FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

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# GILA BEND AREA FLOODPLAIN DELINEATION STUDY

**FCD 90-67**

# TECHNICAL DATA NOTEBOOK HYDROLOGY

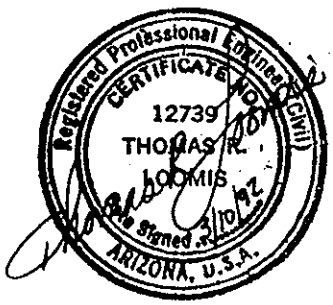
**BOOK 1 OF 2**

**Prepared For:**

**FLOOD CONTROL DISTRICT OF MARICOPA COUNTY**
**2801 West Durango Street**
**Phoenix, Arizona 85009**
**(602) 506-1501**

**Prepared By:**

**BURGESS & NIPLE, INC.**
**5025 East Washington Street**
**Phoenix, AZ 85034**
**(602) 244-8100**




**Project No. 11358**

**March, 1992**

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Registered Professional Engineer (Civil) CERTIFICATE NO. 12739 THOMAS R. LOOMIS Date Signed 3/10/92 ARIZONA, U.S.A.

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FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

# SECTION 1: General Documentation and Correspondence

| | |
|---|---|
| Community: | Maricopa County, Arizona |
| NFIP Community Number: | 040037 |
| County: | Maricopa |
| State: | Arizona |
| Date Study Accepted by FEMA: | Pending |
| Study Contractor: | Burgess & Niple, Inc. |
| Attn: | Mr. James E. Mischler, P.E.<br>5025 East Washington Street, Suite 212<br>Phoenix, Arizona 85034<br>(602) 244-8100<br>FCD Contract 90-67 |
| Subconsultants: | Aerial Mapping Co., Inc.<br>McKuen Global Positioning Systems, Inc. |
| FEMA Technical Reviewer: | Pending |
| FEMA Regional Reviewer: | Pending |
| State Reviewer: | Mr. James R. Morris, P.E.<br>(602) 542-1541 |
| Local Reviewer: | Mr. Pedro Calza<br>(602) 506-1501 |
| River or Stream Name: | * Sand Tank Wash<br>* Bender Wash<br>* Scott Avenue Wash<br>* Unnamed Wash No. 1<br>* Unnamed Wash No. 2 |
| Reach Description: | The following areas are included on FIRM panel numbers 3480 and 3490.<br><br>* Sand Tank Wash, Indian Road (North Line of Section 24, T5S, R5W) to Interstate 8 (Approximately 4.3 miles)<br><br>* Scott Avenue Wash, Watermelon Road to Interstate 8 (Approximately 3.4 Miles) |

* Bender Wash, its mouth at Sand Tank Wash to Interstate 8 (Approximately 2.0 Miles)

* Unnamed Wash No. 1, its mouth at Bender Wash to the East Line of Section 9, T6S, R4W (Approximately 3.2 Miles)

* Unnamed Wash No. 2, its mouth at Unnamed Wash No. 1 to the East Line of Section 4, T6S, R4W (Approximately 2.8 Miles)

Study Type: Sand Tank Wash, Scott Avenue Wash, Bender Wash, Unnamed Wash No. 1, Unnamed Wash No. 2 - Detailed riverine using HEC-2.

# SECTION 1: General Documentation and Correspondence

*1.2 Contact (Telephone) Reports*

**CONVERSATION RECORD**

Job No. 11358 Job Name Gila Bend FCD Date 12/17/91

By Tom Loomis Time 2:00

With Amir Motamedi

☐ By Telephone ☐ Incoming ☒ Outgoing Telephone No. (602) 506-1501

☐ Visit, Site _____ City _____

Regarding: Parameter calculations.

Conversation Items: We discussed our approach to estimating the % of Valley / Hillslope / + Mountain, per the sample calcs I faxed to FCD on 12/16/91. Amir is still checking out the procedure. We agreed to use a consistant method for adjusting Tc slopes for both models. I am to recommend a method to use. The County will revise their model to use my nomenclature.

Action Required:

Action Taken:

**CONVERSATION RECORD**

Job No. 11358 Job Name Gila Bend FPDS Date 12/17/91

By Tom Loomis Time 10:30 a.m.

With Afshin - FCDMC

☐ By Telephone ☐ Incoming ☒ Outgoing Telephone No. (602) 506-1501

☐ Visit, Site _____ City _____

Regarding: Status of County changes to Basins 1 + 2 HEC-1 Models.

Conversation Items: Afshin gave me a status report on FCD progress. They anticipate being done with their revisions by 12/20/91.

| Action Required: None | Action Taken: |
|---|---|
| | |

**CONVERSATION RECORD**

Job No. 11358 Job Name FCDMC - Gila Bend Date 11/14/91

By Tom Loomis Time 9:45

With Phil Pearthree

☒ By Telephone ☐ Incoming ☒ Outgoing Telephone No. (602) 882-4795 [redacted]

☐ Visit, Site _____ City _____

Regarding: Geologic maps for Gila Bend - Ajo Area

Conversation Items: Phil says there is an Az. Geologic Survey Report for the Gila Bend - Ajo Area which has additional detail for the alluvium area. It is open file report no. 84-1, 1983.

Action Required: Order for $5.00 including shipping + handling

Action Taken: Done ordered it!

**CONVERSATION RECORD**

Job No. 11358 Job Name FCDMC Gila Bend Date 11/14/91

By Tom Loomis Time 9:00 a.m.

With Bill Johnson, SCS

☒ By Telephone ☒ Incoming ☐ Outgoing Telephone No. (_____)

☐ Visit, Site _____ City _____

---

Regarding: SCS map unit correlations to County Geologic Map designations.

Conversation Items: gr : Granites ⇒ 326 for low hills & pediment
Lgr 322 for Steeper Portions, Mountains

sch: Schist ⇒ 335

$QT_b$ & $Q_b$ : Basalt ⇒ 317

$K_{sv}$, Ta, $K_i$, Ka : Sauceda Volcanics, Andesite, Dikes & Plugs ⇒
⇒ 338 for low hills & pediments
337 for Steeper portions, Mountains

Ts : Sand, Gravel + Conglomerates ⇒ 340

Qs : Could be any of the other Map Units.

Over:

---

| Action Required: | Action Taken: |
|---|---|
| | |

**CONVERSATION RECORD**

Job No. 11358 Job Name FCDMC - Gila Bend Date 9/11/91

By Tom Time 10:15

With Afshin Ahouraiyan

☑ By Telephone ☐ Incoming ☑ Outgoing Telephone No. (602) 262-4501

☐ Visit, Site _____ City _____

Regarding: Peorta.

Conversation Items: Afshin has a report e located on Gila Bend for our inspection. I asked him to also give us a copy of the 1989 USGS Compilation Study for Maricopa Co. and the current FEMA FIS for Gila Bend. Jim Mischler will bring them to the Phoenix Office.

Action Required: None.

Action Taken:

R B R G S S
S N I P L I
ENGINEERS
ARCHITECTS

Burgess & Nipl
1106 North Beeline Hi
Payson, Arizona
602 47-
Fax 602 47-

# LETTER OF TRANSMITTAL

DATE 8/28/91 | JOB NO 11358

RE: Gila Bend Floodplain Delineation Study

TO Flood Control District of Maricopa Co.
3335 West Durango Street
Phoenix, AZ 85001
Attn: Pedro Galaz

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following i

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifica
☐ Copy of letter ☐ Change order ☐ _____

| COPIES | DATE | NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 8/27/91 | | Phone Conv. Record |
| 1 | 8/22/91 | | " " " |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

THESE ARE TRANSMITTED:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☒ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____

REMARKS Pedro:
Please let me know if there are any changes in approach to this item.
Thanks!
Jim

COPY TO P-File
Jim Mischler

SIGNED Thomas R. Jones

If enclosures are not as noted, kindly notify us at once.

**CONVERSATION RECORD**

Job No. 11358 Job Name FCDMC Gila Bend Date 8/27/91

By Tom Loomis Time 10:30 a.m.

With Amir Motamedi

☒ By Telephone ☒ Incoming ☐ Outgoing Telephone No. (602) 262-1501

☐ Visit, Site _____ City _____

Regarding: Hydrology mapping coordinate system

Conversation Items: Amir and I discussed the [illegible] of the State plane coordinate system used for the MUSTC CAD files which the FCD furnished B&N. We need to use NAD-27, as provided by the FCD, as the base for the Hydrology maps and not NAD-83. The FCD will convert the files to NAD-83 after we submit the final files.

| Action Required: | Action Taken: |
|---|---|
| None | |
| cc: Pedro Calza | |
| Jim Mischler | |

# CONVERSATION RECORD

Job No. 11358 Job Name FCDMC Gila Bend Date 8/22/91

By Tom Loomis Time 2:00 p.m.

With Pedro Calza

☒ By Telephone ☒ Incoming ☐ Outgoing Telephone No. (602) 262-1501

☐ Visit, Site _____ City _____

Regarding: Hydrology maps provided by County in DXF format.

Conversation Items: I let Pedro know that the files furnished by FCDMC used NAD-27 state plane coordinates. If we cannot "easily" convert the files to NAD-83, then there could be a request for a Contract Amendment if the County wants us to convert the files. Pedro instructed me to prepare the hydrology maps using NAD-27 if we cannot "easily" convert the base files to NAD-83. The County will then do the conversion later "in-house".

Action Required: Try to convert the files.

cc: Pedro Calza, FCDMC
Jim Mischler

Action Taken:

**CONVERSATION RECORD**

Job No. 11358 Job Name FCDMC – Gila Bend Date 8/28/91

By Tom Loomis Time 11:00

With Sam Campos

☒ By Telephone ☒ Incoming ☐ Outgoing Telephone No. (213) 894-5420

☐ Visit, Site _____ City _____

Regarding: 1968 CORPS Study for Gila Bend.

Conversation Items: Sam says the Corps does not have a copy of the report. It was referenced in the 1979 FEMA study for Gila Bend. A consultant did the work.

Action Required: Obtain a copy of the 1979 FEMA Study for Gila Bend. (±6 pages)

Action Taken:

**CONVERSATION RECORD**

Job No. 11358 Job Name FCDMC - Gila Bend Date 8/28/91

By Tom Loomis Time 8:30

With Captain Chris Ward

☒ By Telephone ☒ Incoming ☐ Outgoing Telephone No. (602) 683-6202

☐ Visit, Site _____ City _____

Regarding: Access To Range

Conversation Items: I gave him the dates I will be on the range: 9/14-15, 9/21-22, 9/28-29. He said they will be flying on the 21st but probably not in our area. We set up an appointment for 1:00 on 9/13/91 for my safety briefing and orientation. Directions to the range are:

1. Go south on SR-85 for 4 miles (Turn at milepost marker 6.8)
2. Give set back time - 5 to security.
3. Drive down road 3 miles. Gil will be a hanger on the left in a building marked "Range Ops". That's it. We'll be in the "Air Tactical Area"

| Action Required: | Action Taken: |
|---|---|
| | |

## CONVERSATION RECORD

Job No. 11358 Job Name FCDMC - Gila Bend Date 8/28/91

By Tom Loomis Time 8:20

With Julia @ Phelps Dodge

☒ By Telephone ☐ Incoming ☒ Outgoing Telephone No. (602) 234-8100

☐ Visit, Site _____ City _____

Regarding: Tucson Cornelia and Gila Bend Railroad

Conversation Items: Asked for person to talk with concerning no-built plans on the RR south of Gila Bend parallel to SR-85. An engineer called me back and gave me the name Jim Armstrong in Ajo @ 387-7451 to contact. Phelps Dodge does own the RR. He is the president of the railroad

| Action Required: | Action Taken: |
|---|---|
| | |

**CONVERSATION RECORD**

Job No. 11358 Job Name FCDMC - Gila Bend Date 8/27/91

By Tom Loomis Time 3:15

With Mike Vyne SAST

☐ By Telephone ☐ Incoming ☐ Outgoing Telephone No. (602) 947-3598

☐ Visit, Site _____ City _____

Regarding: ARC-INFO ← ACAD conversion.

Conversation Items: 5644 E Thomas Rd.
Phoenix, AZ 85018

1. All sub-basins and sub boundaries must be closed polygons using P-Lines
2. All Thalwegs must be digitized in a downstream direction.

Action Required: find same ACAD file.

Action Taken: Done.

# CONVERSATION RECORD

Job No. 11358 Job Name FCDMC Gila Bend Date 8/5/91

By Tom Loomis Time 3:00

With Tom Granillo

☐ By Telephone ☒ Incoming ☐ Outgoing Telephone No. (_____)

☐ Visit, Site _____ City _____

Regarding: FCDMC Data

Conversation Items: Pedro talked to Tom. Tom is gathering up all info I requested. Should be ready by Thursday

Action Required: Call on Wed.

Action Taken:

# CONVERSATION RECORD

Job No. 11358 Job Name FCDMC Gila Bend Date 8/5/91

By Tom Loomis Time 9:32

With Pedro Calaza

☒ By Telephone ☒ Incoming ☐ Outgoing Telephone No. (_____)

☐ Visit, Site _____ City _____

Regarding: FCDMC Data

Conversation Items: Asked Pedro to put together all data on the Gila Bend project. i.e: Spreadsheets on Lotus 123, drawings in DXF format, etc.

| Action Required: Follow up | Action Taken: |
|---|---|
| | |

**CONVERSATION RECORD**

Job No. 2 Job Name FCDMC Gila Bend Date 7/12/91

By Tom Loomis Time 9:55

With John Forest - USAF

☒ By Telephone ☐ Incoming ☒ Outgoing Telephone No. (602) 856-3621

☐ Visit, Site _____ City _____

Regarding: Access to Military Reserve

Conversation Items: I explained who B&N is and that we will need access to the range. I asked if we had any concerns regarding our access. He said no, other than the ones already brought to my Capt. Ward. I gave him Pedro's phone number because he would like to receive a copy of the final report.

Action Required: None.

cc: Jim Mischler

Action Taken:

# CONVERSATION RECORD

Job No. 2 Job Name FCDMC- Gila Bend Date 7/8/91

By Tom Loomis Time 11:23

With Luke Air Force Base - Secretary @ Environmental Office

☒ By Telephone ☐ Incoming ☒ Outgoing Telephone No. (602) 856-7293

☐ Visit, Site _____ City _____

Regarding: Access to Bombing Range

Conversation Items: Both John Forrest and Capt. Rafferty are out of the office until 7/11/91. Left a message for one of them to call me.

| Action Required: | Action Taken: |
|---|---|
| | |

cc: Jim Mischler
Pedro Calzon

# CONVERSATION RECORD

Job No. 2 Job Name FCDMC - Gila Bend Date 7/8/91

By Tom Loomis Time 11:15 a.m.

With Hector Abrego

☒ By Telephone ☐ Incoming ☒ Outgoing Telephone No. (602) 863-4464

☐ Visit, Site _____ City _____

Regarding: Access to Gila Bend Bombing Range

Conversation Items: Explained who we are and why we need access. He requested we send a letter with an explanation of the activities we intend to perform in the area, a map of the watershed area, and who we are under contract with. They will make a determination of what form the access permit will be issued under, set restrictions if necessary. Send letter to:

BLM attn: Ken Drew
2015 West Deer Valley Road
Phoenix, AZ 85027

| Action Required: | Action Taken: |
|---|---|
| Write letter | |

cc: Jim Mischler
Pedro Calza

# CONVERSATION RECORD

Job No. 2 Job Name FCDMC - Gila Bend Date 7/8/91

By Tom Loomis Time 11:00

With Capt. Chris Ward, USAF

☒ By Telephone ☒ Incoming ☐ Outgoing Telephone No. (602) 683-6202

☐ Visit, Site _____ City _____

Regarding: Access to bombing range.

Conversation Items: Capt. Ward stated that approximately 2/3 of the watershed (per map I sent him) is in their active bombing area. They fly Mon. - Fri., 8:00 a.m. - 10:00 a.m. We can have access on the weekends, but must sign hold-harmless agreement and attend a safety orientation/briefing. He needs 2-weeks notice for scheduling class. We must also coordinate with the BLM for access to the range: Mr. Hector Abrego, BLM - 863-4464. The Environmental Office at Luke Air Force Base must also be contacted: John Forrest or Capt. Raffertty. 856-7293

Action Required: Make designated contacts.

Action Taken:

cc: Jim Mischler
Pedro Calza.

# CONVERSATION RECORD

Job No. 2 Job Name FCDMC - Gila Bend Date 5/30/91

By Tom Loomis Time 9:10

With Glen McCuen

☒ By Telephone ☐ Incoming ☒ Outgoing Telephone No. (_____)

☐ Visit, Site _____ City _____

Regarding: Gila Bend Canal mapping

Conversation Items: I asked Glen if his firm had prepared contour mapping of the canal in our study reach. He said no, not yet. It may be done this fall.

| Action Required: | Action Taken: |
| --- | --- |
| | |

# CONVERSATION RECORD

Job No. 2 Job Name FCDMC - Gila Bend Date 5/22/91

By Tom Loomis Time 8:09

With John - Ace Photo

☒ By Telephone ☐ Incoming ☒ Outgoing Telephone No. (_____)

☐ Visit, Site _____ City _____

Regarding: Base Map Costs

Conversation Items: Gave John same info I gave Aerial Mapping Co. John quoted a fee of $950.

| Action Required: | Action Taken: |
|---|---|
| | |

# CONVERSATION RECORD

Job No. 2 Job Name FCDMC - Gila Bend Date 5/22/91

By Tom Loomis Time 7:59

With Jerry Francis - Aerial Mapping

☒ By Telephone ☒ Incoming ☐ Outgoing Telephone No. (602) 263-5728

☐ Visit, Site _____ City _____

Regarding: Base Map costs.

Conversation Items: 23 quad maps photo mosaiced.
Make 8 - 36"x42" 2000 scale base maps
1 - 24"x36" 10000 Scale base map

Make 2 sets.

Jerry quoted a fee of $2110

| Action Required: | Action Taken: |
|---|---|
| | |

# CONVERSATION RECORD

Job No. 2 Job Name FCDMC - Gila Bend Date 5/20/91

By Tom Loomis Time 4:25

With Jim Downing - Paloma Ranch Water Users Association

[X] By Telephone [ ] Incoming [X] Outgoing Telephone No. (602) 859-3647

[ ] Visit, Site _____ City _____

Regarding: Gila Bend Canal from Theba to east side of Gila Bend

Conversation Items: I asked Jim if there is contour mapping available for our study reach of the canal. He said no. There is topo available, covering the canal from the outside of levee road to outside of levee road downstream from Gila Bend to the 1st siphon west of the SR 85 crossing (approx. 1/2 to 3/4 mile). There is not info available from prior to Fall, 1988, as the last engineer took it with him. He is no deceased. He says there is no history of cross drainage flooding problems that have been brought to his attention. There are ranch hands available who have been employed for a number of years who could be a source of information

Action Required: Contact Jim for names and phone numbers prior to going into the field.

Action Taken:

## CONVERSATION RECORD

Job No. 2 Job Name FCDMC Gila Bend Date 5/15/91

By Tom Loomis Time 2:20

With Captain Chris Ward

☒ By Telephone ☐ Incoming ☒ Outgoing Telephone No. (602) 683-6258

☐ Visit, Site _____ City _____

Regarding: Access to Bombing Range

Conversation Items: Discussed access to the watershed. I am to send a map marked up with the approximate watershed boundaries. He will highlight the areas we can't access. We'll need to sign a "Hold Harmless" agreement, and obtain a "Range Pass".

Captain Chris Ward
832 CSS/OT
Gila Bend AFAF, AZ 85337
683-6258

| Action Required: | Action Taken: |
|---|---|
| | |

# SECTION 1: General Documentation and Correspondence

*1.3 Meeting Minutes & Reports*

BURGESS & NIPLE

ENGINEERS
ARCHITECTS

# MINUTES OF MEETING

**Project:** Gila Bend Area Floodplain Delineation Study, 90-67
**Date:** September 4, 1991
**Time:** 10:30 AM
**Subject:** Progress Meeting No. 1

**Attendees:** Mr. Pedro Calza, MCFCD
Mr. Tim Murphy, MCFCD
Mr. Amir Motamedi, MCFCD
Mr. Afshin Ahouraiyan, MCFCD
Ms. Marta Dent, MCFCD
Mr. James Mischler, B&N

**Burgess & Niple, Inc.**
5025 East Washington Street
Suite 212
Phoenix, AZ 85034
602 244-8100
Fax 602 244-1915

1. Tim Murphy will be the project manager for the District. Afshin Ahouraiyan will be the point of contact for hydrology coordination.

2. Detailed topographic mapping will be used when it becomes available to confirm assumptions made in the hydrologic analysis.

3. Mr. Ahouraiyan has found a copy of the 1969 report by SCS - not COE as previously thought. He will provide a copy to Burgess & Niple.

4. Mr. Mischler informed the District that Mantech, the firm selected by Burgess & Niple to provide Arc-Info translation, was going out of business. Burgess & Niple is currently discussing the project with GIS consultants of Arizona Ltd. If discussions are successful, Burgess & Niple will request that the District allow this substitution of Arc-Info consultants.

5. Floodplain maps will be plotted on pre-made mylars. Title blocks and borders will not be a part of the electronic file. Ms. Dent will investigate whether the District will desire a standard sheet layout to meet with their plans for future use of electronic files. Information text on each floodplain sheet (ERM table, discharge table, key index, match lines, etc) will be in digital format and will be a part of the plot file.

6. Watershed maps will be digitized for Arc-Info with features of "major" or "minor" and the watershed name. Section corners provided by the District will be included. Additional information, such as flow lengths, times of concentration, etc. will be added by conventional drafting methods to make informative blueline prints for the Hydrology TDN, and will not become a part of the Arc-Info file.

7. Soil maps will be digitized for Arc-Info with features of "major" or "minor", soil type, and texture type. Section corners provided by the District will be included. Additional data added to make informative blueline prints for the Hydrology TDN will be added by conventional methods and will not become a part of the Arc-Info file.

8. Mr. Mischler presented a proposed work schedule to the District. A copy is attached to these minutes. Major milestones include:

| | |
|---|---|
| Aerial mapping flight | 9/13/91 |
| Draft Hydrology TDN | 12/13/91 |
| District comments on draft TDN | 1/10/92 |
| Hydraulics TDN | 2/14/92 |
| Final Hydrology TDN & FEMA submittal | 2/28/92 |

9. Mr. Mischler noted that digital watershed data provided by the District was not formatted to fit 7-1/2 minute quadrangle maps. New data provided by the District fits reasonably well. Because data provided by the District was in NAD 27 format, additional work by Burgess & Niple will also be NAD 27.

10. An attempt will be made to place the notice of intent to restudy the area in a local Gila Bend newspaper.

Respectfully submitted,

**BURGESS & NIPLE, INC.**

James E Mischler

James E. Mischler, P.E.
Project Manager

JEM:sk/11358

BURGESS & NIPLE

ENGINEERS

ARCHITECTS

# MINUTES OF MEETING

**Project:** Gila Bend Area Floodplain Delineation Study, 90-67
**Date:** September 11, 1991
**Time:** 2:00 P.M.
**Subject:** Progress Meeting No. 2

**Burgess & Niple, Inc.**
5025 East Washington Street
Suite 212
Phoenix, AZ 85034
602 [illegible]-4-8100
Fax 602 244-1915

**Attendees:**
Mr. Tim Murphy, MCFCD
Mr. Amir Motamedi, MCFCD
Mr. Afshin Ahouraiyan, MCFCD
Ms. Marta Dent, MCFCD
Mr. James Mischler, B&N

1. The purpose of this meeting was to discuss the September 9th letter from Mr. Mischler to Mr. Murphy regarding ARC/INFO deliverables. (Letter is attached.)

2. The District is in agreement with Burgess & Niple's understanding of project requirements as stated in the letter.

3. Mr. Mischler noted that ARC/INFO streets are a single line with attribute for width, but mapped streets are proposed to be shown as two lines showing actual width. District staff agreed that two lines are more accurate and preferred for mapping. The District already has single street lines from other sources, and can add them to this file at a later date, if desired.

4. The District has not yet identified a standard sheet layout. (Per a telephone conversation September 23rd with Mr. Murphy, Mr. Mischler requested an 18" x 27" or larger mapping window so as to match assumptions made during fee negotiations regarding sheet number and layout).

5. Burgess & Niple proposes to complete ARC/INFO translations of soils, watershed, and base mapping prior to the FEMA submittal scheduled for late February. Floodplain information will be transferred to ARC/INFO format following FEMA approval. District personnel indicated they would consider the project substantially complete when the FEMA submittal was made.

6. Mr. Mischler noted that a local newspaper, "Gila Bend Sun", would be contacted regarding public notification of a floodplain study in addition to the Arizona Republic.

7. Mr. Murphy provided a copy of a standard letter for access, to be used if found necessary to gain access for surveying.

Respectfully submitted,

**BURGESS & NIPLE, INC.**

James E Mischler

James E. Mischler, P.E.
Project Manager

JEM:lmw/11358

copy: Attendees
Tom Loomis

CC: TRL, I
Orig - JEN

WOOLSEY FLOOD PROTECTION DISTRICT
County of Maricopa, State of Arizona

Deon Layton
President

Polly Getzwiller
Vice-President

Charles Miccia
Secretary-Treasurer

Reply to:

Douglas C. Nelson, P.C.
1001 North Central Avenue
Suite 601
Phoenix, Arizona 85004
(602) 258-8401

December 5, 1991

FLOOD CONTROL DISTRICT
RECEIVED
DEC 9 1991
CH ENG | P & PM
DEP | HYDRO
ADMIN | LMOT
FINANCE | FILE
C & C | 1 | 7 P.M.
ENGR
REMARKS

Timothy M. Murphy
Hydrologist
Flood Control District of Maricopa County
2801 West Durango
Phoenix, Arizona 85009

*Re: Minutes of December 3, 1991*

Dear Tim:

As you requested I enclose a copy of the draft Minutes of the December 3, 1991 meeting of the Woolsey Flood Protection District. Thank you, Frank and Sandra for your presentations.

Sincerely,

C Doug

Douglas C. Nelson
Legal Counsel

DCN/ms

Enclosure

c: Deon Layton
President

# MINUTES

Draft
12/5/91

Woolsey Flood Protection District
County of Maricopa, State of Arizona

Meeting of December 3, 1991
1:30 p.m. to 3:30 p.m.

Agri Center Conference Room
25560 West Highway 85
Buckeye, Arizona 85326

---

Directors Present:

Polly Getzwiller
Deon Layton

Director Absent:

Charles Miccia

Others Present:

Douglas C. Nelson
District Legal Counsel

Frank M. Vasquez, P.E., RLS
Project Manager
Donohue Engineers

Timothy M. Murphy
Hydrologist
Maricopa County Flood Control District

Sandra Story
Hydrologist
Maricopa County Flood Control District

Presentation on the "Gila Bend Canal Floodplain Delineation Study"

Mr. Frank Vasquez of Donohue Engineering made a presentation on the completion of the "Gila Bend Canal Floodplain Delineation Study," FCD 90-06. The study resulted in the completion of two reports, one is entitled the "Hydrology Report," and the other is entitled "Hydraulic Analysis and Floodplain Delineation Report." The study also includes several sets of aerial maps which correspond to these two reports.

Concentration points on the Gila Bend Canal are named and cross-referenced on the maps and in the reports. This study modeled the watershed which used the HEC-1 (an hydrological model from the U.S. Corp of Engineers) which gives the flexibility in adjusting variables and running various determinants, affecting conditions in the area. There are 19 concentration points on the Gila Bend Canal, and the study used a six-hour and 24-hour storms in reviewing the cubic feet per second flows and the ponding in areas of inundation along the upstream side of the Gila Bend Canal.

The study area encompasses a 297 square-mile area with 100 sub-basins and 87 channels which were routed to the major construction points. Five of the channels discharge water in more than one direction. In reference to the impacts of Highway 85, Mr. Donohue reported that the highway is apparently an insignificant factor because during the six-hour and 24-hour storms the flow is large enough so that the water is generally dispersed across the highway. But the highway may be of a more significant impact during smaller storms when it serves as a barrier and source of concentration of water in selected channels.

Six gauging stations were used that were located near the watershed. None were actually found in the study area itself. The values derived from those gauging stations were used in calibrating the model mentioned previously.

The study of the flood delineation covered solely the upstream (east) side of the Gila Bend Canal. It did not address the discharge of water flowing downstream (west) of the Gila Bend Canal.

The study prepared by Donohue Engineering on behalf of the Maricopa County Flood Control District will be submitted to the Federal Emergency Management Agency (FEMA) for approval.

## Presentation on the Rainbow Wash Study Area

Tim Murphy of the Maricopa County Flood Control District made a presentation on the progress of the study on Rainbow Wash. It consists of 11 linear miles with the width to be determined by the 100-year flood area for FEMA purposes. This study will use the hydrology developed by Donohue Engineering in conjunction with the Gila Bend Canal study project. This study was requested by the Woolsey Flood Protection District in response to the landfill site in that wash area.

The expected completion date of this study is the summer of 1992. The landfill is in the design phase and Gary Sherbert of Donohue Engineering is in charge of designing that facility.

## Presentation on the Gila Bend Floodplain Delineation Study

Mr. Murphy made a presentation on the progress of the Gila Bend Floodplain Delineation Study. It consists of approximately 13 square miles with 15 miles of linear delineation. All new hydrology data will be developed in order to complete this project. The preliminary hydrology is expected to be completed during the latter part of January, 1992 with the completion of the report sometime during the summer of 1992 for submission to FEMA for approval.

## Conclusion

The Board members complimented Mr. Vasquez, Mr. Murphy and Ms. Sandra Story for the efforts of the Maricopa County Flood Control District in completing the Gila Bend Canal Floodplain Study. The Board indicated it would be sending a letter of thanks to the Maricopa County Flood Control District for its study efforts.

DATED as of December 3, 1991.

Deon Layton, President
Woolsey Flood Protection District,
Maricopa County, Arizona

I hereby certify that these are the Minutes and duly adopted Resolutions of the Board of Directors of the Woolsey Flood Protection District, County of Maricopa, State of Arizona, dated as of December 3, 1991.

Charles Miccia,
Secretary-Treasurer
Woolsey Flood Protection District,
Maricopa County, Arizona

WFP\MIN&RES.DEC

# SECTION 1: General Documentation and Correspondence

*1.4 General Correspondence*

# TOWN OF GILA BEND

*The Heart of Arizona*

RECEIVED
MAR 27 1992
BURGESS & NIPLE, INC.

March 26, 1992

Mr. Carl Uphoff
Burgess & Niple, Inc.
5025 E. Washington Str. #212
Phoenix, AZ 85034

Dear Mr. Uphoff:

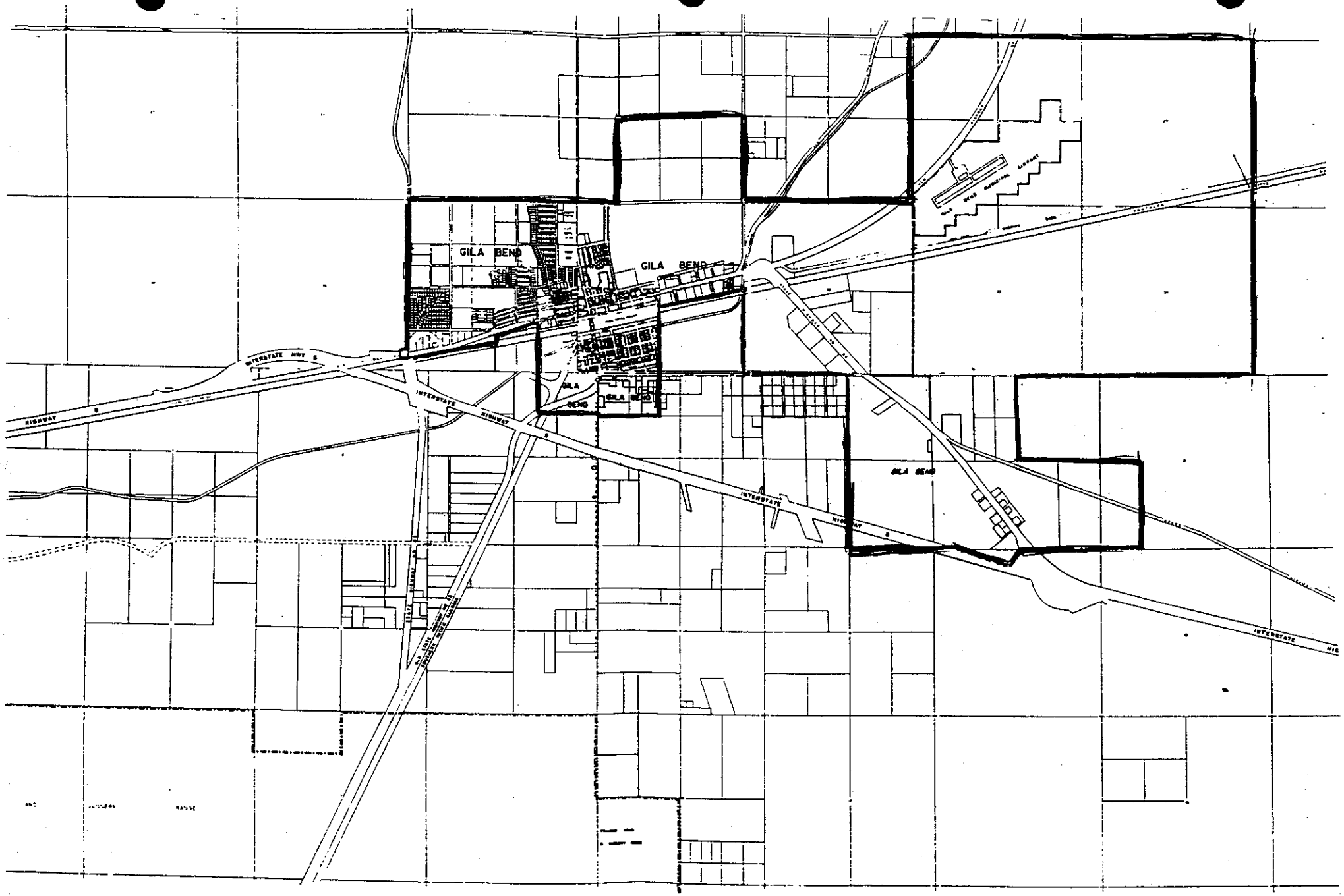
Enclosed are the corporate limit maps you requested. If we can be of further assistance, please call me at (602) 683-2255.

Sincerely,

Lisa Grabbi

Lisa Grabbi
Secretary, Town of Gila Bend

P.O. Box A, 644 W. Pima St. Gila Bend, Arizona 85337-0360 (602) 683-2255 or Phoenix Line (602) 256-7856




TOWNSHIP 6 SOUTH-RANGE 5 WEST, G. & S.R.B.M
NORTH HALF
MARICOPA COUNTY DEPARTMENT OF PLANNING & DEVELOPMENT

Gila Bend, AZ Corporate Limits

BURGESS & NIPLE
ENGINEERS
ARCHITECTS

# FAX COVER SHEET

**Burgess & Niple, Inc.**
1106 North Beeline Highway
Payson, AZ 85541
602 474-5313
Fax 602 474-3511

Date: 3/25/92

Job Number: 11358

Re: Gila Bend F.I.S.
FCD 90-67

TO: Flood Control District of Maricopa County
Attn: Amir Motamedi

**FAX PHONE NUMBER:**

We are sending you 2 additional pages, not counting this cover sheet.
If all pages are not received, please call us as soon as possible.

**COMMENTS:** Notes on HEC-1 problem for your info.

**FAX SENT**

Signed: Tom Lomin

BURGESS & NIPLE, INC. - COMPUTATION SHEET

JOB NO. 11358 JOB NAME Gila Bend FIS SHEET 1 OF 2 SHEET

SUBJECT Diversion Calculation PREPARED BY TRL DATE 3/25/92

Problems with HEC-1 using JD's CHECKED BY _____ DATE _____

A problem was encountered with the Bender Wash and Sand Tank Wash 6-hour model at operations DC150L and DC150R. The total peak entering the diversion was 1655 cfs with an associated area of 330.40 s.m. The diversion table input to the model on DI and DQ records should force 0 cfs to be diverted for this case. The model was outputting diverted flows of 678 cfs to the left branch and 1190 cfs to the right branch. These two flow rates total 1868 cfs which is greater than the inflow peak.

The JD records used in the model which bracket 330 sm were 90 and 500 sm. Obviously, the 24-hour model is more appropriate because the Design Manual recommends use of the 6-hour distributions for watersheds less than 100 s.m. This situation could also happen for the 24-hour model. The 24-hour models were checked. In some cases the two diverted flows do not total to the inflow peak, but the differences are insignificant

The problem appears to stem from insufficient definition of the rural reduction curve.

In the B&ST 6-hr. model, the operations exhibiting this problem are:

| | | |
|---|---|---|
| C79 = 8419 | C82 = 2823 | BC132L = 1655 |
| DC79L = 4527 247 | DC82L = 21 8 | DC150L = 678 213 → should be 0 |
| DC79R = 3645 | DC82R = 2810 | DC150R = 1190 |
| A = 77.13 sm. | A = 85.07 sm | A = 330.4 |
| C81 = 3400 | C132 = 11499 | C142O = 897 |
| DC81L = 2778 22 | DC132L = 1655 1992 | DC142L = 174 17 |
| DC81R = 600 | DC132R = 7852 | DC142R = 740 |
| A = 79.75 sm | A = 330.4 sm | A = 336.59 |

BURGESS & NIPLE, INC. - COMPUTATION SHEET

JOB NO. _____ JOB NAME _____ SHEET 2 OF 2 SHEET

SUBJECT _____ PREPARED BY _____ DATE _____

_____ CHECKED BY _____ DATE _____

The JD records used were:

| Area |
|---|
| 0.01 |
| 0.5 |
| 2.8 |
| 15.8 |
| 90.0 |
| 500.0 |

Additional definition was added as follows:

0.01
0.5
2.8
15.8
50.0
90.0
200.0
300.0
350.0
500.0

This approach cleared up the problem of not having a zero outflow for DC150L and DC82L). The other operations still do not total correctly. I input linear interpolated hyetographs for each JD record by the way. The problem does not occur in the 24-hour models. I think it is related to interpolation using JD records + different precipitation patterns. Since the 6-hour results do not control for the FIS, I am not pursuing this any further.

FLOOI ONTROL DISTRICT OF MARICOPA COU Y

Interoffice Memorandum

Subject: Gila Bend FDS File: FCD 90-67

To: TMM From: AA Date:01-30-92
CC: AMM

The following are comments on the submittal of hydrology parameters dated 01-23-92.

1- Why are the interpolated values for DTHETA and PSIF values in Table S-1 done for XKSAT values of up to 0.4? It would be helpful to have the interpolations of these values for XKSAT values higher than 0.4.

2- In table S-2 there is no need to have the Green And Ampt values for soil map units of the 500 series. The numbers have been related to the 300 series and the soil maps do not use the 500 series.

3- In table S-3 add another row called Percent area of Soil Map units.

4- In the hydrology documentation explain the assumptions used for percent vegetation cover.

5- Check all DTHETA and PSIF values in table S-3 with table S-1 as some of the values differ between the two tables.

6- There are some discrepancies between the IA values calculated by the FCD and the values in table S-4. These values need to be checked. The IA values used to get the weighted IA values should be noted either in the final hydrology documentation or as a footnote to the table.

7- As part of the documentation reasons behind all the weighted and adjusted values are needed. ( e.g. Reason behind Adjustment of valley areas.)

8- A discussion of S-graphs chosen is needed as part of the documentation.

9- In table S-5 under the column Surface Characteristics add a row for the Kn values used for each category.

10- The values in table S-6 are off by one row and has been corrected as per conversation with Tom Loomis on 01-29-92.

11- The modeling diagram is in order.

12- I need to see the precipitation calculations and the routing parameters calculations.

13- Please submit the documentation with future submittals.

If there are any questions please let me know.

FLOOD CONTROL DISTR
OF MARICOPA COUNTY
3335 West Durango Street
PHOENIX, ARIZONA 85009

(602) 262-1501

# LETTE OF TRANSMITTAL

| DATE | JOB NO. |
|---|---|
| 01-09-92 | FCD 90-67 |

ATTENTION

RE:

TO Tom Loomis
Burges & Niples

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

| COPIES | DATE | NO. | DESCRIPTION |
|---|---|---|---|
| 2 | 01-09-92 | | Corrected Sub-basin Boundaries |
| 1 | 01-09-92 | | Floppy disk containing HEC-1 programs |
| 2 | 01-09-92 | | Parameter Calculation sheets. (2 pages). |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS

COPY TO

SIGNED: A. Abonza

6900-011 2-86

*If enclosures are not as noted, kindly notify us at once.*

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT _____ PAGE ____ OF ____

DETAIL _____ COMPUTED _____ DATE ____

_____ CHECKED BY _____ DATE ____

Tom: Enclosed you'll find the corrected maps with new parameter calculations. As we discussed I have left some of the cards for HEC-1 program blanks. I hope that this will be O.K. and your program can pick up all the blank entries. Note that in the Border file (BS24.dat) the split needs to be retrieved later on in your part of the study for subbasin 255. The Data Storage System (DSS) was used to store the split flow. To retrieve it use ZR card anywhere within the program. The green marker on the map is now the sub basin should be and subbasin 200 has totally changed. The HEC-1 program itself should be in the right order. Thank you for your patience. Call for any question. Afshin

Received 1/10/92 TRL

# FLOOD CONTROL DISTRICT O. MARICOPA COUNTY

PROJECT Gila Bend PAGE ____ OF ____

DETAIL LG Card Parameters COMPUTED ____ DATE ____

CHECKED BY ____ DATE ____

## S2CC

| Map Unit | Area (Acres) | Area (mi²) | % Area | XKSAT | log (XKSAT)* (% Area) |
|---|---|---|---|---|---|
| 301 | 490.24 | 0.766 | 17.49 | 0.50 | −0.053 |
| 324 | 526.08 | 0.822 | 18.76 | 0.84 | −0.014 |
| 321 | 714.24 | 1.116 | 25.47 | 0.40 | −0.101 |
| 329 | 359.04 | 0.561 | 12.81 | 0.25 | −0.077 |
| 266 | 16.64 | 0.026 | 0.59 | 0.44 | −0.002 |
| Valley | 697.60 | 1.09 | 24.88 | 0.25 | −0.150 |
| | 2803.84 | 4.381 | | | |
| | 122,135,270.4 | | | | |

XKSAT = 0.40
IA = 0.35
PSIF = 4.3
DTHETA = 0.35
RTIMP = 0

## S2BD

| Map Unit | Area (Acres) | Area (mi²) | % Area | XKSAT | log (XKSAT)* (% Area) |
|---|---|---|---|---|---|
| 301 | 32 | 0.05 | 9.17 | 0.50 | −0.028 |
| 234 | 130.56 | 0.204 | 37.43 | 0.49 | −0.116 |
| 266 | 97.28 | 0.152 | 27.89 | 0.44 | −0.099 |
| 329 | 44.80 | 0.070 | 14.13 | 0.25 | −0.085 |
| 263 | 25.60 | 0.040 | 7.34 | 0.56 | −0.018 |
| 269 | 14.08 | 0.022 | 4.04 | 0.84 | −0.003 |
| | 344.32 | 0.538 | | | |
| | 14,998,579.2 | | | | |

XKSAT = 0.45 PSIF = 4.16
DTHETA = 0.35 IA = 0.35
RTIMP = 0

## S2FF

| Map Unit | | Area | % Area | XKSAT | log (XKSAT)* % Area |
|---|---|---|---|---|---|
| 301 | 398.08 | 0.622 | 11.29 | 0.50 | −0.034 |
| 329 | 247.04 | 0.386 | 7.01 | 0.25 | −0.042 |
| 324 | 419.20 | 0.655 | 11.89 | 0.84 | −0.009 |
| Valley | 2462.08 | 3.847 | 69.82 | 0.25 | −0.420 |
| | 3526.40 | 5.510 | 153,609,984.0 | RTIMP = 0 | |

XKSAT = 0.31 DTHETA = 0.35
PSIF = 3.82 IA = 0.35

# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT Gila Bend PAGE ____ OF ____

DETAIL Lag Calculations COMPUTED ____ DATE ____

CHECKED BY ____ DATE ____

21.2

S2CC

L = 7.07 Lca = 3.62 S = 50.2 Kn = 0.05

Lag = 117 minutes

S2FF

L = 13.37 Lca = 6.44 S = 54.8 Kn = 0.05

Lag = 183 minutes

S2DD

L = 2.10 Lca = 0.93 Slope = 32.38 Kn = 0.05

Lag = 48 minutes

TUCSON, CORNELIA AND GILA BEND RAILROAD COMPANY

1 Plaza Ajo, Arizona 85321

Phone 387-6068

November 19, 1991

Maricopa County Flood Control
Engineering Department
2801 W. Durango
Phoenix, Arizona 85009

Dear Sirs:

In regard to your request for information on Tucson, Cornelia and Gila Bend Railroad (TC & GB) track drainage structures, all TC & GB employees were laid off in 1985 and at the same time all but a plant maintenance crew were laid off by the Phelps Dodge Mining Company; therefore, we do not have either access or anyone to search for any documents that would be helpful for your study.

We are agreeable to your inspecting or taking measurements of any of the drainage structures that may be of concern to you. Most were originally installed in 1916; however, I understand several on the north end were replaced ten to fifteen years ago.

Sincerely,

James L. Armstrong
General Manager

JLA:sg

xc: JLM

NOV 22 1991

BURGESS & NIPLE
ENGINEERS
ARCHITECTS

Burgess & Niple, In
Suite 2
5025 East Washington Str
Phoenix, Arizona 850
602 244-81
Fax 602 244-19

# LETTER OF TRANSMITTAL

DATE October 7, 1991 | JOB NO 11358

RE: Gila Bend Area
FCD 90-67

TO Mr. Timothy Murphy
Flood Control District of Maricopa County
3335 West Durango
Phoenix, Arizona 85009

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following item

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specificatior
☐ Copy of letter ☐ Change order ☐ _____

| COPIES | DATE | NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 9/27/91 | | Affidavit of Publication for Announcement of Intent to perform study |

THESE ARE TRANSMITTED:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☒ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☒ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____

REMARKS _____

COPY TO _____

If enclosures are not as noted, kindly notify us at once.

SIGNED James E. Mischler
James E. Mischler, P.E.

**AFFIDAVIT OF PUBLICATION**

INVOICE NO. 9109

**ANNOUNCEMENT OF INTENT TO PERFORM FLOOD ELEVATION STUDY**

The Flood Control District of Maricopa County (FCDMC) has contracted Burgess & Niple, Inc., to perform a floodplain delineation for Gila Bend and surrounding areas.

This study will examine and evaluate flood hazard areas in the community to determine the flood elevation for those areas. These elevations will then be used to determine flood insurance rates used by the Federal Emergency Management Agency (FEMA).

This announcement is intended to inform all interested persons and communities of the commencement of this study so that they may have an opportunity to bring any relevant technical information to the attention of FCDMC/FEMA, so that they could be considered during the course of this study. Your comments should be addressed to Mr. Pedro Cabra or Mr. Timothy Murphy, Hydrologists at the Flood Control District of Maricopa County.

Published: Arizona Republic, September 27, 1991.

The Arizona Republic The Phoenix Gazette

STATE OF ARIZONA
COUNTY OF MARICOPA } SS.

JOAN LOHR, being first duly sworn, upon oath deposes and says: That she is the legal advertising manager of the Arizona Business Gazette, a newspaper of general circulation in the county of Maricopa, State of Arizona, published at Phoenix, Arizona, by Phoenix Newspapers Inc., which also publishes The Arizona Republic and The Phoenix Gazette, and that the copy hereto attached is a true copy of the advertisement published in the said paper on the dates as indicated.

The Arizona Republic
~~The Phoenix Gazette~~

SEPT. 27, 1991

Joan Lohr

Sworn to before me this

2nd day of

October A.D. 19 91

OFFICIAL SEAL
MARY LEE BOOHER
NOTARY PUBLIC STATE OF ARIZONA
MARICOPA COUNTY
My Comm. Expires March 17, 1995

Mary Lee Booher
Notary Public

#11358

# FLOOD CONTROL DISTRICT
of
Maricopa County

3335 West Durango Street • Phoenix, Arizona 85009
Telephone (602) 262-1501

D. E. Sagramoso, P.E., Chief Engineer and General Manager



RECEIVED
SEP 18 1991
BOARD OF DIRECTORS
BURGESS & NIPLE, INC.



Betsey Bayless
James D. Bruner
Carole Carpenter
Tom Freestone
Ed Pastor


SEPTEMBER 16 1991

Mr. James L. Armstrong
Plant Superintendent
Phelps Dodge
P. O. Drawer 9
Ajo, Arizona 85321

SUBJECT: Research of the Tucson Cornelia & Gila Bend Railroads' Records

Dear Mr. Armstrong:

I am writing this letter to ask for your cooperation in allowing Mr. Tom Loomis of Burgess & Niple, Inc., to research and copy your records for the Tucson Cornelia & Gila Bend Railroads. The Flood Control District of Maricopa County has contracted with Burgess & Niple, Inc., to do a floodplain delineation study for the Gila Bend area. As part of the study effort, Mr. Loomis needs to research your records for the Tucson Cornelia & Gila Bend Railroads. Mr. Loomis is primarily interested in design plans for the railroad, information on drainage cross structures, and maintenance records regarding flood damage.

We appreciate your help in assuring the accuracy of this study by allowing access to your records and by providing any information you may have regarding past flooding or related problems.

If you have any questions, please call me at (602) 262-1501.

Sincerely,

Tim Murphy

Tim Murphy
Hydrologist

Copy to: James Mischler, P.E., Burgess & Niple, Inc.

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
3335 West Durango Street
PHOENIX, ARIZONA 85009

(602) 262-1501

# LETTER OF TRANSMITTAL

DATE 09-11-91
JOB NO FCD 90-67
ATTENTION Tom Loomis
RE Gila Bend Study

TO Burgess & Niple
5025 E. Washington #212
Phoenix, AZ 85034

WE ARE SENDING YOU ☐ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☒ Report

| COPIES | DATE | NO. | DESCRIPTION |
|---|---|---|---|
| 1 | | 1 | U.S. Geological Survey Water-Resources Investigations |
| | | | Report 91-4041 |
| | | | Basin Characteristics & Streamflow Statistics in Az as of |
| | | | 1989. |
| | | | |
| | | | |
| | | | |
| | | | |

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☒ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS This is the only copy we have and would like to get it back by 09-13-91.
Hope it is useful in your research.

COPY TO _____

SIGNED: A. Ahonigan

6910-009 3-90

If enclosures are not as noted, kindly notify us at once

BURGESS
& NIPLE
ENGINEERS
ARCHITECTS

# MINUTES OF MEETING

**Project:** Gila Bend Area Floodplain Delineation Study, 90-67
**Date:** September 11, 1991
**Time:** 2:00 P.M.
**Subject:** Progress Meeting No. 2

**Burgess & Niple, Inc.**
5025 East Washington Street
Suite 212
Phoenix, AZ 85034
602 244-8100
Fax 602 244-1915

**Attendees:**
Mr. Tim Murphy, MCFCD
Mr. Amir Motamedi, MCFCD
Mr. Afshin Ahouraiyan, MCFCD
Ms. Marta Dent, MCFCD
Mr. James Mischler, B&N

1. The purpose of this meeting was to discuss the September 9th letter from Mr. Mischler to Mr. Murphy regarding ARC/INFO deliverables. (Letter is attached.)

2. The District is in agreement with Burgess & Niple's understanding of project requirements as stated in the letter.

3. Mr. Mischler noted that ARC/INFO streets are a single line with attribute for width, but mapped streets are proposed to be shown as two lines showing actual width. District staff agreed that two lines are more accurate and preferred for mapping. The District already has single street lines from other sources, and can add them to this file at a later date, if desired.

4. The District has not yet identified a standard sheet layout. (Per a telephone conversation September 23rd with Mr. Murphy, Mr. Mischler requested an 18" x 27" or larger mapping window so as to match assumptions made during fee negotiations regarding sheet number and layout).

5. Burgess & Niple proposes to complete ARC/INFO translations of soils, watershed, and base mapping prior to the FEMA submittal scheduled for late February. Floodplain information will be transferred to ARC/INFO format following FEMA approval. District personnel indicated they would consider the project substantially complete when the FEMA submittal was made.

6. Mr. Mischler noted that a local newspaper, "Gila Bend Sun", would be contacted regarding public notification of a floodplain study in addition to the Arizona Republic.

7. Mr. Murphy provided a copy of a standard letter for access, to be used if found necessary to gain access for surveying.

Respectfully submitted,

**BURGESS & NIPLE, INC.**

James E Mischler

James E. Mischler, P.E.
Project Manager

JEM:lmw/11358

copy: Attendees
Tom Loomis

BURGESS & NIPLE
ENGINEERS
ARCHITECTS

Mr. Timothy Murphy
Flood Control District of
Maricopa County
3335 West Durango
Phoenix, Arizona 85009

Re: Gila Bend Area
No. 90-67

September 9, 1991

Dear Mr. Murphy:

Burgess & Niple, Inc.
5025 East Washington Street
Suite 212
Phoenix, AZ 85034
602 244-8100
Fax 602 244-1915

This letter is to expand and clarify our understanding of the scope of work as it relates to electronic and hardcopy Arc-Info deliverables.

**Base Maps**

Base maps will include the following coverages:

- Index
- Topography
- Control points
- Transportation
- Municipal boundaries
- Bridges

Control points will include horizontal and vertical control, spot elevations and section corners. Property corners will not be included. Roads will be shown at a level of detail appropriate to the scale. Scale will be 1"=200' or 1"=400', as described in the Scope of Work.

Arc-Info plot files will be created which include a sheet index and sheet numbers. Base maps will be plotted on pre-made mylars which contain a border and Burgess & Niple's logo. Deliverables will include mylars and digital Arc-Info files.

**Floodplain Delineation Maps**

Floodplain delineation maps will include coverages on base maps and the following:

- Floodway/floodplain boundaries
- Flood hazard zones
- FEMA reference marks
- Flood elevation lines

Arc-Info plot files will be created which include a sheet index and sheet numbers. Base maps will be plotted on pre-made mylars which contain a border and Burgess & Niple's logo. Deliverables will include mylars and digital Arc-Info files.

**Watershed Maps and Soil Maps**

Watershed maps will include the following coverages:

- Watershed basins and subwatersheds
- Control points (section corners only)

Soil maps will include the following coverages:

- Soils
- Control points (section corners only)

Check-plots will be made of watershed and soils Arc-Info files to assure that data matches boundaries included on 1"=2000' scale maps in the Hydrology TDN. Maps in the Hydrology TDN will contain additional information useful to reviews of the TDN, but not required by Arc-Info coverages. Deliverables will include digital Arc-Info files and folded prints in the Hydrology TDN.

I would like to meet with you in the near future to discuss our understanding of the work to make sure it meets with your expectations.

Very truly yours,

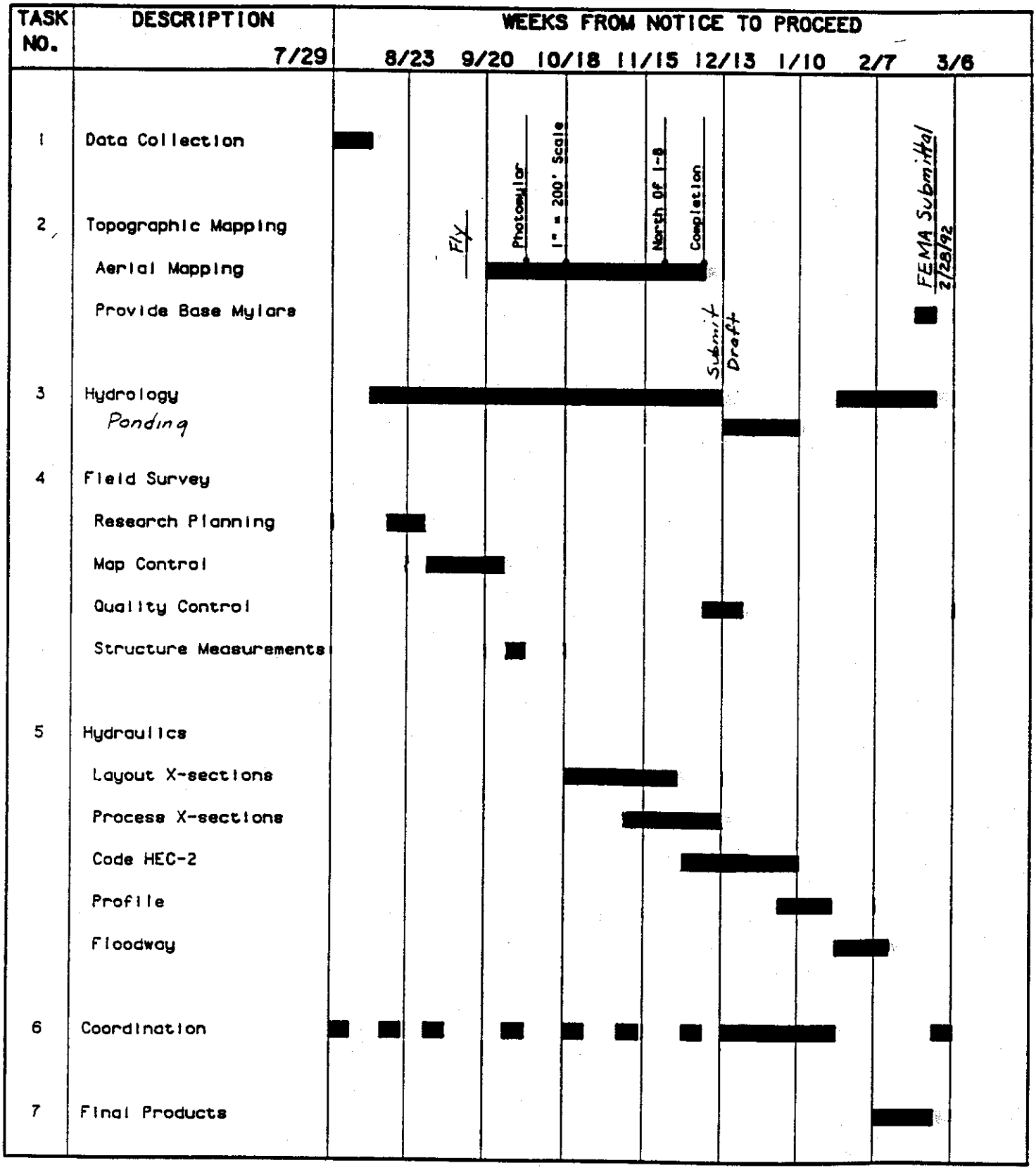
**BURGESS & NIPLE, INC.**

James E. Mischler

James E. Mischler, P.E.
Project Manager

JEM:sk/11358

# PROPOSED SCHEDULE
# GILA BEND AREA FLOODPLAIN DELINEATION STUDY
# BURGESS & NIPLE, INC.
# FCD 90-67
# PROJECT NO. 11358



FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
3335 West Durango Street
PHOENIX, ARIZONA 85009

(602) 262-1501

# LETTER OF TRANSMITTAL

DATE 9-09-91 JOB NO FCD 90-67

ATTENTION Tom Loomis

RE Gila Bend Study.

TO Burgess & Niple 244-8100
5025 E. Washington #212
Phoenix, AZ 85034

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☑ _____

| COPIES | DATE | NO. | DESCRIPTION |
|---|---|---|---|
| 1 | | 1 | Water Resources Report Number thirty-Nine |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

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☒ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS I was told that you were looking for this report. Please return this by the end of two weeks. This belongs to our hydrology library.

COPY TO _____

SIGNED: A. Ahonaiyan

6910-009 3-90

# United States Department of the Interior

BUREAU OF LAND MANAGEMENT
PHOENIX DISTRICT OFFICE
2015 WEST DEER VALLEY ROAD
PHOENIX, ARIZONA 85027

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
2920
(026)

September 4, 1991

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

DECISION

Maricopa County
Flood Control District
3335 West Durango St.
Phoenix, AZ. 85009

Land Use Permit
AZA-25639

Land Use Authorization Issued

Enclosed is a copy of Land Use Authorization AZA- 25639 which was approved by the Bureau of Land Management (BLM) on September 4, 1991. Luke AFB has concurred with the project and the issuance of this permit constitutes a final decision by the BLM.

Within 30 days of receipt of this decision, you have the right of appeals to the Board of Land Appeals, Office of the Secretary, in accordance with the regulation 43 CFR 4.400. If an appeal is taken, you must follow the procedures outlined in the enclosed Form 1842-1, Information on Taking Appeals to the Board of Land Appeals. The applicant has the burden of showing that the decision appealed from is in error.

Hector Almeyo

Kenneth R. Drew
Acting Area Manager
Lower Gila Resource Area

cc: Burgess & Niple, Inc.

Form 2920-1
(April 1991)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0009
Expires: July 31, 1992

FOR BLM USE ONLY

Application Number

AZA-25639

# LAND USE APPLICATION AND PERMIT

Sec. 302(b) of P.L. 94-579, October 21, 1976, 43 U.S.C. 1732

## APPLICATION

| 1. Name *(first, middle initial, and last)* | Address *(include zip code)* | Phone *(include area code)* |
|---|---|---|
| Flood Control District of Maricopa County | 3335 W. Durango Street<br>Phoenix, Arizona 85009 | (602) 262-1501 |

2. Attach map or sketch showing public lands for which you are applying · Attached

3. Proposed date(s) of use: from Sept. 8, 1991 to Dec. 31, 1991

4. Give legal basis for holding interest in lands in the state of Arizona
*(Check appropriate box and explain.)*

- [ ] Resident
- [ ] Corporation
- [ ] Local Government
- [ ] Other
- [ ] Partnership
- [XX] County
- [ ] State Governmen

5. Are the lands now improved, occupied, or used? [XX] Yes [ ] No *(If "yes," describe improvements and purposes identify users and occupants.)*

Military withdrawal.

6. Do you need access to the land? [XX] Yes [ ] No *(Describe needed or existing access)*

Existing roads and trails.

7a. What do you propose to use the lands for?

Hydrologic study.

b. What improvements and/or land development do you propose? *(To complete application processing, engineering and construction drawings may be required.)*

None (no surface disturbance proposed).

c. What is the estimated capital cost?
$ N/A

d. What is the source of water for the proposed use?
None

I CERTIFY That the information given by me in this application is true, complete, and correct to the best of my knowledge and belief and is given in good faith.

(Signature of Applicant)

8-19-91
(Date)

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

## SPECIAL STIPULATIONS

1. No mechanical surface disturbance is authorized off road.

2. No off road travel except along major wash bottoms and only when necessary to accomplish the study transects.

3. Use of vehicles or mechanical equipment is not authorized within the Maricopa Mountains Wilderness Area. Only the cherrystemmed roads may be used for accessing the area to be studied.

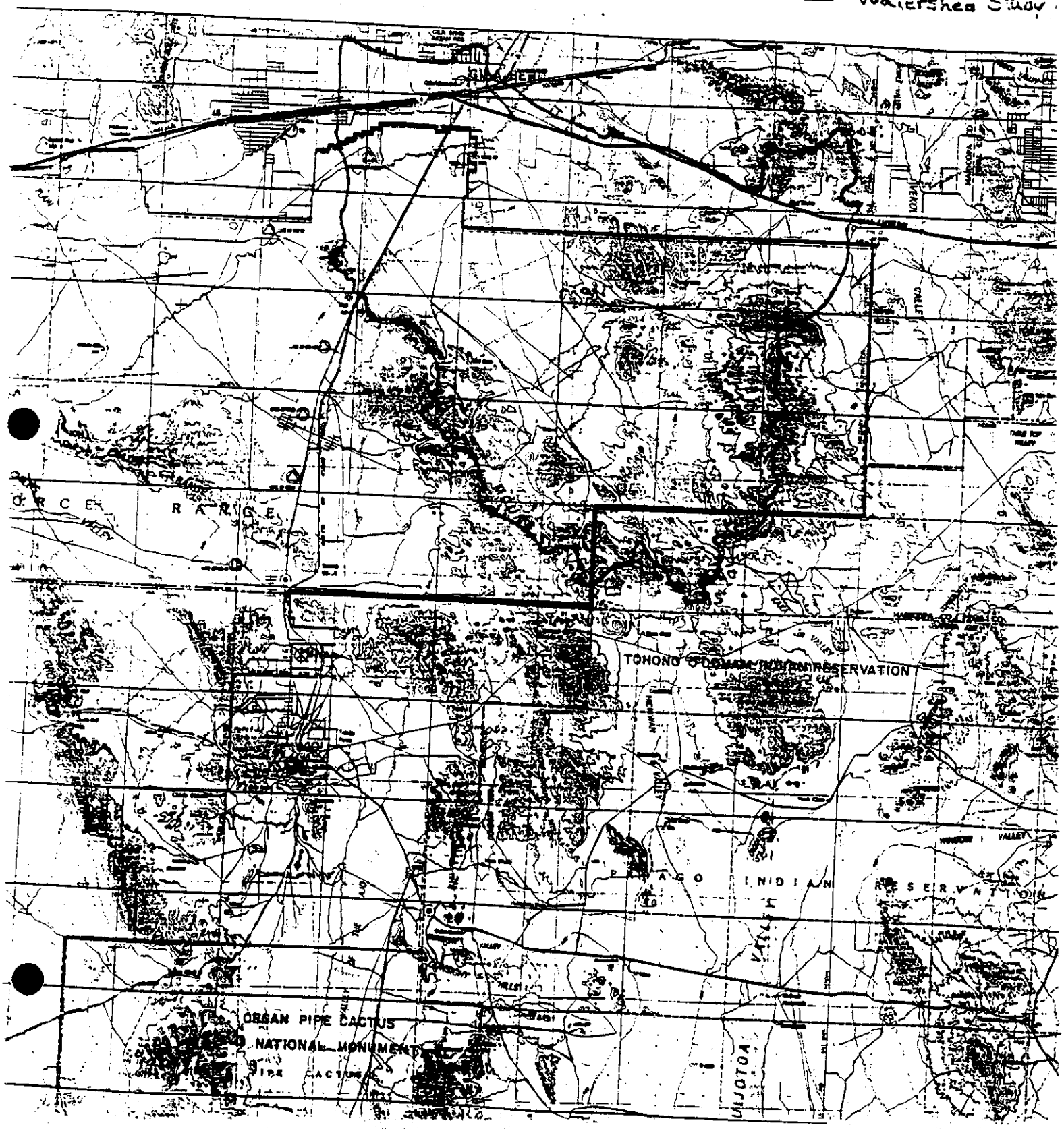
4. Prior to entering the Barry M. Goldwater Air Force Range proper notification and permits shall be obtained from Luke Air Force Base (Gila Bend Air Station).

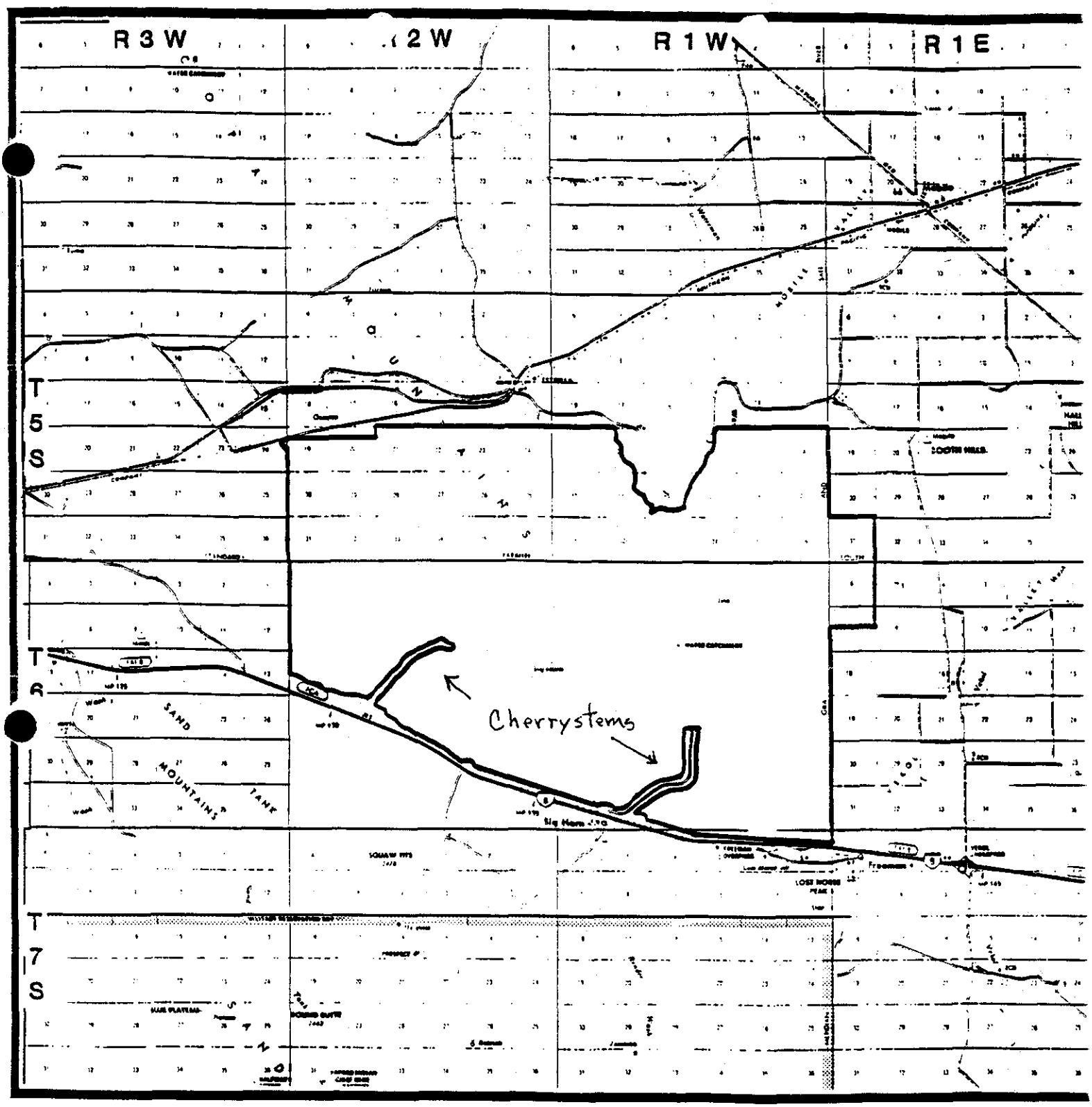
5. Any cultural sites encountered during the study shall not be disturbed.

6. A copy of the final results of the study shall be forwarded to the Lower Gila Resource Area Manager and to the Luke Environmental Quality Branch, 832 CSG/DEV, Luke AFB 85309.

— BGR Boundary

— Watershed Study






U.S. Department of the Interior
Bureau of Land Management
Phoenix District

WILDERNESS AREA BOUNDARY

N

ARIZONA

PHOENIX

LOCATION MAP

# SOUTH MARICOPA MOUNTAINS WILDERNESS AREA

Basemap © ADOT

SCALE

0 4

Miles

1980

FLOOD CONTROL DISTR
OF MARICOPA COUNTY
3335 West Durango Street
PHOENIX, ARIZONA 85009

(602) 262-1501

# LETTE OF TRANSMITTAL

DATE 8-29-91 JOB NO. FCD 90-67

ATTENTION Tom Loomis

RE: Bender & Sand Tank Washes
Gila Bend, Az

TO Burgess & Niple
5025 E. Washington, #212
Phoenix, Az. 85034

WE ARE SENDING YOU ☑ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☑ Floppy Disk

| COPIES | DATE | NO. | DESCRIPTION |
|---|---|---|---|
| 1 | | 1 | 5¼" Disk |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

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☐ For approval ☐ Approved as submitted ☐ Resubmit ____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit ____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return ____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Providing Auto Cadd DXF file of Bender & Sand Tank Wash.
1. Soils Delineation
2. Watershed
3. Section Cors
} I believe this file is under state plain coordinate system. Given any past efforts to make these plots match U.S.G.S maps were done at the plotting stage using plot scale. -- trial & error. Use PC Tools ver 5.5 to unzip (expand & unload) to dos.

Good Luck!

COPY TO Pedro Cueva / Amir Motamedi
Eric Friedman

SIGNED: Thomas E. Guillo

6900-011 2-86

*If enclosures are not as noted, kindly notify us at once.*

BURGESS & NIPLE

ENGINEERS

ARCHITECTS

Mr. Ken Drew
Bureau of Land Management
2015 West Deer Valley Road
Phoenix, AZ 85027

Re: Gila Bend Floodplain Delineation Study
Project No. 2

July 9, 1991

Dear Mr. Drew:

**Burgess & Niple, Inc.**
5025 East Washington Street
Suite 212
Phoenix, AZ 85034
602 244-8100
Fax 602 244-1915

Burgess & Niple, Inc. will be under contract with the Flood Control District of Maricopa County (FCDMC) by September, 1991, to prepare a floodplain delineation study of the Town of Gila Bend, Arizona. Our contract scope of work will include preparation of a detailed hydrologic computer model of the 620 square mile watershed contributory to Bender Wash, Sand Tank Wash, Sauceda Wash, and Quilotosa Wash. This effort will require access to the Barry M. Goldwater Air Force Range which comprises the majority of the watershed area. I talked with Mr. Hector Abrego of your office by telephone today. He asked that I write to you regarding our study, and explain the details of the activities we must perform in the field to meet the terms of our contract with the FCDMC.

Our contract calls for preparation of contour mapping of the Town of Gila Bend and adjacent areas at a scale of 1"=400', with a 4-foot contour interval. Refer to the area highlighted in blue on the enclosed map. This is the area where our field survey crews will be placing panels for aerial mapping control, and actively working to set horizontal and vertical control for the floodplain delineation.

The area outlined in orange on the map is the 620 square mile watershed contributory to the area highlighted in blue. A field reconnaissance will be performed on the watershed, which will involve the following:

1. Verify drainage channel locations which will be used for routing runoff hydrographs downstream through the watershed.

2. Verify questionable drainage basin boundaries which can't be determined accurately using USGS quadrangle maps.

3. Take representative cross sections of washes used for hydrograph routing. This will involve approximately 40 cross sections taken throughout the 620 square mile area, using a laser level and paced distances.

4. Vegetation transects will be taken at representative locations to establish average vegetation cover densities.

5. Surface soils will be observed at representative locations in order to estimate soil texture characteristics.

The work listed in items 1 through 5 will be done by one man and on some days two men, over a twelve day period. A four-wheel drive truck will be used for access to the watershed, using existing roads. Access to the more remote washes will be obtained using a four-wheel drive all-terrain vehicle, operated typically in wash bottoms. Other areas will be accessed on foot. We anticipate performing the watershed reconnaissance work during the last part of September, 1991. The field survey work in the blue highlighted area could begin as early as August, 1991.

Please advise us as to special requirements or permit procedures which must be fulfilled before we begin our work. Our contact at the FCDMC is Mr. Pedro Calza, who can be reached at (602) 262-1501. Feel free to give me a call if you need additional information, or if you have any questions.

Sincerely,

**BURGESS & NIPLE, INC.**

Thomas R. Loomis, P.E.
Project Engineer

TRL:lmw\2-FCDMC

Enclosure

copy: Pedro Calza
Jim Mischler
P/File

BURGESS & NIPLE
ENGINEERS
ARCHITECTS

Burgess & Niple, I
1106 North Beeline Highv
Payson, Arizona 85:
602 474-5
Fax 602 474-3

# LETTER OF TRANSMITTAL

DATE 7/8/91 | JOB NO 2

RE: Gila Bend Floodplain Delineation Study

TO Flood Control District of Maricopa Co.
3335 West Durango Street
Phoenix, AZ 85009
ATTN: Mr. Pedro Calza

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following item

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specificatic
☐ Copy of letter ☐ Change order ☐ _____

| COPIES | DATE | NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 7/8/91 | | Conversation Records |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

THESE ARE TRANSMITTED:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☒ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____

REMARKS Pedro: I don't see any major problems yet. I will arrange my field schedule to include 3 weekends. We'll continue pursuit of the necessary permits to obtain access to the gunnery range.

COPY TO Jim Mischler

SIGNED Tom Tomis

If enclosures are not as noted, kindly notify us at once.

B U R G E S S
& N I P L E
E N G I N E E R S
A R C H I T E C T S

JUN 3 - 1991
BURGESS & NIPLE,INC.

Captain Chris Ward
U.S. Air Force
832 CSS/OT
Gila Bend AFAF, AZ 85337

Re: Gila Bend Floodplain
Delineation Study
Project No. 2

May 30, 1991

Dear Captain Ward:

**Burgess & Niple, Inc.**
110c North Beeline Highway
Payson, AZ 85541
602 474-5313
Fax 602 474-3511

I am writing in reference to our telephone conversation on May 15, 1991. We discussed the Air Force requirements to obtain access to your military reservation for evaluation of the watershed. We are currently negotiating with the Flood Control District of Maricopa County for a floodplain delineation study for Gila Bend. During the course of this study, we will need to access your reservation for the purpose of performing field surveys. Our tentative schedule calls for the field survey portion of our contract to commence in August, 1991.

I have enclosed 2 copies of a map of the study watershed. The military reservation boundary is highlighted in yellow, and the watershed boundary in orange. Per our discussion, please delineate the areas which are not accessible and the areas which will require scheduling. We anticipate that we will be working in the area for approximately three (3) weeks. Please return one marked up copy and the necessary release forms and permit application which we must fill out.

Feel free to call me if you have any questions regarding this matter. Also, I wish to thank you for your help and consideration.

Sincerely,

**BURGESS & NIPLE, INC.**

Thomas R. Loomis, P.E.

TRL:sj

Enclosures

copy: Jim Mischler
Pedro Calza, FCDMC
Tom Granillo, FCDMC

**FLOOD CONTROL DISTR.**
**OF MARICOPA COUNTY**
3335 West Durango Street
PHOENIX, ARIZONA 85009

(602) 262-1501

# LETTER OF TRANSMITTAL

DATE 05-21-91 JOB NO.

ATTENTION Tom Loomis

RE: Bender & Sand Tank Wash ~ Gila Bend FDS

TO Burgess & Niple Inc.
5025 East Washington Street
Phoenix, Az 85034

WE ARE SENDING YOU ☑ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☑ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

| COPIES | DATE | NO. | DESCRIPTION |
|---|---|---|---|
| 1 | | 5 | Sub-watershed Delineation, Scale 1"=2000' |
| 1 | | 1 | Index Map for Sub-watershed Delineation |
| 1 | | 1 | Sample of Final (Red line) Tc Flow paths |
| 1 | | 3 | Original Watershed Map by Valerie Rice |
| | | | |
| 1 | | ~ | Various Tables for Technical Data Notebook "Errata" |
| | | | |
| 1 | | 1 | Soil Sample Descriptions 5-14-91 |

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☑ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☑ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS Original Watershed Map is undergoing rework as seen by sub-watershed maps (5 Ea)

COPY TO _____

SIGNED: Thomas E. Gamble

6910-009 3-90

*If enclosures are not as noted, kindly notify us at once.*

CC: TAS
FAX { BCM %
Perham-
TRL-F

# FLOOD CONTROL DISTRICT
of
**Maricopa County**

3335 West Durango Street • Phoenix, Arizona 85009
Telephone (602) 262-1501

D. E. Sagramoso, P.E., Chief Engineer and General Manager

BOARD OF DIRECTORS
Betsey Bayless
James D. Bruner
Carole Carpenter
Tom Freestone
Ed Pastor

RECEIVED
MAY 17 1991
BURGESS & NIPLE, INC.

MAY 16 1991

Mr. James E. Mischler, P.E.
Project Manager
Burgess & Niple, Inc.
5025 East Washington Street, Suite 212
Phoenix, Arizona 85034

SUBJECT: Contract FCD 90-67, Flood Insurance Study, Gila Bend Area

Dear Mr. Mischler:

Enclosed is the Aerial Topography Survey Control, Proposed Man Hours and Cost sheets 1 & 2 for your use. Please submit along with your fee proposal on Wednesday, May 29, 1991.

Any additional information or clarification needed should be directed to the attention of Mr. Pedro Calza or myself.

Sincerely,

Leanna Cumberland
Chief, Contracting Branch

Enclosures: (1)

**Aerial Topography Survey Control**
**Proposed Man Hours and Cost**

**All Work per FEMA Document #37**
**Guidelines and Specifications for Study Contractors**

| WORK | MAN-HOURS | RATE/HR | TOTAL COST |
|---|---|---|---|
| **Administration** | | | |
| Principal | _____ | _____ | _____ |
| Office Surveyor | _____ | _____ | _____ |
| Clerical | _____ | _____ | _____ |
| **Set Panels** # of Panels _____ | | | |
| Survey Supervisor | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| **Establish Control Values** (coordinate elevation at site) | | | |
| Survey Supervisor | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| **Horizontal & Vertical Control** # of Points _____ | | | |
| Survey Supervisor | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| **Office Research/Note Reduction and Calculations** | | | |
| Survey Supervisor | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| **Survey Improvements** # number of Structures (Improvements) _____ | | | |
| Survey Supervisor | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| **Field Verification of X-Sections** # of Sections _____: Avg Length _____ft. | | | |
| Survey Supervisor | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |



MAY 20 '91 09:18 BURGESS & NIPLE AZ 6022441915 P.3/4

Set ERMs # of ERMs _____

| | | | |
|---|---|---|---|
| Survey Supervisor | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |
| Survey Team Member | _____ | _____ | _____ |

| | |
|---|---|
| Total Labor | _____ |
| +_____ Overhead | _____ |
| | _____ |
| +_____ Profit | _____ |
| Total | _____ |

Number of linear feet of survey _____

Number of instrument set ups _____

Survey Hours (field time only) per work day - _____

A narrative explaining any extenuating circumstances in addition to a USGS map indicating location of proposed Map panels, control Points and ERMs Should be submitted. The horizontal and vertical control values/locations of base monuments shall be shown on the USGS map. Survey work should be to a minimum as outlined by FEMA Document 37 or in accordance with the requirements of the publications "Minimum Standards for Arizona Land Boundary Surveys", as adopted by the Arizona State Board of Technical Registration, whichever procedure has the more stringent requirements.



MAY 20 '91 09:18 BURGESS & NIPLE AZ 6022441915 P.4/4

[redacted]

ENGINEERS
ARCHITECTS

# FAX COVER SHEET

**Burgess & Niple, Inc.**
Suite 212
5025 East Washington Street
Phoenix, AZ 85034
602 244-8100
Fax 602 244-1915

Date: 5/20/91

Job Number: 02

Re: Gila Bend Stu

TO: Steve Perham

**FAX PHONE NUMBER:**

We are sending you 3 additional pages, not counting this cover sheet.
If all pages are not received, please call us as soon as possible.

**COMMENTS:**

Steve,
Please forward to correct individuals

Signed: Sherrie, Per gEM

# FLOOD CONTROL DISTRICT
of
Maricopa County

3335 West Durango Street • Phoenix, Arizona 85009
Telephone (602) 262-1501

D. E. Sagramoso, P.E., Chief Engineer and General Manager



BOARD OF DIRECTORS
Boyce Bayless
James D. Bruner
Carole Carpenter
Tom Freestone
Ed Pastor


MAY 0 9 1991

Gene Merritt, Floodplain Administrator
Town of Gila Bend
202 N. Euclid
Gila Bend, Arizona 85311

Subject: Gila Bend Area FIS

Dear Mr. Merritt:

The District has been authorized to perform a flood insurance study in the Gila Bend area. The purpose of the study is to identify areas that may be susceptible to flooding during a regulatory flood event including a re-evaluation of the existing 100-year delineations especially Bender and Sand Tank Washes.

From a description of the work to be performed (preliminary scope of work), a consultant has been chosen and a detailed scope of work is being prepared to perform portions of the study later this year.

The consultant will place a notice of the study in a local publication and advertise for technical information or potential flood problem areas to be incorporated into the study.

Should you or your Town Council desire a briefing on this project, please let me know. Whether or not a pre-study briefing is held, we will be coordinating with you at the time we receive the preliminary flood study work maps from the consultant. After we have reviewed the study maps for compliance with FEMA flood study standards and criteria, we will contact you to request that we be given the opportunity to present the preliminary results to the Town at a meeting to which concerned citizens and property owners are included.

Sincerely,

D. E. Sagramoso, P.E.
Floodplain Administrator

Ron Nevitt

Ron Nevitt,
Floodplain Representative

copy to: Jim Morris, ADWR

Info: PAC
SRY
PMS
JMP

File: Town of Gila Bend (anna)

# SECTION 1: General Documentation and Correspondence

*1.5 Contract Scope of Work*

FLOOD CONTROL DISTRICT of MARICOPA COUNTY 1959

# FLOOD CONTROL DISTRICT
of
**Maricopa County**

3335 West Durango Street • Phoenix, Arizona 85009
Telephone (602) 262-1501

D. E. Sagramoso, P.E., Chief Engineer and General Manager

BOARD OF DIRECTORS
Betsey Bayless
James D. Bruner
Carole Carpenter
Tom Freestone
Ed Pastor

SEP 17 1991

Mr. Terrence A. Sack
President
Burgess & Niple, Inc.
5025 East Washington Street
Phoenix, Arizona 85034

SUBJECT: Contract FCD 90-67, Gila bEnd Area Flood Insurance Study

Dear Mr. Sack:

This letter will serve as confirmation of the September 3, 1991, verbal Notice To Proceed for the work under the above-referenced contract that was approved by the Board of Directors on September 3, 1991.

A fully executed contract is enclosed for your use. If you have any questions, please do not hesitate to contact Pedro Calza at 262-1501.

Sincerely,

Leanna Cumberland
Chief, Contracting Branch

Enclosure (1)

Copy to: James Mischler

#11358

CS92502 5

CONTRACT FOR CONSULTANT SERVICES

CONTRACT FCD 90-67

Pursuant to the provisions of the Arizona Revised Statutes (A.R.S.), 48-3603, the Board of Directors has the authority to enter into contracts.

The Flood Control District of Maricopa County, Arizona, hereinafter called the "DISTRICT", is desirous of having certain professional services performed in connection with the Gila Bend Area Flood Insurance Study, hereinafter called the "PROJECT" and as more fully described in Exhibit A, Scope of Work, attached, and

BURGESS & NIPLE, INC., hereinafter called "CONSULTANT", is desirous of performing said services;

THEREFORE, the parties hereto mutually agree as follows:

## SECTION I - SERVICES OF THE CONSULTANT

The CONSULTANT, under the general supervision of the Chief Hydrologist of the DISTRICT's Hydrology Division, shall prepare studies, reports, surveys, plans, drawings, specifications and cost estimates as are necessary for the PROJECT and according to the directions and designated standards of the DISTRICT and in accordance with Exhibit A. It is understood and agreed that the DISTRICT's authorized representative shall be the Chief Hydrologist or his duly authorized representative, hereinafter called the "AGENT" and that he/she shall be the sole contact for administering this contract.

The CONSULTANT shall meet periodically with the AGENT so as to keep the DISTRICT informed of the progress of the work in accordance with the schedule defined in Exhibit A.

The CONSULTANT shall promptly advise the AGENT of any factors, which may develop during the PROJECT, that would likely result in construction or design costs in excess of budgetary constraints.

