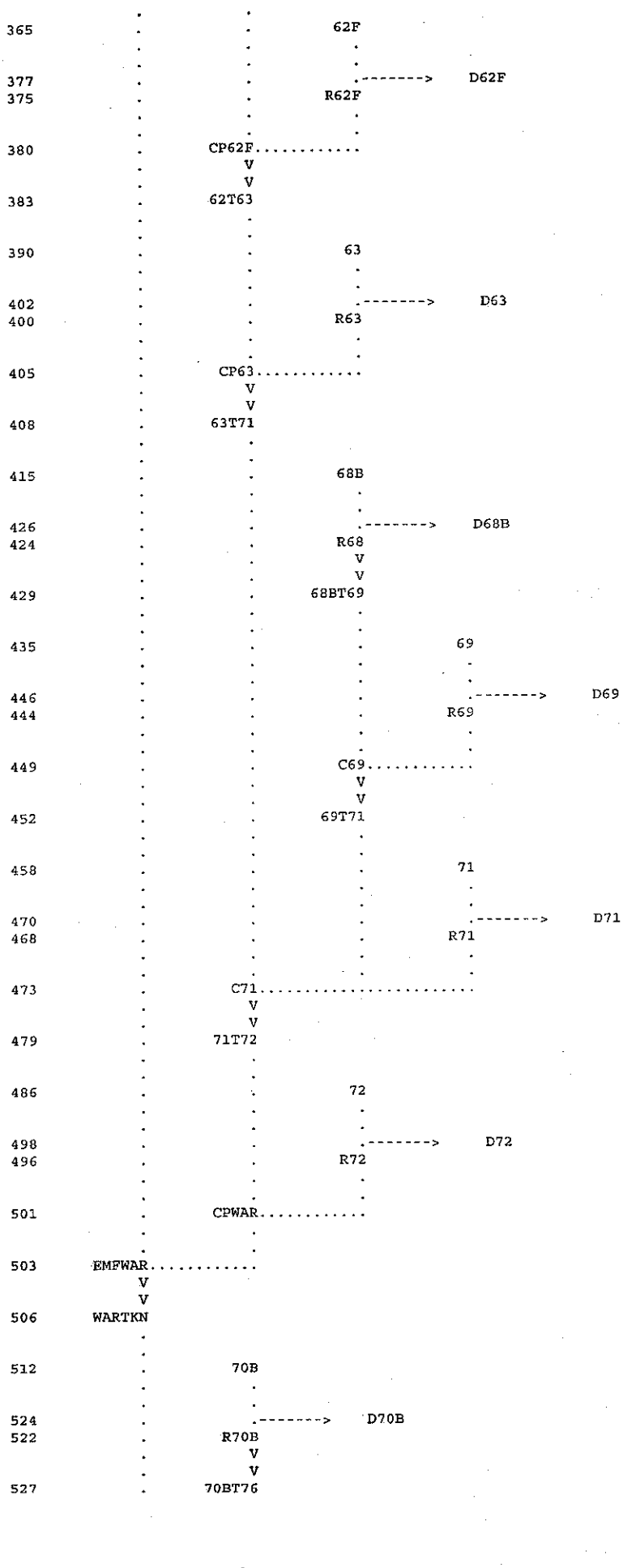
1

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE NO.

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

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375 R62F
380 CP62F
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390 63
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400 R63
405 CP63
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424 R68
429 68BT69
435 69
446 D69
444 R69
449 C69
452 69T71
458 71
470 D71
468 R71
473 C71
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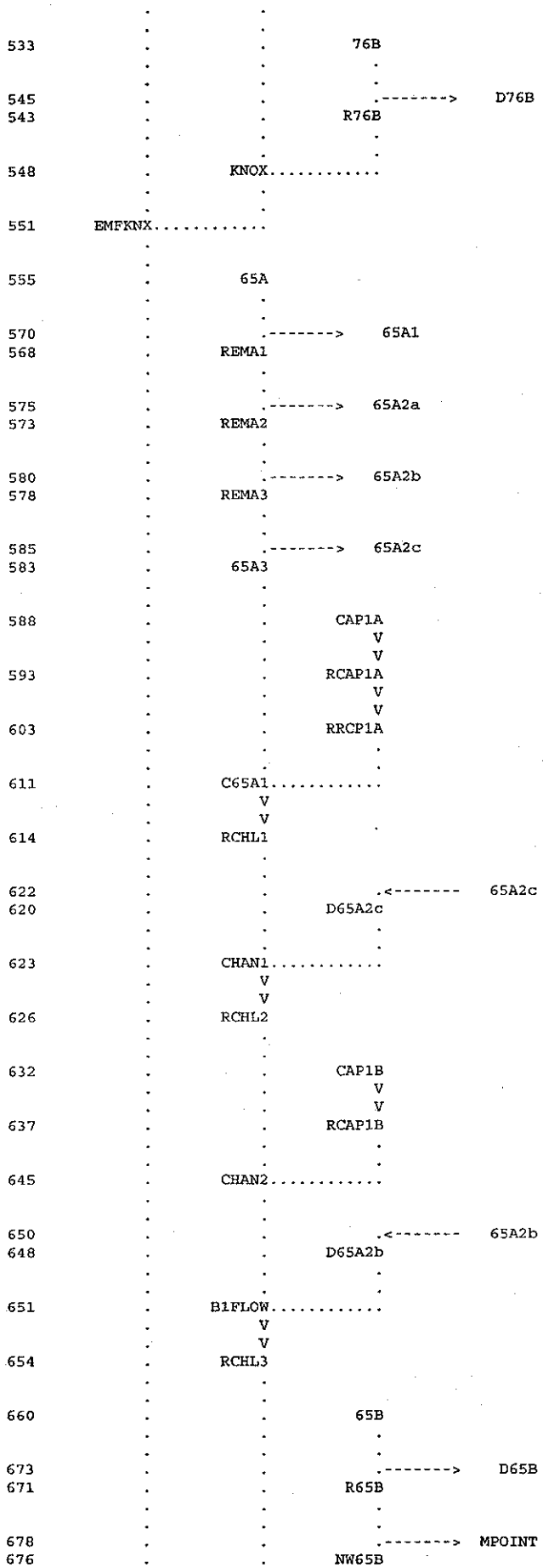
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578 REMA3
585 65A2c
583 65A3
588 CAP1A
593 RCAP1A
603 RRCP1A
611 C65A1
614 RCHL1
622 65A2c
620 D65A2c
623 CHAN1
626 RCHL2
632 CAP1B
637 RCAP1B
645 CHAN2
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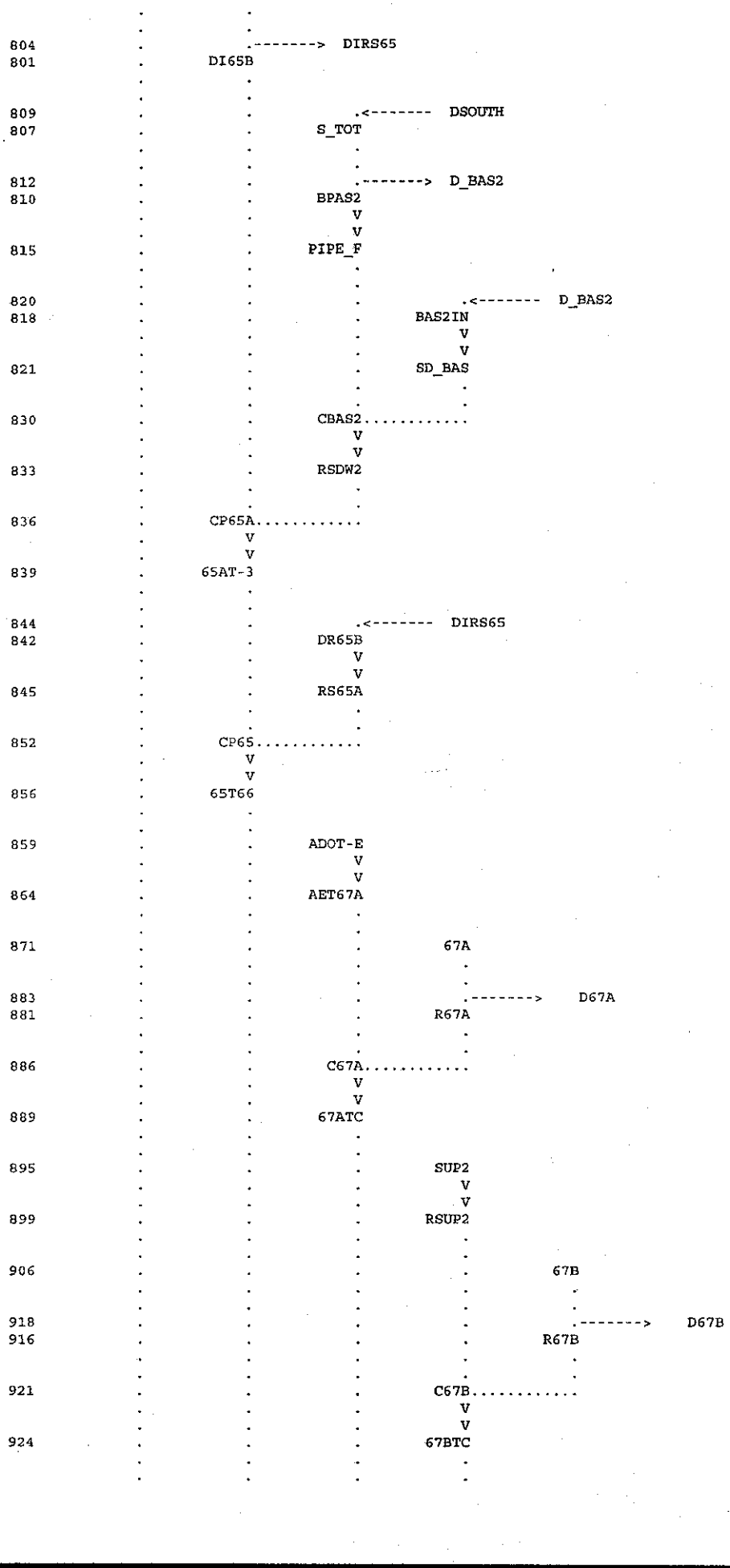
671 R65B
678 MPOINT
676 NW65B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BPAS2
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PIPE_F
820
D_BAS2
818
BAS2IN
821
SD_BAS
830
CBAS2
833
RSDW2
836
CP65A
839
65AT-3
844
DIRS65
842
DR65B
845
RS65A
852
CP65
856
65T66
859
ADOT-E
864
AET67A
871
67A
883
D67A
881
R67A
886
C67A
889
67ATC
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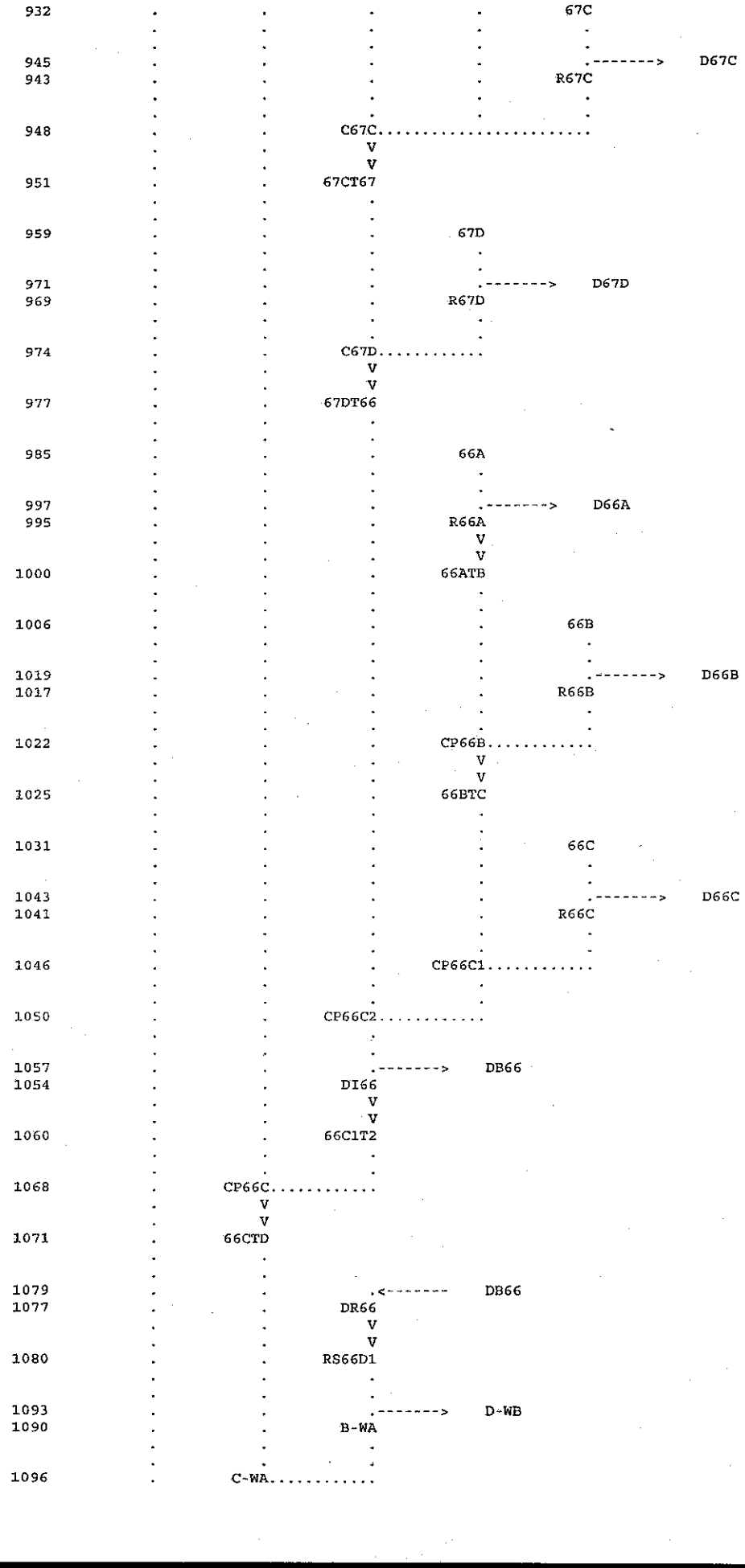
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985 66A
997 D66A
995 R66A
1000 66ATB
1006 66B
1019 D66B
1017 R66B
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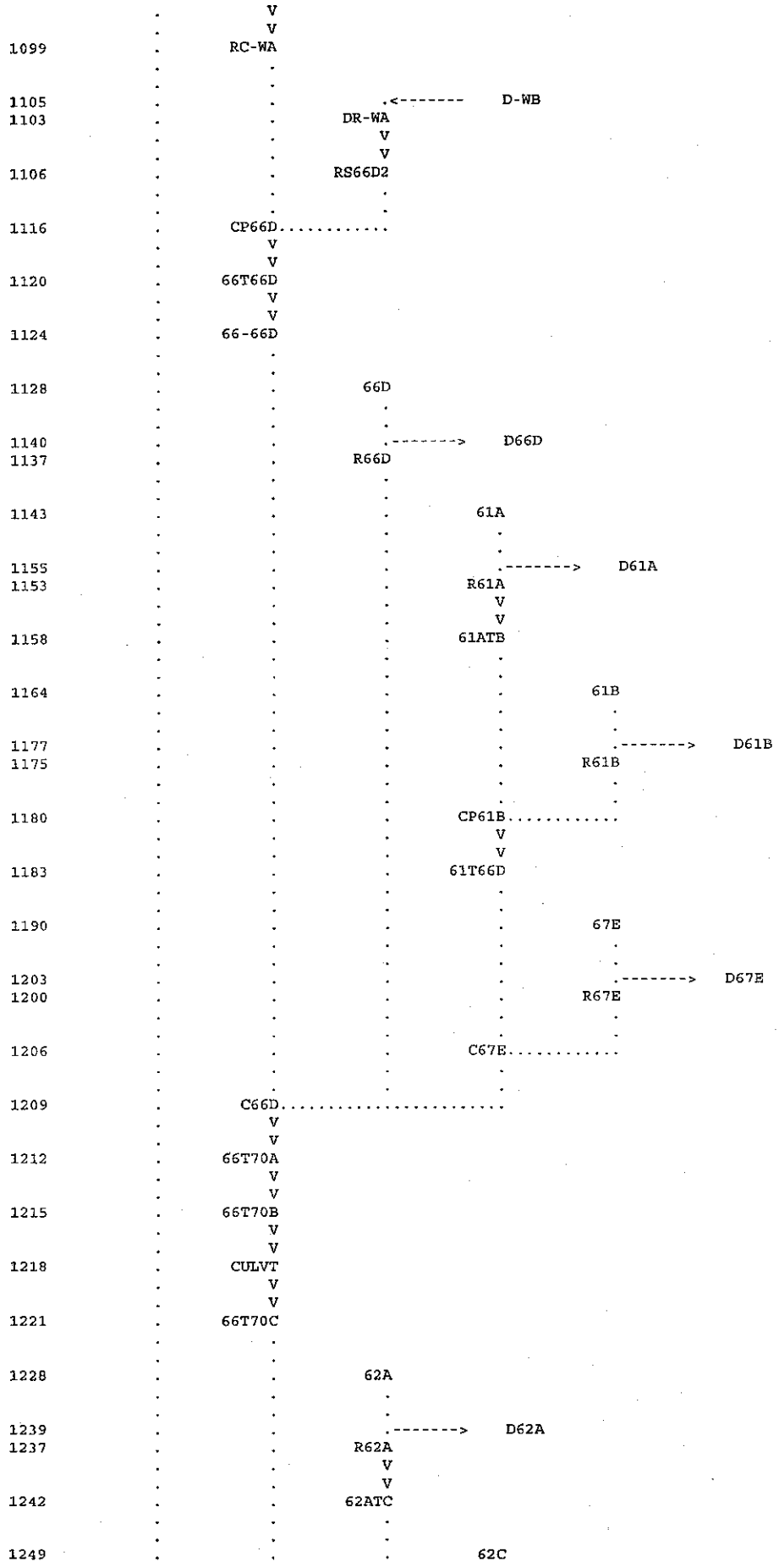
1031 66C
1043 D66C
1041 R66C
1046 CP66C1
1050 CP66C2
1057 DB66
1054 DI66
1060 66C1T2
1068 CP66C
1071 66CTD
1079 DB66
1077 DR66
1080 RS66D1
1093 D-WB
1090 B-WA
1096 C-WA