## SECTION II - PERIOD OF SERVICE

The CONSULTANT shall complete all work per the schedule provided in Exhibit A, Scope of Work within 340 calendar days after receipt of the Notice to Proceed, exclusive of DISTRICT review time. The DISTRICT is expected to require up to 60 calendar days for review time, for a total contract time period of 400 calendar days. Should extension of this contract period be necessary, and any such extension(s) continue the date of contract expiration for a time period of more than one year from the date of contract execution, adjustment(s) of the consultant's fee(s) may, upon agreement by both the DISTRICT and the CONSULTANT, be made in accordance with the Consumer Price Index for Urban Consumers, Western

Division published by the U.S. Department of Labor, Bureau of Labor Statistics, using the published edition coinciding with the initial contract expiration date. Any such fee adjustment shall only apply to the extended contract time period.

## SECTION III - PAYMENTS TO THE CONSULTANT

The CONSULTANT shall be paid for work under this Contract a lump sum fee of $361,100.00 plus any adjustments that have been approved in writing in accordance with the Maricopa County Procurement Code.

The DISTRICT shall pay the CONSULTANT upon completion of the work as accepted by the DISTRICT, except that progress payments may be made as billed by the CONSULTANT based on approved monthly progress reports subject to the limitations set forth in Exhibit "A", Scope of Work. Ten percent of all contract payments made on an interim basis shall be retained by the DISTRICT as insurance of proper performance of the contract or, at the option of the CONSULTANT, a substitute security may be provided by the CONSULTANT in an authorized form pursuant to procedures established by the DISTRICT. The CONSULTANT is entitled to all interest from any such substitute security.

When the contract is fifty percent (50%) completed, one-half (1/2) of the amount retained will be paid to the CONSULTANT provided the CONSULTANT is making satisfactory progress on the contract and there is no specific cause or claim requiring a greater amount to be retained. After the contract is fifty percent (50%) completed, no more than five percent (5%) of the amount of any subsequent progress payments shall be retained providing the CONSULTANT is making satisfactory progress on the project, except if at any time the DISTRICT determines satisfactory progress is not being made, ten percent (10%) retention shall be reinstated for all progress payments made under the contract subsequent to the determination.

Any retention monies shall be paid or substitute security returned or released, as applicable, to the CONSULTANT within forty-five (45) calendar days after: (1) Completion of the work in Exhibit A through the submittal of District accepted/approved documents to FEMA, (2) receipt of a completed "Certificate of Substantial Performance" form, (3) the CONSULTANT's statement that no project disputes exist; and (4) invoicing for any retained monies has been received by the DISTRICT. Upon acceptance and approval of the project by FEMA and the completion of all final work required by the DISTRICT, the CONSULTANT shall submit a final Certificate of Performance and its invoice for any sums remaining due and payable under this Contract.

If the CONSULTANT desires a partial payment in accordance with the provisions above, the CONSULTANT will complete and forward, a DISTRICT provided form, indicating payment distribution to MBE/WBE firms.

## SECTION IV - THE DISTRICT'S RESPONSIBILITIES

The DISTRICT shall furnish the CONSULTANT, at no cost to the CONSULTANT, the following information or services for this PROJECT:

A. One copy of on-hand maps, records, survey ties, bench marks or other data pertinent to the PROJECT. This does not, however, relieve the CONSULTANT of the responsibility of searching records for additional information, for requesting specific information or for verification of that information provided. The DISTRICT does not warrant the accuracy or comprehensiveness of any such information.

B. All available information and data relative to policies, standards, criteria, and studies, etc. impacting the PROJECT as identified by the CONSULTANT.

C. Availability of staff for consultation with the CONSULTANT during the performance of studies and plan development in order to identify the problems, needs, and other functional aspects of the PROJECT.

D. Examination of documents submitted by the CONSULTANT and rendering of decisions pertaining thereto promptly, to avoid unreasonable delay in the progress of the work by the CONSULTANT. The DISTRICT will keep the CONSULTANT advised concerning the progress of the DISTRICT's review of work.

## SECTION V - ALTERATION IN SCOPE OF WORK

Any alteration in the scope of work that will result in a substantial change in the nature of the PROJECT so as to materially increase or decrease the contract fee will require negotiation of an amendment to the contract to be executed by the DISTRICT and the CONSULTANT. No work shall commence on the change until the contract amendment has been approved by the DISTRICT and the CONSULTANT has been notified to proceed by the AGENT. It is distinctly understood and agreed that no claim for extra work done or materials furnished by the CONSULTANT will be allowed by the DISTRICT except as provided herein, nor shall the CONSULTANT do any work or furnish any materials not covered by this agreement unless such work is first authorized in writing in accordance with the Maricopa County Procurement Code. Any such work or materials furnished by the CONSULTANT without such written authorization first being given shall be at his own risk, cost, and expense, and he hereby agrees that without such written authorization he will make no claim for compensation for such work or materials furnished.

## SECTION VI - RECORDS

Records of the CONSULTANT's payroll expense pertaining to this PROJECT and records of accounts between the DISTRICT and the CONSULTANT shall be kept on a generally recognized accounting basis and shall be available upon request to the DISTRICT or its authorized representative for audit during normal business hours. The records shall be subject to audit by appropriate grantor agency if the PROJECT is funded all or in part by a grant.

## SECTION VII - PROJECT COMPLETION

If during the course of this contract situations arise which prevent completion within the allotted time, an extension may be granted by the AGENT.

## SECTION VIII - TERMINATION

The DISTRICT may terminate this contract at any time upon reimbursement to the CONSULTANT of expenses which include reasonable charges for time and material for the percentage of work satisfactorily completed and turned over to the DISTRICT.

The DISTRICT reserves the right to postpone, terminate or abandon this PROJECT for the CONSULTANT's failure to complete the PROJECT on time, or failure to comply with the provisions of the contract. The DISTRICT also reserves the right to terminate any or all parts of this contract for its own convenience as the DISTRICT may determine at its sole discretion.

The DISTRICT hereby gives notice that pursuant to A.R.S. Section 38-511 "A" this contract may be cancelled without penalty or further obligation within three years after execution if any person significantly involved in initiation, negotiation, securing, drafting, or creating a contract on behalf of the DISTRICT is, at anytime while the contract or any extension of the contract is in effect, an employer, agent, or any other party to the contract in any capacity or a consultant to any other party of the contract with respect to the subject matter of the contract. Cancellation under this section shall be effective when written notice from the Chief Engineer and General Manager of the DISTRICT is received by all of the parties of the contract. In addition, the DISTRICT may recoup any fee for commission paid or due to any person significantly involved in initiation, negotiation, securing, drafting, or creating the contract on behalf of the DISTRICT from any other party to the contract arising as a result of the contract.

The CONSULTANT may terminate this contract in the event of nonpayment of fees as specified in Section III, PAYMENTS TO THE CONSULTANT.

## SECTION IX - OWNERSHIP OF DOCUMENTS

All original documents including, but not limited to studies, reports, tracings, drawings, physical and computer models, estimates, field notes, investigations, design analyses, calculations, computer software, and specifications, prepared in the performance of this Contract are to be and remain the property of the DISTRICT and are to be delivered to the AGENT before final payment is made to the CONSULTANT. The DISTRICT reserves the right to reuse the documents as it sees fit. However, the DISTRICT will not reuse, alter, or modify these documents without noting such alterations, modifications, or intent of their reuse, and will hold the CONSULTANT harmless from any claims arising from the reuse, alteration, or modification of the documents. The CONSULTANT may retain reproducible copies of all such documents delivered to the DISTRICT.

The CONSULTANT hereby releases all Subcontractors/Subconsultants employed for this project from any liability or prior notice and authorization for providing information or copies of records requested by the DISTRICT subsequent to the completion of this Contract.

## SECTION X - COMPLIANCE WITH LAWS

The CONSULTANT is required to comply with all Federal, State and local laws, local ordinances and regulations. The CONSULTANT's signature on this contract certifies compliance with the provisions of the I-9 requirements of the Immigration Reform and Control Act of 1986 for all personnel that the CONSULTANT and any subconsultants employ to complete this PROJECT. It is understood that the DISTRICT shall conduct itself in accordance with the provisions of the Maricopa County Procurement Code.

## SECTION XI - GENERAL CONSIDERATIONS

A. Prior to beginning the work, the CONSULTANT shall furnish the DISTRICT for approval the names of its key employees, and of its sub-consultants and their key employees to be used on this PROJECT. Any subsequent changes are subject to the written approval of the DISTRICT.

The CONSULTANT in replacing a MBE/WBE subcontractor should attempt to contract with another MBE/WBE.

B. The CONSULTANT agrees during the execution of this contract that no clients other than the DISTRICT, or the Federal Emergency Management Agency, will be retained within the area of the 100-year floodplain for the area without expressed written authority from the chief Engineer and General Manager of the DISTRICT.

C. The failure of either party to enforce any of the provisions of this Contract or to require performance of the other party of any of the provisions hereof shall not be construed to be a waiver of such provisions, nor shall it affect the validity of this Contract or any part thereof, or the right of either party to thereafter enforce each and every provision.

D. The CONSULTANT shall be responsible for the cost of any additional design, field layout, testing, construction and supervision necessary to correct those errors or omissions attributable to the CONSULTANT and for any damage incurred by the DISTRICT as a result of additional construction costs caused by such CONSULTANT errors or omissions.

E. The fact that the DISTRICT has accepted or approved the CONSULTANT's work shall in no way relieve the CONSULTANT's responsibility.

F. It is mutually understood and agreed that this Contract shall be governed by the laws of the State of Arizona, both as to interpretation and performance. Any action at law, suit in equity, or judicial proceeding for the enforcement of this Contract, or any provision thereof, shall be instituted only in the courts of the State of Arizona.

## SECTION XII - SUCCESSORS AND ASSIGNS

This Contract shall not be assigned by either party without prior written approval of the other except that the CONSULTANT may use in the performance of this Contract without prior approval of the DISTRICT, personnel or services of its related entities and affiliated companies as if they were an integral part of the CONSULTANT; and it shall extend to and be binding upon the heirs, executors, administrators, successors and assigns of the parties hereto.

## SECTION XIII - NO KICK-BACK CERTIFICATION

The CONSULTANT warrants that no person has been employed or retained to solicit or secure this Contract upon any agreement or understanding for a commission, percentage, brokerage, or contingent fee; and that no member of the Board of Directors/Supervisors or any employee of the DISTRICT has any interest, financially or otherwise, in the CONSULTANT firm.

For breach or violation of this warranty, the DISTRICT shall have the right to annul this Contract without liability, or at its discretion to deduct from the Contract price or consideration, the full amount of such commission, percentage, brokerage, or contingent fee.

## SECTION XIV - ANTI-DISCRIMINATION PROVISION

The Flood Control District of Maricopa County will endeavor to ensure in every way possible that minority and women-owned business enterprises shall have every opportunity to participate in providing professional services, purchased goods, and contractual services to the Flood Control District of Maricopa County without being discriminated against on the grounds of race, religion, sex, age, or national origin.

The CONSULTANT agrees not to discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, or handicap and further agrees not to engage in any unlawful employment practices. The CONSULTANT further agrees to insert the foregoing provisions in all subcontracts hereunder.

## SECTION XV - AMENDMENTS

This Contract may be amended by mutual written agreement of the DISTRICT and the CONSULTANT.

## SECTION XVI - INDEMNIFICATION AND INSURANCE

A. The CONSULTANT shall provide and maintain the following minimum insurance requirements:

1. Professional Liability. The CONSULTANT shall show evidence of maintaining continuous insurance for the past three (3) years with a minimum coverage limit of $1,000,000.00 each claim and/or in the aggregate.

The CONSULTANT shall provide and maintain Professional Liability Insurance with a minimum single limit of $1,000,000.00 for each claim made and an aggregate limit of $1,000,000.00 for all claims made through this contract's completion date or the policy's life, whichever is longer.

2. Commercial General Liability. Commercial general liability insurance with a minimum single limit of $1,000,000.00 for each coverage/occurrence. The policy shall include coverage for bodily injury and personal injury, broad form property damage and blanket contractual coverage.

3. Automobile Liability. Automobile liability insurance, with an individual single limit for bodily injury and property damage of no less than $1,000,000.00, each occurrence, with respects to CONSULTANT's vehicles (whether owned, hired, non-owned), assigned to or used in the performance of this contract.

4. Workers' Compensation Insurance. This insurance shall be maintained during the life of the contract.

5. Additional Insured. The policies, except professional liability and workers' compensation, required by this section shall name the DISTRICT as Additional Insured, and shall specify that insurance afforded the CONSULTANT shall be primary insurance, and that any insurance coverage carried by the DISTRICT or its employees shall be excess coverage, and not contributory coverage to that provided by the CONSULTANT. No policy issued under this contract shall lapse, be cancelled, allowed to expire, or be materially changed to affect the coverage available to the DISTRICT without thirty (30) days written notice to the DISTRICT.

6. DISTRICT approved documentation outlining the coverages specified in this section shall be filed with the DISTRICT prior to issuance of the Notice to Proceed.

B. The CONSULTANT agrees to indemnify and save harmless the DISTRICT, any of its departments, agencies, officers, or employees from all suits, including attorney's fees and costs of litigation, actions, loss, damage, expense, cost or claims, of any character or any nature arising out of the CONSULTANT's wanton, willful or negligent acts, errors or omissions in the performance of work under this Contract, and any wanton, willful or negligent acts, errors or omissions by any subconsultant or other agent used by the CONSULTANT in the performance of work under this Contract.

IN WITNESS WHEREOF, the parties herein have executed this Contract.

BURGESS & NIPLE, INC.

Terrence A. Sack James E. Mischler
Principal

TERRENCE A. SACK James E. Mischler
Printed Name

PRESIDENT Vice President
Title

Date: June 24, 1991

86-0143433
Federal Tax Identification Number

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY:

D. E. Sagramoso, P.E.
Chief Engineer and General Manager

Date: 8-13-91

ACCEPTED AND APPROVED:

Thomas L. Freeman
Chairman, Board of Directors

ATTEST:

Fran McCarroll
Clerk of the Board

Date: 9.3.91

LEGAL REVIEW

Approved as to form and within the powers and authority granted under the laws of the State of Arizona to the Flood Control District of Maricopa County.

General Counsel, District

Date: 8-14-91

# SCOPE OF WORK
# FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
# TOPOGRAPHIC MAPPING AND
# FLOODPLAIN DELINEATION STUDY
# FOR THE GILA BEND AREA
# FCD 90-67

## General

The project consists of approximately 13 square miles of topographic mapping and approximately 15 river miles of floodplain and floodway delineations, as described below and shown on Exhibit 1. An additional area, shown on Exhibit 2 south of the base mapping area, will be photographed at 1"=400' scale.

* Sand Tanks Wash
* Unnamed Tributary to the Gila River (No. 1)
* Unnamed Tributary to Sand Tank Wash (No. 2)
* Unnamed Tributary to No. 2 (No. 3)
* Unnamed Tributary to No. 3 (No. 4)

The Consultant will develop the hydrology using the Corps of Engineer's HEC-1 computer model and backwater analysis using the HEC-2 computer model to determine floodplain and floodway delineations for the 100-year peak flood. Work must be reviewed and accepted by the Federal Emergency Management Agency (FEMA) prior to the finalization of this contract. As part of this requirement, the Consultant shall be responsible for Public Notification regarding this project. Work under this Scope will be completed within 340 calendar days from the date of the Notice to Proceed, including 60 days for Flood Control District reviews.

Floodplain and floodway limits will be reconciled with the current flood insurance study delineation for the Gila River.

## Task 1 Data Collection

1.1 The Consultant will collect and review pertinent data from the District and other outside sources. Data to be collected will include previous flood hazard reports and hydrology for the study area; existing topographic mapping; historical flooding information; as-built plans for existing structures; FEMA Flood Hazard Boundary Maps and Letters of Map Amendment and/or Revisions and other pertinent information.

1.2 A written summary of the data collection effort will be submitted to the District for information purposes.

1.3 The Consultant will submit a project schedule showing coordination meetings and completion dates for each of the tasks in the contract.

Task 2 Topographic Mapping

2.1 The Consultant will notify property owners and obtain necessary Rights-of-Entry for the study area. The District will assist Consultant as may be necessary to complete this task.

2.2 An aerial survey subconsultant shall be retained by the firm as part of this contract. The Consultant shall coordinate the aerial surveying work with the aerial surveying consultant to ensure that the specifications of the aerial surveying work are met. Quality control on surveys will be per FEMA 37, Flood Insurance Study Guidelines and Specifications for Study Contractors, dated March, 1991.

2.2.1 Prepare topographic mapping with a 4-foot contour interval, 1"=400' scale; except Section 31, R4W, T5S, and Section 36, R5W, T5S, which will be mapped at a 2-foot contour interval, 1"=200' scale. Provide spot elevations on section line and mid-section line roads.

2.2.2 Ground Control:

a. The Consultant shall provide survey control using 1983 NAD.

b. The Consultant shall systematically set panel points and establish horizontal and vertical control throughout the areas to be mapped for use in compilation by the aerial survey consultant. Where readily available, surveys will tie into the State Plane Coordinate System. Field control shall be sufficient to readily allow for compilation of maps by the aerial survey consultant at the desired map scale and contour interval and will be based on the National Geodetic Vertical Datum (NGVD).

c. The horizontal and vertical control points shall be located and marked by the Consultant. The controls for the area mapping shall be in sufficient numbers and shall be in locations which will be compatible with the accuracy of the mapping requirements. The controls shall be of at least third order accuracy. Section corners, quarter corners, and mid-section points shall be used for control points wherever possible.

2.2.3 Digital contour and planimetric data developed for this project shall be delivered in the format as specified in the attached Appendix A-GIS Data Specification Document.

2.2.4 The Consultant shall provide permanent non-erasable topographic mylar sheets 24" x 36" at the specified scale and contour interval per 2.2.1 for mapping. A cover sheet will be provided with the project title, date of topographic mapping, and a location map showing geographic range covered by each specific mapping sheet. Each manuscript shall include a minimum of north arrow, scale, section corners and quarter corners, current and proposed streets and highway names, State Plane Coordinate System, major drainage features, corporate boundaries, cross-section lines, channel station center line, index map, description and elevation of control points and ERM's and reference marks used in ground control. The mapping will have an accuracy such that ninety percent (90%) of contours shall be within one-half contour of the true elevations and the remaining ten percent (10%) of the contours shall not be in error by more than one contour interval.

2.2.5 The Consultant shall provide permanent non-erasable topographic mylars as described above in Section 2.2.4 with delineated floodplains included.

2.2.6 Sketch maps no larger than 11" x 17" for the study area must be included in the final narrative report along with the flood profiles.

2.2.7 Hydrologic Work Maps should be at a scale of 1 inch = 2000 feet and shall include: reproducible transparent overlay maps of existing drainage patterns, subwatersheds, soils and landuse boundaries, major flow paths, and general topographic maps.

Task 3 Hydrology

3.1 The hydrologic study of the watershed will be delivered to the District under separate cover from the hydraulic analysis. The watershed areas requiring detailed analysis are:

a. The Bender Wash watershed downstream from Section 21, T6S, R3W to the confluence with Sand Tank Wash;

b. The Sand Tank Wash watershed from Section 17, T6S, R4W to the confluence with the Gila River floodplain at Indian Road;

c. All of the Quilotosa Wash watershed to the confluence with the Gila River floodplain at Watermelon Road;

d. All of the Sauceda Wash watershed to the confluence with the Gila River floodplain at Watermelon Road; and

e. All of the watershed west of Sauceda Wash contributory to the Gila River floodplain, the westerly boundary of which crosses Interstate 8 approximately at the Smurr horizontal and vertical control marker.

The watershed areas which have been modeled previously by the District, and which are to be reviewed and checked, are:

a. The Bender Wash watershed upstream from Section 21, T6S, R3W; and

b. The Sand Tank Wash watershed upstream from Section 17, T6S, R4W.

The Consultant will use the U.S. Army Corps of Engineers (COE) computer program HEC-1, 1991 Version, to develop a 100-year hydrologic model or models for the area. Using appropriate hydrologic judgment, sub-basins will be identified that provide a reasonable depiction of the watershed condition. The sub-basins will be as homogeneous as possible, using watershed area, watershed type (mountain versus valley), and time of concentration as criteria. Sub-basin break-downs will be done in sufficient detail to provide peak discharges at the following locations:

a. Drainage structures along the Gila Bend Canal and Southern Pacific Railroad;

b. Drainage structures along S.R. 85 and the Tucson, Cornelia, and Gila Bend Railroad with contributing watershed areas in excess of five (5) square miles;

c. Drainage structures along Interstate 8 with contributing watershed areas in excess of five (5) square miles;

d. At county road crossings and City of Gila Bend street crossings mutually agreed upon with the District; and

e. Tributary confluences along the following washes where a significant change in peak discharge will occur:

* Bender Wash
* Sand Tank Wash
* Quilotosa Wash
* Sauceda Wash
* Unnamed Washes west of Sauceda Wash

The watershed for Bender and Sand Tank washes will be broken into sub-basins with an average size of 3.5 square miles, to remain consistent with the watershed modeling previously completed by the District. The remaining watersheds will be broken into sub-basins with a median area of eight (8) square miles. The average minimum will be approximately five (5) square miles.

An appropriate hydrograph time increment and number of hydrograph ordinates will be selected to allow for complete calculation of the flood hydrograph without sacrificing resolution of the flood peak. Calculations, or assumptions used in developing sub-basin and routing parameters, will be documented and made a part of the hydrology report.

3.2 The specific hydrologic techniques to be used in this study are:

a. Rainfall: Peak discharges for the 100-year 6-hour storm will be estimated using rainfall distributions provided by the District. The peak discharge and peak volume for the 100-year 24-hour storm will be estimated using the SCS Type II 24-hour rainfall distribution.

Point precipitation values will be derived using the information and procedures contained in the Hydrologic Design Manual for Maricopa County, Arizona (Design Manual). The most current edition as of the date of Notice to Proceed will be utilized for this contract.

b. Areal Reduction: The point precipitation values will be arealy reduced using the JD option under HEC-1. The U.S. Army Corps of Engineers (COE) Queen Creek areal reduction curve will be applied for the 6-hour duration storm in conjunction with the family of 6-hour mass curves for Maricopa County contained in the Design Manual. NOAA Hydro-40 will be used for the 24-hour duration storm.

c. Rainfall Excess: The Green and Ampt Infiltration Equation will be utilized for estimation of rainfall losses. This method will be applied in conformance with the Design Manual procedures using available soil texture data. It is anticipated that the "Preliminary" SCS Soils Survey of Maricopa County, Arizona: Gila Bend-Ajo Area will be utilized for this effort in combination with additional data obtained during the initial records search. Where soils texture data is not available, such as the Barry M. Goldwater Air Force Range area, approximate methods will be used to estimate Green and Ampt parameters.

Composite parameter values for each soil map unit will be taken from the hydrologic modeling for Bender and Sand Tank washes, previously done by the District. Parameters for soil map units which were not evaluated by the District will be estimated using procedures similar to those used by the District.

d. Unit Hydrograph: The S-Graph method will be used for this project.

e. Lag Time: Lag times for each sub-basin will be estimated using the relationship given by Equation 5.11 in the Design Manual. The COE coefficient values for C and m will be used in lieu of the USBR Values.

f. Hydrograph Channel Routing: Channel routing will be accomplished using the Normal Depth option under HEC-1. Average cross sections will be developed utilizing available mapping and field reconnaissance data. Sufficient field cross sections will be taken to ensure that reasonable, representative sections can be assigned to reaches which are not evaluated in the field.

This process will be complicated by access problems caused by the Air Force Range. Certain areas cannot be accessed at all because of the danger from undetonated ordinance. Other areas are accessible, but only during specific times. Every effort will be made to obtain sufficient data to provide a reasonable model, but this may not be possible in all areas of the watershed.

The reach routing parameters for the reaches modeled using HEC-2 for floodplain delineation will be adjusted after the HEC-2 cross sections are available. The HEC-2 cross sections will be compared and a typical cross section estimated.

Reach route cross sections and parameters for the watershed area previously modeled by the District will be checked in detail during the field reconnaissance portion of the study. Special attention will be given to flow split areas which are deemed to have a significant effect on downstream peak discharges at critical locations.

Flow splits in distributary flow channels throughout the watershed will be identified and evaluated using the following criteria:

1. Determine if the split is isolated to a particular wash, or if flow can be diverted into a separate watershed resulting in significant changes in peak discharges or volumes at a critical downstream location; and

2. Determine if the split can be expected to function in a similar hydraulic manner from one storm event to the next.

If the split is deemed significant, then cross sections will be taken during field reconnaissance, unless the area is to be mapped as a part of the study. Flow splits will be modeled hydraulicly using a relative conveyance curve, estimated using the cross section data, if it appears that the split can be expected to function similarly from one event to the next. For the other case, a probability analysis will be applied.

g. Hydrograph Reservoir Routing: Detailed reservoir analysis of the backwater ponding areas against the upstream embankment of the Gila Bend Canal will be done for the canal reach between the SR 85 crossing and the US 80 crossing at the Interstate 8 Business Route intersection. The analysis and establishment of peak water surface elevations will be done using the level-pool reservoir routing option of HEC-1. Elevation and surface area data will be calculated in CADD using the digital contour mapping generated by aerial mapping. Stage versus discharge tables for low-level outlets, channel overchutes, and canal bank overtopping conditiions will be estimated using appropriate hydraulic methodology. These curves will then be incorporated into the HEC-1 computer model. The end result of this effort will be to define Zone A 100-year floodplain limits for ponding on the upstream side of the Gila Bend Canal Study Reach, and to identify canal bank overtopping locations.

It is anticipated that ponding areas against the remaining length of the Gila Bend Canal and wash crossings of SR 85 may significantly effect downstream peak discharges. Ponding areas may also overlap from one wash to the next, causing transfer of flood volumes between washes. These areas will be identified and the potential impact on critical downstream concentration points determined. The ponding areas deemed significant will then be modeled in a similar manner to that used for the detailed study reach of the Gila Bend Canal.

There is no available detailed contour mapping available for these areas, except the USGS quadrangle maps. Therefore, as-builts of the canal and SR 85 will be used to set the spillover elevations. Stage versus volume relationships will be estimated using the quadrangle maps and obervations made during the field reconnaissance.

h. Channel Transmission Losses: Channel transmission losses for each routing reach will be included in the model if deemed appropriate by the Consultant, and if sufficient data is available. Existing field data, or the literature, will be used as the basis for this effort. An average percolation rate for each routing reach considered will be estimated by calculating a composite by area of overbank soils versus channel bed soils in the reach. Separate average values will be estimated for each storm frequency modeled. The losses will be modeled using the Channel Loss option under HEC-1. The SCS National Engineering Handbook, Section 4 Hydrology, Chapter 19 will be used as the base reference for estimating the loss parameter. Mr. Dave Creighton of ADWR and Mr. Harry Milsaps of the SCS will be consulted in this effort.

3.3 The District will provide appropriate references to facilitate parameter estimation. The District will provide as much information as possible for the watershed areas already modeled, in a digital format.

3.4 The output of the computer model will be reviewed to determine if peak flows and volumes are realistic. This will be done by comparing the results with available gage data, previous studies and USGS gage regression analysis results. Also, calculated flooding widths and depths in routing reaches will be evaluated for reasonableness as an additional check. Adjustments to the input data areas of precipitation loss, routing, and transmission losses will be made in order to obtain realistic and justifiable results.

3.5 Attempts will be made to recover historic stream gage data where available and compare the data with the results obtained by the hydrologic model. Major differences will be discussed in the final report.

3.6 The Consultant will obtain the approval of the District at each of the following steps:

a. Soil and watershed boundary maps.

b. HEC-1 parameter estimation.

c. HEC-1 flow diagram and input parameters.

d. HEC-1 results.

3.7 The final report will include the following sections arranged according to the State Standard Attachment SSA-90-1, Instructions for Organizing And Submitting Technical Documentation For Flood Study:

a. Scope of the study.

b. Description of the watershed.

c. Previous studies and reports.

d. Methodology.

e. Assumptions.

f. Results.

g. Comparison of the results with other studies and/or stream gages.

h. Conclusion.

i. List of references and agencies contacted.

3.7.1 Tables and figures for the main text:

a. Watershed area (24x36) foldout map at a scale of 1"=10000'.

b. Table showing the flow peaks and volumes at critical concentration points for different frequency and duration storms.

c. Table showing the critical peaks and volumes for major concentration points as compared to previous studies (where available).

d. Spreadsheet showing sub-basins and their major parameters (slope, area, friction, total rainfall, time of concentration or Lag, major structures, soil types, Green and Ampt paramaters, etc.

3.7.2 Tables and figures for the appendices:

a. Topographic base map showing the sub-watershed delineations, routing reaches, Lag flow paths, major man-made structures, and references (i.e. street names, Township Range Section, etc.) at a scale of 1"=2000'.

b. Soils and land-use map at the same scale as the base map.

c. Schematic map for the HEC-1 computer model which depicts the sub-basins (area, Lag), the flow paths, the routing reaches (length, slope, friction, width, associated velocities, associated transmission losses, etc.), order of combining the hydrographs, channel, pipe or culvert dimensions (where appropriate).

d. Pertinent data on structures in the watershed (such as spillway elevation, rating curves, etc.).

3.8 The proposed approach to performing the hydrology portion of the contract is presented as follows, organized by work task:

a. Data Collection: Research records and obtain Luke Air Force Military Reservation access privileges. Research records of the following agencies:

* Flood Control District of Maricopa County (District)
* Maricopa County Highway Department (MCHD)
* Arizona Department of Water Resources (ADWR)
* Arizona Department of Transportation
* U.S. Bureau of Reclamation (USBR)
* U.S. Geological Survey (USGS)
* U.S. Soil Conservation Service (SCS)
* Paloma Ranch Water User's Association
* Southern Pacific Railroad
* Tucson Cornelia and Gila Bend Railroad
* U. S. Air Force
* City of Gila Bend

Prepare a summary of findings for submittal to the District. Included under this task is a field trip with District personnel at the start of the project to identify the critical points on the watershed and problem areas.

b. Preliminary Sub-Basin Delineation: Prepare two sets of 1"=2000' scale base maps and one 1"=10000' scale base map from 7.5 minute USGS quadrangle maps. The 2000 scale maps will be on 8 - 36"x42" sheets, and the 10000 scale map will be on 1 - 24"x36" sheet.

The soils map unit boundaries will be digitized for ultimate plotting on one set of 2000 scale maps, and the preliminary sub-basin delineations will be digitized for ultimate plotting on the second set. Tentative Lag flow paths and routing paths will be determined and digitized.

The hydrologic model previously prepared by the District will be reviewed for accuracy and consistency. The sub-basin delineations and parameters, and soils parameter computations will be given a cursory evaluation. The data will be reformatted to match the final report format for the other watersheds. The reach route data will be checked in detail. It is anticipated that representative cross sections for this watershed will be taken in the same proportion as for the previously unstudied watersheds. The Districts model will be updated as a part of the work under Section 3.8h. The sub-basin identifiers in the District's model will also be changed to reflect the naming scheme used for the entire watershed.

Sample parameter calculation forms will be prepared for review by the District.

c. Meeting Number One with the District: Copies of the base maps and parameter calculation forms will be submitted to the District for review one week prior to the meeting. These maps, the proposed parameter calculations and the findings of the records search will be discussed.

d. Field Investigation: A detailed field reconnaissance will be done to accomplish the following:

1. Verify questionable sub-basin boundaries;

2. Verify Lag flow path locations.

3. Verify routing path locations. Estimate reach route cross sections for use in determining HEC-1 Normal Depth parameters. Distances will be paced, and relative elevations obtained using a laser level. This will be done for approximately 40% of the routing reaches. The data obtained will be used to estimate average cross section configurations for the remainder of the reaches. This will be done by comparing the observed data with the USGS quadrangle maps and visually matching similar reaches;

4. Observe routing reach channel bed and overbank soils. Check for consistency with the SCS mapping. Evaluate watershed soil types in the areas where SCS mapping is unavailable. Use visual observations to supplement the general procedure used by the District for the Bender and Sand Tank washes model.

5. Vegetation transects will be taken in the watershed at representative locations to establish average vegetation cover densities. The regions will be established based on visual observations in the field;

6. The Lag data, routing reach data, and vegetation cover data will be documented and summarized for input to the parameter estimation spreadsheets where appropriate; and

7. The sub-basin delineation and soils boundary maps will be revised to reflect the findings of the field reconnaissance.

District personnel may accompany the Consultant at any time during the field reconnaissance phase.

e. Meeting Number Two with the District and ADWR: Meeting number two will be held after the hydrologic field reconnaissance is accomplished and the sub-basin delineations are completed. The proposed approach to parameter estimation, routing methodology and channel transmission loss estimates will be discussed and finalized at this meeting. A copy of the parameter estimations will be delivered to the District at least one week prior to the meeting.

f. Final Sub-Basin Delineation: The areas of sub-basins, and soil map units in sub-basins, will be calculated in CADD. Lag flow paths and sub-basin centroids will be determined in CADD. Elevations for the top and bottom of lag flow paths and routing reaches will be determined from the base maps. The data collected will then be placed into the parameter estimation and summary spreadsheets. Sub-basin identifiers, Lag path data, and routing reach data will be drafted in CADD on separate layers from the sub-basin layer and the soils layer. Final plots will be made onto the base maps.

g. Parameter Estimations: The following parameters will be estimated under this task:

1. Green and Ampt Coefficients - Green and Ampt values for each soil map unit in each sub-basin will be input to the parameter spreadsheet, and composite values for each sub-basin calculated;

2. Lag Times and Base HEC-1 Files - Lag times will be estimated in a spreadsheet. The Green and Ampt values, sub-basin areas and Lag times will then be input to the MCUHP2 computer program and the base HEC-1 input data files created; and

3. Reach Routing Data - The Normal Depth channel cross sections will be plotted, average velocities estimated for each reach, and the number of routing steps calculated.

h. Channel Losses: The average percolation rates for the routing reaches will be estimated as follows. This will be done after peak discharges are obtained from the initial HEC-1 runs made without transmission losses:

1. The average inundation width for each storm will be estimated for each reach. The soils areas for channel bed soils versus channel overbank soils will then be estimated using the soil maps to obtain a proportion of soils types across the cross section;

2. Average percolation values for each reach for each storm will then be calculated in a spreadsheet; and

3. The same process will be used for percolation losses in the ponding areas upstream of the Gila Bend Canal Study Reach, where deemed appropriate.

i. Meeting Number Three with the District: Meeting number three will be held after all the parameters except transmission losses have been estimated. A draft copy of parameter estimations will be submitted to the District at least one week prior to this meeting.

j. HEC-1 Diagram: The HEC-1 schematic diagram will be prepared as described in Section 3.7.2C.

k. HEC-1 Computer Models: The HEC-1 computer input data files, created under Task 3g, will be made into working models by the addition of hydrograph routing and combination control operations in accordance with the routing diagram. Comments on logic, assumptions, and watershed identification will also be added to the files. The models will then be run, debugged, the results checked for reasonableness, and adjustments made accordingly.

l. Preliminary Hydrology Report: The preliminary hydrology report will be prepared as described under Section 3.7 and bound in a format suitable for review. Three (3) copies will be submitted to the District for review.

m. Meeting Number Four with the District: Meeting number four will be held after the preliminary HEC-1 results have been obtained and a draft report has been prepared. A copy of the draft report and the copy of the HEC-1 input files on a floppy disk (compatible with the District's IBM-AT computer) will be delivered to the District one week prior to the meeting. A second copy will be forwarded to ADWR for their review and comment, if required by the District.

n. Hydraulics of Structures and Storage Routing: Hydraulic structures and crossings along the Gila Bend Canal Study Reach, SR 85, Interstate 8, and the railroads, will be analyzed utilizing the field survey and field reconnaissance data. Stage versus discharge and stage versus storage volume curves for each structure and crossing which can cause significant attenuation will be developed for input to the HEC-1 models. The new contour mapping will be used in conjunction with the USGS quadrangle maps and as-built plans for estimation of available ponding volumes.

o. Add Storage Routing to HEC-1 Model: The stage versus discharge and stage versus volume curves will be added to the HEC-1 models as reservoir routing operations. The results will be checked for reasonableness and locations of overtopping of the Gila Bend Canal banks determined.

The hydrology results will then be compared with previous studies and available gage data. The models will be calibrated or adjusted if necessary.

p. Meeting Number Five with the District: Meeting number five will be held following inclusion of reservoir routing to review comments by the District and ADWR one week after the Consultant has received the District's comments. The District will require a minimum of two weeks to review the report and the models.

The second field trip may be scheduled for the same week as meeting number five so that the results obtained can be discussed in the field.

q. Final Hydrology Report: The final hydrology report will be prepared as described under Section 3.7, and will reflect the review comments from the District and ADWR. The reach routing parameters for the lower reaches, modeled using HEC-2, will be adjusted using the HEC-2 cross sections. The HEC-2 cross sections available for each routing reach will be compared and a typical average cross section estimated. The final report will reflect this effort. Six (6) copies will be submitted to the District.

r. FEMA Revisions and Coordination: The response from FEMA will be reviewed and all comments addressed. This task will include revisions which are necessary to obtain FEMA approval both to the HEC-1 models and the final report.

Task 4 Field Survey

4.1 Prepare topographic mapping to contour interval and scale per 2.2.1, with spot elevations on section line and mid-section line roads, for floodplain/floodway delineation areas as identified in Task 2 or FEMA criteria, whichever is more stringent.

4.2 Ground Control for Floodplain Delineations:

a. Topographic mapping and survey work shall meet or exceed Federal Emergency Management Agency (FEMA) minimum criteria as defined in FEMA Document 37, Flood Insurance Study Guidelines and Specifications for Study Contractors, Appendix 4, March, 1991. This would include, but is not limited to: the establishment of "permanent" elevation reference marks (ERM's); field control; and verification of profiles by the ground survey profile procedure.

b. Horizontal and Vertical Control: Systematically set panel points and establish horizontal and vertical control throughout the area to be mapped using the Global Positioning system supplemented by conventional field methods for use in compilation by the aerial survey consultant. Surveys will tie into the State Plane Coordinate System, 1983 NAD. Field control shall be sufficient, at least one "permanent" point per mile, such point(s) being used as Elevation Reference Marks (ERM's). Surveys

will be based on National Geodetic Vertical Datum (NGVD), per FEMA guidelines. "Permanent" survey points shall consist of existing monumentation, such as brass caps or similar survey monuments. Where additional monumentation is needed, survey markers conforming to Maricopa Association of Governments (MAG) Uniform Standard Details for Public Works Construction, Detail 120-1, Type C, shall be placed 2" +/-above grade. Elevation Reference Marks will be labeled on available maps and described in a manner which allows them to be readily located in the field.

c. "As-Built" plans or surveys of bridges and hydraulic structures are to obtained by the Study Consultant.

d. The Consultant shall verify profiles for mapped floodplains. The ground survey profile procedure as described in FEMA Document 37 or other methods approved by FEMA shall be used.

e. The Consultant shall remove aerial targets placed on the ground, except painted targets, upon completion of aerial mapping.

4.3 The consultant will conduct field reconnaissance of the full study reach. This will include observation of channel and floodplain conditions for estimation of Manning's "n" values; photographic documentation of floodplain characteristics; determination of channel bank stations; observation of possible overflow areas; inspection of levees or other flood control structures; and measurement of bridge dimensions.

4.3.1 A written summary of the field inspection, including photographs to document "n" value estimation will be submitted to the District for review and approval.

Task 5 Floodplain and Floodway Delineation

5.1 Floodway and Floodway delineations will be determined for the 100-year flood using the U.S. Army Corps of Engineers HEC-2 Water Surface Profiles computer model, 1991 Version 4.6.0, and using methodology acceptable to FEMA. This model will simulate the effects of floodplain geomorphology, flow changes, bridges and culverts, hydraulic roughness factors, effective flow limitations, split-flows, and other considerations. The Consultant will prepare the study using the guidelines established in "The Flood Insurance Study Guidelines and Specification for Study Contractors', dated March, 1991 and "Appeals, Revisions, and Amendments to Flood Insurance Maps".

5.2 Bridges and Culverts will be modeled in compliance with HEC-2 modeling requirements for the selected routine. Where multiple bridges occur, each bridge will be modeled separately.

5.3 Cross Sections - Stationing will be from left to right looking downstream. Cross sections will be spaced approximately every 1000 feet, unless geographic or structural constraints dictate otherwise. Cross sections from the Gila Bend Canal downstream to Indian Road will be spaced at approximately 500 feet. Identification of cross sections will be in river miles, increasing upstream. The stationing will tie into the specified river mile of the existing FEMA studies. The location and alignment of cross sections and channel centerline will be submitted for the Flood Control District's review and

approval prior to digitizing cross section data. Cross section orientation may need to be altered after running of the HEC-2 model to make sure that they are perpendicular to direction of flow per FEMA criteria.

5.3.1 Cross sections will be plotted using a pen plotter. The cross section plots will show water surface profiles, ineffective flow areas, "n" values, encroachments, channel stationing and other pertinent information. These plots will be available at reviews.

5.4 For floodplains identified as ponding areas, the area will be analyzed using the HEC-1 model, which will provide the District with water-surface-elevations.

5.5 Flood zones will be determined according to FEMA criteria.

5.6 The Consultant will prepare working maps and models of the 100-year floodplain and floodway during the course of the hydraulic modeling analysis for review by the Flood Control District at progress meetings. Floodways will be determined using equal conveyance encroachment methods to start with, but only encroachment method 1 will be used in the final analysis.

5.7 The delineation work shall meet requirements for floodplain delineations as prescribed by FEMA and the Arizona Department of Water Resources.

5.8 The final report for the floodplain/floodway delineation study will include, but is not limited to the following:

I. Introduction

a. Purpose of study
b. Authority for study
c. Coordination and acknowledgments

II. Area Studied

a. Scope of study
b. Community description
c. Principal flood problems
d. Flood protection measures

III. Engineering methods

a. Hydrologic analyses
b. Hydraulic analyses

IV. Floodplain Management applications

a. Flood boundaries
b. Floodways

V. Insurance applications

VI. Other Studies

VII. Location of data

VIII. Bibliography

Task 6 Coordination

6.1 The Consultant shall participate in regular coordination meetings (at least every three weeks) with the District's Project Manager and in milestone coordination meetings in the development of the hydrologic and hydraulic analyses.

6.2 Prior to finalizing the hydraulic analysis, the Consultant will submit maps, report, and HEC-1 model to the District, ADWR and other applicable government agency reviewers through the District. The Consultant will respond to questions by the reviewers and make modifications to the hydrologic maps, model, and report if necessary.

6.3 The Consultant will submit maps, report, and HEC-2 model to the District and other applicable government agency reviewers. The District will submit the work for review by the FEMA Technical Evaluation Contractor (TEC). The Consultant will respond to questions by the reviewers and make modifications to maps, models and report if required.

Task 7 Final Products

7.1 Mapping:

a. One complete set of 9" x 9" contact prints of the aerial stereo photographs sequentially numbered and catalogued.

b. One complete set of contour maps, blueline, draft copy for Flood Control District reference during the project, delivered immediately following the topographic mapping.

c. One complete set of contour maps at 1" = 200' scale with the floodplain delineations in reproducible form (mylar) and six blueline copies as outlined in Task 2.

d. One set of transparent overlays of photo-mylars.

e. One complete set of mylars for the foldout maps (no larger than 11" x 17") used in the report.

7.2 One-half inch magnetic tape formatted at 1600 bpi containing the topographic data and the digitized floodplain/floodway boundaries in the format as specified in the attached Appendix A-GIS Data Specification Document.

7.3 Six hardcopies of the HEC-2 and HEC-1 printouts and a copy of the HEC-2 and HEC-1 model input/output files on 5-1/4", 1.2 Mb or 3-1/2" Mb diskettes compatible with an IBM-AT personal computer.

7.4 Tabular list of control points (ERM's) used with descriptions, elevations, and coordinates.

7.5 Reports:

a. The Consultant will produce a final report incorporating the comments of the District, FEMA and other reviewers. Six copies of the Hydrology and Hydraulics reports as outlined in Tasks 3 and 5 respectively, will be delivered.

7.6 Documentation for this study will be as outlined in Instructions for Organizing and Submitting Technical Documentation for Flood Studies as required by ADWR.

# APPENDIX A - GIS DATA SPECIFICATION

1. Topographic mapping, floodplain delineation mapping, hydrologic watershed boundaries, and soils group boundaries shall be submitted in a digital format acceptable to the Flood Control District of Maricopa County. The requirement for digital submission is in addition to any requirements for written (hard-copy) data and reports which may be required elsewhere in the scope, in this Appendix, or by law.

2. Data required by this scope of work or by this or other Appendix or Supplement to this scope of work shall be prepared as ESRI Arc-Info coverages in accordance with the instructions in this specification. Hardcopy maps, drawings, renderings, plots, and related items required by this scope or its supplements or be law shall represent final data which as been or is being delivered in fulfillment of the requirements of the scope of work. The maps, drawings, renderings, plots, or related items shall be reproducible at the time of submission and acceptance on the target computer system from the data, AML macros, and other information delivered.

## 3. COVERAGES SPECS

### 3.1 GENERAL INFORMATION

3.1.1. The Arc-Info coverages should have defined spatial relationships. (Built Topology - Area Definition, Connectivity and Contiguity)

3.1.2. The FCDMC will supply a coverage with the State Plane Section Corners and a coverage with the County border. Attributes on the PAT of the Section corners are the type of marker and the source of the point. If more accurate points are located by this study (GPS or surveyed), then the coverage supplied by the FCD should be revised and updated with the new and more accurate information. The new updated section corners should be used as the registration Tics of ALL the coverages. Labeling of the Tics should be done according to the file supplied by the FCD.

3.1.3. Annotation should be placed in different levels depending on the map scale. For example when annotating roads, the main mile road names should be in one level and the minor road names should be in a different level. The AAT and the PAT files should also include an item that identifies the features that have been labeled with annotation. For example, the road.pat should have an item :Road-Name that includes the name of the road.

3.1.4. When digitizing from different map sources, if the source map is using a projection different than State Plane (Transverse Mercator, etc), appropriate steps should be taken to ensure that the digitized lines are projected back to State Plane.

## 3.2 COVERAGES:

### A. INDEX

This coverage should have the page layout as presented in the plotted mylars.

Coverage Name: WTINDEX
Coverage Type: Polygon

Codes: The following codes should be added to the PAT

| | |
|---|---|
| Item Name: | Page# |
| Item Width, Output Width and type | 3,3,I |
| Information: | Page Layout |

### B. TOPOGRAPHY

Coverage Name: CONTOURS
Coverage Type: Line

| | | |
|---|---|---|
| ITEMS: | MAJOR1 | 4,4,I |
| | MINOR1 | 4,4,I |
| | MAJOR2 | 4,4,I |
| | MINOR2 | 4,4,I |
| | MAJOR3 | 4,4,I |
| | MINOR3 | 4,4,I |

| Codes: | Feature | | Description | | Parameter | |
|---|---|---|---|---|---|---|
| | MAJOR1 | MINOR1 | MAJOR2 | MINOR2 | MAJOR3 | MINOR3 |
| Index Contour | 020 | 0200 | 020 | 0600 | 021 | (elev.) |
| Hidden Indx Cont | 020 | 0200 | 020 | 0650 | 021 | (elev.) |
| Depression Idx Cont | 020 | 0200 | 020 | 0611 | 021 | (elev.) |
| Intermediate Cont | 020 | 0250 | 020 | 0600 | 021 | (elev.) |
| Hidden " " | 020 | 0250 | 020 | 0650 | 021 | (elev.) |
| Depression " " | 020 | 0250 | 020 | 0611 | 021 | (elev.) |

NOTE: (elev.) should be the contour elevation.

## C. CONTROL POINTS

Coverage Name: CONTROLPNTS
Coverage Type: point

| ITEMS: | | |
|---|---|---|
| | MAJOR1 | 4,4,I |
| | MINOR1 | 4,4,I |
| | MAJOR2 | 4,4,I |
| | MINOR2 | 4,4,I |
| | MAJOR3 | 4,4,I |
| | MINOR3 | 4,4,I |

| Codes: | Feature | | Description | | Parameter | |
|---|---|---|---|---|---|---|
| | MAJOR1 | MINOR1 | MAJOR2 | MINOR2 | MAJOR3 | MINOR3 |
| Horizontal Control | 300 | 0050 | 020 | 060L | 021 | (elev.) |
| Vertical Control | 300 | 0051 | 020 | 060L | 021 | (elev.) |
| Spot Elevation | 020 | 0300 | 020 | 060L | 021 | (elev.) |
| Section Corner | 300 | 0001 | 020 | 060L | 021 | (elev.) |
| Property Corner | 300 | 0052 | 020 | 060L | 021 | (elev.) |

NOTE: L=value of the decimal fraction of the spot elevation.
(elev.) = integer part of the elevation

Example: an spot elevation of 1325.8 ft should be coded as follows:

| | | | | | |
|---|---|---|---|---|---|
| 300 | 0050 | 020 | 0608 | 021 | 1325 |

## D. TRANSPORTATION

Coverage Name: ROADS
Coverage Type: Line

| ITEMS: | | |
|---|---|---|
| | MAJOR1 | 4,4,I |
| | MINOR1 | 4,4,I |
| | MAJOR2 | 4,4,I |
| | MINOR2 | 4,4,I |
| | MAJOR3 | 4,4,I |
| | MINOR3 | 4,4,I |
| | RDNAME | 23,23,C |

| Codes: | Feature | | Description | | Parameter | |
|---|---|---|---|---|---|---|
| | MAJOR1 | MINOR1 | MAJOR2 | MINOR2 | MAJOR3 | MINOR3 |
| Roads (Conc/Asph) | 170 | 0209* | 0 | 0 | 0 | 0 |
| Improved Dirt Rd | 170 | 0250 | 170 | 064 | 0 | 0 |
| Trails | 170 | 0211 | 0 | 0 | 0 | 0 |
| Pavement Edge | 170 | 0300 | 0 | 0 | 0 | 0 |
| Railroads | 180 | 0201 | 0 | 0 | 0 | 0 |

*NOTE: 209 for Road or Street Class 3
210 for Road or Street Class 4

Roads should be annotated in 2 different levels depending on the class type.

## E. WATER FLOW LINES

Coverage Name: FLOW
Coverage Type: Line

For future modeling of water flow within ARC-INFO it is required that the lines that describe the water flow are digitized in the direction that the water is flowing.

| ITEMS: | | |
|---|---|---|
| | MAJOR1 | 4,4,I |
| | MINOR1 | 4,4,I |
| | MAJOR2 | 4,4,I |
| | MINOR2 | 4,4,I |
| | MAJOR3 | 4,4,I |
| | MINOR3 | 4,4,I |

| Codes: | Feature | | Description | | Parameter | |
|---|---|---|---|---|---|---|
| | MAJOR1 | MINOR1 | MAJOR2 | MINOR2 | MAJOR3 | MINOR3 |
| Water Flow lines | 050 | 0470 | 0 | 0 | 0 | 0 |

## F. MUNICIPAL BOUNDARIES

Coverage Name: MUNICIPAL
Coverage Type: Polygon

| ITEMS: | | |
|---|---|---|
| | MAJOR1 | 4,4,I |
| | MINOR1 | 4,4,I |
| | MAJOR2 | 4,4,I |
| | MINOR2 | 4,4,I |
| | MAJOR3 | 4,4,I |
| | MINOR3 | 4,4,I |
| | NAME | 23,23,C |

| Codes: | Feature | | Description | | Parameter | |
|---|---|---|---|---|---|---|
| | MAJOR1 | MINOR1 | MAJOR2 | MINOR2 | MAJOR3 | MINOR3 |
| Boundaries | 090 | 0100 | 0 | 0 | 0 | 0 |

## G. WATERSHEDS BASINS AND SUBWATERSHEDS

Coverage Name: WATERSHED-NAME
Coverage Type: Polygon

| ITEMS: | | |
|---|---|---|
| | MAJOR1 | 4,4,I |
| | MINOR1 | 4,4,I |
| | MAJOR2 | 4,4,I |
| | MINOR2 | 4,4,I |
| | MAJOR3 | 4,4,I |
| | MINOR3 | 4,4,I |
| | WSNAME | 10,10,C |

| Codes: | Feature | | Description | | Parameter | |
|---|---|---|---|---|---|---|
| | MAJOR1 | MINOR1 | MAJOR2 | MINOR2 | MAJOR3 | MINOR3 |
| Boundaries | 050 | 0150 | 0 | 0 | 0 | 0 |

The coding scheme of the WSNAME should provide the capability of being able to redefine items in INFO and be able to group the subwatersheds into the watersheds.

## H. SOILS

Soil types should adhere to SCS coding scheme.

Coverage Name: SOILS
Coverage Type: Polygon

| ITEMS: | | |
|---|---|---|
| | MAJOR1 | 4,4,I |
| | MINOR1 | 4,4,I |
| | MAJOR2 | 4,4,I |
| | MINOR2 | 4,4,I |
| | MAJOR3 | 4,4,I |
| | MINOR3 | 4,4,I |
| | SOILTYPE | 5,5,C |
| | TEXTURETYPE | 4,4,I |

| Codes: | Feature | | Description | | Parameter | |
|---|---|---|---|---|---|---|
| | MAJOR1 | MINOR1 | MAJOR2 | MINOR2 | MAJOR3 | MINOR3 |
| Boundaries | 090 | 0170 | 0 | 0 | 0 | 0 |

SOIL DESCRIPTION TABLE:

A table that relates Soil Type Codes with their description should also be supplied.

| ITEMS: | | |
|---|---|---|
| | SOILTYPE | 5,5,C |
| | DESCRIPTION | 50,50,C |

TEXTURE DESCRIPTION TABLE:

A table that relates Texture Type codes with their description should also be supplied.

| ITEMS: | | |
|---|---|---|
| | TEXTURETYPE | 4,4,I |
| | DESCRIPTION | 50,50,C |

## I. FLOODWAY

Coverage Name: FLOODWAY
Coverage Type: Polygon

| ITEMS: | | |
|---|---|---|
| | MAJOR1 | 4,4,I |
| | MINOR1 | 4,4,I |
| | MAJOR2 | 4,4,I |
| | MINOR2 | 4,4,I |
| | MAJOR3 | 4,4,I |
| | MINOR3 | 4,4,I |

| Codes: | Feature | | Description | | Parameter | |
|---|---|---|---|---|---|---|
| | MAJOR1 | MINOR1 | MAJOR2 | MINOR2 | MAJOR3 | MINOR3 |
| Floodway | 050 | 0670 | | | | |
| Floodway Fringe | 050 | 0671 | | | | |

## J. HAZARD ZONES

Coverage Name: ZONES
Coverage Type: Polygon

| ITEMS: | | |
|---|---|---|
| | MAJOR1 | 4,4,I |
| | MINOR1 | 4,4,I |
| | MAJOR2 | 4,4,I |
| | MINOR2 | 4,4,I |
| | MAJOR3 | 4,4,I |
| | MINOR3 | 4,4,I |
| | ZONENAME | 4,4,C |

| Codes: | Feature | | Description | | Parameter | |
|---|---|---|---|---|---|---|
| | MAJOR1 | MINOR1 | MAJOR2 | MINOR2 | MAJOR3 | MINOR3 |
| Zones | 050 | 0170 | 0 | 0 | 0 | 0 |

The Zone name should be annotated in level one and also be included in the PAT file.

## K. FEMA REFERENCE MARKS

Coverage Name: BM
Coverage Type: Point

| ITEMS: | | |
|---|---|---|
| | MAJOR1 | 4,4,I |
| | MINOR1 | 4,4,I |
| | MAJOR2 | 4,4,I |
| | MINOR2 | 4,4,I |
| | MAJOR3 | 4,4,I |
| | MINOR3 | 4,4,I |
| | BM-ID | 4,5,B |

| Codes: | Feature | | Description | | Parameter | |
|---|---|---|---|---|---|---|
| | MAJOR1 | MINOR1 | MAJOR2 | MINOR2 | MAJOR3 | MINOR3 |
| Benchmarks | 020 | 0300 | 020 | 060L | 02N | (elev.) |

BENCHMARK DESCRIPTION TABLE:

A table that relates the benchmark to the description and remarks should also be supplied:

| ITEMS: | | |
|---|---|---|
| | BM-ID | 4,5,B |
| | DESCRIPTION | 200,200,C |

## L. FLOOD ELEVATION LINES:

Coverage Name: SWE
Coverage type: Line

| ITEMS: | | |
|---|---|---|
| | MAJOR1 | 4,4,I |
| | MINOR1 | 4,4,I |
| | MAJOR2 | 4,4,I |
| | MINOR2 | 4,4,I |
| | MAJOR3 | 4,4,I |
| | MINOR3 | 4,4,I |

| Codes: | Feature | | Description | | Parameter | |
|---|---|---|---|---|---|---|
| | MAJOR1 | MINOR1 | MAJOR2 | MINOR2 | MAJOR3 | MINOR3 |
| Elev at X-Sec | 020 | 0270 | 020 | 060L | 02N | (elev.) |
| SWE (As per FIRM) | 020 | 0271 | 020 | 060L | 02N | (elev.) |

Lines should be annotated with the appropriate elevation in the coverage.
The FCD will supply the symbol set file for SWE (As per FIRM) lines, to ensure uniformity at plotting time.

## M. MAN MADE FEATURES (bridges/Culverts)

Coverage Name: BRIDGES
Coverage type: Line
Codes for man made feature are still pending.

## 3.3 NOTES:

This is a preliminary list that describe 13 different coverages that would cover the total of the information that is presented in Hard copy form. If there is additional information that makes part of the mylar and is not included in this list, then these features should be added to one of the above coverages or to a new one, as coordinated with the District.

4. Arc-Info coverages shall be prepared in accordance with procedures and practices of Release 5.01 or later of the Arc-Info software running on a Data General Avion 410 DG/UX workstation or a hardware platform capable of producing coverages and files which can be transferred to the target system without any loss of data or data integrity or reliability modification. Use of single precision m=numbers to allow data development on personal computes systems is permitted if the consultant determines that use of single precision numbers will not adversely affect the quality or reliability of the data.

5. Consultant may develop or manipulate data on any system of his choosing and convert that data to the required Arc-Info coverages. However, the Arc-Info coverages, text, and data shall be the official version of the data submitted in fulfillment of the contract. The District will not consider payment for services rendered by the consultant in the transfer of data from other CAD System to ARC-INFO format unless the consultant can clearly show that original development of the data under the ARC-INFO system is not technical or economically feasible. See paragraph 3 above for related stipulations.

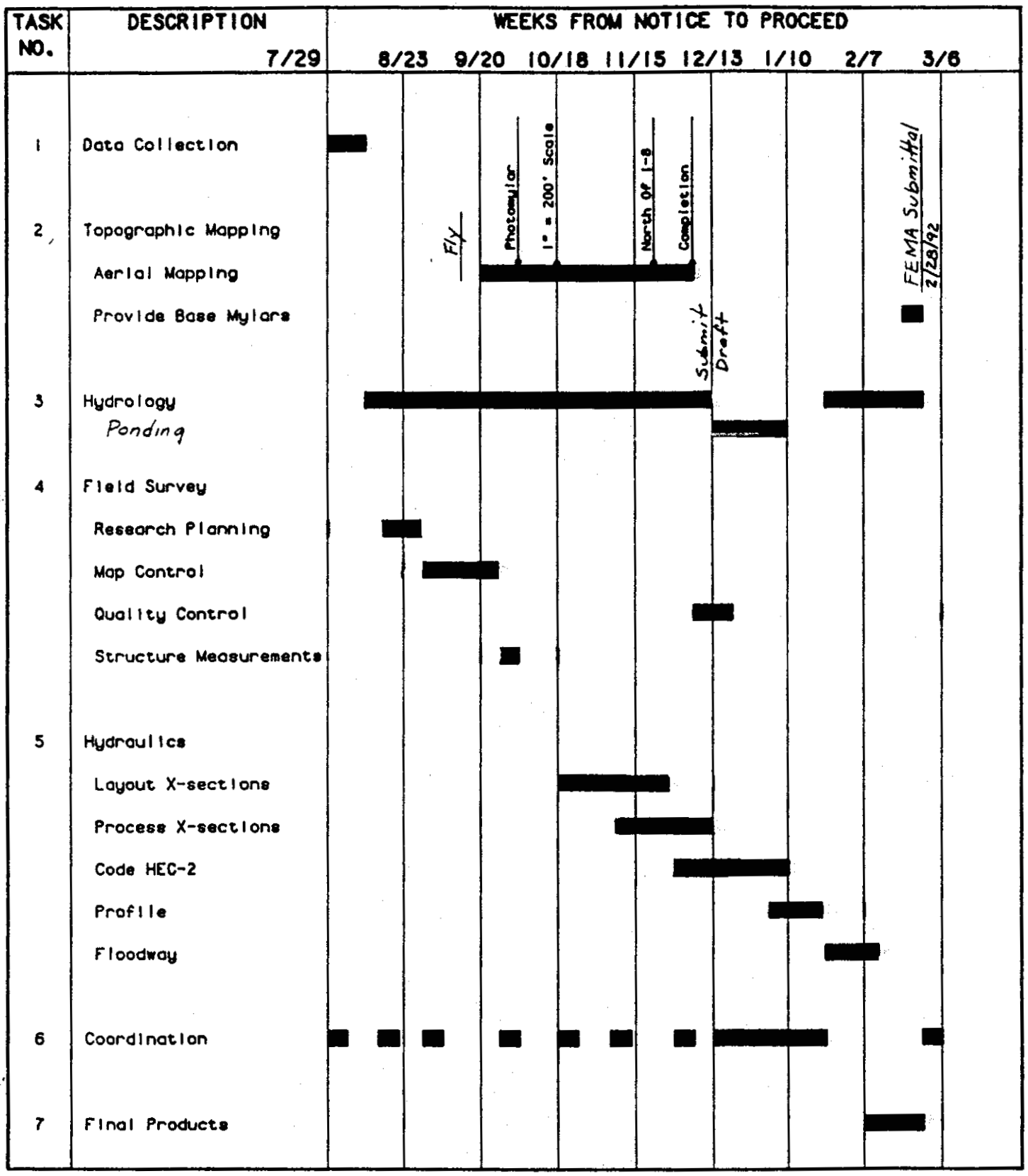
6. Features for which there is an entry in an AAT or PAT file must have a User-ID assigned to it. Where coding is required, features in a coverage shall be attributed in the AAT or PAT files with descriptive codes taken from the publication, "Appendix D, Digital Line Graphs from 1:100000 - Scale Maps - Data Users Guide 2, National Mapping Program, Technical Instructions, US Department of Interior, USGS, National Mapping Division". If this scope requires identification of a feature for which no appropriate code exists (such as floodplain limits) the code shall be taken from the Flood Control District which shall assign a code to the feature. Coverages containing codes not obtained through one of these methods will be returned for correction.

7. Consultants shall document the data structure of each coverage provided and shall endeavor to use a similar table structure, column labeling conventions, column data types, and so forth from coverage to coverage. Documentation shall be prepared in accordance with paragraph 1 of this Appendix.

8. Consultant may select or design symbols, line types, annotation style, and fill patterns and colors, Arc Macro Language routines, and the like to produce attractive and useful maps. These elements must be submitted to the FCD in appropriate exchange files such that the provisions of paragraph 3 can be met. Full textural documentation of these elements is required.

9. Data required by the contract and amendments thereto shall be submitted in the Arc-Info release 5.01 "EXPORT" (.e00) file format. Arc-Info coverages shall be prepared in accordance with Arc-Info Release 5.01 or later running on a Data General Aviion 410 workstation (target system) or on a computer system capable of producing Arc-Info "EXPORT" files which can be transferred to the target system using the Arc-Info "IMPORT" utility. EXPORT files shall be copied to QIC-150 formatted, 150 MB, 1/2-inch data cartridges in a POSIX-compliant TAR format. Floppy disks, reel-to-reel, CD-ROM, and other media are not acceptable.

# PROPOSED SCHEDULE
# GILA BEND AREA FLOODPLAIN DELINEATION STUDY
# BURGESS & NIPLE, INC.
# FCD 90-67
# PROJECT NO. 11358



Section 2

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

## SECTION 2: Mapping and Surveying Information

### 2.1 General

The mapping and survey data used for the hydrology portion of this project is described, by exhibit drawing, as follows:

**Exhibits "A", "B" and "C"** - The base mapping used for these exhibits consists of United States Geological Survey (USGS) 7.5 minute quadrangle maps. The maps were photo-mosaicked at full 1"=2000' scale for Exhibits "B" and "C". A composite of all the USGS quadrangle maps was reduced to 1"=10000' scale for Exhibit "A". The orthophotographs which correspond to the quadrangle maps were also used for sub-basin delineation and wash identification. The following are the USGS quadrangle maps and orthophotographs used for this study:

| | |
|---|---|
| **Big Horn:** | 1979, 1973 photo date, 40' contour interval (CI). Orthophoto = Estrella S.W. |
| **Black Gap:** | 1986 provisional, 1979 photo date, 20' CI. Orthophoto = Theba S.E. |
| **Blue Plateau:** | 1986 provisional, 1979 photo date, 40' CI. Orthophoto = Gila Bend S.E. |
| **Bosque:** | 1973, 1972 photo date, 20' CI. Orthophoto = Gila Bend N.E. |
| **Conley Well:** | 1979, 1973 photo date, 40' CI. Orthophoto = Estrella N.E. |
| **Estrella:** | 1979, 1973 photo date, 40' CI. Orthophoto = Estrella N.W. |
| **Gila Bend:** | 1973, 1972 photo date, 10' CI. Orthophoto = Gila Bend N.W. |
| **Hat Mountain:** | 1986 provisional, 1979 photo date, 40' CI. Orthophoto = Hat Mountain N.W. |
| **Hat Mountain S.W.:** | 1986 provisional, 1979 photo date, 40' CI, 20' supplementary contour interval (SCI). Orthophoto = Hat Mountain S.W. |
| **Kaka N.W.:** | 1986 provisional, 1979 photo date, 40' CI. Orthophoto = Kaka N.W. |
| **Lost Horse Peak:** | 1979, 1973 photo date, 40' CI, 20' SCI. Orthophoto = Estrella S.E. |

**Midway:** 1986 provisional, 1979 photo date, 40' CI.
Orthophoto = Midway N.E.

**Moivayi:** 1986 provisional, 1979 photo date, 40' CI.
Orthophoto = Kaka S.W.

**Platt Well:** 1986 provisional, 1979 photo date, 40' CI.
Orthophoto = Hat Mountain N.E.

**Smurr:** 1973, 1972 photo date, 10' CI, 5' SCI.
Orthophoto = Theba N.E.

**South of Gila Bend:** 1986 provisional, 1979 photo date, 10' CI.
Orthophoto = Gila Bend S.W.

**Tom Thumb:** 1986 provisional, 1979 photo date, 40' CI.
Orthophoto = Hat Mountain S.E.

**Exhibit "D"** - The cross sections on this exhibit were taken in the field during the period September 14, 1991 through October 4, 1991. The cross section vertical measurements were taken using a Wild LNA2 laser level. Distances were paced or measured with a Philadelphia rod and hand tape. The horizontal location of each cross section is identified on Exhibit "C".

Each cross section was taken at a location deemed to be representative of that portion of a routing reach. Sufficient cross sections were taken to enable interpolation or estimation of typical cross sections for other representative reaches.

**Exhibit "E"** - The cross sections on this exhibit are plots of each reach route section used in the HEC-1 models. They were derived from the cross sections shown on Exhibit "D", or from available contour mapping, using one of the following methods:

1. The actual cross section taken in a reach was used where appropriate. The end legs of the section were extended if necessary to contain the computed peak flows. The actual grades shot in the field, or slopes calculated from the USGS quadrangle maps, were used in the extension process. Many cross sections have been extended beyond limits that are physically possible on the watershed. This was necessary because of the use of the "JD" record option in the HEC-1 models. Index hydrographs corresponding to each point defined on the aerial reduction curve are generated for every operation in the model. The actual hydrograph for an individual operation is determined by log interpolation between the appropriate index hydrographs, based on watershed area. Aerial reduction becomes significant as the watershed area increases, and peak discharges resultant from the index hydrographs for small values of area may be quite large in comparison with those resultant from the actual interpolated hydrograph. These larger peaks are routed through

each reach, and the cross section for the reach must therefore have sufficient conveyance to contain the flow. Otherwise, HEC-1 will place a warning message in the output file for all hydrograph ordinates which exceed the hydraulic capacity of the cross section. The cross sections for the routing reaches which have been affected by this situation were extended in a manner that provides more conveyance, but at the same time maintains the hydraulic characteristics which have been assumed to be typical of the reach.

2. Interpolation between known cross sections from Exhibit "D".

3. Known cross sections from Exhibit "D" were used for reaches deemed similar to the source reach. A reach was deemed similar based on field observation, review of orthophotographs, or examination of the reach terrain on the USGS quadrangle map.

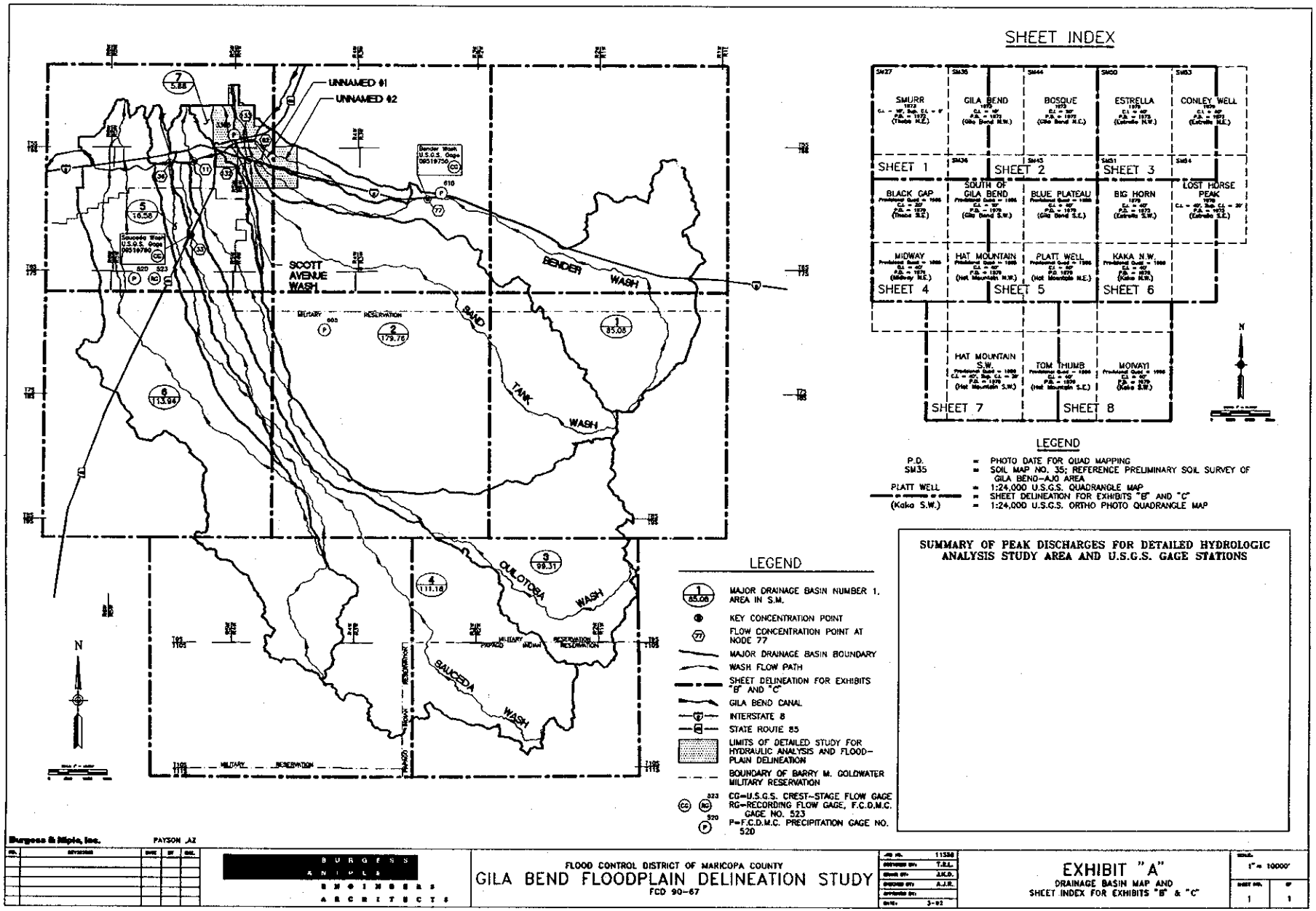
4. Digitized HEC-2 cross sections for Bender Wash, Sand Tank Wash and Scott Avenue Wash were used for those reaches which are situated in the area mapped as a part of the floodplain delineation portion of this project. The mapping was prepared by Aerial Mapping Co. of Phoenix, AZ. The Aerial Mapping Co. job number is 91124-00, and the mapping flight date was September 13, 1991.

The source for each cross section on Exhibit "E" is referenced in Table R-1 under Section 3.2.2.2 Reach Route Parameters.

## 2.2 Index of Maps

All full size maps under Sections 2.2 and 2.4 are under separate cover. These maps will be placed in pockets in Book 2 of 2 after the report is approved by FEMA. Reduced copies of each exhibit are on the following pages. The reduced copies do not include information added to the final full-scale drawings after plotting to mylar using AutoCAD. The missing information includes data tables and land use cross hatching. The reduced copies are intended for overview purposes only. Refer to the full-scale drawings for details.

Exhibit "A" is the index of maps for Exhibits "B" and "C". Exhibit "B" is the watershed soils map and Exhibit "C" is the sub-basin delineation, lag time flow path, and flood routing map. Exhibits "D" and "E" are cross section plots described under Section 2.1. Exhibits "F" and "G" are the schematic flood routing diagrams which depicted the logic of the HEC-1 computer models.

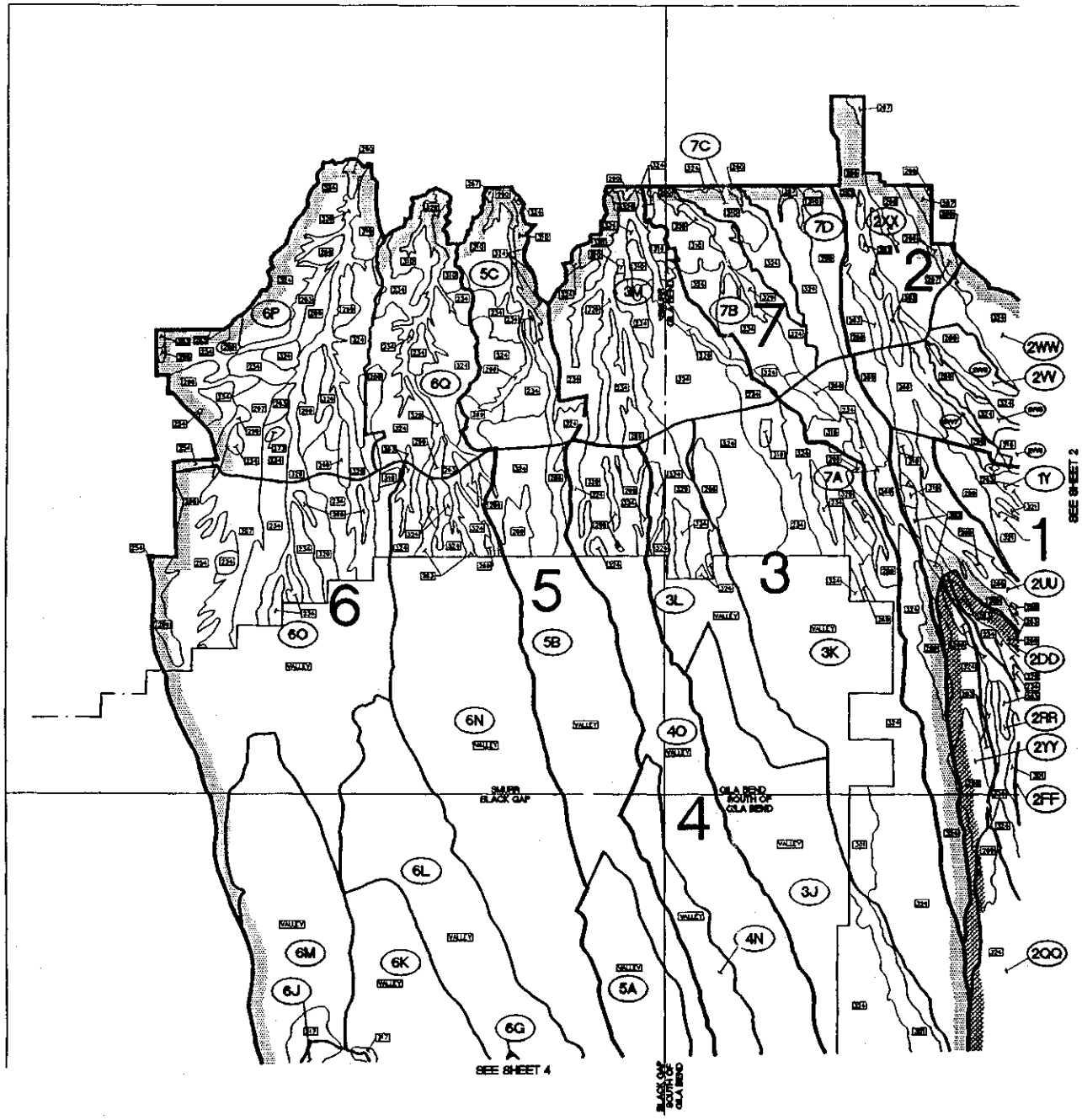

UNNAMED #1
UNNAMED #2
SCOTT AVENUE WASH
BENDER WASH
SAND TANK WASH
OLHOTOKA WASH
SAUCEDA WASH
MILITARY RESERVATION
N
SHEET INDEX
SMURR
GILA BEND
BOSQUE
ESTRELLA
CONLEY WELL
SHEET 1
SHEET 2
SHEET 3
BLACK CAP
SOUTH OF GILA BEND
BLUE PLATEAU
BIG HORN
LOST HORSE PEAK
MIDWAY
HAT MOUNTAIN
PLATT WELL
KAKA N.W.
SHEET 4
SHEET 5
SHEET 6
HAT MOUNTAIN S.W.
TOM THUMB
MOIVAYI
SHEET 7
SHEET 8
LEGEND
P.D. = PHOTO DATE FOR QUAD MAPPING
SM35 = SOIL MAP NO. 35; REFERENCE PRELIMINARY SOIL SURVEY OF GILA BEND-AJO AREA
PLATT WELL = 1:24,000 U.S.G.S. QUADRANGLE MAP
= SHEET DELINEATION FOR EXHIBITS "B" AND "C"
(Kaka S.W.) = 1:24,000 U.S.G.S. ORTHO PHOTO QUADRANGLE MAP
LEGEND
MAJOR DRAINAGE BASIN NUMBER 1, AREA IN S.M.
KEY CONCENTRATION POINT
FLOW CONCENTRATION POINT AT NODE 77
MAJOR DRAINAGE BASIN BOUNDARY
WASH FLOW PATH
SHEET DELINEATION FOR EXHIBITS "B" AND "C"
GILA BEND CANAL
INTERSTATE 8
STATE ROUTE 85
LIMITS OF DETAILED STUDY FOR HYDRAULIC ANALYSIS AND FLOOD-PLAIN DELINEATION
BOUNDARY OF BARRY M. GOLDWATER MILITARY RESERVATION
CG=U.S.G.S. CREST-STAGE FLOW GAGE
RG=RECORDING FLOW GAGE, F.C.D.M.C. GAGE NO. 523
P=F.C.D.M.C. PRECIPITATION GAGE NO. 520
SUMMARY OF PEAK DISCHARGES FOR DETAILED HYDROLOGIC ANALYSIS STUDY AREA AND U.S.G.S. GAGE STATIONS
Burgess & Niple, Inc.
PAYSON, AZ
BURGESS & NIPLE ENGINEERS ARCHITECTS
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-67
EXHIBIT "A"
DRAINAGE BASIN MAP AND SHEET INDEX FOR EXHIBITS "B" & "C"
1" = 10000'

## 2.3 Survey Field Notes

The top of the south levee of the Gila Bend Canal was profiled as a part of the hydrology effort. The levee was profiled from the canal crossing of S.R. 85 west to Smurr where the canal crosses north under Interstate 8. The work was done under the direct supervision of Thomas R. Loomis, Arizona RLS Number 16569. The two benchmarks used for this work are referenced on sheet 1 of Exhibit "C". The profile was used to supplement the USGS quadrangle maps in order to facilitate estimating the effects of ponding upstream of the canal, and for estimating where 100-year peak flows may overtop the canal.

## 2.4 Watershed and Hydrologic Analysis Maps

Reduced copies of Exhibits "B" through "H" are on the following pages. Exhibit "F" on page 2-34 is the only exception. This is the full size copy of the drawing. Full-size copies accompany this report. The reduced copies do not include the USGS quadrangle maps as a base, while the full-size copies do. The reduced copies of Exhibit "B" do not show the shadings which depict the various land use areas. Refer to the full scale prints for this information.



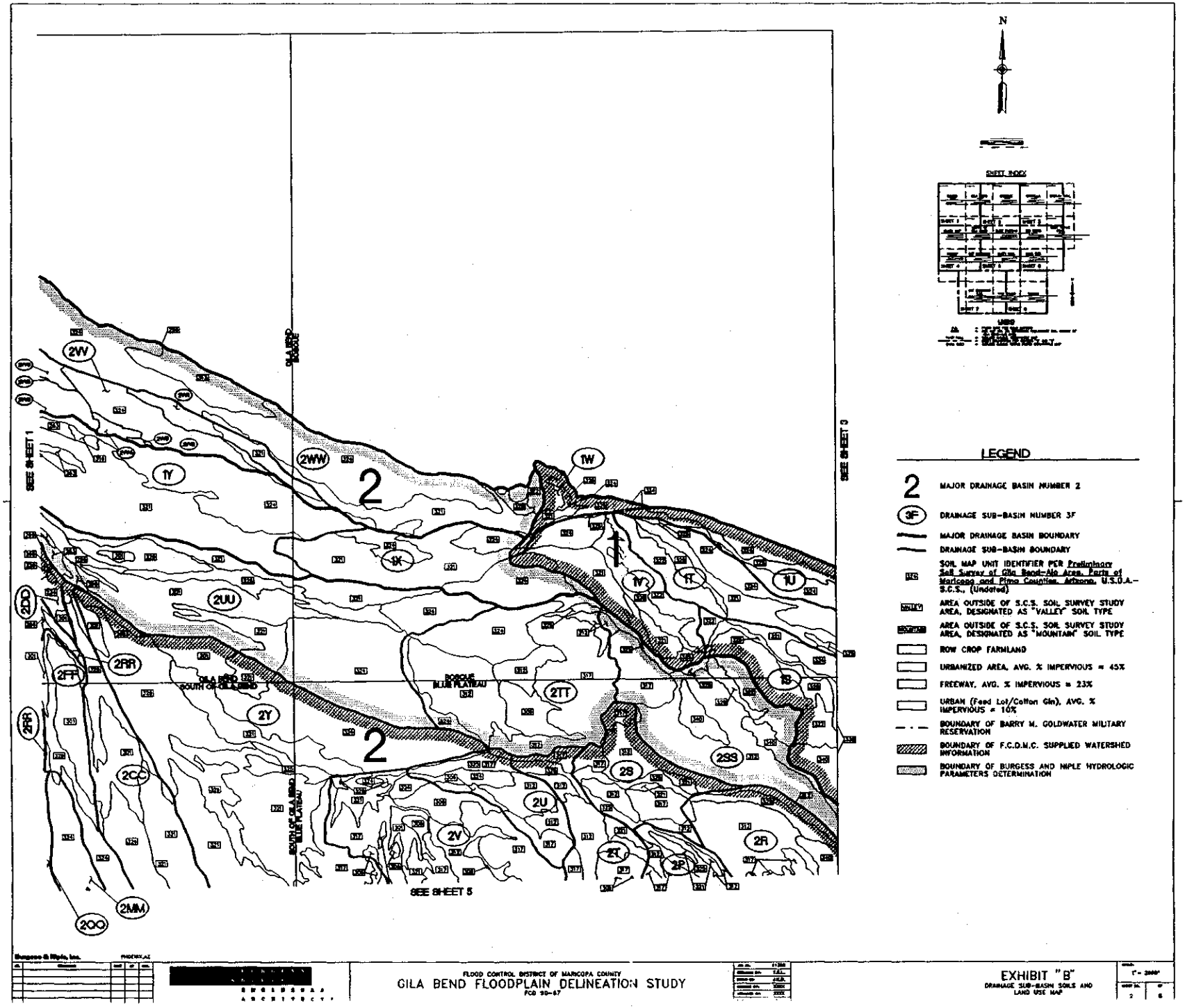

## LEGEND

| | |
|---|---|
| 2 | MAJOR DRAINAGE BASIN NUMBER 2 |
| 3F | DRAINAGE SUB-BASIN NUMBER 3F |
| | MAJOR DRAINAGE BASIN BOUNDARY |
| | DRAINAGE SUB-BASIN BOUNDARY |
| | SOIL MAP UNIT IDENTIFIER PER Preliminary Soil Survey of Gila Bend-Ajo Area, Parts of Maricopa and Pima Counties, Arizona, U.S.D.A.-S.C.S., (Undated) |
| VALLEY | AREA OUTSIDE OF S.C.S. SOIL SURVEY STUDY AREA, DESIGNATED AS "VALLEY" SOIL TYPE |
| MOUNTAIN | AREA OUTSIDE OF S.C.S. SOIL SURVEY STUDY AREA, DESIGNATED AS "MOUNTAIN" SOIL TYPE |
| | ROW CROP FARMLAND |
| | URBANIZED AREA, AVG. % IMPERVIOUS = 45% |
| | FREEWAY, AVG. % IMPERVIOUS = 23% |
| | URBAN (Feed Lot/Cotton Gin), AVG. % IMPERVIOUS = 10% |
| | BOUNDARY OF BARRY M. GOLDWATER MILITARY RESERVATION |
| | BOUNDARY OF F.C.D.M.C. SUPPLIED WATERSHED INFORMATION |
| | BOUNDARY OF BURGESS AND NIPLE HYDROLOGIC PARAMETERS DETERMINATION |

Burgess & Niple, Inc.
PHOENIX, AZ

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-07

EXHIBIT "B"
DRAINAGE SUB-BASIN SOILS AND LAND USE MAP




FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-67

EXHIBIT "B"
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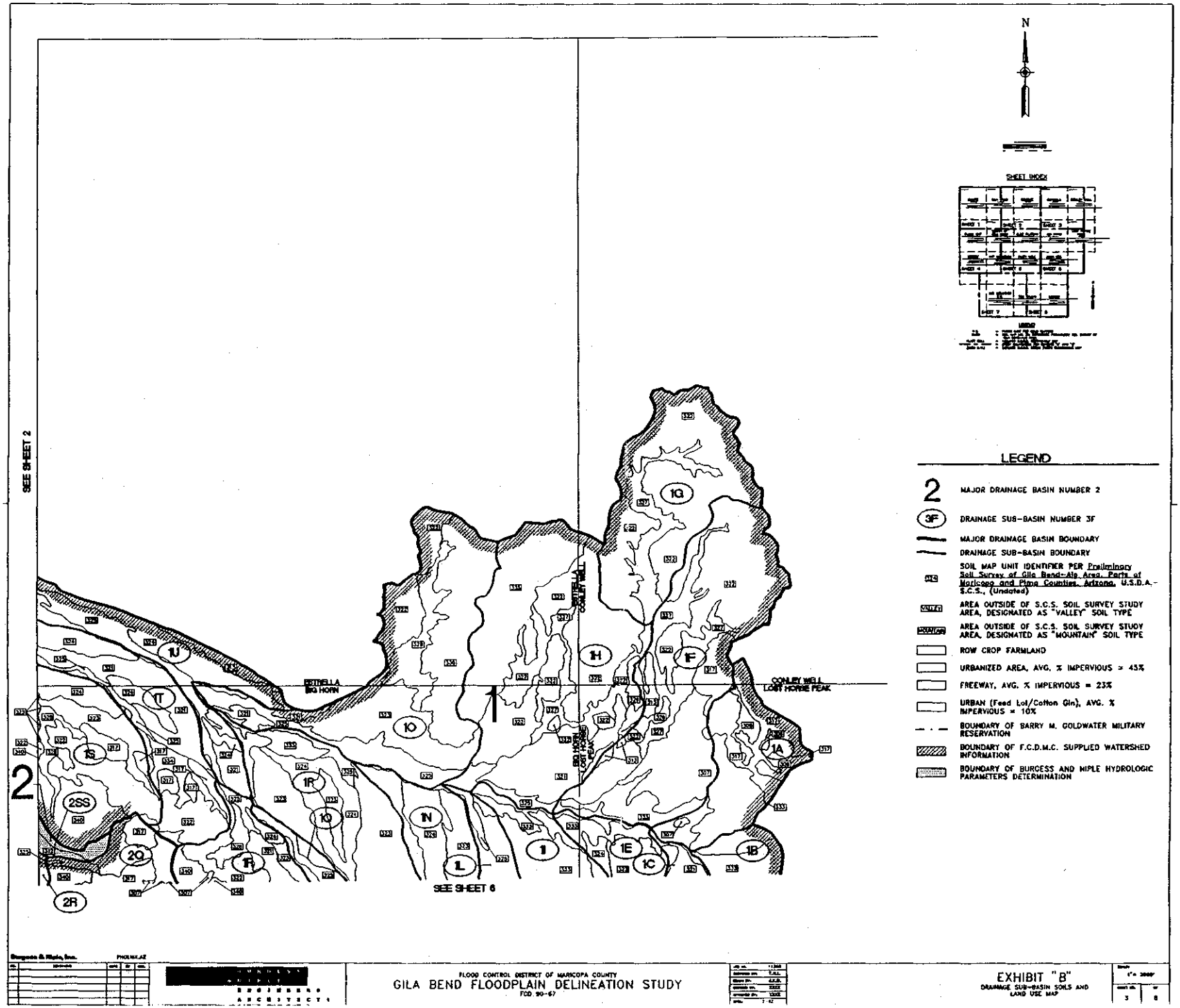
N
SHEET INDEX
LEGEND
2 MAJOR DRAINAGE BASIN NUMBER 2
3F DRAINAGE SUB-BASIN NUMBER 3F
MAJOR DRAINAGE BASIN BOUNDARY
DRAINAGE SUB-BASIN BOUNDARY
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AREA OUTSIDE OF S.C.S. SOIL SURVEY STUDY AREA, DESIGNATED AS "MOUNTAIN" SOIL TYPE
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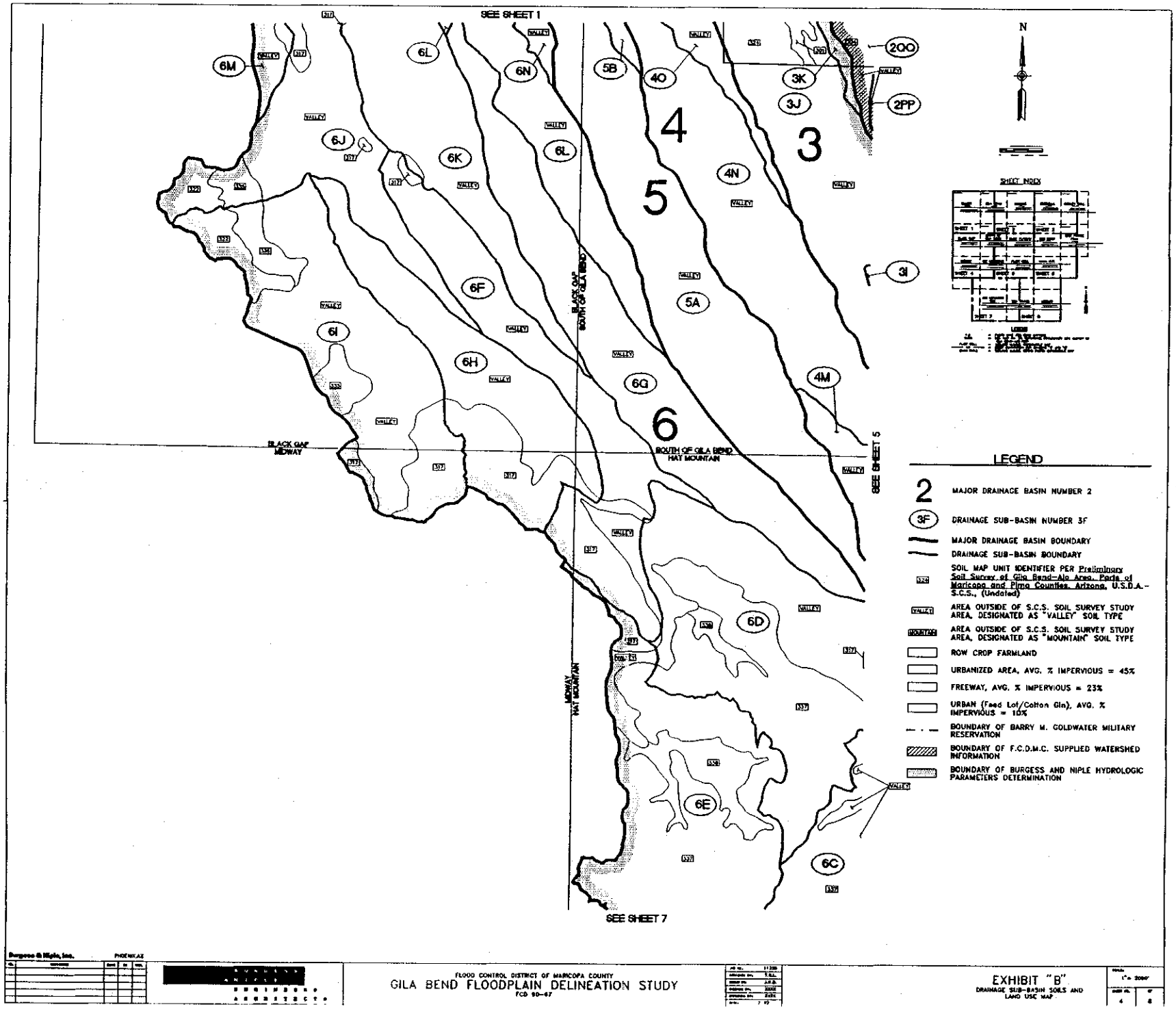
FREEWAY, AVG. % IMPERVIOUS = 23%
URBAN (Feed Lot/Cotton Gin), AVG. % IMPERVIOUS = 10%
BOUNDARY OF BARRY M. GOLDWATER MILITARY RESERVATION
BOUNDARY OF F.C.D.M.C. SUPPLIED WATERSHED INFORMATION
BOUNDARY OF BURGESS AND NIPLE HYDROLOGIC PARAMETERS DETERMINATION
SEE SHEET 2
SEE SHEET 6
ESTRELLA
BIG HORN
CONLEY WELL
LOST HORSE PEAK
1
2
1G
1H
1F
1U
1T
1O
1S
1R
1Q
1N
1L
1E
1C
1B
1A
2SS
2Q
2R
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-67
EXHIBIT "B"
DRAINAGE SUB-BASIN SOILS AND LAND USE MAP


SEE SHEET 1
SEE SHEET 5
SEE SHEET 7
BLACK GAP MIDWAY
BLACK GAP SOUTH OF GILA BEND
MIDWAY HAT MOUNTAIN
SOUTH OF GILA BEND HAT MOUNTAIN
6M
6L
6N
5B
4O
3K
3J
2OO
2PP
6J
6K
6L
4N
3I
6F
5A
6I
6H
6G
4M
6D
6E
6C
2
3
4
5
6
N
SHEET INDEX
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Burgess & Niple, Inc.
PHOENIX
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-67
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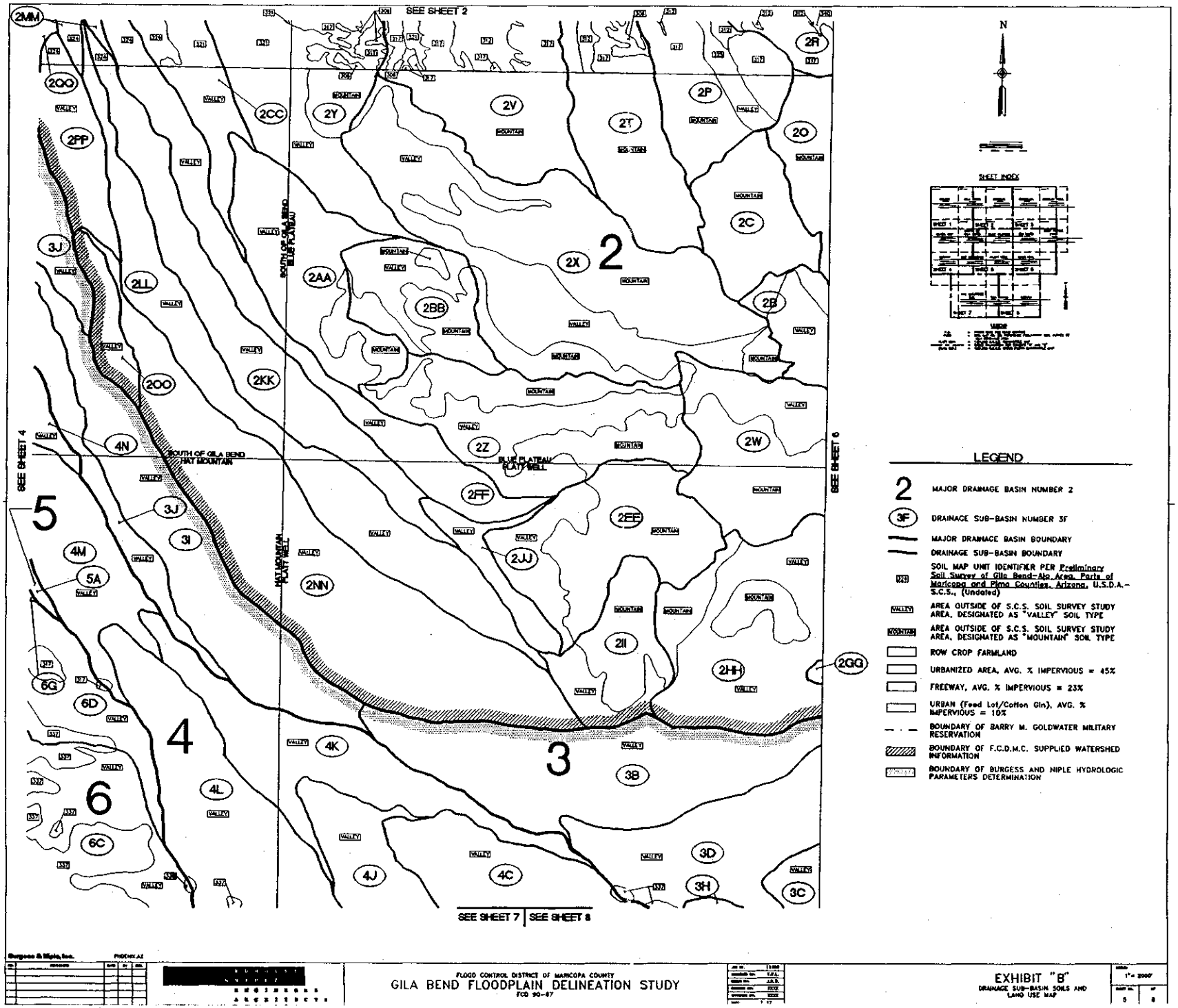
SEE SHEET 2
SEE SHEET 4
SEE SHEET 6
SEE SHEET 7
SEE SHEET 8
SOUTH OF GILA BEND HAY MOUNTAIN
SOUTH OF GILA BEND BLUE PLATEAU
BLUE PLATEAU PLATTWELL
HAY MOUNTAIN PLATTWELL
N
SHEET INDEX
LEGEND
2 MAJOR DRAINAGE BASIN NUMBER 2
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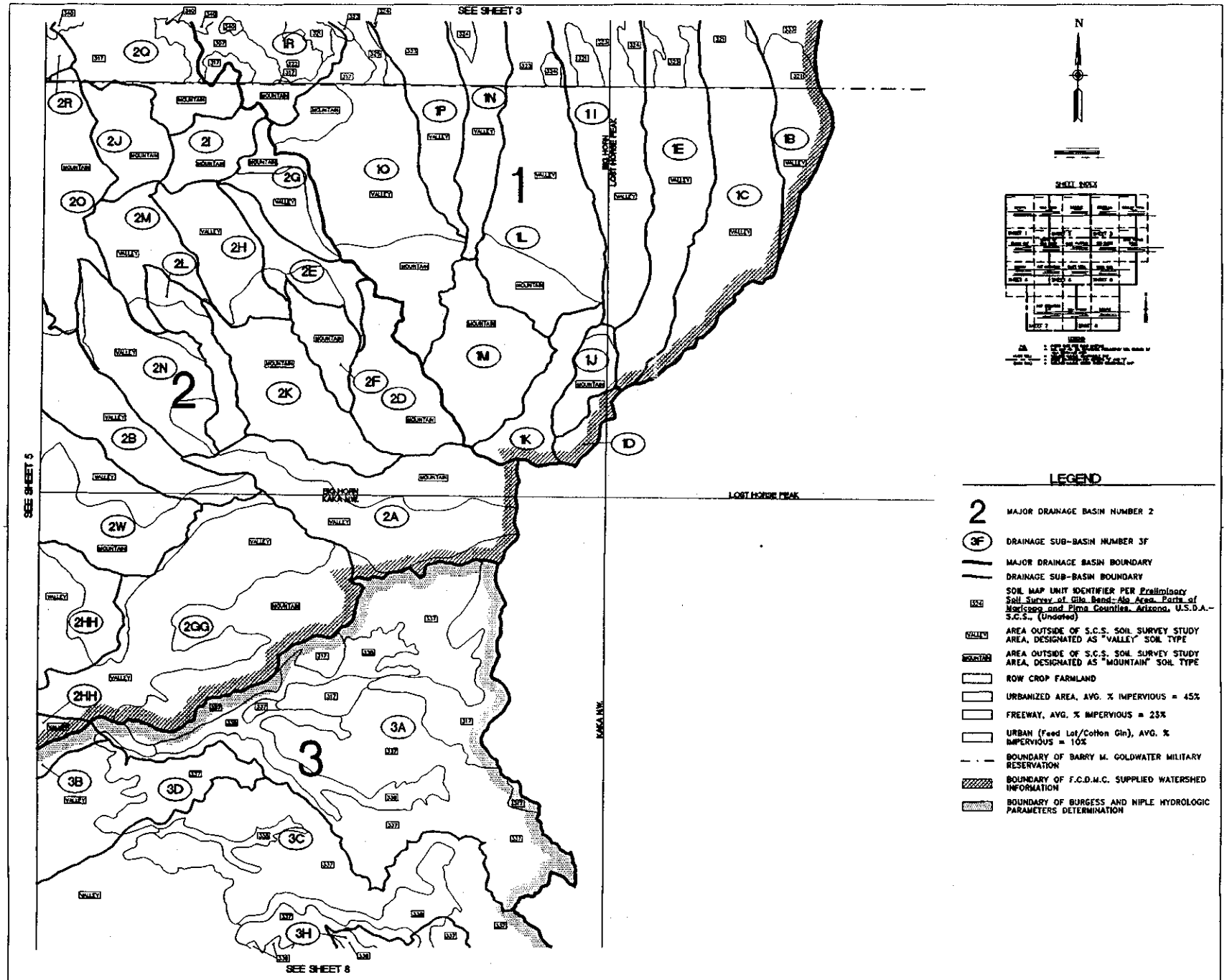
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-67
EXHIBIT "B"
DRAINAGE SUB-BASIN SOILS AND LAND USE MAP
1" = 2000'


SEE SHEET 3
SEE SHEET 5
SEE SHEET 8
LOST HORSE PEAK
BIG HORN
KAKA NW.
N
SHEET INDEX
LEGEND
2 MAJOR DRAINAGE BASIN NUMBER 2
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GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-67
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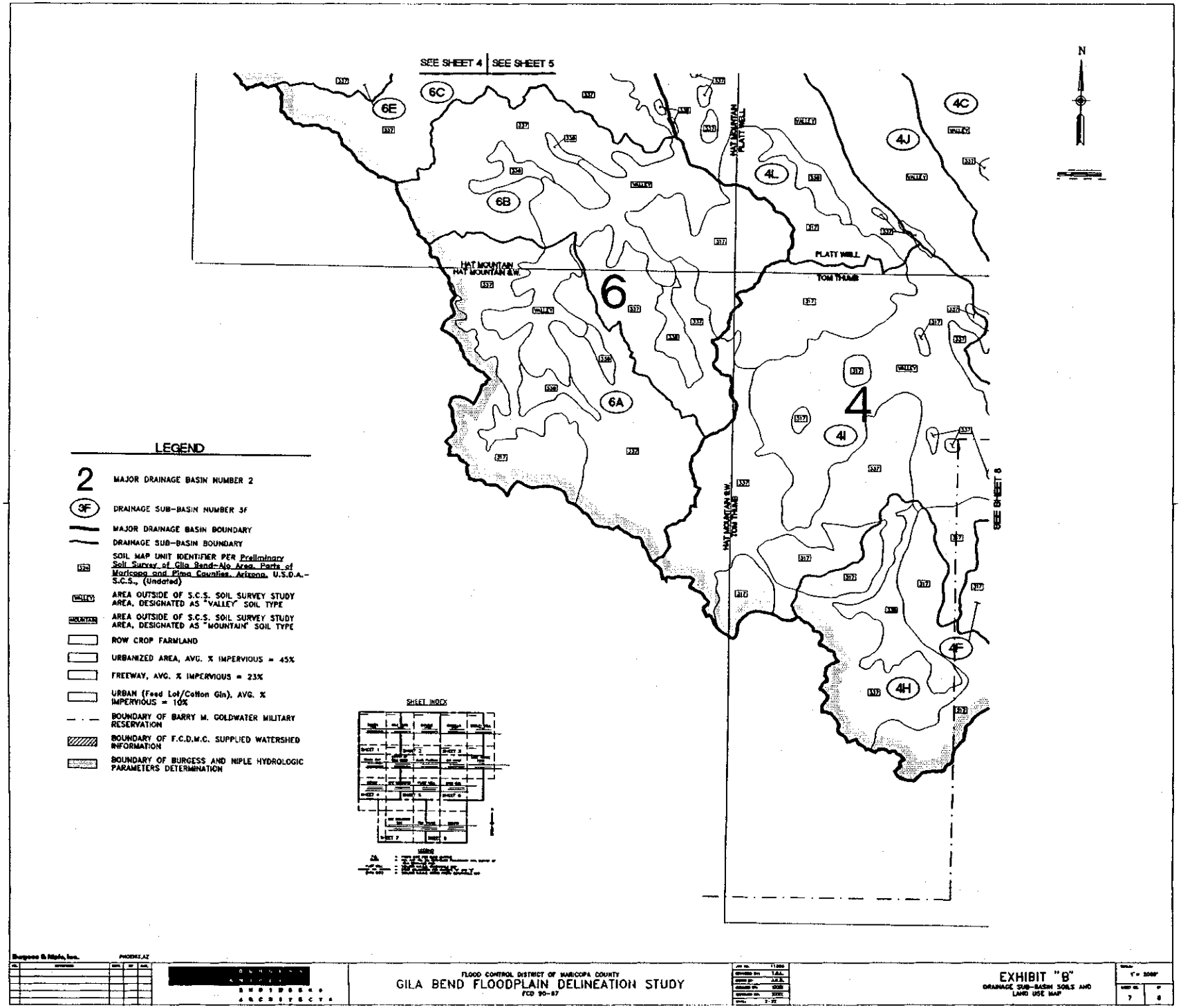
DRAINAGE SUB-BASIN SOILS AND LAND USE MAP


SEE SHEET 4
SEE SHEET 5
SEE SHEET 6
N
6E
6C
6B
6A
6
4C
4J
4L
4I
4
4F
4H
HAT MOUNTAIN
HAT MOUNTAIN B.W.
HAT MOUNTAIN PLATT WELL
HAT MOUNTAIN B.W. TOM THUMB
PLATT WELL
TOM THUMB
LEGEND
2 MAJOR DRAINAGE BASIN NUMBER 2
3F DRAINAGE SUB-BASIN NUMBER 3F
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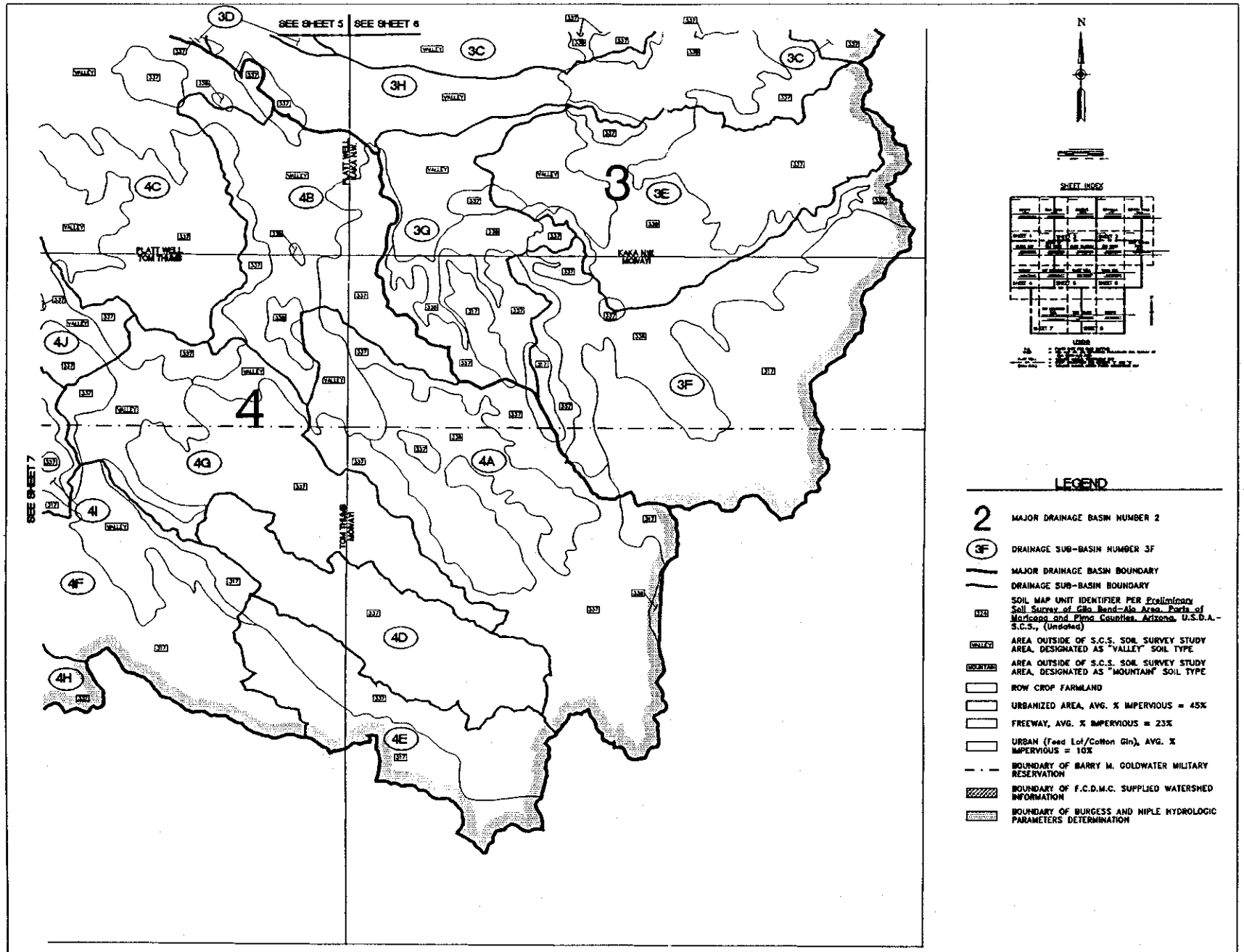
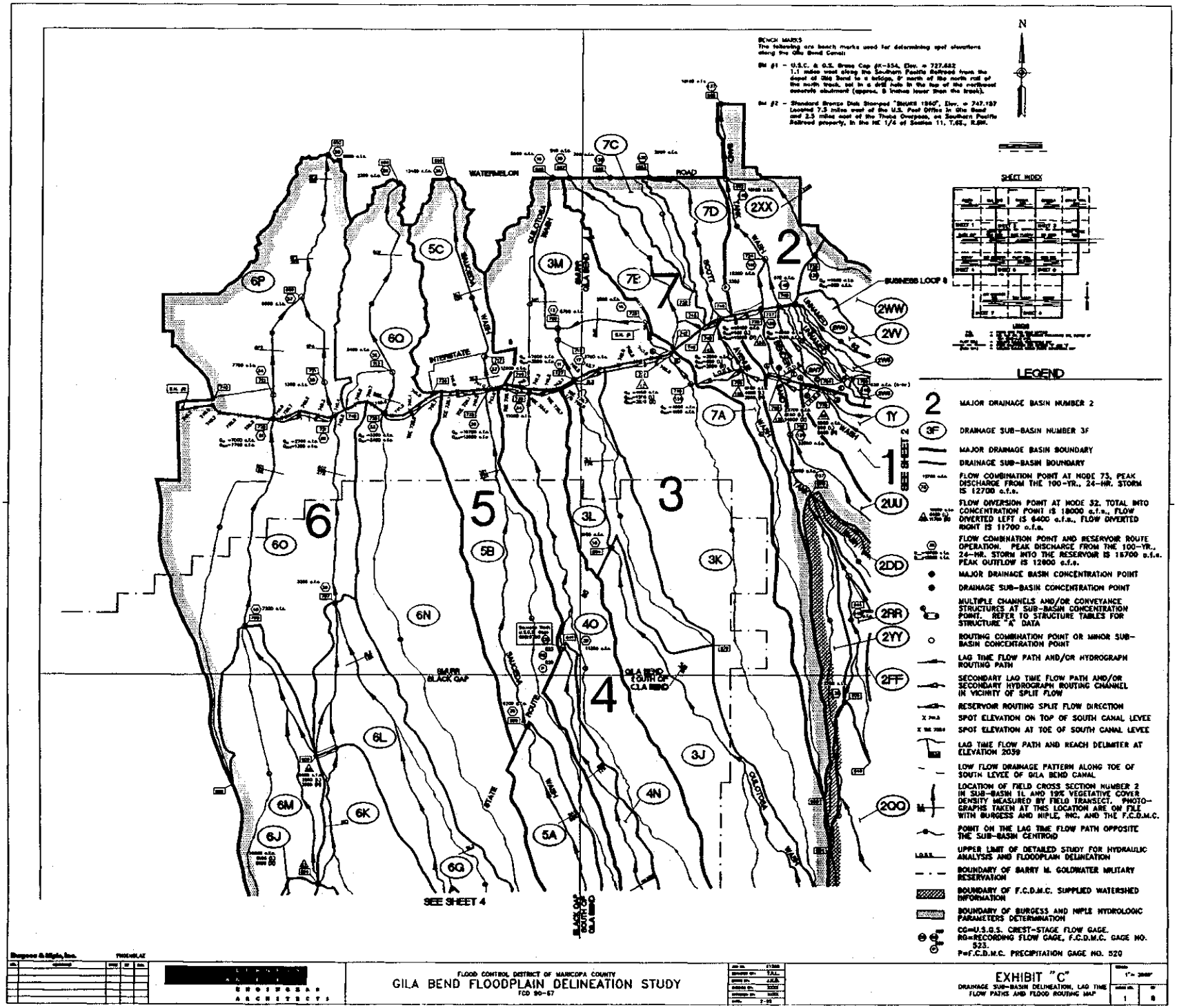
SHEET INDEX
Burgess & Niple, Inc.
PHOENIX, AZ
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-67
EXHIBIT "B"
DRAINAGE SUB-BASIN SOILS AND LAND USE MAP
7
8




FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-67

EXHIBIT "B"
DRAINAGE SUB-BASIN SOILS AND LAND USE MAP


BENCH MARKS
The following are bench marks used for determining spot elevations along the Gila Bend Canal:
BM #1 - U.S.C. & G.S. Brass Cap (K-354, Elev. = 727.682
1.1 miles west along the Southern Pacific Railroad from the depot of Gila Bend to a bridge, 5' north of the north rail of the north track, set in a drill hole in the top of the northwest concrete abutment (approx. 8 inches lower than the track).
BM #2 - Standard Bronze Disk Stamped "BAURR 1960", Elev. = 747.197
Located 7.3 miles west of the U.S. Post Office in Gila Bend and 2.5 miles east of the Thirty Overpass, on Southern Pacific Railroad property, in the NE 1/4 of Section 11, T.6S., R.5W.
N
SHEET INDEX
LEGEND
2 MAJOR DRAINAGE BASIN NUMBER 2
3F DRAINAGE SUB-BASIN NUMBER 3F
MAJOR DRAINAGE BASIN BOUNDARY
DRAINAGE SUB-BASIN BOUNDARY
FLOW COMBINATION POINT AT NODE 73. PEAK DISCHARGE FROM THE 100-YR., 24-HR. STORM IS 12700 c.f.s.
FLOW DIVERSION POINT AT NODE 32. TOTAL INTO CONCENTRATION POINT IS 18000 c.f.s., FLOW DIVERTED LEFT IS 6400 c.f.s., FLOW DIVERTED RIGHT IS 11700 c.f.s.
FLOW COMBINATION POINT AND RESERVOIR ROUTE OPERATION. PEAK DISCHARGE FROM THE 100-YR., 24-HR. STORM INTO THE RESERVOIR IS 15700 c.f.s. PEAK OUTFLOW IS 12900 c.f.s.
MAJOR DRAINAGE BASIN CONCENTRATION POINT
DRAINAGE SUB-BASIN CONCENTRATION POINT
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LAG TIME FLOW PATH AND/OR HYDROGRAPH ROUTING PATH
SECONDARY LAG TIME FLOW PATH AND/OR SECONDARY HYDROGRAPH ROUTING CHANNEL IN VICINITY OF SPLIT FLOW
RESERVOIR ROUTING SPLIT FLOW DIRECTION
SPOT ELEVATION ON TOP OF SOUTH CANAL LEVEE
SPOT ELEVATION AT TOE OF SOUTH CANAL LEVEE
LAG TIME FLOW PATH AND REACH DELIMITER AT ELEVATION 2039
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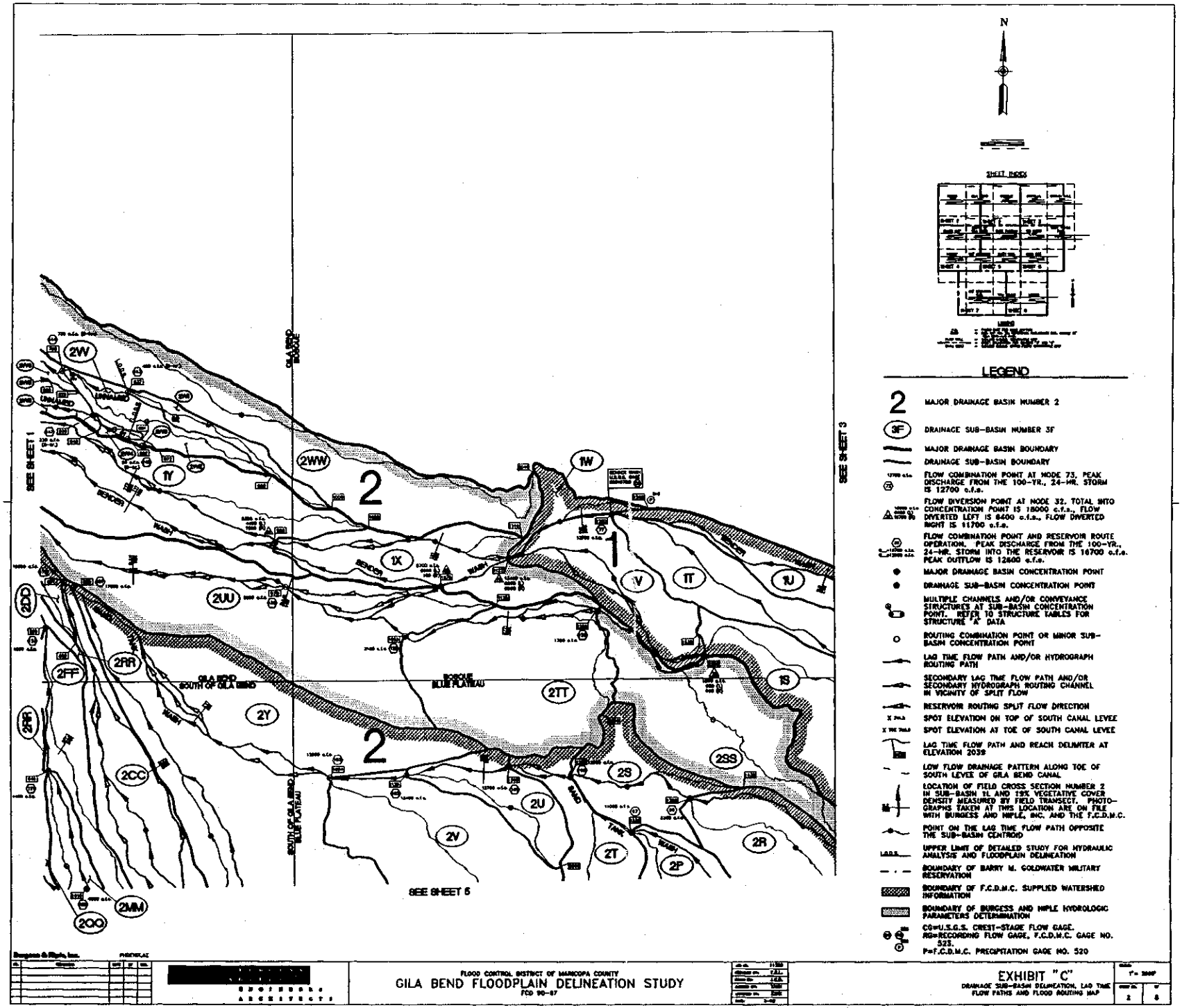
CG=U.S.G.S. CREST-STAGE FLOW GAGE.
RG=RECORDING FLOW GAGE, F.C.D.M.C. GAGE NO. 523.
P=F.C.D.M.C. PRECIPITATION GAGE NO. 520
WATERMELON
ROAD
INTERSTATE
BUSINESS LOOP 8
SEE SHEET 24
SEE SHEET 4
BLACK GAP
GILA BEND
SOUTH OF GILA BEND
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-67
EXHIBIT "C"
DRAINAGE SUB-BASIN DELINEATION, LAG TIME FLOW PATHS AND FLOOD ROUTING MAP
ENGINEERS & ARCHITECTS


N
SHEET INDEX
LEGEND
2 MAJOR DRAINAGE BASIN NUMBER 2
3F DRAINAGE SUB-BASIN NUMBER 3F
MAJOR DRAINAGE BASIN BOUNDARY
DRAINAGE SUB-BASIN BOUNDARY
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DRAINAGE SUB-BASIN CONCENTRATION POINT
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RESERVOIR ROUTING SPLIT FLOW DIRECTION
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SPOT ELEVATION AT TOE OF SOUTH CANAL LEVEE
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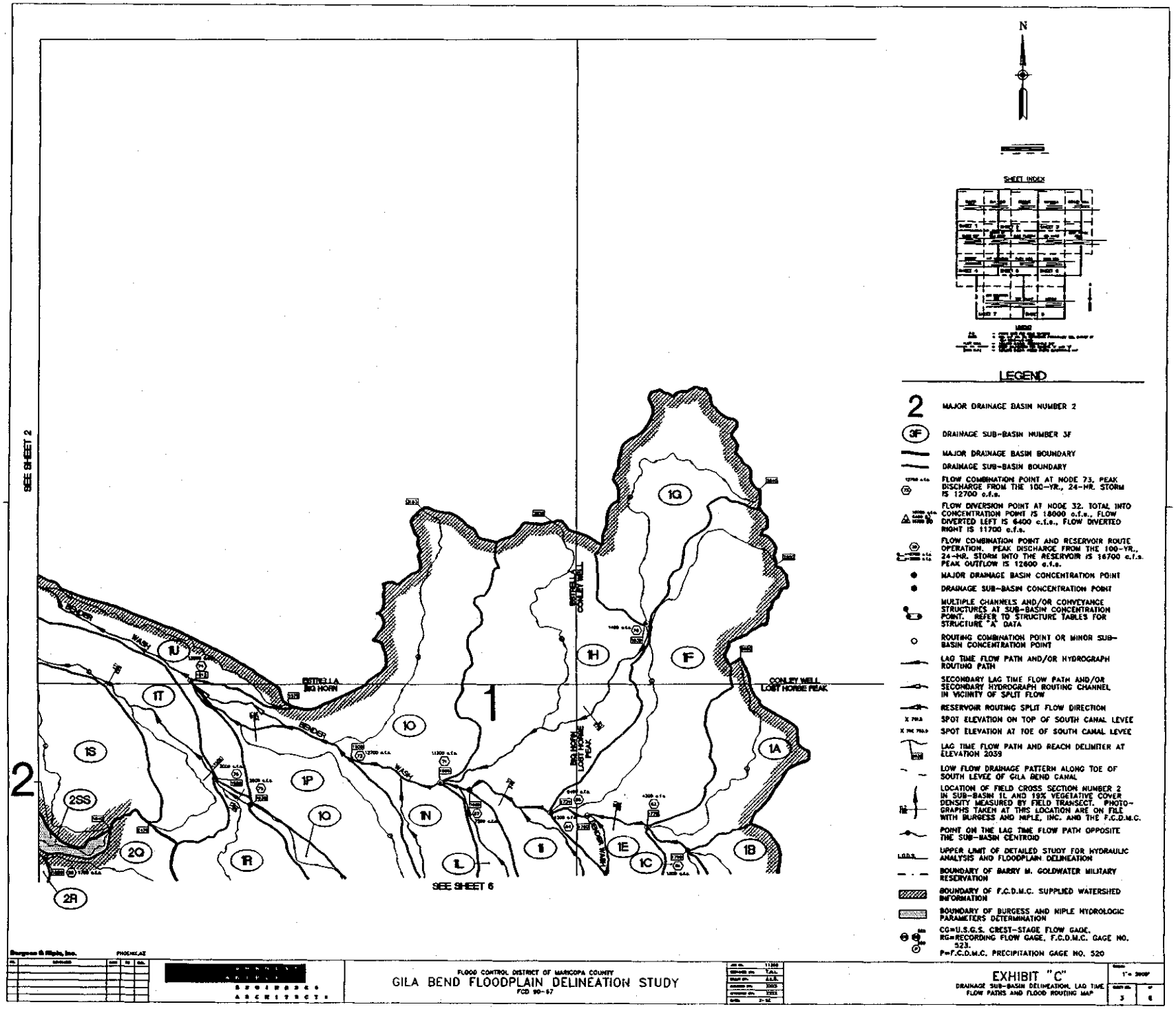
P=F.C.D.M.C. PRECIPITATION GAGE NO. 520
SEE SHEET 1
SEE SHEET 3
SEE SHEET 5
GILA BEND
SOUTH OF GILA BEND
BORGUE
BLUE PLATEAU
SOUTH OF GILA BEND
BLUE PLATEAU
2WW
1W
1Y
1X
2UU
2DD
2FF
2RR
2RS
2CC
2Y
2TT
1V
1T
1U
1S
2SS
2S
2U
2V
2T
2P
2R
2MM
2QQ
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-07
EXHIBIT "C"
DRAINAGE SUB-BASIN DELINEATION, LAG TIME FLOW PATHS AND FLOOD ROUTING MAP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DRAINAGE SUB-BASIN CONCENTRATION POINT
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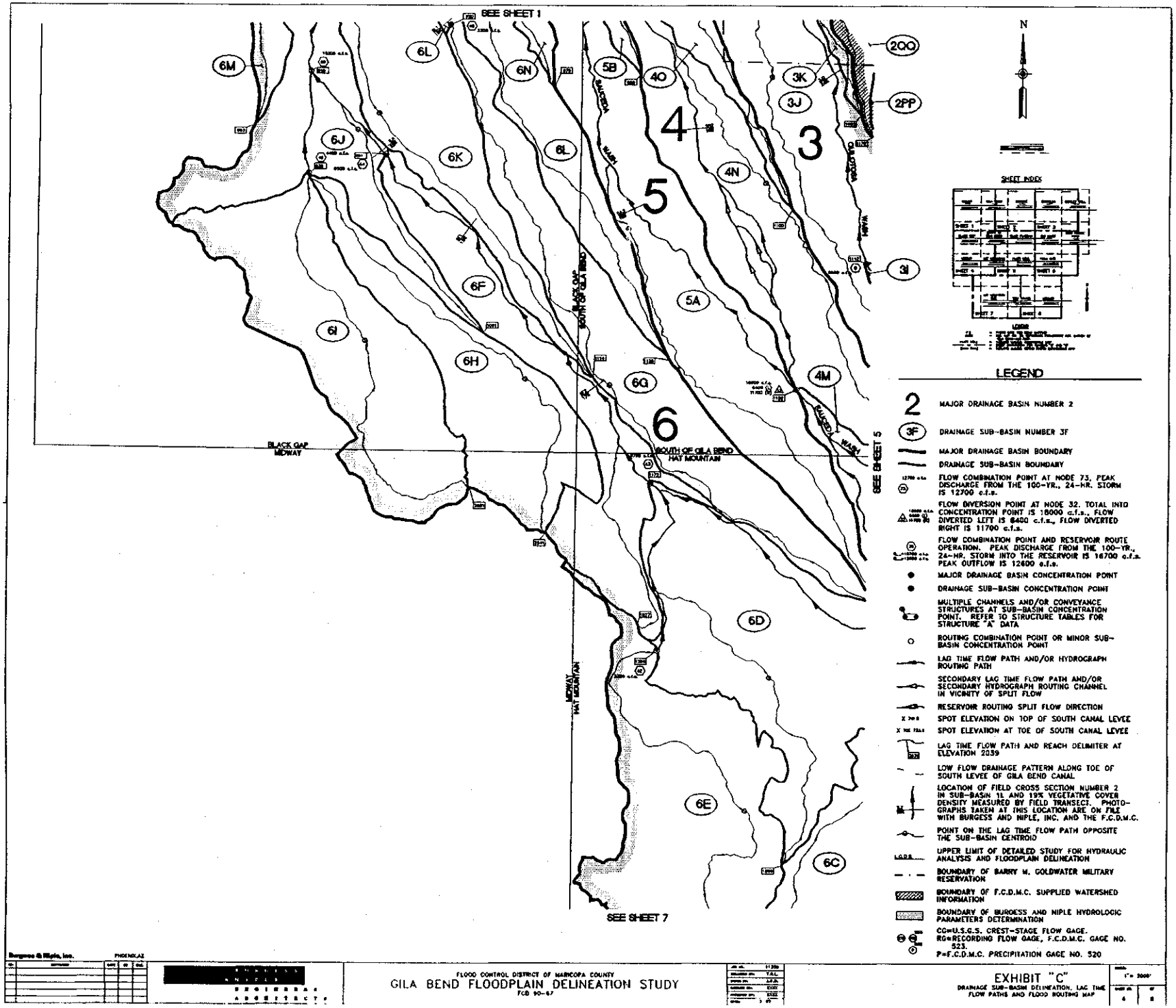
P=F.C.D.M.C. PRECIPITATION GAGE NO. 520
SEE SHEET 2
SEE SHEET 6
BOTTWELL LA BIG HORN
CONLEY WELL LOST HORSE PEAK
BIG HORN LOST HORSE PEAK
BENDER WASH
1J
1T
1S
2SS
2Q
2R
1P
1O
1R
1N
1L
1I
1H
1G
1F
1E
1C
1B
1A
1
2
Burgess & Niple, Inc.
PHOENIX, AZ
ENGINEERS ARCHITECTS
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-67
EXHIBIT "C"
DRAINAGE SUB-BASIN DELINEATION, LAG TIME FLOW PATHS AND FLOOD ROUTING MAP
1" = 2000'
3
6


SEE SHEET 1
SEE SHEET 5
SEE SHEET 7
BLACK GAP MIDWAY
SOUTH OF GILA BEND HAT MOUNTAIN
MIDWAY HAT MOUNTAIN
BLACK GAP SOUTH OF GILA BEND
BURGESS MAIN
WOLLOPER MAIN
6M
6L
6N
6J
6K
6L
6F
6I
6H
6G
6D
6E
6C
5B
4O
4N
5A
4M
3K
3J
3I
2QQ
2PP
4
3
5
6
N
SHEET INDEX
LEGEND
2 MAJOR DRAINAGE BASIN NUMBER 2
3F DRAINAGE SUB-BASIN NUMBER 3F
MAJOR DRAINAGE BASIN BOUNDARY
DRAINAGE SUB-BASIN BOUNDARY
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PHOENIX, AZ
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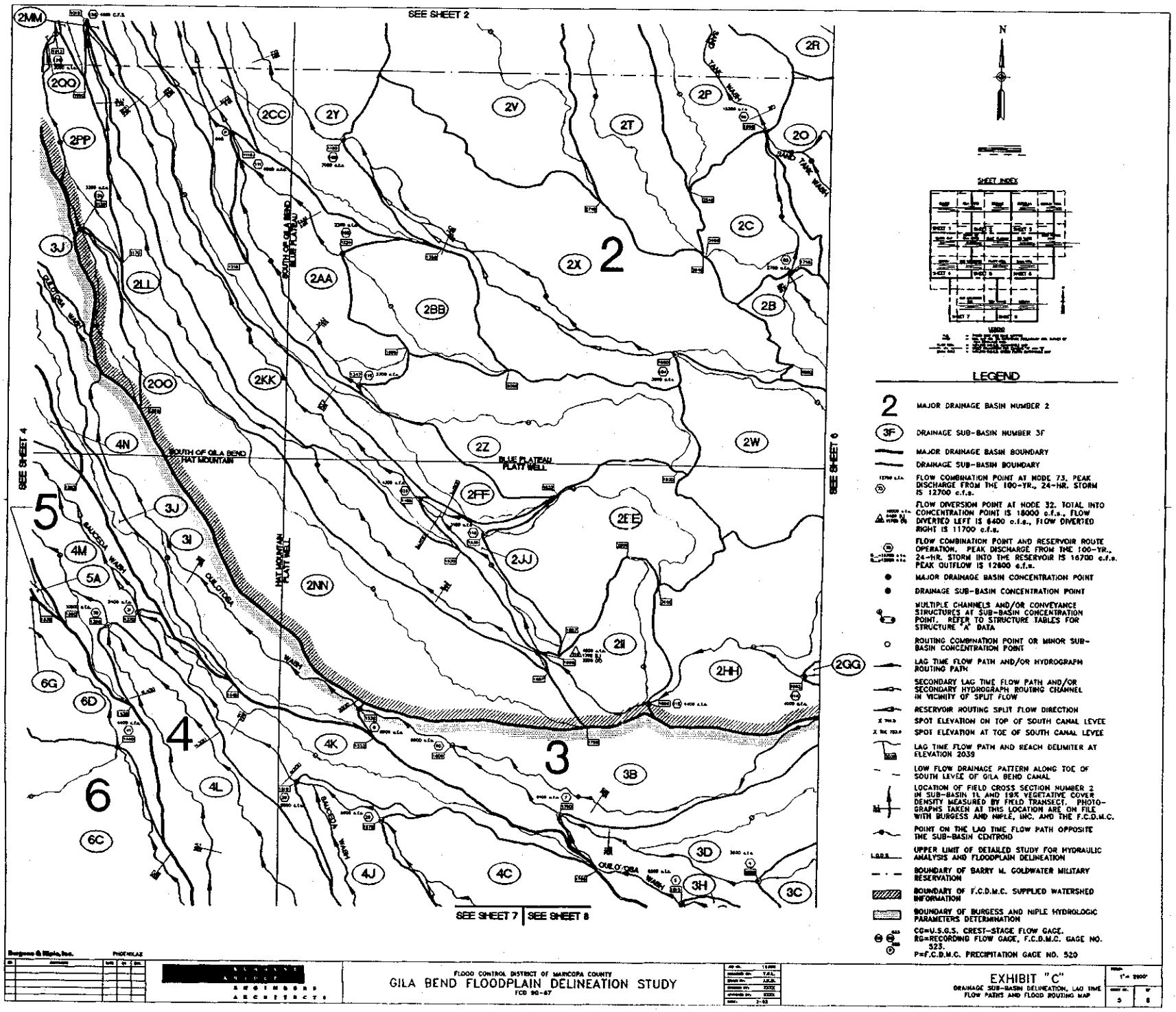
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SEE SHEET 4
SEE SHEET 6
SEE SHEET 7
SEE SHEET 8
SOUTH OF GILA BEND HAT MOUNTAIN
BLUE PLATEAU PLATY WELL
HAT MOUNTAIN PLATY WELL
CULO'ODBA WASH
SAUCEDA WASH
DAVID TANK WASH
2
3
4
5
6
N
SHEET INDEX
LEGEND
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DRAINAGE SUB-BASIN NUMBER 3F
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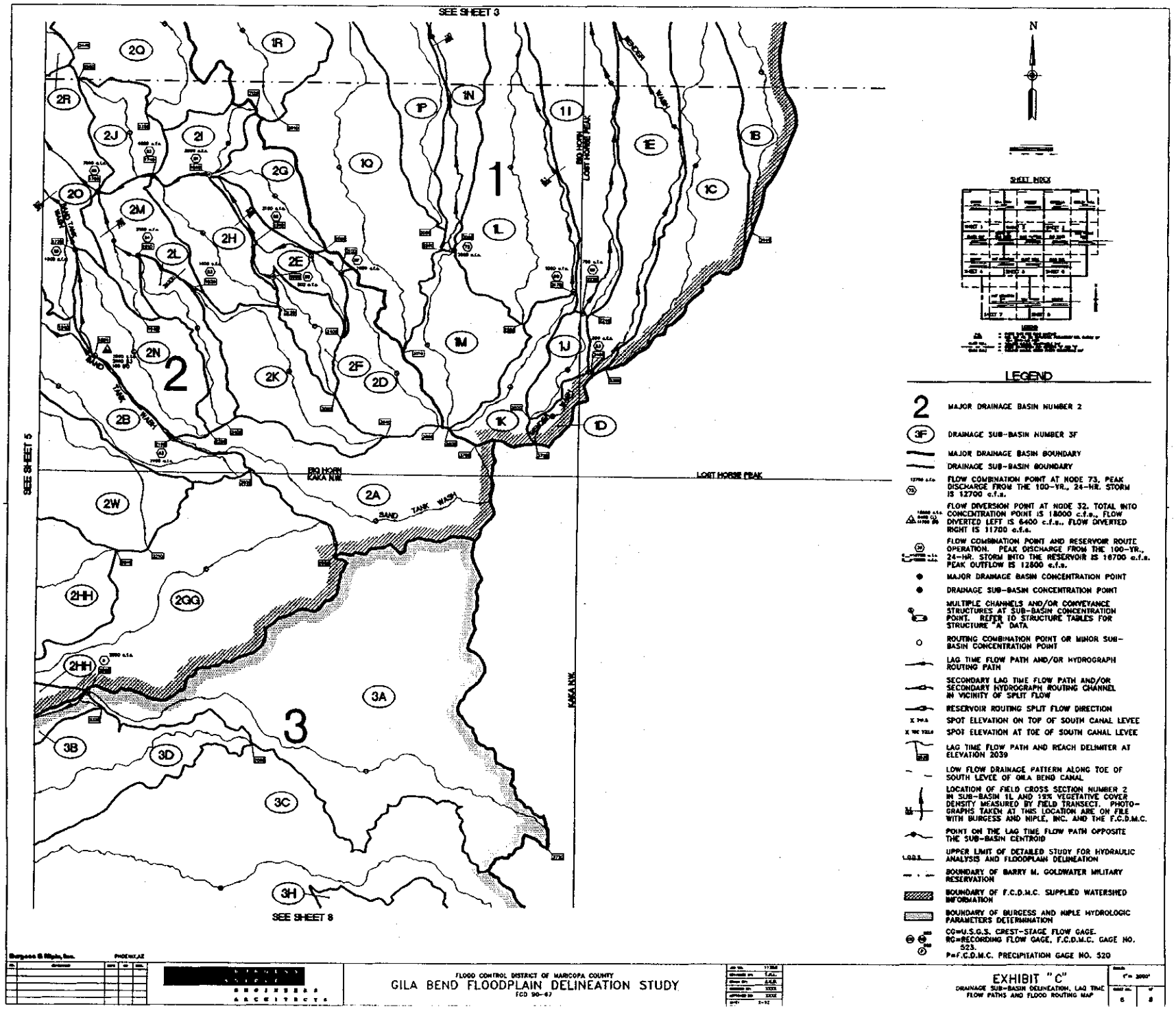
SEE SHEET 3
SEE SHEET 5
SEE SHEET 8
BIG HORN
KAKA N.W.
LOST HORSE PEAK
SAND TANK WASH
1
2
3
N
SHEET INDEX
LEGEND
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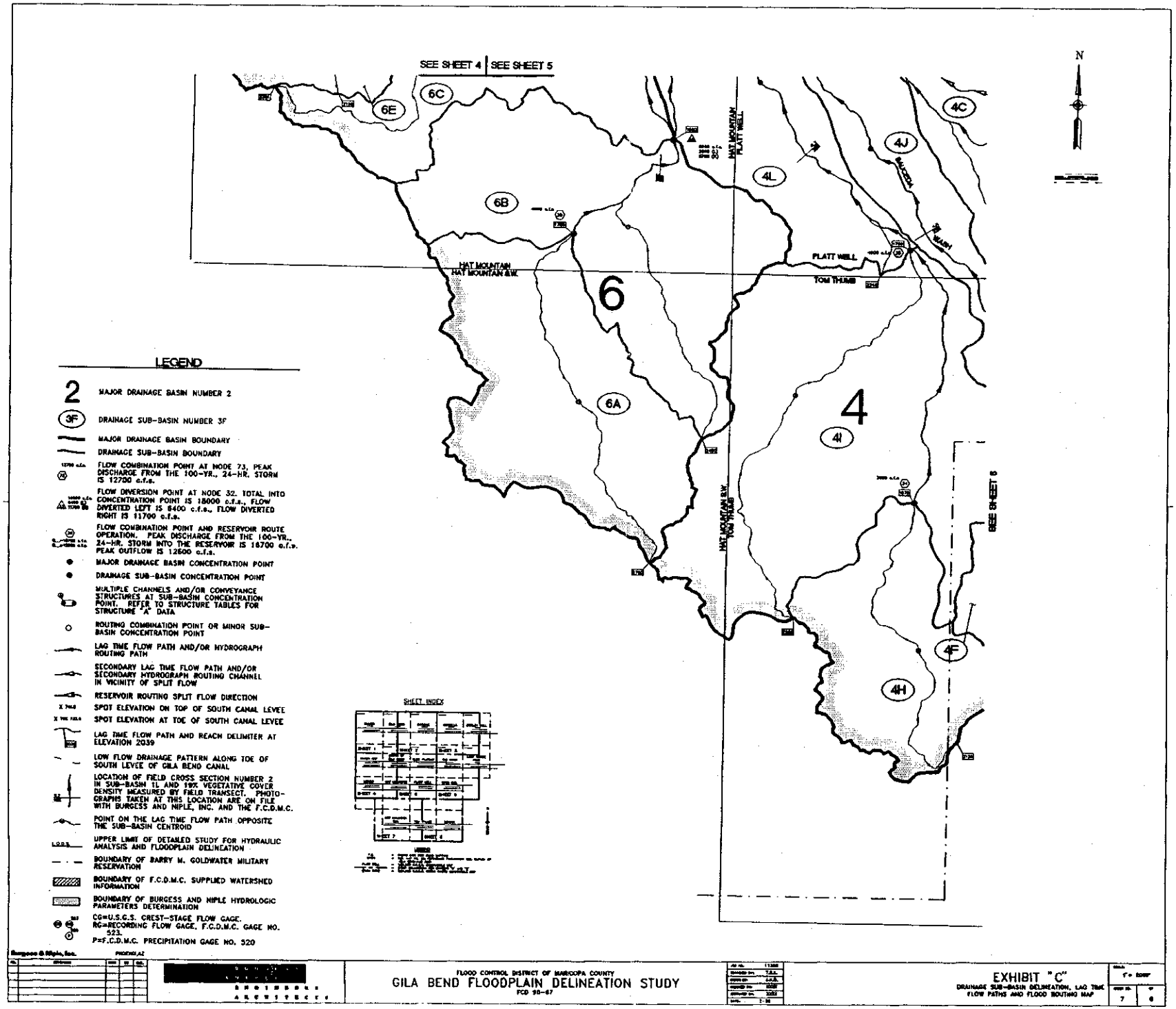
SEE SHEET 4
SEE SHEET 5
N
6E
6C
6B
6A
6
4C
4J
4L
4I
4
4F
4H
HAT MOUNTAIN
HAT MOUNTAIN B.W.
HAT MOUNTAIN
PLATT WELL
PLATT WELL
TOM THUMB
MACCOPA
WASH
SEE SHEET 6
LEGEND
2 MAJOR DRAINAGE BASIN NUMBER 2
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SHEET INDEX
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PHOENIX, AZ
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FCD 90-67
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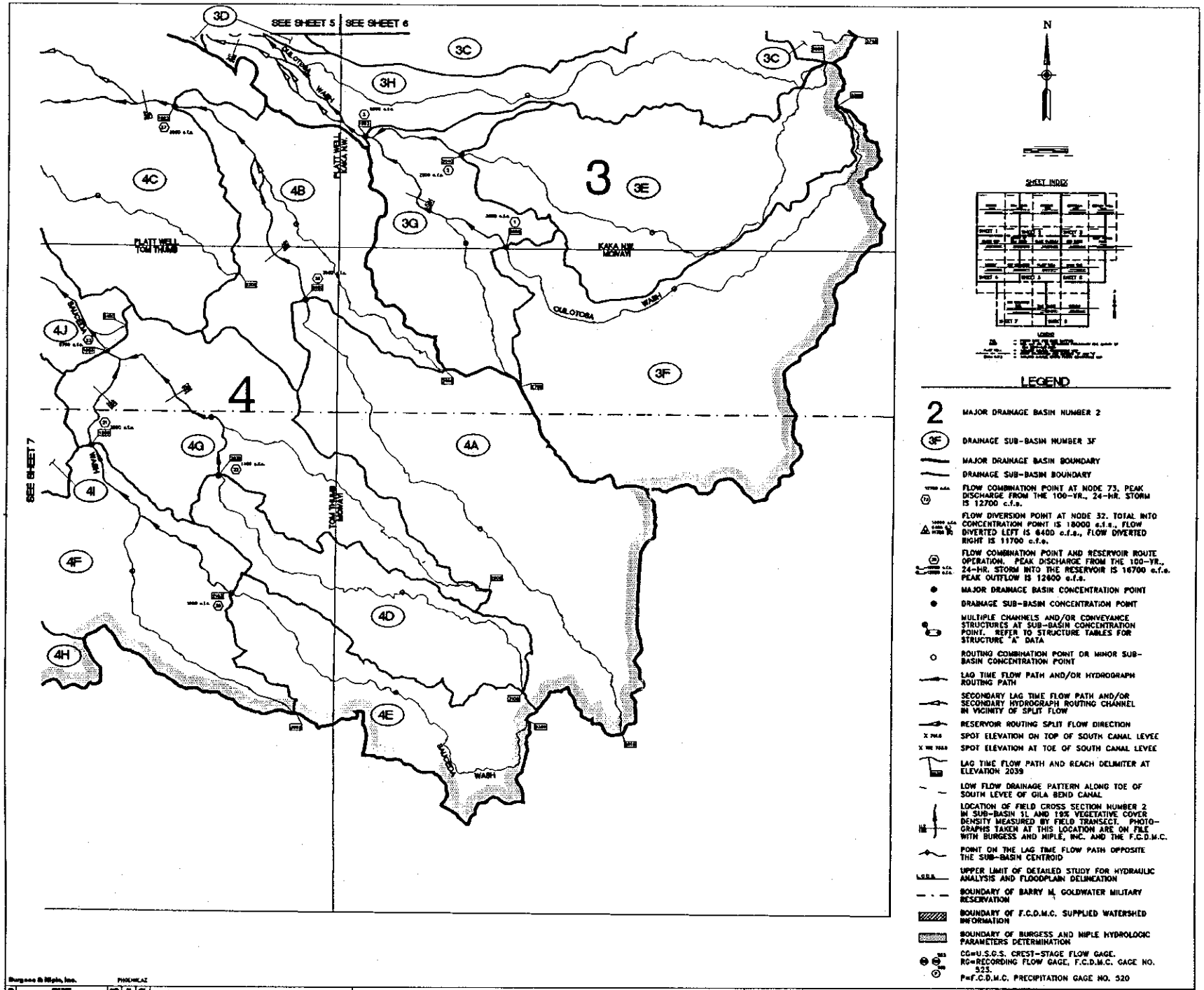
DRAINAGE SUB-BASIN DELINEATION, LAG TIME FLOW PATHS AND FLOOD ROUTING MAP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3C
3H
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3E
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4G
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4H
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OLOTOBA WASH
PLATT WELL
KAKA NW
MOWAY
TOM THUMB
KAKA NW
MOWAY
OLOTOBA WASH
KAKA WASH
N
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PHOENIX
BURGESS & NIPLE ENGINEERS & ARCHITECTS
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GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-87
EXHIBIT "C"
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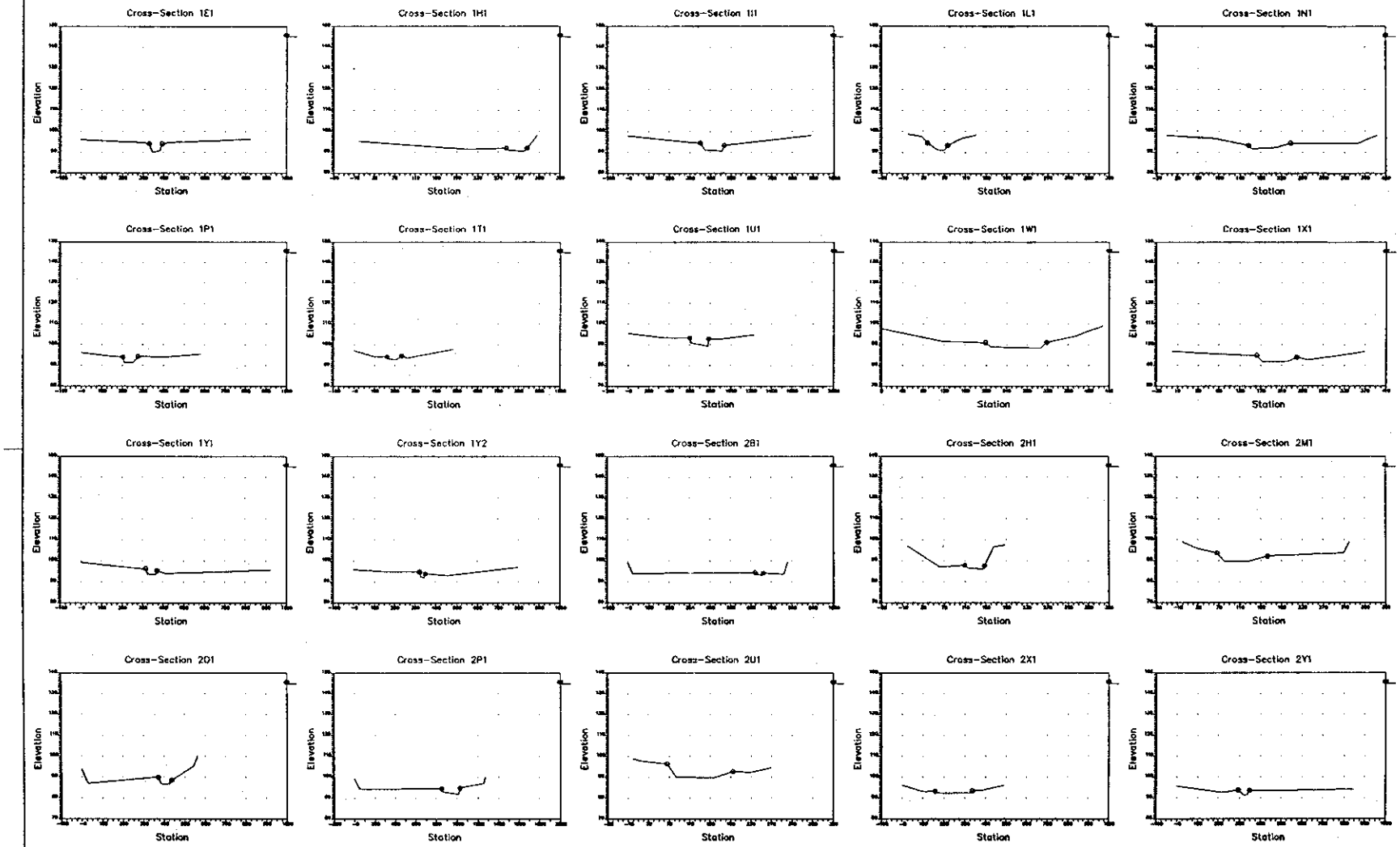
1" = 3000'




Burgess & Niple, Inc. PHOENIX, AZ

DUBOIS KNIPPIL ENGINEERS ARCHITECTS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

GILA BEND FLOODPLAIN DELINEATION STUDY

FCD 90-67

JOB NO. 11358

DRAWN BY T.B.L.

DESIGN BY J.E.D.

INSPECTED BY A.J.R.

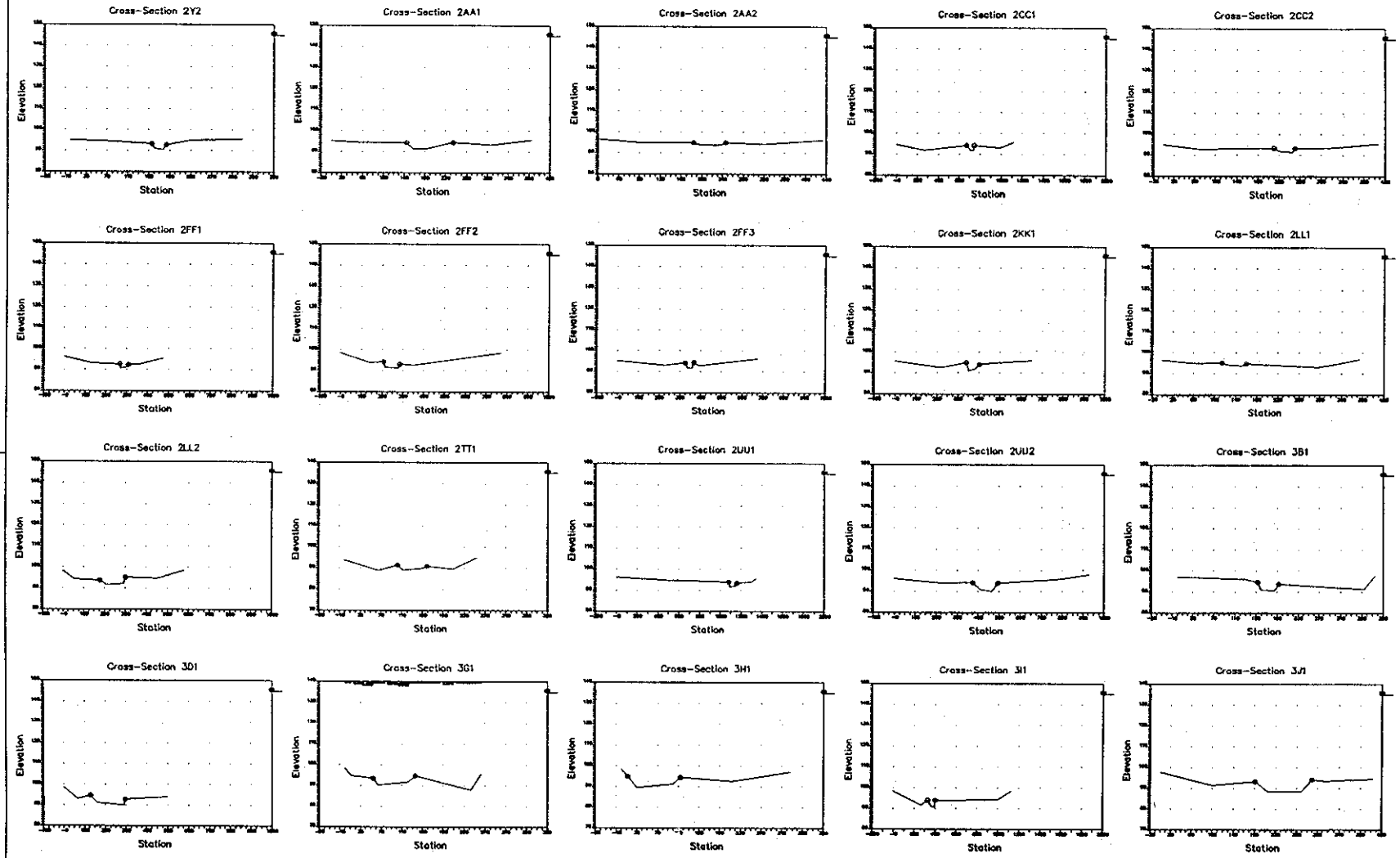
DATE 3-92

EXHIBIT "D"

FIELD RECONNAISSANCE REACH ROUTE CROSS SECTION PLOTS

SCALE: VARIES

SHEET NO. 1 OF 4




Burgess & Niple, Inc. PHOENIX,AZ

| NO. | REVISION | DATE | BY | APR. |
|---|---|---|---|---|
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LOHOLSS AND PITT ENGINEERS ARCHITECTS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-67

| | |
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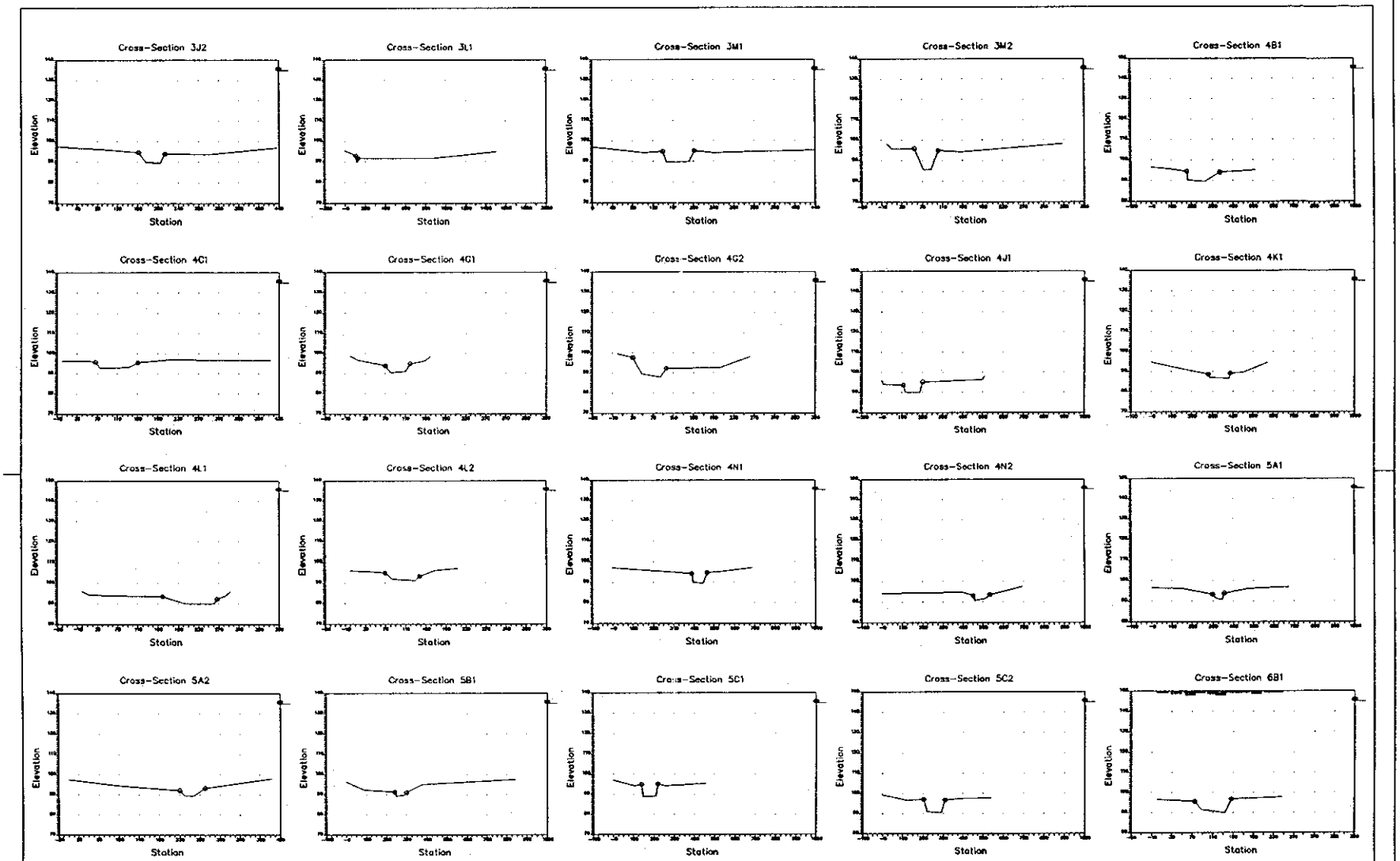
| JOB NO. | 11358 |
| DESIGNED BY: | T.B.L. |
| DRAWN BY: | J.S.B. |
| CHECKED BY: | A.J.B. |
| APPROVED BY: | |
| DATE: | 3-92 |

EXHIBIT "D"
FIELD RECONNAISSANCE REACH ROUTE
CROSS SECTION PLOTS

SCALE: VARIES
SHEET NO. 2 OF 4




Burgess & Niple, Inc. PHOENIX, AZ

BURGESS & NIPLE ENGINEERS ARCHITECTS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

GILA BEND FLOODPLAIN DELINEATION STUDY

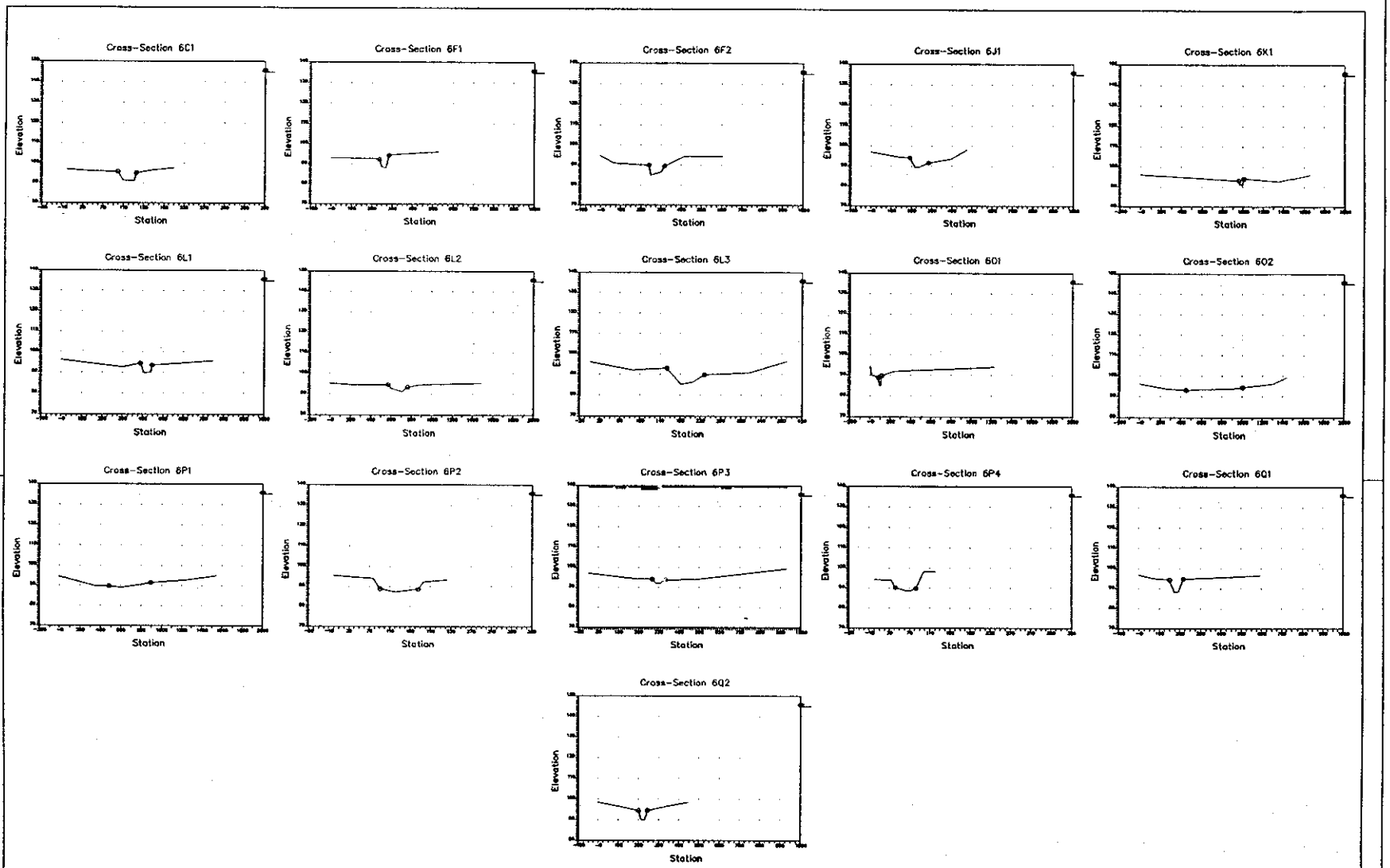
FCD 90-67

EXHIBIT "D"

FIELD RECONNAISSANCE REACH ROUTE CROSS SECTION PLOTS

VARIES

SHEET NO. 3 OF 4




Burgess & Niple, Inc. PHOENIX, AZ

| NO. | REVISION | DATE | BY | CHK. |
|---|---|---|---|---|
| | | | | |

BURGESS KNIGHT ENGINEERS ARCHITECTS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-67

| | |
|---|---|
| JOB NO. | 11358 |
| DESIGNED BY: | T.R.L. |
| DRAWN BY: | J.E.B. |
| CHECKED BY: | A.J.R. |
| APPROVED BY: | |
| DATE: | 3-91 |

EXHIBIT "D"
FIELD RECONNAISSANCE REACH ROUTE
CROSS SECTION PLOTS

SCALE: VARIES
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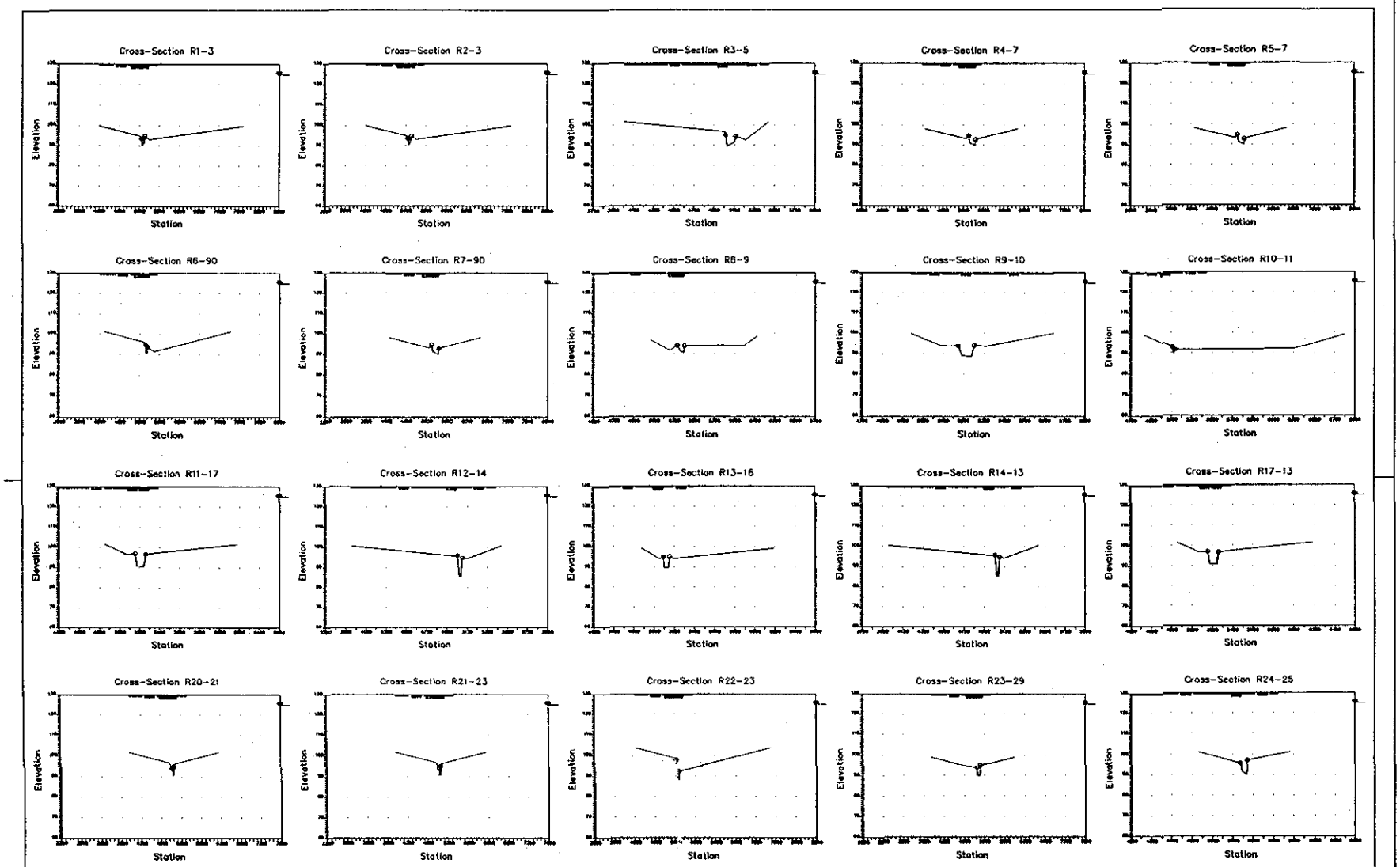



Burgess & Niple, Inc. PHOENIX, AZ

DUNGLESS & NIPLE ENGINEERS ARCHITECTS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

GILA BEND FLOODPLAIN DELINEATION STUDY

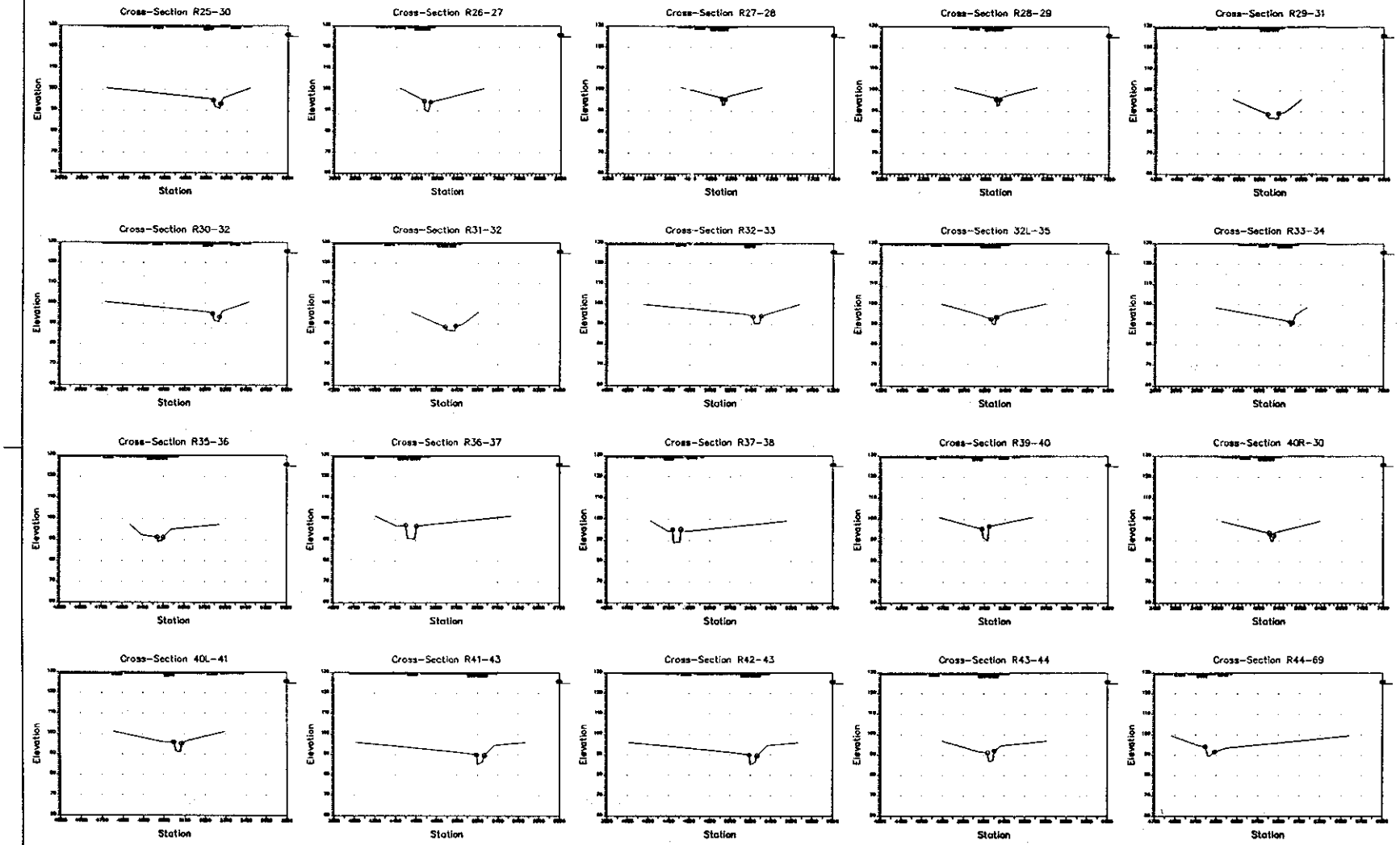
FCD 90-67

EXHIBIT "E"