V
V
1099 RC-WA
1105 .<-------- D-WB
1103 DR-WA
V
V
1106 RS66D2
1116 CP66D
V
V
1120 66T66D
V
V
1124 66-66D
1128 66D
1140 .-------> D66D
1137 R66D
1143 61A
1155 .-------> D61A
1153 R61A
V
V
1158 61ATB
1164 61B
1177 .-------> D61B
1175 R61B
1180 CP61B
V
V
1183 61T66D
1190 67E
1203 .-------> D67E
1200 R67E
1206 C67E
1209 C66D
V
V
1212 66T70A
V
V
1215 66T70B
V
V
1218 CULVT
V
V
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1239 .-------> D62A
1237 R62A
V
V
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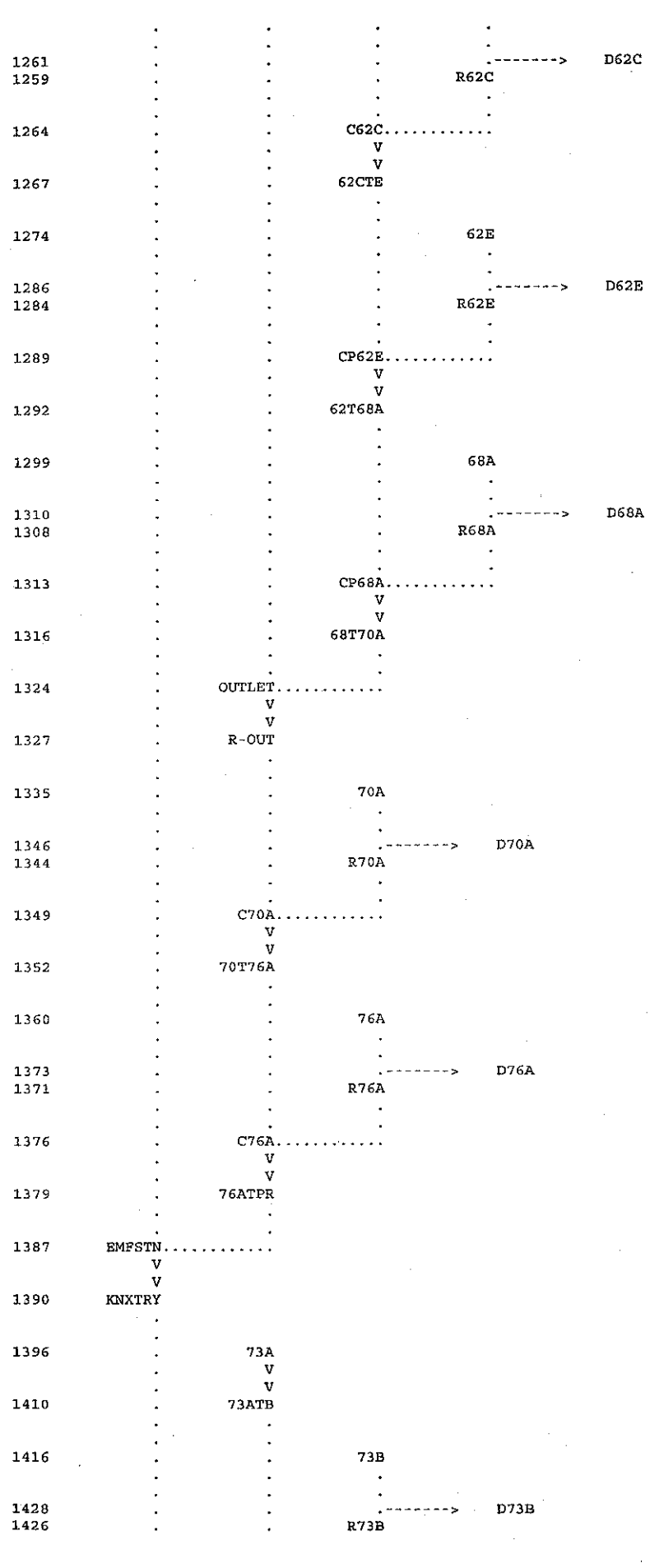
1249 62C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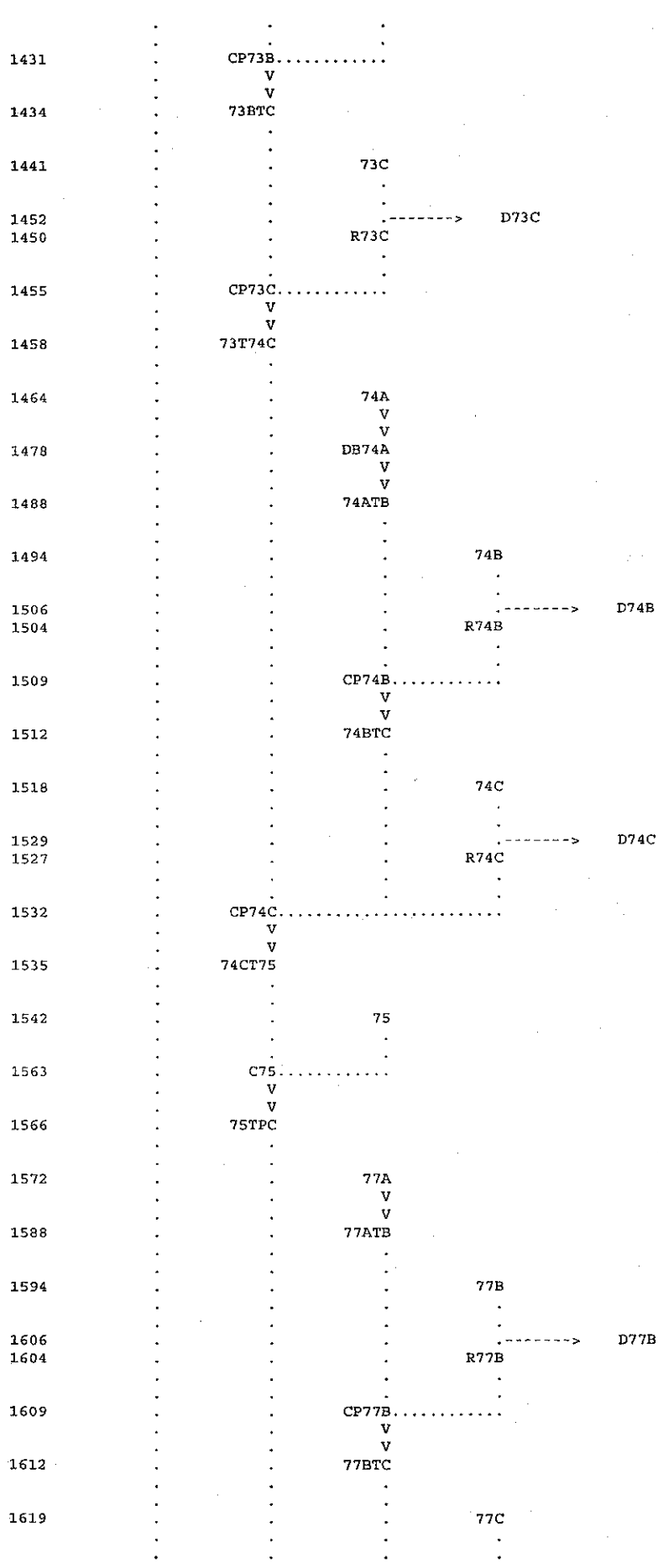
1259 R62C
1264 C62C.....
V
V
1267 62CTE
1274 62E
1286 .-------> D62E
1284 R62E
1289 CP62E.....
V
V
1292 62T68A
1299 68A
1310 .-------> D68A
1308 R68A
1313 CP68A.....
V
V
1316 68T70A
1324 OUTLET.....
V
V
1327 R-OUT
1335 70A
1346 .-------> D70A
1344 R70A
1349 C70A.....
V
V
1352 70T76A
1360 76A
1373 .-------> D76A
1371 R76A
1376 C76A.....
V
V
1379 76ATPR
1387 EMFSTN.....
V
V
1390 KNXTRY
1396 73A
V
V
1410 73ATB
1416 73B
1428 .-------> D73B
1426 R73B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1455 CP73C
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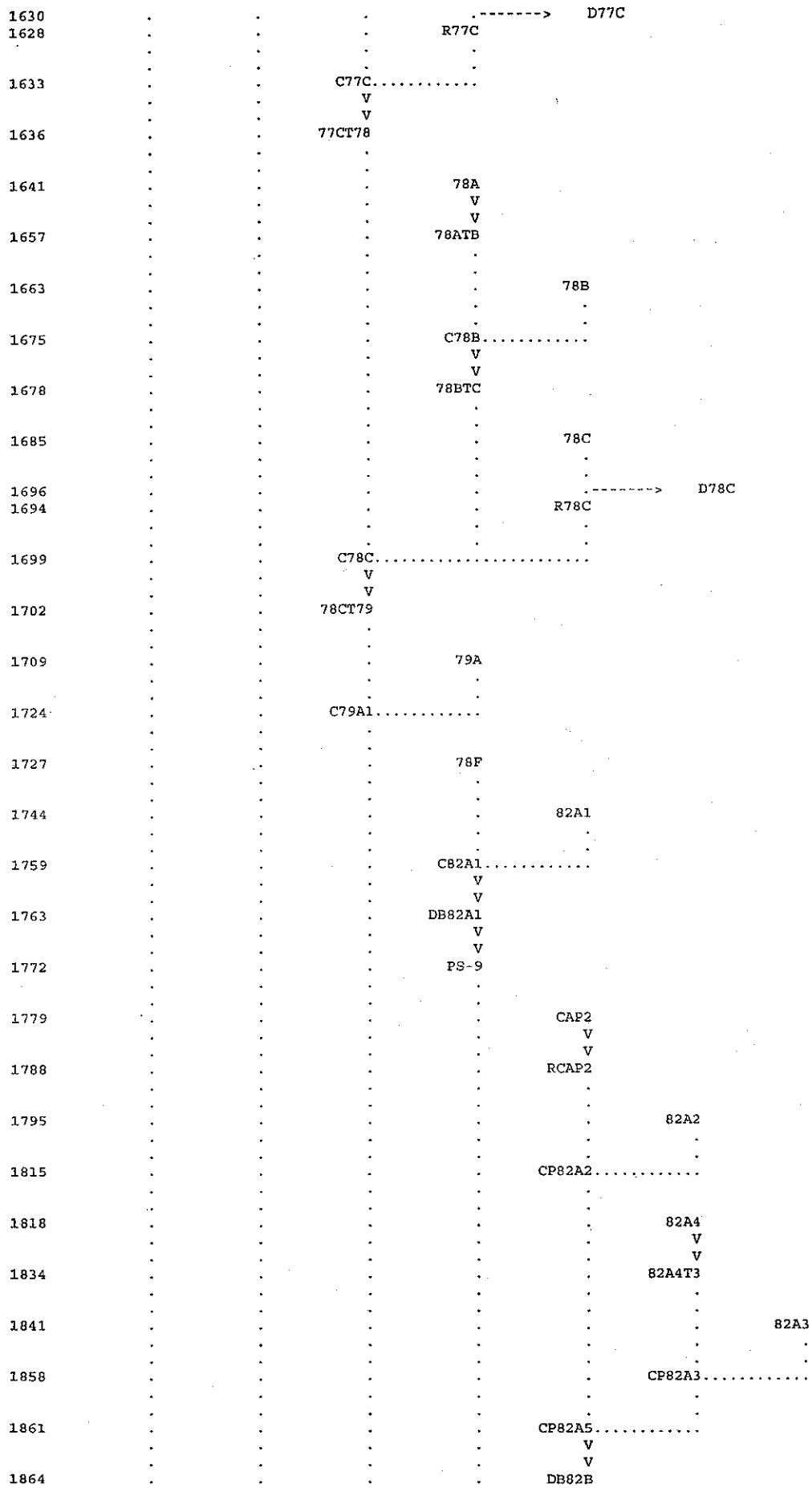
1464 74A
1478 DB74A
1488 74ATB
1494 74B
1506
1504 R74B
1509 CP74B
1512 74BTC
1518 74C
1529
1527 R74C
1532 CP74C
1535 74CT75
1542 75
1563 C75
1566 75TPC
1572 77A
1588 77ATB
1594 77B
1606
1604 R77B
1609 CP77B
1612 77BTC
1619 77C
D73C
D74B
D74C
D77B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1628
R77C
D77C
1633
C77C
1636
77CT78
1641
78A
1657
78ATB
1663
78B
1675
C78B
1678
78BTC
1685
78C
1696
D78C
1694
R78C
1699
C78C
1702
78CT79
1709
79A
1724
C79A1
1727
78F
1744
82A1
1759
C82A1
1763
DB82A1
1772
PS-9
1779
CAP2
1788
RCAP2
1795
82A2
1815
CP82A2
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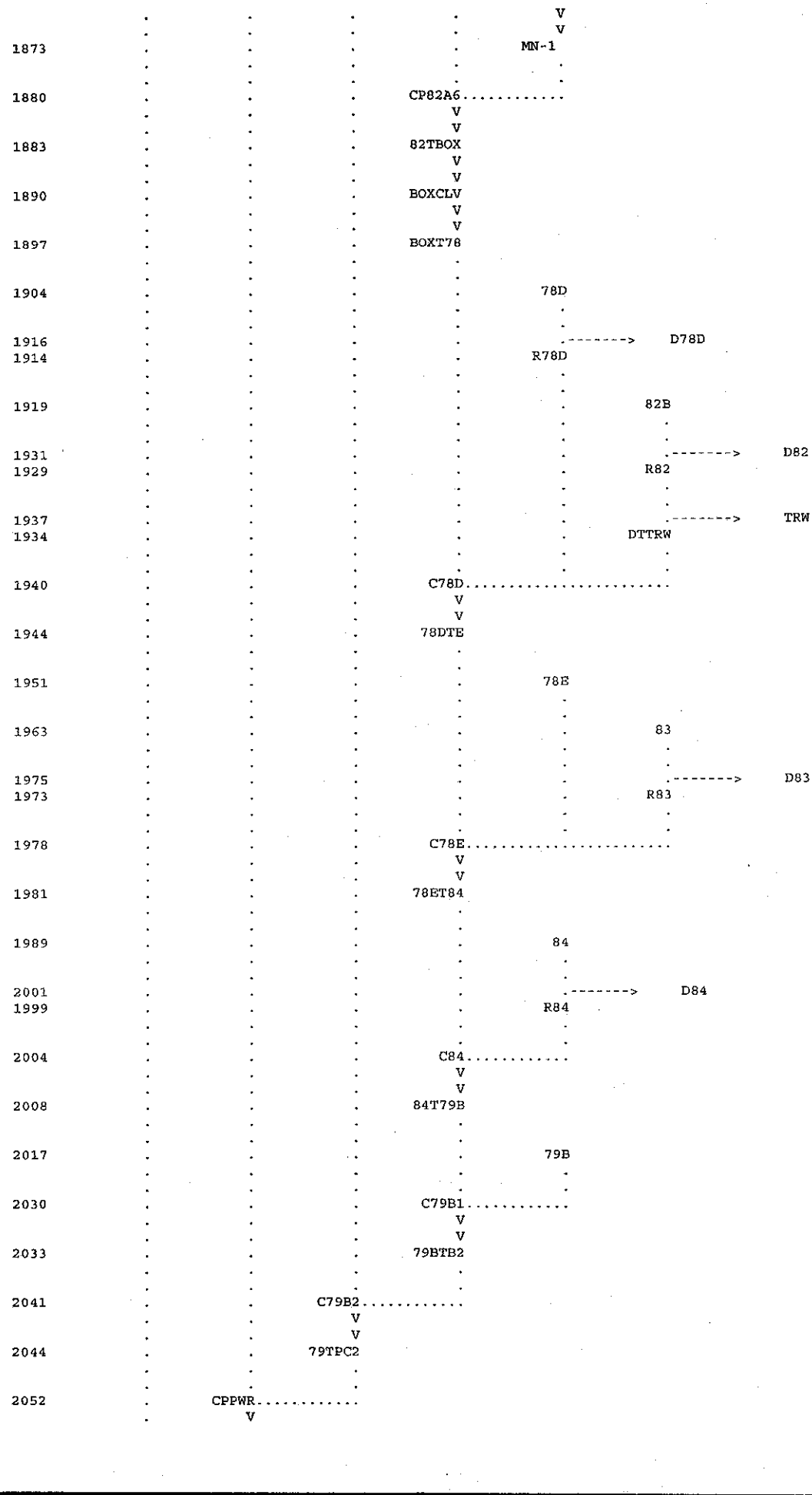
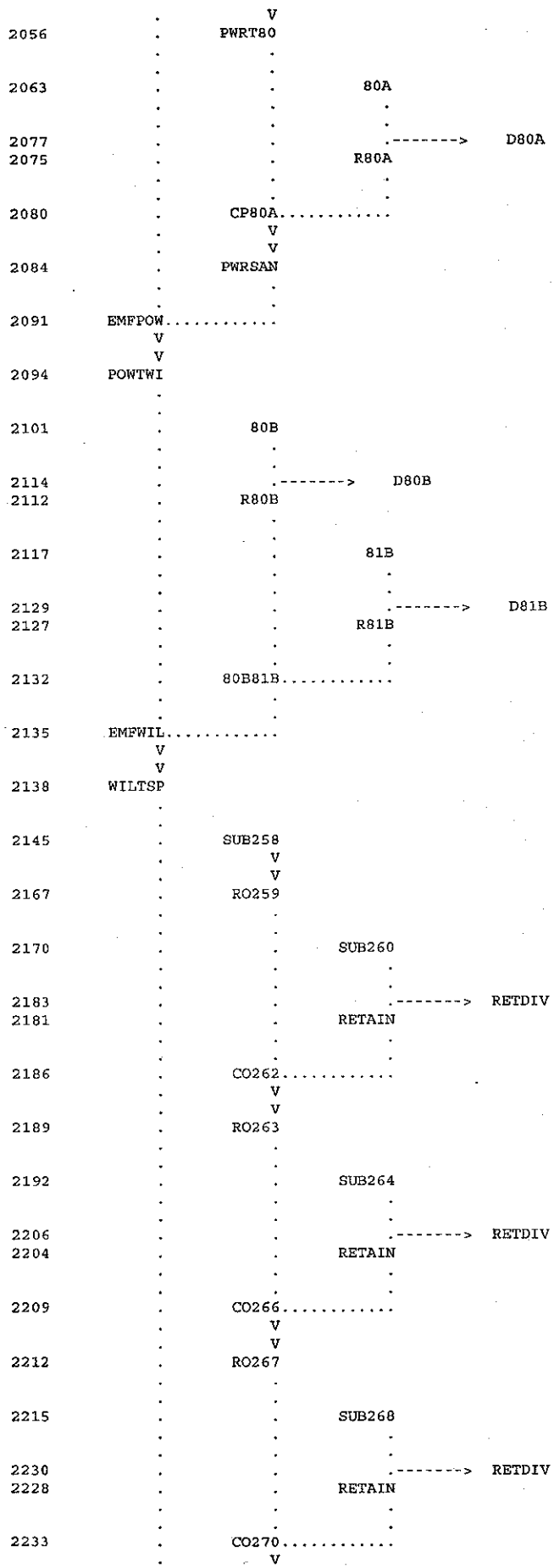
82A4
1834
82A4T3
1841
82A3
1858
CP82A3
1861
CP82A5
1864
DB82B


1873 MN-1
1880 CP82A6
1883 82TBOX
1890 BOXCLV
1897 BOXT78
1904 78D
1916 D78D
1914 R78D
1919 82B
1931 D82
1929 R82
1937 TRW
1934 DTTRW
1940 C78D
1944 78DTE
1951 78E
1963 83
1975 D83
1973 R83
1978 C78E
1981 78ET84
1989 84
2001 D84
1999 R84
2004 C84
2008 84T79B
2017 79B
2030 C79B1
2033 79BTB2
2041 C79B2
2044 79TPC2
2052 CPPWR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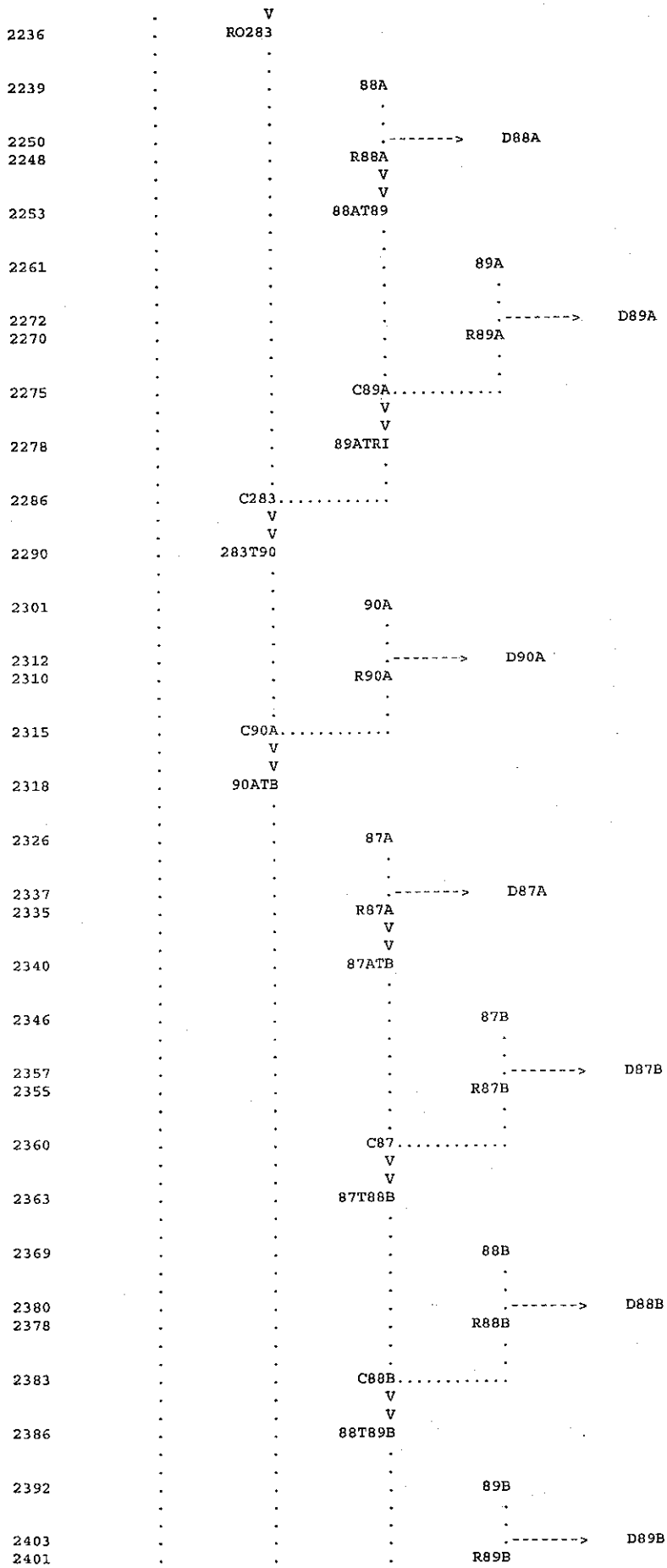
2063 80A
2077 D80A
2075 R80A
2080 CP80A
2084 PWRSAN
2091 EMFPOW
2094 POWTWI
2101 80B
2114 D80B
2112 R80B
2117 81B
2129 D81B
2127 R81B
2132 80B81B
2135 EMFWIL
2138 WILTSP
2145 SUB258
2167 RO259
2170 SUB260
2183 RETDIV
2181 RETAIN
2186 CO262
2189 RO263
2192 SUB264
2206 RETDIV
2204 RETAIN
2209 CO266
2212 RO267
2215 SUB268
2230 RETDIV
2228 RETAIN
2233 CO270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2239 88A
2250 D88A
2248 R88A
2253 88AT89
2261 89A
2272 D89A
2270 R89A
2275 C89A
2278 89ATRI
2286 C283
2290 283T90
2301 90A
2312 D90A
2310 R90A
2315 C90A
2318 90ATB
2326 87A
2337 D87A
2335 R87A
2340 87ATB
2346 87B
2357 D87B
2355 R87B
2360 C87
2363 87T88B
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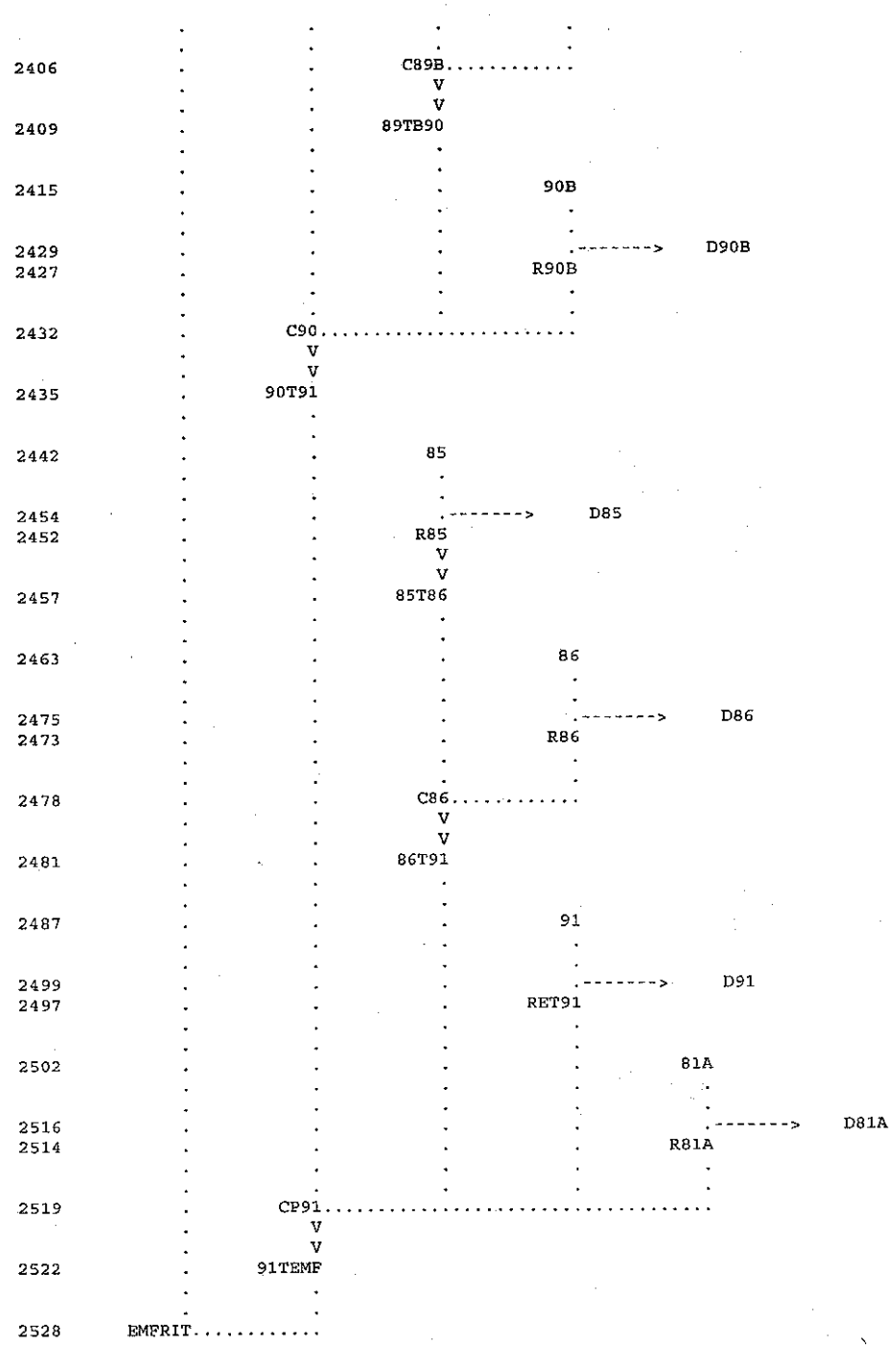
2386 88T89B
2392 89B
2403 D89B
2401 R89B