HEC-1 REACH ROUTE CROSS SECTION PLOTS

SCALE: VARIES

SHEET 1 OF 8




Burgess & Niple, Inc. PHOENIX, AZ

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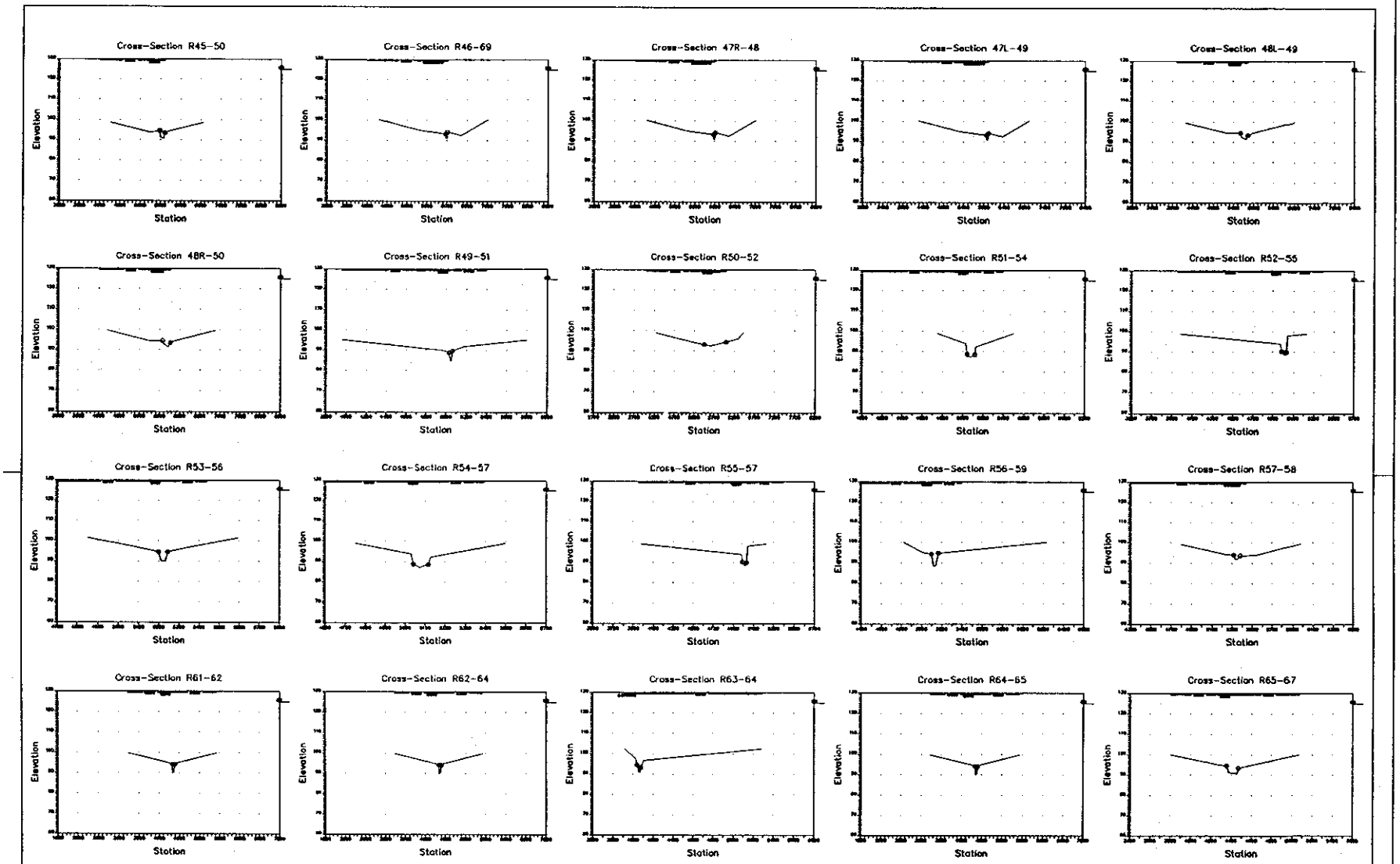
SHEET NO. 2 OF 8




Burgess & Niple, Inc. PHOENIX, AZ

GURULESS KNEPPER ENGINEERS ARCHITECTS

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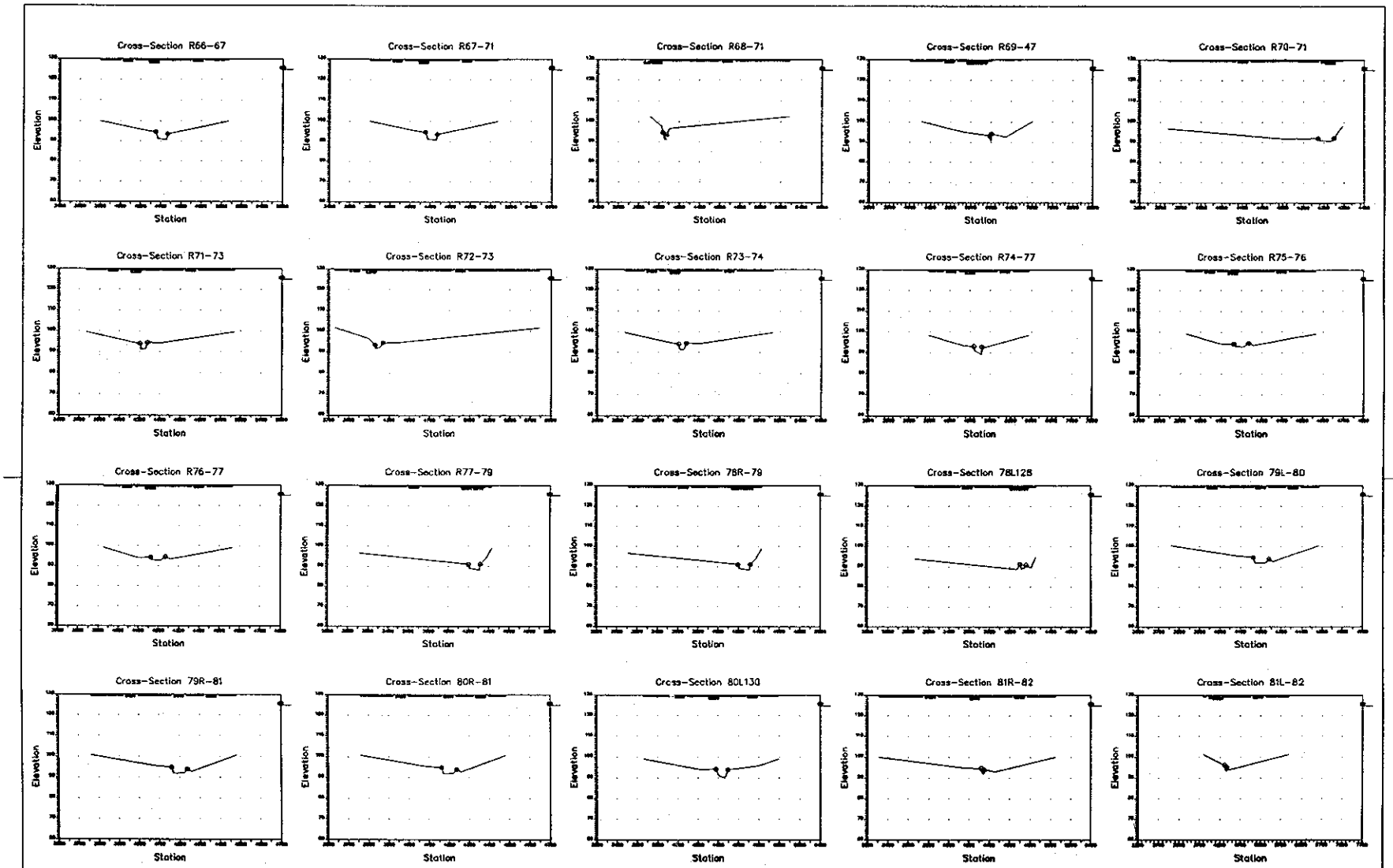


Burgess & Niple, Inc. PHOENIX, AZ

| NO. | REVISION | DATE | BY | CHK. |
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DOUGLASS SMITH ENGINEERS & ARCHITECTS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

GILA BEND FLOODPLAIN DELINEATION STUDY

FCD 90-67

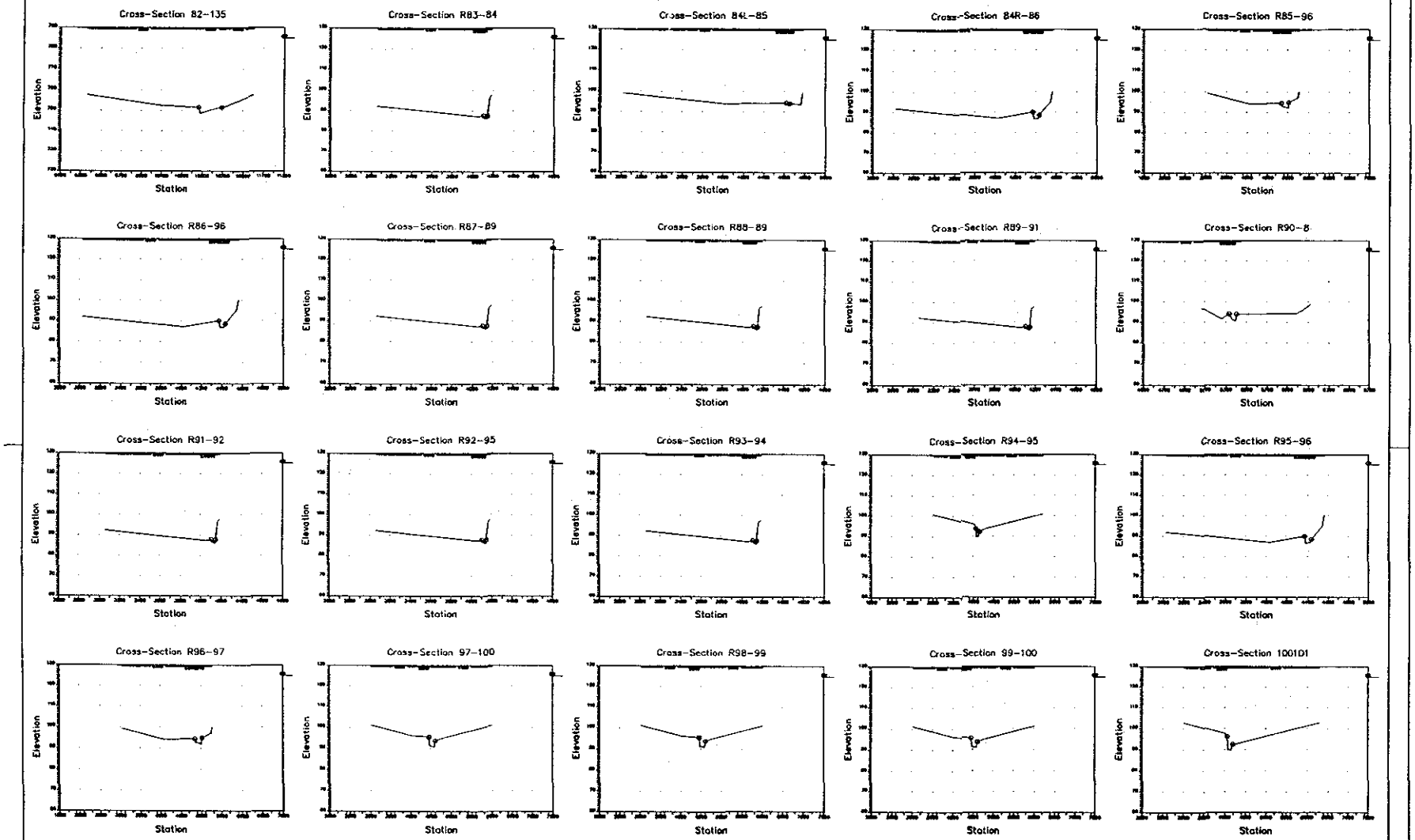
JOB NO. 11358
DESIGNED BY T.R.L.
DRAWN BY J.R.S.
CHECKED BY A.J.R.
APPROVED BY
DATE 3-92

EXHIBIT "E"

HEC-1 REACH ROUTE CROSS SECTION PLOTS

SCALE VARIES

SHEET NO. 4 OF 8




Burgess & Niple, Inc. PHOENIX, AZ

| NO. | REVISION | DATE | BY | CHK. |
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BURGESS & NIPLE ENGINEERS ARCHITECTS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

GILA BEND FLOODPLAIN DELINEATION STUDY

FCD 90-67

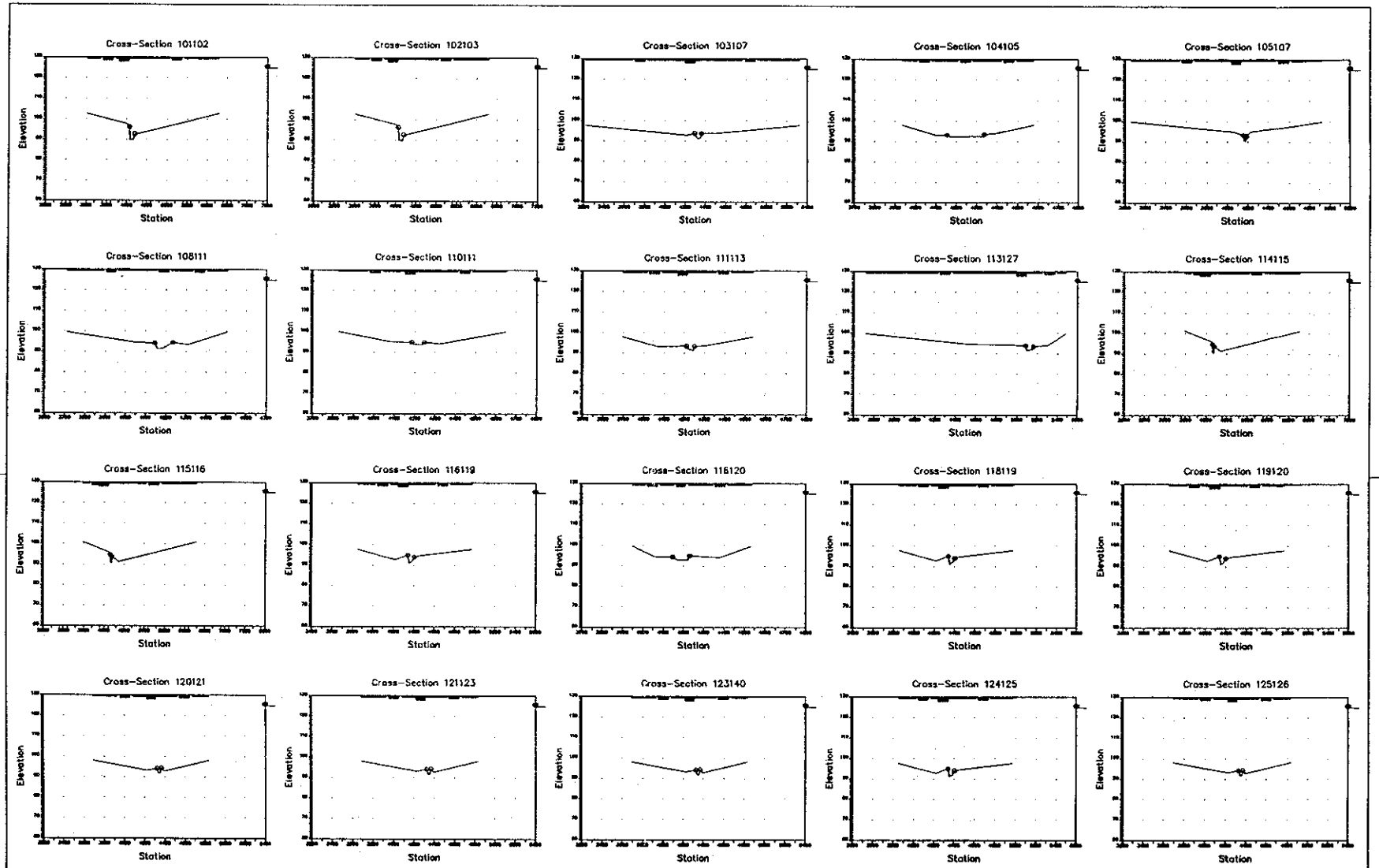
| | |
|---|---|
| JOB NO. | 11358 |
| DRAWN BY | T.R.L. |
| CHKD BY | J.K.D. |
| DESIGN BY | A.J.B. |
| APPROVED BY | |
| DATE | 5-92 |

EXHIBIT "E"

HEC-1 REACH ROUTE CROSS SECTION PLOTS

SCALE: VARIES

SHEET NO. 5 OF 8

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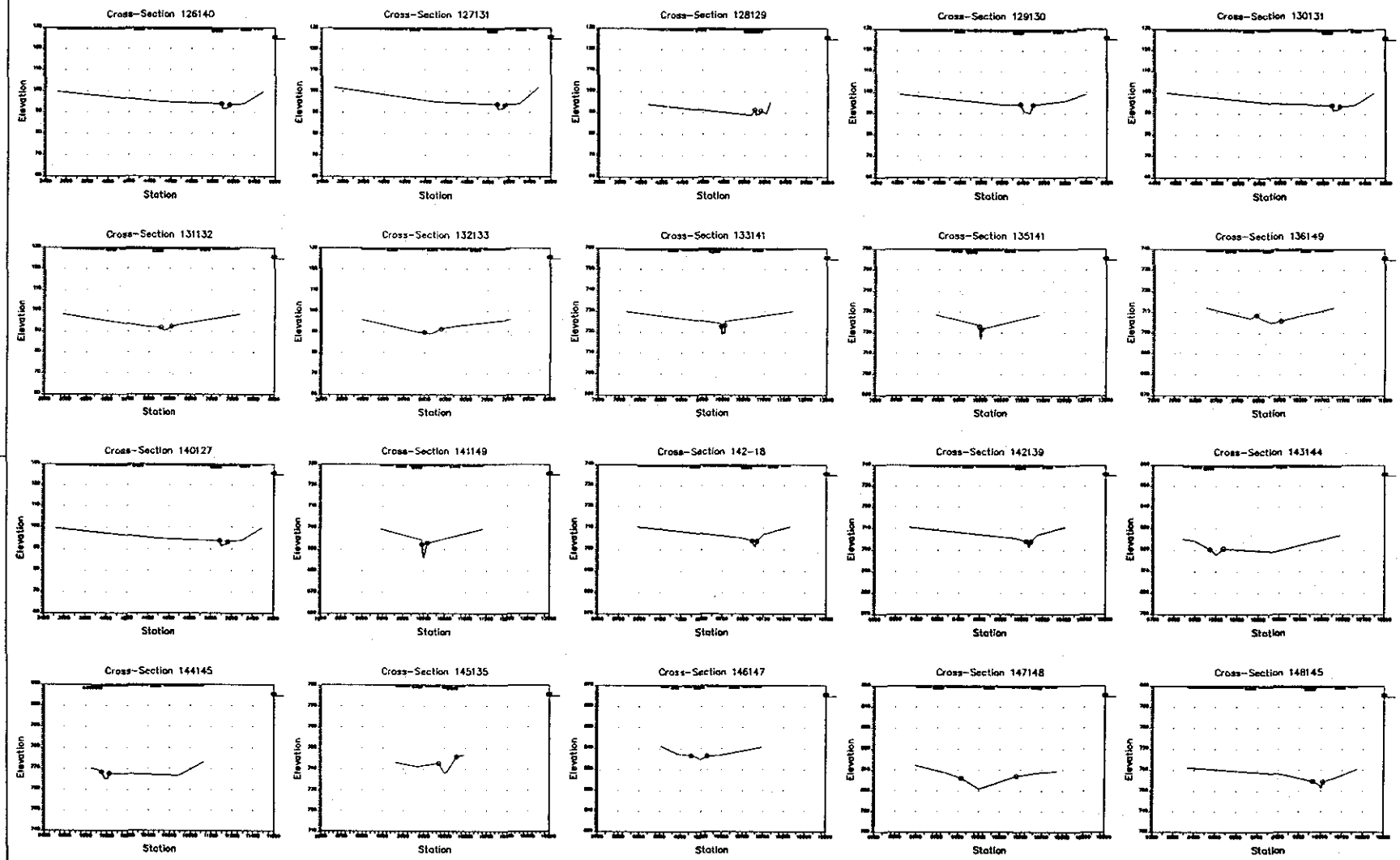
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

GILA BEND FLOODPLAIN DELINEATION STUDY

FCD 90-67

EXHIBIT "E"

HEC-1 REACH ROUTE CROSS SECTION PLOTS

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BURGESS KNIPE ENGINEERS ARCHITECTS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

GILA BEND FLOODPLAIN DELINEATION STUDY

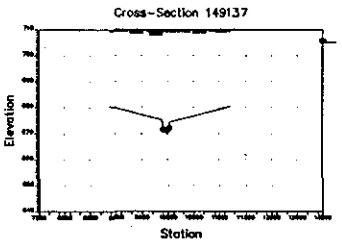
FCD 90-67

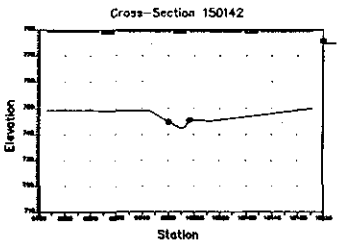
EXHIBIT "E"

HEC-1 REACH ROUTE CROSS SECTION PLOTS

SCALE: VARIES

SHEET NO. 7 OF 8




Burgess & Niple, Inc. PHOENIX,AZ

| NO. | REVISIONS | DATE | BY | CHK. |
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-67

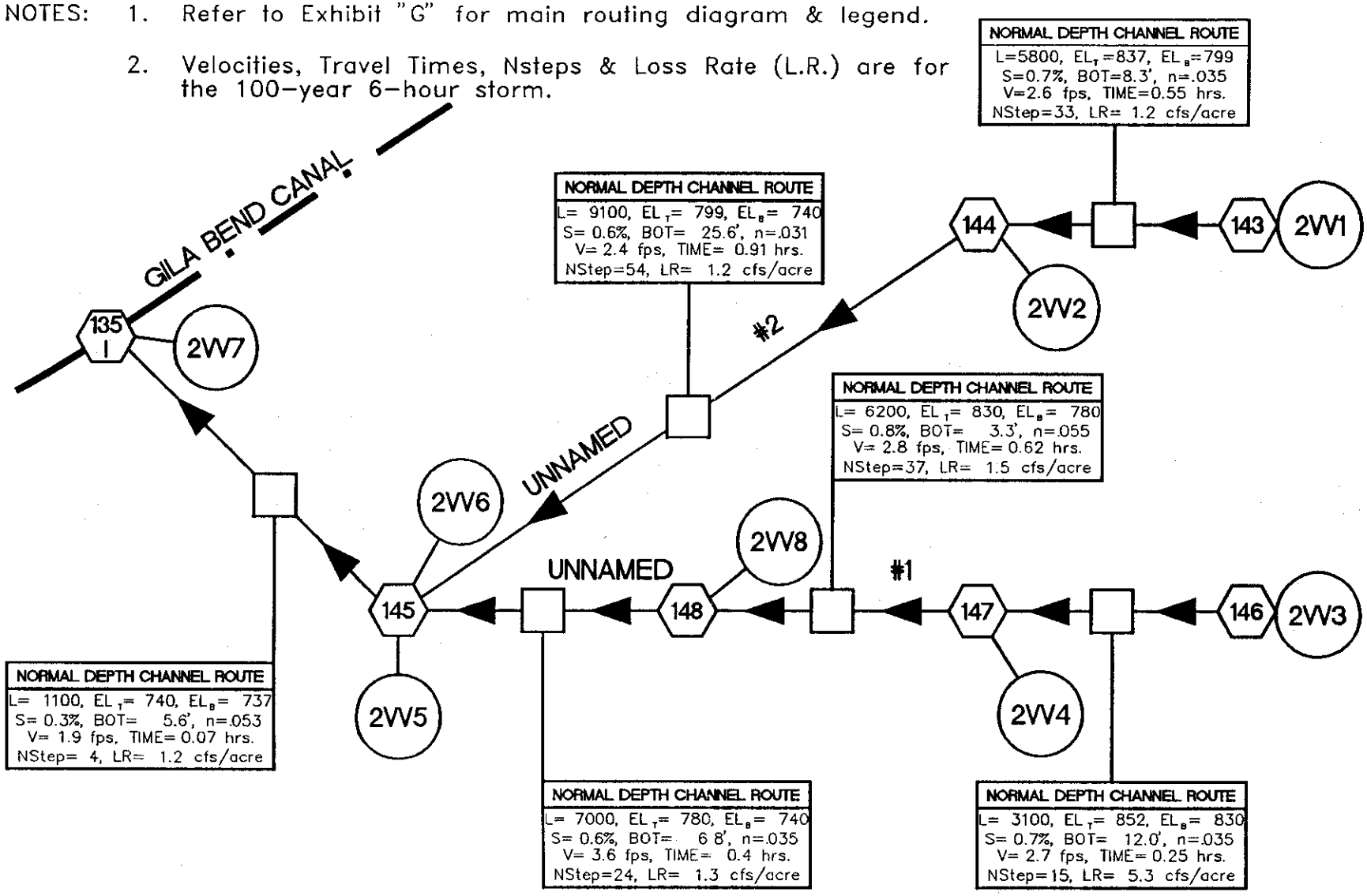
JOB NO. 11358
DRAWN BY T.B.L.
CHKD BY J.E.D.
DESIGN BY A.J.K.
APPROVED BY
DATE 5-92

EXHIBIT "E"
HEC-1 REACH ROUTE CROSS SECTION PLOTS

SCALE: VARIES
SHEET NO. 8 OF 8

NOTES: 1. Refer to Exhibit "G" for main routing diagram & legend.

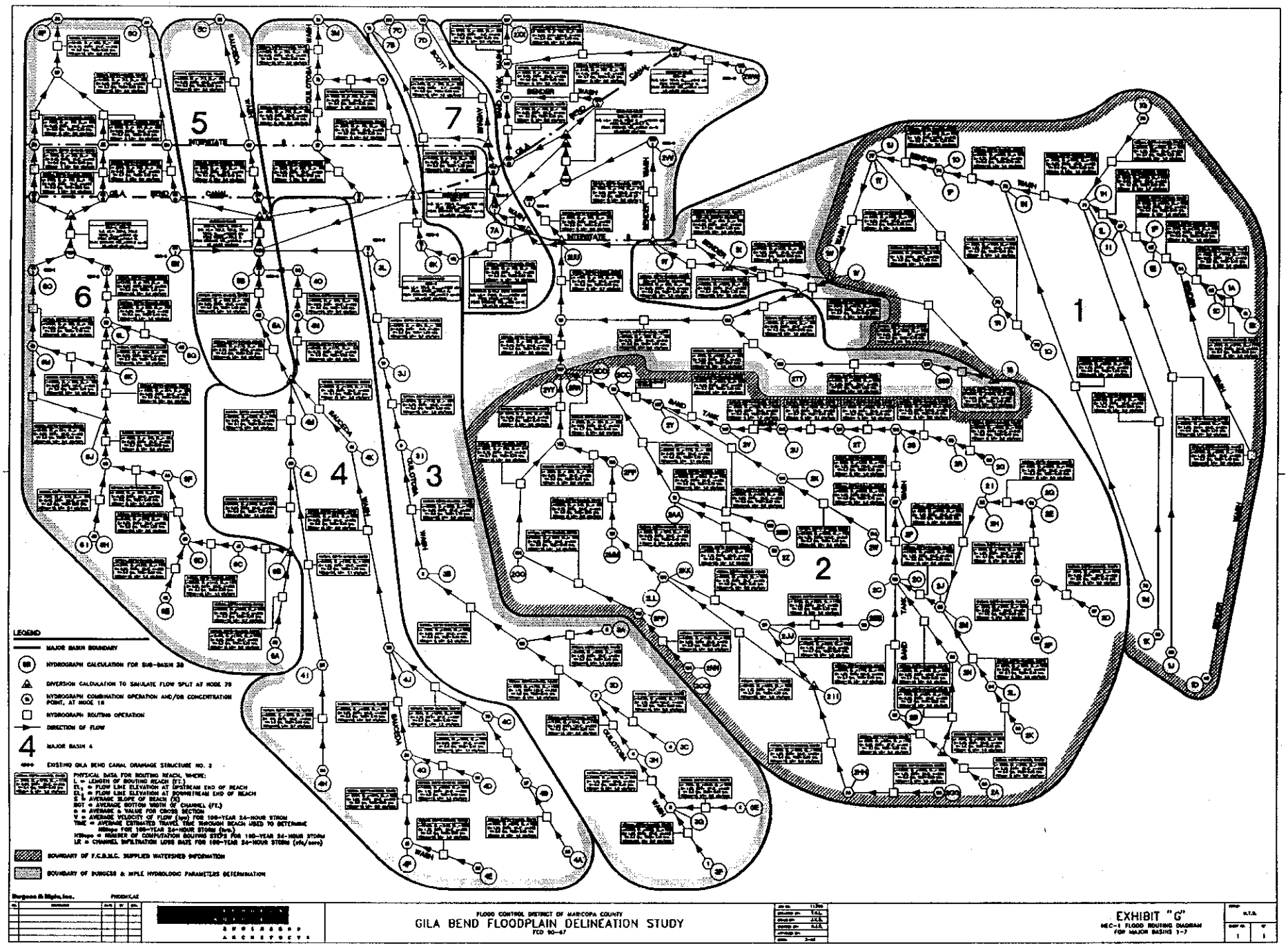
2. Velocities, Travel Times, Nsteps & Loss Rate (L.R.) are for the 100-year 6-hour storm.

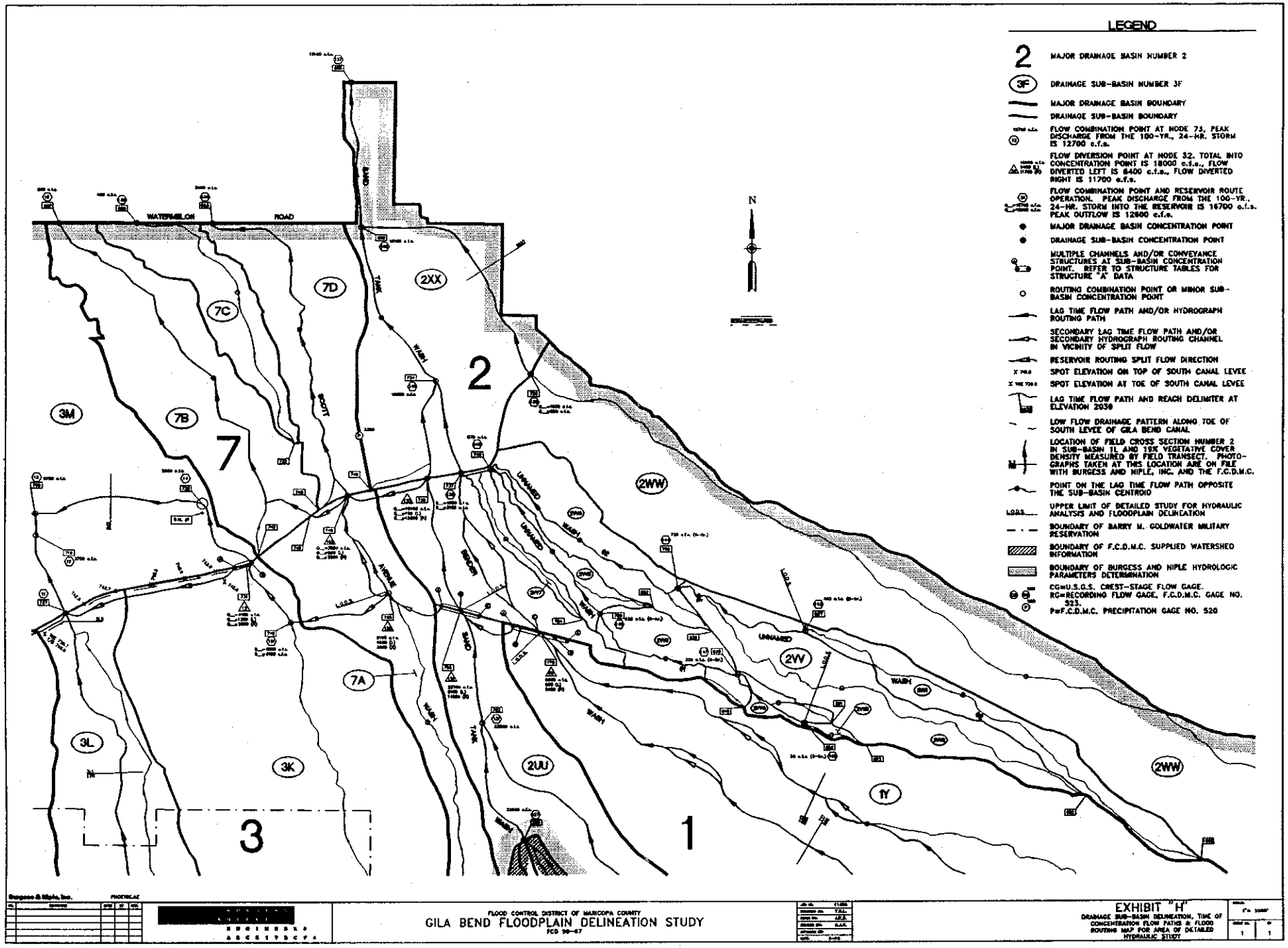



BURGESS & NIPLE
ENGINEERS
ARCHITECTS

# EXHIBIT "F"

HEC-1 FLOOD ROUTING DIAGRAM FOR UN-NAMED WASHES #1 & #2


1
2
3
4
5
6
7
LEGEND
MAJOR BASIN BOUNDARY
HYDROGRAPH CALCULATION FOR SUB-BASIN 3B
DIVERSION CALCULATION TO SIMULATE FLOW SPLIT AT NODE 79
HYDROGRAPH COMBINATION OPERATION AND/OR CONCENTRATION POINT, AT NODE 18
HYDROGRAPH ROUTING OPERATION
DIRECTION OF FLOW
MAJOR BASIN 4
EXISTING GILA BEND CANAL DRAINAGE STRUCTURE NO. 3
PHYSICAL DATA FOR ROUTING REACH, WHERE:
L = LENGTH OF ROUTING REACH (FT.)
EL1 = FLOW LINE ELEVATION AT UPSTREAM END OF REACH
EL2 = FLOW LINE ELEVATION AT DOWNSTREAM END OF REACH
S = AVERAGE SLOPE OF REACH (%)
BOT = AVERAGE BOTTOM WIDTH OF CHANNEL (FT.)
n = AVERAGE n VALUE FOR CROSS SECTION
V = AVERAGE VELOCITY OF FLOW (mps) FOR 100-YEAR 24-HOUR STRM
TIME = AVERAGE ESTIMATED TRAVEL TIME THROUGH REACH USED TO DETERMINE
Hydrographs FOR 100-YEAR 24-HOUR STORM (hrs.)
KHtape = NUMBER OF COMPUTATION ROUTING STEPS FOR 100-YEAR 24-HOUR STORM
LE = CHANNEL INFILTRATION LOSS RATE FOR 100-YEAR 24-HOUR STORM (cfs/acre)
BOUNDARY OF F.C.D.M.C. SUPPLIED WATERSHED INFORMATION
BOUNDARY OF BURGESS & NIPLE HYDROLOGIC PARAMETERS DETERMINATION
Burgess & Niple, Inc.
PHOENIX, AZ
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-67
EXHIBIT "G"
HEC-1 FLOOD ROUTING DIAGRAM
FOR MAJOR BASINS 1-7


LEGEND
2 MAJOR DRAINAGE BASIN NUMBER 2
3F DRAINAGE SUB-BASIN NUMBER 3F
MAJOR DRAINAGE BASIN BOUNDARY
DRAINAGE SUB-BASIN BOUNDARY
FLOW COMBINATION POINT AT NODE 73. PEAK DISCHARGE FROM THE 100-YR., 24-HR. STORM IS 12700 c.f.s.
FLOW DIVERSION POINT AT NODE 32. TOTAL INTO CONCENTRATION POINT IS 18000 c.f.s., FLOW DIVERTED LEFT IS 6400 c.f.s., FLOW DIVERTED RIGHT IS 11700 c.f.s.
FLOW COMBINATION POINT AND RESERVOIR ROUTE OPERATION. PEAK DISCHARGE FROM THE 100-YR., 24-HR. STORM INTO THE RESERVOIR IS 16700 c.f.s. PEAK OUTFLOW IS 12800 c.f.s.
MAJOR DRAINAGE BASIN CONCENTRATION POINT
DRAINAGE SUB-BASIN CONCENTRATION POINT
MULTIPLE CHANNELS AND/OR CONVEYANCE STRUCTURES AT SUB-BASIN CONCENTRATION POINT. REFER TO STRUCTURE TABLES FOR STRUCTURE "A" DATA
ROUTING COMBINATION POINT OR MINOR SUB-BASIN CONCENTRATION POINT
LAG TIME FLOW PATH AND/OR HYDROGRAPH ROUTING PATH
SECONDARY LAG TIME FLOW PATH AND/OR SECONDARY HYDROGRAPH ROUTING CHANNEL IN VICINITY OF SPLIT FLOW
RESERVOIR ROUTING SPLIT FLOW DIRECTION
SPOT ELEVATION ON TOP OF SOUTH CANAL LEVEE
SPOT ELEVATION AT TOE OF SOUTH CANAL LEVEE
LAG TIME FLOW PATH AND REACH DELIMITER AT ELEVATION 2030
LOW FLOW DRAINAGE PATTERN ALONG TOE OF SOUTH LEVEE OF GILA BEND CANAL
LOCATION OF FIELD CROSS SECTION NUMBER 2 IN SUB-BASIN 1L AND 19% VEGETATIVE COVER DENSITY MEASURED BY FIELD TRANSECT. PHOTOGRAPHS TAKEN AT THIS LOCATION ARE ON FILE WITH BURGESS AND NIPLE, INC. AND THE F.C.D.M.C.
POINT ON THE LAG TIME FLOW PATH OPPOSITE THE SUB-BASIN CENTROID
UPPER LIMIT OF DETAILED STUDY FOR HYDRAULIC ANALYSIS AND FLOODPLAIN DELINEATION
BOUNDARY OF BARRY M. GOLDWATER MILITARY RESERVATION
BOUNDARY OF F.C.D.M.C. SUPPLIED WATERSHED INFORMATION
BOUNDARY OF BURGESS AND NIPLE HYDROLOGIC PARAMETERS DETERMINATION
CG=U.S.G.S. CREST-STAGE FLOW GAGE. RG=RECORDING FLOW GAGE, F.C.D.M.C. GAGE NO. 523. P=F.C.D.M.C. PRECIPITATION GAGE NO. 520
N
WATERMELON ROAD
GILA BEND CANAL
SCOTT AVENUE
BROADWAY
UNNAMED WASH
2
2XX
2WW
2VV
2UU
1Y
1
7
7A
7B
7C
7D
3
3K
3L
3M
Burgess & Niple, Inc.
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND FLOODPLAIN DELINEATION STUDY
FCD 90-67
EXHIBIT "H"
DRAINAGE SUB-BASIN DELINEATION, TIME OF CONCENTRATION FLOW PATHS & FLOOD ROUTING MAP FOR AREA OF DETAILED HYDRAULIC STUDY

Section 3.1

FLOOD CONTROL
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COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

## SECTION 3: Hydrologic Analysis

### 3.1 Hydrologic Method Description

The following report is a comprehensive document which contains the results and supporting computations for the hydrology portion of the Gila Bend Flood Insurance Study. Our sincere appreciation is extended to the following agencies for their help and perspective while studying this watershed:

- Arizona Department of Transportation
- Arizona Department of Water Resources
- Arizona Geological Survey
- Flood Control District of Maricopa County
- Town of Gila Bend Public Works Department
- U. S. Air Force, Luke Air Force Base
- U. S. Bureau of Land Management
- U. S. Geological Survey
- U. S. Soil Conservation Service

The watershed was modeled utilizing methodology set forth in the Hydrologic Design Manual for Maricopa County, Arizona (Design Manual), prepared by the Special Projects Branch, Hydrology Division, Flood Control District of Maricopa County, dated September 1, 1990. This manual was specified for use in the Contract Scope of Work, which is contained under Section 1.5 of this report. The watershed was modeled for the 100-year 6-hour, and 100-year 24-hour, duration storms. The two durations were used in order to determine which storm results in the highest magnitude of peak discharge at various locations on the watershed. The temporal rainfall distributions used were the SCS Type II for the 24-hour duration storm, and the rainfall patterns and distributions suggested in the Design Manual for the 6-hour duration storm. The S-graph was used for unit hydrograph development. Rainfall losses were estimated using the Green-Ampt infiltration equation with an estimate for surface retention loss. Hydrographs were routed through the watershed using normal depth channel routing. Reservoir routing, where water ponds against the Gila Bend Canal, was accomplished using the Modified Puls Method. The watershed was modeled using the U.S. Army Corps of Engineers HEC-1

Computer Program, version 4.0.1E, dated May, 1991, as implemented by Dodson & Associates. The Flood Control District of Maricopa County will hereinafter be referred to as "District".

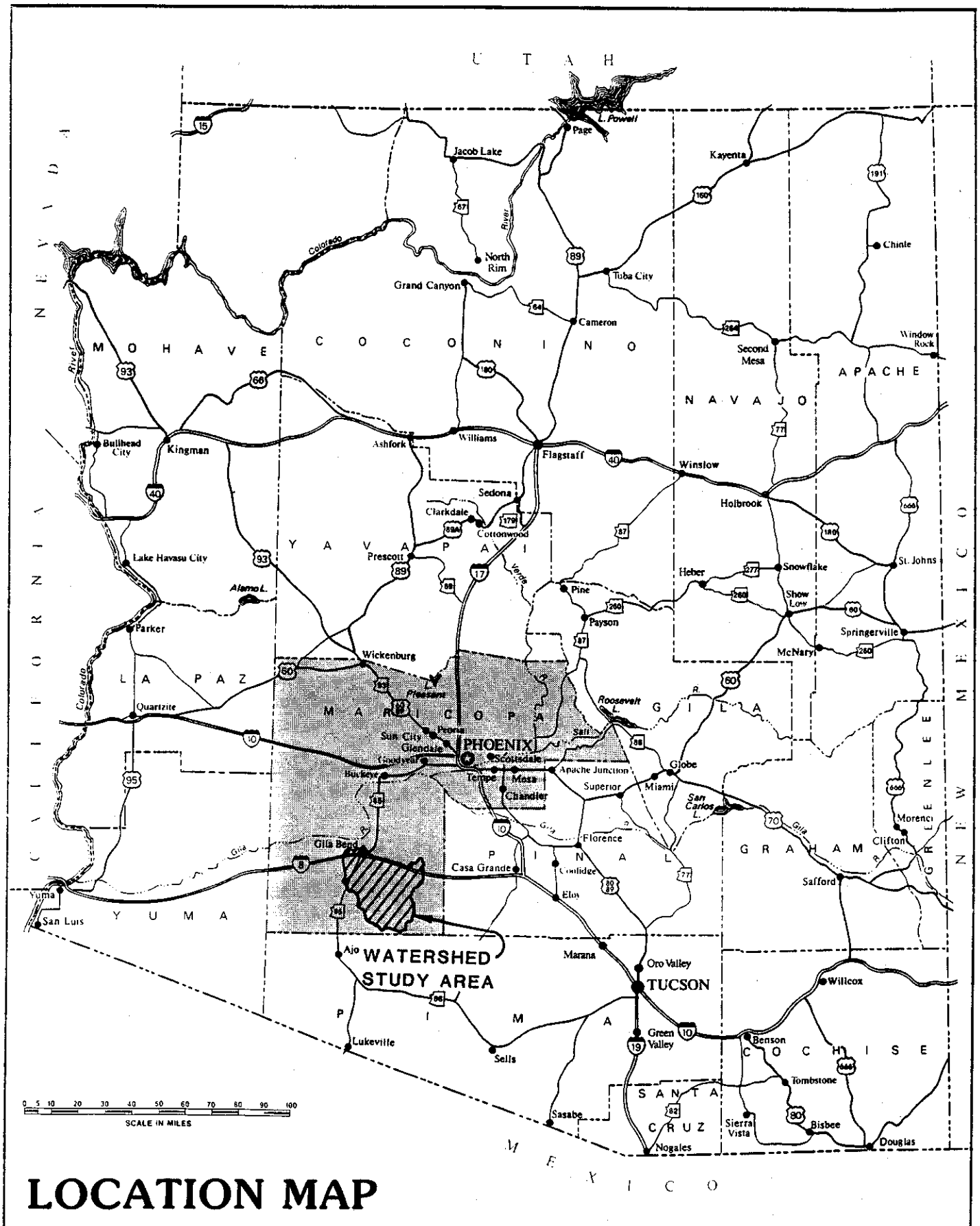
The purpose in undertaking this study was to estimate peak discharges from the 100-year recurrence interval storm at designated locations on the watershed. In general, these locations were:

1. Wash confluences and street, highway, and canal crossings along Bender Wash, Sand Tank Wash, and Scott Avenue Wash downstream of Interstate 8 as necessary for use in floodplain delineation of these washes;

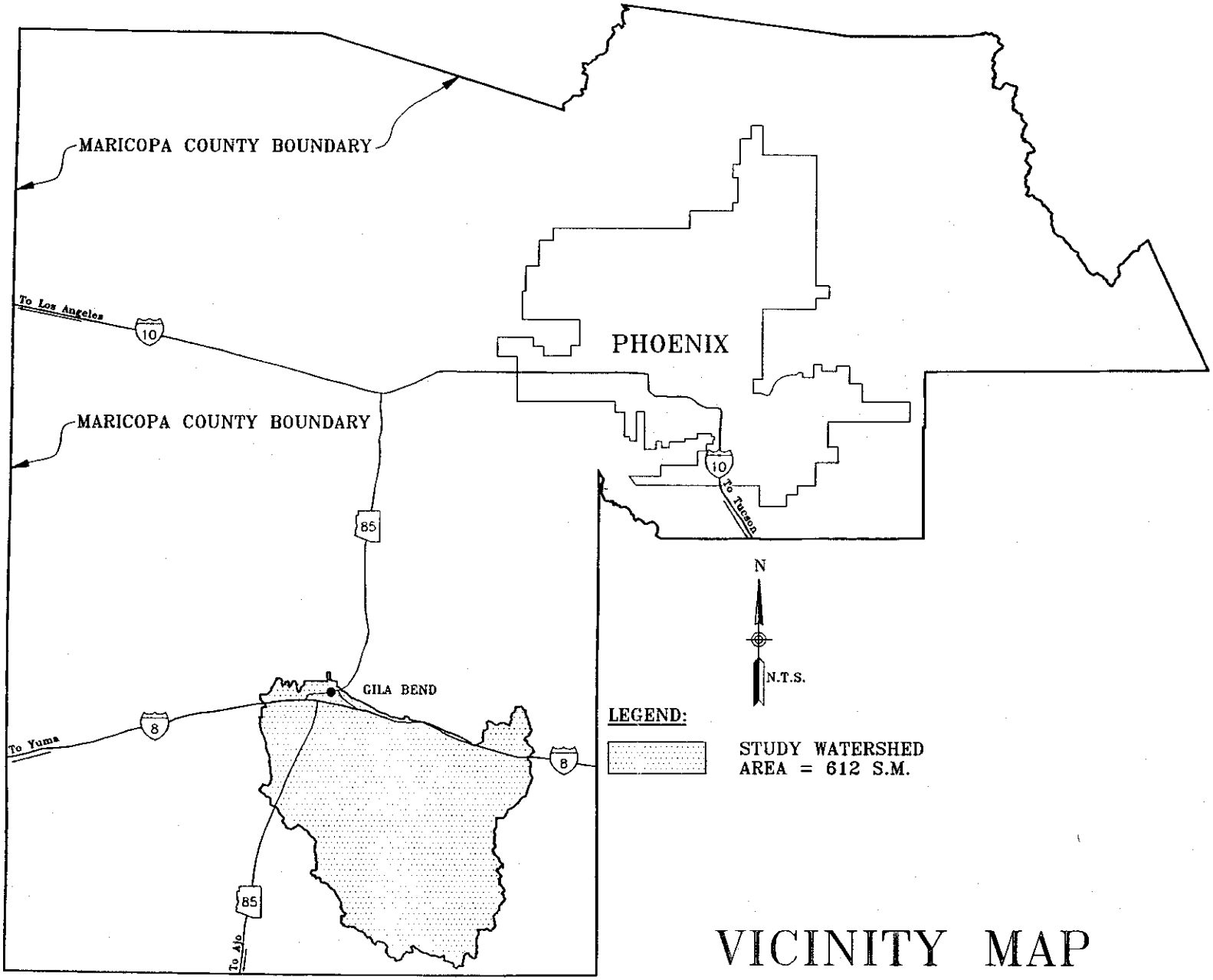
2. At structures for wash crossings of the Gila Bend Canal between S.R. 85 and Smurr; and

3. At S.R. 85 crossings with contributing watershed areas greater than 5-square miles.

These peak discharges were then used for the hydraulic analysis portion of this study for estimating floodplain and floodway limits for the washes designated in item 1 above. The peak discharges and runoff volumes estimated at other locations will be used by the District for future flood studies and possibly for ultimate sizing of flood remediation structures to minimize flood damage to the area. The existing undeveloped land use conditions were used to estimate these peak flow rates. Future land use conditions were not estimated.




# LOCATION MAP




VICINITY MAP

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1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

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Section 3.2

## 3.2 Parameter Estimation

### 3.2.1 Drainage Area Boundaries

The study watershed is approximately 612 square miles in area. Refer to Exhibit "A" in Section 2.2 for the watershed boundary delineation. The study area is bounded on the north by the Gila River, on the northeast by the Maricopa Mountains, on the east by a ridge line which passes through the Javalina and Sand Tank Mountains, on the south and southwest by the Sauceda Mountains, and on the west by a ridge line which extends from the Sauceda Mountains north to Smurr. The watershed is divided into two sections by the Gila Bend Canal. Refer to Exhibit "A" for the location of the canal. There are four major washes on the watershed, known as Bender Wash, Sand Tank Wash, Quilotosa Wash, and Sauceda Wash. Runoff from Quilotosa and Sauceda Washes commingle as a result of ponding against the upstream side of the Gila Bend Canal. This is caused by the limited capacity of the canal cross drain structures and very flat slopes parallel to the canal along the upstream side. The natural north-south ridges which intersect the canal have been removed adjacent to the canal in order to construct drainage channels which direct runoff to the cross structures. The constructed low flow drainage channels allow ponded water to directly commingle from S.R. 85 west to Smurr, after the low divider ridges separating the channels are submerged.

Runoff from Bender Wash and Sand Tank Wash also ponds against the canal where the two washes join in order to cross the canal through two structures. There are three 30-inch CMP culverts at the Bender Wash crossing of the canal, which are clogged with sediment and have virtually no conveyance capacity in comparison with the Sand Tank Wash overchute. Runoff from Bender Wash therefore diverts west to the overchute. Refer to Table F-4 in Section 3.5.6 for a listing of the size and type of the existing canal drainage cross structures.

The watershed is also divided by Interstate 8 which traverses the area in an east-west direction. West of S.R. 85, the interstate is north of, and parallel to, the Gila Bend Canal. East of S.R. 85, the interstate crosses the canal which then diverges in a northeasterly direction. Bender Wash and Sand Tank Wash commingle at Interstate 8

because of limited capacity of the highway cross structures. A portion of the runoff from both washes is diverted west along the south side of the interstate to S.R. 85 where runoff ponds and overtops both the Gila Bend Canal and S.R. 85. Refer to the Table on Sheet 1 of Exhibit "C" for a listing of the size, quantity, and type of structures at the Interstate 8 crossings of Bender Wash and Sand Tank Wash.

The watershed was divided into 7 major drainage basins to facilitate the modeling of the complex routing situation along the canal. This approach allows the use of naming conventions which make it easier to follow the logic of the HEC-1 model. The major basins are not necessarily separate entities. Distributary flow splits cause diversion of runoff from one major basin into another at various locations. Basin 1 is the Bender Wash watershed upstream of Interstate 8. Basin 2 is the Sand Tank Wash watershed. Basin 3 is the Quilotosa Wash watershed. Basins 4 and 5 comprise the Sauceda Wash watershed. Basin 4 was created separate from Basin 5 because of distributary flow patterns upstream of the Gila Bend Canal. Runoff from Basin 4 impacts the canal at a location where no cross drain structures exist. The flow from Basin 4 therefore is distributed along the canal to the cross structures for Quilotosa Wash and Sauceda Wash. Basin 6 is the watershed for un-named washes west of Sauceda Wash which lie in the study area. Runoff from Basin 6 combines with the runoff from Sauceda Wash and Quilotosa Wash at the Gila Bend Canal because of insufficient hydraulic capacity of the three drainage cross structures which Basin 6 drains to. Basin 7 is a small watershed between Sand Tank Wash and Quilotosa Wash which contributes to Scott Avenue Wash. However, peak discharges in Scott Avenue Wash are governed by overflow from Bender Wash and Sand Tank Wash which is diverted west by Interstate 8.

The watershed is rural in nature and predominately consists of desert. The urbanized portions of the watershed consist of Gila Bend (approximately 1.5 square miles), and the Luke Air Force Base Gila Bend Auxiliary Field (approximately 0.2 square miles). There is approximately 12.1 square miles of row crop irrigated farm land in the lower reaches of the study area west of Gila Bend. Interstate 8 comprises approximately 1.3 square miles, including the stockyards and cotton gin property at Smurr, and excluding all highway east of Exhibit "C", sheet 1. The total non-desert land is approximately

15.1 square miles, or 2.5% of the study area. The majority of the watershed, approximately 411 square miles, lies within the Barry M. Goldwater Military Reservation. This land is used by Luke Air Force Base as a target range for pilot training, and for other military training purposes. Access to this area is restricted.

The watershed is characterized by steep rugged mountainous terrain along the east and south sides of the study area, and much flatter desert valley in the middle, westerly, and northerly portions of the watershed. The watershed ranges in elevation from a low of 709 feet at the Gila River, to a high of 3912 feet in sub-basin 2D in the Javalina Mountains. The typical soil type present is a sandy loam. This soil texture correlates to an SCS Hydrologic Soil Group A soil. The watershed as a whole can therefore be characterized as having a low runoff potential, even through the mountainous areas have a moderate to high runoff potential.

The target criteria for delineating the watershed into sub-basins was to use an average sub-basin size for Basins 1 and 2 of 3.5 square miles. An average size of 8 square miles was to be used for Basins 3 through 7 upstream of the Gila Bend Canal, and 3.5 square miles downstream of the Gila Bend Canal. The average sub-basin sizes, after the watershed delineation was approved by the District, was as follows:

Basins 1 and 2: Average size = 3.5 square miles
Basins 3 - 7: Average size = 7.4 square miles upstream of canal.
Basins 3 - 7: Average size = 2.5 square miles downstream of canal.

There are a total of 136 sub-basins in the study. This total includes 128 sub-basins for Basins 1 through 7. Sub-basin 2VV was further delineated into 8 sub-basins in order to accommodate floodplain delineation of two small washes east of Bender Wash, which have been designated Un-named Wash #1 and Un-named Wash #2 for the purposes of this study.

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Section 3.2.2.1

The majority of Basins 1 and 2 was delineated by the District and provided to Burgess & Niple in digital form (AutoCAD DWG files) at the start of the project. These files included digitized soils information which was also used as a part of this study. The limits of the watershed areas delineated by the District are clearly indicated on Exhibits "B" and "C". The delineation done by the District was reviewed by Burgess & Niple and minor changes were made with the concurrence of the District. However, the routing and lag time parameters for this area were estimated by Burgess & Niple.

### 3.2.2 Physical Parameters

#### 3.2.2.1 Watershed Sub-Basin Parameters

**General**

The watershed sub-basin parameters were estimated in conformance with the Design Manual. The procedures used for estimating parameters are contained in the following sections. The descriptions only cover procedures which varied from the manual or procedures which could be done under the manual in more than one way.

**Soils Parameters**

**General** - Rainfall losses were estimated using the Green-Ampt infiltration equation. Soil textures were obtained from the following sources:

1. Soil Survey of Gila Bend-Ajo Area, Parts of Maricopa County and Pima Counties, Arizona, (SCS Soil Survey), prepared by the United States Department of Agriculture, Soil Conservation Service, not dated (preliminary).

2. A Materials Inventory of Maricopa County (Materials Inventory), prepared by the Arizona Department of Transportation in cooperation with the Federal Highway Administration, dated August, 1977.

The SCS Soil Survey does not cover the portions of the watershed situated within the Barry M. Goldwater Military Reservation (Military Reservation), or the small portion which lies in the Papago Indian Reservation on the south side of the study area (refer to Exhibit "A"). The District, as mentioned above, prepared soils parameters for a portion of Basins 1 and 2. This part of the study area will hereinafter be referred to as the District Study Area. The District addressed the lack of soils data by characterizing the area as having either "Mountain" or "Valley" soil types. The distinction was made using slope as the differentiating criteria. Valley soil types were assigned to mild and gently sloping areas. Mountain soil types were assigned to steep, hillslope areas. The boundaries between Mountain and Valley soils were identified by visually examining the USGS quadrangle maps. The mountainous areas typically rise abruptly from the valley floor which makes a visual determination fairly easy and accurate to make. The Valley soils were characterized as a silt soil texture, and the Mountain soils were characterized as a silty clay soil texture. A percent impervious value of 10% was assigned to the Mountain soils. These are conservative designations, typically at least one texture class lower than the average values for the adjacent areas where detailed soils information is available (refer to Table 4.2 of the Design Manual). These assumptions should result in conservatively high runoff rates.

The Materials Inventory was used by Burgess & Niple to refine the method applied by the District. The Materials Inventory contains a set of general geologic maps that cover the study area at a scale of approximately 1-inch to 14,667 feet. The geologic designations on these maps provide more detail for the Mountain and intermediate Hillslope regions. Hillslope regions are the transition areas between Mountain and Valley terrain classifications. Grateful acknowledgement is given to Mr. Bill Johnson of the SCS in Phoenix for assisting by relating the geologic descriptions to the corresponding SCS map units found in the SCS Soil Survey. The correlations made were as follows:

| Geologic Classification | Geologic Symbol | SCS Map Unit | Terrain Description |
|---|---|---|---|
| Granite | gr<br>Lgr | 326<br>322 | Low hills and pediments<br>Steeper portions, mountains |
| Schist | sch | 335 | Low hills and mountains |
| Basalt | $QT_b$, $Q_b$ | 317 | Low hills and mountains |
| Sauceda Volcanics | Ksv, Ta, Ki, Ka | 338<br>337 | Low hills and pediments<br>Steeper portions, mountains |
| Sand, Gravel and Conglomerates | $T_s$ | 340 | Low hills and pediments |
| Silt, Sand and Gravel | $Q_s$ | All Remaining Map Units | Low desert |

The "$Q_s$" soils were assigned the "Valley" designation created by the District because the numerous remaining SCS soil map unit designations correlate to this geologic classification. The individual SCS soil map units for $Q_s$ soils could not be delineated without a detailed soil survey done by soil scientists, which was beyond the scope of this contract.

The boundaries of the geologic units were digitized into AutoCAD from the Materials Inventory maps. The boundaries were then plotted at 1"=2000' scale and overlaid on the USGS orthophoto maps, and the USGS quadrangle maps. The boundaries were visually adjusted using the terrain and surface colors (shades of grey) as a guide. Mr. Johnson provided guidelines for this process. The adjustments typically consisted of a shift in location of the polygon formed by the geologic boundary to correlate with the mountain or hillslope area apparent on the photograph and contour maps. The differences in location were attributed to the differences in scale (and corresponding accuracy) between the Materials Inventory maps and the USGS mapping. The shapes of the polygons did not require significant adjustment.

The polygons which define the detailed SCS soil map units for the District Study Area were provided by the District in digital form as stated previously. The boundaries of SCS soil map units for the Burgess & Niple Study Area were digitized into AutoCAD using vellum copies of the original manuscripts,

which were obtained from the SCS. Some adjustments and corrections were made after a cursory review of the plotted soils maps was done by Mr. Johnson. A detailed review was not done by the SCS, but areas which could not be read on the prints provided by the SCS were clarified. The SCS Soil Survey referenced above has not been officially published for public use as of the date of this study; however, the data in unpublished format was obtained from the SCS with permission to use the information for a study of this type. The SCS was extremely helpful in ensuring that the most up to date information available was used for this study.

**Green-Ampt Parameters by SCS Soil Map Unit** - The first step in determining rainfall loss values was to estimate Green-Ampt values for each SCS soil unit present on the watershed. This task was done by the District and the results furnished to Burgess & Niple. Refer to Tables S-1 and S-2. Table S-1 is an interpolation table used to determine the DTHETA and PSIF parameters given an XKSAT value. The table was derived from Table 4.2 of the Design Manual. Table S-2 is a listing of the Green-Ampt parameters for every SCS soil map unit described in the SCS Soil Survey. It is important to note that the XKSAT values listed in Table S-2 are composite values based on the major and minor soils described in the SCS Soil Survey. The values of PSIF and DTHETA are obtained by looking up the composite XKSAT value in Table S-1 and returning the corresponding PSIF and DTHETA entries. The XKSAT column in Table S-2 is listed as "unadjusted" because vegetation cover density correction factors have not yet been applied. The entries for XKSAT in Table S-2 do not reflect major and minor soils with the "sand" soil texture classification. Therefore, the table values do not exceed 1.2-inches per hour. This was done since the majority of the "sand" soils lie in wash channel bottoms. Averaging in the high XKSAT value for sand (4.6-inches per hour) results in an unrealistically high XKSAT value for the map unit which is not representative of the watershed coverage as a whole. Also, losses associated with the channel bed soils are included in the model as transmission losses.

**Green-Ampt Parameters by Sub-Basin** - The XKSAT and RTIMP parameters were estimated for each sub-basin by calculating composite values based on area. The limits for each soil map unit present on the District Study Area were furnished to Burgess & Niple in AutoCAD (DWG) format, as mentioned previously. The remaining portions of the watershed covered by the SCS Soil Survey were digitized from the 1"=2000' scale preliminary soils maps furnished by the SCS. The soil map unit limits for the remaining portions of the watershed (Military Reservation and Papago Indian Reservation) were defined using the method described previously. These limits were then digitized into AutoCAD. The sub-basin and major basin boundaries were digitized as a part of the sub-basin delineation process. The AutoCAD drawing files were then converted to ARC/INFO format for calculation of soils and sub-basin areas. ARC/INFO, a geographic information system software package, is a more efficient tool for computing areas of multiple polygons than AutoCAD.

The composite values of XKSAT and RTIMP were calculated for each sub-basin using a spreadsheet after the polygon areas were calculated. Refer to Table S-3. Table S-3 is the calculations summary for estimating the XKSAT, RTIMP and Terrain Classifications for each sub-basin. The data in this table is sorted by sub-basin. The soil map units present in every sub-basin, and the corresponding area and unadjusted XKSAT values, are listed in the first three rows. The percent impervious values associated with each soil map unit are listed as "% Rock" in the fourth row. The composite XKSAT parameter shown in the 6th row was calculated by averaging the common logarithm of the XKSAT values from row three using area. This was accomplished by multiplying the total area of each soil map unit in the sub-basin by the common logarithm of the associated XKSAT value. The resultant products were then totalled and the sum was divided by the total area of the sub-basin. The result is the composite XKSAT parameter. The RTIMP parameter listed in the 10th row was calculated by averaging the RTIMP values from row four using area and a similar method to that described for the composite XKSAT parameter. The log-averaged XKSAT parameter was then adjusted for the

effects of vegetation cover using Figure 4.3 from the Design Manual. Refer to rows 6, 7, 8, and 9. The source of the Vegetation Cover Density value in row seven is discussed under Land Use Characteristics.

Areas of desert pavement were encountered throughout the watershed. Although these areas appear on the surface to have high runoff potential, a careful examination in the field yielded evidence to the contrary. The exposed gravel on the surface would seem to detain runoff and allow water to infiltrate into the sandy soils between the rocks. The surface, although crusted, appears moderately permeable. The characteristics of the underlying soil horizon were assumed to control.

**Watershed Delineation and Areas**

The SCS soil map unit boundaries and sub-basin delineations shown on Exhibits "B" and "C" were derived using the following process:

District Study Area

Sub-basin and soil map unit boundaries were provided by the District in AutoCAD (DWG) digital format. The coordinate basis for the drawings was the National Geodetic Survey North American Datum of 1927 (NAD 1927). These drawings were plotted on mylar and overlaid on the quadrangle maps, orthophotographs, and SCS soil maps. Adjustments and revisions were made after a review of the mapping, and with the consent of the District. The sub-basin naming convention provided by the District was changed to the convention used for the Burgess & Niple Study Area.

Burgess & Niple Study Area

1. The soil map unit boundaries were digitized into AutoCAD using the mapping provided by the SCS. Refer to Section 2.1. The NAD 1927 published state plane coordinates for the corners of the USGS quadrangle

maps (7.5-minute mapping) were first input to AutoCAD. The corners of the quadrangle maps were then used to calibrate the digitizer to the scale of the SCS soil maps, which are based on the USGS orthophotographs. The soils boundaries were then digitized using a Calcomp 9500 series 36"x48" digitizer.

2. The sub-basin boundaries were determined using original copies of the USGS quadrangle maps and photo prints of the orthophotographs. The delineation was done using the procedures described in Section 3.2.1. The boundaries were then digitized into AutoCAD using the procedure described in item 1 above. Routing paths and Lag Time flow paths were derived and digitized using the same procedure.

3. Exhibits "B" and "C" have been prepared using photo-mosaicked copies of the USGS quadrangle maps, as described in Section 2.1 The graphic data prepared as described above was plotted onto the mylar base maps using a Calcomp 1077 plotter. Slight discrepancies between the plotted sub-basin boundaries, routing paths, and Lag Time flow paths, when compared to ridge lines and wash flow lines on the base maps, may be noted. These appear to be due to small errors in alignment and scale introduced by mosaicking the quadrangle maps together. These discrepancies do not affect the accuracy of the digital mapping. All digitizing was done on a quadrangle by quadrangle basis using original prints in order to isolate any digitizing error to individual maps.

4. The areas of soil map units present in a sub-basin, and sub-basin total areas, were calculated by use of the MSDOS version of the ARC/INFO geographical information system computer program, version 3.4D. The soil map unit areas in Table S-3 are the total area of all polygons for a particular soil map unit within a sub-basin. The areas for each sub-basin and major basin are summarized in Table S-7.

**Land Use Characteristics**

The land use characteristics of the watershed were defined using the following five classifications:

1. Valley;
2. Hillslope;
3. Mountain;
4. Urban; and
5. Row Crop Farmland.

The Valley, Hillslope, and Mountain classifications were determined by assigning a terrain class to each SCS soil map unit present on the watershed. The percentages of each land use present in a given sub-basin was then determined by totalling the areas of the corresponding SCS soil map units, and dividing by the total sub-basin area. Refer to Tables S-2 and S-3. A terrain class was assigned to each SCS soil map unit generally using the following criteria. The selection for border line cases was made using engineering judgement after conferring with Mr. Bill Johnson of the SCS.

1. The land slope range contained in the SCS Soil Survey was used in conjunction with the percent impervious for the map unit.

2. The Valley terrain class was assigned if the slope range was between 0 and 15 percent with a percent impervious value of zero.

3. The Hillslope terrain class was assigned if the slope range was between 1 and 15 percent and the soil map unit had a positive value for percent impervious. It was also assigned for slope ranges between 1 and 25 percent, regardless of percent impervious value.

4. The Mountain terrain class was assigned to soil map units with slope ranges between 10 and 75 percent.

The Urban land use only appears on sheet 1 of Exhibit "B". The limits were determined using the aerial photographs for Gila Bend which were taken as a part of this study, and the USGS quadrangle maps. The percentage of urban land use assigned to each sub-basin is listed in Table S-4. These values were obtained by planimetering the areas of urban land use on Exhibit "B" and then dividing by the sub-basin area. The urban land use percentages include Interstate 8 and the Southern Pacific Railroad on sheet 1 of Exhibit "B". The effects of the impervious area associated with the interstate and the railroad was assumed to be negligible for the remainder of the watershed.

The percent impervious for the urban area of the Town of Gila Bend was estimated to be 45%, based on field reconnaissance. The percent impervious for the interstate and railroad urban area was assumed to be 23%, based on paved width versus the width of the corridor. Refer to sheet 1 of Exhibit "B". The percent impervious for the stockyard and cotton gin area west of Gila Bend was assumed to be 10%, based on field reconnaissance. The percent impervious for the military base was assumed to be 60%, based on field reconnaissance.

The vegetation cover density percentage assigned to the Town of Gila Bend urban area was 25% for all but the area in sub-basin 7A. The urban area in 7A was assigned an estimate of 29%. The vegetation cover density percentage assigned to the interstate and railroad corridor was an average of 10%. The value assigned to the stockyard and cotton gin land was 5%.

The row crop farmland land use also only appears on sheet 1 of Exhibit "B". The limits were determined by field reconnaissance. The entire farmland area was driven in the field and the limits plotted on the USGS quadrangle maps. The drainage patterns for the fields were also identified in the field. The area of row crop farmland was then planimetered for each sub-basin.

Both the Urban and Row Crop Farmland areas lie entirely within the Valley terrain class. The total area of Valley terrain class for each sub-basin was

therefore adjusted by subtracting the percentages of urban and row crop farmland. Refer to columns 6 and 7 of Table S-4.

The surface characteristics described above were then used to calculate composite values of RTIMP, DTHETA, vegetation cover density, and initial abstraction. These characteristics were also used to aid in determining which S-Graph type to use for each sub-basin. The data in Table S-4 was generated by column as follows:

Column 1: Sub-basin name.

Column 2: Unadjusted value of XKSAT, logarith averaged for the sub-basin. Taken from Row 6 of Table S-3.

Column 3: Value of DTHETA for a dry watershed condition derived from Table S-1 using the XKSAT value in Column 2.

Column 4: Value of DTHETA for a normal watershed condition derived from Table S-1 using the XKSAT value in Column 2.

Column 5: Value of PSIF derived from Table S-1 using the XKSAT value in Column 2.

Column 6: The percentage of Valley terrain class in the sub-basin taken from Row 11 of Table S-3.

Column 7: The actual percentage of Valley terrain class for the sub-basin. The values in columns 10 and 11 were subtracted from the value in column 6.

Column 8: The percentage of Hillslope terrain class in the sub-basin taken from Row 12 of Table S-3.

Column 9: The percentage of Mountain terrain class in the sub-basin taken from Row 13 of Table S-3.

Column 10: The percentage of Row Crop Farm land use present in the sub-basin.

Column 11: The percentage of Urban land use present in the sub-basin.

Column 12: The average vegetation cover density percentage for the Valley, Hillslope, and Mountain terrain classes in the sub-basin. The percentage is based on field transects.

Column 13: The average vegetation cover density percentage for Row Crop Farmland land use present in the sub-basin. A value of zero has been assigned to all sub-basins, on the assumption that no crops would be present at the time of a major storm. This is a conservative assumption which decreases the correction factor applied to the XKSAT parameter in Table S-3.

Column 14: The average vegetation cover density percentage for Urban land use present in the sub-basin.

Column 15: The percent impervious value for Urban land use present in the sub-basin. It is a composite value based on the following assumptions:

| | |
|---|---|
| Interstate 8 and Railroad Corridor: | 23% |
| Town of Gila Bend: | 45% |
| Luke Air Force Base Auxiliary Field: | 60% |
| Stockyard and Cotton Gin Parcel: | 10% |

Column 16: The percent impervious value for the Hillslope and Mountain terrain classes in each sub-basin.

Column 17: The composite percent impervious value for each sub-basin. The weighting calculation was done as follows:

$$RTIMP\ (weighted) = \frac{([7]+[8]+[9]) \times [16] + [10] \times 0 + [11] \times [15]}{100}$$

Where the number in brackets "[ ]" is the column number.

Column 18: The composite DTHETA value for each sub-basin. The following assumptions were made for computing the values in this column:

1. DTHETA (dry) was applied to the Valley, Hillslope, and Mountain terrain classes.

2. DTHETA (normal) was applied to the Row Crop Farmland and Urban land use classes.

The weighting calculation was done as follows:

$$DTHETA\ (weighted) = \frac{([7]+[8]+[9]) \times [3] + ([10]+[11]) \times [4]}{100}$$

Column 19: The composite vegetation cover density value for each sub-basin. The weighting calculation was done as follows:

$$VCD\ (weighted) = \frac{([7]+[8]+[9]) \times [12] + [10] \times [13] + [11] \times [14]}{100}$$

Column 20: The composite initial abstraction in inches for each sub-basin. It is a composite based on the following assumptions:

| Surface Class | Initial Abstraction (inches) |
|---|---|
| Valley | 0.35 |
| Hillslope | 0.15 |
| Mountain | 0.25 |
| Row Crop | 0.50 |
| Urban | 0.20 |

The values for initial abstraction were derived from Table 4.1 of the Design Manual.

The weighting calculation was done as follows:

$$IA\ (weighted) = \frac{[7] \times 0.35 + [8] \times 0.15 + [9] \times 0.25 + [10] \times 0.50 + [11] \times 0.20}{100}$$

Column 21: The S-Graph selected for application on each sub-basin. The Mountain S-Graph was selected when the total of columns 8 and 9 was greater than 50%. The Valley S-graph was selected for values in column 6 greater than or equal to 50%.

The vegetation cover density values listed for each sub-basin in Column 12 of Table S-4 were based on observations made during the field reconnaissance. Vegetation density transects were taken at various locations on the watershed, in conjunction with the field cross sections. These locations are identified on Exhibit "C". The transects were taken using a 100-foot chain at a location far enough removed from a wash to be typical of the surrounding area. The assignment of an average cover density to each sub-basin was based on interpolation between known values, and engineering judgement.

The following photograph is an example of an area with an estimated vegetation cover density of 25%.

**VCD at Location 1L1**
**(Sheet 6 of Exhibit "C")**

This photograph was taken in Sub-basin 1L at cross section 1.

**Lag Times**

A lag time for each sub-basin was evaluated using the following relationship:

$$LAG = C\left(\frac{LL_{ca}}{S^{p}}\right)^{m}$$

where LAG = basin lag time in hours.

| | | |
|---|---|---|
| L | = | length of the longest watercourse in miles |
| $L_{ca}$ | = | length along the watercourse to a point opposite the centroid in miles |
| S | = | watercourse slope in feet per mile |
| C | = | $24K_n$ (from U.S. Army Corps of Engineers, [COE]) |
| m | = | 0.38 (from COE) |
| p | = | 0.5 |
| $K_n$ | = | estimated mean Manning's value for all channels in the basin. |

The parameters listed above, which are necessary to estimate lag time, were derived from Exhibit "C". The information necessary to estimate lag time is contained in Tables S-5 and S-6. Refer to the example in the "Sample Calculation of Sub-Basin Parameters" section.

Special consideration was not given to estimation of lag time for sub-basins containing row crop farm land. All of the fields on the watershed were evaluated during the field reconnaissance. Each row was found to drain to a disposal channel and not from row to row in a zigzag fashion. The lag time flow paths for sub-basins containing row crop farmland typically follow the disposal channel alignments. Refer to sheet 1 of Exhibit "C".

## S-Graphs

The Design Manual lists two types of S-Graphs approved for use in Maricopa County. These are the Phoenix Mountain S-Graph and Phoenix Valley S-Graph. The selection of an S-Graph for use on a particular sub-basin was based on land characteristics. If over 50% of the basin was mountain and hillslope, then the Phoenix Mountain S-Graph was selected. If 50% or greater of the basin area was valley, then the Phoenix Valley S-Graph was selected. The S-Graph type selected for each sub-basin is listed in Table S-4. A separate S-Graph based unit hydrograph was generated for each sub-basin by use of the computer program MCUHP2. This program was written by the Flood Control District and is furnished with the Design Manual. This program creates a set of unit hydrograph (UI) records for direct input to HEC-1.

## Sample Calculation of Sub-Basin Parameters

The following is an example of the calculation procedures used in preparing the data in Tables S-3 through S-7. Sub-basin 2WW will be used for this example since all three terrain classes and a small area of Urban land use are present.

### Green-Ampt Parameter Calculations for Sub-Basin 2WW

*Step 1: Calculate the log-average value of XKSAT.* Refer to Table S-3, page 28.

*Log-Avg XKSAT = $10^a$, where a is:*

$$a = \left( \frac{\begin{array}{c} Log\ (0.44)\ x\ 14.5 + Log\ (0.28)\ x\ 1.3 \\ + Log\ (0.84)\ x\ 95 + Log\ (0.8)\ x\ 393.2 \\ + Log\ (0.4)\ x\ 575.9 + Log\ (0.97)\ x\ 92.8 \\ + Log\ (0.84)\ x\ 2506.9 + Log\ (0.48)\ x\ 44.1 \end{array}}{3723.7} \right) = -0.1304$$

*Log-Avg XKSAT = $10^{-0.1304}$ = 0.74 inches per hour*

*Step 2: Calculate the average Vegetation Cover Density (VCD) for the sub-basin.* Refer to Table S-4, page 3.

$$VCD\ (weighted) = \left( \frac{\begin{matrix}(95.3+1.2+2.5)\ x \\ 15.0 + 0\ x\ 0 + 1.0\ x\ 25.0\end{matrix}}{100} \right) = 15.1\%$$

*Use 15%. This value is then entered in Table S-3, page 28, row 7, for sub-basin 2WW.*

*Step 3: Adjust XKSAT to reflect the effects of vegetation cover.* Refer to Table S-3, page 28.

*Ck = 0.889 + 1.111 x 0.15 = 1.06*
*XKSAT (Adjusted) = 1.06 x 0.74 = 0.78 inches per hour*

*Step 4: Calculate the composite value of RTIMP for the Hillslope and Mountain terrain classes.* Refer to Table S-3, page 28. The RTIMP for Valley areas is zero.

$$RTIMP\ (composite) = \left( \frac{26\ x\ 92.8 + 0\ x\ 44.1}{3723.7} \right) = 0.648\%$$

*Use RTIMP = 0.6%. This value is then placed in column 16 of Table S-4.*

*Step 5: Calculate the total percentages of Valley, Hillslope, and Mountain terrain classes present in the sub-basin.* Refer to Table S-3, page 28.

$$Valley\ (composite) = \left( \frac{\begin{matrix}14.5 + 1.3 + 95.0 + \\ 393.2 + 575.9 + 2506.9\end{matrix}}{3723.7} \right) x\ 100 = 96\%$$

The Hillslope and Mountain percentages are calculated in a similar manner.

*Step 6: Determine the DTHETA and PSIF parameters.* Refer to Table S-4. Use the Log-Average XKSAT value of 0.74 to look up the values for DTHETA (dry), DTHETA (normal), and PSIF in Table S-3.

$$\begin{aligned} \text{DTHETA (dry)} &= 0.35 \\ \text{DTHETA (normal)} &= 0.27 \\ \text{PSIF} &= 3.49 \text{ inches} \end{aligned}$$

The composite value of DTHETA is calculated as follows:

$$\textit{DTHETA (weighted)} = \left( \frac{\begin{array}{c} 0.35 \ x \ (96+1+2) \\ +0.27 \ x \ 0 + 0.27 \ x \ 1 \end{array}}{100} \right) = 0.35$$

Use DTHETA (weighted) = 0.35.

*Step 7: Calculate the composite value of RTIMP for the sub-basin.* Refer to Table S-4.

$$\textit{RTIMP (weighted)} = \left( \frac{\begin{array}{c} (96 + 1 + 2) \ x \ 0.6 \\ + 10 \ x \ 0 + 1 \ x \ 40 \end{array}}{100} \right) = 1.0\%$$

*Step 8: Calculate the composite Initial Abstraction, IA, in inches.* Refer to Table S-4, page 3.

$$\textit{IA (weighted)} = \left( \frac{\begin{array}{c} 95.3 \ x \ 0.35 + 1.2 \ x \ 0.15 + \\ 2.5 \ x \ 0.25 + 0 \ x \ 0.5 + 1.0 \ x \ 0.2 \end{array}}{100} \right) = 0.34 \textit{ inches}$$

**S-Graph Selection and Lag Time Calculation for Sub-Basin 2WW**

*Step 9: Determine the S-Graph to use for sub-basin 2WW.* Refer to Table S-4, columns 6 and 21. The Valley S-Graph is selected because the value in column 6, 96.3%, is greater than or equal to 50%.

*Step 10: Estimate the average slope for the Lag Time flow path for sub-basin 2WW.* Refer to Table S-5, page 14.

The Lag Time flow path (refer to sheets 1 and 2 of Exhibit "C") was divided into three reaches. The division was done by examining the quadrangle map to locate reaches where the slope change through the reach was not significant. An average slope for the sub-basin was then computed using the Pima County equation[1]. Using this method, the slope of each reach is calculated and placed in column 7 of Table S-5, for informational purposes. The factor, I, is then calculated using the expression:

$$I = \left(\frac{L^3}{H}\right)^{0.5}$$

where L = reach length in feet; and H = elevation drop through the reach, in feet. The value for I is then placed in column 8. A value of I is calculated for all reaches. The values of I for the reaches are then totalled. For sub-basin 2WW the total, $I_{Tot}$, is 1.224.

The average slope for sub-basin 2WW is then calculated using the equation:

$$S_{avg} = \left(\frac{1}{I_{Tot}^2}\right) x\ L^2$$

where L is the total length of the Lag Time flow path in miles.

For sub-basin 2WW:

$$S_{avg} = \left(\frac{1}{1.224^2}\right) x\ 8.98^2 = 53.8\ ft./mi$$

Use $S_{avg}$ = 54 ft./mi.

This value is then placed in Table S-6, page 3, column 4.

[1]Refer to Bibliography Reference Number 21.