(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              JUN  1998                *
*           VERSION 4.1                 *
*                                       *
*  RUN DATE   29JUN05  TIME  16:07:42   *
*                                       *
*****************************************
```

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

Option 3 - Two New Detention Basins within Maricopa County
Some detention basins within SRP corridors
This is the proposed future conditions HEC-1 model of 100-yr 24-hr storm
for the areas of south US60 for the Siphon Draw Basin project - Phase 2.
Model Name: S60EMOP3.DAT, modified by Wood/Patel, June 2005.
Base Model: S60EMOP2.DAT; Model of North US 60:N60EM.DAT(WS2-NEM.DAT)

Basin B is on south west corner of Mountain Road and Siphon Draw Wash;
Basin C is on west of Mountain Road and north of Siphon Draw Wash.
No detention basins within Pinal County.

****

MODEL REVISED 9/12/02 TO CHANGE ZW CARD TO ZR CARD AT HYDROGRAPH CAP1B (CWR)

ID Kirkham Michael:
Last Revised Date: 5/14/02
Filename: WS4-SEM.DAT

Comments Dated 5/14/02 (CJ)

This model should be used for the Rittenhouse and Chandler Heights Basin Design Project - 30% Design Analyses.

This model is one of several models that represent the EMF watershed. This model covers the Southeast Mesa Area and should reference as a DSS the watershed model for the Northeast Mesa Area (Filename WS2-NEM.DAT).

This model is necessary to determine the input hydrographs for the Rittenhouse Basin Design HEC-RAS Unsteady State analysis. To develop the necessary input hydrographs the following models should be run in order. Because the files utilize a TAPE21 file to export import hydrographs between models, prior to running the FIRST model (WS1-NWM.DAT) any existing TAPE21 file in the directory should be deleted. The run procedure order is:

1) WS1-NWM.DAT
2) WS2-NEM.DAT
3) WS3-QCSW.DAT
4) WS4-SEM.DAT (referencing WS2-NEM.DSS for the DSS file)
5) RT1-BASE.DAT

The necessary input hydrographs for the Rittenhouse Basin analysis are determined in RT1-BASE. In that output file, the hydrograph at RWFLD1 should be exported and used as the input hydrograph at the EMF Reach 4 Cross Section 17.082. And the hydrograph at RITTEN should be exported and used as the input hydrograph for the Rittenhouse Main Channel at Cross Section 820.00

****
**** NOTE BY PRIMATECH ENGINEERS: ****
**** DATE: 06/12/2001 ****
**** THE NEW FILE NAME IS: SEBTALT2.DAT ****
**** THE FILE WAS RENAMED AS <<RTBTALT2.DAT>> FOR THE EAST MARICOPA ****
**** FLOODWAY CAPACITY MITIGATION PROJECT, BY FLOOD CONTROL DISTRICT OF ****
**** MARICOPA COUNTY. ****
**** THE FILE WAS RENAMED <<RTBTALT3.DAT>> AND UPDATED USING GREEN AND ****
**** AMPT FUTURE CONDITIONS FOR BASINS 258 TO 268. ****
****

THIS MODEL WAS ORIGINALLY MIDDOUT.DAT
IT HAS BEEN MODIFIED BY CPE (7/2000)
FOR ALTERNATIVE 2 FOR THE EAST MARICOPA FLOOWAY
CAPACITY MITIGATION AND MULTI-USE CORRIDOR STUDY
TO ROUTE BOTH THE POWERLINE FLOOWAY
AND THE SANTAN FREEWAY CHANNEL INTO THE RAY BASIN PRIOR THEIR OUTFALL
INTO THE EMF

****

Model files changed by Collins/Pina Engineering
to reflect multi-use design concepts (recreation
and environment) proposed throughout the entire
EMF Corridor. July 2000

VERSION 8.06 CPE 7/31/00

****

****
FILENAME: MIDDOUT.DAT

ALL CIP INFRASTRUCTURE IS IN PLACE, FUTURE CONDITIONS LANDUSE IS IN PLACE
FLOW IS ROUTED UP ELLSWORTH ROAD IN A EARTH LINED CHANNEL

****
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

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)

****
**** THE FOLLOWING NOTE WAS ADDED BY PRIMATECH ENGINEERS ON 06-12-2001 ****
****
NOTE: MUST USE NEBUILD.DSS AS THE DSS FILE TO IMPORT FLOWS ACROSS THE
SUPERSTITION FREEWAY.
****

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

```
182 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         1000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE       4APR97  ENDING DATE
                     NDTIME         1115  ENDING TIME
                      ICENT           19  CENTURY MARK

                  COMPUTATION INTERVAL     .08 HOURS
                       TOTAL TIME BASE   83.25 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

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

185 PI            PRECIPITATION PATTERN
```

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
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.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
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```
195 JD           INDEX STORM NO. 2
                       STRM         3.38  PRECIPITATION DEPTH
                       TRDA        10.00  TRANSPOSITION DRAINAGE AREA

  0 PI            PRECIPITATION PATTERN
```

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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

196 JD INDEX STORM NO. 3

STRM 3.24 PRECIPITATION DEPTH

TRDA 30.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

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.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

197 JD INDEX STORM NO. 4

STRM 3.10 PRECIPITATION DEPTH

TRDA 60.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

198 JD INDEX STORM NO. 5

STRM 3.05 PRECIPITATION DEPTH

TRDA 90.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

199 JD INDEX STORM NO. 6
STRM 3.00 PRECIPITATION DEPTH
TRDA 120.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00		

200 JD INDEX STORM NO. 7
STRM 2.97 PRECIPITATION DEPTH
TRDA 150.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.01	.00	.01
.01	.01	.01	.01	.01	.01	.01	.01	.03	.03
.03	.09	.09	.09	.01	.01	.01	.01	.01	.01
.01	.01	.01	.01	.01	.01	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00

```
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00
   -----DSS---ZOPEN:  Existing File Opened,  File: N60EM.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.    4:  /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.    4:  /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.    4:  /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.    4:  /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/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /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)
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        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.    4:  /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.    4:  /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.    4:  /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: F
        Pathname: /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
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /SOSSAMAN DRAIN/AT SUPERSTITION/FLOW/05APR1997/5MIN/100YR/
        After ZRDINF, Record found: F
        Pathname: /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:  3
        Offset:       0,  Units: CFS      ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /CAP1A/OVERCHUTE/FLOW//5MIN/100YEAR/
        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: /CAP1A/OVERCHUTE/FLOW/31MAR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1A/OVERCHUTE/FLOW/31MAR1997/5MIN/100YEAR/
      ----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: /CAP1A/OVERCHUTE/FLOW//5MIN/100YEAR/
        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: /CAP1A/OVERCHUTE/FLOW/31MAR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1A/OVERCHUTE/FLOW/31MAR1997/5MIN/100YEAR/
      ----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: /CAP1A/OVERCHUTE/FLOW/01APR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1A/OVERCHUTE/FLOW/01APR1997/5MIN/100YEAR/
      ----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: /CAP1A/OVERCHUTE/FLOW/02APR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1A/OVERCHUTE/FLOW/02APR1997/5MIN/100YEAR/
      ----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: /CAP1A/OVERCHUTE/FLOW/03APR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1A/OVERCHUTE/FLOW/03APR1997/5MIN/100YEAR/
      ----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: /CAP1A/OVERCHUTE/FLOW//5MIN/100YEAR/
        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: /CAP1A/OVERCHUTE/FLOW/03APR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1A/OVERCHUTE/FLOW/03APR1997/5MIN/100YEAR/
      ----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: /CAP1A/OVERCHUTE/FLOW//5MIN/100YEAR/
        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: /CAP1A/OVERCHUTE/FLOW/03APR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1A/OVERCHUTE/FLOW/03APR1997/5MIN/100YEAR/
      ----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: /CAP1A/OVERCHUTE/FLOW/04APR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
```

```
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1A/OVERCHUTE/FLOW/04APR1997/5MIN/100YEAR/
      ----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: F
        Pathname: /CAP1A/OVERCHUTE/FLOW/05APR1997/5MIN/100YEAR/
      ----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
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /CAP1A/OVERCHUTE/FLOW/05APR1997/5MIN/100YEAR/
        After ZRDINF, Record found: F
        Pathname: /CAP1A/OVERCHUTE/FLOW/06APR1997/5MIN/100YEAR/
      ----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:  3
        Offset:       0,  Units: CFS      ,  Type:INST-VAL
        ----- Entering ZRRTSX for unit 71 -----
Pathname: /CAP1B/OVERCHUTE/FLOW//5MIN/100YEAR/
        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: /CAP1B/OVERCHUTE/FLOW/31MAR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1B/OVERCHUTE/FLOW/31MAR1997/5MIN/100YEAR/
      ----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: /CAP1B/OVERCHUTE/FLOW//5MIN/100YEAR/
        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: /CAP1B/OVERCHUTE/FLOW/31MAR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1B/OVERCHUTE/FLOW/31MAR1997/5MIN/100YEAR/
      ----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: /CAP1B/OVERCHUTE/FLOW/01APR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1B/OVERCHUTE/FLOW/01APR1997/5MIN/100YEAR/
      ----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: /CAP1B/OVERCHUTE/FLOW/02APR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1B/OVERCHUTE/FLOW/02APR1997/5MIN/100YEAR/
      ----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: /CAP1B/OVERCHUTE/FLOW/03APR1997/5MIN/100YEAR/
```

```
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1B/OVERCHUTE/FLOW/03APR1997/5MIN/100YEAR/
      ----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: /CAP1B/OVERCHUTE/FLOW//5MIN/100YEAR/
        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: /CAP1B/OVERCHUTE/FLOW/03APR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1B/OVERCHUTE/FLOW/03APR1997/5MIN/100YEAR/
      ----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: /CAP1B/OVERCHUTE/FLOW//5MIN/100YEAR/
        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: /CAP1B/OVERCHUTE/FLOW/03APR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1B/OVERCHUTE/FLOW/03APR1997/5MIN/100YEAR/
      ----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: /CAP1B/OVERCHUTE/FLOW/04APR1997/5MIN/100YEAR/
        Number of actual data:  288  Header length:   0
        Compression:   0  Quality:   0
-----DSS--- ZREAD Unit  71; Vers.    4:  /CAP1B/OVERCHUTE/FLOW/04APR1997/5MIN/100YEAR/
      ----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: F
        Pathname: /CAP1B/OVERCHUTE/FLOW/05APR1997/5MIN/100YEAR/
      ----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
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /CAP1B/OVERCHUTE/FLOW/05APR1997/5MIN/100YEAR/
        After ZRDINF, Record found: F
        Pathname: /CAP1B/OVERCHUTE/FLOW/06APR1997/5MIN/100YEAR/
      ----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:  3
        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.    2:  /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.    2:  /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.    2:  /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.    2:  /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.    2:  /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.    2:  /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.    2:  /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.    2:  /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: F
       Pathname: /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
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /ADOT EAST BASIN/AT SUPERSTITION/FLOW/05APR1997/5MIN/100YR/
       After ZRDINF, Record found: F
       Pathname: /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:  3
       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.    2:  /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.    2:  /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.    2:  /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
```

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        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.    2:  /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.    2:  /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.    2:  /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.    2:  /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.    2:  /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: F
        Pathname: /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
-----DSS*** ZRRTS:  CAUTION - Data block not found in file.  Unit:  71
Pathname: /ADOT WEST BASIN/AT SUPERSTITION/FLOW/05APR1997/5MIN/100YR/
        After ZRDINF, Record found: F
        Pathname: /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:  3
 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

                                          HYDROGRAPH MULTIPLIED BY   .25

                                          HYDROGRAPH MULTIPLIED BY   .25
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HYDROGRAPH AT	72	1370.	12.17	195.	67.	22.	.84
DIVERSION TO	D72	1370.	12.17	147.	42.	14.	.84
HYDROGRAPH AT	R72	667.	12.42	80.	25.	8.	.84
2 COMBINED AT	CPWAR	924.	12.50	289.	107.	36.	4.13
2 COMBINED AT	EMFWAR	1599.	14.08	843.	346.	130.	20.94
ROUTED TO	WARTKN	1534.	14.25	840.	345.	129.	20.94
HYDROGRAPH AT	70B	628.	12.17	89.	30.	10.	.38
DIVERSION TO	D70B	628.	12.17	68.	19.	6.	.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.	17.	.64
DIVERSION TO	D76B	1119.	12.17	118.	33.	11.	.64
HYDROGRAPH AT	R76B	457.	12.42	59.	18.	6.	.64
2 COMBINED AT	KNOX	447.	12.42	91.	29.	10.	1.02
2 COMBINED AT	EMFKNX	1634.	14.25	890.	369.	137.	21.96
HYDROGRAPH AT	65A	1235.	13.00	244.	62.	21.	2.54
DIVERSION TO	65A1	457.	13.00	90.	23.	8.	2.54
HYDROGRAPH AT	REMA1	778.	13.00	154.	39.	13.	2.54
DIVERSION TO	65A2a	223.	13.00	44.	11.	4.	2.54
HYDROGRAPH AT	REMA2	556.	13.00	110.	28.	9.	2.54
DIVERSION TO	65A2b	87.	13.00	17.	4.	1.	2.54
HYDROGRAPH AT	REMA3	469.	13.00	93.	23.	8.	2.54
DIVERSION TO	65A2c	62.	13.00	12.	3.	1.	2.54
HYDROGRAPH AT	65A3	407.	13.00	80.	20.	7.	2.54
HYDROGRAPH AT	CAP1A	710.	12.67	132.	36.	12.	.96
ROUTED TO	RCAP1A	625.	13.33	132.	36.	12.	.96
ROUTED TO	RRCP1A	618.	13.33	132.	36.	12.	.96
2 COMBINED AT	C65A1	959.	13.00	213.	56.	19.	1.81
ROUTED TO	RCHL1	958.	13.08	213.	56.	19.	1.81

+	DIVERSION TO D66D	633.	12.08	55.	16.	5.	.31
+	HYDROGRAPH AT R66D	283.	12.25	30.	9.	3.	.31
+	HYDROGRAPH AT 61A	764.	12.17	92.	30.	10.	.52
+	DIVERSION TO D61A	764.	12.17	76.	21.	7.	.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.	17.	1.09
+	DIVERSION TO D61B	1122.	12.42	150.	41.	14.	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.	12.	.58
+	DIVERSION TO D67E	743.	12.33	91.	25.	8.	.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	957.	14.25	774.	456.	167.	18.55
+	ROUTED TO 66T70A	954.	14.33	773.	456.	167.	18.55
+	ROUTED TO 66T70B	954.	14.33	772.	456.	167.	18.55
+	ROUTED TO CULVT	947.	14.33	769.	456.	167.	18.55
+	ROUTED TO 66T70C	944.	14.58	767.	455.	167.	18.55
+	HYDROGRAPH AT 62A	782.	12.00	86.	30.	10.	.38
+	DIVERSION TO D62A	782.	12.00	58.	17.	6.	.38
+	HYDROGRAPH AT R62A	509.	12.17	43.	13.	4.	.38
+	ROUTED TO 62ATC	345.	12.33	42.	13.	4.	.38
+	HYDROGRAPH AT 62C	803.	12.17	95.	31.	10.	.55
+	DIVERSION TO D62C	724.	12.08	55.	16.	5.	.55
+	HYDROGRAPH AT R62C	763.	12.25	52.	15.	5.	.55
+	2 COMBINED AT C62C	1045.	12.25	93.	28.	9.	.93
+	ROUTED TO 62CTE	649.	12.50	91.	28.	9.	.93

+	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	678.	12.50	98.	30.	10.	1.08
+	ROUTED TO	62T68A	363.	12.92	94.	30.	10.	1.08
+	HYDROGRAPH AT	68A	675.	12.08	74.	25.	8.	.35
+	DIVERSION TO	D68A	675.	12.08	55.	16.	5.	.35
+	HYDROGRAPH AT	R68A	309.	12.25	30.	9.	3.	.35
+	2 COMBINED AT	CP68A	404.	12.92	120.	38.	13.	1.43
+	ROUTED TO	68T70A	350.	13.17	117.	38.	13.	1.43
+	2 COMBINED AT	OUTLET	1064.	13.42	858.	488.	178.	19.98
+	ROUTED TO	R-OUT	1063.	14.42	857.	488.	178.	19.98
+	HYDROGRAPH AT	70A	1107.	12.08	120.	40.	13.	.54
+	DIVERSION TO	D70A	1107.	12.08	94.	26.	9.	.54
+	HYDROGRAPH AT	R70A	353.	12.25	43.	13.	4.	.54
+	2 COMBINED AT	C70A	1099.	13.50	877.	498.	181.	20.52
+	ROUTED TO	70T76A	1081.	14.67	870.	497.	181.	20.52
+	HYDROGRAPH AT	76A	2065.	12.58	411.	131.	44.	1.91
+	DIVERSION TO	D76A	2065.	12.58	338.	93.	31.	1.91
+	HYDROGRAPH AT	R76A	751.	13.08	123.	38.	13.	1.91
+	2 COMBINED AT	C76A	1235.	13.83	954.	527.	191.	22.43
+	ROUTED TO	76ATPR	1175.	14.42	938.	526.	191.	22.43
+	2 COMBINED AT	EMFSTN	2575.	14.33	1698.	845.	311.	44.39
+	ROUTED TO	KNXTRY	2510.	14.58	1688.	843.	311.	44.39
+	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.	8.	1.37
+	ROUTED TO	73BTC	293.	14.00	95.	25.	8.	1.37
+	HYDROGRAPH AT	73C	1353.	12.00	134.	46.	15.	.58
+	DIVERSION TO	D73C	1353.	12.00	103.	29.	10.	.58
+	HYDROGRAPH AT	R73C	410.	12.17	54.	17.	6.	.58
+	2 COMBINED AT	CP73C	405.	12.17	146.	41.	14.	1.95
+	ROUTED TO	73T74C	322.	14.33	144.	41.	14.	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	47.	15.25	36.	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.	6.	1.08
+	ROUTED TO	74BTC	46.	15.58	36.	18.	6.	1.08
+	HYDROGRAPH AT	74C	746.	12.00	82.	28.	9.	.34
+	DIVERSION TO	D74C	746.	12.00	62.	18.	6.	.34
+	HYDROGRAPH AT	R74C	335.	12.17	34.	10.	3.	.34
+	3 COMBINED AT	CP74C	374.	14.33	201.	68.	23.	3.37
+	ROUTED TO	74CT75	369.	14.50	199.	68.	23.	3.37
+	HYDROGRAPH AT	75	251.	14.75	114.	30.	10.	4.01
+	2 COMBINED AT	C75	604.	14.67	307.	96.	32.	7.38
+	ROUTED TO	75TPC	602.	14.75	306.	96.	32.	7.38
+	HYDROGRAPH AT	77A	526.	13.75	164.	41.	14.	1.74
+	ROUTED TO	77ATB	451.	14.17	163.	41.	14.	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.	15.	2.10

+ ROUTED TO	77BTC	443.	14.50	172.	44.	15.	2.10
+ HYDROGRAPH AT	77C	660.	12.00	65.	22.	7.	.28
+ DIVERSION TO	D77C	660.	12.00	50.	14.	5.	.28
+ HYDROGRAPH AT	R77C	212.	12.08	26.	8.	3.	.28
+ 2 COMBINED AT	C77C	458.	14.50	195.	51.	17.	2.38
+ ROUTED TO	77CT78	452.	14.67	194.	51.	17.	2.38
+ HYDROGRAPH AT	78A	568.	13.75	177.	44.	15.	1.88
+ ROUTED TO	78ATB	466.	14.42	177.	44.	15.	1.88
+ HYDROGRAPH AT	78B	610.	12.17	65.	17.	6.	.39
+ 2 COMBINED AT	C78B	610.	12.25	237.	60.	20.	2.27
+ ROUTED TO	78BTC	503.	12.50	237.	60.	20.	2.27
+ HYDROGRAPH AT	78C	646.	12.00	69.	22.	7.	.28
+ DIVERSION TO	D78C	610.	12.00	43.	12.	4.	.28
+ HYDROGRAPH AT	R78C	512.	12.08	35.	10.	3.	.28
+ 3 COMBINED AT	C78C	907.	14.67	456.	120.	40.	4.93
+ ROUTED TO	78CT79	899.	14.92	453.	119.	40.	4.93
+ HYDROGRAPH AT	79A	902.	13.50	266.	67.	22.	2.01
+ 2 COMBINED AT	C79A1	1422.	13.58	708.	184.	61.	6.94
+ HYDROGRAPH AT	78F	1028.	14.17	384.	97.	32.	4.19
+ HYDROGRAPH AT	82A1	1069.	13.50	291.	73.	24.	3.12
+ 2 COMBINED AT	C82A1	1637.	13.50	667.	168.	56.	7.31
+ ROUTED TO	DB82A1	163.	15.92	153.	134.	97.	7.31
+ ROUTED TO	PS-9	163.	15.92	153.	134.	97.	7.31
+ HYDROGRAPH AT	CAP2	64.	20.00	64.	64.	62.	.01
+ ROUTED TO	RCAP2	64.	21.17	64.	64.	61.	.01
+ HYDROGRAPH AT	82A2	839.	14.75	374.	99.	33.	4.13
+ 2 COMBINED AT	CP82A2	876.	14.75	414.	155.	94.	4.14
+ HYDROGRAPH AT	82A4	597.	13.83	199.	50.	17.	2.13
+ ROUTED TO	82A4T3	590.	14.00	198.	50.	17.	2.13

+	HYDROGRAPH AT	82A3	508.	14.17	188.	48.	16.	2.02
+	2 COMBINED AT	CP82A3	1057.	14.08	381.	96.	32.	4.15
+	2 COMBINED AT	CP82A5	1594.	14.08	784.	249.	125.	8.29
+	ROUTED TO	DB82B	329.	16.83	312.	244.	125.	8.29
+	ROUTED TO	MN-1	329.	16.92	312.	244.	125.	8.29
+	2 COMBINED AT	CP82A6	470.	17.00	454.	369.	219.	15.60
+	ROUTED TO	82TBOX	470.	17.00	454.	369.	219.	15.60
+	ROUTED TO	BOXCLV	470.	17.08	454.	369.	219.	15.60
+	ROUTED TO	BOXT78	470.	17.33	454.	369.	218.	15.60
+	HYDROGRAPH AT	78D	1488.	12.17	186.	60.	20.	.89
+	DIVERSION TO	D78D	1488.	12.17	154.	42.	14.	.89
+	HYDROGRAPH AT	R78D	334.	12.50	55.	17.	6.	.89
+	HYDROGRAPH AT	82B	1496.	12.17	174.	57.	19.	.92
+	DIVERSION TO	D82	14.	1.08	2.	1.	0.	.92
+	HYDROGRAPH AT	R82	1496.	12.17	174.	57.	19.	.92
+	DIVERSION TO	TRW	1496.	12.17	174.	55.	18.	.92
+	HYDROGRAPH AT	DTTRW	6.	18.92	5.	1.	0.	.92
+	3 COMBINED AT	C78D	488.	17.33	471.	380.	223.	17.41
+	ROUTED TO	78DTE	488.	17.67	471.	379.	222.	17.41
+	HYDROGRAPH AT	78E	799.	12.75	149.	38.	13.	1.01
+	HYDROGRAPH AT	83	1321.	12.25	190.	62.	21.	1.01
+	DIVERSION TO	D83	1321.	12.25	150.	42.	14.	1.01
+	HYDROGRAPH AT	R83	523.	12.58	66.	21.	7.	1.01
+	3 COMBINED AT	C78E	1178.	12.75	557.	423.	239.	19.43
+	ROUTED TO	78ET84	966.	13.17	550.	422.	238.	19.43
+	HYDROGRAPH AT	84	1254.	12.25	185.	61.	20.	.99
+	DIVERSION TO	D84	1254.	12.25	154.	43.	14.	.99
+	HYDROGRAPH AT	R84	314.	12.75	57.	18.	6.	.99
+	2 COMBINED AT	C84	1085.	13.08	593.	436.	243.	20.42

+	ROUTED TO	84T79B	1059.	13.17	591.	436.	243.	20.42
+	HYDROGRAPH AT	79B	643.	13.08	152.	38.	13.	1.00
+	2 COMBINED AT	C79B1	1638.	13.17	704.	467.	254.	21.42
+	ROUTED TO	79BTB2	1596.	13.25	703.	467.	254.	21.42
+	2 COMBINED AT	C79B2	2748.	13.50	1322.	627.	307.	28.36
+	ROUTED TO	79TPC2	2718.	13.50	1318.	627.	307.	28.36
+	2 COMBINED AT	CPPWR	2918.	13.58	1552.	698.	330.	35.74
+	ROUTED TO	PWRT80	2899.	13.67	1549.	698.	330.	35.74
+	HYDROGRAPH AT	80A	2344.	12.83	575.	182.	61.	2.64
+	DIVERSION TO	D80A	71.	8.83	53.	17.	6.	2.64
+	HYDROGRAPH AT	R80A	2344.	12.83	575.	166.	55.	2.64
+	2 COMBINED AT	CP80A	3709.	13.33	1997.	831.	377.	38.38
+	ROUTED TO	PWRSAN	3700.	13.42	1994.	831.	377.	38.38
+	2 COMBINED AT	EMFPOW	4662.	14.50	3180.	1576.	652.	82.77
+	ROUTED TO	POWTWI	4644.	14.67	3173.	1575.	652.	82.77
+	HYDROGRAPH AT	80B	1150.	12.50	214.	68.	23.	1.12
+	DIVERSION TO	D80B	15.	4.00	8.	2.	1.	1.12
+	HYDROGRAPH AT	R80B	1150.	12.50	214.	66.	22.	1.12
+	HYDROGRAPH AT	81B	1168.	12.25	173.	59.	20.	.84
+	DIVERSION TO	D81B	444.	11.92	55.	18.	6.	.84
+	HYDROGRAPH AT	R81B	1168.	12.25	145.	41.	14.	.84
+	2 COMBINED AT	80B81B	2033.	12.33	350.	106.	35.	1.96
+	2 COMBINED AT	EMFWIL	4712.	14.67	3333.	1654.	680.	84.73
+	ROUTED TO	WILTSP	4681.	14.92	3320.	1653.	680.	84.73
+	HYDROGRAPH AT	SUB258	983.	13.50	444.	131.	44.	3.65
+	ROUTED TO	RO259	894.	15.17	441.	131.	44.	3.65
+	HYDROGRAPH AT	SUB260	1097.	12.33	134.	40.	13.	.98
+	DIVERSION TO	RETDIV	1097.	12.33	129.	35.	12.	.98
+	HYDROGRAPH AT	RETAIN	42.	12.92	14.	5.	2.	.98

+	2 COMBINED AT	CO262	906.	15.17	450.	135.	45.	4.63
+	ROUTED TO	RO263	846.	16.75	448.	135.	45.	4.63
+	HYDROGRAPH AT	SUB264	1016.	12.42	146.	45.	15.	1.00
+	DIVERSION TO	RETDIV	1016.	12.42	136.	37.	12.	1.00
+	HYDROGRAPH AT	RETAIN	79.	12.92	24.	8.	3.	1.00
+	2 COMBINED AT	CO266	860.	16.75	461.	141.	47.	5.63
+	ROUTED TO	RO267	761.	20.08	454.	141.	47.	5.63
+	HYDROGRAPH AT	SUB268	702.	12.75	147.	46.	15.	.97
+	DIVERSION TO	RETDIV	702.	12.75	126.	34.	11.	.97
+	HYDROGRAPH AT	RETAIN	191.	13.50	36.	11.	4.	.97
+	2 COMBINED AT	CO270	770.	20.08	464.	151.	51.	6.60
+	ROUTED TO	RO283	714.	22.92	458.	151.	51.	6.60
+	HYDROGRAPH AT	88A	1103.	12.00	115.	40.	13.	.50
+	DIVERSION TO	D88A	1103.	12.00	89.	25.	8.	.50
+	HYDROGRAPH AT	R88A	426.	12.17	46.	14.	5.	.50
+	ROUTED TO	88AT89	103.	12.50	43.	14.	5.	.50
+	HYDROGRAPH AT	89A	976.	12.08	114.	39.	13.	.50
+	DIVERSION TO	D89A	976.	12.08	89.	25.	8.	.50
+	HYDROGRAPH AT	R89A	316.	12.33	45.	14.	5.	.50
+	2 COMBINED AT	C89A	400.	12.33	86.	28.	9.	1.00
+	ROUTED TO	89ATRI	197.	12.67	83.	28.	9.	1.00
+	2 COMBINED AT	C283	734.	22.92	474.	177.	59.	7.60
+	ROUTED TO	283T90	726.	23.17	471.	177.	59.	7.60
+	HYDROGRAPH AT	90A	907.	12.08	94.	32.	11.	.48
+	DIVERSION TO	D90A	907.	12.08	76.	21.	7.	.48
+	HYDROGRAPH AT	R90A	236.	12.33	33.	10.	3.	.48
+	2 COMBINED AT	C90A	733.	23.17	475.	186.	63.	8.08
+	ROUTED TO	90ATB	724.	23.42	473.	186.	63.	8.08
+	HYDROGRAPH AT	87A	1008.	12.08	112.	39.	13.	.49

+ DIVERSION TO	D87A	1008.	12.08	87.	25.	8.	.49
+ HYDROGRAPH AT	R87A	387.	12.25	44.	14.	5.	.49
+ ROUTED TO	87ATB	117.	12.83	42.	14.	5.	.49
+ HYDROGRAPH AT	87B	989.	12.08	113.	39.	13.	.49
+ DIVERSION TO	D87B	989.	12.08	87.	25.	8.	.49
+ HYDROGRAPH AT	R87B	373.	12.25	45.	14.	5.	.49
+ 2 COMBINED AT	C87	350.	12.25	84.	28.	9.	.98
+ ROUTED TO	87T88B	200.	12.83	82.	28.	9.	.98
+ HYDROGRAPH AT	88B	1001.	12.08	114.	39.	13.	.50
+ DIVERSION TO	D88B	1001.	12.08	89.	25.	8.	.50
+ HYDROGRAPH AT	R88B	344.	12.25	45.	14.	5.	.50
+ 2 COMBINED AT	C88B	295.	12.25	122.	41.	14.	1.48
+ ROUTED TO	88T89B	264.	13.08	119.	41.	14.	1.48
+ HYDROGRAPH AT	89B	1014.	12.08	113.	39.	13.	.50
+ DIVERSION TO	D89B	1014.	12.08	87.	25.	8.	.50
+ HYDROGRAPH AT	R89B	415.	12.25	45.	14.	5.	.50
+ 2 COMBINED AT	C89B	407.	12.25	159.	55.	18.	1.98
+ ROUTED TO	89TB90	311.	13.75	154.	55.	18.	1.98
+ HYDROGRAPH AT	90B	637.	12.67	122.	37.	12.	.82
+ DIVERSION TO	D90B	377.	12.33	39.	12.	4.	.82
+ HYDROGRAPH AT	R90B	637.	12.67	95.	26.	9.	.82
+ 3 COMBINED AT	C90	774.	12.75	509.	260.	87.	10.88
+ ROUTED TO	90T91	740.	23.83	504.	259.	87.	10.88
+ HYDROGRAPH AT	85	1270.	12.25	184.	61.	20.	1.00
+ DIVERSION TO	D85	1270.	12.25	152.	42.	14.	1.00
+ HYDROGRAPH AT	R85	358.	12.67	58.	19.	6.	1.00
+ ROUTED TO	85T86	213.	13.00	56.	19.	6.	1.00
+ HYDROGRAPH AT	86	1284.	12.25	185.	61.	20.	1.00
+ DIVERSION TO	D86	1284.	12.25	154.	43.	14.	1.00

+	HYDROGRAPH AT	R86	331.	12.67	57.	18.	6.	1.00
+	2 COMBINED AT	C86	353.	13.00	110.	36.	12.	2.00
+	ROUTED TO	86T91	329.	13.25	106.	36.	12.	2.00
+	HYDROGRAPH AT	91	644.	12.25	86.	28.	9.	.46
+	DIVERSION TO	D91	644.	12.25	69.	19.	6.	.46
+	HYDROGRAPH AT	RET91	200.	12.58	30.	9.	3.	.46
+	HYDROGRAPH AT	81A	1594.	12.67	346.	115.	38.	1.81
+	DIVERSION TO	D81A	28.	2.67	10.	3.	1.	1.81
+	HYDROGRAPH AT	R81A	1594.	12.67	346.	112.	37.	1.81
+	4 COMBINED AT	CP91	1815.	12.67	718.	386.	134.	15.15
+	ROUTED TO	91TEMF	1797.	12.75	717.	386.	134.	15.15
+	2 COMBINED AT	EMFRIT	5018.	14.92	3751.	1930.	774.	99.88

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

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	INTERPOLATED TO COMPUTATION INTERVAL DT	PEAK	TIME TO PEAK	VOLUME
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
FOR STORM = 1 STORM AREA (SQ MI) = .01									
PIPE_F	MANE	.75	80.00	741.75	.07	5.00	80.00	745.00	.07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1668E+02 EXCESS= .0000E+00 OUTFLOW= .1668E+02 BASIN STORAGE= .1312E-12 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00									
PIPE_F	MANE	.63	80.00	741.47	.06	5.00	80.00	745.00	.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1635E+02 EXCESS= .0000E+00 OUTFLOW= .1635E+02 BASIN STORAGE= .1315E-12 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 30.00									
PIPE_F	MANE	.63	80.00	741.47	.06	5.00	80.00	745.00	.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1621E+02 EXCESS= .0000E+00 OUTFLOW= .1622E+02 BASIN STORAGE= .1309E-12 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 60.00									
PIPE_F	MANE	.63	80.00	746.54	.06	5.00	80.00	750.00	.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1610E+02 EXCESS= .0000E+00 OUTFLOW= .1610E+02 BASIN STORAGE= .1346E-12 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00									
PIPE_F	MANE	.65	80.00	746.85	.06	5.00	80.00	750.00	.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1597E+02 EXCESS= .0000E+00 OUTFLOW= .1597E+02 BASIN STORAGE= .1324E-12 PERCENT ERROR= .0

FOR STORM = 6 STORM AREA (SQ MI) = 120.00									
PIPE_F	MANE	.67	80.00	746.57	.06	5.00	80.00	750.00	.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1583E+02 EXCESS= .0000E+00 OUTFLOW= .1583E+02 BASIN STORAGE= .1328E-12 PERCENT ERROR= .0

FOR STORM = 7 STORM AREA (SQ MI) = 150.00									
PIPE_F	MANE	.69	80.00	746.88	.06	5.00	80.00	750.00	.06

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1574E+02 EXCESS= .0000E+00 OUTFLOW= .1574E+02 BASIN STORAGE= .1330E-12 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01									
RSDW2	MANE	5.00	152.68	875.00	.39	5.00	152.68	875.00	.39

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9926E+02 EXCESS= .0000E+00 OUTFLOW= .9926E+02 BASIN STORAGE= .8423E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00									
RSDW2	MANE	5.00	148.86	875.00	.35	5.00	148.86	875.00	.35

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8950E+02 EXCESS= .0000E+00 OUTFLOW= .8951E+02 BASIN STORAGE= .8437E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 30.00									
RSDW2	MANE	5.00	146.22	875.00	.33	5.00	146.22	875.00	.33

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8321E+02 EXCESS= .0000E+00 OUTFLOW= .8322E+02 BASIN STORAGE= .8372E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 60.00									
RSDW2	MANE	5.00	143.56	875.00	.30	5.00	143.56	875.00	.30

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7686E+02 EXCESS= .0000E+00 OUTFLOW= .7687E+02 BASIN STORAGE= .8406E-03 PERCENT ERROR= .0

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          FOR STORM = 5  STORM AREA (SQ MI) =      90.00
            RSDW2  MANE         5.00    142.64    870.00       .29      5.00    142.64    870.00         .29

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7458E+02 EXCESS= .0000E+00 OUTFLOW= .7459E+02 BASIN STORAGE= .8218E-03 PERCENT ERROR=    .0


          FOR STORM = 6  STORM AREA (SQ MI) =     120.00
            RSDW2  MANE         5.00    141.62    870.00       .28      5.00    141.62    870.00         .28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7228E+02 EXCESS= .0000E+00 OUTFLOW= .7229E+02 BASIN STORAGE= .8345E-03 PERCENT ERROR=    .0


          FOR STORM = 7  STORM AREA (SQ MI) =     150.00
            RSDW2  MANE         5.00    140.95    870.00       .28      5.00    140.95    870.00         .28

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7089E+02 EXCESS= .0000E+00 OUTFLOW= .7090E+02 BASIN STORAGE= .8418E-03 PERCENT ERROR=    .0


          FOR STORM = 1  STORM AREA (SQ MI) =        .01
            65AT-3 MANE         1.33    498.85    790.67       .65      5.00    498.60    790.00         .65

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3237E+03 EXCESS= .0000E+00 OUTFLOW= .3237E+03 BASIN STORAGE= .1732E-03 PERCENT ERROR=    .0


          FOR STORM = 2  STORM AREA (SQ MI) =      10.00
            65AT-3 MANE         1.33    492.52    790.21       .60      5.00    492.51    790.00         .60

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3003E+03 EXCESS= .0000E+00 OUTFLOW= .3003E+03 BASIN STORAGE= .1738E-03 PERCENT ERROR=    .0


          FOR STORM = 3  STORM AREA (SQ MI) =      30.00
            65AT-3 MANE         1.33    488.54    786.08       .57      5.00    487.93    785.00         .57

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2852E+03 EXCESS= .0000E+00 OUTFLOW= .2852E+03 BASIN STORAGE= .1734E-03 PERCENT ERROR=    .0


          FOR STORM = 4  STORM AREA (SQ MI) =      60.00
            65AT-3 MANE         1.33    485.03    785.68       .54      5.00    484.50    785.00         .54

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2696E+03 EXCESS= .0000E+00 OUTFLOW= .2696E+03 BASIN STORAGE= .1731E-03 PERCENT ERROR=    .0


          FOR STORM = 5  STORM AREA (SQ MI) =      90.00
            65AT-3 MANE         1.33    483.64    786.14       .53      5.00    483.31    785.00         .53

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2634E+03 EXCESS= .0000E+00 OUTFLOW= .2634E+03 BASIN STORAGE= .1738E-03 PERCENT ERROR=    .0


          FOR STORM = 6  STORM AREA (SQ MI) =     120.00
            65AT-3 MANE         1.34    482.10    785.27       .52      5.00    481.84    785.00         .52

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2580E+03 EXCESS= .0000E+00 OUTFLOW= .2580E+03 BASIN STORAGE= .1738E-03 PERCENT ERROR=    .0


          FOR STORM = 7  STORM AREA (SQ MI) =     150.00
            65AT-3 MANE         1.34    481.19    785.57       .51      5.00    480.85    785.00         .51

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2541E+03 EXCESS= .0000E+00 OUTFLOW= .2541E+03 BASIN STORAGE= .1736E-03 PERCENT ERROR=    .0


          FOR STORM = 1  STORM AREA (SQ MI) =        .01
            65T66  MANE         1.05    506.38    790.65       .67      5.00    506.18    790.00         .67

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3353E+03 EXCESS= .0000E+00 OUTFLOW= .3353E+03 BASIN STORAGE= .1373E-03 PERCENT ERROR=    .0


          FOR STORM = 2  STORM AREA (SQ MI) =      10.00
            65T66  MANE         1.05    499.59    789.72       .61      5.00    499.46    790.00         .61

CONTINUITY SUMMARY (AC-FT) - INFLOW= .3073E+03 EXCESS= .0000E+00 OUTFLOW= .3073E+03 BASIN STORAGE= .1378E-03 PERCENT ERROR=    .0


          FOR STORM = 3  STORM AREA (SQ MI) =      30.00
            65T66  MANE         1.05    493.84    786.25       .58      5.00    493.26    785.00         .58
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CONTINUITY SUMMARY (AC-FT) - INFLOW= .2890E+03 EXCESS= .0000E+00 OUTFLOW= .2890E+03 BASIN STORAGE= .1378E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 60.00

65T66	MANE	1.06	487.33	786.13	.54	5.00	487.00	785.00	.54

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2708E+03 EXCESS= .0000E+00 OUTFLOW= .2708E+03 BASIN STORAGE= .1376E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

65T66	MANE	1.06	485.36	785.66	.53	5.00	484.94	785.00	.53

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2643E+03 EXCESS= .0000E+00 OUTFLOW= .2643E+03 BASIN STORAGE= .1374E-03 PERCENT ERROR= .0

FOR STORM = 6 STORM AREA (SQ MI) = 120.00

65T66	MANE	1.06	480.95	786.05	.52	5.00	480.87	785.00	.52

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2580E+03 EXCESS= .0000E+00 OUTFLOW= .2580E+03 BASIN STORAGE= .1374E-03 PERCENT ERROR= .0

FOR STORM = 7 STORM AREA (SQ MI) = 150.00

65T66	MANE	1.06	479.95	785.32	.51	5.00	479.74	785.00	.51

CONTINUITY SUMMARY (AC-FT) - INFLOW= .2541E+03 EXCESS= .0000E+00 OUTFLOW= .2541E+03 BASIN STORAGE= .1373E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

66C1T2	MANE	.75	410.00	886.49	2.94	5.00	410.00	890.00	2.94

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5231E+03 EXCESS= .0000E+00 OUTFLOW= .5231E+03 BASIN STORAGE= .9382E-04 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

66C1T2	MANE	.75	410.00	896.19	2.87	5.00	410.00	900.00	2.87

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5121E+03 EXCESS= .0000E+00 OUTFLOW= .5121E+03 BASIN STORAGE= .9382E-04 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 30.00

66C1T2	MANE	.75	409.96	916.36	2.82	5.00	409.95	915.00	2.82

CONTINUITY SUMMARY (AC-FT) - INFLOW= .5020E+03 EXCESS= .0000E+00 OUTFLOW= .5020E+03 BASIN STORAGE= .9381E-04 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 60.00

66C1T2	MANE	.75	406.85	961.09	2.78	5.00	406.84	965.00	2.78

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4948E+03 EXCESS= .0000E+00 OUTFLOW= .4948E+03 BASIN STORAGE= .9375E-04 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

66C1T2	MANE	.75	406.11	930.06	2.76	5.00	406.11	930.00	2.76

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4924E+03 EXCESS= .0000E+00 OUTFLOW= .4924E+03 BASIN STORAGE= .9378E-04 PERCENT ERROR= .0

FOR STORM = 6 STORM AREA (SQ MI) = 120.00

66C1T2	MANE	.75	406.05	930.08	2.75	5.00	406.05	930.00	2.75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4906E+03 EXCESS= .0000E+00 OUTFLOW= .4906E+03 BASIN STORAGE= .9377E-04 PERCENT ERROR= .0

FOR STORM = 7 STORM AREA (SQ MI) = 150.00

66C1T2	MANE	.75	406.02	930.08	2.75	5.00	406.02	930.00	2.75

CONTINUITY SUMMARY (AC-FT) - INFLOW= .4895E+03 EXCESS= .0000E+00 OUTFLOW= .4895E+03 BASIN STORAGE= .9377E-04 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

66CTD	MANE	.81	898.70	790.07	1.27	5.00	898.70	790.00	1.27

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8585E+03 EXCESS= .0000E+00 OUTFLOW= .8584E+03 BASIN STORAGE= .1199E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

66CTD	MANE	.83	830.82	857.19	1.21	5.00	830.74	860.00	1.21

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8195E+03 EXCESS= .0000E+00 OUTFLOW= .8194E+03 BASIN STORAGE= .1197E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 30.00

66CTD	MANE	.83	799.36	879.70	1.17	5.00	799.25	880.00	1.17

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7910E+03 EXCESS= .0000E+00 OUTFLOW= .7910E+03 BASIN STORAGE= .1197E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 60.00

66CTD	MANE	.84	784.50	869.62	1.13	5.00	784.49	870.00	1.13

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7656E+03 EXCESS= .0000E+00 OUTFLOW= .7656E+03 BASIN STORAGE= .1198E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

66CTD	MANE	.84	781.94	869.35	1.12	5.00	781.94	870.00	1.12

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7567E+03 EXCESS= .0000E+00 OUTFLOW= .7567E+03 BASIN STORAGE= .1195E-03 PERCENT ERROR= .0

FOR STORM = 6 STORM AREA (SQ MI) = 120.00

66CTD	MANE	.84	777.99	871.04	1.10	5.00	777.96	870.00	1.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7486E+03 EXCESS= .0000E+00 OUTFLOW= .7486E+03 BASIN STORAGE= .1196E-03 PERCENT ERROR= .0

FOR STORM = 7 STORM AREA (SQ MI) = 150.00

66CTD	MANE	.84	775.52	869.95	1.10	5.00	775.52	870.00	1.10

CONTINUITY SUMMARY (AC-FT) - INFLOW= .7437E+03 EXCESS= .0000E+00 OUTFLOW= .7436E+03 BASIN STORAGE= .1196E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

RC-WA	MANE	.70	909.58	815.44	1.08	5.00	909.54	815.00	1.08

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9235E+03 EXCESS= .0000E+00 OUTFLOW= .9235E+03 BASIN STORAGE= .1037E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