*Step 11: Estimate the lag time for sub-basin 2WW.* The lag time for sub-basin 2WW is then estimated using the expression set forth under "Lag Times" in this section. The variable L was set equal to the flow path length of 8.98 miles. The variable $L_{ca}$ was estimated to be 4.17 miles. Refer to Sheets 1 and 2 of Exhibit "C" for a depiction of the flow path limits used to estimate L and $L_{ca}$ for sub-basin 2WW. The coefficient C was estimated using the expression $C=24K_n$. $K_n$, the mean Mannings n for all channels within the sub-basin, was estimated by calculating a composite value based on the sub-basin surface characteristics. The typical values used for each sub-basin were:

| Surface Characteristic | $K_n$ |
|---|---|
| Valley | 0.05 |
| Hillslopes | 0.06 |
| Mountains | 0.08 |

These values were estimated during the field reconnaissance. The composite value of $K_n$ for sub-basin 2WW was calculated as follows:

$$K_{n,comp} = \left(\frac{96.3 \ x \ 0.05 + 1.2 \ x \ 0.06 + 2.5 \ x \ 0.08}{100}\right) = 0.051$$

This is the value shown in Table S-6. The estimated lag time was then calculated as follows:

$$Lag = C \ x \left(L \ x \ \frac{L_{ca}}{S^P}\right)^m$$

$$= 24 \ x \ 0.051 \ x \left(\frac{8.98 \ x \ 4.17}{54^{0.5}}\right)^{0.38}$$

$$= 2.27 \ hours = 136 \ minutes$$

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Table S-1

## TABLE S-1

## DTHETA AND PSIF INTERPOLATION TABLE USING XKSAT

*(For 0.00 < XKSAT <= 1.20)*

| XKSAT (rounded | DTHETA (Dry) | DTHETA (Normal) | PSIF |
|---|---|---|---|
| 0.01 | 0.15 | 0.05 | 12.40 |
| 0.02 | 0.20 | 0.10 | 9.40 |
| 0.03 | 0.25 | 0.13 | 10.10 |
| 0.04 | 0.25 | 0.15 | 8.20 |
| 0.05 | 0.25 | 0.15 | 8.40 |
| 0.06 | 0.25 | 0.15 | 8.60 |
| 0.07 | 0.28 | 0.15 | 8.28 |
| 0.08 | 0.30 | 0.15 | 8.05 |
| 0.09 | 0.33 | 0.15 | 7.78 |
| 0.10 | 0.35 | 0.15 | 7.50 |
| 0.11 | 0.36 | 0.17 | 7.32 |
| 0.12 | 0.37 | 0.19 | 7.14 |
| 0.13 | 0.38 | 0.21 | 6.96 |
| 0.14 | 0.39 | 0.23 | 6.78 |
| 0.15 | 0.40 | 0.25 | 6.60 |
| 0.16 | 0.40 | 0.25 | 6.29 |
| 0.17 | 0.39 | 0.25 | 5.98 |
| 0.18 | 0.39 | 0.25 | 5.67 |
| 0.19 | 0.38 | 0.25 | 5.36 |
| 0.20 | 0.38 | 0.25 | 5.05 |
| 0.21 | 0.37 | 0.25 | 4.74 |
| 0.22 | 0.37 | 0.25 | 4.43 |
| 0.23 | 0.36 | 0.25 | 4.12 |
| 0.24 | 0.36 | 0.25 | 3.81 |
| 0.25 | 0.35 | 0.25 | 3.50 |
| 0.26 | 0.35 | 0.25 | 3.55 |
| 0.27 | 0.35 | 0.25 | 3.61 |
| 0.28 | 0.35 | 0.25 | 3.66 |
| 0.29 | 0.35 | 0.25 | 3.71 |
| 0.30 | 0.35 | 0.25 | 3.77 |

## TABLE S-1

## DTHETA AND PSIF INTERPOLATION TABLE USING XKSAT

*(For 0.00 < XKSAT < = 1.20)*

| XKSAT (rounded | DTHETA (Dry) | DTHETA (Normal) | PSIF |
|---|---|---|---|
| 0.31 | 0.35 | 0.25 | 3.82 |
| 0.32 | 0.35 | 0.25 | 3.87 |
| 0.33 | 0.35 | 0.25 | 3.92 |
| 0.34 | 0.35 | 0.25 | 3.98 |
| 0.35 | 0.35 | 0.25 | 4.03 |
| 0.36 | 0.35 | 0.25 | 4.08 |
| 0.37 | 0.35 | 0.25 | 4.14 |
| 0.38 | 0.35 | 0.25 | 4.19 |
| 0.39 | 0.35 | 0.25 | 4.24 |
| 0.40 | 0.35 | 0.25 | 4.30 |
| 0.41 | 0.35 | 0.25 | 4.28 |
| 0.42 | 0.35 | 0.25 | 4.25 |
| 0.43 | 0.35 | 0.25 | 4.23 |
| 0.44 | 0.35 | 0.25 | 4.21 |
| 0.45 | 0.35 | 0.25 | 4.18 |
| 0.46 | 0.35 | 0.25 | 4.16 |
| 0.47 | 0.35 | 0.25 | 4.13 |
| 0.48 | 0.35 | 0.26 | 4.11 |
| 0.49 | 0.35 | 0.26 | 4.09 |
| 0.50 | 0.35 | 0.26 | 4.06 |
| 0.51 | 0.35 | 0.26 | 4.04 |
| 0.52 | 0.35 | 0.26 | 4.02 |
| 0.53 | 0.35 | 0.26 | 3.99 |
| 0.54 | 0.35 | 0.26 | 3.97 |
| 0.55 | 0.35 | 0.26 | 3.94 |
| 0.56 | 0.35 | 0.26 | 3.92 |
| 0.57 | 0.35 | 0.26 | 3.90 |
| 0.58 | 0.35 | 0.26 | 3.87 |
| 0.59 | 0.35 | 0.26 | 3.85 |
| 0.60 | 0.35 | 0.26 | 3.82 |

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Table S-2

## TABLE S-2

## SUMMARY
## of
## GREEN-AMPT PARAMETERS BY SCS MAP UNIT

| SCS Soil Map Unit | XKSAT (Unadj) | PSIF | DTHETA (Dry) | DTHETA (Normal) | RTIMP | Slope Range (%) | Terrain Class |
|---|---|---|---|---|---|---|---|
| 100 | 0.57 | 3.90 | 0.35 | 0.26 | 0% | 1-10 | Valley |
| 101 | 0.25 | 3.50 | 0.35 | 0.25 | 0% | 0-3 | Valley |
| 102 | 0.28 | 3.66 | 0.35 | 0.25 | 0% | 0-3 | Valley |
| 200 | 0.22 | 4.43 | 0.37 | 0.25 | 0% | 0-1 | Valley |
| 201 | 0.22 | 4.43 | 0.37 | 0.25 | 0% | 0-1 | Valley |
| 216 | 1.20 | 2.40 | 0.35 | 0.30 | 0% | 0-1 | Valley |
| 222 | 0.25 | 3.50 | 0.35 | 0.25 | 0% | 0-1 | Valley |
| 224 | 0.25 | 3.50 | 0.35 | 0.25 | 0% | 0-1 | Valley |
| 226 | 0.25 | 3.50 | 0.35 | 0.25 | 0% | 0-1 | Valley |
| 228 | 0.25 | 3.50 | 0.35 | 0.25 | 0% | 0-1 | Valley |
| 231 | 0.04 | 8.20 | 0.25 | 0.15 | 0% | 0-1 | Valley |
| 232 | 0.04 | 8.20 | 0.25 | 0.15 | 0% | 0-1 | Valley |
| 233 | 0.04 | 8.20 | 0.25 | 0.15 | 0% | 0-1 | Valley |
| 234 | 0.49 | 4.09 | 0.35 | 0.26 | 0% | 1-3 | Valley |
| 236 | 0.17 | 5.98 | 0.39 | 0.25 | 0% | 0-1 | Valley |
| 249 | 0.51 | 4.04 | 0.35 | 0.26 | 0% | 0-1 | Valley |
| 254 | 0.25 | 3.50 | 0.35 | 0.25 | 0% | 0-1 | Valley |
| 257 | 0.28 | 3.66 | 0.35 | 0.25 | 0% | 0-1 | Valley |
| 260 | 0.28 | 3.66 | 0.35 | 0.25 | 0% | 0-1 | Valley |
| 263 | 0.56 | 3.92 | 0.35 | 0.26 | 0% | 1-3 | Valley |
| 264 | 0.44 | 4.21 | 0.35 | 0.25 | 0% | 0-1 | Valley |
| 265 | 0.53 | 3.99 | 0.35 | 0.26 | 0% | 0-1 | Valley |
| 266 | 0.44 | 4.21 | 0.35 | 0.25 | 0% | 0-3 | Valley |
| 267 | 0.28 | 3.66 | 0.35 | 0.25 | 0% | 0-3 | Valley |
| 269 | 0.84 | 3.26 | 0.35 | 0.28 | 0% | 1-3 | Valley |
| 270 | 0.17 | 5.98 | 0.39 | 0.25 | 0% | 0-1 | Valley |
| 271 | 1.20 | 2.40 | 0.35 | 0.30 | 0% | 1-3 | Valley |
| 272 | 1.20 | 2.40 | 0.35 | 0.30 | 0% | 1-3 | Valley |
| 273 | 1.20 | 2.40 | 0.35 | 0.30 | 0% | 1-3 | Valley |
| 274 | 0.53 | 3.99 | 0.35 | 0.26 | 0% | 0-1 | Valley |

## TABLE S-2

## SUMMARY
## of
## GREEN-AMPT PARAMETERS BY SCS MAP UNIT

| SCS Soil Map Unit | XKSAT (Unadj) | PSIF | DTHETA (Dry) | DTHETA (Normal) | RTIMP | Slope Range (%) | Terrain Class |
|---|---|---|---|---|---|---|---|
| 275 | 0.28 | 3.66 | 0.35 | 0.25 | 0% | 0-1 | Valley |
| 276 | 0.22 | 4.43 | 0.37 | 0.25 | 0% | 0-1 | Valley |
| 277 | 0.02 | 9.40 | 0.20 | 0.10 | 0% | 0-1 | Valley |
| 278 | 0.43 | 4.23 | 0.35 | 0.25 | 0% | 0-1 | Valley |
| 279 | 0.02 | 9.40 | 0.20 | 0.10 | 0% | 0-1 | Valley |
| 280 | 0.04 | 8.20 | 0.25 | 0.15 | 0% | 0-1 | Valley |
| 281 | 0.43 | 4.23 | 0.35 | 0.25 | 0% | 0-1 | Valley |
| 282 | 0.02 | 9.40 | 0.20 | 0.10 | 0% | 0-1 | Valley |
| 284 | 0.28 | 3.66 | 0.35 | 0.25 | 0% | 0-1 | Valley |
| 285 | 0.04 | 8.20 | 0.25 | 0.15 | 0% | 0-1 | Valley |
| 287 | 0.22 | 4.43 | 0.37 | 0.25 | 0% | 0-1 | Valley |
| 288 | 0.22 | 4.43 | 0.37 | 0.25 | 0% | 0-1 | Valley |
| 290 | 0.35 | 4.03 | 0.35 | 0.25 | 0% | 0-1 | Valley |
| 291 | 0.50 | 4.06 | 0.35 | 0.26 | 0% | 0-1 | Valley |
| 295 | 0.44 | 4.21 | 0.35 | 0.25 | 0% | 0-3 | Valley |
| 296 | 0.28 | 3.66 | 0.35 | 0.25 | 0% | 0-1 | Valley |
| 297 | 0.16 | 6.29 | 0.40 | 0.25 | 0% | 0-1 | Valley |
| 299 | 0.27 | 3.61 | 0.35 | 0.25 | 0% | 0-1 | Valley |
| 301 | 0.50 | 4.06 | 0.35 | 0.26 | 0% | 1-3 | Valley |
| 303 | EVAL | 0.00 | 0.00 | 0.00 | EVAL | N/A | Valley |
| 306 | 0.40 | 4.30 | 0.35 | 0.25 | 10% | 3-10 | Hillslope |
| 307 | 0.40 | 4.30 | 0.35 | 0.25 | 15% | 1-15 | Hillslope |
| 310 | 1.20 | 2.40 | 0.35 | 0.30 | 0% | 1-15 | Valley |
| 312 | 0.91 | 3.09 | 0.35 | 0.28 | 0% | 1-15 | Valley |
| 313 | 0.80 | 3.35 | 0.35 | 0.28 | 0% | 1-15 | Valley |
| 316 | 1.20 | 2.40 | 0.35 | 0.30 | 0% | N/A | Valley |
| 317 | 0.59 | 3.85 | 0.35 | 0.26 | 15% | 15-65 | Mountain |
| 321 | 0.40 | 4.30 | 0.35 | 0.25 | 0% | 1-5 | Valley |
| 322 | 0.97 | 2.95 | 0.35 | 0.29 | 26% | 15-55 | Mountain |
| 323 | 0.50 | 4.06 | 0.35 | 0.26 | 0% | 1-7 | Valley |

**TABLE S-2**

**SUMMARY**
**of**
**GREEN-AMPT PARAMETERS BY SCS MAP UNIT**

| SCS Soil Map Unit | XKSAT (Unadj) | PSIF | DTHETA (Dry) | DTHETA (Normal) | RTIMP | Slope Range (%) | Terrain Class |
|---|---|---|---|---|---|---|---|
| 324 | 0.84 | 3.26 | 0.35 | 0.28 | 0% | 1-15 | Valley |
| 325 | 1.20 | 2.40 | 0.35 | 0.30 | 0% | 0-3 | Valley |
| 326 | 1.20 | 2.40 | 0.35 | 0.30 | 15% | 1-15 | Hillslope |
| 327 | 1.20 | 2.40 | 0.35 | 0.30 | 0% | 1-10 | Valley |
| 328 | 0.48 | 4.11 | 0.35 | 0.26 | 0% | 5-15 | Hillslope |
| 329 | 0.25 | 3.50 | 0.35 | 0.25 | 0% | 0-3 | Valley |
| 330 | 0.28 | 3.66 | 0.35 | 0.25 | 0% | 0-3 | Valley |
| 331 | 0.40 | 4.30 | 0.35 | 0.25 | 0% | 1-5 | Valley |
| 333 | 0.82 | 3.30 | 0.35 | 0.28 | 0% | 0-3 | Valley |
| 334 | 0.84 | 3.26 | 0.35 | 0.28 | 0% | 1-15 | Valley |
| 335 | 0.63 | 3.75 | 0.35 | 0.26 | 19% | 10-55 | Mountain |
| 336 | 0.40 | 4.30 | 0.35 | 0.25 | 0% | 0-3 | Valley |
| 337 | 0.40 | 4.30 | 0.35 | 0.25 | 0% | 25-65 | Mountain |
| 338 | 0.49 | 4.09 | 0.35 | 0.26 | 10% | 1-25 | Hillslope |
| 339 | 0.17 | 5.98 | 0.39 | 0.25 | 0% | 0-1 | Valley |
| 340 | 0.66 | 3.68 | 0.35 | 0.27 | 0% | 3-25 | Hillslope |
| 341 | 0.55 | 3.94 | 0.35 | 0.26 | 0% | 1-10 | Valley |
| 342 | 0.58 | 3.87 | 0.35 | 0.26 | 18% | 3-25 | Hillslope |
| 345 | 0.51 | 4.04 | 0.35 | 0.26 | 0% | 25-55 | Mountain |
| 346 | 0.07 | 8.28 | 0.28 | 0.15 | 0% | 0-3 | Valley |
| 347 | EVAL | 0.00 | 0.00 | 0.00 | EVAL | N/A | Valley |
| 401 | 0.40 | 4.30 | 0.35 | 0.25 | 20% | 15-65 | Mountain |
| 402 | 0.40 | 4.30 | 0.35 | 0.25 | 40% | 15-65 | Mountain |
| Valley | 0.25 | 3.50 | 0.35 | 0.25 | 0% | 0-15 | Valley |
| Mountain | 0.02 | 9.40 | 0.20 | 0.10 | 10% | 15-75 | Mountain |

FLOOD CONTROL
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of
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COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

Table S-3

# TABLE S-3
# XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

## 1A

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 306 | 307 | 317 | 325 | 333 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 189.50 | 467.30 | 559.00 | 0.30 | 128.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.4 | 0.4 | 0.59 | 1.2 | 0.82 | | | | | | | |
| % Rock | ... | 10% | 15% | 15% | 0% | 0% | | | | | | | |
| Terrain Class | ... | Hillslope | Hillslope | Mountain | Valley | Valley | | | | | | | |

0.50 .. XKSAT (Log averaged)
12% .. Vegetation Cover Density (VCD) in percent
1.02 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.51** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**13%** .. RTIMP (Composite)
**10%** .. Terrain = Valley (composite)
**49%** .. Terrain = Hillside (composite) **Total Area in square miles = 2.100**
**42%** .. Terrain = Mountain (composite)

## 1B

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 307 | 321 | 333 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 149.94 | 220.39 | 392.01 | 581.63 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.4 | 0.4 | 0.82 | 0.25 | | | | | | | | |
| % Rock | ... | 15% | 0% | 0% | 0% | | | | | | | | |
| Terrain Class | ... | Hillslope | Valley | Valley | Valley | | | | | | | | |

0.40 .. XKSAT (Log averaged)
25% .. Vegetation Cover Density (VCD) in percent
1.17 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.47** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**2%** .. RTIMP (Composite)
**89%** .. Terrain = Valley (composite)
**11%** .. Terrain = Hillside (composite) **Total Area in square miles = 2.100**
**0%** .. Terrain = Mountain (composite)

## 1C

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 321 | 323 | 325 | 333 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 491.40 | 26.40 | 0.20 | 46.10 | 1888.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.4 | 0.5 | 1.2 | 0.82 | 0.25 | | | | | | | |
| % Rock | ... | 0% | 0% | 0% | 0% | 0% | | | | | | | |
| Terrain Class | ... | Valley | Valley | Valley | Valley | Valley | | | | | | | |

0.28 .. XKSAT (Log averaged)
25% .. Vegetation Cover Density (VCD) in percent
1.17 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.33** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 3.832**
**0%** .. Terrain = Mountain (composite)

# TABLE S-3
# XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**1D**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 215.70 | 0.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.02 .. XKSAT (Log averaged)
10% .. Vegetation Cover Density (VCD) in percent
1.00 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.02** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**10%** .. RTIMP (Composite)
**0%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 0.338**
**100%** .. Terrain = Mountain (composite)

---

**1E**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 321 | 323 | 324 | 325 | 333 | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 99.10 | 451.00 | 142.60 | 46.60 | 177.90 | 1.00 | 1585.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.5 | 0.84 | 1.2 | 0.82 | 0.02 | 0.25 | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 0% | 10% | 0% | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Valley | Mountain | Valley | | | | | |

0.35 .. XKSAT (Log averaged)
24% .. Vegetation Cover Density (VCD) in percent
1.16 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.40** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 3.912**
**0%** .. Terrain = Mountain (composite)

---

**1F**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 306 | 307 | 313 | 317 | 321 | 322 | 325 | 326 | 327 | 333 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1.30 | 685.00 | 98.20 | 228.00 | 235.80 | 1305.40 | 52.50 | 77.70 | 578.40 | 287.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.4 | 0.8 | 0.59 | 0.4 | 0.97 | 1.2 | 1.2 | 1.2 | 0.82 | | |
| % Rock ... | 10% | 15% | 0% | 15% | 0% | 26% | 0% | 15% | 0% | 0% | | |
| Terrain Class ... | Hillslope | Hillslope | Valley | Mountain | Valley | Mountain | Valley | Hillslope | Valley | Valley | | |

0.76 .. XKSAT (Log averaged)
14% .. Vegetation Cover Density (VCD) in percent
1.04 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.80** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**14%** .. RTIMP (Composite)
**35%** .. Terrain = Valley (composite)
**22%** .. Terrain = Hillside (composite) **Total Area in square miles = 5.546**
**43%** .. Terrain = Mountain (composite)

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# TABLE S-3
# XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**1G**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 322 | 327 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1996.90 | 424.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.97 | 1.2 | | | | | | | | | | |
| % Rock ... | 26% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

1.01 .. XKSAT (Log averaged)
11% .. Vegetation Cover Density (VCD) in percent
1.01 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**1.02** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**21%** .. RTIMP (Composite)
**18%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 3.783**
**82%** .. Terrain = Mountain (composite)

---

**1H**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 313 | 321 | 322 | 323 | 325 | 326 | 327 | 335 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 64.60 | 674.60 | 1215.00 | 366.00 | 151.90 | 58.40 | 567.20 | 1234.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.8 | 0.4 | 0.97 | 0.5 | 1.2 | 1.2 | 1.2 | 0.63 | | | | |
| % Rock ... | 0% | 0% | 26% | 0% | 0% | 15% | 0% | 19% | | | | |
| Terrain Class ... | Valley | Valley | Mountain | Valley | Valley | Hillslope | Valley | Mountain | | | | |

0.73 .. XKSAT (Log averaged)
27% .. Vegetation Cover Density (VCD) in percent
1.19 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.87** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**13%** .. RTIMP (Composite)
**42%** .. Terrain = Valley (composite)
**1%** .. Terrain = Hillside (composite) **Total Area in square miles = 6.769**
**57%** .. Terrain = Mountain (composite)

---

**1I**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 321 | 323 | 324 | 325 | 333 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 147.00 | 713.80 | 143.80 | 71.60 | 138.90 | 1412.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.5 | 0.84 | 1.2 | 0.82 | 0.25 | | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 0% | 0% | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Valley | Valley | | | | | | |

0.37 .. XKSAT (Log averaged)
21% .. Vegetation Cover Density (VCD) in percent
1.12 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.41** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 4.105**
**0%** .. Terrain = Mountain (composite)

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# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**1J**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 362.90 | 32.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.02 .. XKSAT (Log averaged)
11% .. Vegetation Cover Density (VCD) in percent
1.01 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.02** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
9% .. RTIMP (Composite)
8% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 0.617**
92% .. Terrain = Mountain (composite)

---

**1K**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 688.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | | | | | | | | | | | |
| % Rock ... | 10% | | | | | | | | | | | |
| Terrain Class ... | Mountain | | | | | | | | | | | |

0.02 .. XKSAT (Log averaged)
10% .. Vegetation Cover Density (VCD) in percent
1.00 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.02** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
10% .. RTIMP (Composite)
0% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 1.075**
100% .. Terrain = Mountain (composite)

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**1L**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 323 | 324 | 325 | 333 | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 517.80 | 55.40 | 62.10 | 23.00 | 588.70 | 1755.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.5 | 0.84 | 1.2 | 0.82 | 0.02 | 0.25 | | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 10% | 0% | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Mountain | Valley | | | | | | |

0.18 .. XKSAT (Log averaged)
20% .. Vegetation Cover Density (VCD) in percent
1.11 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.20** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
2% .. RTIMP (Composite)
80% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 4.691**
20% .. Terrain = Mountain (composite)

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# TABLE S-3
# XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**1M**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1401.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | | | | | | | | | | | |
| % Rock ... | 10% | | | | | | | | | | | |
| Terrain Class ... | Mountain | | | | | | | | | | | |

0.02 .. XKSAT (Log averaged)
10% .. Vegetation Cover Density (VCD) in percent
1.00 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.02** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**10%** .. RTIMP (Composite)
**0%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 2.190**
**100%** .. Terrain = Mountain (composite)

---

**1N**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 323 | 324 | 325 | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 742.00 | 407.00 | 21.50 | 3.70 | 588.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.5 | 0.84 | 1.2 | 0.02 | 0.25 | | | | | | | |
| % Rock ... | 0% | 0% | 0% | 10% | 0% | | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Mountain | Valley | | | | | | | |

0.45 .. XKSAT (Log averaged)
19% .. Vegetation Cover Density (VCD) in percent
1.10 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.49** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 2.754**
**0%** .. Terrain = Mountain (composite)

---

**1O**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 321 | 322 | 323 | 324 | 325 | 328 | 335 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 125.40 | 463.60 | 812.10 | 24.10 | 484.10 | 364.00 | 1072.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.97 | 0.5 | 0.84 | 1.2 | 0.48 | 0.63 | | | | | |
| % Rock ... | 0% | 26% | 0% | 0% | 0% | 0% | 19% | | | | | |
| Terrain Class ... | Valley | Mountain | Valley | Valley | Valley | Hillslope | Mountain | | | | | |

0.66 .. XKSAT (Log averaged)
14% .. Vegetation Cover Density (VCD) in percent
1.04 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.69** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**10%** .. RTIMP (Composite)
**43%** .. Terrain = Valley (composite)
**11%** .. Terrain = Hillside (composite) **Total Area in square miles = 5.228**
**46%** .. Terrain = Mountain (composite)

---

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**1P**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 321 | 323 | 324 | 325 | 333 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 84.50 | 1481.10 | 471.80 | 128.00 | 132.30 | 623.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.4 | 0.5 | 0.84 | 1.2 | 0.82 | 0.25 | | | | | | |
| % Rock | ... | 0% | 0% | 0% | 0% | 0% | 0% | | | | | | |
| Terrain Class | ... | Valley | Valley | Valley | Valley | Valley | Valley | | | | | | |

0.50 .. XKSAT (Log averaged)
18% .. Vegetation Cover Density (VCD) in percent
1.09 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.54** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 4.565**
0% .. Terrain = Mountain (composite)

---

**1Q**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 317 | 323 | 324 | 325 | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 147.80 | 165.00 | 7.20 | 228.10 | 1120.50 | 1726.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.59 | 0.5 | 0.84 | 1.2 | 0.02 | 0.25 | | | | | | |
| % Rock | ... | 15% | 0% | 0% | 0% | 10% | 0% | | | | | | |
| Terrain Class | ... | Mountain | Valley | Valley | Valley | Mountain | Valley | | | | | | |

0.13 .. XKSAT (Log averaged)
23% .. Vegetation Cover Density (VCD) in percent
1.14 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.15** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
4% .. RTIMP (Composite)
63% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 5.304**
37% .. Terrain = Mountain (composite)

---

**1R**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 307 | 317 | 321 | 322 | 323 | 324 | 325 | 326 | 340 | Mountain | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 259.40 | 198.80 | 234.20 | 514.50 | 78.50 | 49.10 | 63.30 | 108.50 | 141.50 | 207.60 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.4 | 0.59 | 0.4 | 0.97 | 0.5 | 0.84 | 1.2 | 1.2 | 0.66 | 0.02 | | |
| % Rock | ... | 15% | 15% | 0% | 26% | 0% | 0% | 0% | 15% | 0% | 10% | | |
| Terrain Class | ... | Hillslope | Mountain | Valley | Mountain | Valley | Valley | Valley | Hillslope | Hillslope | Mountain | | |

0.45 .. XKSAT (Log averaged)
13% .. Vegetation Cover Density (VCD) in percent
1.03 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.47** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
13% .. RTIMP (Composite)
23% .. Terrain = Valley (composite)
27% .. Terrain = Hillside (composite) **Total Area in square miles = 2.899**
50% .. Terrain = Mountain (composite)

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# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**1S**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 321 | 322 | 323 | 324 | 325 | 328 | 334 | 340 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 156.60 | 112.80 | 1023.70 | 280.30 | 352.00 | 122.50 | 294.50 | 9.00 | 699.60 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.4 | 0.97 | 0.5 | 0.84 | 1.2 | 0.48 | 0.84 | 0.66 | | | |
| % Rock ... | 15% | 0% | 26% | 0% | 0% | 0% | 0% | 0% | 0% | | | |
| Terrain Class ... | Mountain | Valley | Mountain | Valley | Valley | Valley | Hillslope | Valley | Hillslope | | | |

0.73 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.07 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.78** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**9%** .. RTIMP (Composite)
**29%** .. Terrain = Valley (composite)
**33%** .. Terrain = Hillside (composite) **Total Area in square miles = 4.767**
**39%** .. Terrain = Mountain (composite)

---

**1T**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 321 | 322 | 323 | 324 | 325 | 328 | 334 | 340 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 158.90 | 965.90 | 575.80 | 25.90 | 800.20 | 147.90 | 115.10 | 178.60 | 23.20 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.4 | 0.97 | 0.5 | 0.84 | 1.2 | 0.48 | 0.84 | 0.66 | | | |
| % Rock ... | 15% | 0% | 26% | 0% | 0% | 0% | 0% | 0% | 0% | | | |
| Terrain Class ... | Mountain | Valley | Mountain | Valley | Valley | Valley | Hillslope | Valley | Hillslope | | | |

0.66 .. XKSAT (Log averaged)
14% .. Vegetation Cover Density (VCD) in percent
1.04 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.69** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**6%** .. RTIMP (Composite)
**71%** .. Terrain = Valley (composite)
**5%** .. Terrain = Hillside (composite) **Total Area in square miles = 4.674**
**25%** .. Terrain = Mountain (composite)

---

**1U**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 313 | 321 | 324 | 325 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 115.70 | 216.90 | 1129.20 | 581.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.8 | 0.4 | 0.84 | 1.2 | | | | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | | | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | | | | | | | | |

0.86 .. XKSAT (Log averaged)
18% .. Vegetation Cover Density (VCD) in percent
1.09 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.93** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 3.193**
**0%** .. Terrain = Mountain (composite)

---

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**1V**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 321 | 322 | 324 | 325 | 328 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 429.20 | 295.30 | 263.70 | 129.20 | 267.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.97 | 0.84 | 1.2 | 0.48 | | | | | | | |
| % Rock ... | 0% | 26% | 0% | 0% | 0% | | | | | | | |
| Terrain Class ... | Valley | Mountain | Valley | Valley | Hillslope | | | | | | | |

0.64 .. XKSAT (Log averaged)
14% .. Vegetation Cover Density (VCD) in percent
1.04 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.67** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
6% .. RTIMP (Composite)
59% .. Terrain = Valley (composite)
19% .. Terrain = Hillside (composite) **Total Area in square miles = 2.163**
21% .. Terrain = Mountain (composite)

---

**1W**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 321 | 322 | 324 | 325 | 328 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 71.20 | 94.90 | 23.30 | 98.60 | 51.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.97 | 0.84 | 1.2 | 0.48 | | | | | | | |
| % Rock ... | 0% | 26% | 0% | 0% | 0% | | | | | | | |
| Terrain Class ... | Valley | Mountain | Valley | Valley | Hillslope | | | | | | | |

0.76 .. XKSAT (Log averaged)
15% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.81** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
7% .. RTIMP (Composite)
57% .. Terrain = Valley (composite)
15% .. Terrain = Hillside (composite) **Total Area in square miles = 0.530**
28% .. Terrain = Mountain (composite)

---

**1X**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 321 | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 954.90 | 720.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.84 | | | | | | | | | | |
| % Rock ... | 0% | 0% | | | | | | | | | | |
| Terrain Class ... | Valley | Valley | | | | | | | | | | |

0.55 .. XKSAT (Log averaged)
15% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.58** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 2.618**
0% .. Terrain = Mountain (composite)

---

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**1Y**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 263 | 269 | 316 | 321 | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 197.80 | 221.80 | 40.00 | 1746.00 | 1201.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.56 | 0.84 | 1.2 | 0.4 | 0.84 | | | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 0% | | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Valley | | | | | | | |

0.56 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.07 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.60** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 5.323**
0% .. Terrain = Mountain (composite)

---

**2A**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1295.90 | 1478.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.08 .. XKSAT (Log averaged)
19% .. Vegetation Cover Density (VCD) in percent
1.10 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.08** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
5% .. RTIMP (Composite)
53% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 4.335**
47% .. Terrain = Mountain (composite)

---

**2B**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 390.10 | 1730.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.16 .. XKSAT (Log averaged)
37% .. Vegetation Cover Density (VCD) in percent
1.30 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.20** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
2% .. RTIMP (Composite)
82% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 3.313**
18% .. Terrain = Mountain (composite)

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# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**2C**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 325 | Mountain | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 2.10 | 1479.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 1.2 | 0.02 | | | | | | | | | | |
| % Rock ... | 0% | 10% | | | | | | | | | | |
| Terrain Class ... | Valley | Mountain | | | | | | | | | | |

0.02 .. XKSAT (Log averaged)
10% .. Vegetation Cover Density (VCD) in percent
1.00 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.02** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
10% .. RTIMP (Composite)
0% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 2.315**
100% .. Terrain = Mountain (composite)

---

**2D**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1119.50 | 0.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.02 .. XKSAT (Log averaged)
10% .. Vegetation Cover Density (VCD) in percent
1.00 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.02** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
10% .. RTIMP (Composite)
0% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 1.750**
100% .. Terrain = Mountain (composite)

---

**2E**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 209.70 | 428.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.11 .. XKSAT (Log averaged)
21% .. Vegetation Cover Density (VCD) in percent
1.12 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.12** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
3% .. RTIMP (Composite)
67% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 0.997**
33% .. Terrain = Mountain (composite)

---

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**2F**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 477.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | | | | | | | | | | | |
| % Rock ... | 10% | | | | | | | | | | | |
| Terrain Class ... | Mountain | | | | | | | | | | | |

0.02 .. XKSAT (Log averaged)
10% .. Vegetation Cover Density (VCD) in percent
1.00 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.02** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
10% .. RTIMP (Composite)
0% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 0.745**
100% .. Terrain = Mountain (composite)

---

**2G**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 278.40 | 441.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.09 .. XKSAT (Log averaged)
20% .. Vegetation Cover Density (VCD) in percent
1.11 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.10** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
4% .. RTIMP (Composite)
61% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 1.125**
39% .. Terrain = Mountain (composite)

---

**2H**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 196.80 | 823.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.15 .. XKSAT (Log averaged)
23% .. Vegetation Cover Density (VCD) in percent
1.14 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.18** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
2% .. RTIMP (Composite)
81% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 1.594**
19% .. Terrain = Mountain (composite)

---

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**2I**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 556.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | | | | | | | | | | | |
| % Rock ... | 10% | | | | | | | | | | | |
| Terrain Class ... | Mountain | | | | | | | | | | | |

0.02 .. XKSAT (Log averaged)
10% .. Vegetation Cover Density (VCD) in percent
1.00 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.02** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**10%** .. RTIMP (Composite)
**0%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 0.870**
**100%** .. Terrain = Mountain (composite)

---

**2J**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | Mountain | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 0.20 | 742.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.02 | | | | | | | | | | |
| % Rock ... | 15% | 10% | | | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | | | | | | | | | | |

0.02 .. XKSAT (Log averaged)
10% .. Vegetation Cover Density (VCD) in percent
1.00 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.02** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**10%** .. RTIMP (Composite)
**0%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 1.161**
**100%** .. Terrain = Mountain (composite)

---

**2K**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1399.60 | 1.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.02 .. XKSAT (Log averaged)
10% .. Vegetation Cover Density (VCD) in percent
1.00 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.02** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**10%** .. RTIMP (Composite)
**0%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 2.189**
**100%** .. Terrain = Mountain (composite)

---

# TABLE S-3
# XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**2L**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 451.60 | 151.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.04 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.07 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.04** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
7% .. RTIMP (Composite)
25% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 0.943**
75% .. Terrain = Mountain (composite)

---

**2M**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 71.30 | 827.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.20 .. XKSAT (Log averaged)
35% .. Vegetation Cover Density (VCD) in percent
1.28 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.26** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
1% .. RTIMP (Composite)
92% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 1.404**
8% .. Terrain = Mountain (composite)

---

**2N**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 256.80 | 1150.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.16 .. XKSAT (Log averaged)
32% .. Vegetation Cover Density (VCD) in percent
1.24 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.20** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
2% .. RTIMP (Composite)
82% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 2.199**
18% .. Terrain = Mountain (composite)

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# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**2O**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 325 | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 38.70 | 2.30 | 2114.90 | 3.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 1.2 | 0.02 | 0.25 | | | | | | | | |
| % Rock ... | 15% | 0% | 10% | 0% | | | | | | | | |
| Terrain Class ... | Mountain | Valley | Mountain | Valley | | | | | | | | |

0.02 .. XKSAT (Log averaged)
20% .. Vegetation Cover Density (VCD) in percent
1.11 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.02** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
10% .. RTIMP (Composite)
0% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 3.373**
100% .. Terrain = Mountain (composite)

---

**2P**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 306 | 312 | 317 | 321 | 325 | Mountain | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 2.60 | 149.90 | 657.20 | 84.20 | 427.30 | 926.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.91 | 0.59 | 0.4 | 1.2 | 0.02 | | | | | | |
| % Rock ... | 10% | 0% | 15% | 0% | 0% | 10% | | | | | | |
| Terrain Class ... | Hillslope | Valley | Mountain | Valley | Valley | Mountain | | | | | | |

0.17 .. XKSAT (Log averaged)
13% .. Vegetation Cover Density (VCD) in percent
1.03 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
0.16 .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
9% .. RTIMP (Composite)
29% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 3.512**
70% .. Terrain = Mountain (composite)

---

**2Q**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 307 | 312 | 317 | 322 | 325 | 340 | Mountain | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 136.10 | 44.20 | 903.40 | 2.30 | 6.20 | 383.10 | 398.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.91 | 0.59 | 0.97 | 1.2 | 0.66 | 0.02 | | | | | |
| % Rock ... | 15% | 0% | 15% | 26% | 0% | 0% | 10% | | | | | |
| Terrain Class ... | Hillslope | Valley | Mountain | Mountain | Valley | Hillslope | Mountain | | | | | |

0.29 .. XKSAT (Log averaged)
14% .. Vegetation Cover Density (VCD) in percent
1.04 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.30** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
10% .. RTIMP (Composite)
3% .. Terrain = Valley (composite)
28% .. Terrain = Hillside (composite) **Total Area in square miles = 2.927**
70% .. Terrain = Mountain (composite)

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# TABLE S-3
# XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

## 2R

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 312 | 317 | 325 | 340 | Mountain | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 851.00 | 520.00 | 177.40 | 157.10 | 1.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.91 | 0.59 | 1.2 | 0.66 | 0.02 | | | | | | | |
| % Rock ... | 0% | 15% | 0% | 0% | 10% | | | | | | | |
| Terrain Class ... | Valley | Mountain | Valley | Hillslope | Mountain | | | | | | | |

0.79 .. XKSAT (Log averaged)
14% .. Vegetation Cover Density (VCD) in percent
1.04 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.83** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
5% .. RTIMP (Composite)
60% .. Terrain = Valley (composite)
9% .. Terrain = Hillside (composite) **Total Area in square miles = 2.667**
31% .. Terrain = Mountain (composite)

## 2S

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 312 | 317 | 321 | 325 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 565.40 | 346.40 | 66.20 | 186.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.91 | 0.59 | 0.4 | 1.2 | | | | | | | | |
| % Rock ... | 0% | 15% | 0% | 0% | | | | | | | | |
| Terrain Class ... | Valley | Mountain | Valley | Valley | | | | | | | | |

0.80 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.07 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.85** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
4% .. RTIMP (Composite)
70% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 1.819**
30% .. Terrain = Mountain (composite)

## 2T

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 306 | 312 | 317 | 321 | 325 | Mountain | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 87.70 | 481.30 | 617.50 | 65.00 | 100.20 | 1783.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.91 | 0.59 | 0.4 | 1.2 | 0.02 | | | | | | |
| % Rock ... | 10% | 0% | 15% | 0% | 0% | 10% | | | | | | |
| Terrain Class ... | Hillslope | Valley | Mountain | Valley | Valley | Mountain | | | | | | |

0.09 .. XKSAT (Log averaged)
12% .. Vegetation Cover Density (VCD) in percent
1.02 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.09** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
9% .. RTIMP (Composite)
21% .. Terrain = Valley (composite)
3% .. Terrain = Hillside (composite) **Total Area in square miles = 4.899**
77% .. Terrain = Mountain (composite)

# TABLE S-3
# XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

## 2U

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 306 | 312 | 317 | 324 | 325 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 64.50 | 337.50 | 174.10 | 163.00 | 142.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.4 | 0.91 | 0.59 | 0.84 | 1.2 | | | | | | | |
| % Rock | ... | 10% | 0% | 15% | 0% | 0% | | | | | | | |
| Terrain Class | ... | Hillslope | Valley | Mountain | Valley | Valley | | | | | | | |

0.81 .. XKSAT (Log averaged)
21% .. Vegetation Cover Density (VCD) in percent
1.12 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.91** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
4% .. RTIMP (Composite)
73% .. Terrain = Valley (composite)
7% .. Terrain = Hillside (composite) **Total Area in square miles = 1.378**
20% .. Terrain = Mountain (composite)

## 2V

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 301 | 306 | 312 | 317 | 321 | 324 | 325 | Mountain | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 116.40 | 426.60 | 592.40 | 1548.30 | 302.60 | 105.30 | 51.50 | 1702.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.5 | 0.4 | 0.91 | 0.59 | 0.4 | 0.84 | 1.2 | 0.02 | | | | |
| % Rock | ... | 0% | 10% | 0% | 15% | 0% | 0% | 0% | 10% | | | | |
| Terrain Class | ... | Valley | Hillslope | Valley | Mountain | Valley | Valley | Valley | Mountain | | | | |

0.18 .. XKSAT (Log averaged)
13% .. Vegetation Cover Density (VCD) in percent
1.03 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.19** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
9% .. RTIMP (Composite)
24% .. Terrain = Valley (composite)
9% .. Terrain = Hillside (composite) **Total Area in square miles = 7.571**
67% .. Terrain = Mountain (composite)

## 2W

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 2666.50 | 1357.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock | ... | 10% | 0% | | | | | | | | | | |
| Terrain Class | ... | Mountain | Valley | | | | | | | | | | |

0.05 .. XKSAT (Log averaged)
19% .. Vegetation Cover Density (VCD) in percent
1.10 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.05** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
7% .. RTIMP (Composite)
34% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 6.288**
66% .. Terrain = Mountain (composite)

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**2X**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 3952.20 | 2643.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock | ... | 10% | 0% | | | | | | | | | | |
| Terrain Class | ... | Mountain | Valley | | | | | | | | | | |

0.06 .. XKSAT (Log averaged)
17% .. Vegetation Cover Density (VCD) in percent
1.08 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.06** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
6% .. RTIMP (Composite)
40% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 10.306**
60% .. Terrain = Mountain (composite)

---

**2Y**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 266 | 269 | 301 | 306 | 312 | 317 | 321 | 324 | 325 | 329 | Mountain | Valley |
| Soil Map Unit Area(ac) | ... | 62.40 | 2.30 | 358.60 | 129.50 | 1.90 | 637.60 | 2807.50 | 1260.70 | 156.50 | 1354.90 | 436.30 | 1365.70 |
| XKSAT(Unadj) | ... | 0.44 | 0.84 | 0.5 | 0.4 | 0.91 | 0.59 | 0.4 | 0.84 | 1.2 | 0.25 | 0.02 | 0.25 |
| % Rock | ... | 0% | 0% | 0% | 10% | 0% | 15% | 0% | 0% | 0% | 0% | 10% | 0% |
| Terrain Class | ... | Valley | Valley | Valley | Hillslope | Valley | Mountain | Valley | Valley | Valley | Valley | Mountain | Valley |

0.35 .. XKSAT (Log averaged)
12% .. Vegetation Cover Density (VCD) in percent
1.02 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.36** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
2% .. RTIMP (Composite)
86% .. Terrain = Valley (composite)
2% .. Terrain = Hillside (composite) **Total Area in square miles = 13.397**
13% .. Terrain = Mountain (composite)

---

**2Z**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 1658.50 | 1606.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock | ... | 10% | 0% | | | | | | | | | | |
| Terrain Class | ... | Mountain | Valley | | | | | | | | | | |

0.07 .. XKSAT (Log averaged)
21% .. Vegetation Cover Density (VCD) in percent
1.12 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.08** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
5% .. RTIMP (Composite)
49% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 5.102**
51% .. Terrain = Mountain (composite)

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# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**2AA**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 391.40 | 1996.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.17 .. XKSAT (Log averaged)
20% .. Vegetation Cover Density (VCD) in percent
1.11 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.18** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
2% .. RTIMP (Composite)
84% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 3.730**
16% .. Terrain = Mountain (composite)

---

**2BB**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 850.90 | 686.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.06 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.07 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.07** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
6% .. RTIMP (Composite)
45% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 2.402**
55% .. Terrain = Mountain (composite)

---

**2CC**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 266 | 301 | 321 | 324 | 329 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 16.64 | 490.24 | 714.24 | 526.08 | 359.04 | 697.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.44 | 0.5 | 0.4 | 0.84 | 0.25 | 0.25 | | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 0% | 0% | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Valley | Valley | | | | | | |

0.40 .. XKSAT (Log averaged)
22% .. Vegetation Cover Density (VCD) in percent
1.13 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.45** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 4.381**
0% .. Terrain = Mountain (composite)

---

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**2DD**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 234 | 263 | 266 | 269 | 301 | 329 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 130.56 | 25.60 | 97.28 | 14.08 | 32.00 | 44.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.49 | 0.56 | 0.44 | 0.84 | 0.5 | 0.25 | | | | | | |
| % Rock | ... | 0% | 0% | 0% | 0% | 0% | 0% | | | | | | |
| Terrain Class | ... | Valley | Valley | Valley | Valley | Valley | Valley | | | | | | |

0.45 .. XKSAT (Log averaged)
20% .. Vegetation Cover Density (VCD) in percent
1.11 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.50** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 0.538**
**0%** .. Terrain = Mountain (composite)

---

**2EE**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 1849.00 | 791.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock | ... | 10% | 0% | | | | | | | | | | |
| Terrain Class | ... | Mountain | Valley | | | | | | | | | | |

0.04 .. XKSAT (Log averaged)
14% .. Vegetation Cover Density (VCD) in percent
1.04 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.04** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**7%** .. RTIMP (Composite)
**30%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 4.125**
**70%** .. Terrain = Mountain (composite)

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**2FF**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 301 | 324 | 329 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 398.08 | 419.20 | 247.04 | 2462.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.5 | 0.84 | 0.25 | 0.25 | | | | | | | | |
| % Rock | ... | 0% | 0% | 0% | 0% | | | | | | | | |
| Terrain Class | ... | Valley | Valley | Valley | Valley | | | | | | | | |

0.31 .. XKSAT (Log averaged)
20% .. Vegetation Cover Density (VCD) in percent
1.11 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.35** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 5.510**
**0%** .. Terrain = Mountain (composite)

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# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**2GG**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1887.10 | 2393.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) .. | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.08 .. XKSAT (Log averaged)
24% .. Vegetation Cover Density (VCD) in percent
1.16 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.09** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
4% .. RTIMP (Composite)
56% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 6.689**
44% .. Terrain = Mountain (composite)

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**2HH**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1313.80 | 3010.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.20 .. XKSAT (Log averaged)
20% .. Vegetation Cover Density (VCD) in percent
1.11 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.22** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
3% .. RTIMP (Composite)
70% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 6.756**
30% .. Terrain = Mountain (composite)

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**2II**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Mountain | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 931.30 | 487.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.02 | 0.25 | | | | | | | | | | |
| % Rock ... | 10% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.05 .. XKSAT (Log averaged)
15% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.05** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
7% .. RTIMP (Composite)
34% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 2.217**
66% .. Terrain = Mountain (composite)

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# TABLE S-3
# XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

## 2JJ

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 570.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.25 | | | | | | | | | | | |
| 0.22 ... | 0% | | | | | | | | | | | |
| Terrain Class ... | Valley | | | | | | | | | | | |

0.25 .. XKSAT (Log averaged)
22% .. Vegetation Cover Density (VCD) in percent
1.13 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.28** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 0.892**
**0%** .. Terrain = Mountain (composite)

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## 2KK

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 324 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 65.10 | 2616.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.84 | 0.25 | | | | | | | | | | |
| % Rock ... | 0% | 0% | | | | | | | | | | |
| Terrain Class ... | Valley | Valley | | | | | | | | | | |

0.26 .. XKSAT (Log averaged)
22% .. Vegetation Cover Density (VCD) in percent
1.13 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.29** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 4.191**
**0%** .. Terrain = Mountain (composite)

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## 2LL

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 324 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 31.70 | 3281.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.84 | 0.25 | | | | | | | | | | |
| % Rock ... | 0% | 0% | | | | | | | | | | |
| Terrain Class ... | Valley | Valley | | | | | | | | | | |

0.25 .. XKSAT (Log averaged)
22% .. Vegetation Cover Density (VCD) in percent
1.13 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.29** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 5.178**
**0%** .. Terrain = Mountain (composite)

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# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**2MM**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 324 | 329 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 566.90 | 9.20 | 7.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.84 | 0.25 | 0.25 | | | | | | | | | |
| % Rock ... | 0% | 0% | 0% | | | | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | | | | | | | | | |

0.81 .. XKSAT (Log averaged)
15% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.86** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 0.911**
0% .. Terrain = Mountain (composite)

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**2NN**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 6150.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.25 | | | | | | | | | | | |
| % Rock ... | 0% | | | | | | | | | | | |
| Terrain Class ... | Valley | | | | | | | | | | | |

0.25 .. XKSAT (Log averaged)
26% .. Vegetation Cover Density (VCD) in percent
1.18 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.29** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 9.611**
0% .. Terrain = Mountain (composite)

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**2OO**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 542.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.25 | | | | | | | | | | | |
| % Rock ... | 0% | | | | | | | | | | | |
| Terrain Class ... | Valley | | | | | | | | | | | |

0.25 .. XKSAT (Log averaged)
24% .. Vegetation Cover Density (VCD) in percent
1.16 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.29** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 0.847**
0% .. Terrain = Mountain (composite)

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# TABLE S-3
# XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

## 2PP

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 324 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 84.80 | 1055.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.84 | 0.25 | | | | | | | | | | |
| % Rock ... | 0% | 0% | | | | | | | | | | |
| Terrain Class ... | Valley | Valley | | | | | | | | | | |

0.27 .. XKSAT (Log averaged)
21% .. Vegetation Cover Density (VCD) in percent
1.12 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.31** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 1.781**
**0%** .. Terrain = Mountain (composite)

## 2QQ

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 269 | 324 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 97.20 | 865.70 | 104.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.84 | 0.84 | 0.25 | | | | | | | | | |
| % Rock ... | 0% | 0% | 0% | | | | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | | | | | | | | | |

0.75 .. XKSAT (Log averaged)
17% .. Vegetation Cover Density (VCD) in percent
1.08 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.80** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 1.668**
**0%** .. Terrain = Mountain (composite)

## 2RR

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 234 | 263 | 266 | 269 | 301 | 324 | 329 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 10.20 | 89.50 | 95.90 | 6.70 | 89.90 | 133.80 | 167.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.49 | 0.56 | 0.44 | 0.84 | 0.5 | 0.84 | 0.25 | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 0% | 0% | 0% | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Valley | Valley | Valley | | | | | |

0.46 .. XKSAT (Log averaged)
25% .. Vegetation Cover Density (VCD) in percent
1.17 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.54** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 0.928**
**0%** .. Terrain = Mountain (composite)

# TABLE S-3
# XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

## 2SS

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 312 | 317 | 321 | 322 | 325 | 328 | 340 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1258.70 | 369.40 | 2.80 | 254.30 | 88.60 | 85.90 | 388.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.91 | 0.59 | 0.4 | 0.97 | 1.2 | 0.48 | 0.66 | | | | | |
| % Rock ... | 0% | 15% | 0% | 26% | 0% | 0% | 0% | | | | | |
| Terrain Class ... | Valley | Mountain | Valley | Mountain | Valley | Hillslope | Hillslope | | | | | |

0.80 .. XKSAT (Log averaged)
14% .. Vegetation Cover Density (VCD) in percent
1.04 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.84** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
5% .. RTIMP (Composite)
55% .. Terrain = Valley (composite)
19% .. Terrain = Hillside (composite) **Total Area in square miles = 3.825**
25% .. Terrain = Mountain (composite)

## 2TT

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 306 | 312 | 317 | 321 | 324 | 325 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 247.50 | 906.20 | 1038.20 | 50.50 | 662.30 | 38.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.91 | 0.59 | 0.4 | 0.84 | 1.2 | | | | | | |
| % Rock ... | 10% | 0% | 15% | 0% | 0% | 0% | | | | | | |
| Terrain Class ... | Hillslope | Valley | Mountain | Valley | Valley | Valley | | | | | | |

0.71 .. XKSAT (Log averaged)
12% .. Vegetation Cover Density (VCD) in percent
1.02 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.72** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
6% .. RTIMP (Composite)
56% .. Terrain = Valley (composite)
8% .. Terrain = Hillside (composite) **Total Area in square miles = 4.599**
35% .. Terrain = Mountain (composite)

## 2UU

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 263 | 266 | 269 | 301 | 316 | 321 | 324 | 325 | 329 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 94.90 | 439.10 | 485.40 | 1081.20 | 41.60 | 809.50 | 1614.20 | 344.40 | 273.60 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.56 | 0.44 | 0.84 | 0.5 | 1.2 | 0.4 | 0.84 | 1.2 | 0.25 | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Valley | Valley | Valley | Valley | Valley | | | |

0.61 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.07 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.65** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 8.100**
0% .. Terrain = Mountain (composite)

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**2VV**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 263 | 266 | 269 | 321 | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 49.00 | 215.40 | 634.10 | 191.70 | 1302.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.56 | 0.44 | 0.84 | 0.4 | 0.84 | | | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 0% | | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Valley | | | | | | | |

0.74 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.79** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 3.739**
**0%** .. Terrain = Mountain (composite)

---

**2VV1**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 321 | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 162.80 | 183.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.84 | | | | | | | | | | |
| % Rock ... | 0% | 0% | | | | | | | | | | |
| Terrain Class ... | Valley | Valley | | | | | | | | | | |

0.59 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.63** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 0.541**
**0%** .. Terrain = Mountain (composite)

---

**2VV2**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 321 | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 28.80 | 588.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.84 | | | | | | | | | | |
| % Rock ... | 0% | 0% | | | | | | | | | | |
| Terrain Class ... | Valley | Valley | | | | | | | | | | |

0.81 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.86** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 0.965**
**0%** .. Terrain = Mountain (composite)

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# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**2VV3**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 15.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.84 | | | | | | | | | | | |
| % Rock ... | 0% | | | | | | | | | | | |
| Terrain Class ... | Valley | | | | | | | | | | | |

0.84 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.89** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 0.023**
0% .. Terrain = Mountain (composite)

---

**2VV4**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 63.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.84 | | | | | | | | | | | |
| % Rock ... | 0% | | | | | | | | | | | |
| Terrain Class ... | Valley | | | | | | | | | | | |

0.84 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.89** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 0.100**
0% .. Terrain = Mountain (composite)

---

**2VV5**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 269 | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 73.00 | 86.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.84 | 0.84 | | | | | | | | | | |
| % Rock ... | 0% | 0% | | | | | | | | | | |
| Terrain Class ... | Valley | Valley | | | | | | | | | | |

0.84 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.89** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 0.249**
0% .. Terrain = Mountain (composite)

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# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**2VV6**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 269 | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 185.50 | 174.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.84 | 0.84 | | | | | | | | | | |
| % Rock ... | 0% | 0% | | | | | | | | | | |
| Terrain Class ... | Valley | Valley | | | | | | | | | | |

0.84 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.89** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 0.562**
**0%** .. Terrain = Mountain (composite)

---

**2VV7**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 269 | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 77.30 | 1.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.84 | 0.84 | | | | | | | | | | |
| % Rock ... | 0% | 0% | | | | | | | | | | |
| Terrain Class ... | Valley | Valley | | | | | | | | | | |

0.84 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.89** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 0.123**
**0%** .. Terrain = Mountain (composite)

---

**2VV8**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 269 | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 0.30 | 232.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.84 | 0.84 | | | | | | | | | | |
| % Rock ... | 0% | 0% | | | | | | | | | | |
| Terrain Class ... | Valley | Valley | | | | | | | | | | |

0.84 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.89** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 0.363**
**0%** .. Terrain = Mountain (composite)

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# TABLE S-3
# XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**2WW**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 266 | 267 | 269 | 313 | 321 | 322 | 324 | 328 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 14.50 | 1.30 | 95.00 | 393.20 | 575.90 | 92.80 | 2506.90 | 44.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.44 | 0.28 | 0.84 | 0.8 | 0.4 | 0.97 | 0.84 | 0.48 | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 0% | 26% | 0% | 0% | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Valley | Mountain | Valley | Hillslope | | | | |

0.74 .. XKSAT (Log averaged)
15% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.78** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
1% .. RTIMP (Composite)
96% .. Terrain = Valley (composite)
1% .. Terrain = Hillside (composite) **Total Area in square miles = 5.818**
2% .. Terrain = Mountain (composite)

---

**2XX**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 263 | 266 | 267 | 269 | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 129.00 | 545.80 | 90.60 | 596.80 | 24.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.56 | 0.44 | 0.28 | 0.84 | 0.84 | | | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 0% | | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Valley | | | | | | | |

0.58 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.07 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.62** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 2.166**
0% .. Terrain = Mountain (composite)

---

**2YY**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 263 | 266 | 269 | 324 | 329 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 39.40 | 31.80 | 257.70 | 386.30 | 0.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.56 | 0.44 | 0.84 | 0.84 | 0.25 | | | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 0% | | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Valley | | | | | | | |

0.80 .. XKSAT (Log averaged)
21% .. Vegetation Cover Density (VCD) in percent
1.12 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.90** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 1.118**
0% .. Terrain = Mountain (composite)

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# TABLE S-3
# XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**3A**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 337 | 338 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1389.36 | 4568.05 | 1107.25 | 95.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.4 | 0.49 | 0.25 | | | | | | | | |
| % Rock ... | 15% | 0% | 10% | 0% | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | Hillslope | Valley | | | | | | | | |

0.44 .. XKSAT (Log averaged)
14% .. Vegetation Cover Density (VCD) in percent
1.04 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.46** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
4% .. RTIMP (Composite)
1% .. Terrain = Valley (composite)
15% .. Terrain = Hillside (composite) **Total Area in square miles = 11.188**
83% .. Terrain = Mountain (composite)

---

**3B**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 337 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 7.80 | 4099.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.25 | | | | | | | | | | |
| % Rock ... | 0% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.25 .. XKSAT (Log averaged)
26% .. Vegetation Cover Density (VCD) in percent
1.18 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.29** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 6.417**
0% .. Terrain = Mountain (composite)

---

**3C**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 337 | 338 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 3408.50 | 786.60 | 3015.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.49 | 0.25 | | | | | | | | | |
| % Rock ... | 0% | 10% | 0% | | | | | | | | | |
| Terrain Class ... | Mountain | Hillslope | Valley | | | | | | | | | |

0.34 .. XKSAT (Log averaged)
19% .. Vegetation Cover Density (VCD) in percent
1.10 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.37** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
1% .. RTIMP (Composite)
42% .. Terrain = Valley (composite)
11% .. Terrain = Hillside (composite) **Total Area in square miles = 11.267**
47% .. Terrain = Mountain (composite)

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# TABLE S-3
# XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**3D**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 337 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 807.70 | 3355.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.25 | | | | | | | | | | |
| % Rock ... | 0% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.27 .. XKSAT (Log averaged)
23% .. Vegetation Cover Density (VCD) in percent
1.14 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.31** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
81% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 6.505**
19% .. Terrain = Mountain (composite)

---

**3E**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 337 | 338 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 2500.30 | 1870.50 | 900.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.49 | 0.25 | | | | | | | | | |
| % Rock ... | 0% | 10% | 0% | | | | | | | | | |
| Terrain Class ... | Mountain | Hillslope | Valley | | | | | | | | | |

0.40 .. XKSAT (Log averaged)
15% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.42** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
4% .. RTIMP (Composite)
17% .. Terrain = Valley (composite)
35% .. Terrain = Hillside (composite) **Total Area in square miles = 8.236**
47% .. Terrain = Mountain (composite)

---

**3F**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 337 | 338 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 4539.30 | 967.10 | 2262.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.4 | 0.49 | | | | | | | | | |
| % Rock ... | 15% | 0% | 10% | | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | Hillslope | | | | | | | | | |

0.53 .. XKSAT (Log averaged)
11% .. Vegetation Cover Density (VCD) in percent
1.01 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.54** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
12% .. RTIMP (Composite)
0% .. Terrain = Valley (composite)
29% .. Terrain = Hillside (composite) **Total Area in square miles = 12.138**
71% .. Terrain = Mountain (composite)

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# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**3G**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 337 | 338 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 369.30 | 1230.70 | 599.10 | 1076.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.4 | 0.49 | 0.25 | | | | | | | | |
| % Rock ... | 15% | 0% | 10% | 0% | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | Hillslope | Valley | | | | | | | | |

0.37 .. XKSAT (Log averaged)
22% .. Vegetation Cover Density (VCD) in percent
1.13 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.42** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
4% .. RTIMP (Composite)
33% .. Terrain = Valley (composite)
18% .. Terrain = Hillside (composite) **Total Area in square miles = 5.118**
49% .. Terrain = Mountain (composite)

---

**3H**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 337 | 338 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1097.80 | 1310.70 | 1930.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.49 | 0.25 | | | | | | | | | |
| % Rock ... | 0% | 10% | 0% | | | | | | | | | |
| Terrain Class ... | Mountain | Hillslope | Valley | | | | | | | | | |

0.35 .. XKSAT (Log averaged)
21% .. Vegetation Cover Density (VCD) in percent
1.12 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.39** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
3% .. RTIMP (Composite)
44% .. Terrain = Valley (composite)
30% .. Terrain = Hillside (composite) **Total Area in square miles = 6.779**
25% .. Terrain = Mountain (composite)

---

**3I**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 3264.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.25 | | | | | | | | | | | |
| % Rock ... | 0% | | | | | | | | | | | |
| Terrain Class ... | Valley | | | | | | | | | | | |

0.25 .. XKSAT (Log averaged)
28% .. Vegetation Cover Density (VCD) in percent
1.20 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.30** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 5.101**
0% .. Terrain = Mountain (composite)

---

# TABLE S-3
# XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**3J**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 301 | 324 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 321.90 | 1066.30 | 5814.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.5 | 0.84 | 0.25 | | | | | | | | | |
| % Rock ... | 0% | 0% | 0% | | | | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | | | | | | | | | |

0.31 .. XKSAT (Log averaged)
24% .. Vegetation Cover Density (VCD) in percent
1.16 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.36** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 11.255**
0% .. Terrain = Mountain (composite)

---

**3K**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 234 | 269 | 301 | 316 | 324 | 329 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 363.80 | 302.00 | 189.60 | 25.40 | 2838.50 | 38.40 | 1961.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.49 | 0.84 | 0.5 | 1.2 | 0.84 | 0.25 | 0.25 | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 0% | 0% | 0% | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Valley | Valley | Valley | | | | | |

0.52 .. XKSAT (Log averaged)
19% .. Vegetation Cover Density (VCD) in percent
1.10 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.58** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 8.935**
0% .. Terrain = Mountain (composite)

---

**3L**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 269 | 324 | 329 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 33.50 | 266.20 | 324.50 | 961.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.84 | 0.84 | 0.25 | 0.25 | | | | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | | | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | | | | | | | | |

0.31 .. XKSAT (Log averaged)
15% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.33** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 2.478**
0% .. Terrain = Mountain (composite)

---

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**3M**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 234 | 269 | 290 | 310 | 316 | 324 | 329 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 794.40 | 64.70 | 15.73 | 238.60 | 16.80 | 791.00 | 570.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.49 | 0.84 | 0.35 | 1.2 | 1.2 | 0.84 | 0.25 | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 0% | 0% | 0% | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Valley | Valley | Valley | | | | | |

0.55 .. XKSAT (Log averaged)
4% .. Vegetation Cover Density (VCD) in percent
0.93 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.55** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 3.893**
**0%** .. Terrain = Mountain (composite)

---

**4A**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 337 | 338 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 315.50 | 4451.30 | 2175.00 | 578.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.4 | 0.49 | 0.25 | | | | | | | | |
| % Rock ... | 15% | 0% | 10% | 0% | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | Hillslope | Valley | | | | | | | | |

0.42 .. XKSAT (Log averaged)
13% .. Vegetation Cover Density (VCD) in percent
1.03 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.43** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**4%** .. RTIMP (Composite)
**8%** .. Terrain = Valley (composite)
**29%** .. Terrain = Hillside (composite) **Total Area in square miles = 11.750**
**63%** .. Terrain = Mountain (composite)

---

**4B**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 337 | 338 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1664.60 | 192.40 | 2074.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.49 | 0.25 | | | | | | | | | |
| % Rock ... | 0% | 10% | 0% | | | | | | | | | |
| Terrain Class ... | Mountain | Hillslope | Valley | | | | | | | | | |

0.32 .. XKSAT (Log averaged)
28% .. Vegetation Cover Density (VCD) in percent
1.20 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.38** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**53%** .. Terrain = Valley (composite)
**5%** .. Terrain = Hillside (composite) **Total Area in square miles = 6.143**
**42%** .. Terrain = Mountain (composite)

---

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**4C**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 337 | 338 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 3021.90 | 21.90 | 4846.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.49 | 0.25 | | | | | | | | | |
| % Rock ... | 0% | 10% | 0% | | | | | | | | | |
| Terrain Class ... | Mountain | Hillslope | Valley | | | | | | | | | |

0.30 .. XKSAT (Log averaged)
33% .. Vegetation Cover Density (VCD) in percent
1.26 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.38** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
61% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 12.329**
38% .. Terrain = Mountain (composite)

---

**4D**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 337 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 2921.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | | | | | | | | | | | |
| % Rock ... | 0% | | | | | | | | | | | |
| Terrain Class ... | Mountain | | | | | | | | | | | |

0.40 .. XKSAT (Log averaged)
10% .. Vegetation Cover Density (VCD) in percent
1.00 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.40** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
0% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 4.565**
100% .. Terrain = Mountain (composite)

---

**4E**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 337 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1462.10 | 1650.10 | 9.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.4 | 0.25 | | | | | | | | | |
| % Rock ... | 15% | 0% | 0% | | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | Valley | | | | | | | | | |

0.48 .. XKSAT (Log averaged)
10% .. Vegetation Cover Density (VCD) in percent
1.00 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.48** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
7% .. RTIMP (Composite)
0% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 4.878**
100% .. Terrain = Mountain (composite)

---

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**4F**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 337 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 2689.30 | 310.60 | 940.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.4 | 0.25 | | | | | | | | | |
| % Rock ... | 15% | 0% | 0% | | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | Valley | | | | | | | | | |

0.47 .. XKSAT (Log averaged)
15% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.49** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**10%** .. RTIMP (Composite)
**24%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 6.157**
**76%** .. Terrain = Mountain (composite)

---

**4G**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 337 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 3768.80 | 1161.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.25 | | | | | | | | | | |
| % Rock ... | 0% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.36 .. XKSAT (Log averaged)
30% .. Vegetation Cover Density (VCD) in percent
1.22 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.44** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**24%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 7.704**
**76%** .. Terrain = Mountain (composite)

---

**4H**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 337.00 | 338 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1863.40 | 1480.90 | 560.80 | 8.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.02 | 0.49 | 0.25 | | | | | | | | |
| % Rock ... | 15% | 10% | 10% | 0% | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | Hillslope | Valley | | | | | | | | |

0.16 .. XKSAT (Log averaged)
11% .. Vegetation Cover Density (VCD) in percent
1.01 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.16** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**12%** .. RTIMP (Composite)
**0%** .. Terrain = Valley (composite)
**14%** .. Terrain = Hillside (composite) **Total Area in square miles = 6.114**
**85%** .. Terrain = Mountain (composite)

---

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**4I**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 337 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 2920.60 | 3201.30 | 3810.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.4 | 0.25 | | | | | | | | | |
| % Rock ... | 15% | 0% | 0% | | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | Valley | | | | | | | | | |

0.37 .. XKSAT (Log averaged)
15% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.40** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
4% .. RTIMP (Composite)
38% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 15.519**
62% .. Terrain = Mountain (composite)

---

**4J**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 337 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 607.20 | 3289.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.25 | | | | | | | | | | |
| % Rock ... | 0% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.27 .. XKSAT (Log averaged)
20% .. Vegetation Cover Density (VCD) in percent
1.11 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.30** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
84% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 6.089**
16% .. Terrain = Mountain (composite)

---

**4K**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 2499.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.25 | | | | | | | | | | | |
| % Rock ... | 0% | | | | | | | | | | | |
| Terrain Class ... | Valley | | | | | | | | | | | |

0.25 .. XKSAT (Log averaged)
22% .. Vegetation Cover Density (VCD) in percent
1.13 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.28** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 3.906**
0% .. Terrain = Mountain (composite)

---

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**4L**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 337 | 338 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1026.20 | 114.50 | 287.60 | 4644.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.4 | 0.49 | 0.25 | | | | | | | | |
| % Rock ... | 15% | 0% | 10% | 0% | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | Hillslope | Valley | | | | | | | | |

0.30 .. XKSAT (Log averaged)
22% .. Vegetation Cover Density (VCD) in percent
1.13 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.34** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
3% .. RTIMP (Composite)
76% .. Terrain = Valley (composite)
5% .. Terrain = Hillside (composite) **Total Area in square miles = 9.489**
19% .. Terrain = Mountain (composite)

---

**4M**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 9.60 | 2182.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.25 | | | | | | | | | | |
| % Rock ... | 15% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.25 .. XKSAT (Log averaged)
17% .. Vegetation Cover Density (VCD) in percent
1.08 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.27** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 3.425**
0% .. Terrain = Mountain (composite)

---

**4N**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 4869.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.25 | | | | | | | | | | | |
| % Rock ... | 0% | | | | | | | | | | | |
| Terrain Class ... | Valley | | | | | | | | | | | |

0.25 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.07 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.27** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 7.608**
0% .. Terrain = Mountain (composite)

---

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**4O**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 234 | 266 | 269 | 324 | 329 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 1.60 | 1.20 | 83.40 | 228.60 | 390.40 | 2817.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.49 | 0.44 | 0.84 | 0.84 | 0.25 | 0.25 | | | | | | |
| % Rock | ... | 0% | 0% | 0% | 0% | 0% | 0% | | | | | | |
| Terrain Class | ... | Valley | Valley | Valley | Valley | Valley | Valley | | | | | | |

0.28 .. XKSAT (Log averaged)
20% .. Vegetation Cover Density (VCD) in percent
1.11 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.31** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 5.504**
0% .. Terrain = Mountain (composite)

---

**5A**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 5943.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.25 | | | | | | | | | | | |
| % Rock | ... | 0% | | | | | | | | | | | |
| Terrain Class | ... | Valley | | | | | | | | | | | |

0.25 .. XKSAT (Log averaged)
18% .. Vegetation Cover Density (VCD) in percent
1.09 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.27** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 9.286**
0% .. Terrain = Mountain (composite)

---

**5B**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 263 | 266 | 269 | 324 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 3.70 | 104.00 | 118.20 | 423.60 | 2471.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.56 | 0.44 | 0.84 | 0.84 | 0.25 | | | | | | | |
| % Rock | ... | 0% | 0% | 0% | 0% | 0% | | | | | | | |
| Terrain Class | ... | Valley | Valley | Valley | Valley | Valley | | | | | | | |

0.31 .. XKSAT (Log averaged)
22% .. Vegetation Cover Density (VCD) in percent
1.13 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.36** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 4.877**
0% .. Terrain = Mountain (composite)

---

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**5C**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 234 | 266 | 267 | 269 | 290 | 310 | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 375.10 | 182.60 | 7.90 | 93.70 | 54.87 | 391.40 | 439.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.49 | 0.44 | 0.28 | 0.84 | 0.35 | 1.2 | 0.84 | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 0% | 0% | 0% | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Valley | Valley | Valley | | | | | |

0.72 .. XKSAT (Log averaged)
3% .. Vegetation Cover Density (VCD) in percent
0.92 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.72** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 2.414**
**0%** .. Terrain = Mountain (composite)

---

**6A**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 337.00 | 338 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1191.50 | 3582.40 | 284.60 | 729.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.02 | 0.49 | 0.25 | | | | | | | | |
| % Rock ... | 15% | 10% | 10% | 0% | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | Hillslope | Valley | | | | | | | | |

0.06 .. XKSAT (Log averaged)
12% .. Vegetation Cover Density (VCD) in percent
1.02 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.07** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**10%** .. RTIMP (Composite)
**13%** .. Terrain = Valley (composite)
**5%** .. Terrain = Hillside (composite) **Total Area in square miles = 9.044**
**82%** .. Terrain = Mountain (composite)

---

**6B**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 337.00 | 338 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 1333.60 | 3968.90 | 462.10 | 1244.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.02 | 0.49 | 0.25 | | | | | | | | |
| % Rock ... | 15% | 10% | 10% | 0% | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | Hillslope | Valley | | | | | | | | |

0.07 .. XKSAT (Log averaged)
15% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.08** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**9%** .. RTIMP (Composite)
**18%** .. Terrain = Valley (composite)
**7%** .. Terrain = Hillside (composite) **Total Area in square miles = 10.951**
**76%** .. Terrain = Mountain (composite)

---

# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**6C**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 337 | 338 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 4116.50 | 24.40 | 1508.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.4 | 0.49 | 0.25 | | | | | | | | | |
| % Rock ... | 0% | 10% | 0% | | | | | | | | | |
| Terrain Class ... | Mountain | Hillslope | Valley | | | | | | | | | |

0.35 .. XKSAT (Log averaged)
14% .. Vegetation Cover Density (VCD) in percent
1.04 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.37** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
27% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 8.827**
73% .. Terrain = Mountain (composite)

---

**6D**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 337.00 | 338 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 127.30 | 2890.50 | 164.80 | 3205.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.02 | 0.49 | 0.25 | | | | | | | | |
| % Rock ... | 15% | 10% | 10% | 0% | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | Hillslope | Valley | | | | | | | | |

0.08 .. XKSAT (Log averaged)
13% .. Vegetation Cover Density (VCD) in percent
1.03 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.09** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
5% .. RTIMP (Composite)
50% .. Terrain = Valley (composite)
3% .. Terrain = Hillside (composite) **Total Area in square miles = 9.982**
47% .. Terrain = Mountain (composite)

---

**6E**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 337.00 | 338 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 165.00 | 3526.50 | 643.40 | 221.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.02 | 0.49 | 0.25 | | | | | | | | |
| % Rock ... | 15% | 10% | 10% | 0% | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | Hillslope | Valley | | | | | | | | |

0.04 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.07 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.04** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
10% .. RTIMP (Composite)
5% .. Terrain = Valley (composite)
14% .. Terrain = Hillside (composite) **Total Area in square miles = 7.120**
81% .. Terrain = Mountain (composite)

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# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**6F**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 814.50 | 2417.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.25 | | | | | | | | | | |
| % Rock ... | 15% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.31 .. XKSAT (Log averaged)
14% .. Vegetation Cover Density (VCD) in percent
1.04 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.32** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
4% .. RTIMP (Composite)
75% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 5.050**
25% .. Terrain = Mountain (composite)

---

**6G**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 4078.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.25 | | | | | | | | | | | |
| % Rock ... | 0% | | | | | | | | | | | |
| Terrain Class ... | Valley | | | | | | | | | | | |

0.25 .. XKSAT (Log averaged)
16% .. Vegetation Cover Density (VCD) in percent
1.07 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.27** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 6.372**
0% .. Terrain = Mountain (composite)

---

**6H**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 964.40 | 2214.80 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.25 | | | | | | | | | | |
| % Rock ... | 15% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.32 .. XKSAT (Log averaged)
14% .. Vegetation Cover Density (VCD) in percent
1.04 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.34** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
5% .. RTIMP (Composite)
70% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 4.968**
30% .. Terrain = Mountain (composite)

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# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**6I**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 322 | 335 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 704.70 | 398.70 | 541.00 | 2813.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.97 | 0.63 | 0.25 | | | | | | | | |
| % Rock ... | 15% | 26% | 19% | 0% | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | Mountain | Valley | | | | | | | | |

0.36 .. XKSAT (Log averaged)
14% .. Vegetation Cover Density (VCD) in percent
1.04 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.38** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
7% .. RTIMP (Composite)
63% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 6.965**
37% .. Terrain = Mountain (composite)

---

**6J**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | 322 | 335 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 153.80 | 274.00 | 181.50 | 2253.60 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.97 | 0.63 | 0.25 | | | | | | | | |
| % Rock ... | 15% | 26% | 19% | 0% | | | | | | | | |
| Terrain Class ... | Mountain | Mountain | Mountain | Valley | | | | | | | | |

0.32 .. XKSAT (Log averaged)
22% .. Vegetation Cover Density (VCD) in percent
1.13 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.36** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
4% .. RTIMP (Composite)
79% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 4.473**
21% .. Terrain = Mountain (composite)

---

**6K**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 38.20 | 3766.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.25 | | | | | | | | | | |
| % Rock ... | 15% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.25 .. XKSAT (Log averaged)
19% .. Vegetation Cover Density (VCD) in percent
1.10 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.28** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
99% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 5.945**
1% .. Terrain = Mountain (composite)

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# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**6L**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 4058.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.25 | | | | | | | | | | | |
| % Rock ... | 0% | | | | | | | | | | | |
| Terrain Class ... | Valley | | | | | | | | | | | |

0.25 .. XKSAT (Log averaged)
19% .. Vegetation Cover Density (VCD) in percent
1.10 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.27** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 6.341**
**0%** .. Terrain = Mountain (composite)

---

**6M**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 317 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 161.20 | 2309.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.59 | 0.25 | | | | | | | | | | |
| % Rock ... | 15% | 0% | | | | | | | | | | |
| Terrain Class ... | Mountain | Valley | | | | | | | | | | |

0.26 .. XKSAT (Log averaged)
19% .. Vegetation Cover Density (VCD) in percent
1.10 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.29** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**1%** .. RTIMP (Composite)
**93%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 3.860**
**7%** .. Terrain = Mountain (composite)

---

**6N**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 263 | 269 | 324 | 329 | Valley | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 155.70 | 116.90 | 349.70 | 67.70 | 4327.30 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.56 | 0.84 | 0.84 | 0.25 | 0.25 | | | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 0% | | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Valley | | | | | | | |

0.29 .. XKSAT (Log averaged)
21% .. Vegetation Cover Density (VCD) in percent
1.12 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.32** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 7.840**
**0%** .. Terrain = Mountain (composite)

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# TABLE S-3
# XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**6O**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 234 | 254 | 269 | 296 | 297 | 316 | 324 | 329 | Valley | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 713.30 | 629.20 | 71.80 | 128.20 | 422.00 | 21.50 | 100.00 | 445.00 | 2673.90 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.49 | 0.25 | 0.84 | 0.28 | 0.16 | 1.2 | 0.84 | 0.25 | 0.25 | | | |
| % Rock | ... | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | | | |
| Terrain Class | ... | Valley | Valley | Valley | Valley | Valley | Valley | Valley | Valley | Valley | | | |

0.28 .. XKSAT (Log averaged)
20% .. Vegetation Cover Density (VCD) in percent
1.11 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.31** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 8.133**
**0%** .. Terrain = Mountain (composite)

---

**6P**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 234 | 254 | 263 | 269 | 273 | 290 | 296 | 297 | 310 | 324 | 329 | 0.00 |
| Soil Map Unit Area(ac) | ... | 308.80 | 337.30 | 167.40 | 491.90 | 13.30 | 37.40 | 243.10 | 216.10 | 141.00 | 965.30 | 412.70 | 0.00 |
| XKSAT(Unadj) | ... | 0.49 | 0.25 | 0.56 | 0.84 | 1.2 | 0.35 | 0.28 | 0.16 | 1.2 | 0.84 | 0.25 | |
| % Rock | ... | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | |
| Terrain Class | ... | Valley | Valley | Valley | Valley | Valley | Valley | Valley | Valley | Valley | Valley | Valley | |

0.50 .. XKSAT (Log averaged)
6% .. Vegetation Cover Density (VCD) in percent
0.96 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.50** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 5.210**
**0%** .. Terrain = Mountain (composite)

---

**6Q**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 234 | 263 | 269 | 310 | 324 | 329 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 268.40 | 51.20 | 153.70 | 274.20 | 815.50 | 267.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.49 | 0.56 | 0.84 | 1.2 | 0.84 | 0.25 | | | | | | |
| % Rock | ... | 0% | 0% | 0% | 0% | 0% | 0% | | | | | | |
| Terrain Class | ... | Valley | Valley | Valley | Valley | Valley | Valley | | | | | | |

0.68 .. XKSAT (Log averaged)
2% .. Vegetation Cover Density (VCD) in percent
0.91 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.68** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 2.861**
**0%** .. Terrain = Mountain (composite)

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# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**7A**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 234 | 269 | 316 | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 68.10 | 464.90 | 80.20 | 952.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.49 | 0.84 | 1.2 | 0.84 | | | | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | | | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | | | | | | | | |

0.84 .. XKSAT (Log averaged)
21% .. Vegetation Cover Density (VCD) in percent
1.12 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
0.93 .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 2.447**
0% .. Terrain = Mountain (composite)

---

**7B**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 234 | 269 | 290 | 310 | 324 | 329 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 291.40 | 14.30 | 33.80 | 308.40 | 354.60 | 68.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.49 | 0.84 | 0.35 | 1.2 | 0.84 | 0.25 | | | | | | |
| % Rock ... | 0% | 0% | 0% | 0% | 0% | 0% | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | Valley | Valley | Valley | | | | | | |

0.72 .. XKSAT (Log averaged)
14% .. Vegetation Cover Density (VCD) in percent
1.04 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
0.75 .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 1.673**
0% .. Terrain = Mountain (composite)

---

**7C**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. ... | 290 | 310 | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) ... | 11.30 | 159.90 | 210.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) ... | 0.35 | 1.2 | 0.84 | | | | | | | | | |
| % Rock ... | 0% | 0% | 0% | | | | | | | | | |
| Terrain Class ... | Valley | Valley | Valley | | | | | | | | | |

0.95 .. XKSAT (Log averaged)
15% .. Vegetation Cover Density (VCD) in percent
1.06 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
1.01 .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
0% .. RTIMP (Composite)
100% .. Terrain = Valley (composite)
0% .. Terrain = Hillside (composite) **Total Area in square miles = 0.596**
0% .. Terrain = Mountain (composite)

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# TABLE S-3
## XKSAT, RTIMP, AND TERRAIN CLASSIFICATIONS BY SUB-BASIN

**7D**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Soil Map Unit No. | ... | 266 | 267 | 269 | 310 | 324 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Soil Map Unit Area(ac) | ... | 3.20 | 37.90 | 287.30 | 32.90 | 385.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| XKSAT(Unadj) | ... | 0.44 | 0.28 | 0.84 | 1.2 | 0.84 | | | | | | | |
| % Rock | ... | 0% | 0% | 0% | 0% | 0% | | | | | | | |
| Terrain Class | ... | Valley | Valley | Valley | Valley | Valley | | | | | | | |

0.80 .. XKSAT (Log averaged)
18% .. Vegetation Cover Density (VCD) in percent
1.09 .. Ck: 0.889+1.111*VCD - Applied EXCEPT for XKSAT>=1.2 & VCD<=10%
**0.88** .. XKSAT (Adj. for VCD using Ck=XKSAT(adj)/XKSAT(unadj))
**0%** .. RTIMP (Composite)
**100%** .. Terrain = Valley (composite)
**0%** .. Terrain = Hillside (composite) **Total Area in square miles = 1.167**
**0%** .. Terrain = Mountain (composite)

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

Table S-4

# TABLE S-4

## SUB-BASIN WEIGHTED DTHETA AND SURFACE LOSS PARAMETERS

| Sub Basin ID | Log Avg. XKSAT | DTHETA (Dry) | DTHETA (Normal) | PSIF | Valley Area | Adj. Valley Area | Hillslope Area | Mountain Area | Row Crop Area | Urban Area | V,H,M Veg. Cover | Row Crop Veg. Cover | Urban Veg. Cover | RTIMP (urban) | RTIMP (rock) | RTIMP (wghtd) | DTHETA (weighted) | Vegetation Cover (weighted) | IA (wghtd) | S-Graph Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1A | 0.50 | 0.35 | 0.26 | 4.05 | 9.6% | 9.6% | 48.9% | 41.6% | 0.0% | 0.0% | 12.0% | 0.0% | 0.0% | 0.0% | 12.9% | 12.9% | 0.35 | 12% | 0.21 | Mountain |
| 1B | 0.40 | 0.35 | 0.25 | 4.29 | 88.8% | 88.8% | 11.2% | 0.0% | 0.0% | 0.0% | 25.0% | 0.0% | 0.0% | 0.0% | 1.7% | 1.7% | 0.35 | 25% | 0.33 | Valley |
| 1C | 0.28 | 0.35 | 0.25 | 3.66 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 25.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 25% | 0.35 | Valley |
| 1D | 0.02 | 0.20 | 0.10 | 9.40 | 0.4% | 0.4% | 0.0% | 99.6% | 0.0% | 0.0% | 10.0% | 0.0% | 0.0% | 0.0% | 10.0% | 10.0% | 0.20 | 10% | 0.25 | Mountain |
| 1E | 0.35 | 0.35 | 0.25 | 4.03 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 24.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 24% | 0.35 | Valley |
| 1F | 0.76 | 0.35 | 0.27 | 3.44 | 35.3% | 35.3% | 21.5% | 43.2% | 0.0% | 0.0% | 14.0% | 0.0% | 0.0% | 0.0% | 13.8% | 13.8% | 0.35 | 14% | 0.26 | Mountain |
| 1G | 1.01 | 0.35 | 0.29 | 2.86 | 17.5% | 17.5% | 0.0% | 82.5% | 0.0% | 0.0% | 11.0% | 0.0% | 0.0% | 0.0% | 21.4% | 21.4% | 0.35 | 11% | 0.27 | Mountain |
| 1H | 0.73 | 0.35 | 0.27 | 3.51 | 42.1% | 42.1% | 1.3% | 56.5% | 0.0% | 0.0% | 27.0% | 0.0% | 0.0% | 0.0% | 12.9% | 12.9% | 0.35 | 27% | 0.29 | Mountain |
| 1I | 0.37 | 0.35 | 0.25 | 4.14 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 21.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 21% | 0.35 | Valley |
| 1J | 0.02 | 0.20 | 0.10 | 9.40 | 8.1% | 8.1% | 0.0% | 91.9% | 0.0% | 0.0% | 11.0% | 0.0% | 0.0% | 0.0% | 9.2% | 9.2% | 0.20 | 11% | 0.26 | Mountain |
| 1K | 0.02 | 0.20 | 0.10 | 9.40 | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 0.0% | 10.0% | 0.0% | 0.0% | 0.0% | 10.0% | 10.0% | 0.20 | 10% | 0.25 | Mountain |
| 1L | 0.18 | 0.39 | 0.25 | 5.67 | 80.4% | 80.4% | 0.0% | 19.6% | 0.0% | 0.0% | 20.0% | 0.0% | 0.0% | 0.0% | 2.0% | 2.0% | 0.39 | 20% | 0.33 | Valley |
| 1M | 0.02 | 0.20 | 0.10 | 9.40 | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 0.0% | 10.0% | 0.0% | 0.0% | 0.0% | 10.0% | 10.0% | 0.20 | 10% | 0.25 | Mountain |
| 1N | 0.45 | 0.35 | 0.25 | 4.18 | 99.8% | 99.8% | 0.0% | 0.2% | 0.0% | 0.0% | 19.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 19% | 0.35 | Valley |
| 1O | 0.66 | 0.35 | 0.27 | 3.67 | 43.2% | 43.2% | 10.9% | 45.9% | 0.0% | 0.0% | 14.0% | 0.0% | 0.0% | 0.0% | 9.7% | 9.7% | 0.35 | 14% | 0.28 | Mountain |
| 1P | 0.50 | 0.35 | 0.26 | 4.07 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 18.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 18% | 0.35 | Valley |
| 1Q | 0.13 | 0.38 | 0.21 | 6.96 | 62.6% | 62.6% | 0.0% | 37.4% | 0.0% | 0.0% | 23.0% | 0.0% | 0.0% | 0.0% | 4.0% | 4.0% | 0.38 | 23% | 0.31 | Valley |
| 1R | 0.45 | 0.35 | 0.25 | 4.18 | 22.9% | 22.9% | 27.5% | 49.6% | 0.0% | 0.0% | 13.0% | 0.0% | 0.0% | 0.0% | 12.9% | 12.9% | 0.35 | 13% | 0.25 | Mountain |
| 1S | 0.73 | 0.35 | 0.27 | 3.52 | 28.7% | 28.7% | 32.6% | 38.7% | 0.0% | 0.0% | 16.0% | 0.0% | 0.0% | 0.0% | 9.5% | 9.5% | 0.35 | 16% | 0.25 | Mountain |
| 1T | 0.66 | 0.35 | 0.27 | 3.68 | 70.8% | 70.8% | 4.6% | 24.6% | 0.0% | 0.0% | 14.0% | 0.0% | 0.0% | 0.0% | 5.8% | 5.8% | 0.35 | 14% | 0.32 | Valley |
| 1U | 0.86 | 0.35 | 0.28 | 3.21 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 18.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 18% | 0.35 | Valley |
| 1V | 0.64 | 0.35 | 0.26 | 3.73 | 59.4% | 59.4% | 19.3% | 21.3% | 0.0% | 0.0% | 14.0% | 0.0% | 0.0% | 0.0% | 5.5% | 5.5% | 0.35 | 14% | 0.29 | Valley |
| 1W | 0.76 | 0.35 | 0.27 | 3.44 | 56.9% | 56.9% | 15.1% | 28.0% | 0.0% | 0.0% | 15.0% | 0.0% | 0.0% | 0.0% | 7.3% | 7.3% | 0.35 | 15% | 0.29 | Valley |
| 1X | 0.55 | 0.35 | 0.26 | 3.94 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 15.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 15% | 0.35 | Valley |
| 1Y | 0.56 | 0.35 | 0.26 | 3.91 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 16.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 16% | 0.35 | Valley |
| 2A | 0.08 | 0.30 | 0.15 | 8.05 | 53.3% | 53.3% | 0.0% | 46.7% | 0.0% | 0.0% | 19.0% | 0.0% | 0.0% | 0.0% | 4.7% | 4.7% | 0.30 | 19% | 0.30 | Valley |
| 2B | 0.16 | 0.40 | 0.25 | 6.29 | 81.6% | 81.6% | 0.0% | 18.4% | 0.0% | 0.0% | 37.0% | 0.0% | 0.0% | 0.0% | 1.8% | 1.8% | 0.40 | 37% | 0.33 | Valley |
| 2C | 0.02 | 0.20 | 0.10 | 9.40 | 0.1% | 0.1% | 0.0% | 99.9% | 0.0% | 0.0% | 10.0% | 0.0% | 0.0% | 0.0% | 10.0% | 10.0% | 0.20 | 10% | 0.25 | Mountain |
| 2D | 0.02 | 0.20 | 0.10 | 9.40 | 0.1% | 0.1% | 0.0% | 99.9% | 0.0% | 0.0% | 10.0% | 0.0% | 0.0% | 0.0% | 10.0% | 10.0% | 0.20 | 10% | 0.25 | Mountain |
| 2E | 0.11 | 0.36 | 0.17 | 7.32 | 67.1% | 67.1% | 0.0% | 32.9% | 0.0% | 0.0% | 21.0% | 0.0% | 0.0% | 0.0% | 3.3% | 3.3% | 0.36 | 21% | 0.32 | Valley |
| 2F | 0.02 | 0.20 | 0.10 | 9.40 | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 0.0% | 10.0% | 0.0% | 0.0% | 0.0% | 10.0% | 10.0% | 0.20 | 10% | 0.25 | Mountain |

# TABLE S-4

## SUB-BASIN WEIGHTED DTHETA AND SURFACE LOSS PARAMETERS

| Sub Basin ID | Log Avg. XKSAT | DTHETA (Dry) | DTHETA (Normal) | PSIF | Valley Area | Adj. Valley Area | Hillslope Area | Mountain Area | Row Crop Area | Urban Area | V,H,M Veg. Cover | Row Crop Veg. Cover | Urban Veg. Cover | RTIMP (urban) | RTIMP (rock) | RTIMP (wghtd) | DTHETA (weighted) | Vegetation Cover (weighted) | IA (wghtd) | S-Graph Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2G | 0.09 | 0.33 | 0.15 | 7.78 | 61.3% | 61.3% | 0.0% | 38.7% | 0.0% | 0.0% | 20.0% | 0.0% | 0.0% | 0.0% | 3.9% | 3.9% | 0.33 | 20% | 0.31 | Valley |
| 2H | 0.15 | 0.40 | 0.25 | 6.60 | 80.7% | 80.7% | 0.0% | 19.3% | 0.0% | 0.0% | 23.0% | 0.0% | 0.0% | 0.0% | 1.9% | 1.9% | 0.40 | 23% | 0.33 | Valley |
| 2I | 0.02 | 0.20 | 0.10 | 9.40 | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 0.0% | 10.0% | 0.0% | 0.0% | 0.0% | 10.0% | 10.0% | 0.20 | 10% | 0.25 | Mountain |
| 2J | 0.02 | 0.20 | 0.10 | 9.40 | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 0.0% | 10.0% | 0.0% | 0.0% | 0.0% | 10.0% | 10.0% | 0.20 | 10% | 0.25 | Mountain |
| 2K | 0.02 | 0.20 | 0.10 | 9.40 | 0.1% | 0.1% | 0.0% | 99.9% | 0.0% | 0.0% | 10.0% | 0.0% | 0.0% | 0.0% | 10.0% | 10.0% | 0.20 | 10% | 0.25 | Mountain |
| 2L | 0.04 | 0.25 | 0.15 | 8.20 | 25.1% | 25.1% | 0.0% | 74.9% | 0.0% | 0.0% | 16.0% | 0.0% | 0.0% | 0.0% | 7.5% | 7.5% | 0.25 | 16% | 0.28 | Mountain |
| 2M | 0.20 | 0.38 | 0.25 | 5.05 | 92.1% | 92.1% | 0.0% | 7.9% | 0.0% | 0.0% | 35.0% | 0.0% | 0.0% | 0.0% | 0.8% | 0.8% | 0.38 | 35% | 0.34 | Valley |
| 2N | 0.16 | 0.40 | 0.25 | 6.29 | 81.8% | 81.8% | 0.0% | 18.2% | 0.0% | 0.0% | 32.0% | 0.0% | 0.0% | 0.0% | 1.8% | 1.8% | 0.40 | 32% | 0.33 | Valley |
| 2O | 0.02 | 0.20 | 0.10 | 9.40 | 0.2% | 0.2% | 0.0% | 99.8% | 0.0% | 0.0% | 20.0% | 0.0% | 0.0% | 0.0% | 10.1% | 10.1% | 0.20 | 20% | 0.25 | Mountain |
| 2P | 0.17 | 0.39 | 0.25 | 5.98 | 29.4% | 29.4% | 0.1% | 70.5% | 0.0% | 0.0% | 13.0% | 0.0% | 0.0% | 0.0% | 8.5% | 8.5% | 0.39 | 13% | 0.28 | Mountain |
| 2Q | 0.29 | 0.35 | 0.25 | 3.71 | 2.7% | 2.7% | 27.7% | 69.6% | 0.0% | 0.0% | 14.0% | 0.0% | 0.0% | 0.0% | 10.5% | 10.5% | 0.35 | 14% | 0.22 | Mountain |
| 2R | 0.79 | 0.35 | 0.27 | 3.36 | 60.3% | 60.3% | 9.2% | 30.5% | 0.0% | 0.0% | 14.0% | 0.0% | 0.0% | 0.0% | 4.6% | 4.6% | 0.35 | 14% | 0.30 | Valley |
| 2S | 0.80 | 0.35 | 0.27 | 3.35 | 70.2% | 70.2% | 0.0% | 29.8% | 0.0% | 0.0% | 16.0% | 0.0% | 0.0% | 0.0% | 4.5% | 4.5% | 0.35 | 16% | 0.32 | Valley |
| 2T | 0.09 | 0.33 | 0.15 | 7.78 | 20.6% | 20.6% | 2.8% | 76.6% | 0.0% | 0.0% | 12.0% | 0.0% | 0.0% | 0.0% | 8.9% | 8.9% | 0.33 | 12% | 0.27 | Mountain |
| 2U | 0.81 | 0.35 | 0.28 | 3.32 | 72.9% | 72.9% | 7.3% | 19.7% | 0.0% | 0.0% | 21.0% | 0.0% | 0.0% | 0.0% | 3.7% | 3.7% | 0.35 | 21% | 0.32 | Valley |
| 2V | 0.18 | 0.39 | 0.25 | 5.67 | 24.1% | 24.1% | 8.8% | 67.1% | 0.0% | 0.0% | 13.0% | 0.0% | 0.0% | 0.0% | 9.2% | 9.2% | 0.39 | 13% | 0.27 | Mountain |
| 2W | 0.05 | 0.25 | 0.15 | 8.40 | 33.7% | 33.7% | 0.0% | 66.3% | 0.0% | 0.0% | 19.0% | 0.0% | 0.0% | 0.0% | 6.6% | 6.6% | 0.25 | 19% | 0.28 | Mountain |
| 2X | 0.06 | 0.25 | 0.15 | 8.60 | 40.1% | 40.1% | 0.0% | 59.9% | 0.0% | 0.0% | 17.0% | 0.0% | 0.0% | 0.0% | 6.0% | 6.0% | 0.25 | 17% | 0.29 | Mountain |
| 2Y | 0.35 | 0.35 | 0.25 | 4.03 | 86.0% | 86.0% | 1.5% | 12.5% | 0.0% | 0.0% | 12.0% | 0.0% | 0.0% | 0.0% | 1.8% | 1.8% | 0.35 | 12% | 0.33 | Valley |
| 2Z | 0.07 | 0.28 | 0.15 | 8.28 | 49.2% | 49.2% | 0.0% | 50.8% | 0.0% | 0.0% | 21.0% | 0.0% | 0.0% | 0.0% | 5.1% | 5.1% | 0.28 | 21% | 0.30 | Mountain |
| 2AA | 0.17 | 0.39 | 0.25 | 5.98 | 83.6% | 83.6% | 0.0% | 16.4% | 0.0% | 0.0% | 20.0% | 0.0% | 0.0% | 0.0% | 1.6% | 1.6% | 0.39 | 20% | 0.33 | Valley |
| 2BB | 0.06 | 0.25 | 0.15 | 8.60 | 44.6% | 44.6% | 0.0% | 55.4% | 0.0% | 0.0% | 16.0% | 0.0% | 0.0% | 0.0% | 5.5% | 5.5% | 0.25 | 16% | 0.29 | Mountain |
| 2CC | 0.40 | 0.35 | 0.25 | 4.30 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 22.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 22% | 0.35 | Valley |
| 2DD | 0.45 | 0.35 | 0.25 | 4.18 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 20.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 20% | 0.35 | Valley |
| 2EE | 0.04 | 0.25 | 0.15 | 8.20 | 30.0% | 30.0% | 0.0% | 70.0% | 0.0% | 0.0% | 14.0% | 0.0% | 0.0% | 0.0% | 7.0% | 7.0% | 0.25 | 14% | 0.28 | Mountain |
| 2FF | 0.31 | 0.35 | 0.25 | 3.82 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 20.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 20% | 0.35 | Valley |
| 2GG | 0.08 | 0.30 | 0.15 | 8.05 | 55.9% | 55.9% | 0.0% | 44.1% | 0.0% | 0.0% | 24.0% | 0.0% | 0.0% | 0.0% | 4.4% | 4.4% | 0.30 | 24% | 0.31 | Valley |
| 2HH | 0.20 | 0.38 | 0.25 | 5.05 | 69.6% | 69.6% | 0.0% | 30.4% | 0.0% | 0.0% | 20.0% | 0.0% | 0.0% | 0.0% | 3.0% | 3.0% | 0.38 | 20% | 0.32 | Valley |
| 2II | 0.05 | 0.25 | 0.15 | 8.40 | 34.4% | 34.4% | 0.0% | 65.6% | 0.0% | 0.0% | 15.0% | 0.0% | 0.0% | 0.0% | 6.6% | 6.6% | 0.25 | 15% | 0.28 | Mountain |
| 2JJ | 0.25 | 0.35 | 0.25 | 3.50 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 22.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 22% | 0.35 | Valley |
| 2KK | 0.26 | 0.35 | 0.25 | 3.55 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 22.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 22% | 0.35 | Valley |

# TABLE S-4

## SUB-BASIN WEIGHTED DTHETA AND SURFACE LOSS PARAMETERS

| Sub Basin ID | Log Avg. XKSAT | DTHETA (Dry) | DTHETA (Normal) | PSIF | Valley Area | Adj. Valley Area | Hillslope Area | Mountain Area | Row Crop Area | Urban Area | V,H,M Veg. Cover | Row Crop Veg. Cover | Urban Veg. Cover | RTIMP (urban) | RTIMP (rock) | RTIMP (wghtd) | DTHETA (weighted) | Vegetation Cover (weighted) | IA (wghtd) | S-Graph Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2LL | 0.25 | 0.35 | 0.25 | 3.50 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 22.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 22% | 0.35 | Valley |
| 2MM | 0.81 | 0.35 | 0.28 | 3.32 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 15.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 15% | 0.35 | Valley |
| 2NN | 0.25 | 0.35 | 0.25 | 3.50 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 26.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 26% | 0.35 | Valley |
| 2OO | 0.25 | 0.35 | 0.25 | 3.50 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 24.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 24% | 0.35 | Valley |
| 2PP | 0.27 | 0.35 | 0.25 | 3.61 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 21.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 21% | 0.35 | Valley |
| 2QQ | 0.75 | 0.35 | 0.27 | 3.48 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 17.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 17% | 0.35 | Valley |
| 2RR | 0.46 | 0.35 | 0.25 | 4.15 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 25.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 25% | 0.35 | Valley |
| 2SS | 0.80 | 0.35 | 0.28 | 3.34 | 55.1% | 55.1% | 19.4% | 25.5% | 0.0% | 0.0% | 14.0% | 0.0% | 0.0% | 0.0% | 5.0% | 5.0% | 0.35 | 14% | 0.29 | Valley |
| 2TT | 0.71 | 0.35 | 0.27 | 3.57 | 56.3% | 56.3% | 8.4% | 35.3% | 0.0% | 0.0% | 12.0% | 0.0% | 0.0% | 0.0% | 6.1% | 6.1% | 0.35 | 12% | 0.30 | Valley |
| 2UU | 0.61 | 0.35 | 0.26 | 3.81 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 16.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 16% | 0.35 | Valley |
| 2VV | 0.74 | 0.35 | 0.27 | 3.49 | 100.0% | 90.5% | 0.0% | 0.0% | 0.0% | 9.5% | 15.0% | 0.0% | 21.0% | 40.0% | 0.0% | 3.8% | 0.34 | 16% | 0.34 | Valley |
| 2VV1 | 0.59 | 0.35 | 0.26 | 3.84 | 100.0% | 90.5% | 0.0% | 0.0% | 0.0% | 9.5% | 15.0% | 0.0% | 21.0% | 40.0% | 0.0% | 3.8% | 0.34 | 16% | 0.34 | Valley |
| 2VV2 | 0.81 | 0.35 | 0.28 | 3.32 | 100.0% | 90.5% | 0.0% | 0.0% | 0.0% | 9.5% | 15.0% | 0.0% | 21.0% | 40.0% | 0.0% | 3.8% | 0.34 | 16% | 0.34 | Valley |
| 2VV3 | 0.84 | 0.35 | 0.28 | 3.26 | 100.0% | 90.5% | 0.0% | 0.0% | 0.0% | 9.5% | 15.0% | 0.0% | 21.0% | 40.0% | 0.0% | 3.8% | 0.34 | 16% | 0.34 | Valley |
| 2VV4 | 0.84 | 0.35 | 0.28 | 3.26 | 100.0% | 90.5% | 0.0% | 0.0% | 0.0% | 9.5% | 15.0% | 0.0% | 21.0% | 40.0% | 0.0% | 3.8% | 0.34 | 16% | 0.34 | Valley |
| 2VV5 | 0.84 | 0.35 | 0.28 | 3.26 | 100.0% | 90.5% | 0.0% | 0.0% | 0.0% | 9.5% | 15.0% | 0.0% | 21.0% | 40.0% | 0.0% | 3.8% | 0.34 | 16% | 0.34 | Valley |
| 2VV6 | 0.84 | 0.35 | 0.28 | 3.26 | 100.0% | 90.5% | 0.0% | 0.0% | 0.0% | 9.5% | 15.0% | 0.0% | 21.0% | 40.0% | 0.0% | 3.8% | 0.34 | 16% | 0.34 | Valley |
| 2VV7 | 0.84 | 0.35 | 0.28 | 3.26 | 100.0% | 90.5% | 0.0% | 0.0% | 0.0% | 9.5% | 15.0% | 0.0% | 21.0% | 40.0% | 0.0% | 3.8% | 0.34 | 16% | 0.34 | Valley |
| 2VV8 | 0.84 | 0.35 | 0.28 | 3.26 | 100.0% | 90.5% | 0.0% | 0.0% | 0.0% | 9.5% | 15.0% | 0.0% | 21.0% | 40.0% | 0.0% | 3.8% | 0.34 | 16% | 0.34 | Valley |
| 2WW | 0.74 | 0.35 | 0.27 | 3.49 | 96.3% | 95.3% | 1.2% | 2.5% | 0.0% | 1.0% | 15.0% | 0.0% | 25.0% | 40.0% | 0.6% | 1.0% | 0.35 | 15% | 0.34 | Valley |
| 2XX | 0.58 | 0.35 | 0.26 | 3.86 | 100.0% | 89.0% | 0.0% | 0.0% | 0.0% | 11.0% | 15.0% | 0.0% | 25.0% | 45.0% | 0.0% | 5.0% | 0.34 | 16% | 0.33 | Valley |
| 2YY | 0.80 | 0.35 | 0.27 | 3.36 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 21.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 21% | 0.35 | Valley |
| 3A | 0.44 | 0.35 | 0.25 | 4.20 | 1.3% | 1.3% | 15.5% | 83.2% | 0.0% | 0.0% | 14.0% | 0.0% | 0.0% | 0.0% | 4.5% | 4.5% | 0.35 | 14% | 0.24 | Mountain |
| 3B | 0.25 | 0.35 | 0.25 | 3.50 | 99.8% | 99.8% | 0.0% | 0.2% | 0.0% | 0.0% | 26.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 26% | 0.35 | Valley |
| 3C | 0.34 | 0.35 | 0.25 | 3.98 | 41.8% | 41.8% | 10.9% | 47.3% | 0.0% | 0.0% | 19.0% | 0.0% | 0.0% | 0.0% | 1.1% | 1.1% | 0.35 | 19% | 0.28 | Mountain |
| 3D | 0.27 | 0.35 | 0.25 | 3.61 | 80.6% | 80.6% | 0.0% | 19.4% | 0.0% | 0.0% | 23.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 23% | 0.33 | Valley |
| 3E | 0.40 | 0.35 | 0.25 | 4.24 | 17.1% | 17.1% | 35.5% | 47.4% | 0.0% | 0.0% | 15.0% | 0.0% | 0.0% | 0.0% | 3.5% | 3.5% | 0.35 | 15% | 0.23 | Mountain |
| 3F | 0.53 | 0.35 | 0.26 | 3.99 | 0.0% | 0.0% | 29.1% | 70.9% | 0.0% | 0.0% | 11.0% | 0.0% | 0.0% | 0.0% | 11.7% | 11.7% | 0.35 | 11% | 0.22 | Mountain |
| 3G | 0.37 | 0.35 | 0.25 | 4.14 | 32.9% | 32.9% | 18.3% | 48.8% | 0.0% | 0.0% | 22.0% | 0.0% | 0.0% | 0.0% | 3.5% | 3.5% | 0.35 | 22% | 0.26 | Mountain |
| 3H | 0.35 | 0.35 | 0.25 | 4.03 | 44.5% | 44.5% | 30.2% | 25.3% | 0.0% | 0.0% | 21.0% | 0.0% | 0.0% | 0.0% | 3.0% | 3.0% | 0.35 | 21% | 0.26 | Mountain |
| 3I | 0.25 | 0.35 | 0.25 | 3.50 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 28.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 28% | 0.35 | Valley |

# TABLE S-4

## SUB-BASIN WEIGHTED DTHETA AND SURFACE LOSS PARAMETERS

| Sub Basin ID | Log Avg. XKSAT | DTHETA (Dry) | DTHETA (Normal) | PSIF | Valley Area | Adj. Valley Area | Hillslope Area | Mountain Area | Row Crop Area | Urban Area | V,H,M Veg. Cover | Row Crop Veg. Cover | Urban Veg. Cover | RTIMP (urban) | RTIMP (rock) | RTIMP (wghtd) | DTHETA (weighted) | Vegetation Cover (weighted) | IA (wghtd) | S-Graph Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3J | 0.31 | 0.35 | 0.25 | 3.82 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 24.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 24% | 0.35 | Valley |
| 3K | 0.52 | 0.35 | 0.26 | 4.01 | 100.0% | 95.0% | 0.0% | 0.0% | 4.0% | 1.0% | 20.0% | 0.0% | 30.0% | 60.0% | 0.0% | 0.6% | 0.34 | 19% | 0.35 | Valley |
| 3L | 0.31 | 0.35 | 0.25 | 3.82 | 100.0% | 85.0% | 0.0% | 0.0% | 10.0% | 5.0% | 17.0% | 0.0% | 17.0% | 60.0% | 0.0% | 3.0% | 0.31 | 15% | 0.36 | Valley |
| 3M | 0.55 | 0.35 | 0.26 | 3.94 | 100.0% | 21.0% | 0.0% | 0.0% | 70.0% | 9.0% | 13.0% | 0.0% | 10.0% | 23.0% | 0.0% | 2.1% | 0.10 | 4% | 0.44 | Valley |
| 4A | 0.42 | 0.35 | 0.25 | 4.26 | 7.7% | 7.7% | 28.9% | 63.4% | 0.0% | 0.0% | 13.0% | 0.0% | 0.0% | 0.0% | 3.5% | 3.5% | 0.35 | 13% | 0.23 | Mountain |
| 4B | 0.32 | 0.35 | 0.25 | 3.87 | 52.8% | 52.8% | 4.9% | 42.3% | 0.0% | 0.0% | 28.0% | 0.0% | 0.0% | 0.0% | 0.5% | 0.5% | 0.35 | 28% | 0.30 | Valley |
| 4C | 0.30 | 0.35 | 0.25 | 3.77 | 61.4% | 61.4% | 0.3% | 38.3% | 0.0% | 0.0% | 33.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 33% | 0.31 | Valley |
| 4D | 0.40 | 0.35 | 0.25 | 4.24 | 0.0% | 0.0% | 0.0% | 100.0% | 0.0% | 0.0% | 10.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 10% | 0.25 | Mountain |
| 4E | 0.48 | 0.35 | 0.25 | 4.11 | 0.3% | 0.3% | 0.0% | 99.7% | 0.0% | 0.0% | 10.0% | 0.0% | 0.0% | 0.0% | 7.0% | 7.0% | 0.35 | 10% | 0.25 | Mountain |
| 4F | 0.47 | 0.35 | 0.25 | 4.14 | 23.9% | 23.9% | 0.0% | 76.1% | 0.0% | 0.0% | 15.0% | 0.0% | 0.0% | 0.0% | 10.2% | 10.2% | 0.35 | 15% | 0.27 | Mountain |
| 4G | 0.36 | 0.35 | 0.25 | 4.08 | 23.6% | 23.6% | 0.0% | 76.4% | 0.0% | 0.0% | 30.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 30% | 0.27 | Mountain |
| 4H | 0.16 | 0.40 | 0.25 | 6.29 | 0.2% | 0.2% | 14.3% | 85.5% | 0.0% | 0.0% | 11.0% | 0.0% | 0.0% | 0.0% | 12.4% | 12.4% | 0.40 | 11% | 0.24 | Mountain |
| 4I | 0.37 | 0.35 | 0.25 | 4.14 | 38.4% | 38.4% | 0.0% | 61.6% | 0.0% | 0.0% | 15.0% | 0.0% | 0.0% | 0.0% | 4.4% | 4.4% | 0.35 | 15% | 0.29 | Mountain |
| 4J | 0.27 | 0.35 | 0.25 | 3.61 | 84.4% | 84.4% | 0.0% | 15.6% | 0.0% | 0.0% | 20.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 20% | 0.33 | Valley |
| 4K | 0.25 | 0.35 | 0.25 | 3.50 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 22.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 22% | 0.35 | Valley |
| 4L | 0.30 | 0.35 | 0.25 | 3.77 | 76.5% | 76.5% | 4.7% | 18.8% | 0.0% | 0.0% | 22.0% | 0.0% | 0.0% | 0.0% | 3.0% | 3.0% | 0.35 | 22% | 0.32 | Valley |
| 4M | 0.25 | 0.35 | 0.25 | 3.50 | 99.6% | 99.6% | 0.0% | 0.4% | 0.0% | 0.0% | 17.0% | 0.0% | 0.0% | 0.0% | 0.1% | 0.1% | 0.35 | 17% | 0.35 | Valley |
| 4N | 0.25 | 0.35 | 0.25 | 3.50 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 16.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 16% | 0.35 | Valley |
| 4O | 0.28 | 0.35 | 0.25 | 3.66 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 20.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 20% | 0.35 | Valley |
| 5A | 0.25 | 0.35 | 0.25 | 3.50 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 18.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 18% | 0.35 | Valley |
| 5B | 0.31 | 0.35 | 0.25 | 3.82 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 22.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 22% | 0.35 | Valley |
| 5C | 0.72 | 0.35 | 0.27 | 3.54 | 100.0% | 22.0% | 0.0% | 0.0% | 73.0% | 5.0% | 11.0% | 0.0% | 10.0% | 23.0% | 0.0% | 1.2% | 0.09 | 3% | 0.45 | Valley |
| 6A | 0.06 | 0.25 | 0.15 | 8.60 | 12.6% | 12.6% | 4.9% | 82.5% | 0.0% | 0.0% | 12.0% | 0.0% | 0.0% | 0.0% | 9.8% | 9.8% | 0.25 | 12% | 0.26 | Mountain |
| 6B | 0.07 | 0.28 | 0.15 | 8.28 | 17.8% | 17.8% | 6.6% | 75.7% | 0.0% | 0.0% | 15.0% | 0.0% | 0.0% | 0.0% | 9.2% | 9.2% | 0.28 | 15% | 0.26 | Mountain |
| 6C | 0.35 | 0.35 | 0.25 | 4.03 | 26.7% | 26.7% | 0.4% | 72.9% | 0.0% | 0.0% | 14.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 14% | 0.28 | Mountain |
| 6D | 0.08 | 0.30 | 0.15 | 8.05 | 50.2% | 50.2% | 2.6% | 47.2% | 0.0% | 0.0% | 13.0% | 0.0% | 0.0% | 0.0% | 5.1% | 5.1% | 0.30 | 13% | 0.30 | Valley |
| 6E | 0.04 | 0.25 | 0.15 | 8.20 | 4.9% | 4.9% | 14.1% | 81.0% | 0.0% | 0.0% | 16.0% | 0.0% | 0.0% | 0.0% | 9.7% | 9.7% | 0.25 | 16% | 0.24 | Mountain |
| 6F | 0.31 | 0.35 | 0.25 | 3.82 | 74.8% | 74.8% | 0.0% | 25.2% | 0.0% | 0.0% | 14.0% | 0.0% | 0.0% | 0.0% | 3.8% | 3.8% | 0.35 | 14% | 0.32 | Valley |
| 6G | 0.25 | 0.35 | 0.25 | 3.50 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 16.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 16% | 0.35 | Valley |
| 6H | 0.32 | 0.35 | 0.25 | 3.87 | 69.7% | 69.7% | 0.0% | 30.3% | 0.0% | 0.0% | 14.0% | 0.0% | 0.0% | 0.0% | 4.6% | 4.6% | 0.35 | 14% | 0.32 | Valley |
| 6I | 0.36 | 0.35 | 0.25 | 4.08 | 63.1% | 63.1% | 0.0% | 36.9% | 0.0% | 0.0% | 14.0% | 0.0% | 0.0% | 0.0% | 7.0% | 7.0% | 0.35 | 14% | 0.31 | Valley |

# TABLE S-4

## SUB-BASIN WEIGHTED DTHETA AND SURFACE LOSS PARAMETERS

| Sub Basin ID | Log Avg. XKSAT | DTHETA (Dry) | DTHETA (Normal) | PSIF | Valley Area | Adj. Valley Area | Hillslope Area | Mountain Area | Row Crop Area | Urban Area | V,H,M Veg. Cover | Row Crop Veg. Cover | Urban Veg. Cover | RTIMP (urban) | RTIMP (rock) | RTIMP (wghtd) | DTHETA (weighted) | Vegetation Cover (weighted) | IA (wghtd) | S-Graph Type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6I | 0.32 | 0.35 | 0.25 | 3.87 | 78.7% | 78.7% | 0.0% | 21.3% | 0.0% | 0.0% | 22.0% | 0.0% | 0.0% | 0.0% | 4.5% | 4.5% | 0.35 | 22% | 0.33 | Valley |
| 6K | 0.25 | 0.35 | 0.25 | 3.50 | 99.0% | 99.0% | 0.0% | 1.0% | 0.0% | 0.0% | 19.0% | 0.0% | 0.0% | 0.0% | 0.2% | 0.2% | 0.35 | 19% | 0.35 | Valley |
| 6L | 0.25 | 0.35 | 0.25 | 3.50 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 19.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 19% | 0.35 | Valley |
| 6M | 0.26 | 0.35 | 0.25 | 3.55 | 93.5% | 93.5% | 0.0% | 6.5% | 0.0% | 0.0% | 19.0% | 0.0% | 0.0% | 0.0% | 1.0% | 1.0% | 0.35 | 19% | 0.34 | Valley |
| 6N | 0.29 | 0.35 | 0.25 | 3.71 | 100.0% | 100.0% | 0.0% | 0.0% | 0.0% | 0.0% | 21.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.35 | 21% | 0.35 | Valley |
| 6O | 0.28 | 0.35 | 0.25 | 3.66 | 100.0% | 86.5% | 0.0% | 0.0% | 13.5% | 0.0% | 23.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.30 | 20% | 0.37 | Valley |
| 6P | 0.50 | 0.35 | 0.26 | 4.07 | 100.0% | 26.6% | 0.0% | 0.0% | 60.5% | 12.9% | 20.0% | 0.0% | 9.0% | 15.0% | 0.0% | 1.9% | 0.13 | 6% | 0.42 | Valley |
| 6Q | 0.68 | 0.35 | 0.27 | 3.64 | 100.0% | 9.0% | 0.0% | 0.0% | 84.0% | 7.0% | 13.0% | 0.0% | 7.0% | 17.0% | 0.0% | 1.2% | 0.05 | 2% | 0.47 | Valley |
| 7A | 0.84 | 0.35 | 0.28 | 3.27 | 100.0% | 94.0% | 0.0% | 0.0% | 0.0% | 6.0% | 20.0% | 0.0% | 29.0% | 32.0% | 0.0% | 1.9% | 0.35 | 21% | 0.34 | Valley |
| 7B | 0.72 | 0.35 | 0.27 | 3.53 | 100.0% | 63.0% | 0.0% | 0.0% | 20.0% | 17.0% | 15.0% | 0.0% | 25.0% | 44.0% | 0.0% | 7.5% | 0.27 | 14% | 0.35 | Valley |
| 7C | 0.95 | 0.35 | 0.28 | 2.99 | 100.0% | 98.0% | 0.0% | 0.0% | 0.0% | 2.0% | 15.0% | 0.0% | 25.0% | 45.0% | 0.0% | 0.9% | 0.35 | 15% | 0.35 | Valley |
| 7D | 0.80 | 0.35 | 0.28 | 3.34 | 100.0% | 67.0% | 0.0% | 0.0% | 0.0% | 33.0% | 15.0% | 0.0% | 25.0% | 45.0% | 0.0% | 14.9% | 0.33 | 18% | 0.30 | Valley |

Note: 1. DTHETA(Dry), DTHETA(Normal), and PSIF are taken from Table S-1 using Log. Avg. XKSAT.

2. IA(weighted) is based on:

| | |
|---|---|
| Valley: | 0.35 |
| Hillslope: | 0.15 |
| Mountain: | 0.25 |
| Row Crop: | 0.50 |
| Urban: | 0.20 |

Table S-5

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

p.3-25

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 1A | 2080 | 1960 | 1000 | 120 | 0.19 | 633.6 | 0.008 | |
| | 1960 | 1840 | 8100 | 120 | 1.53 | 78.2 | 0.173 | |
| | 1840 | 1778 | 9900 | 62 | 1.88 | 33.1 | 0.326 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 19000 | | 3.60 | | 0.507 | **50.4** |
| 1B | 2040 | 1799 | 20600 | 241 | 3.90 | 61.8 | 0.496 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 20600 | | 3.90 | | 0.496 | **61.8** |
| 1C | 2380 | 1799 | 31000 | 581 | 5.87 | 99.0 | 0.590 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 31000 | | 5.87 | | 0.590 | **99.0** |
| 1D | 3720 | 3200 | 1000 | 520 | 0.19 | 2745.6 | 0.004 | |
| | 3200 | 2600 | 3100 | 600 | 0.59 | 1021.9 | 0.018 | |
| | 2600 | 2400 | 2700 | 200 | 0.51 | 391.1 | 0.026 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 6800 | | 1.29 | | 0.048 | **724.8** |
| 1E | 2400 | 1734 | 35000 | 666 | 6.63 | 100.5 | 0.661 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 35000 | | 6.63 | | 0.661 | **100.5** |
| 1F | 2850 | 2600 | 1100 | 250 | 0.21 | 1200.0 | 0.006 | |
| | 2600 | 2200 | 3550 | 400 | 0.67 | 594.9 | 0.028 | |
| | 2200 | 2000 | 6500 | 200 | 1.23 | 162.5 | 0.097 | |
| | 2000 | 1734 | 20250 | 266 | 3.84 | 69.4 | 0.461 | |
| | | | 31400 | | 5.95 | | 0.591 | **101.4** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 1G | 2840 | 2600 | 800 | 240 | 0.15 | 1584.0 | 0.004 | |
| | 2600 | 2400 | 2800 | 200 | 0.53 | 377.1 | 0.027 | |
| | 2400 | 2200 | 3950 | 200 | 0.75 | 267.3 | 0.046 | |
| | 2200 | 1939 | 15650 | 261 | 2.96 | 88.1 | 0.316 | |
| | | | 23200 | | 4.39 | | 0.393 | **125.2** |
| 1H | 2858 | 2200 | 1300 | 658 | 0.25 | 2672.5 | 0.005 | |
| | 2200 | 2000 | 3600 | 200 | 0.68 | 293.3 | 0.040 | |
| | 2000 | 1800 | 9150 | 200 | 1.73 | 115.4 | 0.161 | |
| | 1800 | 1666 | 12950 | 134 | 2.45 | 54.6 | 0.332 | |
| | | | 27000 | | 5.11 | | 0.538 | **90.4** |
| 1I | 2228 | 1680 | 33600 | 548 | 6.36 | 86.1 | 0.686 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 33600 | | 6.36 | | 0.686 | **86.1** |
| 1J | 3520 | 3000 | 900 | 520 | 0.17 | 3050.7 | 0.003 | |
| | 3000 | 2400 | 3900 | 600 | 0.74 | 812.3 | 0.026 | |
| | 2400 | 2228 | 4600 | 172 | 0.87 | 197.4 | 0.062 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 9400 | | 1.78 | | 0.091 | **382.7** |
| 1K | 3800 | 3600 | 450 | 200 | 0.09 | 2346.7 | 0.002 | |
| | 3600 | 3200 | 1450 | 400 | 0.27 | 1456.6 | 0.007 | |
| | 3200 | 2600 | 4300 | 600 | 0.81 | 736.7 | 0.030 | |
| | 2600 | 2178 | 7800 | 422 | 1.48 | 285.7 | 0.087 | |
| | | | 14000 | | 2.65 | | 0.126 | **440.3** |
| 1L | 2565 | 2200 | 2100 | 365 | 0.40 | 917.7 | 0.013 | |
| | 2200 | 1666 | 30300 | 534 | 5.74 | 93.1 | 0.595 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 32400 | | 6.14 | | 0.608 | **101.9** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 1M | 3800 | 3200 | 1100 | 600 | 0.21 | 2880.0 | 0.004 | |
| | 3200 | 2600 | 3300 | 600 | 0.63 | 960.0 | 0.020 | |
| | 2600 | 2080 | 10000 | 520 | 1.89 | 274.6 | 0.114 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 14400 | | 2.73 | | 0.138 | **388.6** |
| 1N | 2200 | 2000 | 2800 | 200 | 0.53 | 377.1 | 0.027 | |
| | 2000 | 1608 | 25800 | 392 | 4.89 | 80.2 | 0.546 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 28600 | | 5.42 | | 0.573 | **89.4** |
| 1O | 3183 | 2600 | 750 | 583 | 0.14 | 4104.3 | 0.002 | |
| | 2600 | 2000 | 2000 | 600 | 0.38 | 1584.0 | 0.010 | |
| | 2000 | 1513 | 30050 | 487 | 5.69 | 85.6 | 0.615 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 32800 | | 6.21 | | 0.627 | **98.2** |
| 1P | 2085 | 1513 | 38600 | 572 | 7.31 | 78.2 | 0.826 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 38600 | | 7.31 | | 0.826 | **78.2** |
| 1Q | 3019 | 2400 | 1500 | 619 | 0.28 | 2178.9 | 0.006 | |
| | 2400 | 2200 | 2600 | 200 | 0.49 | 406.2 | 0.024 | |
| | 2200 | 1620 | 31900 | 580 | 6.04 | 96.0 | 0.617 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 36000 | | 6.82 | | 0.647 | **111.0** |
| 1R | 2010 | 1880 | 600 | 130 | 0.11 | 1144.0 | 0.003 | |
| | 1880 | 1580 | 16800 | 300 | 3.18 | 94.3 | 0.328 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 17400 | | 3.30 | | 0.331 | **99.1** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 1S | 1840 | 1600 | 1350 | 240 | 0.26 | 938.7 | 0.008 | |
| | 1600 | 1290 | 24850 | 310 | 4.71 | 65.9 | 0.580 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 26200 | | 4.96 | | 0.588 | **71.2** |
| 1T | 2478 | 1800 | 1700 | 678 | 0.32 | 2105.8 | 0.007 | |
| | 1800 | 1600 | 3450 | 200 | 0.65 | 306.1 | 0.037 | |
| | 1600 | 1200 | 36450 | 400 | 6.90 | 57.9 | 0.907 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 41600 | | 7.88 | | 0.951 | **68.6** |
| 1U | 1575 | 1200 | 37200 | 375 | 7.05 | 53.2 | 0.966 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 37200 | | 7.05 | | 0.966 | **53.2** |
| 1V | 1639 | 1300 | 1200 | 339 | 0.23 | 1491.6 | 0.006 | |
| | 1300 | 1122 | 17600 | 178 | 3.33 | 53.4 | 0.456 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 18800 | | 3.56 | | 0.462 | **59.4** |
| 1W | 1240 | 1122 | 11200 | 118 | 2.12 | 55.6 | 0.284 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 11200 | | 2.12 | | 0.284 | **55.6** |
| 1X | 1144 | 960 | 18200 | 184 | 3.45 | 53.4 | 0.472 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 18200 | | 3.45 | | 0.472 | **53.4** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 1Y | 1025 | 778 | 30000 | 247 | 5.68 | 43.5 | 0.862 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 30000 | | 5.68 | | 0.862 | **43.5** |
| 2A | 3760 | 3200 | 1450 | 560 | 0.27 | 2039.2 | 0.006 | |
| | 3200 | 3000 | 1600 | 200 | 0.30 | 660.0 | 0.012 | |
| | 3000 | 2166 | 26350 | 834 | 4.99 | 167.1 | 0.386 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 29400 | | 5.57 | | 0.404 | **190.0** |
| 2B | 2520 | 2200 | 3600 | 320 | 0.68 | 469.3 | 0.031 | |
| | 2200 | 1718 | 22200 | 482 | 4.20 | 114.6 | 0.393 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 25800 | | 4.89 | | 0.424 | **132.7** |
| 2C | 2680 | 2520 | 800 | 160 | 0.15 | 1056.0 | 0.005 | |
| | 2520 | 2200 | 500 | 320 | 0.09 | 3379.2 | 0.002 | |
| | 2200 | 1800 | 2850 | 400 | 0.54 | 741.1 | 0.020 | |
| | 1800 | 1558 | 12450 | 242 | 2.36 | 102.6 | 0.233 | |
| | | | 16600 | | 3.14 | | 0.259 | **147.5** |
| 2D | 3800 | 3400 | 650 | 400 | 0.12 | 3249.2 | 0.002 | |
| | 3400 | 2600 | 3700 | 800 | 0.70 | 1141.6 | 0.021 | |
| | 2600 | 2100 | 9450 | 500 | 1.79 | 279.4 | 0.107 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 13800 | | 2.61 | | 0.130 | **404.3** |
| 2E | 2400 | 1800 | 10800 | 600 | 2.05 | 293.3 | 0.119 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 10800 | | 2.05 | | 0.119 | **293.3** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 2F | 3082 | 2600 | 900 | 482 | 0.17 | 2827.7 | 0.003 | |
| | 2600 | 2200 | 2650 | 400 | 0.50 | 797.0 | 0.018 | |
| | 2200 | 1985 | 6850 | 215 | 1.30 | 165.7 | 0.101 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 10400 | | 1.97 | | 0.122 | **261.7** |
| 2G | 2080 | 1800 | 11000 | 280 | 2.08 | 134.4 | 0.180 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 11000 | | 2.08 | | 0.180 | **134.4** |
| 2H | 2120 | 2000 | 1100 | 120 | 0.21 | 576.0 | 0.009 | |
| | 2000 | 1745 | 12300 | 255 | 2.33 | 109.5 | 0.223 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 13400 | | 2.54 | | 0.231 | **120.4** |
| 2I | 2120 | 1920 | 1550 | 200 | 0.29 | 681.3 | 0.011 | |
| | 1920 | 1800 | 5650 | 120 | 1.07 | 112.1 | 0.101 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 7200 | | 1.36 | | 0.112 | **147.5** |
| 2J | 2500 | 2000 | 2250 | 500 | 0.43 | 1173.3 | 0.012 | |
| | 2000 | 1880 | 1250 | 120 | 0.24 | 506.9 | 0.011 | |
| | 1880 | 1705 | 9500 | 175 | 1.80 | 97.3 | 0.182 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 13000 | | 2.46 | | 0.205 | **143.7** |
| 2K | 3640 | 2600 | 3500 | 1040 | 0.66 | 1568.9 | 0.017 | |
| | 2600 | 2400 | 2300 | 200 | 0.44 | 459.1 | 0.020 | |
| | 2400 | 1920 | 15200 | 480 | 2.88 | 166.7 | 0.223 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 21000 | | 3.98 | | 0.260 | **234.0** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 2L | 2400 | 2200 | 850 | 200 | 0.16 | 1242.4 | 0.005 | |
| | 2200 | 1810 | 14950 | 390 | 2.83 | 137.7 | 0.241 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 15800 | | 2.99 | | 0.246 | **148.2** |
| 2M | 1945 | 1705 | 10000 | 240 | 1.89 | 126.7 | 0.168 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 10000 | | 1.89 | | 0.168 | **126.7** |
| 2N | 2280 | 1738 | 17000 | 542 | 3.22 | 168.3 | 0.248 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 17000 | | 3.22 | | 0.248 | **168.3** |
| 2O | 1940 | 1558 | 16600 | 382 | 3.14 | 121.5 | 0.285 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 16600 | | 3.14 | | 0.285 | **121.5** |
| 2P | 2540 | 2000 | 2700 | 540 | 0.51 | 1056.0 | 0.016 | |
| | 2000 | 1800 | 2600 | 200 | 0.49 | 406.2 | 0.024 | |
| | 1800 | 1332 | 12300 | 468 | 2.33 | 200.9 | 0.164 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 17600 | | 3.33 | | 0.205 | **265.6** |
| 2Q | 2250 | 2120 | 1000 | 130 | 0.19 | 686.4 | 0.007 | |
| | 2120 | 1800 | 2200 | 320 | 0.42 | 768.0 | 0.015 | |
| | 1800 | 1558 | 14400 | 242 | 2.73 | 88.7 | 0.290 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 17600 | | 3.33 | | 0.312 | **114.3** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 2R | 2440 | 1800 | 800 | 640 | 0.15 | 4224.0 | 0.002 | |
| | 1800 | 1640 | 900 | 160 | 0.17 | 938.7 | 0.006 | |
| | 1640 | 1368 | 14300 | 272 | 2.71 | 100.4 | 0.270 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 16000 | | 3.03 | | 0.278 | **118.7** |
| 2S | 1430 | 1255 | 12800 | 175 | 2.42 | 72.2 | 0.285 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 12800 | | 2.42 | | 0.285 | **72.2** |
| 2T | 2640 | 2040 | 3700 | 600 | 0.70 | 856.2 | 0.024 | |
| | 2040 | 1880 | 2900 | 160 | 0.55 | 291.3 | 0.032 | |
| | 1880 | 1720 | 3900 | 160 | 0.74 | 216.6 | 0.050 | |
| | 1720 | 1205 | 22700 | 515 | 4.30 | 119.8 | 0.393 | |
| | | | 33200 | | 6.29 | | 0.499 | **158.7** |
| 2U | 2000 | 1760 | 1300 | 240 | 0.25 | 974.8 | 0.008 | |
| | 1760 | 1320 | 1900 | 440 | 0.36 | 1222.7 | 0.010 | |
| | 1320 | 1120 | 11600 | 200 | 2.20 | 91.0 | 0.230 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 14800 | | 2.80 | | 0.248 | **127.3** |
| 2V | 2710 | 2240 | 1800 | 470 | 0.34 | 1378.7 | 0.009 | |
| | 2240 | 1480 | 8400 | 760 | 1.59 | 477.7 | 0.073 | |
| | 1480 | 1280 | 4400 | 200 | 0.83 | 240.0 | 0.054 | |
| | 1280 | 1064 | 18200 | 216 | 3.45 | 62.7 | 0.435 | |
| | | | 32800 | | 6.21 | | 0.571 | **118.3** |
| 2W | 2210 | 1660 | 26400 | 550 | 5.00 | 110.0 | 0.477 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 26400 | | 5.00 | | 0.477 | **110.0** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 2X | 1880 | 1190 | 39600 | 690 | 7.50 | 92.0 | 0.782 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 39600 | | 7.50 | | 0.782 | **92.0** |
| 2Y | 1350 | 1160 | 13200 | 190 | 2.50 | 76.0 | 0.287 | |
| | 1160 | 855 | 35400 | 305 | 6.70 | 45.5 | 0.994 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 48600 | | 9.20 | | 1.281 | **51.6** |
| 2Z | 1920 | 1800 | 2200 | 120 | 0.42 | 288.0 | 0.025 | |
| | 1800 | 1347 | 28800 | 453 | 5.45 | 83.1 | 0.599 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 31000 | | 5.87 | | 0.623 | **88.8** |
| 2AA | 1685 | 1360 | 2400 | 325 | 0.45 | 715.0 | 0.017 | |
| | 1360 | 1115 | 22000 | 245 | 4.17 | 58.8 | 0.543 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 24400 | | 4.62 | | 0.560 | **68.0** |
| 2BB | 2065 | 1600 | 2600 | 465 | 0.49 | 944.3 | 0.016 | |
| | 1600 | 1400 | 4200 | 200 | 0.80 | 251.4 | 0.050 | |
| | 1400 | 1224 | 9000 | 176 | 1.70 | 103.3 | 0.168 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 15800 | | 2.99 | | 0.234 | **163.6** |
| 2CC | 1210 | 851 | 42600 | 359 | 8.07 | 44.5 | 1.210 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 42600 | | 8.07 | | 1.210 | **44.5** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 2DD | 880 | 810 | 12100 | 70 | 2.29 | 30.5 | 0.415 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 12100 | | 2.29 | | 0.415 | **30.5** |
| 2EE | 2600 | 2000 | 2400 | 600 | 0.45 | 1320.0 | 0.013 | |
| | 2000 | 1536 | 21400 | 464 | 4.05 | 114.5 | 0.379 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 23800 | | 4.51 | | 0.391 | **132.7** |
| 2FF | 1652 | 866 | 70600 | 786 | 13.37 | 58.8 | 1.744 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 70600 | | 13.37 | | 1.744 | **58.8** |
| 2GG | 2920 | 2600 | 1300 | 320 | 0.25 | 1299.7 | 0.007 | |
| | 2600 | 2400 | 5800 | 200 | 1.10 | 182.1 | 0.081 | |
| | 2400 | 1992 | 21500 | 408 | 4.07 | 100.2 | 0.407 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 28600 | | 5.42 | | 0.495 | **119.7** |
| 2HH | 2849 | 2400 | 800 | 449 | 0.15 | 2963.4 | 0.003 | |
| | 2400 | 2120 | 1800 | 280 | 0.34 | 821.3 | 0.012 | |
| | 2120 | 1806 | 22400 | 314 | 4.24 | 74.0 | 0.493 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 25000 | | 4.73 | | 0.508 | **86.9** |
| 2II | 2800 | 2200 | 1500 | 600 | 0.28 | 2112.0 | 0.006 | |
| | 2200 | 1880 | 6700 | 320 | 1.27 | 252.2 | 0.080 | |
| | 1880 | 1660 | 12600 | 220 | 2.39 | 92.2 | 0.249 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 20800 | | 3.94 | | 0.335 | **138.6** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 2JJ | 1857 | 1680 | 600 | 177 | 0.11 | 1557.6 | 0.003 | |
| | 1680 | 1468 | 14200 | 212 | 2.69 | 78.8 | 0.303 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 14800 | | 2.80 | | 0.306 | **84.0** |
| 2KK | 1530 | 1010 | 48000 | 520 | 9.09 | 57.2 | 1.202 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 48000 | | 9.09 | | 1.202 | **57.2** |
| 2LL | 1687 | 1010 | 60400 | 677 | 11.44 | 59.2 | 1.487 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 60400 | | 11.44 | | 1.487 | **59.2** |
| 2MM | 1050 | 940 | 13000 | 110 | 2.46 | 44.7 | 0.368 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 13000 | | 2.46 | | 0.368 | **44.7** |
| 2NN | 1750 | 1129 | 54400 | 621 | 10.30 | 60.3 | 1.327 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 54400 | | 10.30 | | 1.327 | **60.3** |
| 2OO | 1260 | 1129 | 13800 | 131 | 2.61 | 50.1 | 0.369 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 13800 | | 2.61 | | 0.369 | **50.1** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 2PP | 1170 | 1012 | 18000 | 158 | 3.41 | 46.3 | 0.501 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 18000 | | 3.41 | | 0.501 | **46.3** |
| 2QQ | 1178 | 906 | 21600 | 272 | 4.09 | 66.5 | 0.502 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 21600 | | 4.09 | | 0.502 | **66.5** |
| 2RR | 940 | 810 | 19800 | 130 | 3.75 | 34.7 | 0.637 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 19800 | | 3.75 | | 0.637 | **34.7** |
| 2SS | 1840 | 1600 | 2100 | 240 | 0.40 | 603.4 | 0.016 | |
| | 1600 | 1200 | 29500 | 400 | 5.59 | 71.6 | 0.660 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 31600 | | 5.98 | | 0.677 | **78.3** |
| 2TT | 1990 | 1260 | 5700 | 730 | 1.08 | 676.2 | 0.042 | |
| | 1260 | 1180 | 3700 | 80 | 0.70 | 114.2 | 0.066 | |
| | 1180 | 1053 | 12200 | 127 | 2.31 | 55.0 | 0.312 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 21600 | | 4.09 | | 0.419 | **95.4** |
| 2UU | 1125 | 765 | 48000 | 360 | 9.09 | 39.6 | 1.445 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 48000 | | 9.09 | | 1.445 | **39.6** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 2VV | 1000 | 737 | 32200 | 263 | 6.10 | 43.1 | 0.929 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 32200 | | 6.10 | | 0.929 | **43.1** |
| 2VV1 | 1000 | 837 | 18000 | 163 | 3.41 | 47.8 | 0.493 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 18000 | | 3.41 | | 0.493 | **47.8** |
| 2VV2 | 952 | 799 | 18500 | 153 | 3.50 | 43.7 | 0.530 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 18500 | | 3.50 | | 0.530 | **43.7** |
| 2VV3 | 872 | 852 | 2400 | 20 | 0.45 | 44.0 | 0.069 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 2400 | | 0.45 | | 0.069 | **44.0** |
| 2VV4 | 861 | 830 | 3900 | 31 | 0.74 | 42.0 | 0.114 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 3900 | | 0.74 | | 0.114 | **42.0** |
| 2VV5 | 802 | 740 | 8600 | 62 | 1.63 | 38.1 | 0.264 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 8600 | | 1.63 | | 0.264 | **38.1** |

## TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 2VV6 | 820 | 740 | 10900 | 80 | 2.06 | 38.8 | 0.332 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 10900 | | 2.06 | | 0.332 | **38.8** |
| 2VV7 | 784 | 737 | 7800 | 47 | 1.48 | 31.8 | 0.262 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 7800 | | 1.48 | | 0.262 | **31.8** |
| 2VV8 | 846 | 784 | 7100 | 62 | 1.34 | 46.1 | 0.198 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 7100 | | 1.34 | | 0.198 | **46.1** |
| 2WW | 2040 | 1300 | 1100 | 740 | 0.21 | 3552.0 | 0.003 | |
| | 1200 | 1140 | 2600 | 60 | 0.49 | 121.8 | 0.045 | |
| | 1140 | 730 | 43700 | 410 | 8.28 | 49.5 | 1.176 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 47400 | | 8.98 | | 1.224 | **53.8** |
| 2XX | 740 | 655 | 17800 | 85 | 3.37 | 25.2 | 0.671 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 17800 | | 3.37 | | 0.671 | **25.2** |
| 2YY | 984 | 810 | 25200 | 174 | 4.77 | 36.5 | 0.790 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 25200 | | 4.77 | | 0.790 | **36.5** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 3A | 3720 | 2800 | 5200 | 920 | 0.98 | 934.2 | 0.032 | |
| | 2800 | 2600 | 5500 | 200 | 1.04 | 192.0 | 0.075 | |
| | 2600 | 2086 | 28500 | 514 | 5.40 | 95.2 | 0.553 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 39200 | | 7.42 | | 0.661 | **126.3** |
| 3B | 2320 | 2120 | 600 | 200 | 0.11 | 1760.0 | 0.003 | |
| | 2120 | 1532 | 41800 | 588 | 7.92 | 74.3 | 0.919 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 42400 | | 8.03 | | 0.921 | **76.0** |
| 3C | 3740 | 3280 | 2300 | 460 | 0.44 | 1056.0 | 0.013 | |
| | 3280 | 2800 | 3800 | 480 | 0.72 | 666.9 | 0.028 | |
| | 2800 | 2400 | 8900 | 400 | 1.69 | 237.3 | 0.109 | |
| | 2400 | 1868 | 30400 | 532 | 5.76 | 92.4 | 0.599 | |
| | | | 45400 | | 8.60 | | 0.750 | **131.6** |
| 3D | 2600 | 2280 | 1500 | 320 | 0.28 | 1126.4 | 0.008 | |
| | 2280 | 2080 | 6300 | 200 | 1.19 | 167.6 | 0.092 | |
| | 2080 | 1700 | 30800 | 380 | 5.83 | 65.1 | 0.723 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 38600 | | 7.31 | | 0.823 | **78.8** |
| 3E | 3600 | 2920 | 1600 | 680 | 0.30 | 2244.0 | 0.006 | |
| | 2920 | 2720 | 3500 | 200 | 0.66 | 301.7 | 0.038 | |
| | 2720 | 2560 | 4800 | 160 | 0.91 | 176.0 | 0.069 | |
| | 2560 | 2040 | 27700 | 520 | 5.25 | 99.1 | 0.527 | |
| | | | 37600 | | 7.12 | | 0.640 | **123.8** |
| 3F | 3360 | 2720 | 5900 | 640 | 1.12 | 572.7 | 0.047 | |
| | 2720 | 2480 | 6900 | 240 | 1.31 | 183.7 | 0.096 | |
| | 2480 | 2320 | 7600 | 160 | 1.44 | 111.2 | 0.137 | |
| | 2320 | 2095 | 16000 | 225 | 3.03 | 74.3 | 0.352 | |
| | | | 36400 | | 6.89 | | 0.631 | **119.2** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 3G | 2760 | 2440 | 1600 | 320 | 0.30 | 1056.0 | 0.009 | |
| | 2440 | 2200 | 4700 | 240 | 0.89 | 269.6 | 0.054 | |
| | 2200 | 1962 | 16500 | 238 | 3.13 | 76.2 | 0.358 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 22800 | | 4.32 | | 0.422 | **104.9** |
| 3H | 3600 | 2600 | 4300 | 1000 | 0.81 | 1227.9 | 0.023 | |
| | 2600 | 2320 | 8000 | 280 | 1.52 | 184.8 | 0.111 | |
| | 2320 | 1815 | 36500 | 505 | 6.91 | 73.1 | 0.809 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 48800 | | 9.24 | | 0.944 | **96.0** |
| 3I | 1552 | 1142 | 44800 | 410 | 8.48 | 48.3 | 1.221 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 44800 | | 8.48 | | 1.221 | **48.3** |
| 3J | 1445 | 804 | 82000 | 641 | 15.53 | 41.3 | 2.417 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 82000 | | 15.53 | | 2.417 | **41.3** |
| 3K | 1062 | 731 | 47800 | 331 | 9.05 | 36.6 | 1.497 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 47800 | | 9.05 | | 1.497 | **36.6** |
| 3L | 870 | 737 | 22800 | 133 | 4.32 | 30.8 | 0.778 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 22800 | | 4.32 | | 0.778 | **30.8** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 3M | 740 | 660 | 16200 | 80 | 3.07 | 26.1 | 0.601 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 16200 | | 3.07 | | 0.601 | **26.1** |
| 4A | 2610 | 2200 | 22200 | 410 | 4.20 | 97.5 | 0.426 | |
| | 2200 | 2003 | 17600 | 197 | 3.33 | 59.1 | 0.434 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 39800 | | 7.54 | | 0.859 | **76.9** |
| 4B | 2466 | 2240 | 2200 | 226 | 0.42 | 542.4 | 0.018 | |
| | 2240 | 2160 | 2100 | 80 | 0.40 | 201.1 | 0.028 | |
| | 2160 | 2080 | 3800 | 80 | 0.72 | 111.2 | 0.068 | |
| | 2080 | 1822 | 20300 | 258 | 3.84 | 67.1 | 0.469 | |
| | | | 28400 | | 5.38 | | 0.584 | **85.0** |
| 4C | 2200 | 2000 | 700 | 200 | 0.13 | 1508.6 | 0.003 | |
| | 2000 | 1920 | 2900 | 80 | 0.55 | 145.7 | 0.046 | |
| | 1920 | 1670 | 32000 | 250 | 6.06 | 41.3 | 0.944 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 35600 | | 6.74 | | 0.993 | **46.1** |
| 4D | 3100 | 2760 | 800 | 340 | 0.15 | 2244.0 | 0.003 | |
| | 2760 | 2400 | 8400 | 360 | 1.59 | 226.3 | 0.106 | |
| | 2400 | 2200 | 11100 | 200 | 2.10 | 95.1 | 0.216 | |
| | 2200 | 2039 | 10500 | 161 | 1.99 | 81.0 | 0.221 | |
| | | | 30800 | | 5.83 | | 0.546 | **114.3** |
| 4E | 3389 | 2800 | 2500 | 589 | 0.47 | 1244.0 | 0.013 | |
| | 2800 | 2640 | 1800 | 160 | 0.34 | 469.3 | 0.016 | |
| | 2640 | 2440 | 8300 | 200 | 1.57 | 127.2 | 0.139 | |
| | 2440 | 2153 | 17400 | 287 | 3.30 | 87.1 | 0.353 | |
| | | | 30000 | | 5.68 | | 0.522 | **118.6** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 4F | 3563 | 2800 | 2800 | 763 | 0.53 | 1438.8 | 0.014 | |
| | 2800 | 2600 | 2300 | 200 | 0.44 | 459.1 | 0.020 | |
| | 2600 | 2040 | 14700 | 560 | 2.78 | 201.1 | 0.196 | |
| | 2040 | 1960 | 7000 | 80 | 1.33 | 60.3 | 0.171 | |
| | | | 26800 | | 5.08 | | 0.401 | **160.0** |
| 4G | 2600 | 2400 | 3300 | 200 | 0.63 | 320.0 | 0.035 | |
| | 2400 | 2080 | 13700 | 320 | 2.59 | 123.3 | 0.234 | |
| | 2080 | 1883 | 17000 | 197 | 3.22 | 61.2 | 0.412 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 34000 | | 6.44 | | 0.680 | **89.6** |
| 4H | 3120 | 2360 | 5700 | 760 | 1.08 | 704.0 | 0.041 | |
| | 2360 | 2240 | 3800 | 120 | 0.72 | 166.7 | 0.056 | |
| | 2240 | 2080 | 10100 | 160 | 1.91 | 83.6 | 0.209 | |
| | 2080 | 1975 | 6200 | 105 | 1.17 | 89.4 | 0.124 | |
| | | | 25800 | | 4.89 | | 0.430 | **129.3** |
| 4I | 2560 | 2280 | 1400 | 280 | 0.27 | 1056.0 | 0.008 | |
| | 2280 | 1920 | 18100 | 360 | 3.43 | 105.0 | 0.335 | |
| | 1920 | 1759 | 14500 | 161 | 2.75 | 58.6 | 0.359 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 34000 | | 6.44 | | 0.701 | **84.3** |
| 4J | 2450 | 1880 | 1500 | 570 | 0.28 | 2006.4 | 0.006 | |
| | 1880 | 1519 | 38500 | 361 | 7.29 | 49.5 | 1.036 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 40000 | | 7.58 | | 1.043 | **52.8** |
| 4K | 1755 | 1370 | 39600 | 385 | 7.50 | 51.3 | 1.047 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 39600 | | 7.50 | | 1.047 | **51.3** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 4L | 2240 | 1760 | 1900 | 480 | 0.36 | 1333.9 | 0.010 | |
| | 1760 | 1360 | 40900 | 400 | 7.75 | 51.6 | 1.078 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 42800 | | 8.11 | | 1.088 | **55.5** |
| 4M | 1420 | 1192 | 26200 | 228 | 4.96 | 45.9 | 0.732 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 26200 | | 4.96 | | 0.732 | **45.9** |
| 4N | 1283 | 841 | 58000 | 442 | 10.98 | 40.2 | 1.732 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 58000 | | 10.98 | | 1.732 | **40.2** |
| 4O | 1100 | 730 | 54200 | 370 | 10.27 | 36.0 | 1.710 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 54200 | | 10.27 | | 1.710 | **36.0** |
| 5A | 1360 | 866 | 63400 | 494 | 12.01 | 41.1 | 1.872 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 63400 | | 12.01 | | 1.872 | **41.1** |
| 5B | 990 | 910 | 11000 | 80 | 2.08 | 38.4 | 0.336 | |
| | 910 | 728 | 23000 | 182 | 4.36 | 41.8 | 0.674 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 34000 | | 6.44 | | 1.010 | **40.6** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 5C | 736 | 650 | 18600 | 86 | 3.52 | 24.4 | 0.713 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 18600 | | 3.52 | | 0.713 | **24.4** |
| 6A | 2760 | 2200 | 1500 | 560 | 0.28 | 1971.2 | 0.006 | |
| | 2200 | 2040 | 3500 | 160 | 0.66 | 241.4 | 0.043 | |
| | 2040 | 1920 | 6000 | 120 | 1.14 | 105.6 | 0.111 | |
| | 1920 | 1705 | 16400 | 215 | 3.11 | 69.2 | 0.373 | |
| | | | 27400 | | 5.19 | | 0.533 | **94.8** |
| 6B | 2480 | 2040 | 1400 | 440 | 0.27 | 1659.4 | 0.007 | |
| | 2040 | 1920 | 2600 | 120 | 0.49 | 243.7 | 0.032 | |
| | 1920 | 1800 | 5000 | 120 | 0.95 | 126.7 | 0.084 | |
| | 1800 | 1600 | 17600 | 200 | 3.33 | 60.0 | 0.430 | |
| | | | 26600 | | 5.04 | | 0.553 | **83.1** |
| 6C | 2381 | 2000 | 1700 | 381 | 0.32 | 1183.3 | 0.009 | |
| | 2000 | 1840 | 5200 | 160 | 0.98 | 162.5 | 0.077 | |
| | 1840 | 1640 | 11500 | 200 | 2.18 | 91.8 | 0.227 | |
| | 1640 | 1440 | 15200 | 200 | 2.88 | 69.5 | 0.345 | |
| | | | 33600 | | 6.36 | | 0.659 | **93.2** |
| 6D | 1880 | 1680 | 900 | 200 | 0.17 | 1173.3 | 0.005 | |
| | 1680 | 1600 | 1500 | 80 | 0.28 | 281.6 | 0.017 | |
| | 1600 | 1440 | 7300 | 160 | 1.38 | 115.7 | 0.129 | |
| | 1440 | 1172 | 25100 | 268 | 4.75 | 56.4 | 0.633 | |
| | | | 34800 | | 6.59 | | 0.784 | **70.8** |
| 6E | 2130 | 1720 | 2500 | 410 | 0.47 | 865.9 | 0.016 | |
| | 1720 | 1600 | 4000 | 120 | 0.76 | 158.4 | 0.060 | |
| | 1600 | 1400 | 10800 | 200 | 2.05 | 97.8 | 0.207 | |
| | 1400 | 1290 | 13700 | 110 | 2.59 | 42.4 | 0.399 | |
| | | | 31000 | | 5.87 | | 0.682 | **74.2** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 6F | 1927 | 1280 | 1400 | 647 | 0.27 | 2440.1 | 0.005 | |
| | 1280 | 951 | 41600 | 329 | 7.88 | 41.8 | 1.219 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 43000 | | 8.14 | | 1.225 | **44.2** |
| 6G | 1338 | 920 | 54000 | 418 | 10.23 | 40.9 | 1.600 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 54000 | | 10.23 | | 1.600 | **40.9** |
| 6H | 2541 | 1600 | 1800 | 941 | 0.34 | 2760.3 | 0.006 | |
| | 1600 | 1240 | 1600 | 360 | 0.30 | 1188.0 | 0.009 | |
| | 1240 | 1160 | 2000 | 80 | 0.38 | 211.2 | 0.026 | |
| | 1160 | 936 | 28800 | 224 | 5.45 | 41.1 | 0.851 | |
| | | | 34200 | | 6.48 | | 0.893 | **52.7** |
| 6I | 2681 | 1800 | 1600 | 881 | 0.30 | 2907.3 | 0.006 | |
| | 1800 | 1400 | 1600 | 400 | 0.30 | 1320.0 | 0.008 | |
| | 1400 | 1180 | 1600 | 220 | 0.30 | 726.0 | 0.011 | |
| | 1180 | 936 | 26600 | 244 | 5.04 | 48.4 | 0.724 | |
| | | | 31400 | | 5.95 | | 0.749 | **63.0** |
| 6J | 1061 | 894 | 27400 | 167 | 5.19 | 32.2 | 0.915 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 27400 | | 5.19 | | 0.915 | **32.2** |
| 6K | 1114 | 850 | 41600 | 264 | 7.88 | 33.5 | 1.361 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 41600 | | 7.88 | | 1.361 | **33.5** |

## TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 6L | 1135 | 797 | 51800 | 338 | 9.81 | 34.5 | 1.671 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 51800 | | 9.81 | | 1.671 | **34.5** |
| 6M | 953 | 798 | 27000 | 155 | 5.11 | 30.3 | 0.929 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 27000 | | 5.11 | | 0.929 | **30.3** |
| 6N | 976 | 728 | 42000 | 248 | 7.95 | 31.2 | 1.425 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 42000 | | 7.95 | | 1.425 | **31.2** |
| 6O | 860 | 728 | 28600 | 132 | 5.42 | 24.4 | 1.097 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 28600 | | 5.42 | | 1.097 | **24.4** |
| 6P | 740 | 650 | 21800 | 90 | 4.13 | 21.8 | 0.884 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 21800 | | 4.13 | | 0.884 | **21.8** |
| 6Q | 740 | 650 | 19800 | 90 | 3.75 | 24.0 | 0.765 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 19800 | | 3.75 | | 0.765 | **24.0** |

# TABLE S-5

## AVERAGE SUB-BASIN SLOPE CALCULATIONS USING THE PIMA COUNTY EQUATION

| Sub-Basin ID | Top Elev. | Bottom Elev. | Length (ft) | H Height (ft) | L Length (mi) | Slope (ft/ft) | I (L^3/H)^0.5 | Average Slope (ft/mi) |
|---|---|---|---|---|---|---|---|---|
| 7A | 960 | 740 | 35400 | 220 | 6.70 | 32.8 | 1.170 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 35400 | | 6.70 | | 1.170 | **32.8** |
| 7B | 742 | 657 | 15600 | 85 | 2.95 | 28.8 | 0.551 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 15600 | | 2.95 | | 0.551 | **28.8** |
| 7C | 732 | 660 | 9400 | 72 | 1.78 | 40.4 | 0.280 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 9400 | | 1.78 | | 0.280 | **40.4** |
| 7D | 745 | 663 | 13200 | 82 | 2.50 | 32.8 | 0.437 | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | --- | --- | --- | --- | --- | --- | --- | |
| | | | 13200 | | 2.50 | | 0.437 | **32.8** |

NOTE: Average Slope (ft/mi) = L^2/I^2

Table S-6

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

# TABLE S-6

## SUB-BASIN LAG TIME AND SURFACE LOSS PARAMETERS

| Sub Basin I.D. | Drainage Area (sq. mi.) | Flow Path (miles) | Slope (ft./mi.) | Surface Characteristics (%) | | | S-Graph Lag Time | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Valley (Kn=0.05 | Hillside (Kn=0.06 | Mountain (Kn=0.08 | Lca (Mi.) | Kn | Lag (hrs) | Lag (min) |
| 1A | 2.100 | 3.60 | 50 | 9.6% | 48.9% | 41.6% | 1.97 | 0.067 | 1.62 | 97 |
| 1B | 2.100 | 3.90 | 62 | 88.8% | 11.2% | 0.0% | 1.55 | 0.051 | 1.11 | 67 |
| 1C | 3.832 | 5.87 | 99 | 100.0% | 0.0% | 0.0% | 2.58 | 0.050 | 1.41 | 84 |
| 1D | 0.338 | 1.29 | 725 | 0.4% | 0.0% | 99.6% | 0.83 | 0.080 | 0.56 | 34 |
| 1E | 3.912 | 6.63 | 100 | 100.0% | 0.0% | 0.0% | 3.11 | 0.050 | 1.58 | 95 |
| 1F | 5.546 | 5.95 | 101 | 35.3% | 21.5% | 43.2% | 2.58 | 0.065 | 1.83 | 110 |
| 1G | 3.783 | 4.39 | 125 | 17.5% | 0.0% | 82.5% | 1.93 | 0.075 | 1.62 | 97 |
| 1H | 6.769 | 5.11 | 90 | 42.1% | 1.3% | 56.5% | 2.88 | 0.067 | 1.90 | 114 |
| 1I | 4.105 | 6.36 | 86 | 100.0% | 0.0% | 0.0% | 3.03 | 0.050 | 1.58 | 95 |
| 1J | 0.617 | 1.78 | 383 | 8.1% | 0.0% | 91.9% | 0.83 | 0.078 | 0.70 | 42 |
| 1K | 1.075 | 2.65 | 440 | 0.0% | 0.0% | 100.0% | 1.59 | 0.080 | 1.04 | 63 |
| 1L | 4.691 | 6.14 | 102 | 80.4% | 0.0% | 19.6% | 3.71 | 0.056 | 1.83 | 110 |
| 1M | 2.190 | 2.73 | 389 | 0.0% | 0.0% | 100.0% | 1.48 | 0.080 | 1.05 | 63 |
| 1N | 2.754 | 5.42 | 89 | 99.8% | 0.0% | 0.2% | 2.35 | 0.050 | 1.34 | 81 |
| 1O | 5.228 | 6.21 | 98 | 43.2% | 10.9% | 45.9% | 4.02 | 0.065 | 2.21 | 133 |
| 1P | 4.564 | 7.31 | 78 | 100.0% | 0.0% | 0.0% | 3.71 | 0.050 | 1.84 | 110 |
| 1Q | 5.305 | 6.82 | 111 | 62.6% | 0.0% | 37.4% | 3.98 | 0.061 | 2.10 | 126 |
| 1R | 2.899 | 3.30 | 99 | 22.9% | 27.5% | 49.6% | 1.82 | 0.068 | 1.34 | 80 |
| 1S | 4.767 | 4.96 | 71 | 28.7% | 32.6% | 38.7% | 2.99 | 0.065 | 1.93 | 116 |
| 1T | 4.674 | 7.88 | 69 | 70.8% | 4.6% | 24.6% | 4.32 | 0.058 | 2.37 | 142 |
| 1U | 3.192 | 7.05 | 53 | 100.0% | 0.0% | 0.0% | 3.71 | 0.050 | 1.95 | 117 |
| 1V | 2.163 | 3.56 | 59 | 59.4% | 19.3% | 21.3% | 1.55 | 0.058 | 1.23 | 74 |
| 1W | 0.530 | 2.12 | 56 | 56.9% | 15.1% | 28.0% | 0.91 | 0.060 | 0.86 | 52 |
| 1X | 2.618 | 3.45 | 53 | 100.0% | 0.0% | 0.0% | 2.20 | 0.050 | 1.22 | 73 |
| 1Y | 5.323 | 5.68 | 43 | 100.0% | 0.0% | 0.0% | 2.77 | 0.050 | 1.67 | 100 |
| 2A | 4.335 | 5.57 | 190 | 53.3% | 0.0% | 46.7% | 3.14 | 0.064 | 1.68 | 101 |
| 2B | 3.313 | 4.89 | 133 | 81.6% | 0.0% | 18.4% | 1.86 | 0.056 | 1.22 | 73 |
| 2C | 2.315 | 3.14 | 147 | 0.1% | 0.0% | 99.9% | 1.17 | 0.080 | 1.22 | 73 |
| 2D | 1.750 | 2.61 | 404 | 0.1% | 0.0% | 99.9% | 1.67 | 0.080 | 1.07 | 64 |
| 2E | 0.997 | 2.05 | 293 | 67.1% | 0.0% | 32.9% | 0.91 | 0.060 | 0.62 | 37 |
| 2F | 0.745 | 1.97 | 262 | 0.0% | 0.0% | 100.0% | 0.91 | 0.080 | 0.83 | 50 |
| 2G | 1.125 | 2.08 | 134 | 61.3% | 0.0% | 38.7% | 1.06 | 0.062 | 0.79 | 47 |
| 2H | 1.594 | 2.54 | 120 | 80.7% | 0.0% | 19.3% | 1.06 | 0.056 | 0.79 | 47 |
| 2I | 0.870 | 1.36 | 147 | 0.0% | 0.0% | 100.0% | 0.57 | 0.080 | 0.67 | 40 |
| 2J | 1.161 | 2.46 | 144 | 0.0% | 0.0% | 100.0% | 1.21 | 0.080 | 1.13 | 68 |
| 2K | 2.189 | 3.98 | 234 | 0.1% | 0.0% | 99.9% | 2.08 | 0.080 | 1.52 | 91 |
| 2L | 0.943 | 2.99 | 148 | 25.1% | 0.0% | 74.9% | 1.55 | 0.072 | 1.21 | 72 |

# TABLE S-6

## SUB-BASIN LAG TIME AND SURFACE LOSS PARAMETERS

| Sub Basin I.D. | Drainage Area (sq. mi.) | Flow Path (miles) | Slope (ft./mi.) | Surface Characteristics (%) | | | S-Graph Lag Time | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Valley (Kn=0.05 | Hillside (Kn=0.06 | Mountain (Kn=0.08 | Lca (Mi.) | Kn | Lag (hrs) | Lag (min) |
| 2M | 1.404 | 1.89 | 127 | 92.1% | 0.0% | 7.9% | 0.72 | 0.052 | 0.56 | 34 |
| 2N | 2.199 | 3.22 | 168 | 81.8% | 0.0% | 18.2% | 1.48 | 0.055 | 0.91 | 55 |
| 2O | 3.373 | 3.14 | 122 | 0.2% | 0.0% | 99.8% | 0.83 | 0.080 | 1.11 | 67 |
| 2P | 3.512 | 3.33 | 266 | 29.4% | 0.1% | 70.5% | 1.82 | 0.071 | 1.17 | 70 |
| 2Q | 2.927 | 3.33 | 114 | 2.7% | 27.7% | 69.6% | 1.74 | 0.074 | 1.40 | 84 |
| 2R | 2.666 | 3.03 | 119 | 60.3% | 9.2% | 30.5% | 1.82 | 0.060 | 1.11 | 67 |
| 2S | 1.819 | 2.42 | 72 | 70.2% | 0.0% | 29.8% | 0.80 | 0.059 | 0.80 | 48 |
| 2T | 4.898 | 6.29 | 159 | 20.6% | 2.8% | 76.6% | 3.37 | 0.073 | 2.14 | 129 |
| 2U | 1.378 | 2.80 | 127 | 72.9% | 7.3% | 19.7% | 1.55 | 0.057 | 0.95 | 57 |
| 2V | 7.571 | 6.21 | 118 | 24.1% | 8.8% | 67.1% | 2.77 | 0.071 | 2.03 | 122 |
| 2W | 6.288 | 5.00 | 110 | 33.7% | 0.0% | 66.3% | 2.12 | 0.070 | 1.68 | 101 |
| 2X | 10.307 | 7.50 | 92 | 40.1% | 0.0% | 59.9% | 3.79 | 0.068 | 2.46 | 148 |
| 2Y | 13.397 | 9.20 | 52 | 86.0% | 1.5% | 12.5% | 3.83 | 0.054 | 2.37 | 142 |
| 2Z | 5.102 | 5.87 | 89 | 49.2% | 0.0% | 50.8% | 2.58 | 0.065 | 1.87 | 112 |
| 2AA | 3.731 | 4.62 | 68 | 83.6% | 0.0% | 16.4% | 1.82 | 0.055 | 1.33 | 80 |
| 2BB | 2.402 | 2.99 | 164 | 44.6% | 0.0% | 55.4% | 1.02 | 0.067 | 0.93 | 56 |
| 2CC | 4.381 | 8.07 | 44 | 100.0% | 0.0% | 0.0% | 3.62 | 0.050 | 2.10 | 126 |
| 2DD | 0.538 | 2.29 | 31 | 100.0% | 0.0% | 0.0% | 1.08 | 0.050 | 0.88 | 53 |
| 2EE | 4.126 | 4.51 | 133 | 30.0% | 0.0% | 70.0% | 1.44 | 0.071 | 1.37 | 82 |
| 2FF | 5.510 | 13.37 | 59 | 100.0% | 0.0% | 0.0% | 6.44 | 0.050 | 3.01 | 181 |
| 2GG | 6.689 | 5.42 | 120 | 55.9% | 0.0% | 44.1% | 3.26 | 0.063 | 1.82 | 109 |
| 2HH | 6.756 | 4.73 | 87 | 69.6% | 0.0% | 30.4% | 1.97 | 0.059 | 1.42 | 85 |
| 2II | 2.217 | 3.94 | 139 | 34.4% | 0.0% | 65.6% | 2.27 | 0.070 | 1.51 | 90 |
| 2JJ | 0.892 | 2.80 | 84 | 100.0% | 0.0% | 0.0% | 1.33 | 0.050 | 0.85 | 51 |
| 2KK | 4.191 | 9.09 | 57 | 100.0% | 0.0% | 0.0% | 4.81 | 0.050 | 2.34 | 140 |
| 2LL | 5.178 | 11.44 | 59 | 100.0% | 0.0% | 0.0% | 7.20 | 0.050 | 2.95 | 177 |
| 2MM | 0.911 | 2.46 | 45 | 100.0% | 0.0% | 0.0% | 1.29 | 0.050 | 0.90 | 54 |
| 2NN | 9.611 | 10.30 | 60 | 100.0% | 0.0% | 0.0% | 6.48 | 0.050 | 2.72 | 163 |
| 2OO | 0.847 | 2.61 | 50 | 100.0% | 0.0% | 0.0% | 1.36 | 0.050 | 0.92 | 55 |
| 2PP | 1.781 | 3.41 | 46 | 100.0% | 0.0% | 0.0% | 1.55 | 0.050 | 1.09 | 65 |
| 2QQ | 1.668 | 4.09 | 66 | 100.0% | 0.0% | 0.0% | 1.55 | 0.050 | 1.09 | 65 |
| 2RR | 0.928 | 3.75 | 35 | 100.0% | 0.0% | 0.0% | 1.82 | 0.050 | 1.27 | 76 |
| 2SS | 3.825 | 5.98 | 78 | 55.1% | 19.4% | 25.5% | 2.23 | 0.060 | 1.67 | 100 |
| 2TT | 4.599 | 4.09 | 95 | 56.3% | 8.4% | 35.3% | 1.67 | 0.061 | 1.29 | 77 |
| 2UU | 8.100 | 9.09 | 40 | 100.0% | 0.0% | 0.0% | 5.87 | 0.050 | 2.70 | 162 |
| 2VV | 3.737 | 6.10 | 43 | 100.0% | 0.0% | 0.0% | 2.01 | 0.050 | 1.52 | 91 |
| 2VV1 | 0.541 | 3.41 | 48 | 100.0% | 0.0% | 0.0% | 1.70 | 0.050 | 1.12 | 67 |

# TABLE S-6

## SUB-BASIN LAG TIME AND SURFACE LOSS PARAMETERS

| Sub Basin I.D. | Drainage Area (sq. mi.) | Flow Path (miles) | Slope (ft./mi.) | Surface Characteristics (%) | | | S-Graph Lag Time | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Valley (Kn=0.05 | Hillside (Kn=0.06 | Mountain (Kn=0.08 | Lca (Mi.) | Kn | Lag (hrs) | Lag (min) |
| 2VV2 | 0.964 | 3.50 | 44 | 100.0% | 0.0% | 0.0% | 1.55 | 0.050 | 1.11 | 67 |
| 2VV3 | 0.023 | 0.45 | 44 | 100.0% | 0.0% | 0.0% | 0.19 | 0.050 | 0.23 | 14 |
| 2VV4 | 0.100 | 0.74 | 42 | 100.0% | 0.0% | 0.0% | 0.40 | 0.050 | 0.37 | 22 |
| 2VV5 | 0.249 | 1.63 | 38 | 100.0% | 0.0% | 0.0% | 0.76 | 0.050 | 0.65 | 39 |
| 2VV6 | 0.562 | 2.06 | 39 | 100.0% | 0.0% | 0.0% | 0.89 | 0.050 | 0.75 | 45 |
| 2VV7 | 0.123 | 1.48 | 32 | 100.0% | 0.0% | 0.0% | 0.66 | 0.050 | 0.62 | 37 |
| 2VV8 | 0.363 | 1.34 | 46 | 100.0% | 0.0% | 0.0% | 0.63 | 0.050 | 0.54 | 33 |
| 2WW | 5.823 | 8.98 | 54 | 96.3% | 1.2% | 2.5% | 4.17 | 0.051 | 2.27 | 136 |
| 2XX | 2.167 | 3.37 | 25 | 100.0% | 0.0% | 0.0% | 1.70 | 0.050 | 1.26 | 76 |
| 2YY | 1.117 | 4.77 | 36 | 100.0% | 0.0% | 0.0% | 1.70 | 0.050 | 1.34 | 81 |
| 3A | 11.188 | 7.42 | 126 | 1.3% | 15.5% | 83.2% | 4.32 | 0.077 | 2.73 | 164 |
| 3B | 6.417 | 8.03 | 76 | 99.8% | 0.0% | 0.2% | 3.26 | 0.050 | 1.82 | 109 |
| 3C | 11.267 | 8.60 | 132 | 41.8% | 10.9% | 47.3% | 3.45 | 0.065 | 2.25 | 135 |
| 3D | 6.505 | 7.31 | 79 | 80.6% | 0.0% | 19.4% | 2.88 | 0.056 | 1.86 | 112 |
| 3E | 8.236 | 7.12 | 124 | 17.1% | 35.5% | 47.4% | 2.92 | 0.068 | 2.06 | 124 |
| 3F | 12.138 | 6.89 | 119 | 0.0% | 29.1% | 70.9% | 2.95 | 0.074 | 2.26 | 135 |
| 3G | 5.118 | 4.32 | 105 | 32.9% | 18.3% | 48.8% | 2.12 | 0.066 | 1.53 | 92 |
| 3H | 6.779 | 9.24 | 96 | 44.5% | 30.2% | 25.3% | 4.70 | 0.061 | 2.56 | 154 |
| 3I | 5.101 | 8.48 | 48 | 100.0% | 0.0% | 0.0% | 4.58 | 0.050 | 2.31 | 139 |
| 3J | 11.255 | 15.53 | 41 | 100.0% | 0.0% | 0.0% | 6.06 | 0.050 | 3.33 | 200 |
| 3K | 8.935 | 9.05 | 37 | 100.0% | 0.0% | 0.0% | 2.58 | 0.050 | 2.00 | 120 |
| 3L | 2.478 | 4.32 | 31 | 100.0% | 0.0% | 0.0% | 2.08 | 0.050 | 1.44 | 87 |
| 3M | 3.893 | 3.07 | 26 | 100.0% | 0.0% | 0.0% | 1.74 | 0.050 | 1.22 | 73 |
| 4A | 11.750 | 7.54 | 77 | 7.7% | 28.9% | 63.4% | 4.13 | 0.072 | 2.79 | 168 |
| 4B | 6.143 | 5.38 | 85 | 52.8% | 4.9% | 42.3% | 2.27 | 0.063 | 1.69 | 101 |
| 4C | 12.329 | 6.74 | 46 | 61.4% | 0.3% | 38.3% | 4.55 | 0.062 | 2.62 | 157 |
| 4D | 4.565 | 5.83 | 114 | 0.0% | 0.0% | 100.0% | 3.41 | 0.080 | 2.43 | 146 |
| 4E | 4.878 | 5.68 | 119 | 0.3% | 0.0% | 99.7% | 2.77 | 0.080 | 2.20 | 132 |
| 4F | 6.157 | 5.08 | 160 | 23.9% | 0.0% | 76.1% | 1.97 | 0.073 | 1.60 | 96 |
| 4G | 7.704 | 6.44 | 90 | 23.6% | 0.0% | 76.4% | 1.78 | 0.073 | 1.88 | 113 |
| 4H | 6.114 | 4.89 | 129 | 0.2% | 14.3% | 85.5% | 2.54 | 0.077 | 1.91 | 115 |
| 4I | 15.520 | 6.44 | 84 | 38.4% | 0.0% | 61.6% | 2.88 | 0.068 | 2.15 | 129 |
| 4J | 6.089 | 7.58 | 53 | 84.4% | 0.0% | 15.6% | 3.30 | 0.055 | 2.10 | 126 |
| 4K | 3.906 | 7.50 | 51 | 100.0% | 0.0% | 0.0% | 3.22 | 0.050 | 1.90 | 114 |
| 4L | 9.489 | 8.11 | 56 | 76.5% | 4.7% | 18.8% | 4.73 | 0.056 | 2.51 | 151 |
| 4M | 3.425 | 4.96 | 46 | 99.6% | 0.0% | 0.4% | 2.69 | 0.050 | 1.56 | 93 |
| 4N | 7.608 | 10.98 | 40 | 100.0% | 0.0% | 0.0% | 6.36 | 0.050 | 2.99 | 179 |

# TABLE S-6

## SUB-BASIN LAG TIME AND SURFACE LOSS PARAMETERS

| Sub Basin I.D. | Drainage Area (sq. mi.) | Flow Path (miles) | Slope (ft./mi.) | Surface Characteristics (%) | | | S-Graph Lag Time | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Valley (Kn=0.05 | Hillside (Kn=0.06 | Mountain (Kn=0.08 | Lca (Mi.) | Kn | Lag (hrs) | Lag (min) |
| 4O | 5.503 | 10.27 | 36 | 100.0% | 0.0% | 0.0% | 3.26 | 0.050 | 2.30 | 138 |
| 5A | 9.286 | 12.01 | 41 | 100.0% | 0.0% | 0.0% | 5.45 | 0.050 | 2.90 | 174 |
| 5B | 4.877 | 6.44 | 41 | 100.0% | 0.0% | 0.0% | 3.30 | 0.050 | 1.90 | 114 |
| 5C | 2.414 | 3.52 | 24 | 100.0% | 0.0% | 0.0% | 1.67 | 0.050 | 1.28 | 77 |
| 6A | 9.044 | 5.19 | 95 | 12.6% | 4.9% | 82.5% | 2.61 | 0.075 | 2.05 | 123 |
| 6B | 10.951 | 5.04 | 83 | 17.8% | 6.6% | 75.7% | 1.74 | 0.073 | 1.74 | 104 |
| 6C | 8.826 | 6.36 | 93 | 26.7% | 0.4% | 72.9% | 1.40 | 0.072 | 1.67 | 100 |
| 6D | 9.982 | 6.59 | 71 | 50.2% | 2.6% | 47.2% | 3.71 | 0.064 | 2.32 | 139 |
| 6E | 7.120 | 5.87 | 74 | 4.9% | 14.1% | 81.0% | 3.71 | 0.076 | 2.59 | 155 |
| 6F | 5.050 | 8.14 | 44 | 74.8% | 0.0% | 25.2% | 3.94 | 0.058 | 2.51 | 151 |
| 6G | 6.372 | 10.23 | 41 | 100.0% | 0.0% | 0.0% | 5.64 | 0.050 | 2.77 | 166 |
| 6H | 4.967 | 6.48 | 53 | 69.7% | 0.0% | 30.3% | 4.13 | 0.059 | 2.33 | 140 |
| 6I | 6.965 | 5.95 | 63 | 63.1% | 0.0% | 36.9% | 2.61 | 0.061 | 1.89 | 114 |
| 6J | 4.473 | 5.19 | 32 | 78.7% | 0.0% | 21.3% | 1.97 | 0.056 | 1.69 | 102 |
| 6K | 5.945 | 7.88 | 34 | 99.0% | 0.0% | 1.0% | 3.26 | 0.050 | 2.13 | 128 |
| 6L | 6.341 | 9.81 | 34 | 100.0% | 0.0% | 0.0% | 4.32 | 0.050 | 2.54 | 153 |
| 6M | 3.860 | 5.11 | 30 | 93.5% | 0.0% | 6.5% | 2.01 | 0.052 | 1.58 | 95 |
| 6N | 7.839 | 7.95 | 31 | 100.0% | 0.0% | 0.0% | 3.11 | 0.050 | 2.11 | 127 |
| 6O | 8.133 | 5.42 | 24 | 100.0% | 0.0% | 0.0% | 1.89 | 0.050 | 1.58 | 95 |
| 6P | 5.210 | 4.13 | 22 | 100.0% | 0.0% | 0.0% | 2.61 | 0.050 | 1.65 | 99 |
| 6Q | 2.861 | 3.75 | 24 | 100.0% | 0.0% | 0.0% | 1.82 | 0.050 | 1.36 | 82 |
| 7A | 2.447 | 6.70 | 33 | 100.0% | 0.0% | 0.0% | 1.74 | 0.050 | 1.57 | 94 |
| 7B | 1.673 | 2.95 | 29 | 100.0% | 0.0% | 0.0% | 1.55 | 0.050 | 1.13 | 68 |
| 7C | 0.596 | 1.78 | 40 | 100.0% | 0.0% | 0.0% | 0.68 | 0.050 | 0.64 | 38 |
| 7D | 1.167 | 2.50 | 33 | 100.0% | 0.0% | 0.0% | 1.25 | 0.050 | 0.95 | 57 |