RC-WA	MANE	.71	845.53	861.07	1.03	5.00	845.43	860.00	1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8829E+03 EXCESS= .0000E+00 OUTFLOW= .8829E+03 BASIN STORAGE= .1038E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 30.00

RC-WA	MANE	.72	815.02	880.38	1.00	5.00	815.01	880.00	1.00

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8540E+03 EXCESS= .0000E+00 OUTFLOW= .8540E+03 BASIN STORAGE= .1037E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 60.00

RC-WA	MANE	.72	798.36	876.09	.97	5.00	798.31	875.00	.97

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8282E+03 EXCESS= .0000E+00 OUTFLOW= .8282E+03 BASIN STORAGE= .1036E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

RC-WA	MANE	.72	795.59	875.95	.96	5.00	795.56	875.00	.96

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8192E+03 EXCESS= .0000E+00 OUTFLOW= .8192E+03 BASIN STORAGE= .1038E-03 PERCENT ERROR= .0

FOR STORM = 6 STORM AREA (SQ MI) = 120.00

RC-WA	MANE	.72	791.28	875.48	.95	5.00	791.23	875.00	.95

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8108E+03 EXCESS= .0000E+00 OUTFLOW= .8108E+03 BASIN STORAGE= .1038E-03 PERCENT ERROR= .0

FOR STORM = 7 STORM AREA (SQ MI) = 150.00

RC-WA	MANE	.72	788.53	875.35	.94	5.00	788.50	875.00	.94

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8057E+03 EXCESS= .0000E+00 OUTFLOW= .8057E+03 BASIN STORAGE= .1038E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

66T66D	MANE	1.02	909.19	791.03	1.18	5.00	909.13	790.00	1.18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1007E+04 EXCESS= .0000E+00 OUTFLOW= .1007E+04 BASIN STORAGE= .1498E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

66T66D	MANE	1.03	845.39	861.57	1.11	5.00	845.31	865.00	1.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9528E+03 EXCESS= .0000E+00 OUTFLOW= .9528E+03 BASIN STORAGE= .1499E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 30.00

66T66D	MANE	1.04	814.84	880.39	1.07	5.00	814.80	880.00	1.07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9182E+03 EXCESS= .0000E+00 OUTFLOW= .9182E+03 BASIN STORAGE= .1498E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 60.00

66T66D	MANE	1.04	798.26	876.74	1.03	5.00	798.17	875.00	1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8836E+03 EXCESS= .0000E+00 OUTFLOW= .8836E+03 BASIN STORAGE= .1500E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

66T66D	MANE	1.05	795.49	876.30	1.02	5.00	795.42	875.00	1.02

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8712E+03 EXCESS= .0000E+00 OUTFLOW= .8712E+03 BASIN STORAGE= .1501E-03 PERCENT ERROR= .0

FOR STORM = 6 STORM AREA (SQ MI) = 120.00

66T66D	MANE	1.05	791.14	876.20	1.00	5.00	791.04	875.00	1.00

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8590E+03 EXCESS= .0000E+00 OUTFLOW= .8590E+03 BASIN STORAGE= .1500E-03 PERCENT ERROR= .0

FOR STORM = 7 STORM AREA (SQ MI) = 150.00

66T66D	MANE	1.05	788.40	875.77	.99	5.00	788.34	875.00	.99

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8516E+03 EXCESS= .0000E+00 OUTFLOW= .8516E+03 BASIN STORAGE= .1501E-03 PERCENT ERROR= .0

FOR STORM = 1 STORM AREA (SQ MI) = .01

66-66D	MANE	2.19	908.46	792.01	1.18	5.00	907.93	790.00	1.18

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1007E+04 EXCESS= .0000E+00 OUTFLOW= .1007E+04 BASIN STORAGE= .3240E-03 PERCENT ERROR= .0

FOR STORM = 2 STORM AREA (SQ MI) = 10.00

66-66D	MANE	2.23	845.24	865.95	1.11	5.00	845.22	865.00	1.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9529E+03 EXCESS= .0000E+00 OUTFLOW= .9528E+03 BASIN STORAGE= .3228E-03 PERCENT ERROR= .0

FOR STORM = 3 STORM AREA (SQ MI) = 30.00

66-66D	MANE	2.24	814.44	881.31	1.07	5.00	814.29	880.00	1.07

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9182E+03 EXCESS= .0000E+00 OUTFLOW= .9182E+03 BASIN STORAGE= .3230E-03 PERCENT ERROR= .0

FOR STORM = 4 STORM AREA (SQ MI) = 60.00

66-66D	MANE	2.25	798.12	878.20	1.03	5.00	798.05	880.00	1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8836E+03 EXCESS= .0000E+00 OUTFLOW= .8836E+03 BASIN STORAGE= .3230E-03 PERCENT ERROR= .0