Note: The Kn values listed are a composite based on the following:

| | |
|---|---|
| Valley: | 0.050 |
| Hillslope: | 0.060 |
| Mountain: | 0.080 |

Table S-7

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

## TABLE S-7

## SUMMARY OF SUB-BASIN PARAMETERS

| Sub-Basin ID | Area (sm) | IA (in.) | DTHETA (in.) | PSIF (in.) | XKSAT (in./hr.) | RTIMP (%) | LAG (min.) | S-Graph Type | Total Basin Area (s.m.) |
|---|---|---|---|---|---|---|---|---|---|
| 1A | 2.10 | 0.21 | 0.35 | 4.05 | 0.51 | 13% | 97 | Mountain | |
| 1B | 2.10 | 0.33 | 0.35 | 4.29 | 0.47 | 2% | 67 | Valley | |
| 1C | 3.83 | 0.35 | 0.35 | 3.66 | 0.33 | 0% | 84 | Valley | |
| 1D | 0.34 | 0.25 | 0.20 | 9.40 | 0.02 | 10% | 34 | Mountain | |
| 1E | 3.91 | 0.35 | 0.35 | 4.03 | 0.40 | 0% | 95 | Valley | |
| 1F | 5.55 | 0.26 | 0.35 | 3.44 | 0.80 | 14% | 110 | Mountain | |
| 1G | 3.78 | 0.27 | 0.35 | 2.86 | 1.02 | 21% | 97 | Mountain | |
| 1H | 6.77 | 0.29 | 0.35 | 3.51 | 0.87 | 13% | 114 | Mountain | |
| 1I | 4.11 | 0.35 | 0.35 | 4.14 | 0.41 | 0% | 95 | Valley | |
| 1J | 0.62 | 0.26 | 0.20 | 9.40 | 0.02 | 9% | 42 | Mountain | |
| 1K | 1.08 | 0.25 | 0.20 | 9.40 | 0.02 | 10% | 63 | Mountain | |
| 1L | 4.69 | 0.33 | 0.39 | 5.67 | 0.20 | 2% | 110 | Valley | |
| 1M | 2.19 | 0.25 | 0.20 | 9.40 | 0.02 | 10% | 63 | Mountain | |
| 1N | 2.75 | 0.35 | 0.35 | 4.18 | 0.49 | 0% | 81 | Valley | |
| 1O | 5.23 | 0.28 | 0.35 | 3.67 | 0.69 | 10% | 133 | Mountain | |
| 1P | 4.56 | 0.35 | 0.35 | 4.07 | 0.54 | 0% | 110 | Valley | |
| 1Q | 5.30 | 0.31 | 0.38 | 6.96 | 0.15 | 4% | 126 | Valley | |
| 1R | 2.90 | 0.25 | 0.35 | 4.18 | 0.47 | 13% | 80 | Mountain | |
| 1S | 4.77 | 0.25 | 0.35 | 3.52 | 0.78 | 9% | 116 | Mountain | |
| 1T | 4.67 | 0.32 | 0.35 | 3.68 | 0.69 | 6% | 142 | Valley | |
| 1U | 3.19 | 0.35 | 0.35 | 3.21 | 0.93 | 0% | 117 | Valley | |
| 1V | 2.16 | 0.29 | 0.35 | 3.73 | 0.67 | 6% | 74 | Valley | |
| 1W | 0.53 | 0.29 | 0.35 | 3.44 | 0.81 | 7% | 52 | Valley | |
| 1X | 2.62 | 0.35 | 0.35 | 3.94 | 0.58 | 0% | 73 | Valley | |
| 1Y | 5.32 | 0.35 | 0.35 | 3.91 | 0.60 | 0% | 100 | Valley | 85.08 |
| 2A | 4.33 | 0.30 | 0.30 | 8.05 | 0.08 | 5% | 101 | Valley | |
| 2B | 3.31 | 0.33 | 0.40 | 6.29 | 0.20 | 2% | 73 | Valley | |
| 2C | 2.32 | 0.25 | 0.20 | 9.40 | 0.02 | 10% | 73 | Mountain | |
| 2D | 1.75 | 0.25 | 0.20 | 9.40 | 0.02 | 10% | 64 | Mountain | |
| 2E | 1.00 | 0.32 | 0.36 | 7.32 | 0.12 | 3% | 37 | Valley | |
| 2F | 0.75 | 0.25 | 0.20 | 9.40 | 0.02 | 10% | 50 | Mountain | |
| 2G | 1.13 | 0.31 | 0.33 | 7.78 | 0.10 | 4% | 47 | Valley | |
| 2H | 1.59 | 0.33 | 0.40 | 6.60 | 0.18 | 2% | 47 | Valley | |
| 2I | 0.87 | 0.25 | 0.20 | 9.40 | 0.02 | 10% | 40 | Mountain | |
| 2J | 1.16 | 0.25 | 0.20 | 9.40 | 0.02 | 10% | 68 | Mountain | |
| 2K | 2.19 | 0.25 | 0.20 | 9.40 | 0.02 | 10% | 91 | Mountain | |
| 2L | 0.94 | 0.28 | 0.25 | 8.20 | 0.04 | 7% | 72 | Mountain | |
| 2M | 1.40 | 0.34 | 0.38 | 5.05 | 0.26 | 1% | 34 | Valley | |
| 2N | 2.20 | 0.33 | 0.40 | 6.29 | 0.20 | 2% | 55 | Valley | |
| 2O | 3.37 | 0.25 | 0.20 | 9.40 | 0.02 | 10% | 67 | Mountain | |

## TABLE S-7

## SUMMARY OF SUB-BASIN PARAMETERS

| Sub-Basin ID | Area (sm) | IA (in.) | DTHETA (in.) | PSIF (in.) | XKSAT (in./hr.) | RTIMP (%) | LAG (min.) | S-Graph Type | Total Basin Area (s.m.) |
|---|---|---|---|---|---|---|---|---|---|
| 2P | 3.51 | 0.28 | 0.39 | 5.98 | 0.18 | 9% | 70 | Mountain | |
| 2Q | 2.93 | 0.22 | 0.35 | 3.71 | 0.30 | 10% | 84 | Mountain | |
| 2R | 2.67 | 0.30 | 0.35 | 3.36 | 0.83 | 5% | 67 | Valley | |
| 2S | 1.82 | 0.32 | 0.35 | 3.35 | 0.85 | 4% | 48 | Valley | |
| 2T | 4.90 | 0.27 | 0.33 | 7.78 | 0.09 | 9% | 129 | Mountain | |
| 2U | 1.38 | 0.32 | 0.35 | 3.32 | 0.91 | 4% | 57 | Valley | |
| 2V | 7.57 | 0.27 | 0.39 | 5.67 | 0.19 | 9% | 122 | Mountain | |
| 2W | 6.29 | 0.28 | 0.25 | 8.40 | 0.05 | 7% | 101 | Mountain | |
| 2X | 10.31 | 0.29 | 0.25 | 8.60 | 0.06 | 6% | 148 | Mountain | |
| 2Y | 13.40 | 0.33 | 0.35 | 4.03 | 0.36 | 2% | 142 | Valley | |
| 2Z | 5.10 | 0.30 | 0.28 | 8.28 | 0.08 | 5% | 112 | Mountain | |
| 2AA | 3.73 | 0.33 | 0.39 | 5.98 | 0.18 | 2% | 80 | Valley | |
| 2BB | 2.40 | 0.29 | 0.25 | 8.60 | 0.07 | 6% | 56 | Mountain | |
| 2CC | 4.38 | 0.35 | 0.35 | 4.30 | 0.45 | 0% | 126 | Valley | |
| 2DD | 0.54 | 0.35 | 0.35 | 4.18 | 0.50 | 0% | 53 | Valley | |
| 2EE | 4.13 | 0.28 | 0.25 | 8.20 | 0.04 | 7% | 82 | Mountain | |
| 2FF | 5.51 | 0.35 | 0.35 | 3.82 | 0.35 | 0% | 181 | Valley | |
| 2GG | 6.69 | 0.31 | 0.30 | 8.05 | 0.09 | 4% | 109 | Valley | |
| 2HH | 6.76 | 0.32 | 0.38 | 5.05 | 0.22 | 3% | 85 | Valley | |
| 2II | 2.22 | 0.28 | 0.25 | 8.40 | 0.05 | 7% | 90 | Mountain | |
| 2JJ | 0.89 | 0.35 | 0.35 | 3.50 | 0.28 | 0% | 51 | Valley | |
| 2KK | 4.19 | 0.35 | 0.35 | 3.55 | 0.29 | 0% | 140 | Valley | |
| 2LL | 5.18 | 0.35 | 0.35 | 3.50 | 0.29 | 0% | 177 | Valley | |
| 2MM | 0.91 | 0.35 | 0.35 | 3.32 | 0.86 | 0% | 54 | Valley | |
| 2NN | 9.61 | 0.35 | 0.35 | 3.50 | 0.29 | 0% | 163 | Valley | |
| 2OO | 0.85 | 0.35 | 0.35 | 3.50 | 0.29 | 0% | 55 | Valley | |
| 2PP | 1.78 | 0.35 | 0.35 | 3.61 | 0.31 | 0% | 65 | Valley | |
| 2QQ | 1.67 | 0.35 | 0.35 | 3.48 | 0.80 | 0% | 65 | Valley | |
| 2RR | 0.93 | 0.35 | 0.35 | 4.15 | 0.54 | 0% | 76 | Valley | |
| 2SS | 3.83 | 0.29 | 0.35 | 3.34 | 0.84 | 5% | 100 | Valley | |
| 2TT | 4.60 | 0.30 | 0.35 | 3.57 | 0.72 | 6% | 77 | Valley | |
| 2UU | 8.10 | 0.35 | 0.35 | 3.81 | 0.65 | 0% | 162 | Valley | |
| 2VV | 3.74 | 0.34 | 0.34 | 3.49 | 0.79 | 4% | 91 | Valley | |
| 2VV1 | 0.34 | 0.34 | 0.34 | 3.84 | 0.63 | 4% | 67 | Valley | |
| 2VV2 | 0.96 | 0.34 | 0.34 | 3.32 | 0.86 | 4% | 67 | Valley | |
| 2VV3 | 0.02 | 0.34 | 0.34 | 3.26 | 0.89 | 4% | 14 | Valley | |
| 2VV4 | 0.10 | 0.34 | 0.34 | 3.26 | 0.89 | 4% | 22 | Valley | |
| 2VV5 | 0.25 | 0.34 | 0.34 | 3.26 | 0.89 | 4% | 39 | Valley | |
| 2VV6 | 0.36 | 0.34 | 0.34 | 3.26 | 0.89 | 4% | 45 | Valley | |
| 2VV7 | 0.12 | 0.34 | 0.34 | 3.26 | 0.89 | 4% | 37 | Valley | |

## TABLE S-7

## SUMMARY OF SUB-BASIN PARAMETERS

| Sub-Basin ID | Area (sm) | IA (in.) | DTHETA (in.) | PSIF (in.) | XKSAT (in./hr.) | RTIMP (%) | LAG (min.) | S-Graph Type | Total Basin Area (s.m.) |
|---|---|---|---|---|---|---|---|---|---|
| 2VV8 | 0.36 | 0.34 | 0.34 | 3.26 | 0.89 | 4% | 33 | Valley | |
| 2WW | 5.82 | 0.34 | 0.35 | 3.49 | 0.78 | 1% | 136 | Valley | |
| 2XX | 2.17 | 0.33 | 0.34 | 3.86 | 0.62 | 5% | 76 | Valley | |
| 2YY | 1.12 | 0.35 | 0.35 | 3.36 | 0.90 | 0% | 81 | Valley | 179.90 |
| 3A | 11.19 | 0.24 | 0.35 | 4.20 | 0.46 | 4% | 164 | Mountain | |
| 3B | 6.42 | 0.35 | 0.35 | 3.50 | 0.29 | 0% | 109 | Valley | |
| 3C | 11.27 | 0.28 | 0.35 | 3.98 | 0.37 | 1% | 135 | Mountain | |
| 3D | 6.51 | 0.33 | 0.35 | 3.61 | 0.31 | 0% | 112 | Valley | |
| 3E | 8.24 | 0.23 | 0.35 | 4.24 | 0.42 | 4% | 124 | Mountain | |
| 3F | 12.14 | 0.22 | 0.35 | 3.99 | 0.54 | 12% | 135 | Mountain | |
| 3G | 5.12 | 0.26 | 0.35 | 4.14 | 0.42 | 4% | 92 | Mountain | |
| 3H | 6.78 | 0.26 | 0.35 | 4.03 | 0.39 | 3% | 154 | Mountain | |
| 3I | 5.10 | 0.35 | 0.35 | 3.50 | 0.30 | 0% | 139 | Valley | |
| 3J | 11.25 | 0.35 | 0.35 | 3.82 | 0.36 | 0% | 200 | Valley | |
| 3K | 8.94 | 0.35 | 0.34 | 4.01 | 0.58 | 1% | 120 | Valley | |
| 3L | 2.48 | 0.36 | 0.31 | 3.82 | 0.33 | 3% | 87 | Valley | |
| 3M | 3.89 | 0.44 | 0.10 | 3.94 | 0.55 | 2% | 73 | Valley | 99.31 |
| 4A | 11.75 | 0.23 | 0.35 | 4.26 | 0.43 | 4% | 168 | Mountain | |
| 4B | 6.14 | 0.30 | 0.35 | 3.87 | 0.38 | 0% | 101 | Valley | |
| 4C | 12.33 | 0.31 | 0.35 | 3.77 | 0.38 | 0% | 157 | Valley | |
| 4D | 4.57 | 0.25 | 0.35 | 4.24 | 0.40 | 0% | 146 | Mountain | |
| 4E | 4.88 | 0.25 | 0.35 | 4.11 | 0.48 | 7% | 132 | Mountain | |
| 4F | 6.16 | 0.27 | 0.35 | 4.14 | 0.49 | 10% | 96 | Mountain | |
| 4G | 7.70 | 0.27 | 0.35 | 4.08 | 0.44 | 0% | 113 | Mountain | |
| 4H | 6.11 | 0.24 | 0.40 | 6.29 | 0.16 | 12% | 115 | Mountain | |
| 4I | 15.52 | 0.29 | 0.35 | 4.14 | 0.40 | 4% | 129 | Mountain | |
| 4J | 6.09 | 0.33 | 0.35 | 3.61 | 0.30 | 0% | 126 | Valley | |
| 4K | 3.91 | 0.35 | 0.35 | 3.50 | 0.28 | 0% | 114 | Valley | |
| 4L | 9.49 | 0.32 | 0.35 | 3.77 | 0.34 | 3% | 151 | Valley | |
| 4M | 3.42 | 0.35 | 0.35 | 3.50 | 0.27 | 0% | 93 | Valley | |
| 4N | 7.61 | 0.35 | 0.35 | 3.50 | 0.27 | 0% | 179 | Valley | |
| 4O | 5.50 | 0.35 | 0.35 | 3.66 | 0.31 | 0% | 138 | Valley | 111.18 |
| 5A | 9.29 | 0.35 | 0.35 | 3.50 | 0.27 | 0% | 174 | Valley | |
| 5B | 4.88 | 0.35 | 0.35 | 3.82 | 0.36 | 0% | 114 | Valley | |
| 5C | 2.41 | 0.45 | 0.09 | 3.54 | 0.72 | 1% | 77 | Valley | 16.58 |
| 6A | 9.04 | 0.26 | 0.25 | 8.60 | 0.07 | 10% | 123 | Mountain | |
| 6B | 10.95 | 0.26 | 0.28 | 8.28 | 0.08 | 9% | 104 | Mountain | |
| 6C | 8.83 | 0.28 | 0.35 | 4.03 | 0.37 | 0% | 100 | Mountain | |
| 6D | 9.98 | 0.30 | 0.30 | 8.05 | 0.09 | 5% | 139 | Valley | |
| 6E | 7.12 | 0.24 | 0.25 | 8.20 | 0.04 | 10% | 155 | Mountain | |

## TABLE S-7

## SUMMARY OF SUB-BASIN PARAMETERS

| Sub-Basin ID | Area (sm) | IA (in.) | DTHETA (in.) | PSIF (in.) | XKSAT (in./hr.) | RTIMP (%) | LAG (min.) | S-Graph Type | Total Basin Area (s.m.) |
|---|---|---|---|---|---|---|---|---|---|
| 6F | 5.05 | 0.32 | 0.35 | 3.82 | 0.32 | 4% | 151 | Valley | |
| 6G | 6.37 | 0.35 | 0.35 | 3.50 | 0.27 | 0% | 166 | Valley | |
| 6H | 4.97 | 0.32 | 0.35 | 3.87 | 0.34 | 5% | 140 | Valley | |
| 6I | 6.97 | 0.31 | 0.35 | 4.08 | 0.38 | 7% | 114 | Valley | |
| 6J | 4.47 | 0.33 | 0.35 | 3.87 | 0.36 | 4% | 102 | Valley | |
| 6K | 5.95 | 0.35 | 0.35 | 3.50 | 0.28 | 0% | 128 | Valley | |
| 6L | 6.34 | 0.35 | 0.35 | 3.50 | 0.27 | 0% | 153 | Valley | |
| 6M | 3.86 | 0.34 | 0.35 | 3.55 | 0.29 | 1% | 95 | Valley | |
| 6N | 7.84 | 0.35 | 0.35 | 3.71 | 0.32 | 0% | 127 | Valley | |
| 6O | 8.13 | 0.37 | 0.30 | 3.66 | 0.31 | 0% | 95 | Valley | |
| 6P | 5.21 | 0.42 | 0.13 | 4.07 | 0.50 | 2% | 99 | Valley | |
| 6Q | 2.86 | 0.47 | 0.05 | 3.64 | 0.68 | 1% | 82 | Valley | 113.94 |
| 7A | 2.45 | 0.34 | 0.35 | 3.27 | 0.93 | 2% | 94 | Valley | |
| 7B | 1.67 | 0.35 | 0.27 | 3.53 | 0.75 | 7% | 68 | Valley | |
| 7C | 0.60 | 0.35 | 0.35 | 2.99 | 1.01 | 1% | 38 | Valley | |
| 7D | 1.17 | 0.30 | 0.33 | 3.34 | 0.88 | 15% | 57 | Valley | 5.88 |
| | | | | | | | | **Total Watershed Area =** | 611.87 |

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

Table S-8

## TABLE S-8

## AREAS FOR CONCENTRATION POINTS DOWNSTREAM FROM FLOW DIVERSIONS

| HEC-1 I.D. | CONTRIBUTING AREAS | | Total Area (sm) |
|---|---|---|---|
| **Flow Split Concentration Points** | | | |
| PND1 | C51I + 6L + 6G | 85.32+6.34+6.37 | 98.03* |
| PND2 | C53 + C36 + C11 + [C12L] | 7.84 + 145.34 + 86.50 + [339.34] | 239.68 |
| PND3 | C133I + 2VV | 330.40 + 3.74 | 334.14 |
| C11 | C10 + 3L + [C12I] | 84.02 + 2.48 + [339.34] | 86.5 |
| C12 | C151 + 3K | 330.40 + 8.94 | 339.34 |
| C32 | C30 + 4M + C31 | 51.11 + 3.42 + 63.53 | 118.06 |
| C36 | PND2 | 239.68 | 239.68 |
| C40 | C40 | 19.99 | 19.99 |
| C47 | C69 + 6J | 62.91 + 4.47 | 67.38 |
| C48 | C47 + 6K | 67.38 + 5.95 | 73.33 |
| C51 | PND1 | 98.03 | 98.03 |
| C78 | 1S | 4.77 | 4.77 |
| C79 | C78 + C77 + 1W + 1V | 4.77 + 69.67 + 0.53 + 2.16 | 77.13 |
| C80 | C79 | 77.13 | 77.13 |
| C81 | C79 + 1X | 77.13 + 2.62 | 79.75 |
| C82 | C81 + 1Y | 79.75 + 5.32 | 85.07 |
| C84 | C83 | 4.33 | 4.33 |
| C116 | C115 + 2II | 13.45 + 2.22 | 15.67 |
| C132 | C82 + C131 + 2UU | 85.07 + 237.23 + 8.10 | 330.4 |
| C133 | PND3 | 334.14 | 334.14 |
| C142 | 7A + PND3 | 2.45 + 334.14 | 336.59 |
| C150 | C132 | 330.40 | 330.40 |
| C151 | C150 | 330.4 | 330.4 |

## TABLE S-8

## AREAS FOR CONCENTRATION POINTS DOWNSTREAM FROM FLOW DIVERSIONS

| HEC-1 I.D. | CONTRIBUTING AREAS | | Total Area (sm) |
|---|---|---|---|
| **Concentration Points Affected By Flow Splits** | | | |
| PND1 | C51I + 6L + 6G | 85.32+6.34+6.37 | 98.03* |
| PND2 | C53 + C36 + C11 + C12L | 7.84 + 145.34 + 86.50 + [339.34] | 239.68 |
| PND3 | C133I + 2VV | 330.40 + 3.74 | 334.14 |
| C11I | C10 + 3L | 84.02 + 2.48 | 86.5 |
| C12I | C151 + 3K | 330.40 + 8.94 | 339.34* |
| C13 | PND2 | 239.68 | 239.68* |
| C18 | C142 + 7B | 336.59 + 1.67 | 338.26* |
| C30 | C40 + C25 + 4L | 19.99 + 21.63 + 9.49 | 51.11 |
| C33 | C32 + 4N | 118.06 + 7.61 | 125.67 |
| C35 | C32 + 5A | 118.06 + 9.29 | 127.35* |
| C36I | C34 + 5A | 131.17 + 9.29 | 140.46* |
| C38 | PND2 + 5C | 239.68 + 2.41 | 242.09* |
| C41 | C40 + 6C | 19.99 + 8.83 | 28.82* |
| C48 | C47 + 6K | 67.38 + 5.95 | 73.33 |
| C49 | C48 + 6M | 73.33 + 3.86 | 77.19* |
| C51I | C49 + 6O | 77.19 + 8.13 | 85.32 |
| C52I | C48 + 6L + 6G | 73.33 + 6.34 + 6.37 | 86.04 |
| C57 | PND1 | 98.03 | 98.03* |
| C59 | PND2 + 6Q | 239.68 + 2.86 | 252.54 |
| C80 | C79 | 77.13 | 77.13 |
| C81 | C79 + 1X | 77.13 + 2.62 | 79.75* |
| C82 | C81 + 1Y | 79.75 + 5.32 | 85.07* |
| C85 | C84 + 2B | 4.33 + 3.31 | 7.64 |
| C86 | C84 + 2N | 4.33 + 2.20 | 6.53* |
| C119 | C116 + 2JJ + C118 | 15.67 + 0.89 + 4.13 | 20.69 |
| C120 | C119 + 2LL + 2KK | 20.69 + 5.18 + 4.19 | 30.06* |
| C128 | C78 + 2SS | 4.77 + 3.83 | 8.60* |
| C130 | C80 + 2SS + 2TT | 77.13 + 3.83 + 4.60 | 85.56* |
| C132 | C82 + C131 + 2UU | 85.07 + 237.23 + 8.10 | 330.40* |

## TABLE S-8

## AREAS FOR CONCENTRATION POINTS DOWNSTREAM FROM FLOW DIVERSIONS

| HEC-1 I.D. | CONTRIBUTING AREAS | | Total Area (sm) |
|---|---|---|---|
| | | | |
| C133I | C132 + 2VV | 330.40 + 3.74 | 334.14* |
| C135I | C82 + 2VV | 85.07 + 3.74 | 88.81 |
| C139 | C142 + C79 | 336.59 + 1.17 | 337.76 |
| C141 | PND3 | 334.14 | 334.14* |
| C142I | 7A + PND3 | 2.45 + 334.14 | 336.59* |

Note:

* : Area input on the HC record in HEC-1 model.
[ ] : Area not included in total.

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Section 3.2.2.2

### 3.2.2.2 Reach Route Parameters

**General**

Routing of sub-basin hydrographs was done utilizing the normal depth channel option under HEC-1. The routing reach paths are shown on Exhibit "C". Plots of the cross sections used for each route are shown on Exhibit "E". Refer to Exhibits "F" and "G" for a flood routing diagram on which the combination and routing logic is depicted for both the 6-hour and the 24-hour storms.

**Field Reconnaissance**

The field reconnaissance was done during the period September 14, 1991 through October 4, 1991. The majority of the watershed is public land under the jurisdiction of the U.S. Bureau of Land Management (BLM). This includes the Barry M. Goldwater Military Reservation (BGR). The BLM was assigned the responsibility for land and natural resource management of the BGR by the Military Lands Withdrawal Act of 1986 (Public Law 99-606)[2]. Access to the BLM land within the study area was granted by the BLM in the form of a Land Use Permit AZA-25639 dated September 4, 1991, with the concurrence of Luke Air Force Base. The permit was granted to the Flood Control District of Maricopa County. Access to the BGR was limited to Saturdays and Sundays only.

The first step in determining cross section data for reach routing was the field reconnaissance. Actual cross sections of representative reaches were taken in the field. The locations of each of these cross sections are identified on Exhibit "C". The original goal agreed upon with the District was to obtain cross sections for at least 30% of the routing reaches in the watershed. During the field reconnaissance, cross sections were taken on approximately

[2]Refer to Bibliography Reference Number 36.

50% of the routing reaches. These cross sections were plotted and are shown on Exhibit "D". Photographs were taken at each location looking upstream and downstream along the wash, and looking downstream in the left and right overbanks. The photographs taken at the location of each cross section have been bound in notebook form and are available from Burgess & Niple, Inc for review, but have not been included in the document. A copy is also available at the District. The photographs were used to estimate Manning's "n" values for each cross section. The following photographs are an example of a typical wash in the upper reaches of the watershed. This wash is representative of reach R77-79. Refer to sheet 2 of Exhibit "C". The cross section was taken approximately 2,200-feet downstream of C77 which is the location of the USGS crest-stage gage on Bender Wash. Refer to Section 3.3.

**Cross Section 1W1 Looking Downstream in Left Overbank**

Cross Section 1W1 Looking Downstream at Channel

Cross Section 1W1 Looking Downstream in Right Overbank

The wash lies in sub-basin 1W and is named Bender Wash. Note the wide, flat, sandy bottom, free of vegetation. The sides of the main channel and the first 10 feet of the overbanks are heavily vegetated. The left overbank has a very gradual slope up and to the left. The vegetation cover in the left overbank is typical of the average vegetation cover density for the sub-basin. The right overbank slopes up sharply when compared to the left overbank. The triangular shape of the cross section with one overbank substantially steeper than the other is typical of the majority of the routing reaches on the watershed with contributing drainage areas in excess of five square miles. The channel base width typically changes with increasing watershed area, but the channel configuration remains similar. In the lower, flatter reaches of the watershed, many washes have a decrease in base width apparently because of channel transmission losses and attenuation of flood peaks due to in-channel storage.

The physical characteristics used for routing in R77-79 are:

*Slope + 0.008 ft./ft.*
*Length = 8400 ft.*
*Channel Base Width = 108'*
*Channel n = 0.034*
*Left Overbank n = 0.05*
*Right Overbank n = 0.07*
*Composite Loss Rate = 1.53 inches per hour*

The hydraulic estimates for the reach are:

*100-Year 24-Hour Discharge = 13,564 cfs*
*Estimated Flow Depth = 6.4 ft.*
*Estimated Average Velocity = 6.7 fps*
*Estimated Flow Top Width = 874 ft.*

An examination of the photograph for the left overbank shows that desert pavement is present. It can therefore be inferred that the main channel of the wash is overtopped very infrequently. The average depth of flow in the overbanks is 1-foot and 2-foot for the 100-year 6-hour and 24-hour storms,

respectively. These appear to be reasonable depths, although probably conservative, based on the field reconnaissance.

Refer to Tables R-1, R-2, and R-3. Table R-1 contains the basic physical descriptions for each routing reach. Reach routes are identified by name, such as R77-79. This describes the routing reach between concentration points 77 and 79, which are located on Exhibit "C". The source of the cross section used for each reach is identified in column 3. The reach length, top and bottom elevations, and average slope are listed in columns 4 through 8.

Table R-2 contains a summary of hydraulic data for each reach. The data in columns 4 through 11 is based upon the use of the Manning's equation. This equation was applied to the cross section deemed typical of the reach, using the slope in column 2, and the three n values for the left and right overbanks and the channel. The three n values are plotted on the cross sections on Exhibit "E" and listed in the HEC-1 input file. The average n value for each cross section is listed in column 11. Hydraulic calculations were done using the peak discharges from the 100-year 6-hour and 24-hour duration storms. The discharge values used are listed in columns 9 and 10. These values are the average of the peak flow entering the reach and the peak flow exiting the reach, as calculated by the HEC-1 models. The resultant top width and deepest flow depth are listed in columns 4 through 7. The data in columns 12 through 17, and the data in Table R-3, is discussed in detail in the Hydraulic Computations section.

Reach route cross section vertical measurements were taken using a Wild LNA2 laser level. Horizontal distances were paced or measured with a Philadelphia rod and hand tape. Access was gained to the watershed by four-wheel drive truck, and four-wheel drive motorcycle for the more remote locations. The following photograph is of the equipment used for field reconnaissance:

## Hydraulic Computations

**General** - The actual cross section used for each routing reach was determined as described under Section 2.1 The description of where each reach route cross section was derived is listed in Table R-1. The cross sections which are referenced in this table refer to field cross sections which are plotted on Exhibit "D". Plots of the actual cross sections used in the HEC-1 model are shown on Exhibit "E". The physical data necessary for the reach route computations is also summarized in Table R-1. The length of each routing reach and the top and bottom elevation were determined from Exhibit "C". The calculated average slope for each reach is listed in Table R-1.

**Reach Route Step Estimation** - Table R-2 contains hydraulic data used to estimate the reach travel time and the number of route computation steps for input to the HEC-1 models. The velocity, travel time, and number of steps listed in columns 12 through 17 of Table R-2 were determined using the reach travel times calculated by HEC-1. The process of estimating the number of reach storage route steps was iterative, and accomplished as follows:

*Step 1:* An initial estimate of the number of steps (NSTEPS) for every reach was made, assuming an average velocity of 5-feet per second. The HEC-1 models were run using the assumed values.

*Step 2:* The travel time for every reach was calculated by subtracting the time-to-peak at the beginning of the route operation from the time-to-peak for the route operation. The summary table data from the HEC-1 runs made in Step 1 were used to determine time-to-peak. New NSTEP estimates were made using the travel times, and then input to the HEC-1 models.

*Step 3:* Channel transmission loss rates were calculated for every reach using the peak discharges determined under Step 1. Refer to the section on Channel Infiltration Losses which follows this section. The HEC-1 models were revised to include the infiltration loss rates.

*Step 4:* The HEC-1 models were then run again using the new estimates for NSTEPS and transmission losses.

*Step 5:* Steps 2 through 4 were repeated until the NSTEP values did not change from one HEC-1 run to the next.

The selection of where to take each cross section in the field was ideally based upon obtaining a cross section which would be typical of a particular reach. In reality, the location was limited by the ability to obtain access to the cross section location. Because of the problem with access, a large number of cross sections were taken in order to allow for interpolation between sections. This in turn enabled the Engineer to obtain a reasonable average cross section for the reach in question.

A number of the routing reaches are very long with the longest being 59,400 feet. The average reach length is 14,200 feet. This is due to the large physical size of the watershed, and the tendency for the shape of sub-basins in the lower reaches to be extremely long and narrow. The number of cross sections taken in the field was increased above the minimum target number in order to achieve a better representation of each reach. However, it was impractical to break the reaches down any smaller than was done because of the lack of physical data.

The iterative process described above was followed for all of the HEC-1 models. The NSTEP values normally converged within three iterations. The results of the final iteration are listed in columns 12 through 17 of Table R-2. The velocities calculated using the HEC-1 travel times were compared to values calculated using Manning's equation. The velocities based on time-to-peak differences were normally slightly higher than those calculated using Manning's equation. The number of steps calculated using the two methods vary plus or minus one time step on the average.

**Routing Steps and Main Time Interval** - The computation time interval used in the HEC-1 models, and in determining the number of steps, was as follows:

Model 1: Bender Wash and Sand Tank Wash Models - 3-minutes.
Model 2: Sauceda Wash and Quilotosa Wash Models - 3-minutes.
Model 3: Un-named Wash #1 and Un-named Wash #2 - 1-minute.

The minimum lag time for Models 1 and 2 was 34-minutes. The main time interval for these models should lie within the range of 0.1 and 0.25 times the smallest lag time, or within the range of three to eight minutes. The smallest value of 3-minutes was used for Models 1 and 2 in order to resolve routing warning errors given by HEC-1. Refer to Section 3.4.6 for more details.

The minimum lag time for model 3 was 14-minutes. The main time interval for this model should therefore lie within the range of one to four minutes. The smallest value of 1-minute was used for Model 3, also in order to resolve routing warning errors given by HEC-1.

**Channel Infiltration Losses**

Channel infiltration loss rates were included in every routing computation. The loss rate for each routing reach was determined by calculating a composite of the XKSAT values for the left and right overbanks and channel.

The XKSAT values for the left and right overbank and the channel were determined by estimating a typical SCS soil map unit for each area. This was done by visually examining Exhibit "B" with Exhibit "C" overlaid. The resultant soil map units and XKSAT values for each reach are shown in columns 3 through 8 of Table R-3. The composite loss rates for the 6-hour and 24-hour storms are also tabulated in Table R-3. The average loss rate values for each reach were calculated by an iterative process. An average rate was determined using the top width of flow in the section for both storms. Refer to columns 4 and 6 in Table R-2. The top width for the 24-hour storm for reach R77-79 was 874 feet. The channel bottom width was 108 feet. The XKSAT values from Table R-3 are:

| | | |
|---|---|---|
| Left overbank | - | 0.84 cfs/acre |
| Channel | - | 10.00 cfs/acre |
| Right overbank | - | 0.40 cfs/acre |

The composite loss rate $L_R$ was calculated assuming the overbank width is evenly distributed on the left and right, as follows:

$$L_R = \left[ \frac{\left(\frac{874-108}{2}\right) \; x \; (0.84+0.4) \; + \; 108 \; x \; 10.0}{874} \right]$$

$$= 1.78 \; cfs/acre$$

The composite loss rate for each reach was then input to the HEC-1 models with the corresponding NSTEP value discussed previously. The HEC-1 models were then run again. New top widths of flow were calculated using the resultant peak discharges. The process was repeated until the NSTEP estimates did not change. The composite $L_R$ values in Table R-3 may not be identical with the values in the HEC-1 input files because the HEC-1 files were not updated after the last iteration. The resultant loss rates check very

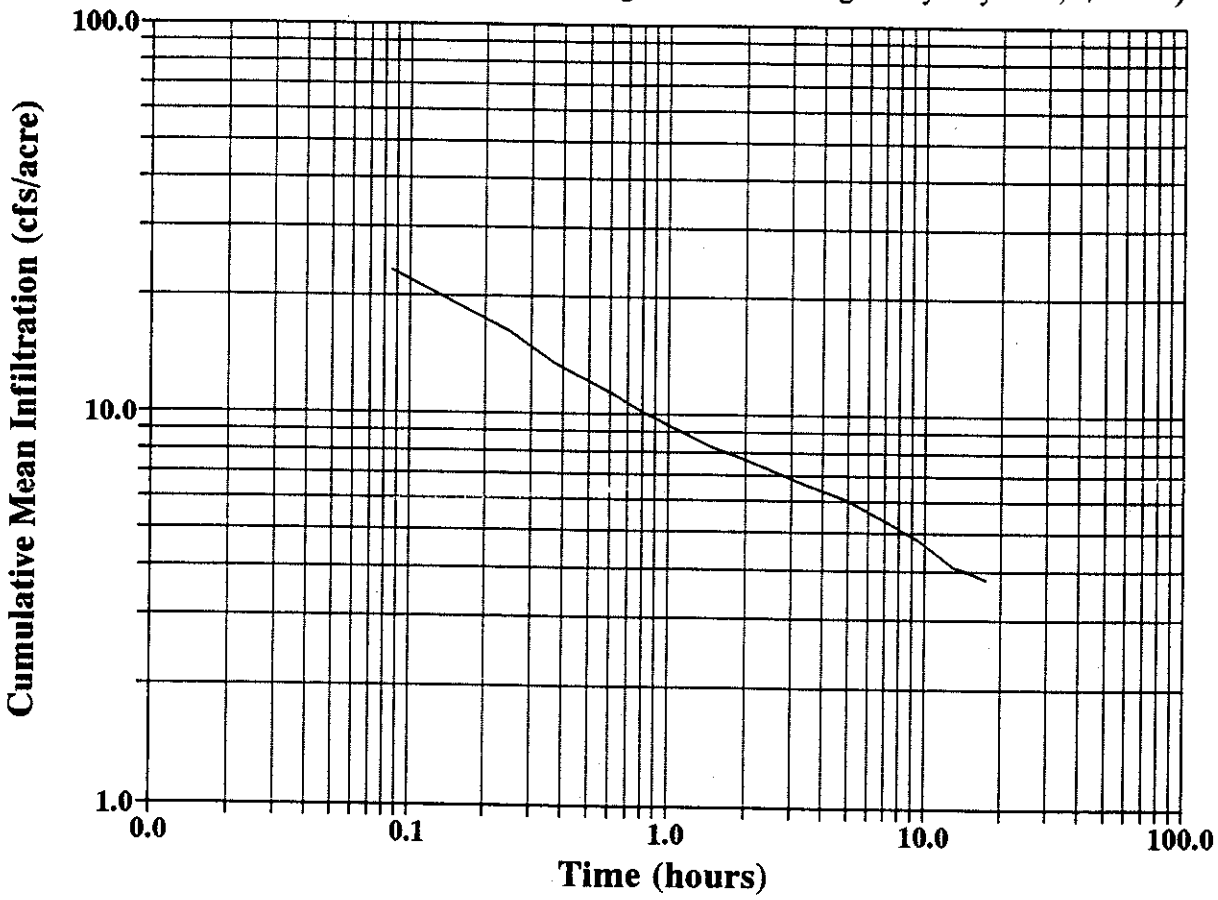
closely with the values listed in Table 19-1 of the *SCS National Engineering Handbook, Section 4 Hydrology*, Chapter 19 (NEH 4).

The average loss rates for all of the reaches modeled was 2.4 and 1.6 cubic feet per second per wetted acre (cfs/acre) for the 100-year 6-hour and 24-hour storms, respectively. Since these rates are a combined average of the overbank and bed loss rates, and the overbank soils range from a loam to a loamy sand, the average rate could be expected to fall within the range for a bed material group 3 in Table 19-1 of NEH 4. The group 3 range is from 1.0 to 3.0 cfs/acre. The overbank soils fall within bed material group 4, and the channel bed soils within group 1. Since the average proportion of overbank width to channel width is in the range of 7:1 and 9:1, the average combined loss rate should be much closer to that of the overbank soils, thus the comparison with the bed material group 3 range.

An additional check on the reasonableness of the selected loss rates was made by comparing the results with falling head permeameter tests done by the Arizona Department of Water Resources (ADWR). Long duration (up to 40 hours) tests were done on overbank and channel bed soils samples taken in Deadman Wash at Interstate 17. This should be a reasonable comparison since the Log Pearson III estimated peak discharge for Deadman Wash is 505 cfs/sm for an 11.1 square mile watershed. This point falls in the middle of the envelope curves plotted on Figure G-1. Refer to Section 3.2.5. The ADWR tests yielded cumulative mean infiltration rates of 2.8 and 3.6 cfs/acre after 20 hours for the overbank and channel bed samples, respectively. These rates are the same order of magnitude as the selected average rates, which is a good indicator that the selected values are reasonable. A further check using the USGS crest-stage data for Bender Wash and Sauceda Wash was made. Refer to Section 3.3.

# FIGURE L-1: ADWR Infiltration Curve
## Deadman Wash Channel Bed Soils at I-17

(Falling head permeameter test using a screened fine gravelly silty sand, 3/4 - #4)



# FIGURE L-2: ADWR Infiltration Curve

## Deadman Wash Overbank Soils at I-17

(Falling head permeameter test using a screened silty fine sand, 3/4 - #4)

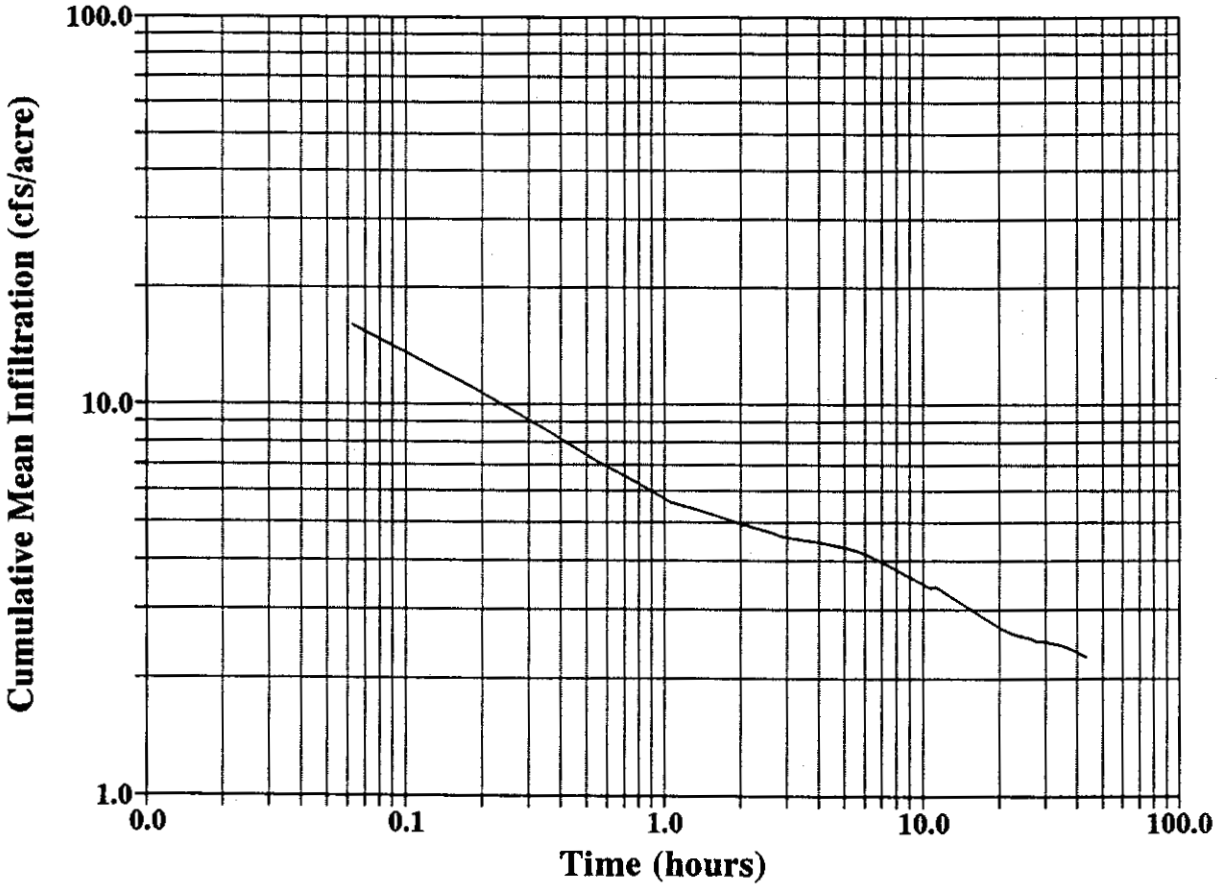


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Table R-1

# TABLE R-1

## REACH ROUTE PHYSICAL DATA

| Reach | In Sub-Basin | Cross Section Source | Length | | Elevation (ft.) | | Slope |
|---|---|---|---|---|---|---|---|
| | | | Miles | Feet | Top | Bottom | (ft/ft) |
| R1-3 | 3G | X-Sect. 3G1 | 2.58 | 13600.0 | 2095 | 1965 | 0.010 |
| R2-3 | 3G | Representative of X-Sect. 3G1 | 1.36 | 7200.0 | 2040 | 1965 | 0.010 |
| R3-5 | 3H | X-Sect. 3H1 | 2.65 | 14000.0 | 1965 | 1815 | 0.011 |
| R4-7 | 3D | X-Sect. 3D1 | 2.80 | 14800.0 | 1868 | 1700 | 0.011 |
| R5-7 | 3D | Representative of X-Sect. 3D1 | 2.12 | 11200.0 | 1815 | 1700 | 0.010 |
| R6-90 | 3B | X-Sect. 3B1 | 6.44 | 34000.0 | 2086 | 1600 | 0.014 |
| R7-90 | 3B | Representative of X-Sect. 3D1 | 1.74 | 9200.0 | 1700 | 1600 | 0.011 |
| R8-9 | 3I | X-Sect. 3I1 | 7.95 | 42000.0 | 1532 | 1142 | 0.009 |
| R9-10 | 3J | Interpolate Between 3J1 and 3J2 | 8.90 | 47000.0 | 1142 | 804 | 0.007 |
| R10-11 | 3L | X-Sect. 3L1 | 2.46 | 13000.0 | 804 | 737 | 0.005 |
| R11-17 | 3M | Representative of X-Sect. 5C2 | 0.57 | 3000.0 | 737 | 710 | 0.009 |
| R12-14 | 3M | Representative of X-Sect. 3M2 | 0.61 | 3200.0 | 731 | 728 | 0.001 |
| R13-16 | 3M | X-Sect. 3M1 | 2.23 | 11800.0 | 709 | 660 | 0.004 |
| R14-13 | 3M | X-Sect. 3M2 | 1.17 | 6200.0 | 728 | 709 | 0.003 |
| R17-13 | 3M | Representative of X-Sect. 5C2 | 0.15 | 800.0 | 710 | 709 | 0.001 |
| R20-21 | 4F | Representative of X-Sect. 4G1 | 2.92 | 15400.0 | 2153 | 1960 | 0.013 |
| R21-23 | 4G | X-Sect. 4G1 | 1.52 | 8000.0 | 1960 | 1883 | 0.010 |
| R22-23 | 4G | X-Sect. 4G2 | 2.69 | 14200.0 | 2039 | 1883 | 0.011 |
| R23-29 | 4J | X-Sect. 4J1 | 7.35 | 38800.0 | 1883 | 1519 | 0.009 |
| R24-25 | 4I | Representative of X-Sect. 6B1 | 3.79 | 20000.0 | 1970 | 1959 | 0.001 |
| R25-30 | 4L | X-Sect. 4L2 | 6.44 | 34000.0 | 1759 | 1360 | 0.012 |
| R26-27 | 4B | X-Sect. 4B1 | 3.37 | 17800.0 | 2003 | 1822 | 0.010 |
| R27-28 | 4C | X-Sect. 4C1 | 4.70 | 24800.0 | 1822 | 1670 | 0.006 |
| R28-29 | 4J | Representative of X-Sect. 4C1 | 1.33 | 7000.0 | 1670 | 1519 | 0.022 |
| R29-31 | 4K | X-Sect. 4K1 | 3.41 | 18000.0 | 1519 | 1370 | 0.008 |
| R30-32 | 4M | Representative of X-Sect. 4L2 | 3.90 | 20600.0 | 1360 | 1172 | 0.009 |
| R31-32 | 4M | Representative of X-Sect. 4K1 | 3.90 | 20600.0 | 1370 | 1172 | 0.010 |
| R32-33 | 4N | Interpolate Between 4N1 and 4N2 | 9.17 | 48400.0 | 1172 | 841 | 0.007 |
| R32-35 | 5A | Interpolate Between 5A1 and 5A2 | 8.52 | 45000.0 | 1172 | 866 | 0.007 |
| R33-34 | 4O | Representative of X-Sect. 5B1 | 3.64 | 19200.0 | 841 | 730 | 0.006 |
| R35-36 | 5B | X-Sect. 5B1 | 4.66 | 24600.0 | 866 | 728 | 0.006 |
| R36-37 | 5C | X-Sect. 5C2 | 0.42 | 2200.0 | 728 | 717 | 0.005 |
| R37-38 | 5C | X-Sect. 5C1 | 2.50 | 13200.0 | 717 | 650 | 0.005 |
| R39-40 | 6B | X-Sect. 6B1 | 2.16 | 11400.0 | 1705 | 1600 | 0.009 |
| R40-30 | 4L | X-Sect. 4L1 | 5.04 | 26600.0 | 1600 | 1360 | 0.009 |
| R40-41 | 6C | X-Sect. 6C1 | 3.41 | 18000.0 | 1600 | 1440 | 0.009 |
| R41-43 | 6D | Representative of X-Sect. 6F2 | 5.61 | 29600.0 | 1440 | 1172 | 0.009 |
| R42-43 | 6D | Representative of X-Sect. 6F2 | 2.46 | 13000.0 | 1280 | 1172 | 0.008 |
| R43-44 | 6F | Interpolate Between 6F1 and 6F2 | 5.87 | 31000.0 | 1172 | 951 | 0.007 |
| R44-69 | 6J | X-Sect. 6J1 | 1.52 | 8000.0 | 951 | 910 | 0.005 |

## TABLE R-1

## REACH ROUTE PHYSICAL DATA

| Reach | In Sub-Basin | Cross Section Source | Length Miles | Length Feet | Elevation (ft.) Top | Elevation (ft.) Bottom | Slope (ft/ft) |
|---|---|---|---|---|---|---|---|
| R45-50 | 6L | Interpolate Between 6L1 and 6L2 | 4.28 | 22600.0 | 920 | 797 | 0.005 |
| R46-69 | 6J | Representative of X-Sect. 6K1 | 1.36 | 7200.0 | 936 | 910 | 0.004 |
| R47-48 | 6K | X-Sect. 6K1 | 1.82 | 9600.0 | 894 | 850 | 0.005 |
| R47-49 | 6M | Representative of X-Sect. 6K1 | 3.67 | 19400.0 | 894 | 798 | 0.005 |
| R48-49 | 6M | Representative of X-Sect. 6L2 | 2.01 | 10600.0 | 850 | 798 | 0.005 |
| R48-50 | 6L | Representative of X-Sect. 6L2 | 2.01 | 10600.0 | 850 | 797 | 0.005 |
| R49-51 | 6O | X-Sect. 6O1 | 2.84 | 15000.0 | 798 | 728 | 0.005 |
| R50-52 | 6O | X-Sect. 6O2 | 2.54 | 13400.0 | 797 | 731 | 0.005 |
| R51-54 | 6P | Representative of X-Sect. 6P2 | 0.34 | 1800.0 | 728 | 721 | 0.004 |
| R52-55 | 6P | Representative of X-Sect. 6P4 | 0.45 | 2400.0 | 731 | 721 | 0.004 |
| R53-56 | 6Q | X-Sect. 6Q2 | 0.61 | 3200.0 | 728 | 712 | 0.005 |
| R54-57 | 6P | X-Sect. 6P2 | 1.44 | 7600.0 | 721 | 690 | 0.004 |
| R55-57 | 6P | X-Sect. 6P4 | 1.25 | 6600.0 | 721 | 690 | 0.005 |
| R56-59 | 6Q | X-Sect. 6Q1 | 2.80 | 14800.0 | 712 | 650 | 0.004 |
| R57-58 | 6P | X-Sect. 6P3 | 1.97 | 10400.0 | 690 | 650 | 0.004 |
| R61-62 | 1A | Representative of X-Sect. 1E1 | 0.68 | 3600.0 | 1799 | 1778 | 0.006 |
| R62-64 | 1F | X-Sect. 1E1 | 0.91 | 4800.0 | 1778 | 1750 | 0.006 |
| R63-64 | 1E | Representative of X-Sect. 1L1 | 6.33 | 33400.0 | 2400 | 1750 | 0.019 |
| R64-65 | 1E | Representative of X-Sect. 1E1 | 0.53 | 2800.0 | 1750 | 1734 | 0.006 |
| R65-67 | 1H | X-Sect. 1I1 | 1.25 | 6600.0 | 1734 | 1680 | 0.008 |
| R66-67 | 1I | X-Sect. 1I1 | 6.36 | 33600.0 | 2228 | 1680 | 0.016 |
| R67-71 | 1H | Representative of X-Sect. 1I1 | 0.42 | 2200.0 | 1680 | 1666 | 0.006 |
| R68-71 | 1L | X-Sect. 1L1 | 5.57 | 29400.0 | 2178 | 1666 | 0.017 |
| R69-47 | 6J | Representative of X-Sect. 6K1 | 0.91 | 4800.0 | 910 | 894 | 0.003 |
| R70-71 | 1H | X-Sect. 1H1 | 3.86 | 20400.0 | 1939 | 1666 | 0.013 |
| R71-73 | 1O | Representative of X-Sect. 1P1 | 1.33 | 7000.0 | 1666 | 1608 | 0.008 |
| R72-73 | 1N | X-Sect. 1N1 | 5.42 | 28600.0 | 2080 | 1608 | 0.017 |
| R73-74 | 1O | X-Sect. 1P1 | 2.54 | 13400.0 | 1608 | 1513 | 0.007 |
| R74-77 | 1U | X-Sect. 1U1 | 5.64 | 29800.0 | 1513 | 1193 | 0.011 |
| R75-76 | 1R | Representative of X-Sect. 1T1 | 0.61 | 3200.0 | 1620 | 1580 | 0.013 |
| R76-77 | 1T | X-Sect. 1T1 | 6.55 | 34600.0 | 1580 | 1193 | 0.011 |
| R77-79 | 1W | X-Sect. 1W1 | 1.59 | 8400.0 | 1193 | 1122 | 0.008 |
| R78-79 | 1V | Representative of X-Sect. 1W1 | 3.45 | 18200.0 | 1290 | 1122 | 0.009 |
| R78-128 | 2SS | Representative of X-Sect. 2TT1 | 1.89 | 10000.0 | 1290 | 1200 | 0.009 |
| R79-80 | 1X | Representative of X-Sect. 1X1 | 0.98 | 5200.0 | 1122 | 1075 | 0.009 |
| R79-81 | 1X | X-Sect. 1X1 | 3.22 | 17000.0 | 1122 | 960 | 0.010 |
| R80-81 | 1X | Representative of X-Sect. 1X1 | 2.39 | 12600.0 | 1075 | 960 | 0.009 |
| R80-130 | 2UU | X-Sect. 2UU2 | 2.27 | 12000.0 | 1075 | 967 | 0.009 |
| R81-82 N | 1Y | X-Sect. 1Y2 | 4.43 | 23400.0 | 960 | 778 | 0.008 |
| R81-82 S | 1Y | X-Sect. 1Y1 | 4.55 | 24000.0 | 960 | 778 | 0.008 |

# TABLE R-1

## REACH ROUTE PHYSICAL DATA

| Reach | In Sub-Basin | Cross Section Source | Length Miles | Length Feet | Elevation (ft.) Top | Elevation (ft.) Bottom | Slope (ft/ft) |
|---|---|---|---|---|---|---|---|
| R82-135 | 2VV | Bender Wash Section 1.172 | 1.33 | 7000.0 | 778 | 737 | 0.006 |
| R83-84 | 2B | Representative of X-Sect. 2H1 | 1.55 | 8200.0 | 2166 | 1894 | 0.033 |
| R84-85 | 2B | X-Sect. 2B1 | 1.67 | 8800.0 | 1894 | 1718 | 0.020 |
| R84-86 | 2N | Representative of X-Sect. 2O1 | 1.36 | 7200.0 | 1894 | 1738 | 0.022 |
| R85-96 | 2C | Representative of X-Sect. 2P1 | 2.05 | 10800.0 | 1718 | 1558 | 0.015 |
| R86-96 | 2O | X-Sect. 2O1 | 2.31 | 12200.0 | 1738 | 1558 | 0.015 |
| R87-89 | 2E | Representative of X-Sect. 2H1 | 1.33 | 7000.0 | 2000 | 1910 | 0.013 |
| R88-89 | 2E | Representative of X-Sect. 2H1 | 0.61 | 3200.0 | 2016 | 1910 | 0.033 |
| R89-91 | 2E | X-Sect. 2H1 | 1.14 | 6000.0 | 1910 | 1800 | 0.018 |
| R90-8 | 3B | Representative of X-Sect. 3I1 | 1.36 | 7200.0 | 1600 | 1532 | 0.009 |
| R91-92 | 2I | Representative of X-Sect. 2H1 | 0.83 | 4400.0 | 1800 | 1740 | 0.014 |
| R92-95 | 2J | Representative of X-Sect. 2H1 | 0.80 | 4200.0 | 1740 | 1693 | 0.011 |
| R93-94 | 2M | Representative of X-Sect. 2H1 | 0.91 | 4800.0 | 1920 | 1810 | 0.023 |
| R94-95 | 2M | X-Sect. 2M1 | 1.10 | 5800.0 | 1810 | 1693 | 0.020 |
| R95-96 | 2O | Representative of X-Sect. 2O1 | 2.20 | 11600.0 | 1693 | 1558 | 0.012 |
| R96-97 | 2P | X-Sect. 2P1 | 3.14 | 16600.0 | 1558 | 1332 | 0.014 |
| R97-100 | 2T | Interpolate Between 2U1 and 2P1 | 1.17 | 6200.0 | 1332 | 1255 | 0.012 |
| R98-99 | 2R | Interpolate Between 2U1 and 2P1 | 2.35 | 12400.0 | 1558 | 1368 | 0.015 |
| R99-100 | 2S | Interpolate Between 2U1 and 2P1 | 1.86 | 9800.0 | 1368 | 1255 | 0.012 |
| R100-101 | 2T | Representative of X-Sect. 2U1 | 0.87 | 4600.0 | 1255 | 1205 | 0.011 |
| R101-102 | 2U | X-Sect. 2U1 | 1.44 | 7600.0 | 1205 | 1120 | 0.011 |
| R102-103 | 2V | Representative of X-Sect. 2U1 | 1.02 | 5400.0 | 1120 | 1064 | 0.010 |
| R103-107 | 2Y | X-Sect. 2Y1 | 4.58 | 24200.0 | 1064 | 855 | 0.009 |
| R104-105 | 2X | X-Sect. 2X1 | 5.76 | 30400.0 | 1660 | 1190 | 0.015 |
| R105-107 | 2Y | X-Sect. 2Y2 | 6.97 | 36800.0 | 1190 | 855 | 0.009 |
| R108-111 | 2AA | X-Sect. 2AA1 | 2.31 | 12200.0 | 1224 | 1115 | 0.009 |
| R110-111 | 2AA | X-Sect. 2AA2 | 3.98 | 21000.0 | 1347 | 1115 | 0.011 |
| R111-113 | 2CC | Representative of X-Sect. 2CC2 | 6.10 | 32200.0 | 1115 | 855 | 0.008 |
| R113-127 | 2DD | Representative of X-Sect. 2UU1 | 1.55 | 8200.0 | 851 | 802 | 0.006 |
| R114-115 | 2HH | Representative of X-Sect. 3B1 | 2.65 | 14000.0 | 1992 | 1806 | 0.013 |
| R115-116 | 2II | Representative of X-Sect. 3B1 | 1.82 | 9600.0 | 1806 | 1660 | 0.015 |
| R116-119 | 2JJ | Representative of X-Sect. 2KK1 | 2.69 | 14200.0 | 1660 | 1468 | 0.014 |
| R116-120 | 2LL | Interpolate Between 2LL1 and 2LL2 | 11.25 | 59400.0 | 1660 | 1010 | 0.011 |
| R118-119 | 2JJ | Representative of X-Sect. 2KK1 | 1.02 | 5400.0 | 1536 | 1468 | 0.013 |
| R119-120 | 2KK | X-Sect. 2KK1 | 8.26 | 43600.0 | 1468 | 1010 | 0.011 |
| R120-121 | 2MM | Representative of X-Sect. 2FF3 | 1.70 | 9000.0 | 1010 | 940 | 0.008 |
| R121-123 | 2FF | Representative of X-Sect. 2FF3 | 1.89 | 10000.0 | 940 | 866 | 0.007 |
| R123-140 | 2RR | Representative of X-Sect. 2FF3 | 0.72 | 3800.0 | 866 | 844 | 0.006 |
| R124-125 | 2PP | Representative of X-Sect. 2KK1 | 2.77 | 14600.0 | 1129 | 1012 | 0.008 |
| R125-126 | 2QQ | Representative of X-Sect. 2FF3 | 2.80 | 14800.0 | 1012 | 906 | 0.007 |

# TABLE R-1

## REACH ROUTE PHYSICAL DATA

| Reach | In Sub-Basin | Cross Section Source | Length | | Elevation (ft.) | | Slope |
|---|---|---|---|---|---|---|---|
| | | | Miles | Feet | Top | Bottom | (ft/ft) |
| R126-140 | 2RR | Representative of X-Sect. 2UU1 | 1.74 | 9200.0 | 906 | 844 | 0.007 |
| R127-131 | 2UU | Representative of X-Sect. 2UU1 | 0.91 | 4800.0 | 802 | 782 | 0.004 |
| R128-129 | 2TT | X-Sect. 2TT1 | 2.69 | 14200.0 | 1200 | 1053 | 0.010 |
| R129-130 | 2UU | X-Sect. 2UU2 | 1.82 | 9600.0 | 1053 | 967 | 0.009 |
| R130-131 | 2UU | X-Sect. 2UU1 | 5.19 | 27400.0 | 967 | 782 | 0.007 |
| R131-132 | 2UU | Interpolate Between 6P1 and 2UU1 | 0.83 | 4400.0 | 782 | 765 | 0.004 |
| R132-133 | 2VV | Sand Tank Wash Section 4.461 | 0.95 | 5000.0 | 765 | 735 | 0.006 |
| R133-141 | 2XX | Sand Tank Wash Section 3.470 | 0.70 | 3700.0 | 735 | 724 | 0.003 |
| R135-141 | 2XX | Bender Wash Section 0.224 | 0.64 | 3400.0 | 737 | 724 | 0.004 |
| R136-149 | 2XX | X-Sect. 2XX1 from 200 scale mapping | 1.80 | 9500.0 | 730 | 682 | 0.005 |
| R140-127 | 2RR | Representative of X-Sect. 2UU1 | 1.29 | 6800.0 | 844 | 802 | 0.006 |
| R141-149 | 2XX | Sand Tank Wash Section 2.147 | 1.23 | 6500.0 | 724 | 682 | 0.006 |
| R142-18 | 7B | Rep. of Scotts Ave. Wash Sec. 3.292 | 2.80 | 14800.0 | 740 | 657 | 0.006 |
| R142-139 | 7D | Scotts Avenue Wash Section 3.292 | 2.39 | 12600.0 | 740 | 663 | 0.006 |
| R143-144 | 2VV1 | Unnamed Wash #2 Section 2.335 | 1.10 | 5800 | 837 | 799 | 0.007 |
| R144-145 | 2VV6 | Unnamed Wash #2 Section 0.821 | 1.72 | 9100 | 799 | 740 | 0.006 |
| R145-135 | 2VV7 | Unnamed Wash #1 Section 0.061 | 0.21 | 1100 | 740 | 737 | 0.003 |
| R146-147 | 2VV4 | Unnamed Wash #1 Section 2.936 | 0.59 | 3100 | 852 | 830 | 0.007 |
| R147-148 | 2VV8 | Unnamed Wash #1 Section 2.127 | 1.17 | 6200 | 830 | 780 | 0.008 |
| R148-145 | 2VV5 | Unnamed Wash #1 Section 0.769 | 1.33 | 7000 | 780 | 740 | 0.006 |
| R149-137 | 2XX | Sand Tank Wash Section 1.608 | 1.02 | 5400 | 682 | 655 | 0.005 |
| R150-142 | 7A | Scott Avenue Wash Section 4.911 | 0.70 | 3680 | 756 | 740 | 0.004 |

FLOOD CONTROL
DISTRICT
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MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

**FCD 90-67**

Table R-2

# TABLE R-2

## REACH ROUTE HYDRAULIC DATA

| Reach | Slope (ft/ft) | Length (ft) | Section Top Width and Depth: 6-Hour Storm Width (ft) | 6-Hour Storm Depth (ft) | 24-Hour Storm Width (ft) | 24-Hour Storm Depth (ft) | Channel Base Width (ft) | Average Discharge (cfs): 6-Hour Storm | 24-Hour Storm | Average n Value | Velocity, Travel Time and NSTEPS Using HEC-1 Summary Data: 6-Hour Velocity | 24-Hour Velocity | 6-Hour Time | 24-Hour Time | 6-Hour Steps | 24-Hours Steps |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R1-3 | 0.010 | 13600 | 854.7 | 4.5 | 964.1 | 4.7 | 72.0 | 3090 | 3586 | 0.067 | 3.3 | 3.4 | 1.15 | 1.10 | 22 | 22 |
| R2-3 | 0.010 | 7200 | 766.0 | 4.3 | 810.4 | 4.4 | 72.0 | 2520 | 2722 | 0.067 | 3.3 | 3.1 | 0.60 | 0.65 | 12 | 12 |
| R3-5 | 0.011 | 14000 | 267.4 | 5.6 | 278.8 | 6.0 | 84.0 | 4459 | 5419 | 0.060 | 8.6 | 9.7 | 0.45 | 0.40 | 8 | 8 |
| R4-7 | 0.011 | 14800 | 434.6 | 3.7 | 479.4 | 3.8 | 137.0 | 3101 | 3396 | 0.051 | 5.5 | 5.1 | 0.75 | 0.80 | 15 | 16 |
| R5-7 | 0.010 | 11200 | 748.2 | 4.4 | 882.6 | 4.7 | 137.0 | 4885 | 6132 | 0.053 | 4.8 | 4.8 | 0.65 | 0.65 | 12 | 12 |
| R6-90 | 0.014 | 34000 | 612.5 | 2.8 | 639.7 | 2.9 | 34.0 | 2273 | 2622 | 0.059 | 4.3 | 4.5 | 2.20 | 2.10 | 44 | 41 |
| R7-90 | 0.011 | 9200 | 925.0 | 4.8 | 1065.0 | 5.1 | 137.0 | 6969 | 8906 | 0.053 | 5.7 | 6.4 | 0.45 | 0.40 | 8 | 8 |
| R8-9 | 0.009 | 42000 | 918.9 | 4.8 | 1000.2 | 6.0 | 37.0 | 6323 | 8719 | 0.051 | 5.4 | 6.9 | 2.15 | 1.70 | 43 | 34 |
| R9-10 | 0.007 | 47000 | 410.5 | 7.3 | 480.4 | 8.2 | 61.0 | 5685 | 8294 | 0.055 | 5.1 | 5.8 | 2.55 | 2.25 | 50 | 45 |
| R10-11 | 0.005 | 13000 | 1217.0 | 3.9 | 1351.7 | 4.5 | 13.0 | 5115 | 7965 | 0.084 | 2.4 | 3.4 | 1.50 | 1.05 | 30 | 20 |
| R11-17 | 0.009 | 3000 | 78.3 | 1.6 | 94.1 | 4.4 | 70.0 | 557 | 3673 | 0.030 | 8.3 | 16.7 | 0.10 | 0.05 | 2 | 1 |
| R12-14 | 0.001 | 3200 | 16.6 | 0.5 | 539.1 | 11.3 | 30.0 | 4 | 2758 | 0.035 | 0.0 | 2.2 | 0.00 | 0.40 | 1 | 8 |
| R13-16 | 0.004 | 11800 | 52.7 | 2.4 | 629.6 | 6.6 | 55.0 | 453 | 5205 | 0.031 | 5.0 | 6.6 | 0.65 | 0.50 | 12 | 10 |
| R14-13 | 0.003 | 6200 | 539.1 | 0.0 | 162.5 | 10.0 | 30.0 | 0 | 2692 | 0.034 | 0.0 | 4.9 | 0.00 | 0.35 | 1 | 6 |
| R17-13 | 0.001 | 800 | 85.2 | 2.8 | 461.1 | 7.4 | 87.0 | 529 | 3636 | 0.034 | 2.2 | 4.4 | 0.10 | 0.05 | 2 | 1 |
| R20-21 | 0.013 | 15400 | 79.5 | 4.6 | 84.0 | 4.7 | 39.0 | 1496 | 1563 | 0.057 | 9.5 | 8.6 | 0.45 | 0.50 | 8 | 10 |
| R21-23 | 0.010 | 8000 | 314.0 | 6.3 | 414.0 | 6.6 | 39.0 | 2741 | 3080 | 0.062 | 4.0 | 3.7 | 0.55 | 0.60 | 11 | 12 |
| R22-23 | 0.011 | 14200 | 190.4 | 4.9 | 200.5 | 4.9 | 48.0 | 1321 | 1335 | 0.050 | 5.6 | 5.6 | 0.70 | 0.70 | 13 | 13 |
| R23-29 | 0.009 | 38800 | 401.3 | 5.1 | 526.5 | 5.5 | 84.0 | 4347 | 5322 | 0.057 | 5.1 | 5.1 | 2.10 | 2.10 | 41 | 41 |
| R24-25 | 0.001 | 20000 | 571.0 | 9.1 | 553.5 | 9.0 | 58.0 | 2708 | 2577 | 0.063 | 1.9 | 1.9 | 2.95 | 3.00 | 59 | 60 |
| R25-30 | 0.012 | 34000 | 381.6 | 5.7 | 458.4 | 6.0 | 54.0 | 3833 | 4585 | 0.050 | 5.2 | 5.6 | 1.80 | 1.70 | 35 | 34 |
| R26-27 | 0.010 | 17800 | 151.1 | 4.0 | 155.4 | 4.2 | 84.0 | 2494 | 2844 | 0.051 | 9.0 | 9.0 | 0.55 | 0.55 | 11 | 11 |
| R27-28 | 0.006 | 24800 | 560.0 | 4.8 | 640.0 | 5.0 | 75.0 | 2870 | 3274 | 0.058 | 3.0 | 2.8 | 2.30 | 2.45 | 45 | 49 |
| R28-29 | 0.022 | 7000 | 400.0 | 4.4 | 500.0 | 4.7 | 75.0 | 4201 | 4975 | 0.057 | 5.6 | 6.5 | 0.35 | 0.30 | 6 | 6 |
| R29-31 | 0.008 | 18000 | 358.0 | 5.1 | 404.6 | 5.7 | 100.0 | 7091 | 9154 | 0.057 | 8.3 | 8.3 | 0.60 | 0.60 | 12 | 12 |
| R30-32 | 0.009 | 20600 | 830.0 | 7.4 | 894.1 | 7.7 | 54.0 | 9033 | 10245 | 0.050 | 6.0 | 6.0 | 0.95 | 0.95 | 18 | 18 |
| R31-32 | 0.010 | 20600 | 336.5 | 4.8 | 379.5 | 5.4 | 100.0 | 6926 | 8945 | 0.056 | 8.8 | 10.4 | 0.65 | 0.55 | 12 | 11 |
| 32L-35 | 0.007 | 45000 | 432.4 | 6.4 | 558.9 | 7.2 | 39.0 | 3934 | 6076 | 0.050 | 5.0 | 5.6 | 2.50 | 2.25 | 50 | 45 |
| R32-33 | 0.007 | 48400 | 697.1 | 6.3 | 922.1 | 7.2 | 70.0 | 6890 | 11190 | 0.040 | 5.8 | 6.7 | 2.30 | 2.00 | 45 | 40 |
| R33-34 | 0.006 | 19200 | 999.8 | 5.8 | 1328.1 | 6.7 | 52.0 | 6315 | 10862 | 0.059 | 3.8 | 4.3 | 1.40 | 1.25 | 27 | 25 |
| R35-36 | 0.006 | 24600 | 325.6 | 5.3 | 468.6 | 6.4 | 52.0 | 3601 | 5853 | 0.058 | 5.5 | 4.9 | 1.25 | 1.40 | 25 | 27 |
| R36-37 | 0.005 | 2200 | 217.6 | 6.3 | 716.1 | 8.4 | 87.0 | 5512 | 12425 | 0.034 | 12.2 | 12.2 | 0.05 | 0.05 | 1 | 1 |

# TABLE R-2

## REACH ROUTE HYDRAULIC DATA

| Reach | Slope (ft/ft) | Length (ft) | Section Top Width and Depth: 6-Hour Storm Width (ft) | 6-Hour Storm Depth (ft) | 24-Hour Storm Width (ft) | 24-Hour Storm Depth (ft) | Channel Base Width (ft) | Average Discharge (cfs): 6-Hour Storm | 24-Hour Storm | Average n Value | Velocity, Travel Time and NSTEPS Using HEC-1 Summary Data: 6-Hour Velocity | 24-Hour Velocity | 6-Hour Time | 24-Hour Time | 6-Hour Steps | 24-Hours Steps |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R37-38 | 0.005 | 13200 | 517.1 | 6.8 | 870.3 | 8.3 | 71.0 | 5434 | 12299 | 0.031 | 6.1 | 7.3 | 0.60 | 0.50 | 12 | 10 |
| R39-40 | 0.009 | 11400 | 326.0 | 7.7 | 308.5 | 7.6 | 58.0 | 4644 | 4460 | 0.062 | 6.3 | 5.8 | 0.50 | 0.55 | 10 | 11 |
| 40R-30 | 0.009 | 26600 | 888.0 | 5.4 | 848.0 | 5.3 | 62.0 | 5733 | 5433 | 0.050 | 4.3 | 4.2 | 1.70 | 1.75 | 34 | 35 |
| 40L-41 | 0.009 | 18000 | 257.9 | 6.7 | 253.5 | 6.6 | 26.0 | 2836 | 2794 | 0.049 | 5.3 | 5.3 | 0.95 | 0.95 | 18 | 18 |
| R41-43 | 0.009 | 29600 | 445.9 | 6.7 | 456.9 | 6.7 | 68.0 | 4067 | 4237 | 0.050 | 5.1 | 3.7 | 1.60 | 2.20 | 32 | 44 |
| R42-43 | 0.008 | 13000 | 390.8 | 6.4 | 368.7 | 6.3 | 68.0 | 3378 | 3210 | 0.050 | 5.2 | 4.8 | 0.70 | 0.75 | 13 | 15 |
| R43-44 | 0.007 | 31000 | 706.9 | 8.9 | 733.6 | 9.0 | 51.0 | 8916 | 9338 | 0.053 | 5.6 | 5.7 | 1.55 | 1.50 | 30 | 30 |
| R44-69 | 0.005 | 8000 | 1056.7 | 7.4 | 1069.4 | 7.4 | 68.0 | 8910 | 9382 | 0.052 | 4.4 | 4.9 | 0.50 | 0.45 | 10 | 8 |
| R45-50 | 0.005 | 22600 | 780.0 | 4.1 | 760.0 | 4.1 | 103.0 | 2091 | 2011 | 0.052 | 2.6 | 2.6 | 2.40 | 2.40 | 48 | 48 |
| R46-69 | 0.004 | 7200 | 1294.1 | 4.3 | 1308.4 | 4.3 | 40.0 | 4108 | 4346 | 0.055 | 2.9 | 3.3 | 0.70 | 0.60 | 13 | 12 |
| 47R-48 | 0.005 | 9600 | 1279.8 | 4.2 | 1308.4 | 4.3 | 40.0 | 4491 | 4997 | 0.055 | 3.3 | 3.3 | 0.80 | 0.80 | 16 | 16 |
| 47L-49 | 0.005 | 19400 | 1279.8 | 4.2 | 1308.4 | 4.3 | 40.0 | 4442 | 4942 | 0.055 | 3.3 | 3.4 | 1.65 | 1.60 | 32 | 32 |
| 48R-50 | 0.005 | 10600 | 914.0 | 3.8 | 954.0 | 3.9 | 166.0 | 2123 | 2399 | 0.054 | 2.5 | 2.5 | 1.20 | 1.20 | 24 | 24 |
| 48L-49 | 0.005 | 10600 | 914.0 | 3.8 | 954.0 | 3.9 | 166.0 | 2123 | 2399 | 0.054 | 2.5 | 2.5 | 1.20 | 1.20 | 24 | 24 |
| R49-51 | 0.005 | 15000 | 1116.0 | 8.3 | 1196.0 | 8.5 | 19.0 | 6109 | 6964 | 0.051 | 3.8 | 3.8 | 1.10 | 1.10 | 22 | 22 |
| R50-52 | 0.005 | 13400 | 905.1 | 2.0 | 1002.0 | 2.2 | 399.0 | 1960 | 2748 | 0.050 | 2.9 | 3.2 | 1.30 | 1.15 | 25 | 22 |
| R51-54 | 0.004 | 1800 | 273.0 | 7.5 | 351.4 | 8.2 | 45.0 | 5837 | 7408 | 0.035 | 5.0 | 5.0 | 0.10 | 0.10 | 2 | 2 |
| R52-55 | 0.004 | 2400 | 50.7 | 4.0 | 53.7 | 4.7 | 20.0 | 872 | 1212 | 0.034 | 6.7 | 6.7 | 0.10 | 0.10 | 2 | 2 |
| R53-56 | 0.005 | 3200 | 34.2 | 2.7 | 195.0 | 6.0 | 31.5 | 290 | 1848 | 0.035 | 5.9 | 5.9 | 0.15 | 0.15 | 3 | 3 |
| R54-57 | 0.004 | 7600 | 273.0 | 7.5 | 351.4 | 8.2 | 45.0 | 5814 | 7374 | 0.035 | 8.4 | 8.4 | 0.25 | 0.25 | 5 | 5 |
| R55-57 | 0.005 | 6600 | 49.7 | 3.7 | 52.5 | 4.4 | 20.0 | 848 | 1194 | 0.034 | 7.3 | 12.2 | 0.25 | 0.15 | 5 | 3 |
| R56-59 | 0.004 | 14800 | 37.8 | 2.7 | 102.8 | 6.4 | 17.0 | 236 | 1727 | 0.034 | 5.1 | 5.9 | 0.80 | 0.70 | 16 | 13 |
| R57-58 | 0.004 | 10400 | 868.1 | 5.4 | 954.3 | 5.9 | 49.0 | 6512 | 8466 | 0.055 | 3.9 | 4.4 | 0.75 | 0.65 | 15 | 12 |
| R61-62 | 0.006 | 3600 | 433.7 | 5.4 | 164.4 | 4.7 | 46.0 | 1852 | 1269 | 0.055 | 3.3 | 4.0 | 0.30 | 0.25 | 6 | 5 |
| R62-64 | 0.006 | 4800 | 868.7 | 6.4 | 910.1 | 6.5 | 46.0 | 3825 | 4145 | 0.059 | 3.3 | 3.3 | 0.40 | 0.40 | 8 | 8 |
| R63-64 | 0.019 | 33400 | 42.5 | 3.2 | 39.8 | 3.0 | 19.0 | 445 | 380 | 0.060 | 6.4 | 6.4 | 1.45 | 1.45 | 29 | 29 |
| R64-65 | 0.006 | 2800 | 868.7 | 6.4 | 910.1 | 6.5 | 46.0 | 3881 | 4148 | 0.059 | 3.1 | 3.1 | 0.25 | 0.25 | 5 | 5 |
| R65-67 | 0.008 | 6600 | 464.0 | 5.1 | 531.8 | 5.4 | 93.0 | 5264 | 6278 | 0.055 | 6.1 | 5.2 | 0.30 | 0.35 | 6 | 6 |
| R66-67 | 0.016 | 33600 | 95.4 | 1.5 | 93.3 | 1.3 | 83.0 | 569 | 423 | 0.038 | 6.0 | 5.3 | 1.55 | 1.75 | 30 | 35 |
| R67-71 | 0.006 | 2200 | 560.9 | 5.6 | 638.4 | 6.0 | 93.0 | 5832 | 7203 | 0.056 | 6.1 | 6.1 | 0.10 | 0.10 | 2 | 2 |
| R68-71 | 0.017 | 29400 | 63.0 | 4.8 | 57.6 | 4.4 | 19.0 | 1181 | 929 | 0.062 | 9.1 | 8.6 | 0.90 | 0.95 | 17 | 18 |
| R69-47 | 0.003 | 4800 | 1637.0 | 5.5 | 1679.8 | 5.6 | 40.0 | 9231 | 10149 | 0.056 | 3.8 | 3.8 | 0.35 | 0.35 | 6 | 6 |

# TABLE R-2

## REACH ROUTE HYDRAULIC DATA

| Reach | Slope (ft/ft) | Length (ft) | Section Top Width and Depth: 6-Hour Storm Width (ft) | 6-Hour Storm Depth (ft) | 24-Hour Storm Width (ft) | 24-Hour Storm Depth (ft) | Channel Base Width (ft) | Average Discharge (cfs): 6-Hour Storm | 24-Hour Storm | Average n Value | Velocity, Travel Time and NSTEPS Using HEC-1 Summary Data: 6-Hour Velocity | 24-Hour Velocity | 6-Hour Time | 24-Hour Time | 6-Hour Steps | 24-Hours Steps |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R70-71 | 0.013 | 20400 | 214.4 | 2.6 | 217.5 | 2.7 | 35.0 | 1248 | 1316 | 0.056 | 5.7 | 5.7 | 1.00 | 1.00 | 20 | 20 |
| R71-73 | 0.008 | 7000 | 958.8 | 5.8 | 1073.4 | 6.3 | 68.0 | 8442 | 11224 | 0.059 | 4.9 | 5.6 | 0.40 | 0.35 | 8 | 6 |
| R72-73 | 0.017 | 28600 | 439.6 | 3.7 | 373.5 | 3.4 | 75.0 | 2421 | 1817 | 0.057 | 5.0 | 4.8 | 1.60 | 1.65 | 32 | 32 |
| R73-74 | 0.007 | 13400 | 1027.6 | 6.1 | 1153.7 | 6.7 | 68.0 | 9469 | 12420 | 0.059 | 5.0 | 5.3 | 0.75 | 0.70 | 15 | 13 |
| R74-77 | 0.011 | 29800 | 958.6 | 4.9 | 1139.7 | 5.4 | 176.0 | 8906 | 12444 | 0.048 | 6.1 | 6.6 | 1.35 | 1.25 | 27 | 25 |
| R75-76 | 0.013 | 3200 | 359.8 | 3.3 | 355.4 | 3.2 | 64.0 | 2579 | 2484 | 0.058 | 5.9 | 5.9 | 0.15 | 0.15 | 3 | 3 |
| R76-77 | 0.011 | 34600 | 377.3 | 3.5 | 372.9 | 3.4 | 64.0 | 2748 | 2706 | 0.058 | 5.8 | 5.7 | 1.65 | 1.70 | 32 | 34 |
| R77-79 | 0.008 | 8400 | 694.1 | 5.5 | 874.2 | 6.4 | 108.0 | 8968 | 13564 | 0.049 | 5.8 | 6.7 | 0.40 | 0.35 | 8 | 6 |
| 78R-79 | 0.009 | 18200 | 109.0 | 1.7 | 109.9 | 1.8 | 97.0 | 647 | 743 | 0.034 | 7.2 | 7.2 | 0.70 | 0.70 | 13 | 13 |
| 78L128 | 0.009 | 10000 | 353.7 | 1.1 | 380.4 | 1.2 | 46.0 | 425 | 495 | 0.057 | 2.6 | 2.6 | 1.05 | 1.05 | 20 | 20 |
| 79L-80 | 0.009 | 5200 | 361.0 | 4.8 | 428.9 | 5.5 | 67.0 | 4641 | 6723 | 0.052 | 5.8 | 7.2 | 0.25 | 0.20 | 5 | 4 |
| 79R-81 | 0.010 | 17000 | 315.8 | 4.3 | 410.8 | 5.3 | 67.0 | 3696 | 6444 | 0.052 | 6.7 | 7.3 | 0.70 | 0.65 | 13 | 12 |
| 80L130 | 0.009 | 12000 | 701.7 | 5.5 | 815.0 | 6.0 | 85.0 | 4473 | 6445 | 0.051 | 5.1 | 5.1 | 0.65 | 0.65 | 12 | 12 |
| 80R-81 | 0.009 | 12600 | 56.1 | 0.5 | 57.9 | 0.7 | 51.0 | 42 | 75 | 0.040 | 1.8 | 2.7 | 1.90 | 1.30 | 37 | 25 |
| 82-135 | 0.006 | 7000 | 582.5 | 3.8 | 734.8 | 4.4 | 212.8 | 2844 | 4957 | 0.032 | 5.6 | 6.5 | 0.35 | 0.30 | 6 | 6 |
| 81R-82 | 0.008 | 23400 | 247.0 | 2.3 | 564.2 | 3.2 | 21.0 | 600 | 1791 | 0.050 | 3.5 | 3.5 | 1.85 | 1.85 | 37 | 37 |
| 81L-82 | 0.008 | 24000 | 642.7 | 3.0 | 776.8 | 3.4 | 45.0 | 2725 | 4172 | 0.057 | 3.8 | 4.3 | 1.75 | 1.55 | 35 | 30 |
| R83-84 | 0.033 | 8200 | 449.2 | 3.0 | 439.1 | 3.0 | 31.0 | 3032 | 2806 | 0.050 | 6.5 | 6.5 | 0.35 | 0.35 | 6 | 6 |
| 84R-86 | 0.022 | 7200 | 189.2 | 0.7 | 189.2 | 0.7 | 42.0 | 122 | 105 | 0.063 | 2.4 | 2.2 | 0.85 | 0.90 | 17 | 17 |
| 84L-85 | 0.020 | 8800 | 973.2 | 1.9 | 963.0 | 1.8 | 32.0 | 2775 | 2553 | 0.061 | 4.9 | 4.9 | 0.50 | 0.50 | 10 | 10 |
| R85-96 | 0.015 | 10800 | 1065.4 | 2.7 | 1055.1 | 2.6 | 155.0 | 2898 | 2634 | 0.057 | 4.0 | 3.8 | 0.75 | 0.80 | 15 | 16 |
| R86-96 | 0.015 | 12200 | 611.9 | 2.0 | 611.9 | 2.0 | 52.0 | 1650 | 1699 | 0.067 | 3.4 | 3.6 | 1.00 | 0.95 | 20 | 18 |
| R87-89 | 0.013 | 7000 | 469.4 | 3.1 | 418.8 | 2.9 | 31.0 | 2088 | 1552 | 0.050 | 4.9 | 4.3 | 0.40 | 0.45 | 8 | 8 |
| R88-89 | 0.033 | 3200 | 287.5 | 2.2 | 267.3 | 2.1 | 31.0 | 1014 | 789 | 0.050 | 5.9 | 4.4 | 0.15 | 0.20 | 3 | 4 |
| R89-91 | 0.018 | 6000 | 469.4 | 3.1 | 429.0 | 2.9 | 31.0 | 2495 | 2037 | 0.050 | 6.7 | 4.8 | 0.25 | 0.35 | 5 | 6 |
| R90-8 | 0.009 | 7200 | 922.3 | 4.9 | 1000.2 | 6.0 | 37.0 | 6573 | 8833 | 0.051 | 6.7 | 6.7 | 0.30 | 0.30 | 6 | 6 |
| R91-92 | 0.014 | 4400 | 540.1 | 3.5 | 519.9 | 3.4 | 31.0 | 3230 | 2880 | 0.050 | 6.1 | 4.9 | 0.20 | 0.25 | 4 | 5 |
| R92-95 | 0.011 | 4200 | 661.4 | 4.1 | 661.4 | 4.1 | 31.0 | 4916 | 4830 | 0.050 | 5.8 | 5.8 | 0.20 | 0.20 | 4 | 4 |
| R93-94 | 0.023 | 4800 | 408.7 | 2.8 | 368.3 | 2.6 | 31.0 | 2044 | 1576 | 0.050 | 6.7 | 5.3 | 0.20 | 0.25 | 4 | 5 |
| R94-95 | 0.020 | 5800 | 189.6 | 3.6 | 170.8 | 3.4 | 82.0 | 2373 | 2089 | 0.053 | 10.7 | 10.7 | 0.15 | 0.15 | 3 | 3 |
| R95-96 | 0.012 | 11600 | 1105.5 | 3.6 | 1105.5 | 3.6 | 52.0 | 7457 | 7242 | 0.068 | 4.3 | 4.6 | 0.75 | 0.70 | 15 | 13 |
| R96-97 | 0.014 | 16600 | 1443.6 | 4.0 | 1458.7 | 4.0 | 167.0 | 11495 | 11915 | 0.059 | 6.1 | 6.1 | 0.75 | 0.75 | 15 | 15 |