FOR STORM = 5 STORM AREA (SQ MI) = 90.00

66-66D	MANE	2.25	795.30	878.80	1.02	5.00	795.12	880.00	1.02

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8712E+03 EXCESS= .0000E+00 OUTFLOW= .8712E+03 BASIN STORAGE= .3259E-03 PERCENT ERROR= .0

```
          FOR STORM = 6  STORM AREA (SQ MI) =      120.00
            66-66D  MANE          2.26    790.91    877.52       1.00       5.00    790.76    880.00         1.00

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8590E+03 EXCESS= .0000E+00 OUTFLOW= .8590E+03 BASIN STORAGE= .3257E-03 PERCENT ERROR=     .0

          FOR STORM = 7  STORM AREA (SQ MI) =      150.00
            66-66D  MANE          2.26    788.17    878.12        .99       5.00    787.96    875.00          .99

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8516E+03 EXCESS= .0000E+00 OUTFLOW= .8516E+03 BASIN STORAGE= .3229E-03 PERCENT ERROR=     .0

          FOR STORM = 1  STORM AREA (SQ MI) =         .01
            66T70A  MANE          .87   1217.38    814.86       1.11       5.00   1217.29    815.00         1.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1098E+04 EXCESS= .0000E+00 OUTFLOW= .1097E+04 BASIN STORAGE= .1355E-03 PERCENT ERROR=     .1

          FOR STORM = 2  STORM AREA (SQ MI) =       10.00
            66T70A  MANE          .90   1007.12    845.15       1.03       5.00   1007.10    845.00         1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1023E+04 EXCESS= .0000E+00 OUTFLOW= .1022E+04 BASIN STORAGE= .1353E-03 PERCENT ERROR=     .1

          FOR STORM = 3  STORM AREA (SQ MI) =       30.00
            66T70A  MANE          .92    925.18    867.02        .99       5.00    925.14    870.00          .99

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9751E+03 EXCESS= .0000E+00 OUTFLOW= .9747E+03 BASIN STORAGE= .1358E-03 PERCENT ERROR=     .0

          FOR STORM = 4  STORM AREA (SQ MI) =       60.00
            66T70A  MANE          .93    835.60    879.45        .94       5.00    835.57    880.00          .94

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9272E+03 EXCESS= .0000E+00 OUTFLOW= .9269E+03 BASIN STORAGE= .1355E-03 PERCENT ERROR=     .0

          FOR STORM = 5  STORM AREA (SQ MI) =       90.00
            66T70A  MANE          .94    829.86    872.94        .92       5.00    829.85    870.00          .92

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9101E+03 EXCESS= .0000E+00 OUTFLOW= .9098E+03 BASIN STORAGE= .1355E-03 PERCENT ERROR=     .0

          FOR STORM = 6  STORM AREA (SQ MI) =      120.00
            66T70A  MANE          .94    824.14    875.12        .90       5.00    824.13    875.00          .90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8931E+03 EXCESS= .0000E+00 OUTFLOW= .8928E+03 BASIN STORAGE= .1353E-03 PERCENT ERROR=     .0

          FOR STORM = 7  STORM AREA (SQ MI) =      150.00
            66T70A  MANE          .94    805.75    889.63        .89       5.00    805.09    890.00          .89

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8830E+03 EXCESS= .0000E+00 OUTFLOW= .8827E+03 BASIN STORAGE= .1358E-03 PERCENT ERROR=     .0

          FOR STORM = 1  STORM AREA (SQ MI) =         .01
            66T70B  MANE          1.47   1214.22    816.66       1.11       5.00   1213.71    815.00         1.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1097E+04 EXCESS= .0000E+00 OUTFLOW= .1097E+04 BASIN STORAGE= .2309E-03 PERCENT ERROR=     .0

          FOR STORM = 2  STORM AREA (SQ MI) =       10.00
            66T70B  MANE          1.53   1006.61    845.16       1.03       5.00   1006.56    845.00         1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1022E+04 EXCESS= .0000E+00 OUTFLOW= .1022E+04 BASIN STORAGE= .2300E-03 PERCENT ERROR=     .0

          FOR STORM = 3  STORM AREA (SQ MI) =       30.00
            66T70B  MANE          1.55    924.98    870.49        .99       5.00    924.97    870.00          .99

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9747E+03 EXCESS= .0000E+00 OUTFLOW= .9747E+03 BASIN STORAGE= .2297E-03 PERCENT ERROR=     .0

          FOR STORM = 4  STORM AREA (SQ MI) =       60.00
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          66T70B  MANE         1.58    835.39    880.48       .94      5.00    835.38    880.00         .94

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9269E+03 EXCESS= .0000E+00 OUTFLOW= .9269E+03 BASIN STORAGE= .2292E-03 PERCENT ERROR=    .0

         FOR STORM = 5  STORM AREA (SQ MI) =      90.00
          66T70B  MANE         1.59    829.82    873.77       .92      5.00    829.79    875.00         .92

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9098E+03 EXCESS= .0000E+00 OUTFLOW= .9097E+03 BASIN STORAGE= .2293E-03 PERCENT ERROR=    .0

         FOR STORM = 6  STORM AREA (SQ MI) =     120.00
          66T70B  MANE         1.59    823.64    876.56       .90      5.00    823.49    875.00         .90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8928E+03 EXCESS= .0000E+00 OUTFLOW= .8928E+03 BASIN STORAGE= .2298E-03 PERCENT ERROR=    .0

         FOR STORM = 7  STORM AREA (SQ MI) =     150.00
          66T70B  MANE         1.60    804.30    888.65       .89      5.00    804.28    890.00         .89

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8826E+03 EXCESS= .0000E+00 OUTFLOW= .8826E+03 BASIN STORAGE= .2294E-03 PERCENT ERROR=    .0

         FOR STORM = 1  STORM AREA (SQ MI) =        .01
            CULVT  MANE         1.11   1201.03    815.66      1.11      5.00   1200.39    815.00        1.11

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1097E+04 EXCESS= .0000E+00 OUTFLOW= .1095E+04 BASIN STORAGE= .1738E-03 PERCENT ERROR=    .1

         FOR STORM = 2  STORM AREA (SQ MI) =      10.00
            CULVT  MANE         1.15    998.58    845.61      1.03      5.00    998.46    845.00        1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW= .1022E+04 EXCESS= .0000E+00 OUTFLOW= .1021E+04 BASIN STORAGE= .1734E-03 PERCENT ERROR=    .1

         FOR STORM = 3  STORM AREA (SQ MI) =      30.00
            CULVT  MANE         1.17    919.19    870.57       .98      5.00    919.13    870.00         .98

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9747E+03 EXCESS= .0000E+00 OUTFLOW= .9738E+03 BASIN STORAGE= .1731E-03 PERCENT ERROR=    .1

         FOR STORM = 4  STORM AREA (SQ MI) =      60.00
            CULVT  MANE         1.20    830.68    880.13       .94      5.00    830.67    880.00         .94

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9269E+03 EXCESS= .0000E+00 OUTFLOW= .9261E+03 BASIN STORAGE= .1735E-03 PERCENT ERROR=    .1

         FOR STORM = 5  STORM AREA (SQ MI) =      90.00
            CULVT  MANE         1.20    824.52    875.31       .92      5.00    824.51    875.00         .92

CONTINUITY SUMMARY (AC-FT) - INFLOW= .9097E+03 EXCESS= .0000E+00 OUTFLOW= .9090E+03 BASIN STORAGE= .1738E-03 PERCENT ERROR=    .1

         FOR STORM = 6  STORM AREA (SQ MI) =     120.00
            CULVT  MANE         1.20    818.21    879.04       .90      5.00    818.12    880.00         .90

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8928E+03 EXCESS= .0000E+00 OUTFLOW= .8921E+03 BASIN STORAGE= .1739E-03 PERCENT ERROR=    .1

         FOR STORM = 7  STORM AREA (SQ MI) =     150.00
            CULVT  MANE         1.20    799.77    889.24       .89      5.00    799.33    890.00         .89

CONTINUITY SUMMARY (AC-FT) - INFLOW= .8826E+03 EXCESS= .0000E+00 OUTFLOW= .8819E+03 BASIN STORAGE= .1729E-03 PERCENT ERROR=    .1


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


  -----DSS---ZCLOSE Unit:  71,   File: N60EM.DSS
            Pointer Utilization:    .30
            Number of Records:     75
            File Size:    137.8  Kbytes
            Percent Inactive:     .0
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MATCH LINE SEE SHEET 1 OF 2

SEE DETAIL RIGHT

(CAP)/(CAP)

Superstition Freeway

Baseline Road

Guadalupe Road

Elliot Road

Ray Road

Pecos Road

Germann Road

Queen Creek Road

Williams Field Road

Proposed Santan Freeway

Floodway

Sossaman Road

Hawes Road

Crismon Road

Ellsworth Road

Signal Butte Road

Mountain Road

Meridian Road

Rittenhouse Road

Maricopa

East

Sunland Springs Village

SRP Corridor

Siphon Draw Wash

DETAIL

N

N.T.S.

LEGEND

- DIVERSION HYDROGRAPH
- SUB-BASIN HYDROGRAPH
- CHANNEL ROUTING
- COMBINE HYDROGRAPH
- INFLOW FROM OUTSIDE STUDY AREA
- STORAGE ROUTING

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY			
PLAN	BY SZ	DATE JULY. '05	SIPHON DRAW DRAINAGE IMPROVEMENTS
PLANS CHK.			CONTRACT FCD 2003-C019
DRAWN BY	DH	JULY. '05	HEC-1 SCHEMATIC FOR PREFERRED ALTERNATIVE SOUTH US 60 EAST MESA ADMP
SUBMITTED BY: DATE:			PLATE 12

w:\2003Projects\031902_Siphon Draw\Hydrology\FCDMC\July20_05\Prof\HEC1.dgn 07/20/2005 05:01:05 PM

APPENDIX B

Summary of Peak Flows at 104th Street and Elliot Road

WOOD/PATEL

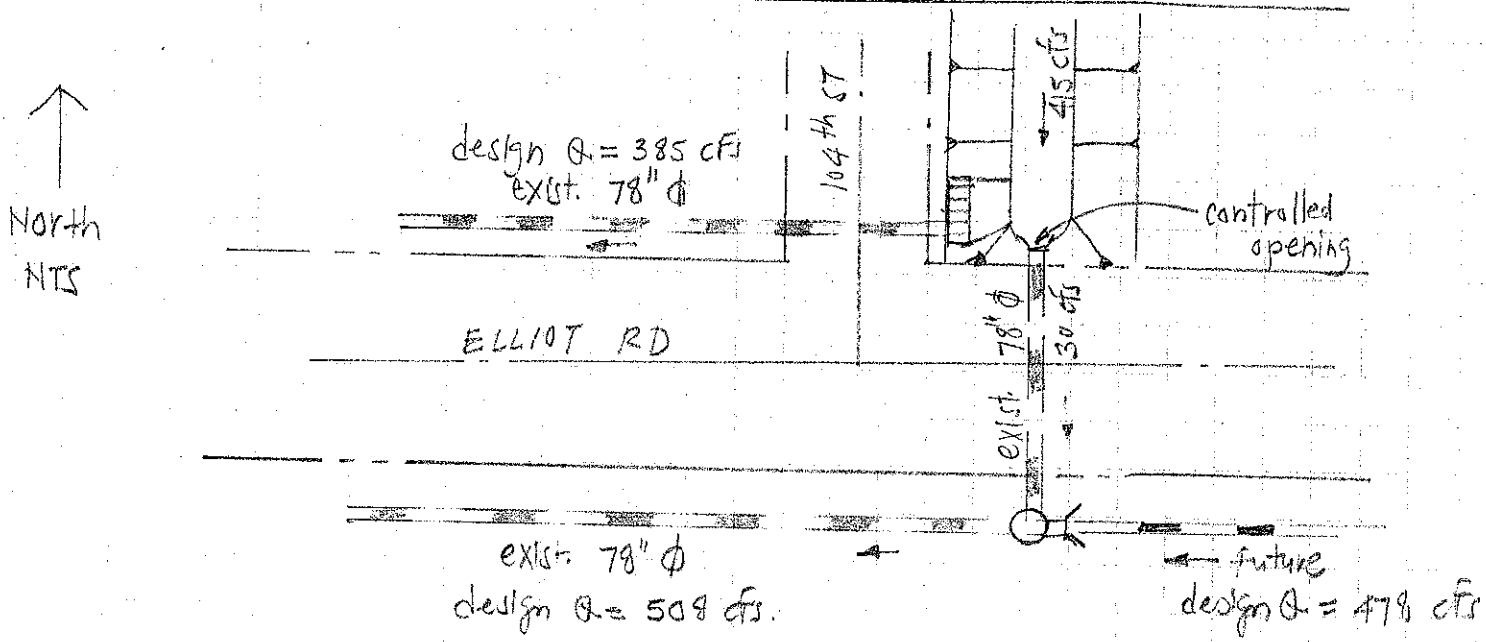
CIVIL ENGINEERS • HYDROLOGISTS • LAND SURVEYORS • CONSTRUCTION MANAGERS

PROJECT Siphon Draw No.

CALC'D BY Acp CHK'D BY

SHEET OF DATE 6/05

Summary of Peak flows @ 104th ST/ Elliot Road.



EXISTING DESIGN PARAMETERS

WOOD/PATEL

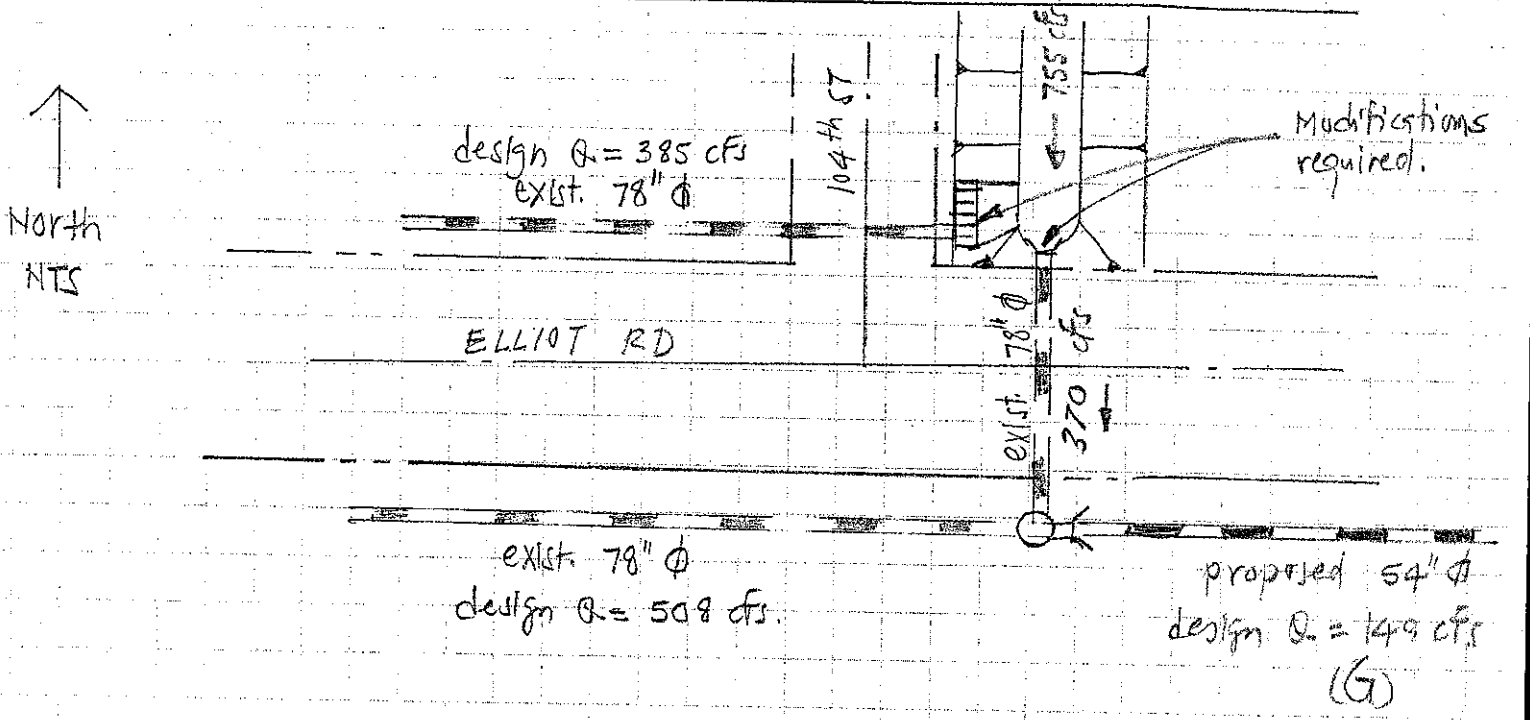
CIVIL ENGINEERS • HYDROLOGISTS • LAND SURVEYORS • CONSTRUCTION MANAGERS

PROJECT Siphon Draw NO.

CALC'D BY ACP CHK'D BY

SHEET OF DATE 6/05

Summary of Peak Flows @ 104th ST/ Elliot Road.



(G)

Modified Design Parameters

Phase 1 - Design 3 Way

APPENDIX C

Supporting Cost Estimation Sheets

Siphon Draw Drainage Improvements Alternatives
Flood Control District of Maricopa County W/P # 031902.04
FCD 2003 C019

Preliminary Opinion of Probable Cost for Alternative 1

MAJOR SYSTEM ELEMENTS

ITEM	DESCRIPTION	UNIT PRICE	UNIT	QUANTITY	AMOUNT
1	Channel "E" Excavation	$6	CY	25,600	$153,600
2	Drop Structure	$310.00	CY	91	$28,210
3	78" RGRCP Pipe "D"	$270	LF	2,600	$702,000
4	54" RGRCP Pipe "F"	$150	LF	1,300	$195,000
5	54" RGRCP Pipe "G"	$150	LF	5,200	$780,000
6	Basin "A" Excavation	$6	CY	194,000	$1,164,000
7	Basin "B" Excavation	$6	CY	97,000	$582,000
8	Manholes	$6,000.00	EA	23	$138,000
9	Diversion Structure	$150,000	EA	2	$300,000
10	Landscaping	$0.50	SF	1,271,952	$635,976
			SUBTOTAL MAJOR SYSTEM ELEMENTS		$4,678,786
			CONTINGENCIES:		
			Construction	25%	$1,169,697
			Design & Field Engineering	18%	$1,052,727
			Change Orders	7%	$409,394
			TOTAL MAJOR SYSTEM ELEMENTS		**$7,310,603**

1. Construction Contingencies @ 25% of the Total Construction Cost
2. Design and Field Engineering Costs @ 18% of the sum of Total Construction Cost and Construction Contingencies
3. Change Orders @ 7% of the sum of Total Construction Cost and Construction Contingencies
4. The cost estimates were performed for selected drainage elements only for alternative selection purposes. All common items were excluded from these costs. Therefore, the cost estimates shown are not the true total construction cost of any alternatives.

Siphon Draw Drainage Improvements Alternatives
Flood Control District of Maricopa County W/P # 031902.04
FCD 2003 C019

Preliminary Opinion of Probable Cost for Alternative 2

MAJOR SYSTEM ELEMENTS

ITEM	DESCRIPTION	UNIT PRICE	UNIT	QUANTITY	AMOUNT
1	Channel "D" Excavation	$6	CY	41,600	$249,600
2	Channel "E" Excavation	$6	CY	17,100	$102,600
3	Drop Structure	$310	CY	445	$137,950
4	54" RGRCP Pipe "F"	$150	LF	1,300	$195,000
5	54" RGRCP Pipe "G"	$150	LF	5,200	$780,000
6	Basin "A" Excavation	$6	CY	113,000	$678,000
7	Basin "B" Excavation	$6	CY	97,000	$582,000
8	Basin "C" Excavation	$6	CY	81,000	$486,000
9	RCBC for Channel "D"	$150,000.00	EA	1	$150,000
10	Manholes	$6,000.00	EA	17	$102,000
11	Diversion Structure	$150,000	EA	3	$450,000
12	Landscaping	$0.50	SF	1,812,096	$906,048
				SUBTOTAL MAJOR SYSTEM ELEMENTS	$4,819,198
				CONTINGENCIES:	
				Construction	25% $1,204,800
				Design & Field Engineering	18% $1,084,320
				Change Orders	7% $421,680
				TOTAL MAJOR SYSTEM ELEMENTS	**$7,529,997**

1. Construction Contingencies @ 25% of the Total Construction Cost
2. Design and Field Engineering Costs @ 18% of the sum of Total Construction Cost and Construction Contingencies
3. Change Orders @ 7% of the sum of Total Construction Cost and Construction Contingencies
4. The cost estimates were performed for selected drainage elements only for alternative selection purposes. All common items were excluded from these costs. Therefore, the cost estimates shown are not the true total construction cost of any alternatives.

Siphon Draw Drainage Improvements Alternatives

Flood Control District of Maricopa County W/P # 031902.04

FCD 2003 C019

Preliminary Opinion of Probable Cost for Alternative 3

MAJOR SYSTEM ELEMENTS

ITEM	DESCRIPTION	UNIT PRICE	UNIT	QUANTITY	AMOUNT
1	Channel "D" Excavation	$6	CY	83,970	$503,820
2	Channel "E" Excavation	$6	CY	17,067	$102,402
3	Drop Structure	$310	CY	816	$252,960
4	54" RGRCP Pipe "F"	$150	LF	1,300	$195,000
5	54" RGRCP Pipe "G"	$150	LF	5,200	$780,000
6	Basin "A" Excavation	$6	CY	10,000	$60,000
7	Basin "B" Excavation	$6	CY	97,000	$582,000
8	Basin "C" Excavation	$6	CY	226,000	$1,356,000
9	RCBC for Channel "D"	$200,000.00	EA	1	$200,000
10	Manholes	$6,000.00	EA	17	$102,000
11	Diversion Structure	$150,000	EA	2	$300,000
12	Landscaping	$0.50	SF	1,328,580	$664,290
				SUBTOTAL MAJOR SYSTEM ELEMENTS	$5,098,472
				CONTINGENCIES:	
				Construction	25% $1,274,618
				Design & Field Engineering	18% $1,147,156
				Change Orders	7% $446,116
				TOTAL MAJOR SYSTEM ELEMENTS	**$7,966,363**

1. Construction Contingencies @ 25% of the Total Construction Cost
2. Design and Field Engineering Costs @ 18% of the sum of Total Construction Cost and Construction Contingencies
3. Change Orders @ 7% of the sum of Total Construction Cost and Construction Contingencies
4. The cost estimates were performed for selected drainage elements only for alternative selection purposes. All common items were excluded from these costs. Therefore, the cost estimates shown are not the true total construction cost of any alternatives.

Siphon Draw Drainage Improvements Alternatives
Flood Control District of Maricopa County W/P # 031902
FCD 2003 C019

Preliminary Opinion of Probable Cost for Alternative 3a
Concrete Channel "D"

MAJOR SYSTEM ELEMENTS

ITEM	DESCRIPTION	UNIT PRICE	UNIT	QUANTITY	AMOUNT
1	Channel "D" Excavation	$6	CY	32,933	$197,598
2	Concrete Channel "D"	$310	CY	3,667	$1,136,770
3	Channel "E" Excavation	$6	CY	14,933	$89,598
4	Drop Structure	$310	CY	91	$28,210
5	54" RGRCP Pipe "F"	$150	LF	1,300	$195,000
6	54" RGRCP Pipe "G"	$150	LF	5,200	$780,000
7	Basin "A" Excavation	$6	CY	10,000	$60,000
8	Basin "B" Excavation	$6	CY	97,000	$582,000
9	Basin "C" Excavation	$6	CY	218,000	$1,308,000
10	RCBC for Channel "D"	$200,000.00	EA	1	$200,000
11	Manholes	$6,000.00	EA	17	$102,000
12	Diversion Structure	$150,000	EA	2	$300,000
13	Landscaping	$0.50	SF	1,328,580	$664,290
			SUBTOTAL MAJOR SYSTEM ELEMENTS		$5,643,466
			CONTINGENCIES:		
			Construction	25%	$1,410,867
			Design & Field Engineering	18%	$1,269,780
			Change Orders	7%	$493,803
			TOTAL MAJOR SYSTEM ELEMENTS		**$8,817,916**

1. Construction Contingencies @ 25% of the Total Construction Cost
2. Design and Field Engineering Costs @ 18% of the sum of Total Construction Cost and Construction Contingencies
3. Change Orders @ 7% of the sum of Total Construction Cost and Construction Contingencies
4. The cost estimates were performed for selected drainage elements only for alternative selection purposes. All common items were excluded from these costs. Therefore, the cost estimates shown are not the true total construction cost of any alternatives.

Siphon Draw Drainage Improvements Alternatives

Flood Control District of Maricopa County W/P # 031902.04

FCD 2003 C019

Preliminary Opinion of Probable Cost for Interim Alternative

MAJOR SYSTEM ELEMENTS

ITEM	DESCRIPTION	UNIT PRICE	UNIT	QUANTITY	AMOUNT
1	Channel "D" Excavation	$6	CY	83,970	$503,820
2	Channel "H" Excavation	$6	CY	90,430	$542,580
3	Drop Structure	$310	CY	1,470	$455,700
4	Landscaping	$0.50	SF	0	$0
			SUBTOTAL MAJOR SYSTEM ELEMENTS		$1,502,100
			CONTINGENCIES:		
			Construction	25%	$375,525
			Design & Field Engineering	18%	$337,973
			Change Orders	7%	$131,434
			TOTAL MAJOR SYSTEM ELEMENTS		**$2,347,031**

1. Construction Contingencies @ 25% of the Total Construction Cost
2. Design and Field Engineering Costs @ 18% of the sum of Total Construction Cost and Construction Contingencies
3. Change Orders @ 7% of the sum of Total Construction Cost and Construction Contingencies

Siphon Draw Drainage Improvements Alternatives

Flood Control District of Maricopa County W/P # 031902

FCD 2003 C019

Preliminary Opinion of Probable Cost for Interim Alternative-a
Concrete Channel "D" and "H"

MAJOR SYSTEM ELEMENTS

ITEM	DESCRIPTION	UNIT PRICE	UNIT	QUANTITY	AMOUNT
1	Channel "D" Excavation	$6	CY	32,933	$197,598
2	Channel "H" Excavation	$6	CY	35,467	$212,802
3	Concrete Channel "D"	$310	CY	3,667	$1,136,770
4	Concrete Channel "H"	$310.00	CY	3,949	$1,224,190
			SUBTOTAL MAJOR SYSTEM ELEMENTS		$2,771,360
			CONTINGENCIES:		
			Construction	25%	$692,840
			Design & Field Engineering	18%	$623,556
			Change Orders	7%	$242,494
			TOTAL MAJOR SYSTEM ELEMENTS		**$4,330,250**

1. Construction Contingencies @ 25% of the Total Construction Cost
2. Design and Field Engineering Costs @ 18% of the sum of Total Construction Cost and Construction Contingencies
3. Change Orders @ 7% of the sum of Total Construction Cost and Construction Contingencies

APPENDIX D

Hydraulic Analysis

APPENDIX D

Hydraulic Analysis
(Using simple normal depth calculations)

Channels

C-1 Channel D = Earthen, at 3 sections (Q varies)
C-2 Channel D = Concrete, at 3 sections (Q varies)
C-3 Gunite Channel (Q_{100} = 170 cfs)
C-4 Channel E = Earthen, (Q_{100} = 310 cfs)

Box Culverts

B-1 3-10'x 5' RCBC, at SRP Maintenance Road (Q_{100} = 1050 cfs)
B-2 1-10'x 6' RCBC, diversion to Basin C2 (Q_{100} = 761 cfs)
B-3 1-10'x 4' RCBC, to Channel E (Q_{100} = 310 cfs)
B-4 1-10'x 4' RCBC, equalizer box, Basin C1-C2 (Q varies)
B-5 1-10'x 6' RCBC, diversion to Basin B2 (Q_{100} = 740 cfs)
B-6 1-10'x 4' RCBC, equalizer box, Basin B1-B2 (Q varies)

Storm Drains

S-1 Bleed-off pipes
S-2 Storm Drain F (Q_{100} = 80 cfs)
S-3 Storm Drain G (Q_{100} = 149 cfs)

Weirs

W-1 Side weirs hydraulics

Sediment Basin

TRAPEZOIDAL CHANNEL ANALYSIS
NORMAL DEPTH COMPUTATION

July 18, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Flow Rate (cfs)	1,681.0
Channel Bottom Slope (ft/ft)	0.001
Manning's Roughness Coefficient (n-value)	0.035
Channel Left Side Slope (horizontal/vertical)	3.0
Channel Right Side Slope (horizontal/vertical)	3.0
Channel Bottom Width (ft)	75.0

COMPUTATION RESULTS

DESCRIPTION	VALUE
Normal Depth (ft)	5.18
Flow Velocity (fps)	3.58
Froude Number	0.3
Velocity Head (ft)	0.2
Energy Head (ft)	5.38
Cross-Sectional Area of Flow (sq ft)	469.5
Top Width of Flow (ft)	106.11

G1 - 4/3

TRAPEZOIDAL CHANNEL ANALYSIS
NORMAL DEPTH COMPUTATION

July 18, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Flow Rate (cfs)	1,465.0
Channel Bottom Slope (ft/ft)	0.001
Manning's Roughness Coefficient (n-value)	0.035
Channel Left Side Slope (horizontal/vertical)	3.0
Channel Right Side Slope (horizontal/vertical)	3.0
Channel Bottom Width (ft)	65.0

COMPUTATION RESULTS

DESCRIPTION	VALUE
Normal Depth (ft)	5.16
Flow Velocity (fps)	3.53
Froude Number	0.299
Velocity Head (ft)	0.19
Energy Head (ft)	5.36
Cross-Sectional Area of Flow (sq ft)	415.56
Top Width of Flow (ft)	95.98

TRAPEZOIDAL CHANNEL ANALYSIS
NORMAL DEPTH COMPUTATION

July 18, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Flow Rate (cfs)	1,265.0
Channel Bottom Slope (ft/ft)	0.001
Manning's Roughness Coefficient (n-value)	0.035
Channel Left Side Slope (horizontal/vertical)	3.0
Channel Right Side Slope (horizontal/vertical)	3.0
Channel Bottom Width (ft)	50.0

COMPUTATION RESULTS

DESCRIPTION	VALUE
Normal Depth (ft)	5.41
Flow Velocity (fps)	3.53
Froude Number	0.298
Velocity Head (ft)	0.19
Energy Head (ft)	5.61
Cross-Sectional Area of Flow (sq ft)	358.7
Top Width of Flow (ft)	82.49

C-2 1/3.

TRAPEZOIDAL CHANNEL ANALYSIS
NORMAL DEPTH COMPUTATION

July 18, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Flow Rate (cfs)	1,681.0
Channel Bottom Slope (ft/ft)	0.0062
Manning's Roughness Coefficient (n-value)	0.016
Channel Left Side Slope (horizontal/vertical)	2.0
Channel Right Side Slope (horizontal/vertical)	2.0
Channel Bottom Width (ft)	35.0

COMPUTATION RESULTS

DESCRIPTION	VALUE
Normal Depth (ft)	3.01
Flow Velocity (fps)	13.63
Froude Number	1.484
Velocity Head (ft)	2.89
Energy Head (ft)	5.89
Cross-Sectional Area of Flow (sq ft)	123.32
Top Width of Flow (ft)	47.03

C-2 - 2/3

TRAPEZOIDAL CHANNEL ANALYSIS
NORMAL DEPTH COMPUTATION

July 18, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Flow Rate (cfs)	1,465.0
Channel Bottom Slope (ft/ft)	0.0062
Manning's Roughness Coefficient (n-value)	0.016
Channel Left Side Slope (horizontal/vertical)	2.0
Channel Right Side Slope (horizontal/vertical)	2.0
Channel Bottom Width (ft)	30.0

COMPUTATION RESULTS

DESCRIPTION	VALUE
Normal Depth (ft)	3.02
Flow Velocity (fps)	13.47
Froude Number	1.476
Velocity Head (ft)	2.82
Energy Head (ft)	5.84
Cross-Sectional Area of Flow (sq ft)	108.79
Top Width of Flow (ft)	42.07

TRAPEZOIDAL CHANNEL ANALYSIS
NORMAL DEPTH COMPUTATION

July 18, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Flow Rate (cfs)	1,265.0
Channel Bottom Slope (ft/ft)	0.0062
Manning's Roughness Coefficient (n-value)	0.016
Channel Left Side Slope (horizontal/vertical)	2.0
Channel Right Side Slope (horizontal/vertical)	2.0
Channel Bottom Width (ft)	25.0

COMPUTATION RESULTS

DESCRIPTION	VALUE
Normal Depth (ft)	3.05
Flow Velocity (fps)	13.31
Froude Number	1.469
Velocity Head (ft)	2.75
Energy Head (ft)	5.81
Cross-Sectional Area of Flow (sq ft)	95.02
Top Width of Flow (ft)	37.22

TRAPEZOIDAL CHANNEL ANALYSIS
NORMAL DEPTH COMPUTATION

July 18, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Flow Rate (cfs)	170.0
Channel Bottom Slope (ft/ft)	0.0066
Manning's Roughness Coefficient (n-value)	0.015
Channel Left Side Slope (horizontal/vertical)	2.0
Channel Right Side Slope (horizontal/vertical)	2.0
Channel Bottom Width (ft)	4.0

COMPUTATION RESULTS

DESCRIPTION	VALUE
Normal Depth (ft)	2.14
Flow Velocity (fps)	9.62
Froude Number	1.428
Velocity Head (ft)	1.44
Energy Head (ft)	3.57
Cross-Sectional Area of Flow (sq ft)	17.68
Top Width of Flow (ft)	12.55

TRAPEZOIDAL CHANNEL ANALYSIS
NORMAL DEPTH COMPUTATION

July 18, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Flow Rate (cfs)	300.0
Channel Bottom Slope (ft/ft)	0.0021
Manning's Roughness Coefficient (n-value)	0.035
Channel Left Side Slope (horizontal/vertical)	3.0
Channel Right Side Slope (horizontal/vertical)	3.0
Channel Bottom Width (ft)	25.0

COMPUTATION RESULTS

DESCRIPTION	VALUE
Normal Depth (ft)	2.77
Flow Velocity (fps)	3.26
Froude Number	0.386
Velocity Head (ft)	0.16
Energy Head (ft)	2.93
Cross-Sectional Area of Flow (sq ft)	92.09
Top Width of Flow (ft)	41.59

BOX CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

July 18, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Span (ft)	10.0
Culvert Rise (ft)	5.0
FHWA Chart Number	8
FHWA Scale Number (Type of Culvert Entrance)	2
Manning's Roughness Coefficient (n-value)	0.013
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	60.0
Invert Elevation at Downstream end of Culvert (ft)	1,478.0
Invert Elevation at Upstream end of Culvert (ft)	1,478.2
Culvert Slope (ft/ft)	0.0033
Starting Flow Rate (cfs)	200.0
Incremental Flow Rate (cfs)	25.0
Ending Flow Rate (cfs)	350.0
Starting Tailwater Depth (ft)	1,480.0
Incremental Tailwater Depth (ft)	0.25
Ending Tailwater Depth (ft)	1,481.5

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)
200.0	1,480.0	3.94	1,480.21	2.26	2.32	5.0	4.0
225.0	1,480.25	4.27	1,480.57	2.45	2.51	5.0	4.5
250.0	1,480.5	4.58	1,480.94	2.63	2.69	5.0	5.0
275.0	1,480.75	4.89	1,481.33	2.82	2.86	5.0	5.5
300.0	1,481.0	5.18	1,481.72	2.99	3.04	5.0	6.0
325.0	1,481.25	5.47	1,482.13	3.17	3.2	5.0	6.5
350.0	1,481.5	5.76	1,482.56	3.34	3.36	5.0	7.0

Design $Q_{100} = 1050$ cfs

Use 3 - 10' x 5' RCBC

Q/barrel $= 1050/3 = 350$ cfs

BOX CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

July 19, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Span (ft)	10.0
Culvert Rise (ft)	6.0
FHWA Chart Number	8
FHWA Scale Number (Type of Culvert Entrance)	2
Manning's Roughness Coefficient (n-value)	0.013
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	130.0
Invert Elevation at Downstream end of Culvert (ft)	1,471.8
Invert Elevation at Upstream end of Culvert (ft)	1,472.0
Culvert Slope (ft/ft)	0.0015
Starting Flow Rate (cfs)	500.0
Incremental Flow Rate (cfs)	25.0
Ending Flow Rate (cfs)	750.0
Starting Tailwater Depth (ft)	1,473.0
Incremental Tailwater Depth (ft)	0.25
Ending Tailwater Depth (ft)	1,475.5

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)
500.0	1,473.0	7.31	1,474.72	5.78	4.27	6.0	8.33
525.0	1,473.25	7.7	1,475.16	6.0	4.41	6.0	8.75
550.0	1,473.5	8.18	1,475.62	6.0	4.55	6.0	9.17
575.0	1,473.75	8.52	1,476.09	6.0	4.68	6.0	9.58
600.0	1,474.0	8.8	1,476.56	6.0	4.82	6.0	10.0
625.0	1,474.25	9.14	1,477.05	6.0	4.95	6.0	10.42
650.0	1,474.5	9.49	1,477.54	6.0	5.08	6.0	10.83
675.0	1,474.75	9.86	1,478.04	6.0	5.21	6.0	11.25
700.0	1,475.0	10.24	1,478.56	6.0	5.34	6.0	11.67
725.0	1,475.25	10.64	1,479.08	6.0	5.47	6.0	12.08
750.0	1,475.5	11.05	1,479.61	6.0	5.59	6.0	12.5

BOX CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

June 17, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Span (ft)	10.0
Culvert Rise (ft)	4.0
FHWA Chart Number	8
FHWA Scale Number (Type of Culvert Entrance)	2
Manning's Roughness Coefficient (n-value)	0.013
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	60.0
Invert Elevation at Downstream end of Culvert (ft)	1,477.7
Invert Elevation at Upstream end of Culvert (ft)	1,477.8
Culvert Slope (ft/ft)	0.0017
Starting Flow Rate (cfs)	250.0
Incremental Flow Rate (cfs)	20.0
Ending Flow Rate (cfs)	370.0
Starting Tailwater Depth (ft)	1,479.0
Incremental Tailwater Depth (ft)	0.25
Ending Tailwater Depth (ft)	1,480.5

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)
250.0	1,479.0	4.6	1,479.92	3.36	2.69	4.0	6.25
270.0	1,479.25	4.85	1,480.34	3.55	2.83	4.0	6.75
290.0	1,479.5	5.24	1,480.78	3.74	2.97	4.0	7.25
310.0	1,479.75	5.64	1,481.22	3.93	3.1	4.0	7.75
330.0	1,480.0	5.92	1,481.68	4.0	3.23	4.0	8.25
350.0	1,480.25	6.26	1,482.15	4.0	3.36	4.0	8.75
370.0	1,480.5	6.62	1,482.64	4.0	3.49	4.0	9.25

BOX CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

July 18, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Span (ft)	10.0
Culvert Rise (ft)	4.0
FHWA Chart Number	8
FHWA Scale Number (Type of Culvert Entrance)	2
Manning's Roughness Coefficient (n-value)	0.013
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	60.0
Invert Elevation at Downstream end of Culvert (ft)	1,471.0
Invert Elevation at Upstream end of Culvert (ft)	1,471.05
Culvert Slope (ft/ft)	0.0008
Starting Flow Rate (cfs)	380.0
Incremental Flow Rate (cfs)	10.0
Ending Flow Rate (cfs)	440.0
Starting Tailwater Depth (ft)	1,473.0
Incremental Tailwater Depth (ft)	0.25
Ending Tailwater Depth (ft)	1,474.5

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)
380.0	1,473.0	6.81	1,475.31	4.0	3.55	4.0	9.5
390.0	1,473.25	7.0	1,475.69	4.0	3.62	4.0	9.75
400.0	1,473.5	7.2	1,476.07	4.0	3.68	4.0	10.0
410.0	1,473.75	7.4	1,476.45	4.0	3.74	4.0	10.25
420.0	1,474.0	7.61	1,476.83	4.0	3.8	4.0	10.5
430.0	1,474.25	7.82	1,477.22	4.0	3.86	4.0	10.75
440.0	1,474.5	8.04	1,477.62	4.0	3.92	4.0	11.0

BOX CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

July 19, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Span (ft)	10.0
Culvert Rise (ft)	6.0
FHWA Chart Number	8
FHWA Scale Number (Type of Culvert Entrance)	2
Manning's Roughness Coefficient (n-value)	0.013
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	60.0
Invert Elevation at Downstream end of Culvert (ft)	1,465.6
Invert Elevation at Upstream end of Culvert (ft)	1,465.8
Culvert Slope (ft/ft)	0.0033
Starting Flow Rate (cfs)	500.0
Incremental Flow Rate (cfs)	25.0
Ending Flow Rate (cfs)	750.0
Starting Tailwater Depth (ft)	1,468.0
Incremental Tailwater Depth (ft)	0.25
Ending Tailwater Depth (ft)	1,470.5

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)
500.0	1,468.0	7.31	1,469.56	4.32	4.27	6.0	8.33
525.0	1,468.25	7.7	1,469.99	4.48	4.41	6.0	8.75
550.0	1,468.5	8.17	1,470.43	4.64	4.55	6.0	9.17
575.0	1,468.75	8.51	1,470.87	4.8	4.68	6.0	9.58
600.0	1,469.0	8.79	1,471.33	4.95	4.82	6.0	10.0
625.0	1,469.25	9.13	1,471.79	5.11	4.95	6.0	10.42
650.0	1,469.5	9.48	1,472.27	5.26	5.08	6.0	10.83
675.0	1,469.75	9.85	1,472.75	5.41	5.21	6.0	11.25
700.0	1,470.0	10.23	1,473.24	5.56	5.34	6.0	11.67
725.0	1,470.25	10.63	1,473.74	5.71	5.47	6.0	12.08
750.0	1,470.5	11.04	1,474.25	5.86	5.59	6.0	12.5

BOX CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

July 18, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Span (ft)	10.0
Culvert Rise (ft)	4.0
FHWA Chart Number	8
FHWA Scale Number (Type of Culvert Entrance)	2
Manning's Roughness Coefficient (n-value)	0.013
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	60.0
Invert Elevation at Downstream end of Culvert (ft)	1,464.5
Invert Elevation at Upstream end of Culvert (ft)	1,465.0
Culvert Slope (ft/ft)	0.0083
Starting Flow Rate (cfs)	380.0
Incremental Flow Rate (cfs)	10.0
Ending Flow Rate (cfs)	440.0
Starting Tailwater Depth (ft)	1,467.0
Incremental Tailwater Depth (ft)	0.25
Ending Tailwater Depth (ft)	1,468.5

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)
380.0	1,467.0	6.79	1,468.86	2.56	3.55	4.0	9.5
390.0	1,467.25	6.99	1,469.24	2.61	3.62	4.0	9.75
400.0	1,467.5	7.18	1,469.62	2.66	3.68	4.0	10.0
410.0	1,467.75	7.39	1,470.0	2.7	3.74	4.0	10.25
420.0	1,468.0	7.59	1,470.38	2.75	3.8	4.0	10.5
430.0	1,468.25	7.81	1,470.77	2.79	3.86	4.0	10.75
440.0	1,468.5	8.02	1,471.17	2.84	3.92	4.0	11.0

WOOD/PATEL

CIVIL ENGINEERS • HYDROLOGISTS • LAND SURVEYORS • CONSTRUCTION MANAGERS

PROJECT Siphon Drain NO.

CALC'D BY tkp CHK'D BY

SHEET S-1 OF DATE 6/05

STORM DRAIN ESTIMATES

Bleedoff Pipes:

between SRP corridor (T_1 & T_7) basins

These basins function as basins in series in dynamic condition so head would be constantly changing. This condition was not evaluated due to the scope limitations.

Maximum storage is provided in Basin T_1 = 16 AcFt

Capacity required to drain the basin in 36 hour = $\frac{16 \times 43560}{36 \times 60 \times 60} = 5.38$ cfs

This capacity is feasible per S-1 3/2

Outlet from Basin C2,

30" pipe used with rating table in HEC-1, provide larger size to evacuate the basin in shorter duration

Outlet from Basin B-1,

36" pipe used with rating table in HEC-1, -do-

5-1 3/2

PIPE CULVERT ANALYSIS
COMPUTATION OF CULVERT PERFORMANCE CURVE

July 19, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Culvert Diameter (ft)	1.5
FHWA Chart Number	1
FHWA Scale Number (Type of Culvert Entrance)	2
Manning's Roughness Coefficient (n-value)	0.013
Entrance Loss Coefficient of Culvert Opening	0.5
Culvert Length (ft)	110.0
Invert Elevation at Downstream end of Culvert (ft)	1,482.0
Invert Elevation at Upstream end of Culvert (ft)	1,484.0
Culvert Slope (ft/ft)	0.0182
Starting Flow Rate (cfs)	2.0
Incremental Flow Rate (cfs)	1.0
Ending Flow Rate (cfs)	14.0
Starting Tailwater Depth (ft)	1.0
Incremental Tailwater Depth (ft)	0.5
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)
2.0	1.0	0.73	0.0	0.38	0.53	0.38	5.65
3.0	1.5	0.92	-0.34	0.47	0.66	0.47	6.35
4.0	2.0	1.09	0.28	0.54	0.77	0.54	6.9
5.0	2.5	1.26	0.94	0.61	0.86	0.61	7.33
6.0	3.0	1.43	1.63	0.68	0.95	1.5	3.4
7.0	3.5	1.59	2.35	0.75	1.02	1.5	3.96
8.0	4.0	1.77	3.12	0.81	1.1	1.5	4.53
9.0	4.5	1.85	3.91	0.87	1.16	1.5	5.09
10.0	5.0	2.03	4.74	0.93	1.22	1.5	5.66
11.0	5.5	2.23	5.61	0.99	1.27	1.5	6.22
12.0	6.0	2.44	6.51	1.06	1.31	1.5	6.79
13.0	6.5	2.68	7.45	1.13	1.35	1.5	7.36
14.0	7.0	2.93	8.42	1.21	1.38	1.5	7.92

CIRCULAR CHANNEL ANALYSIS
RATING CURVE COMPUTATION

July 18, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Channel Bottom Slope (ft/ft)	0.0021
Manning's Roughness Coefficient (n-value)	0.013
Channel Diameter (ft)	4.5
Minimum Flow Depth (ft)	3.0
Maximum Flow Depth (ft)	4.5
Incremental Head (ft)	0.25

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)
3.0	70.64	6.27	0.679	0.611	3.611	11.26	4.24
3.25	78.52	6.38	0.644	0.633	3.883	12.3	4.03
3.5	85.57	6.45	0.603	0.646	4.146	13.27	3.74
3.75	91.41	6.45	0.554	0.647	4.397	14.16	3.35
4.0	95.5	6.39	0.49	0.635	4.635	14.94	2.83
4.25	96.9	6.23	0.4	0.603	4.853	15.56	2.06
4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0

COMPUTATION NOTES

*** Rating Curve terminated at flow depth = 4.50
Flow depth equals or exceeds channel diameter (4.50)

CIRCULAR CHANNEL ANALYSIS
RATING CURVE COMPUTATION

July 18, 2005

PROGRAM INPUT DATA

DESCRIPTION	VALUE
Channel Bottom Slope (ft/ft)	0.0073
Manning's Roughness Coefficient (n-value)	0.013
Channel Diameter (ft)	4.5
Minimum Flow Depth (ft)	3.0
Maximum Flow Depth (ft)	4.5
Incremental Head (ft)	0.25

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)
3.0	131.7	11.69	1.265	2.124	5.124	11.26	4.24
3.25	146.39	11.9	1.201	2.201	5.451	12.3	4.03
3.5	159.55	12.02	1.125	2.245	5.745	13.27	3.74
3.75	170.44	12.03	1.033	2.251	6.001	14.16	3.35
4.0	178.06	11.92	0.914	2.208	6.208	14.94	2.83
4.25	180.67	11.61	0.745	2.096	6.346	15.56	2.06
4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0

COMPUTATION NOTES

*** Rating Curve terminated at flow depth = 4.50
Flow depth equals or exceeds channel diameter (4.50)

WOOD/PATEL

CIVIL ENGINEERS • HYDROLOGISTS • LAND SURVEYORS • CONSTRUCTION MANAGERS

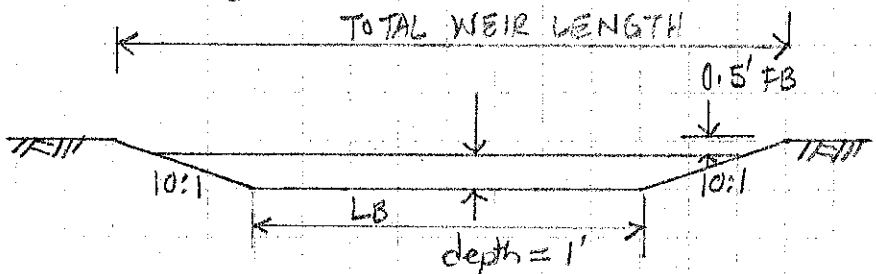
PROJECT Siphon Draw NO.

CALC'D BY Acp CHK'D BY

SHEET W-1 OF DATE 6/05

Side Weirs, SRP Corridor

Estimate Weir Length based on a simplified approach to approximate spillover structure sizes



Typical Weir Section

Spillway Capacity $= C L H^{3/2}$

$Q = C(L_B + 1' \times 10) \times 1^{3/2}$ where $C = 3$

(10 approx.)

$Q = 3 L_B + 30$

$\therefore L_B = \frac{Q-30}{3} = \frac{1}{3}(Q-10)$

Approximated weir Lengths:

Basin	Design Q_{100}	L_B	Total weir Length
T_1	216	69'	99'
T_2	200	63	93'
T_3	100	30	60'

PROJECT Siphon Draw NO.

CALC'D BY ACP CHK'D BY

SHEET OF DATE 7/05

Sediment Basin:

Contributing Drainage Area = 3.09 sq.mi

Ave annual sediment production = 0.25 to 0.5 Acft/sq.mi/year

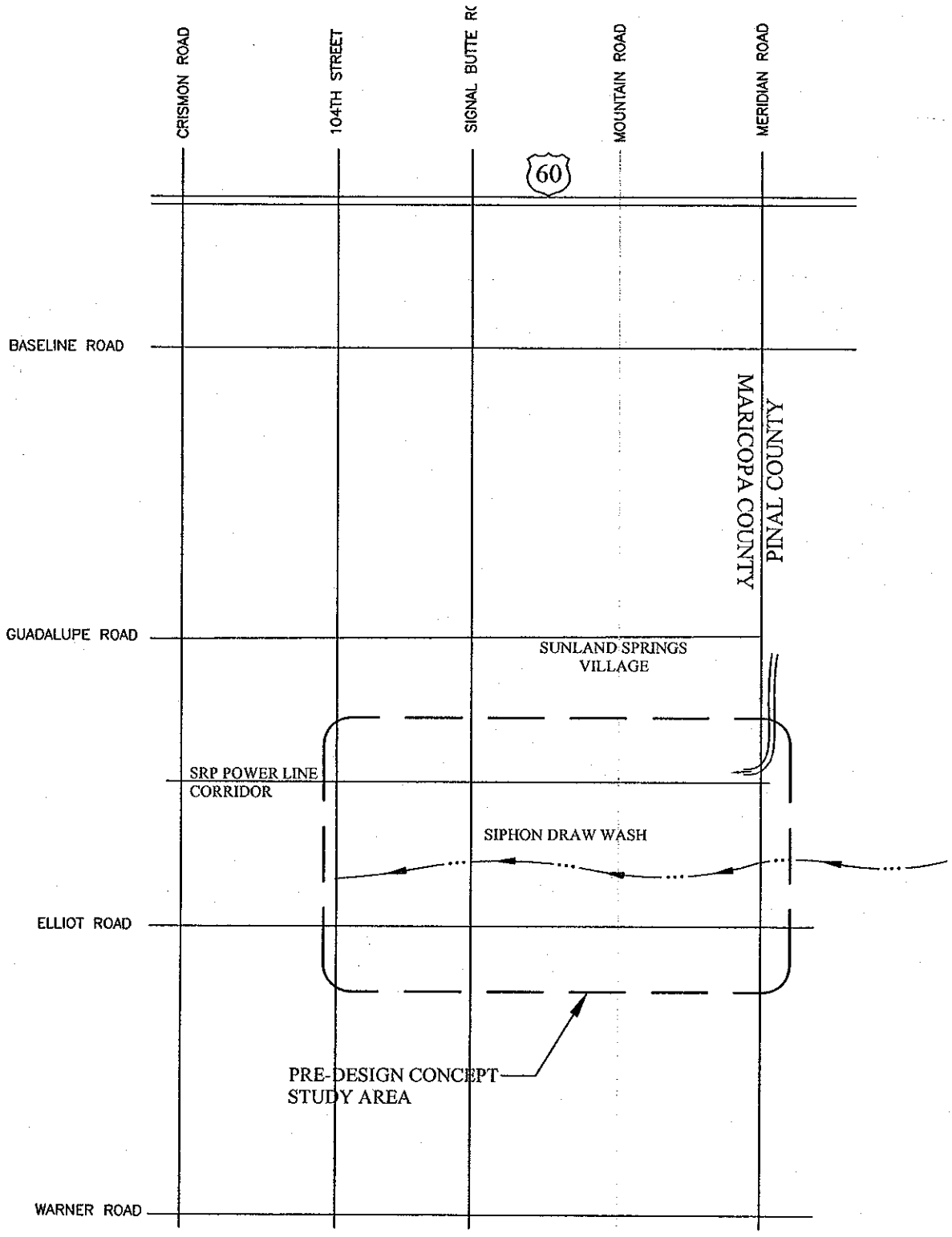
∴ Sediment Yield/yr = 0.375(ave) × 3.09 = 1.16 Acft

Volume provided = 4 Acft, cleaning frequency would vary -

On an average need cleaning 4/1.16 = 3.45 every yr.

PLATE 1

Project Location and Vicinity Map



N.T.S.

SIPHON DRAW DRAINAGE IMPROVEMENTS

PROJECT LOCATION AND VICINITY MAP

Wood, Patel & Associates, Inc.
2051 West Northern, Suite 100
Phoenix, Arizona 85021 (602) 335-8500

DRAWN BY: PAL

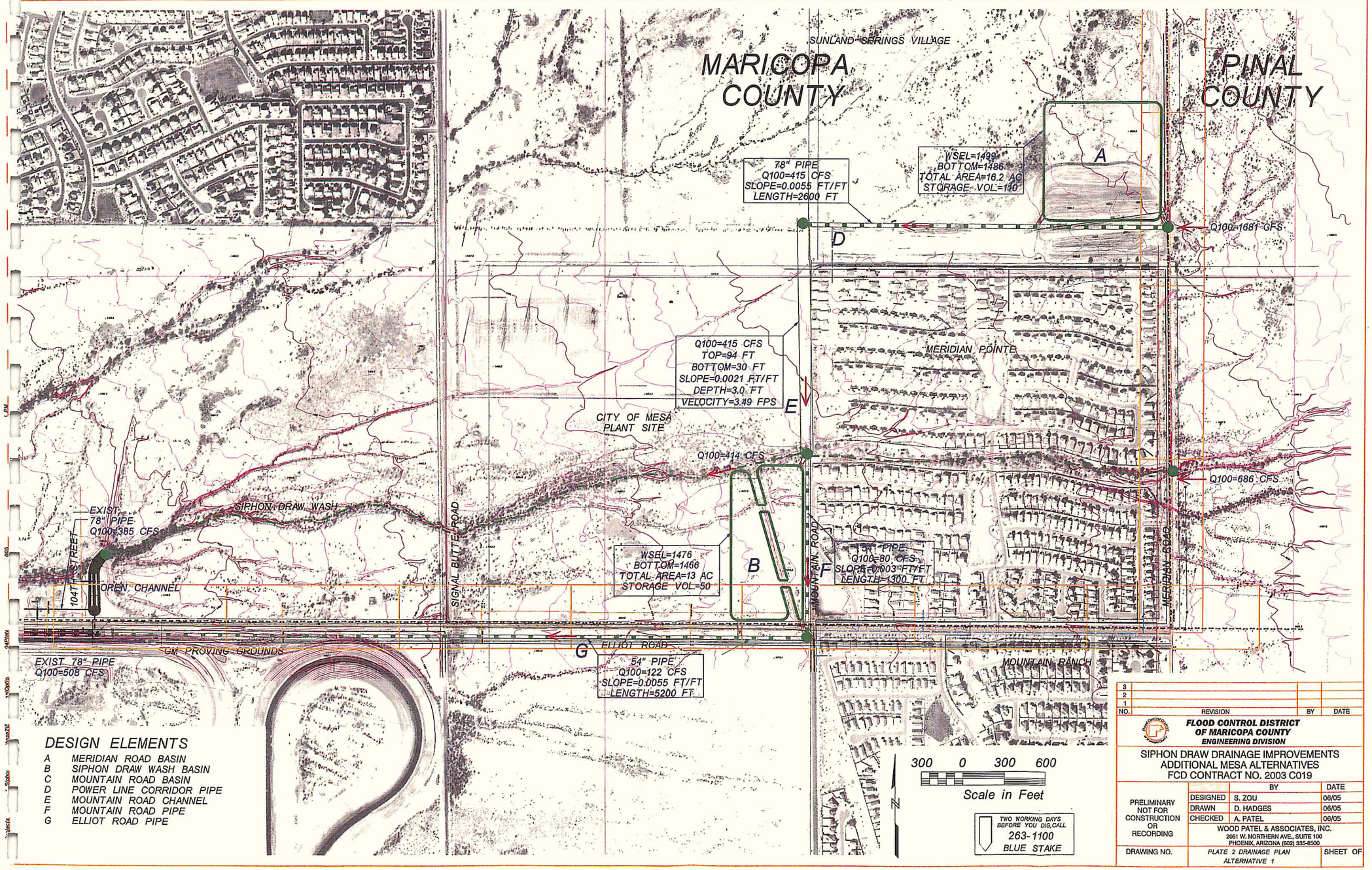
JOB NO: 031902.04 DATE: 6/05

PLATE 1

W:\2003Projects\031902.04 Siphon Draw Phase2\Exhibits\03192.04Plate1.dwg

PLATE 2

Drainage Plan – Alternative 1



DESIGN ELEMENTS

A	MERIDIAN ROAD BASIN
B	SIPHON DRAW WASH BASIN
C	MOUNTAIN ROAD BASIN
D	POWER LINE CORRIDOR PIPE
E	MOUNTAIN ROAD CHANNEL
F	MOUNTAIN ROAD PIPE
G	ELLIOT ROAD PIPE

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

SIPHON DRAW DRAINAGE IMPROVEMENTS
ADDITIONAL MESA ALTERNATIVES
FCD CONTRACT NO. 2003 C019

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

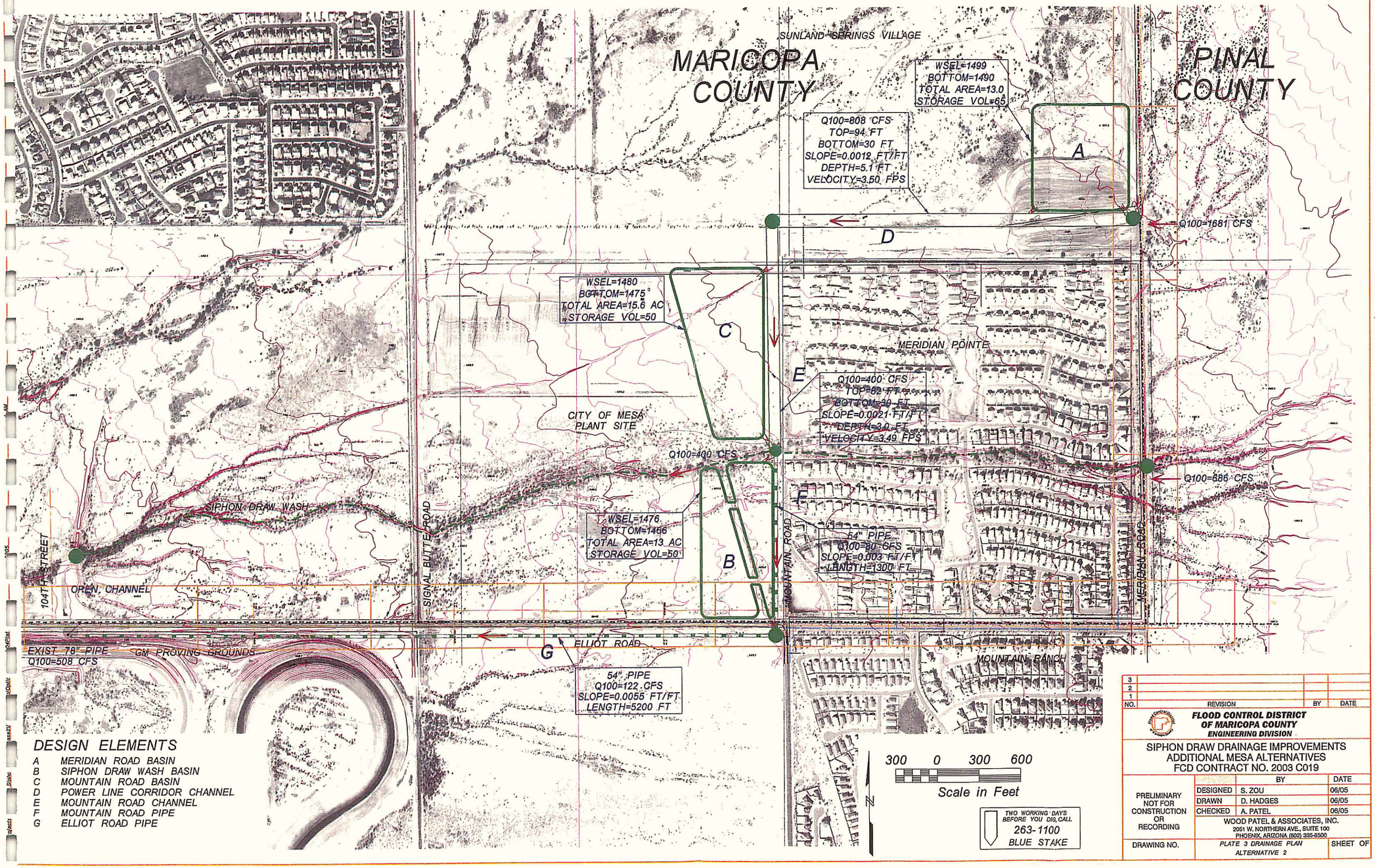
	BY	DATE
DESIGNED	S. ZOU	06/05
DRAWN	D. HADGES	06/05
CHECKED	A. PATEL	06/05

WOOD PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. *PLATE 2 DRAINAGE PLAN ALTERNATIVE 1* SHEET OF

PLATE 3

Drainage Plan – Alternative 2



DESIGN ELEMENTS

A	MERIDIAN ROAD BASIN
B	SIPHON DRAW WASH BASIN
C	MOUNTAIN ROAD BASIN
D	POWER LINE CORRIDOR CHANNEL
E	MOUNTAIN ROAD CHANNEL
F	MOUNTAIN ROAD PIPE
G	ELLIOT ROAD PIPE

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

SIPHON DRAW DRAINAGE IMPROVEMENTS
ADDITIONAL MESA ALTERNATIVES
FCD CONTRACT NO. 2003 C019

		BY	DATE
PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING	DESIGNED	S. ZOU	06/05
	DRAWN	D. HADGES	06/05
	CHECKED	A. PATEL	06/05

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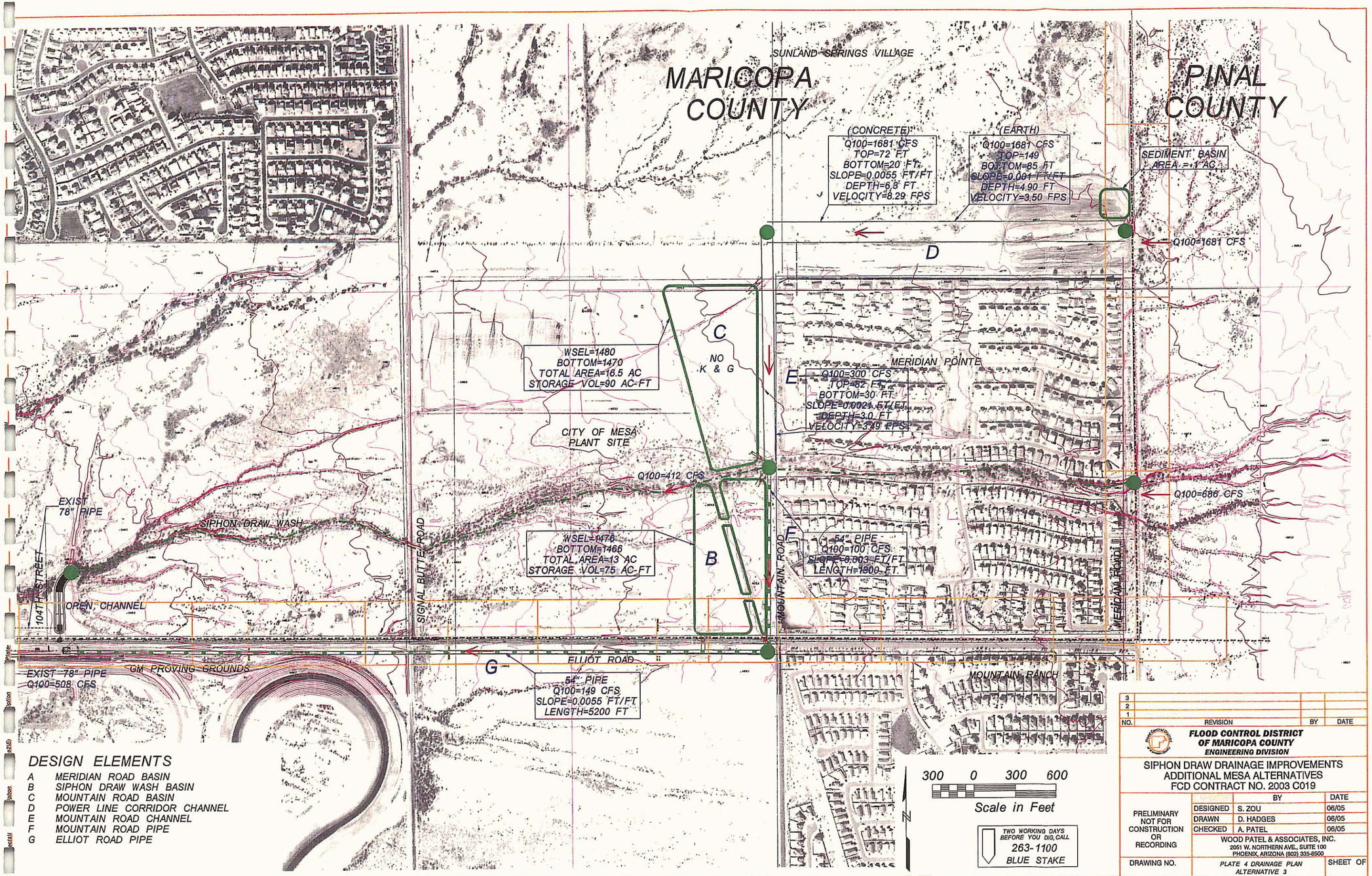
DRAWING NO. | *PLATE 3 DRAINAGE PLAN ALTERNATIVE 2* | SHEET OF

PLATE 4

Drainage Plan – Alternative 3



DESIGN ELEMENTS

- A MERIDIAN ROAD BASIN
- B SIPHON DRAW WASH BASIN
- C MOUNTAIN ROAD BASIN
- D POWER LINE CORRIDOR CHANNEL
- E MOUNTAIN ROAD CHANNEL
- F MOUNTAIN ROAD PIPE
- G ELLIOT ROAD PIPE

NO.	REVISION	BY	DATE
3			
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1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

SIPHON DRAW DRAINAGE IMPROVEMENTS ADDITIONAL MESA ALTERNATIVES FCD CONTRACT NO. 2003 C019

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

	BY	DATE
DESIGNED	S. ZOU	06/05
DRAWN	D. HADGES	06/05
CHECKED	A. PATEL	06/05

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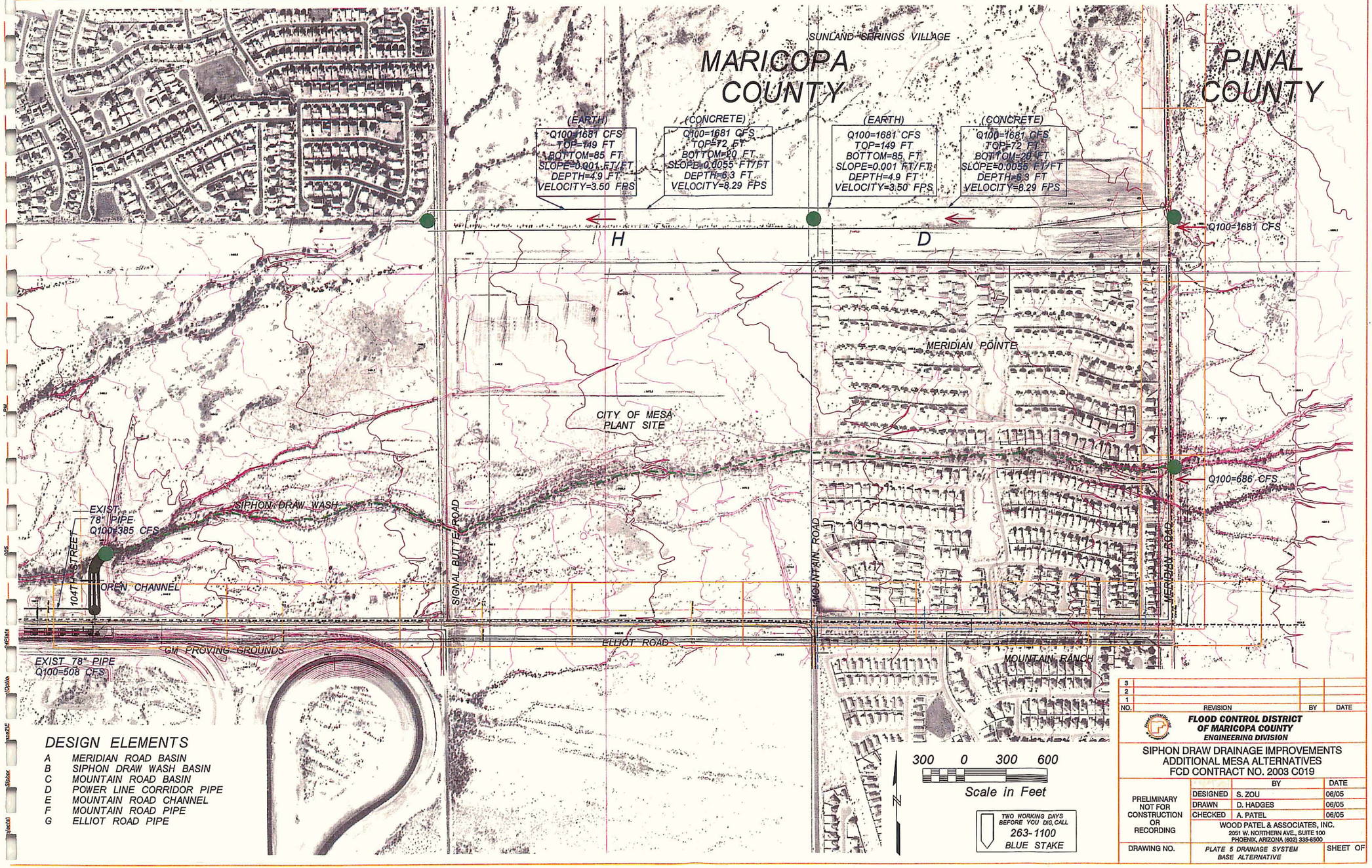
DRAWING NO. PLATE 4 DRAINAGE PLAN ALTERNATIVE 3 SHEET OF

PLATE 5

Drainage Plan – Base Alternative



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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

SIPHON DRAW DRAINAGE IMPROVEMENTS
ADDITIONAL MESA ALTERNATIVES
FCD CONTRACT NO. 2003 C019

		BY	DATE
PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING	DESIGNED	S. ZOU	06/05
	DRAWN	D. HADGES	06/05
	CHECKED	A. PATEL	06/05

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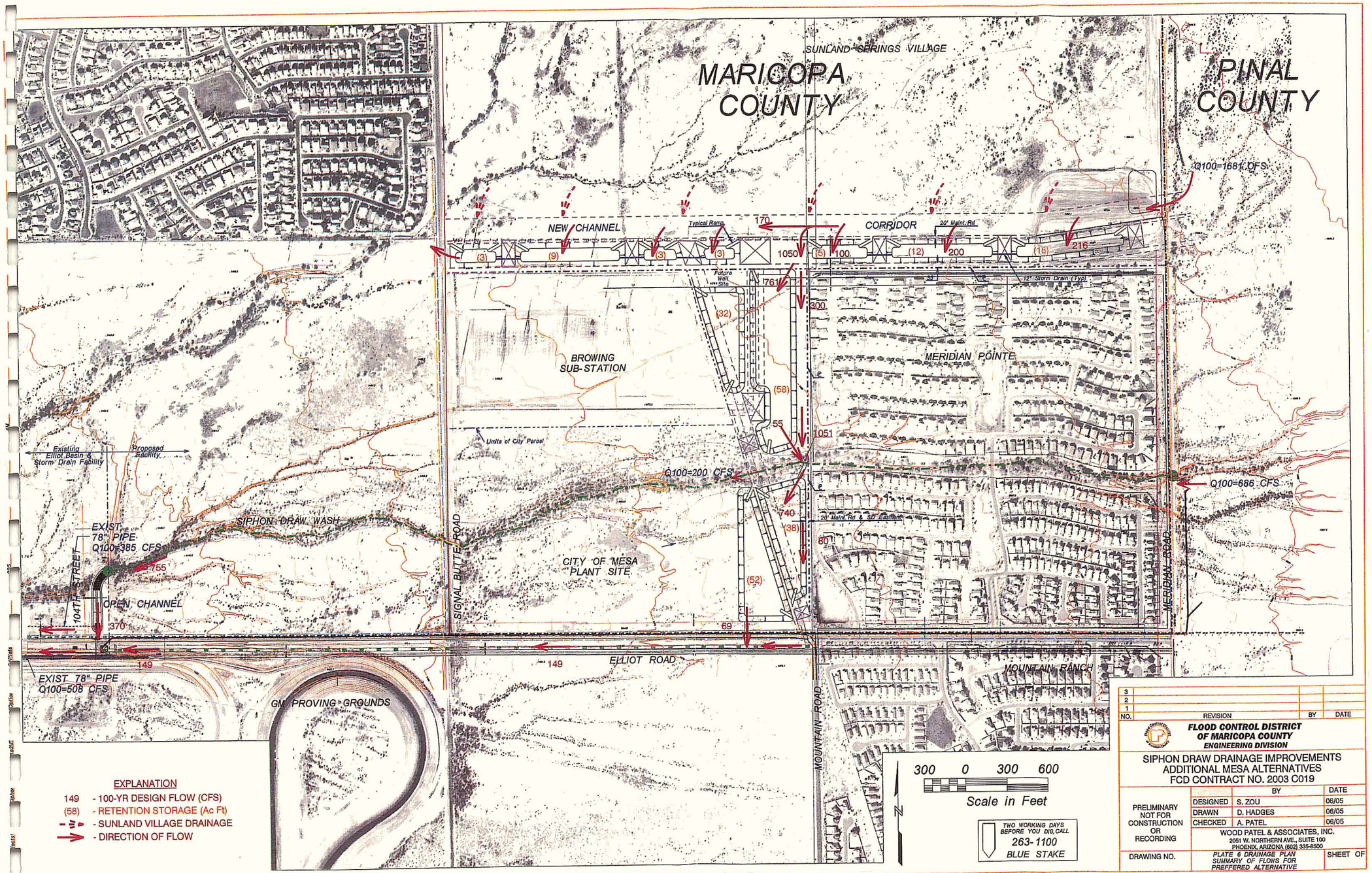
DRAWING NO. *PLATE 5 DRAINAGE SYSTEM BASE ALTERNATIVE* SHEET OF

PLATE 6

Drainage Plan – Summary of Peak Flows for Preferred Alternative



NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

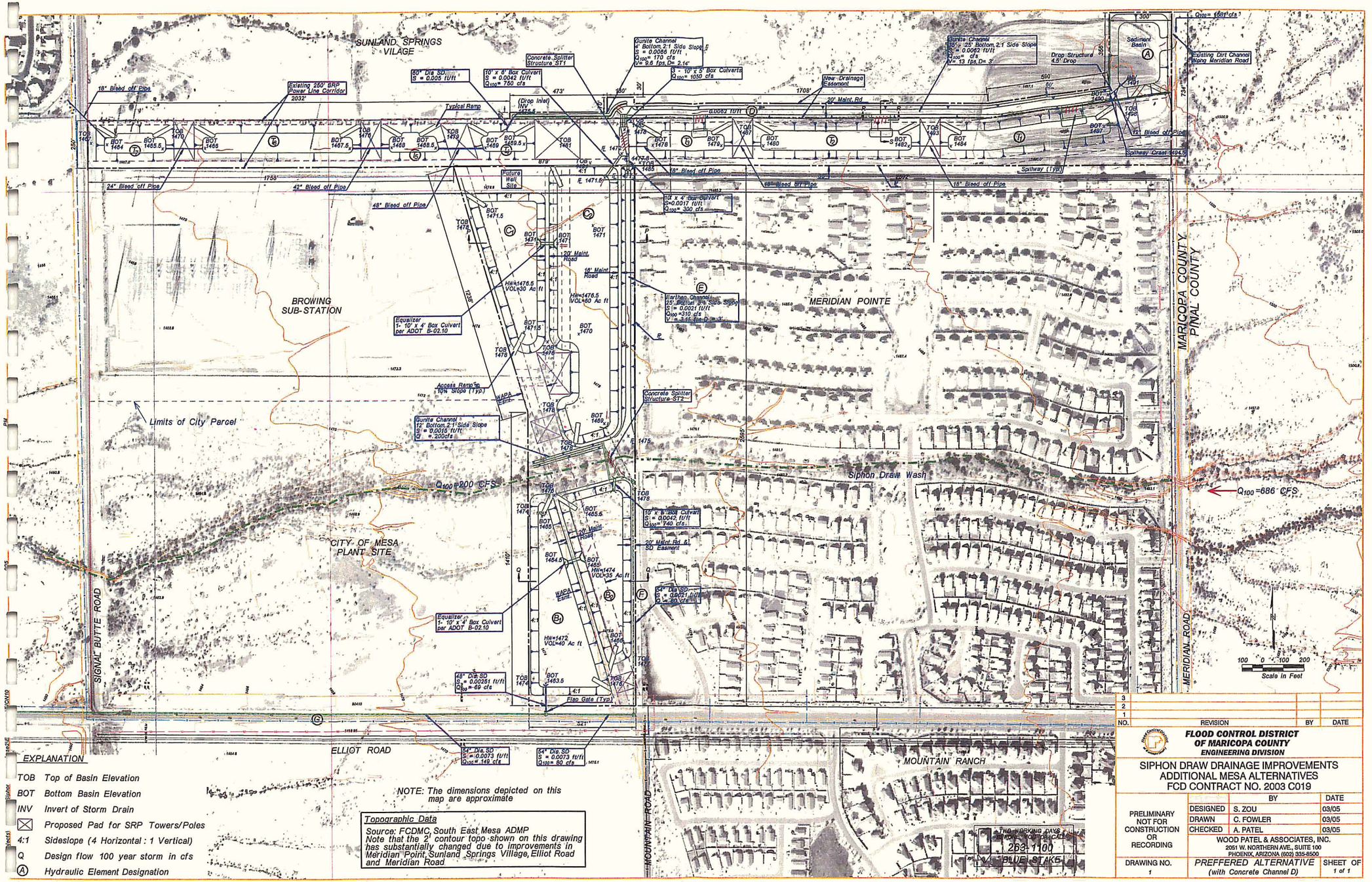
SIPHON DRAW DRAINAGE IMPROVEMENTS ADDITIONAL MESA ALTERNATIVES FCD CONTRACT NO. 2003 C019

		BY	DATE
PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING	DESIGNED	S. ZOU	06/05
	DRAWN	D. HADGES	06/05
	CHECKED	A. PATEL	06/05

WOOD PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. PLATE 6 DRAINAGE PLAN SUMMARY OF FLOWS FOR PREFFERED ALTERNATIVE

SHEET OF



EXPLANATION

- TOB Top of Basin Elevation
- BOT Bottom Basin Elevation
- INV Invert of Storm Drain
- ⊠ Proposed Pad for SRP Towers/Poles
- 4:1 Sideslope (4 Horizontal : 1 Vertical)
- Q Design flow 100 year storm in cfs
- (A) Hydraulic Element Designation

NOTE: The dimensions depicted on this map are approximate

Topographic Data

Source: FCDMC, South East Mesa ADMP
Note that the 2' contour topo shown on this drawing has substantially changed due to improvements in Meridian Point, Sunland Springs Village, Elliot Road and Meridian Road

TWO WORKING DAYS BEFORE YOU DIG CALL 263-1100 BLUE STAKE

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

SIPHON DRAW DRAINAGE IMPROVEMENTS
ADDITIONAL MESA ALTERNATIVES
FCD CONTRACT NO. 2003 C019

PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING

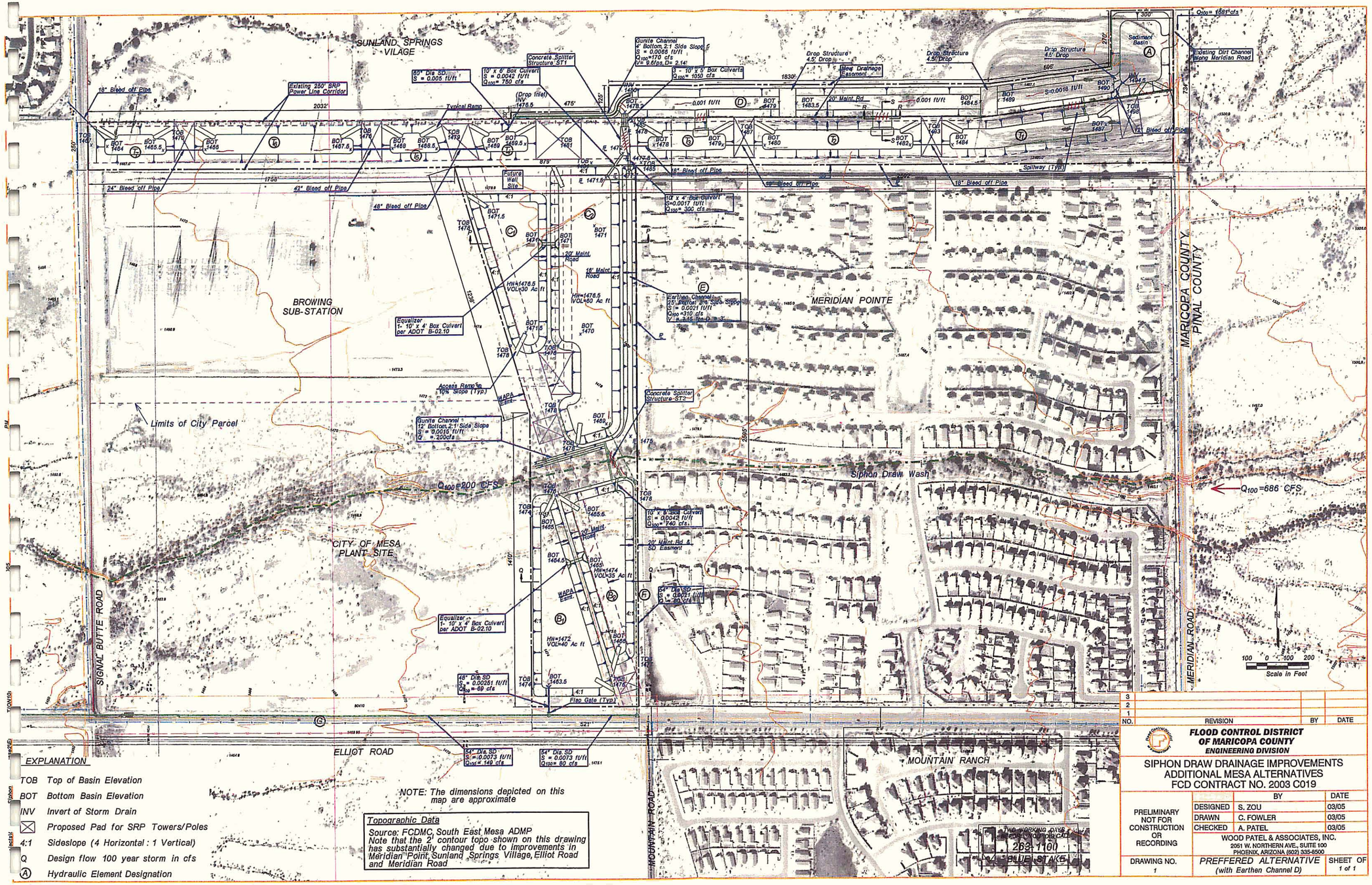
	BY	DATE
DESIGNED	S. ZOU	03/05
DRAWN	C. FOWLER	03/05
CHECKED	A. PATEL	03/05

WOOD PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. 1

PREFFERED ALTERNATIVE (with Concrete Channel D)

SHEET OF 1 of 1



EXPLANATION

TOB	Top of Basin Elevation
BOT	Bottom Basin Elevation
INV	Invert of Storm Drain
⊠	Proposed Pad for SRP Towers/Poles
4:1	Sideslope (4 Horizontal : 1 Vertical)
Q	Design flow 100 year storm in cfs
Ⓐ	Hydraulic Element Designation

NOTE: The dimensions depicted on this map are approximate

Topographic Data

Source: FCDMC, South East Mesa ADMP
Note that the 2' contour topo shown on this drawing has substantially changed due to improvements in Meridian Point, Sunland Springs Village, Elliot Road and Meridian Road

NO.	REVISION	BY	DATE
3			
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1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

SIPHON DRAW DRAINAGE IMPROVEMENTS ADDITIONAL MESA ALTERNATIVES FCD CONTRACT NO. 2003 C019

		BY	DATE
PRELIMINARY NOT FOR CONSTRUCTION OR RECORDING	DESIGNED	S. ZOU	03/05
	DRAWN	C. FOWLER	03/05
	CHECKED	A. PATEL	03/05

WOOD PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO.		SHEET OF
1	PREFFERED ALTERNATIVE (with Earthen Channel D)	1 of 1