# TABLE R-2

## REACH ROUTE HYDRAULIC DATA

| Reach | Slope (ft/ft) | Length (ft) | Section Top Width and Depth: 6-Hour Storm Width (ft) | 6-Hour Storm Depth (ft) | 24-Hour Storm Width (ft) | 24-Hour Storm Depth (ft) | Channel Base Width (ft) | Average Discharge (cfs): 6-Hour Storm | Average Discharge (cfs): 24-Hour Storm | Average n Value | Velocity, Travel Time and NSTEPS Using HEC-1 Summary Data: 6-Hour Velocity | 24-Hour Velocity | 6-Hour Time | 24-Hour Time | 6-Hour Steps | 24-Hours Steps |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 97-100 | 0.012 | 6200 | 1228.0 | 5.8 | 1268.0 | 5.9 | 139.0 | 11269 | 11731 | 0.060 | 4.9 | 4.9 | 0.35 | 0.35 | 6 | 6 |
| R98-99 | 0.015 | 12400 | 141.7 | 2.4 | 140.0 | 2.3 | 115.0 | 1649 | 1487 | 0.046 | 9.8 | 8.6 | 0.35 | 0.40 | 6 | 8 |
| 99-100 | 0.012 | 9800 | 146.5 | 2.8 | 159.9 | 2.9 | 139.0 | 1981 | 2141 | 0.048 | 7.8 | 7.8 | 0.35 | 0.35 | 6 | 6 |
| 100101 | 0.011 | 4600 | 842.6 | 6.1 | 862.9 | 6.2 | 111.0 | 11099 | 11888 | 0.058 | 5.1 | 6.4 | 0.25 | 0.20 | 5 | 4 |
| 101102 | 0.011 | 7600 | 862.9 | 6.2 | 883.2 | 6.3 | 111.0 | 11669 | 12527 | 0.058 | 6.0 | 6.0 | 0.35 | 0.35 | 6 | 6 |
| 102103 | 0.010 | 5400 | 873.0 | 6.3 | 903.5 | 6.4 | 111.0 | 11420 | 12274 | 0.058 | 6.0 | 7.5 | 0.25 | 0.20 | 5 | 4 |
| 103107 | 0.009 | 24200 | 1460.3 | 4.9 | 1520.3 | 5.1 | 40.0 | 11330 | 12565 | 0.050 | 5.4 | 6.1 | 1.25 | 1.10 | 25 | 22 |
| 104105 | 0.015 | 30400 | 370.8 | 2.2 | 366.9 | 2.2 | 163.0 | 3740 | 3528 | 0.047 | 8.9 | 8.4 | 0.95 | 1.00 | 18 | 20 |
| 105107 | 0.009 | 36800 | 994.6 | 6.7 | 977.4 | 6.7 | 22.0 | 6878 | 6554 | 0.050 | 4.8 | 4.6 | 2.15 | 2.20 | 43 | 44 |
| 108111 | 0.009 | 12200 | 413.3 | 4.3 | 388.0 | 4.0 | 77.0 | 2543 | 2037 | 0.053 | 4.8 | 4.5 | 0.70 | 0.75 | 13 | 15 |
| 110111 | 0.011 | 21000 | 438.5 | 2.6 | 433.2 | 2.6 | 53.0 | 2691 | 2515 | 0.049 | 5.8 | 5.6 | 1.00 | 1.05 | 20 | 20 |
| 111113 | 0.008 | 33200 | 445.1 | 4.2 | 436.4 | 4.1 | 30.0 | 3808 | 3599 | 0.050 | 6.1 | 5.3 | 1.50 | 1.75 | 30 | 35 |
| 113127 | 0.006 | 8200 | 1396.0 | 5.7 | 1500.4 | 6.1 | 66.0 | 15327 | 19408 | 0.049 | 6.5 | 5.7 | 0.35 | 0.40 | 6 | 8 |
| 114115 | 0.013 | 14000 | 741.0 | 3.3 | 730.9 | 3.3 | 34.0 | 4030 | 3782 | 0.059 | 4.9 | 4.6 | 0.80 | 0.85 | 16 | 17 |
| 115116 | 0.015 | 9600 | 771.3 | 3.5 | 741.0 | 3.3 | 34.0 | 4836 | 4347 | 0.059 | 5.3 | 5.3 | 0.50 | 0.50 | 10 | 10 |
| 116119 | 0.014 | 14200 | 548.2 | 4.4 | 536.2 | 4.3 | 50.0 | 3446 | 3152 | 0.051 | 6.1 | 4.9 | 0.65 | 0.80 | 12 | 16 |
| 116120 | 0.011 | 59400 | 377.8 | 2.6 | 372.8 | 2.5 | 64.0 | 1533 | 1408 | 0.057 | 4.3 | 3.8 | 3.80 | 4.35 | 75 | 86 |
| 118119 | 0.013 | 5400 | 548.2 | 4.4 | 524.1 | 4.3 | 50.0 | 3237 | 2999 | 0.051 | 6.0 | 5.0 | 0.25 | 0.30 | 5 | 6 |
| 119120 | 0.011 | 43600 | 644.3 | 4.8 | 632.3 | 4.7 | 50.0 | 4194 | 4129 | 0.051 | 5.5 | 5.4 | 2.20 | 2.25 | 44 | 45 |
| 120121 | 0.008 | 9000 | 704.1 | 4.0 | 704.1 | 4.0 | 30.0 | 4391 | 4471 | 0.050 | 5.6 | 5.6 | 0.45 | 0.45 | 8 | 8 |
| 121123 | 0.007 | 10000 | 713.6 | 4.1 | 723.1 | 4.1 | 30.0 | 4293 | 4369 | 0.050 | 5.1 | 5.1 | 0.55 | 0.55 | 11 | 11 |
| 123140 | 0.006 | 3800 | 732.6 | 4.2 | 742.1 | 4.2 | 30.0 | 4288 | 4445 | 0.050 | 5.3 | 5.3 | 0.20 | 0.20 | 4 | 4 |
| 124125 | 0.008 | 14600 | 596.2 | 4.6 | 596.2 | 4.6 | 50.0 | 3062 | 3116 | 0.051 | 4.5 | 4.3 | 0.90 | 0.95 | 17 | 18 |
| 125126 | 0.007 | 14800 | 618.6 | 3.6 | 628.1 | 3.6 | 30.0 | 2806 | 2848 | 0.050 | 4.3 | 4.3 | 0.95 | 0.95 | 18 | 18 |
| 126140 | 0.007 | 9200 | 862.4 | 3.4 | 874.0 | 3.4 | 66.0 | 2584 | 2640 | 0.049 | 3.2 | 3.4 | 0.80 | 0.75 | 16 | 15 |
| 127131 | 0.004 | 4800 | 1306.5 | 6.2 | 1448.1 | 7.0 | 66.0 | 15361 | 22550 | 0.049 | 5.3 | 4.4 | 0.25 | 0.30 | 5 | 6 |
| 128129 | 0.010 | 14200 | 460.4 | 1.5 | 513.7 | 1.7 | 46.0 | 896 | 1204 | 0.058 | 2.9 | 3.2 | 1.35 | 1.25 | 27 | 25 |
| 129130 | 0.009 | 9600 | 159.8 | 4.0 | 452.3 | 4.4 | 85.0 | 1432 | 1965 | 0.051 | 5.3 | 4.1 | 0.50 | 0.65 | 10 | 12 |
| 130131 | 0.007 | 27400 | 955.2 | 3.8 | 1071.2 | 4.3 | 66.0 | 4048 | 6381 | 0.049 | 4.2 | 4.8 | 1.80 | 1.60 | 35 | 32 |
| 131132 | 0.004 | 4400 | 2342.2 | 4.9 | 2895.1 | 5.8 | 178.0 | 14053 | 23728 | 0.050 | 1.6 | 4.1 | 0.75 | 0.30 | 15 | 6 |
| 132133 | 0.006 | 5000 | 1627.0 | 3.7 | 2081.4 | 4.4 | 291.0 | 9094 | 14818 | 0.054 | 4.0 | 4.0 | 0.35 | 0.35 | 6 | 6 |
| 133141 | 0.003 | 3700 | 1378.0 | 7.0 | 2361.1 | 8.3 | 68.5 | 7074 | 15165 | 0.049 | 2.9 | 3.4 | 0.35 | 0.30 | 6 | 6 |

# TABLE R-2

## REACH ROUTE HYDRAULIC DATA

| Reach | Slope (ft/ft) | Length (ft) | Section Top Width and Depth | | | | Channel Base Width (ft) | Average Discharge (cfs) | | Average n Value | Velocity, Travel Time and NSTEPS Using HEC-1 Summary Data | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 6-Hour Storm | | 24-Hour Storm | | | 6-Hour Storm | 24-Hour Storm | | 6-Hour Velocity | 24-Hour Velocity | 6-Hour Time | 24-Hour Time | 6-Hour Steps | 24-Hours Steps |
| | | | Width (ft) | Depth (ft) | Width (ft) | Depth (ft) | | | | | | | | | | |
| 135141 | 0.004 | 3400 | 409.3 | 6.3 | 595.6 | 6.8 | 23.7 | 1997 | 3117 | 0.035 | 4.7 | 3.8 | 0.20 | 0.25 | 4 | 5 |
| 136149 | 0.005 | 9500 | 328.9 | 1.3 | 354.8 | 1.4 | 400.0 | 332 | 417 | 0.044 | 2.3 | 2.6 | 1.15 | 1.00 | 22 | 20 |
| 140127 | 0.006 | 6800 | 1071.2 | 4.3 | 1094.4 | 4.4 | 66.0 | 5830 | 6451 | 0.049 | 4.2 | 4.7 | 0.45 | 0.40 | 8 | 8 |
| 141149 | 0.006 | 6500 | 551.1 | 8.4 | 1251.1 | 10.1 | 98.2 | 9006 | 18194 | 0.051 | 6.0 | 6.0 | 0.30 | 0.30 | 6 | 6 |
| 142139 | 0.006 | 12600 | 385.5 | 5.1 | 495.4 | 5.6 | 29.0 | 1610 | 2633 | 0.038 | 3.5 | 4.4 | 1.00 | 0.80 | 20 | 16 |
| 142-18 | 0.006 | 14800 | 58.2 | 2.9 | 242.5 | 4.5 | 29.0 | 130 | 814 | 0.041 | 2.3 | 3.4 | 1.75 | 1.20 | 35 | 24 |
| 143144 | 0.007 | 5800 | 272.0 | 2.4 | 224.1 | 2.2 | 43.2 | 445 | 300 | 0.035 | 3.0 | 2.9 | 0.55 | 0.57 | 33 | 34 |
| 144145 | 0.007 | 9100 | 567.8 | 2.2 | 528.0 | 2.1 | 39.8 | 705 | 608 | 0.031 | 3.3 | 3.3 | 0.91 | 0.83 | 54 | 49 |
| 145135 | 0.003 | 1100 | 136.1 | 5.0 | 136.1 | 5.0 | 5.6 | 819 | 867 | 0.053 | 3.3 | 3.3 | 0.08 | 0.09 | 4 | 5 |
| 146147 | 0.007 | 3100 | 25.6 | 1.5 | 18.5 | 1.1 | 12.0 | 46 | 21 | 0.035 | 2.7 | 2.3 | 0.25 | 0.30 | 15 | 18 |
| 147148 | 0.008 | 6200 | 50.6 | 2.2 | 41.3 | 1.8 | 3.3 | 205 | 110 | 0.035 | 3.7 | 3.2 | 0.32 | 0.42 | 19 | 25 |
| 148145 | 0.006 | 7000 | 118.8 | 4.0 | 80.6 | 3.5 | 16.1 | 589 | 343 | 0.035 | 4.9 | 4.4 | 0.40 | 0.38 | 24 | 22 |
| 149137 | 0.005 | 5400 | 889.8 | 6.6 | 1469.9 | 8.1 | 25.6 | 8953 | 18103 | 0.047 | 6.0 | 5.0 | 0.25 | 0.30 | 5 | 6 |
| 150142 | 0.004 | 3680 | 184.0 | 5.8 | 380.0 | 6.7 | 13.1 | 1828 | 3496 | 0.036 | 5.1 | 5.1 | 0.20 | 0.20 | 4 | 4 |

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

**FCD 90-67**

Table R-3

# TABLE R-3

## ROUTING REACH CHANNEL INFILTRATION LOSS DATA

| Reach | In Sub-Basin | SCS Soil Map Unit Left O/B | SCS Soil Map Unit Channel | SCS Soil Map Unit Right O/B | XKSAT Left O/B (in/hr) | XKSAT Channel (in/hr) | XKSAT Right O/B (in/hr) | Flow Top Widths 6-Hr Top Width | Flow Top Widths 24-Hr Top Width | Flow Top Widths Channel Width | Composite Loss Rate (cfs/acre) 6-Hour Storm | Composite Loss Rate (cfs/acre) 24-Hour Storm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R1-3 | 3G | VALLEY | M-SAND | VALLEY | 0.25 | 5.00 | 0.25 | 854.7 | 964.1 | 72.0 | 0.65 | 0.60 |
| R2-3 | 3G | VALLEY | M-SAND | VALLEY | 0.25 | 5.00 | 0.25 | 766.0 | 810.4 | 72.0 | 0.70 | 0.67 |
| R3-5 | 3H | VALLEY | M-SAND | VALLEY | 0.25 | 5.00 | 0.25 | 267.4 | 278.8 | 84.0 | 1.74 | 1.68 |
| R4-7 | 3D | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 434.6 | 479.4 | 137.0 | 3.32 | 3.04 |
| R5-7 | 3D | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 748.2 | 882.6 | 137.0 | 2.04 | 1.76 |
| R6-90 | 3B | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 612.5 | 639.7 | 34.0 | 0.79 | 0.77 |
| R7-90 | 3B | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 925.0 | 1065.0 | 137.0 | 1.69 | 1.50 |
| R8-9 | 3I | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 918.9 | 1000.2 | 37.0 | 0.64 | 0.61 |
| R9-10 | 3J | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 410.5 | 480.4 | 61.0 | 1.70 | 1.49 |
| R10-11 | 3L | 329 | V-SAND | 329 | 0.25 | 10.00 | 0.25 | 1217.0 | 1351.7 | 13.0 | 0.35 | 0.34 |
| R11-17 | 3M | 329 | V-SAND | 329 | 0.25 | 10.00 | 0.25 | 78.3 | 94.1 | 70.0 | 8.97 | 7.50 |
| R12-14 | 3M | 234 | V-SAND | 234 | 0.49 | 10.00 | 0.49 | 16.6 | 539.1 | 30.0 | 10.00 | 1.02 |
| R13-16 | 3M | 329 | V-SAND | 329 | 0.25 | 10.00 | 0.25 | 52.7 | 629.6 | 55.0 | 10.00 | 1.10 |
| R14-13 | 3M | 324 | V-SAND | 324 | 0.84 | 10.00 | 0.84 | 539.1 | 162.5 | 30.0 | 1.35 | 2.53 |
| R17-13 | 3M | 329 | V-SAND | 329 | 0.25 | 10.00 | 0.25 | 85.2 | 461.1 | 87.0 | 10.00 | 2.09 |
| R20-21 | 4F | VALLEY | M-SAND | VALLEY | 0.25 | 5.00 | 0.25 | 79.5 | 84.0 | 39.0 | 2.58 | 2.46 |
| R21-23 | 4G | VALLEY | M-SAND | VALLEY | 0.25 | 5.00 | 0.25 | 314.0 | 414.0 | 39.0 | 0.84 | 0.70 |
| R22-23 | 4G | VALLEY | M-SAND | VALLEY | 0.25 | 5.00 | 0.25 | 190.4 | 200.5 | 48.0 | 1.45 | 1.39 |
| R23-29 | 4J | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 401.3 | 526.5 | 84.0 | 2.29 | 1.81 |
| R24-25 | 4I | VALLEY | M-SAND | VALLEY | 0.25 | 5.00 | 0.25 | 571.0 | 553.5 | 58.0 | 0.73 | 0.75 |
| R25-30 | 4L | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 381.6 | 458.4 | 54.0 | 1.63 | 1.40 |
| R26-27 | 4B | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 151.1 | 155.4 | 84.0 | 5.67 | 5.52 |
| R27-28 | 4C | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 560.0 | 640.0 | 75.0 | 1.56 | 1.39 |
| R28-29 | 4J | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 400.0 | 500.0 | 75.0 | 2.08 | 1.71 |
| R29-31 | 4K | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 358.0 | 404.6 | 100.0 | 2.97 | 2.66 |
| R30-32 | 4M | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 830.0 | 894.1 | 54.0 | 0.88 | 0.84 |
| R31-32 | 4M | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 336.5 | 379.5 | 100.0 | 3.15 | 2.82 |
| R32-33 | 4N | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 697.1 | 922.1 | 70.0 | 1.23 | 0.99 |
| 32L-35 | 5A | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 432.4 | 558.9 | 39.0 | 1.13 | 0.93 |
| R33-34 | 4O | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 999.8 | 1328.1 | 52.0 | 0.76 | 0.63 |
| R35-36 | 5B | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 325.6 | 468.6 | 52.0 | 1.81 | 1.33 |
| R36-37 | 5C | 266 | V-SAND | 266 | 0.44 | 10.00 | 0.44 | 217.6 | 716.1 | 87.0 | 4.26 | 1.60 |
| R37-38 | 5C | 266 | V-SAND | 310 | 0.44 | 10.00 | 1.20 | 517.1 | 870.3 | 71.0 | 2.08 | 1.57 |
| R39-40 | 6B | VALLEY | M-SAND | VALLEY | 0.25 | 5.00 | 0.25 | 326.0 | 308.5 | 58.0 | 1.10 | 1.14 |
| 40R-30 | 4L | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 888.0 | 848.0 | 62.0 | 0.93 | 0.96 |
| 40L-41 | 6C | VALLEY | M-SAND | VALLEY | 0.25 | 5.00 | 0.25 | 257.9 | 253.5 | 26.0 | 0.73 | 0.74 |
| R41-43 | 6D | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 445.9 | 456.9 | 68.0 | 1.74 | 1.70 |
| R42-43 | 6D | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 390.8 | 368.7 | 68.0 | 1.95 | 2.05 |
| R43-44 | 6F | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 706.9 | 733.6 | 51.0 | 0.95 | 0.93 |
| R44-69 | 6J | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 1056.7 | 1069.4 | 68.0 | 0.88 | 0.87 |
| R45-50 | 6L | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 780.0 | 760.0 | 103.0 | 1.54 | 1.57 |
| R46-69 | 6J | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 1294.1 | 1308.4 | 40.0 | 0.55 | 0.55 |
| 47R-48 | 6K | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 1279.8 | 1308.4 | 40.0 | 0.55 | 0.55 |
| 47L-49 | 6M | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 1279.8 | 1308.4 | 40.0 | 0.55 | 0.55 |
| 48L-49 | 6M | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 914.0 | 954.0 | 166.0 | 2.02 | 1.95 |
| 48R-50 | 6L | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 914.0 | 954.0 | 166.0 | 2.02 | 1.95 |
| R49-51 | 6O | 234 | V-SAND | 234 | 0.49 | 10.00 | 0.49 | 1116.0 | 1196.0 | 19.0 | 0.65 | 0.64 |

# TABLE R-3

## ROUTING REACH CHANNEL INFILTRATION LOSS DATA

| Reach | In Sub-Basin | SCS Soil Map Unit Left O/B | SCS Soil Map Unit Channel | SCS Soil Map Unit Right O/B | XKSAT Left O/B (in/hr) | XKSAT Channel (in/hr) | XKSAT Right O/B (in/hr) | Flow Top Widths 6-Hr Top Width | Flow Top Widths 24-Hr Top Width | Flow Top Widths Channel Width | Composite Loss Rate (cfs/acre) 6-Hour Storm | Composite Loss Rate (cfs/acre) 24-Hour Storm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R50-52 | 6O | 269 | V-SAND | 329 | 0.84 | 10.00 | 0.25 | 905.1 | 1002.0 | 399.0 | 4.71 | 4.31 |
| R51-54 | 6P | 329 | V-SAND | 329 | 0.25 | 10.00 | 0.25 | 273.0 | 351.4 | 45.0 | 1.86 | 1.50 |
| R52-55 | 6P | 329 | V-SAND | 329 | 0.25 | 10.00 | 0.25 | 50.7 | 53.7 | 20.0 | 4.10 | 3.88 |
| R53-56 | 6Q | 329 | V-SAND | 329 | 0.25 | 10.00 | 0.25 | 34.2 | 195.0 | 31.5 | 9.23 | 1.83 |
| R54-57 | 6P | 234 | V-SAND | 329 | 0.49 | 10.00 | 0.25 | 273.0 | 351.4 | 45.0 | 1.96 | 1.60 |
| R55-57 | 6P | 329 | V-SAND | 329 | 0.25 | 10.00 | 0.25 | 49.7 | 52.5 | 20.0 | 4.17 | 3.96 |
| R56-59 | 6Q | 310 | V-SAND | 310 | 1.20 | 10.00 | 1.20 | 37.8 | 102.8 | 17.0 | 5.16 | 2.66 |
| R57-58 | 6P | 329 | V-SAND | 329 | 0.25 | 10.00 | 0.25 | 868.1 | 954.3 | 49.0 | 0.80 | 0.75 |
| R61-62 | 1A | 333 | M-SAND | 333 | 0.82 | 5.00 | 0.82 | 433.7 | 164.4 | 46.0 | 1.26 | 1.99 |
| R62-64 | 1F | 325 | M-SAND | 325 | 1.20 | 5.00 | 1.20 | 868.7 | 910.1 | 46.0 | 1.40 | 1.39 |
| R63-64 | 1E | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 42.5 | 39.8 | 19.0 | 4.61 | 4.90 |
| R64-65 | 1E | 325 | V-SAND | 325 | 1.20 | 10.00 | 1.20 | 868.7 | 910.1 | 46.0 | 1.67 | 1.64 |
| R65-67 | 1H | 325 | M-SAND | 325 | 1.20 | 5.00 | 1.20 | 464.0 | 531.8 | 93.0 | 1.96 | 1.86 |
| R66-67 | 1I | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 95.4 | 93.3 | 83.0 | 8.73 | 8.92 |
| R67-71 | 1H | 325 | M-SAND | 325 | 1.20 | 5.00 | 1.20 | 560.9 | 638.4 | 93.0 | 1.83 | 1.75 |
| R68-71 | 1L | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 63.0 | 57.6 | 19.0 | 3.19 | 3.47 |
| R69-47 | 6J | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 1637.0 | 1679.8 | 40.0 | 0.49 | 0.48 |
| R70-71 | 1H | 327 | M-SAND | 322 | 1.20 | 5.00 | 0.97 | 214.4 | 217.5 | 35.0 | 1.72 | 1.72 |
| R71-73 | 1O | 323 | M-SAND | 325 | 0.50 | 5.00 | 1.20 | 958.8 | 1073.4 | 68.0 | 1.14 | 1.11 |
| R72-73 | 1N | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 439.6 | 373.5 | 75.0 | 1.91 | 2.21 |
| R73-74 | 1O | 325 | M-SAND | 325 | 1.20 | 5.00 | 1.20 | 1027.6 | 1153.7 | 68.0 | 1.45 | 1.42 |
| R74-77 | 1U | 325 | V-SAND | 325 | 1.20 | 10.00 | 1.20 | 958.6 | 1139.7 | 176.0 | 2.82 | 2.56 |
| R75-76 | 1R | 325 | M-SAND | 321 | 1.20 | 5.00 | 0.40 | 359.8 | 355.4 | 64.0 | 1.55 | 1.56 |
| R76-77 | 1T | 324 | V-SAND | 321 | 0.84 | 10.00 | 0.40 | 377.3 | 372.9 | 64.0 | 2.21 | 2.23 |
| R77-79 | 1W | 324 | V-SAND | 321 | 0.84 | 10.00 | 0.40 | 694.1 | 874.2 | 108.0 | 2.08 | 1.78 |
| 78R-79 | 1V | 321 | V-SAND | 328 | 0.40 | 10.00 | 0.48 | 109.0 | 109.9 | 97.0 | 8.95 | 8.88 |
| 78L128 | 2SS | 325 | V-SAND | 325 | 1.20 | 10.00 | 1.20 | 353.7 | 380.4 | 46.0 | 2.34 | 2.26 |
| 79L-80 | 1X | 324 | V-SAND | 321 | 0.84 | 10.00 | 0.40 | 361.0 | 428.9 | 67.0 | 2.36 | 2.09 |
| 79R-81 | 1X | 321 | V-SAND | 321 | 0.40 | 10.00 | 0.40 | 315.8 | 410.8 | 67.0 | 2.44 | 1.97 |
| 80R-81 | 1X | 321 | V-SAND | 321 | 0.40 | 10.00 | 0.40 | 56.1 | 57.9 | 51.0 | 9.13 | 8.86 |
| 80L130 | 2UU | 325 | V-SAND | 325 | 1.20 | 10.00 | 1.20 | 701.7 | 815.0 | 85.0 | 2.27 | 2.12 |
| 81R-82 | 1Y | 321 | V-SAND | 324 | 0.40 | 10.00 | 0.84 | 247.0 | 564.2 | 21.0 | 1.42 | 0.97 |
| 81L-82 | 1Y | 321 | V-SAND | 321 | 0.40 | 10.00 | 0.40 | 642.7 | 776.8 | 45.0 | 1.07 | 0.96 |
| 82-135 | 2VV | 266 | V-SAND | 266 | 0.44 | 10.00 | 0.44 | 582.5 | 734.8 | 212.8 | 3.93 | 3.21 |
| R83-84 | 2B | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 449.2 | 439.1 | 31.0 | 0.92 | 0.94 |
| 84L-85 | 2B | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 973.2 | 963.0 | 32.0 | 0.57 | 0.57 |
| 84R-86 | 2N | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 189.2 | 189.2 | 42.0 | 2.41 | 2.41 |
| R85-96 | 2C | MOUNTAIN | M-SAND | MOUNTAIN | 0.02 | 5.00 | 0.02 | 1065.4 | 1055.1 | 155.0 | 0.74 | 0.75 |
| R86-96 | 2O | MOUNTAIN | M-SAND | MOUNTAIN | 0.02 | 5.00 | 0.02 | 611.9 | 611.9 | 52.0 | 0.44 | 0.44 |
| R87-89 | 2E | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 469.4 | 418.8 | 31.0 | 0.89 | 0.97 |
| R88-89 | 2E | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 287.5 | 267.3 | 31.0 | 1.30 | 1.38 |
| R89-91 | 2E | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 469.4 | 429.0 | 31.0 | 0.89 | 0.95 |
| R90-8 | 3B | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 922.3 | 1000.2 | 37.0 | 0.64 | 0.61 |
| R91-92 | 2I | VALLEY | M-SAND | VALLEY | 0.25 | 5.00 | 0.25 | 540.1 | 519.9 | 31.0 | 0.52 | 0.53 |
| R92-95 | 2J | VALLEY | M-SAND | VALLEY | 0.25 | 5.00 | 0.25 | 661.4 | 661.4 | 31.0 | 0.47 | 0.47 |
| R93-94 | 2M | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 408.7 | 368.3 | 31.0 | 0.99 | 1.07 |
| R94-95 | 2M | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 189.6 | 170.8 | 82.0 | 4.47 | 4.93 |

# TABLE R-3

## ROUTING REACH CHANNEL INFILTRATION LOSS DATA

| Reach | In Sub-Basin | SCS Soil Map Unit Left O/B | SCS Soil Map Unit Channel | SCS Soil Map Unit Right O/B | XKSAT Left O/B (in/hr) | XKSAT Channel (in/hr) | XKSAT Right O/B (in/hr) | Flow Top Widths 6-Hr Top Width | Flow Top Widths 24-Hr Top Width | Flow Top Widths Channel Width | Composite Loss Rate (cfs/acre) 6-Hour Storm | Composite Loss Rate (cfs/acre) 24-Hour Storm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R95-96 | 2O | MOUNTAIN | M-SAND | MOUNTAIN | 0.02 | 5.00 | 0.02 | 1105.5 | 1105.5 | 52.0 | 0.25 | 0.25 |
| R96-97 | 2P | 325 | M-SAND | 325 | 1.20 | 5.00 | 1.20 | 1443.6 | 1458.7 | 167.0 | 1.64 | 1.64 |
| 97-100 | 2T | 325 | M-SAND | 325 | 1.20 | 5.00 | 1.20 | 1228.0 | 1268.0 | 139.0 | 1.63 | 1.62 |
| R98-99 | 2R | 325 | V-SAND | 325 | 1.20 | 10.00 | 1.20 | 141.7 | 140.0 | 115.0 | 8.34 | 8.43 |
| 99-100 | 2S | 325 | V-SAND | 325 | 1.20 | 10.00 | 1.20 | 146.5 | 159.9 | 139.0 | 9.55 | 8.85 |
| 100101 | 2T | 321 | M-SAND | 325 | 0.40 | 5.00 | 1.20 | 842.6 | 862.9 | 111.0 | 1.35 | 1.34 |
| 101102 | 2U | 325 | V-SAND | 325 | 1.20 | 10.00 | 1.20 | 862.9 | 883.2 | 111.0 | 2.33 | 2.31 |
| 102103 | 2V | 321 | M-SAND | 325 | 0.40 | 5.00 | 1.20 | 873.0 | 903.5 | 111.0 | 1.33 | 1.32 |
| 103107 | 2Y | 329 | V-SAND | 321 | 0.25 | 10.00 | 0.40 | 1460.3 | 1520.3 | 40.0 | 0.59 | 0.58 |
| 104105 | 2X | VALLEY | M-SAND | VALLEY | 0.25 | 5.00 | 0.25 | 370.8 | 366.9 | 163.0 | 2.34 | 2.36 |
| 105107 | 2Y | 321 | V-SAND | 321 | 0.40 | 10.00 | 0.40 | 994.6 | 977.4 | 22.0 | 0.61 | 0.62 |
| 108111 | 2AA | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 413.3 | 388.0 | 77.0 | 2.07 | 2.18 |
| 110111 | 2AA | VALLEY | V-SAND | VALLEY | 0.40 | 10.00 | 0.40 | 438.5 | 433.2 | 53.0 | 1.56 | 1.57 |
| 111113 | 2CC | 321 | V-SAND | 321 | 0.40 | 10.00 | 0.40 | 445.1 | 436.4 | 30.0 | 1.05 | 1.06 |
| 113127 | 2DD | 266 | V-SAND | 266 | 0.44 | 10.00 | 0.44 | 1396.0 | 1500.4 | 66.0 | 0.89 | 0.86 |
| 114115 | 2HH | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 741.0 | 730.9 | 34.0 | 0.70 | 0.70 |
| 115116 | 2II | VALLEY | M-SAND | VALLEY | 0.25 | 5.00 | 0.25 | 771.3 | 741.0 | 34.0 | 0.46 | 0.47 |
| 116119 | 2JJ | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 548.2 | 536.2 | 50.0 | 1.14 | 1.16 |
| 116120 | 2LL | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 377.8 | 372.8 | 64.0 | 1.90 | 1.92 |
| 118119 | 2JJ | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 548.2 | 524.1 | 50.0 | 1.14 | 1.18 |
| 119120 | 2KK | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 644.3 | 632.3 | 50.0 | 1.01 | 1.02 |
| 120121 | 2MM | 324 | V-SAND | 324 | 0.84 | 10.00 | 0.84 | 704.1 | 704.1 | 30.0 | 1.23 | 1.23 |
| 121123 | 2FF | 301 | V-SAND | 329 | 0.50 | 10.00 | 0.25 | 713.6 | 723.1 | 30.0 | 0.78 | 0.77 |
| 123140 | 2RR | 266 | V-SAND | 266 | 0.44 | 10.00 | 0.44 | 732.6 | 742.1 | 30.0 | 0.83 | 0.83 |
| 124125 | 2PP | VALLEY | V-SAND | VALLEY | 0.25 | 10.00 | 0.25 | 596.2 | 596.2 | 50.0 | 1.07 | 1.07 |
| 125126 | 2QQ | 324 | V-SAND | 324 | 0.84 | 10.00 | 0.84 | 618.6 | 628.1 | 30.0 | 1.28 | 1.28 |
| 126140 | 2RR | 329 | V-SAND | 329 | 0.25 | 10.00 | 0.25 | 862.4 | 874.0 | 66.0 | 1.00 | 0.99 |
| 127131 | 2UU | 266 | V-SAND | 266 | 0.44 | 10.00 | 0.44 | 1306.5 | 1448.1 | 66.0 | 0.92 | 0.88 |
| 128129 | 2TT | 324 | V-SAND | 324 | 0.84 | 10.00 | 0.84 | 460.4 | 513.7 | 46.0 | 1.76 | 1.66 |
| 129130 | 2UU | 324 | V-SAND | 321 | 0.84 | 10.00 | 0.40 | 159.8 | 452.3 | 85.0 | 5.61 | 2.38 |
| 130131 | 2UU | 266 | V-SAND | 266 | 0.44 | 10.00 | 0.44 | 955.2 | 1071.2 | 66.0 | 1.10 | 1.03 |
| 131132 | 2UU | 266 | V-SAND | 266 | 0.44 | 10.00 | 0.44 | 2342.2 | 2895.1 | 178.0 | 1.17 | 1.03 |
| 132133 | 2VV | 266 | V-SAND | 266 | 0.44 | 10.00 | 0.44 | 1627.0 | 2081.4 | 291.0 | 2.15 | 1.78 |
| 133141 | 2XX | 266 | V-SAND | 266 | 0.44 | 10.00 | 0.44 | 1378.0 | 2361.1 | 68.5 | 0.92 | 0.72 |
| 135141 | 2XX | 263 | V-SAND | 266 | 0.56 | 10.00 | 0.44 | 409.3 | 595.6 | 23.7 | 1.05 | 0.88 |
| 136149 | 2XX | 266 | V-SAND | 266 | 0.44 | 10.00 | 0.44 | 328.9 | 354.8 | 400.0 | 10.00 | 10.00 |
| 140127 | 2RR | 266 | V-SAND | 266 | 0.44 | 10.00 | 0.44 | 1071.2 | 1094.4 | 66.0 | 1.03 | 1.02 |
| 141149 | 2XX | 266 | V-SAND | 266 | 0.44 | 10.00 | 0.44 | 551.1 | 1251.1 | 98.2 | 2.14 | 1.19 |
| 142-18 | 7B | 310 | V-SAND | 310 | 1.20 | 10.00 | 1.20 | 58.2 | 242.5 | 29.0 | 5.58 | 2.25 |
| 142139 | 7D | 324 | V-SAND | 324 | 0.84 | 10.00 | 0.84 | 385.5 | 495.4 | 29.0 | 1.53 | 1.38 |
| 143144 | 2VV1 | 324 | V-SAND | 324 | 0.84 | 10.00 | 0.84 | 272.0 | 224.1 | 43.2 | 1.20 | 2.61 |
| 144145 | 2VV6 | 324 | V-SAND | 324 | 0.84 | 10.00 | 0.84 | 567.8 | 528.0 | 39.8 | 1.20 | 1.53 |
| 145135 | 2VV7 | 269 | V-SAND | 269 | 0.84 | 10.00 | 0.84 | 136.1 | 136.1 | 5.6 | 1.20 | 1.22 |
| 146147 | 2VV4 | 324 | V-SAND | 324 | 0.84 | 10.00 | 0.84 | 25.6 | 18.5 | 12.0 | 5.30 | 6.78 |
| 147148 | 2VV8 | 324 | V-SAND | 324 | 0.84 | 10.00 | 0.84 | 50.6 | 41.3 | 3.3 | 1.50 | 1.57 |
| 148145 | 2VV5 | 269 | V-SAND | 269 | 0.84 | 10.00 | 0.84 | 118.8 | 80.6 | 16.1 | 1.30 | 2.67 |
| 149137 | 2XX | 266 | V-SAND | 266 | 0.44 | 10.00 | 0.44 | 889.8 | 1469.9 | 25.6 | 0.72 | 0.61 |

# TABLE R-3

## ROUTING REACH CHANNEL INFILTRATION LOSS DATA

| Reach | In Sub-Basin | SCS Soil Map Unit | | | XKSAT | | | Flow Top Widths | | | Composite Loss Rate (cfs/acre) | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Left O/B | Channel | Right O/B | Left O/B (in/hr) | Channel (in/hr) | Right O/B (in/hr) | 6-Hr Top Width | 24-Hr Top Width | Channel Width | 6-Hour Storm | 24-Hour Storm |
| 150142 | 7A | 324 | V-SAND | 324 | 0.84 | 10.00 | 0.84 | 184.0 | 380.0 | 13.1 | 1.49 | 1.16 |

FLOOD CONTROL
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1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

Section 3.2.2.3

### 3.2.2.3 Storage Route Parameters

**General**

Reservoir storage routing computations were done for each drainage structure crossing of the Gila Bend Canal (GBC). The hydraulics of each structure were modeled to obtain stage versus discharge curves. The storage characteristics of the impoundment areas were determined and the effects of storage upstream of the canal were then modeled in HEC-1 using the Modified Puls Method. Refer to Section 3.4.3 for a discussion of how commingling of ponded waters upstream of the GBC was addressed.

**Field Reconnaissance**

Contour mapping along the GBC was prepared as a part of the hydraulics (floodplain delineation) portion of this study. This mapping was generated for the GBC from the east side of Gila Bend west to SR-85. Refer to Section 2.4. The scale is either 1"=200' with a 2-foot contour interval or 1"=400' with a 4-foot contour interval. The only contour mapping available for the GBC from SR-85 west to Smurr is USGS quadrangle mapping. A field survey was done to supplement the USGS mapping, and to obtain as-built physical information for each structure. The physical information gathered included a profile of the south canal levee from SR-85 to Smurr, the size, type, and length of structure, inlet and outlet invert elevations, and a cross section typical of the downstream channel.

**Hydraulic Computations**

The hydraulics of each GBC structure were modeled using the *Hydraulics of Bridge and Culvert Waterways* (HOBCW) computer program or HEC-2[3]. HOBCW program version 3.0 was used for this analysis. HOBCW is based

[3]Refer to Section 6.5, Bibliography Reference Numbers 15 and 25.

upon the Bureau of Public Roads publication *Hydraulics of Bridge Waterways* and the U.S. Department of Transportation, *Hydraulic Design of Highway Culverts*[4]. HOBCW was used for estimating stage versus discharge rating curves for pipe culverts and small reinforced concrete box culverts. The HEC-2 program was used for estimating stage versus discharge rating curves for the concrete-lined overchutes and the larger reinforced concrete box culvert structures and bridges. HEC-2 was also used for estimating rating curves for levee and canal over-topping situations where the flow hydraulics could be assumed to function as a broad-crested weir of uniform configuration.

The results of the hydraulic calculations are contained in the following sections, organized by Gila Bend Canal (GBC) structure. Refer to Sheet 1 of Exhibit "C" for the location of each structure. The storage and discharge versus stage curve for each structure follow this section and are titled Figures R-1 through R-11.

Each structure was checked under inlet and outlet control. The highest stage resultant from the two conditions was used. The flow rates corresponding to even foot stage increments were tabulated from the storage and discharge versus stage curves and used for input to the HEC-1 models.

**Surface Area Computations**

The ponding surface areas upstream of each GBC structure were planimetered from the available mapping. The area associated with each contour up to an elevation at least 2-feet higher than the top of the canal embankment or levees was measured. The total storage volume in acre-feet for appropriate elevations was then calculated using the conical method. These volumes were input to the HEC-1 computer models with corresponding outflow discharges calculated as described above.

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[4]Refer to Section 6.5, Bibliography Reference Number 37.

Plots of the storage and discharge versus stage curves for each reservoir route are included as Figures R-1 through R-11. Data pertinent to each structure is included on each figure. The identifier and description, as well as the modeling results, for each GBC cross drain structure is contained in Table F-4 in Section 3.5.

**Percolation Loss**

Percolation loss rates were included in the storage routing computations. The loss rate at each structure was selected using the following method:

1. The highest anticipated ponding stage was plotted on Exhibit "B".
2. The most dominate soil map unit in the ponding area was selected.
3. The XKSAT value for the selected soil map unit was converted into a loss rate in cfs/acre.

The soil map unit chosen for each structure, and the corresponding calculated loss rate, are shown in Table R-4a. There is overlap between the percolation losses simulated in the channel routing and those simulated in the reservoir routing. However, the overlap was judged to be negligible. Refer to Table R-4b for the average rates which were input to the HEC-1 models. Reservoir routes for the various structures were combined to more accurately simulate the commingling of runoff volumes against the canal. Refer to Section 3.4.3 for a discussion on how this problem was addressed.

**Table R-4a**

| Infiltration Loss Rates at Gila Bend Canal (GBC) Structures | | | | | | |
|---|---|---|---|---|---|---|
| **Canal Structure** | **Concentration Point** | **Soil Map Units and Loss Rates (cfs/acre)** | | | | **Average Loss Rate (cfs/acre)** |
| GBC-1 | C51 | 297<br>0.16 | 234<br>0.49 | 329<br>0.25 | | 0.30 |
| GBC-2 | C52 | 329<br>0.25 | 269<br>0.84 | 324<br>0.84 | | 0.64 |
| GBC-3 | C53 | 263<br>0.56 | 324<br>0.84 | 269<br>0.84 | | 0.75 |
| GBC-4 | C36 | 324<br>0.84 | 266<br>0.44 | 329<br>0.25 | | 0.51 |
| GBC-5 | C11 | 329<br>0.25 | 269<br>0.84 | 324<br>0.84 | | 0.64 |
| GBC-6 | C12 | 324<br>0.84 | 234<br>0.49 | | | 0.67 |
| GBC-7 | C142 | 324<br>0.84 | 269<br>0.84 | | | 0.84 |
| GBC-8 | C133 | 269<br>0.84 | 263<br>0.56 | 266<br>0.44 | 324<br>0.84 | 0.67 |
| GBC-9 | C135 | 269<br>0.84 | 263<br>0.56 | 266<br>0.44 | 324<br>0.84 | 0.67 |
| GBC-10 | C136 | 324<br>0.84 | 267<br>0.28 | | | 0.56 |
| --- | C151 | 316 (90%)<br>1.20 | 324 (10%)<br>0.84 | | | 1.16 |

**Table R-4b**

| Infiltration Loss Rates for Reservoir Route Operations | | |
|---|---|---|
| **HEC I.D.** | **Concentration Points** | **Average Loss Rate (cfs/acre)** |
| PND1 | C51 + C52 | 0.47 |
| PND2 | C53 + C36 + C11 | 0.63 |
| PND3 | C133 + C135 | 0.67 |
| C12O | C12 | 0.67 |
| C142O | C142 | 0.84 |
| C151O | C151 | 1.16 |
| C136O | C136 | 0.56 |

## Table R-5

| Storage and Discharge vs Stage Data for PND1<br>PND1: C51 + C52 | | | | | | |
|---|---|---|---|---|---|---|
| Stage | Volume | | | Discharge | | |
| | C51 | C52 | Total | C51 | C52 | Total |
| 727.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 728.0 | 0.0 | 0.0 | 0.0 | 10.0 | 0.0 | 10.0 |
| 729.0 | 1.0 | 0.0 | 1.0 | 30.0 | 0.0 | 30.0 |
| 730.0 | 3.0 | 0.0 | 3.0 | 75.0 | 0.0 | 75.0 |
| 731.0 | 7.0 | 0.0 | 7.0 | 135.0 | 0.0 | 135.0 |
| 732.0 | 12.0 | 0.0 | 12.0 | 225.0 | 8.0 | 233.0 |
| 733.0 | 20.0 | 2.0 | 22.0 | 275.0 | 12.0 | 287.0 |
| 734.0 | 35.0 | 6.0 | 41.0 | 350.0 | 27.0 | 377.0 |
| 735.0 | 58.0 | 16.0 | 74.0 | 360.0 | 40.0 | 400.0 |
| 736.0 | 98.0 | 31.0 | 129.0 | 395.0 | 47.0 | 442.0 |
| 737.0 | 171.0 | 55.0 | 226.0 | 425.0 | 54.0 | 479.0 |
| 738.0 | 280.0 | 89.0 | 369.0 | 455.0 | 60.0 | 515.0 |
| 739.0 | 426.0 | 135.0 | 561.0 | 480.0 | 66.0 | 546.0 |
| 739.5 | 517.5 | 144.5 | 662.0 | 495.0 | 87.0 | 582.0 |
| 739.6 | 535.8 | 154.0 | 689.8 | 529.5 | 108.0 | 637.5 |
| 739.7 | 554.1 | 163.5 | 717.6 | 738.2 | 129.0 | 867.2 |
| 739.8 | 572.4 | 173.0 | 745.4 | 1134.4 | 150.0 | 1284.4 |
| 739.9 | 590.7 | 182.5 | 773.2 | 1769.7 | 171.0 | 1940.7 |
| 740.0 | 609.0 | 192.0 | 801.0 | 2642.6 | 192.0 | 2834.6 |
| 740.1 | 627.3 | 197.7 | 825.0 | 3735.0 | 215.5 | 3950.5 |
| 740.2 | 645.6 | 203.4 | 849.0 | 4937.4 | 396.8 | 5334.2 |
| 740.3 | 663.9 | 209.1 | 873.0 | 6304.3 | 701.8 | 7006.1 |
| 740.4 | 682.2 | 214.8 | 897.0 | 7900.2 | 1099.0 | 8999.2 |
| 740.5 | 700.5 | 220.5 | 921.0 | 9656.8 | 1698.3 | 11355.1 |
| 740.6 | 718.8 | 226.2 | 945.0 | 11559.6 | 2430.2 | 13989.8 |
| 740.7 | 737.1 | 231.9 | 969.0 | 13649.9 | 3277.1 | 16927.0 |
| 740.8 | 755.4 | 237.6 | 993.0 | 15984.9 | 4233.3 | 20218.2 |

## Table R-5, Continued . . .

| Storage and Discharge vs Stage Data for PND1<br>PND1: C51 + C52 | | | | | | |
|---|---|---|---|---|---|---|
| Stage | Volume | | | Discharge | | |
| | C51 | C52 | Total | C51 | C52 | Total |
| 740.9 | 773.7 | 243.3 | 1017.0 | 18445.3 | 5321.4 | 23766.7 |
| 741.0 | 792.0 | 249.0 | 1041.0 | 21031.2 | 6480.3 | 27511.5 |

## Table R-6

| Storage and Discharge vs Stage Data for PND2<br>PND2: C11 + C36 + C53 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Stage | Volume | | | | Discharge | | | | |
| | C11 | C36 | C53 | Total | C11 | C36 | C11 + C36 | C53 | Total |
| 726.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 727.0 | 9 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| 727.9 | 20 | 0 | 0 | 20 | 0 | 0 | 0 | 3 | 3 |
| 728.0 | 21 | 0 | 0 | 21 | 0 | 23 | 23 | 5 | 28 |
| 729.0 | 35 | 0 | 1 | 36 | 0 | 250 | 250 | 20 | 270 |
| 730.0 | 52 | 0 | 4 | 56 | 0 | 690 | 690 | 50 | 740 |
| 731.0 | 71 | 0 | 9 | 80 | 0 | 1150 | 1150 | 95 | 1245 |
| 732.0 | 92 | 0 | 17 | 109 | 0 | 1750 | 1750 | 150 | 1900 |
| 733.0 | 116 | 0 | 26 | 142 | 0 | 2500 | 2500 | 200 | 2700 |
| 733.4 | 126 | 1 | 31 | 158 | 0 | 2860 | 2860 | 216 | 3076 |
| 734.0 | 142 | 2 | 38 | 182 | 85 | 3400 | 3485 | 240 | 3725 |
| 735.0 | 171 | 10 | 53 | 234 | 284 | 4500 | 4784 | 275 | 5059 |
| 736.0 | 202 | 24 | 85 | 311 | 567 | 5600 | 6167 | 305 | 6472 |
| 737.0 | 238 | 56 | 144 | 438 | 965 | 6900 | 7865 | 330 | 8195 |
| 738.0 | 281 | 112 | 234 | 627 | 1532 | 8250 | 9782 | 355 | 10137 |
| 739.0 | 334 | 196 | 353 | 883 | 2241 | 9700 | 11941 | 375 | 12316 |
| 740.0 | 398 | 309 | 503 | 1210 | 2950 | 11200 | 14150 | 395 | 14545 |
| 740.1 | 405 | 320 | 518 | 1244 | 3036 | 11345 | 14381 | 395 | 14776 |
| 740.2 | 413 | 331 | 533 | 1277 | 3121 | 11490 | 14611 | 400 | 15011 |
| 740.3 | 420 | 342 | 548 | 1311 | 3207 | 11635 | 14842 | 417 | 15259 |
| 740.4 | 428 | 353 | 563 | 1344 | 3292 | 11780 | 15072 | 455 | 15527 |
| 740.5 | 435 | 365 | 578 | 1378 | 3378 | 11925 | 15303 | 505 | 15808 |
| 740.6 | 442 | 376 | 593 | 1411 | 3464 | 12070 | 15534 | 635 | 16169 |
| 740.7 | 450 | 387 | 608 | 1445 | 3549 | 12215 | 15764 | 886 | 16650 |
| 740.8 | 457 | 398 | 623 | 1478 | 3635 | 12360 | 15995 | 1292 | 17287 |
| 740.9 | 465 | 409 | 638 | 1512 | 3720 | 12505 | 16225 | 1777 | 18003 |
| 741.0 | 472 | 420 | 653 | 1545 | 3806 | 12650 | 16456 | 2334 | 18790 |

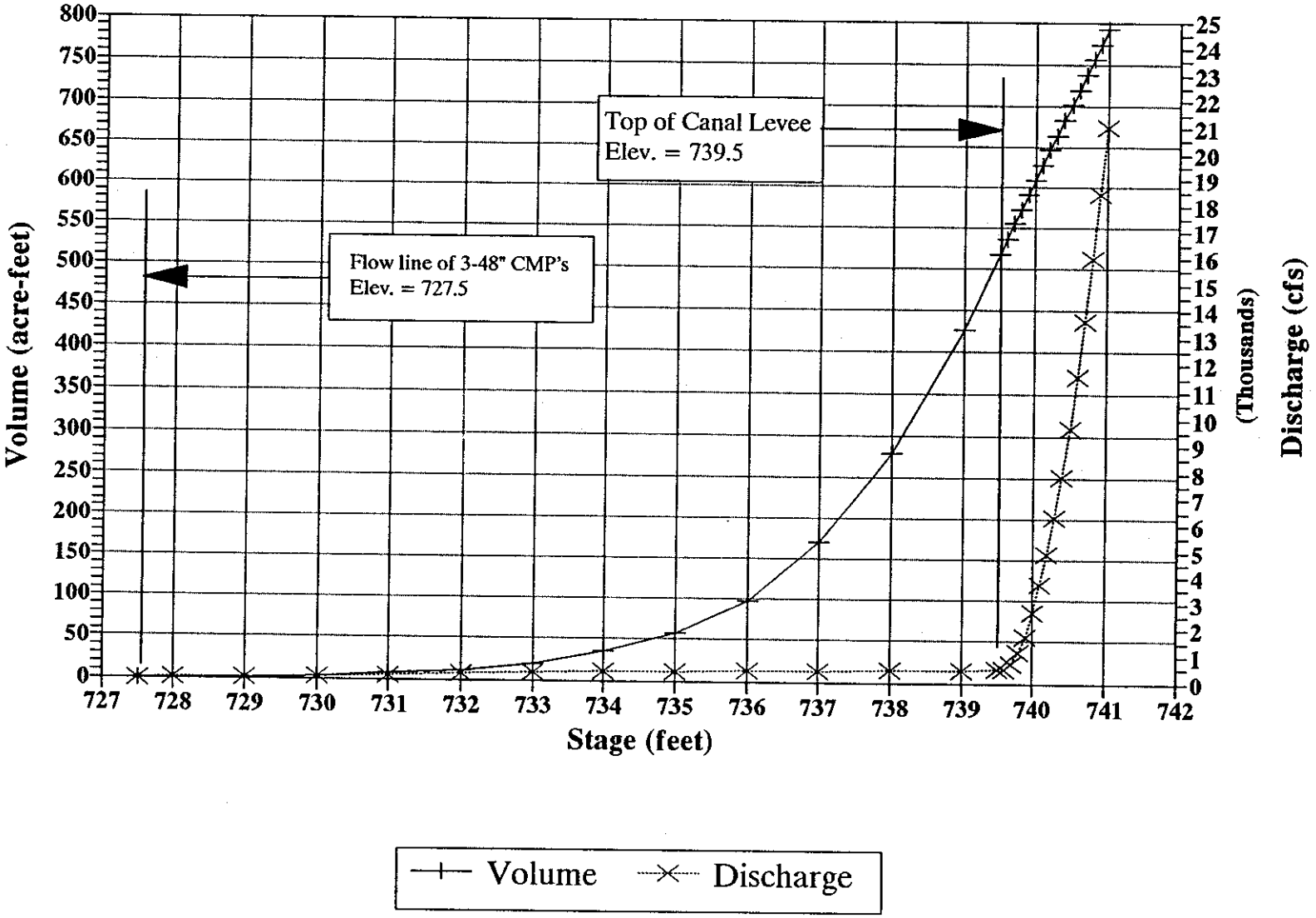
## Table R-6, Continued . . .

| Storage and Discharge vs Stage Data for PND2<br>PND2: C11 + C36 + C53 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Stage | Volume | | | | Discharge | | | | |
| | C11 | C36 | C53 | Total | C11 | C36 | C11 + C36 | C53 | Total |
| 741.1 | 481 | 432 | 668 | 1581 | 3896 | 12795 | 16691 | 2965 | 19656 |
| 741.2 | 490 | 443 | 683 | 1617 | 3985 | 12969 | 16954 | 3780 | 20734 |
| 741.3 | 500 | 455 | 698 | 1652 | 4075 | 13245 | 17320 | 4905 | 22224 |
| 741.4 | 509 | 466 | 713 | 1688 | 4179 | 13560 | 17739 | 6208 | 23947 |
| 741.5 | 518 | 478 | 728 | 1724 | 4348 | 13927 | 18275 | 7691 | 25967 |
| 741.6 | 527 | 490 | 743 | 1760 | 4573 | 14370 | 18943 | 9377 | 28320 |
| 741.7 | 536 | 501 | 758 | 1796 | 4904 | 14866 | 19770 | 11373 | 31143 |
| 741.8 | 546 | 513 | 773 | 1831 | 5267 | 15447 | 20714 | 13485 | 34199 |
| 741.9 | 555 | 524 | 788 | 1867 | 5741 | 16231 | 21972 | 15819 | 37791 |
| 742.0 | 564 | 536 | 803 | 1903 | 6359 | 17169 | 23528 | 18434 | 41962 |

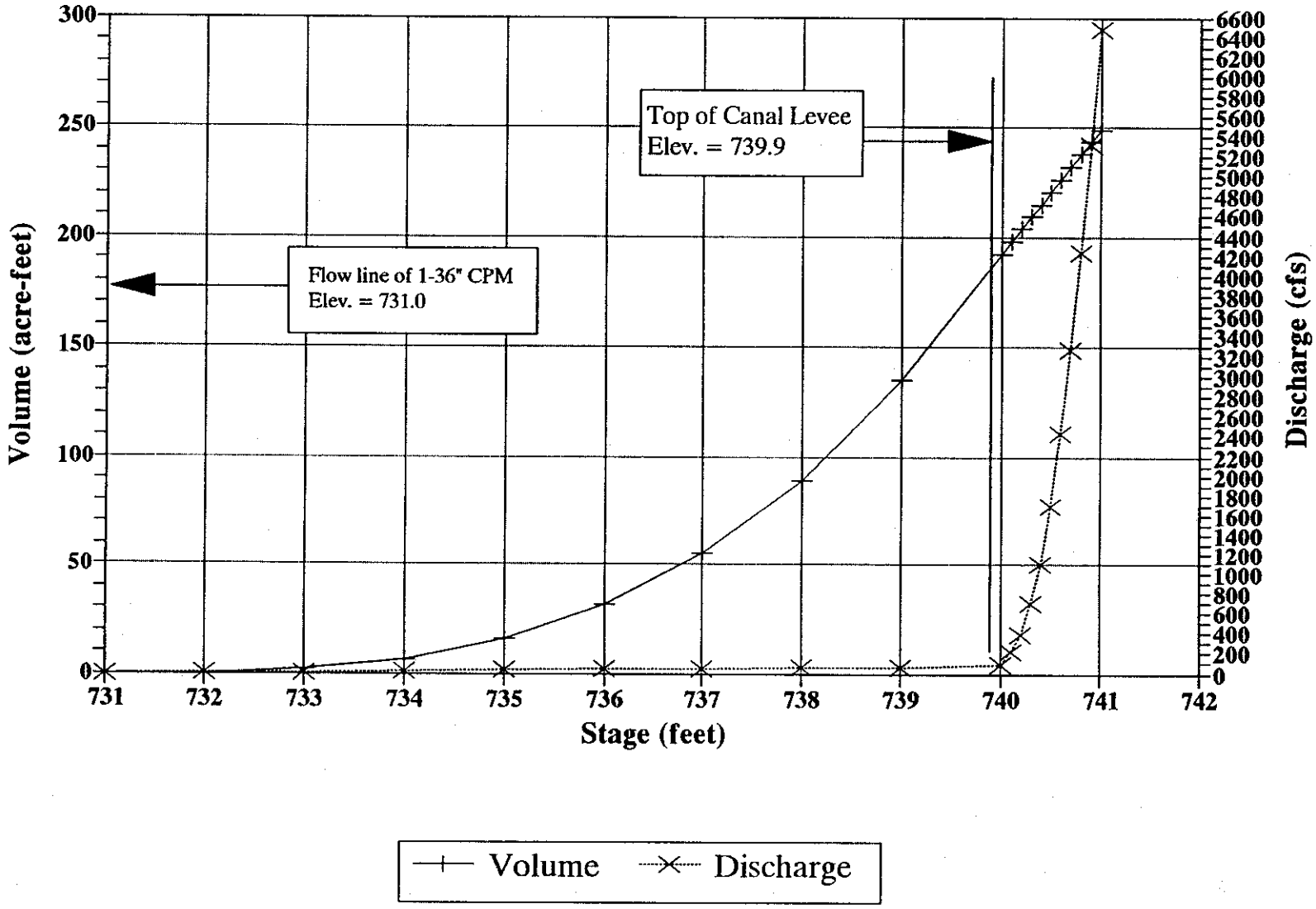
## Table R-7

| Storage and Discharge vs Stage Data for PND3<br>PND3: C133 + C135 | | | | | | |
|---|---|---|---|---|---|---|
| Stage | Volume (ac-ft) | Discharge | | | | |
| | | Divert To West (cfs) | Weir Flow Over Canal (cfs) | C133 Overchute (cfs) | C135 Culverts (cfs) | Total Flow (cfs) |
| 731.3 | 0 | --- | --- | 0 | 0 | 0 |
| 735.2 | 2 | --- | --- | 2000 | 0 | 2000 |
| 736.0 | 4 | --- | --- | 2615 | 3 | 2618 |
| 737.0 | 6 | --- | --- | 3770 | 11 | 3781 |
| 738.0 | 11 | --- | --- | 4850 | 30 | 4880 |
| 738.2 | 12 | --- | --- | 5000 | 35 | 5035 |
| 739.0 | 17 | --- | --- | 6200 | 53 | 6253 |
| 740.0 | 26 | --- | --- | 7600 | 70 | 7670 |
| 740.4 | 30 | --- | --- | 8200 | 75 | 8275 |
| 741.0 | 38 | --- | --- | 9000 | 82 | 9082 |
| 742.0 | 54 | --- | --- | 10500 | 91 | 10591 |
| 742.3 | 59 | --- | --- | 11000 | 92 | 11092 |
| 743.0 | 81 | --- | --- | 12000 | 94 | 12094 |
| 744.0 | 124 | --- | --- | 13900 | 97 | 13997 |
| 744.5 | 139 | --- | --- | 14700 | 99 | 14799 |
| 745.0 | 164 | --- | --- | 15770 | 100 | 15870 |
| 745.5 | 180 | --- | --- | 16900 | 102 | 17002 |
| 745.7 | 187 | 0 | 0 | 17400 | 102 | 17502 |
| 746.0 | 194 | 100 | 100 | 18050 | 103 | 18353 |
| 746.1 | 204 | 200 | 220 | 18300 | 104 | 18824 |
| 746.2 | 211 | 300 | 400 | 18500 | 105 | 19305 |
| 746.3 | 216 | 400 | 620 | 18800 | 106 | 19926 |
| 746.4 | 218 | 495 | 940 | 19000 | 106 | 20541 |
| 746.5 | 221 | 640 | 1370 | 19200 | 107 | 21317 |
| 746.9 | 226 | 1400 | 3860 | 20200 | 110 | 25570 |

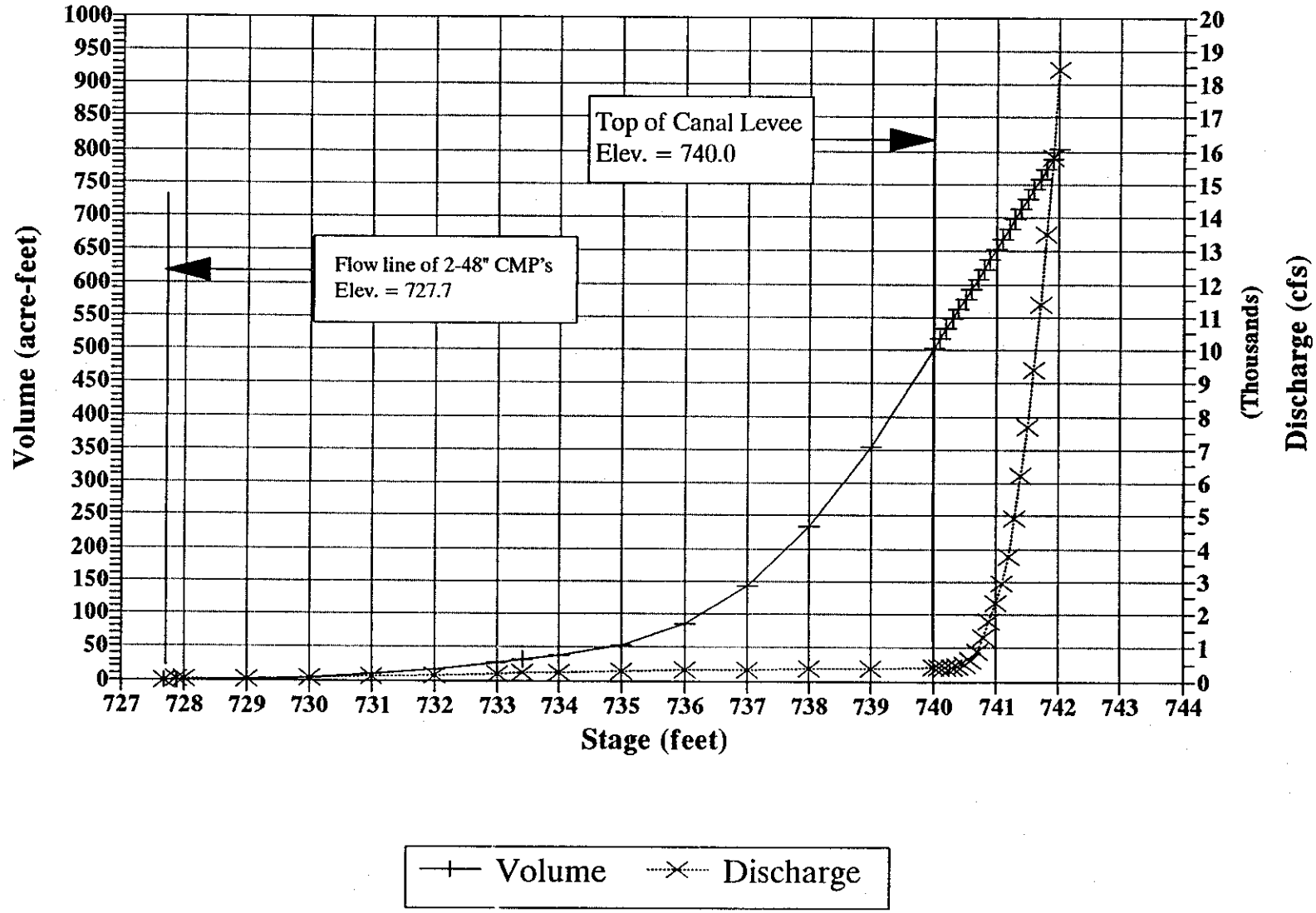
# FIGURE R-1
## Storage & Discharge vs Stage for GBC-1



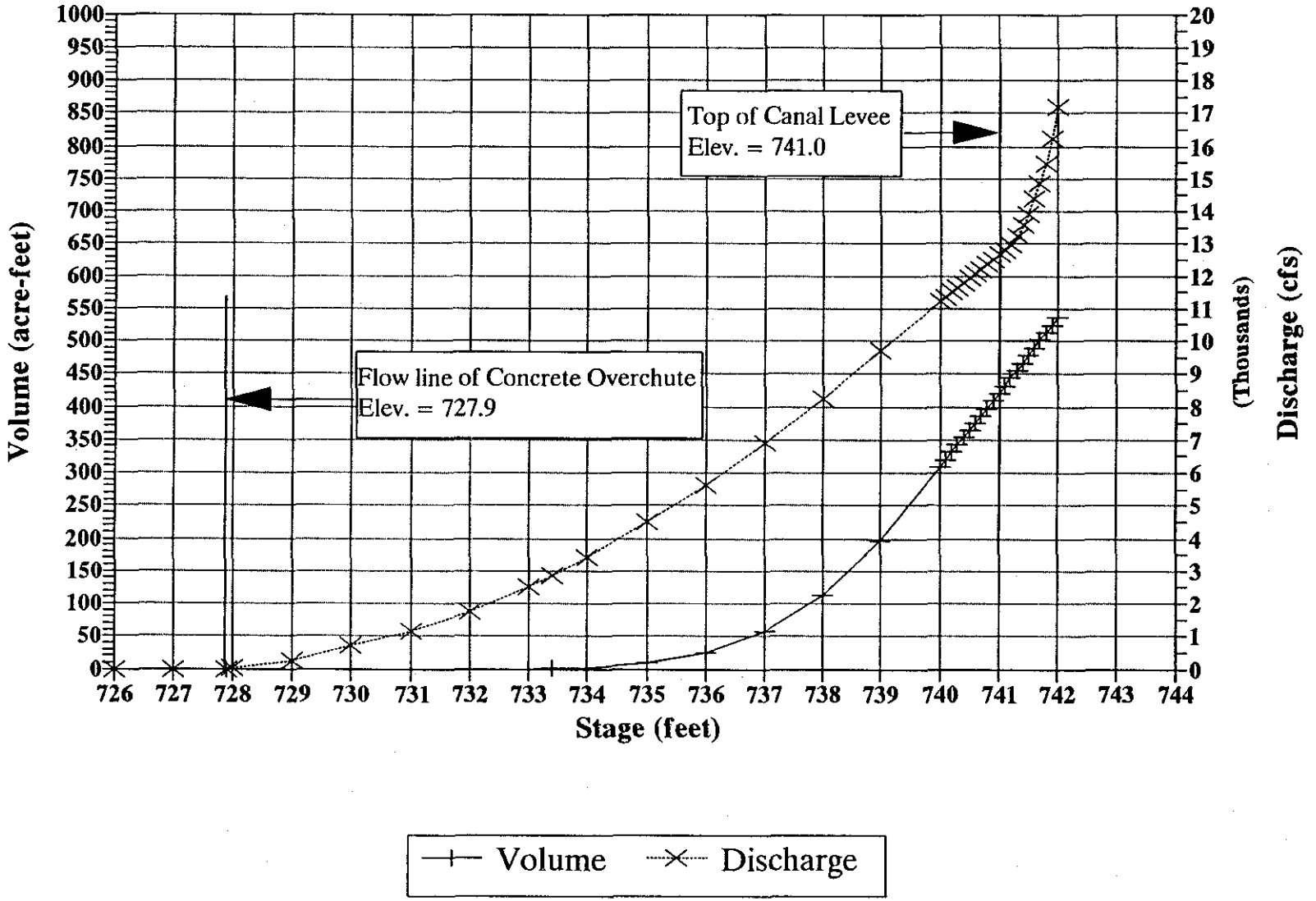
# FIGURE R-2
## Storage & Discharge vs Stage for GBC-2



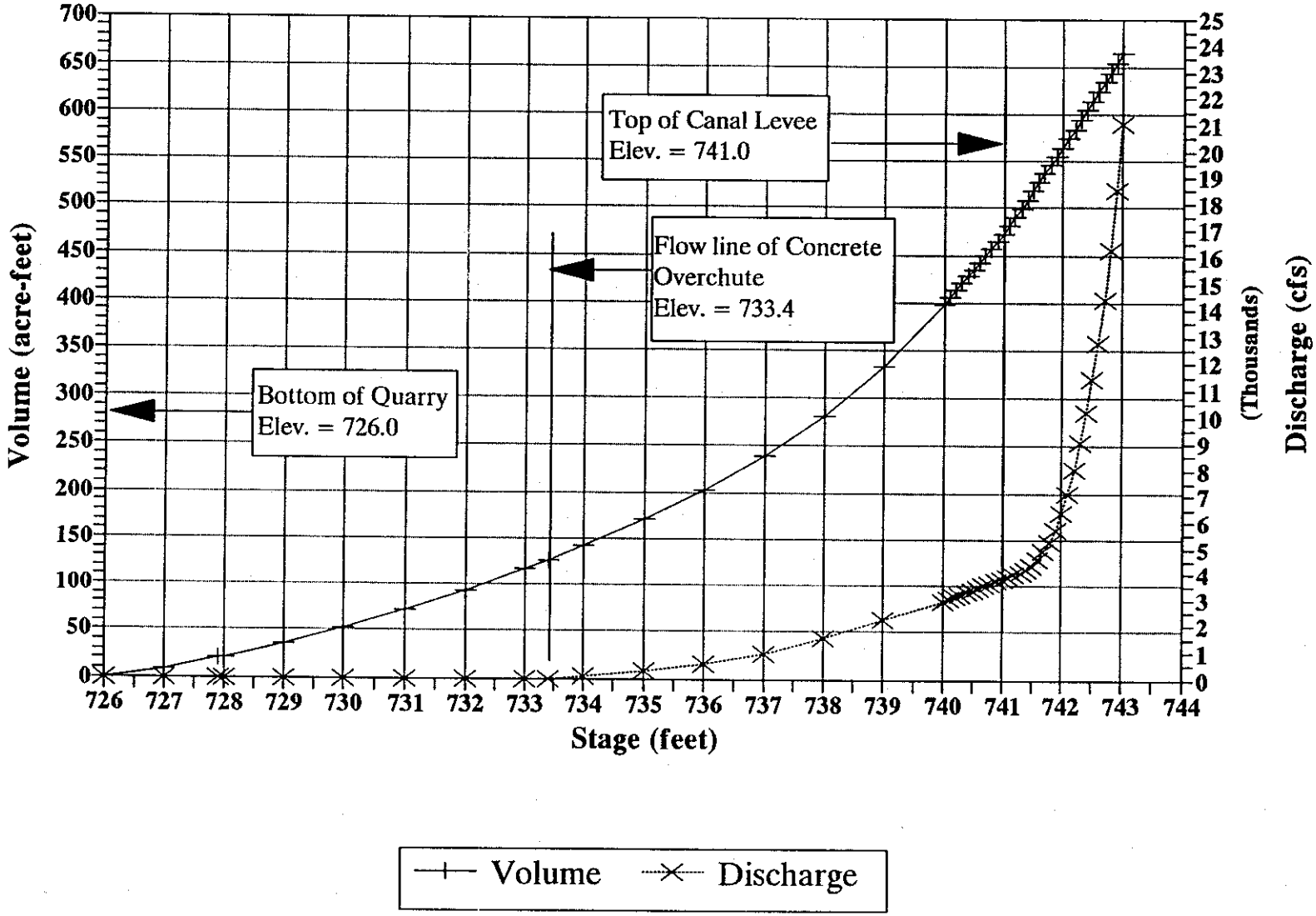
# FIGURE R-3
## Storage & Discharge vs Stage for GBC-3



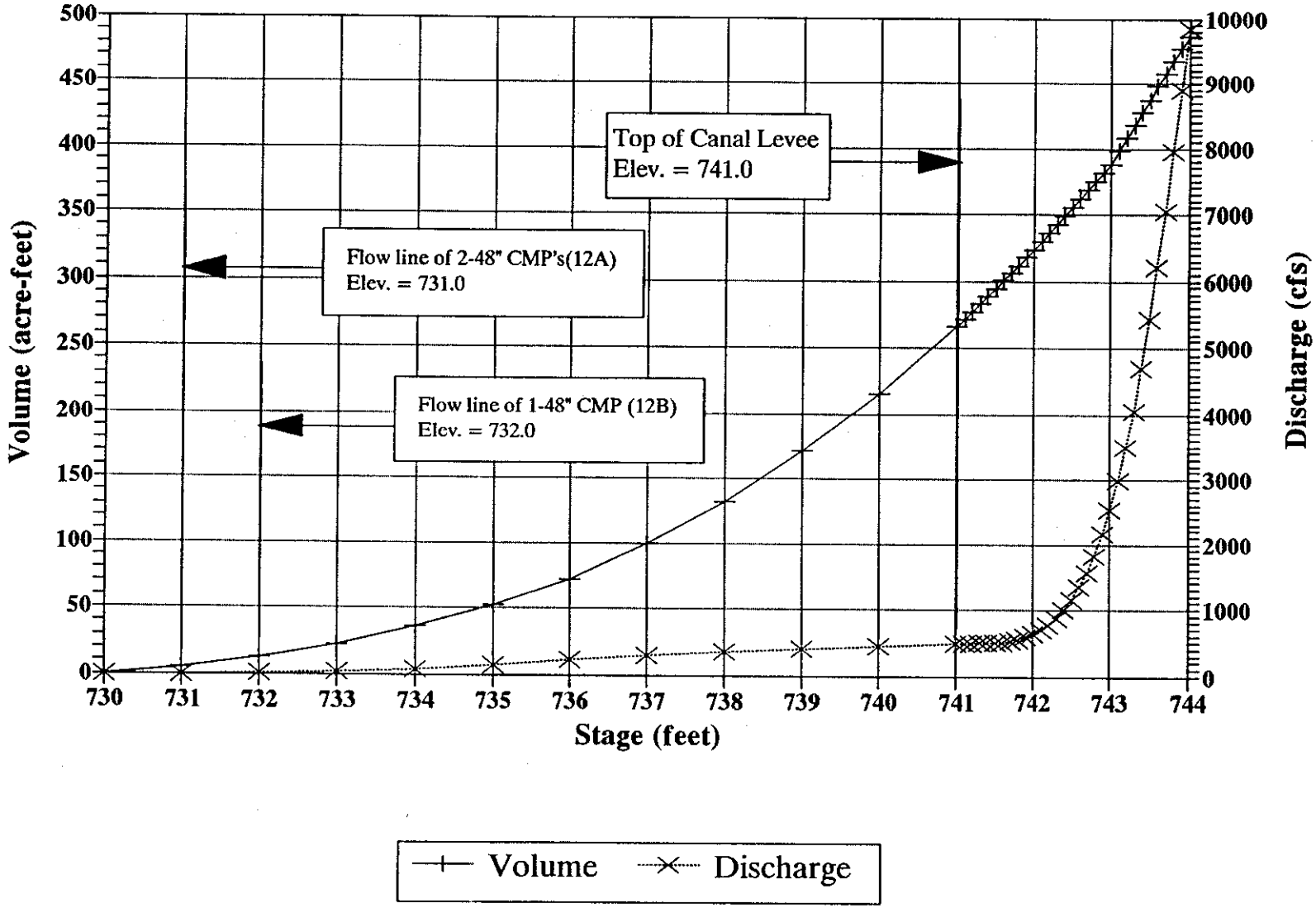
# FIGURE R-4
## Storage & Discharge vs Stage for GBC-4



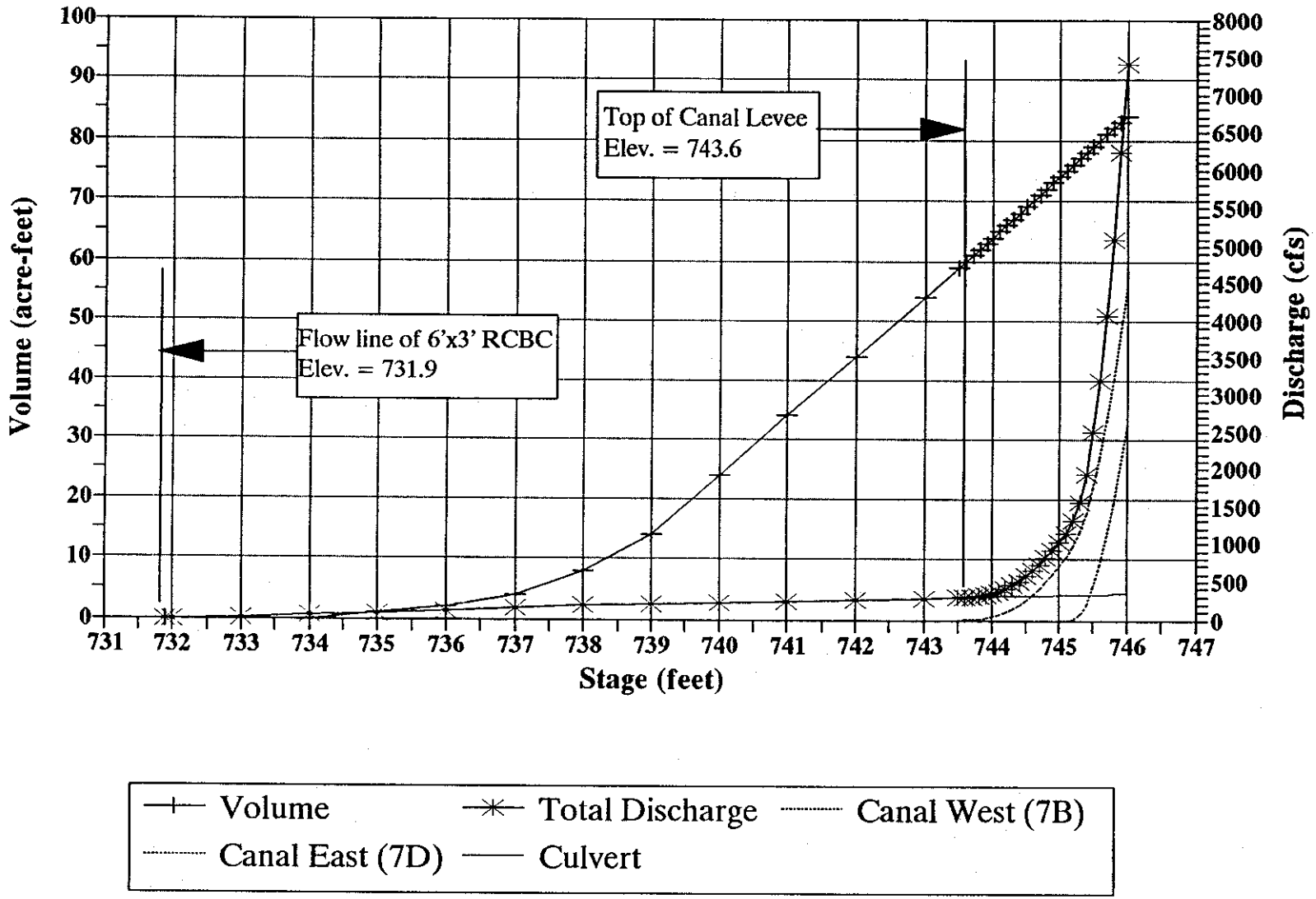
# FIGURE R-5
## Storage & Discharge vs Stage for GBC-5



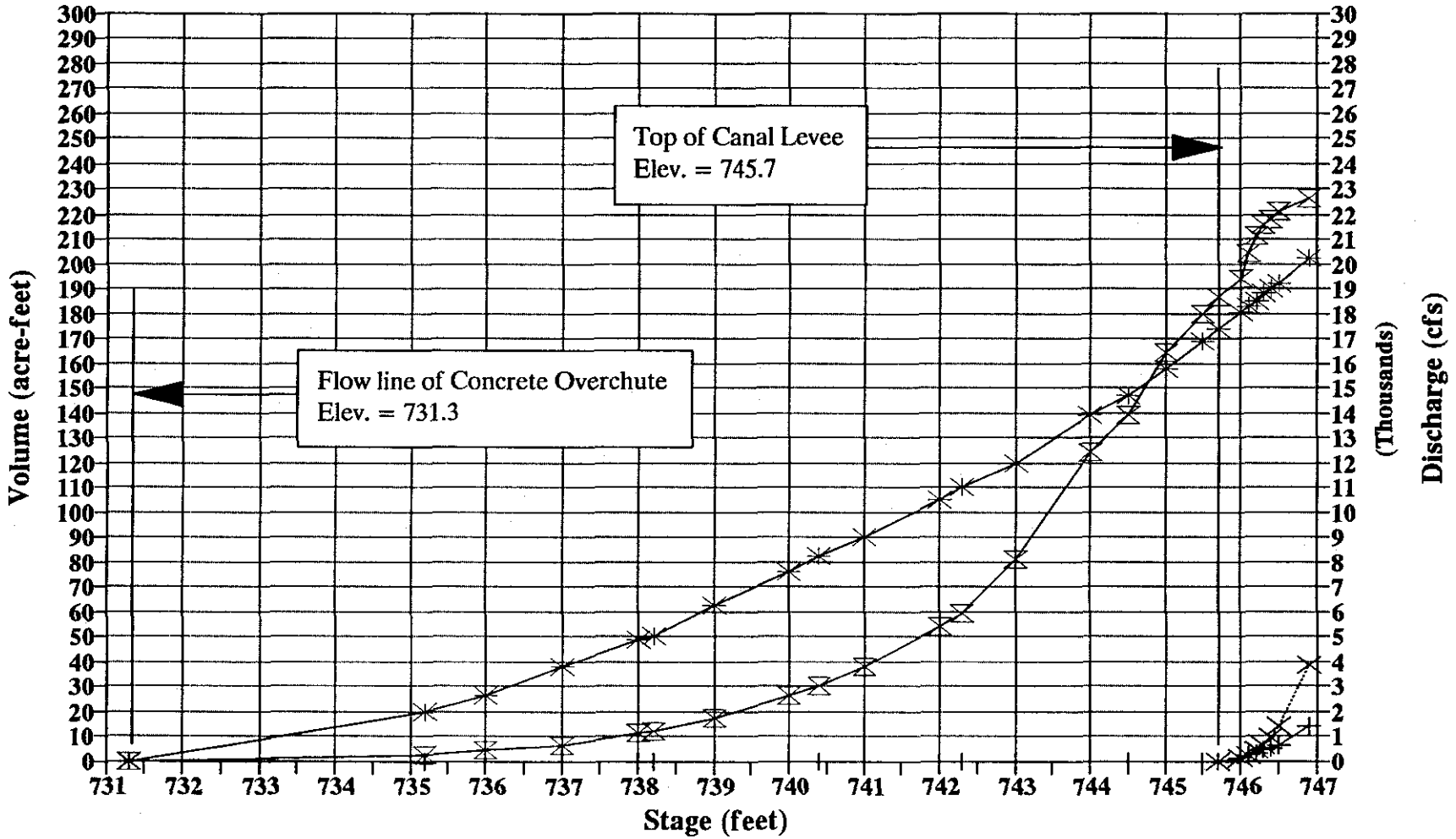
# FIGURE R-6
## Volume & Discharge vs Stage for GBC-6



# FIGURE R-7
## Storage & Discharge vs Stage for GBC-7



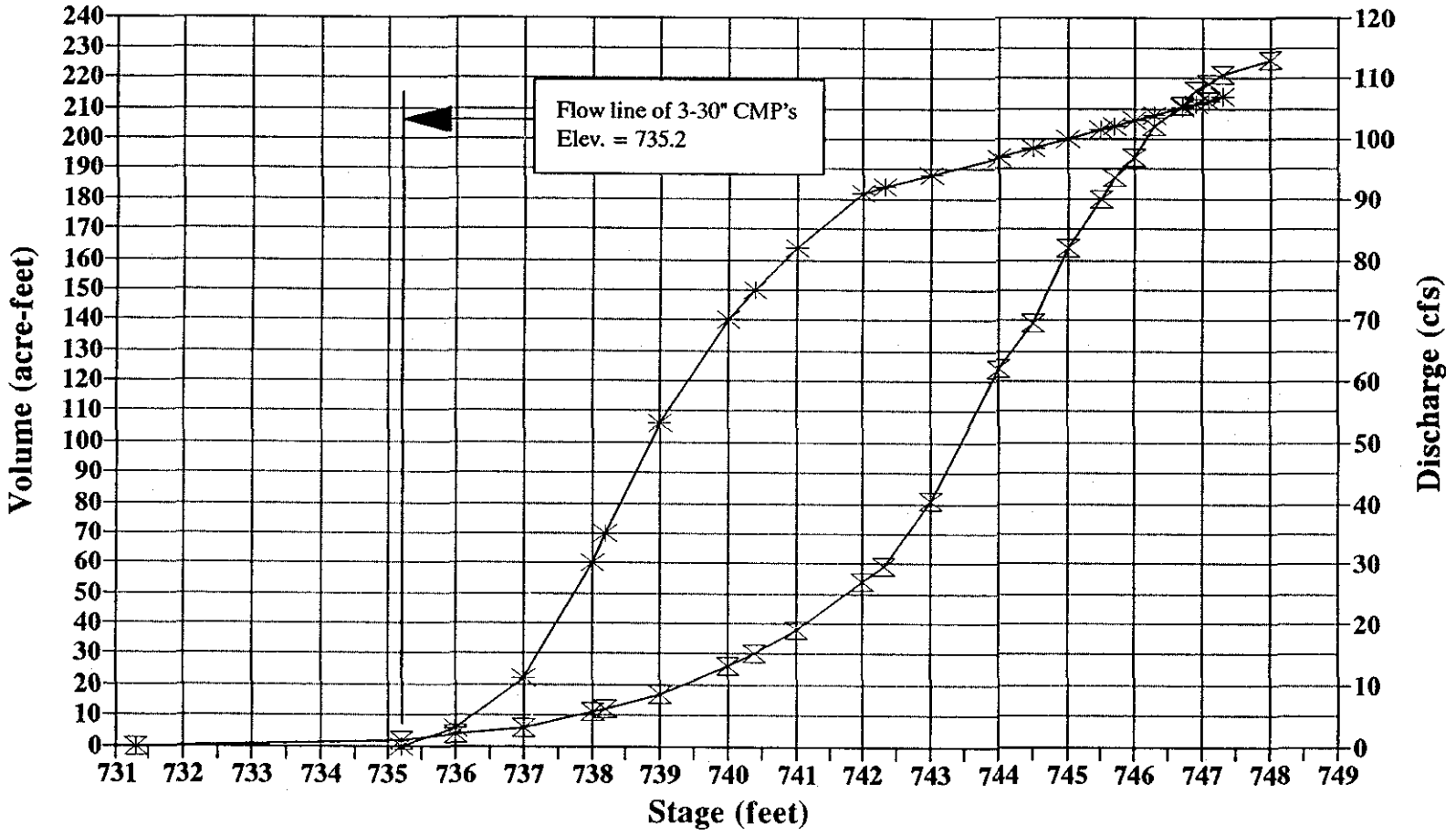
# FIGURE R-8
## Volume & Discharge vs Stage for GBC-8




Note: Volume curve represents the total for C133 and C135.

Levee Flow to West — Canal Overflow — Canal Overchute — Storage

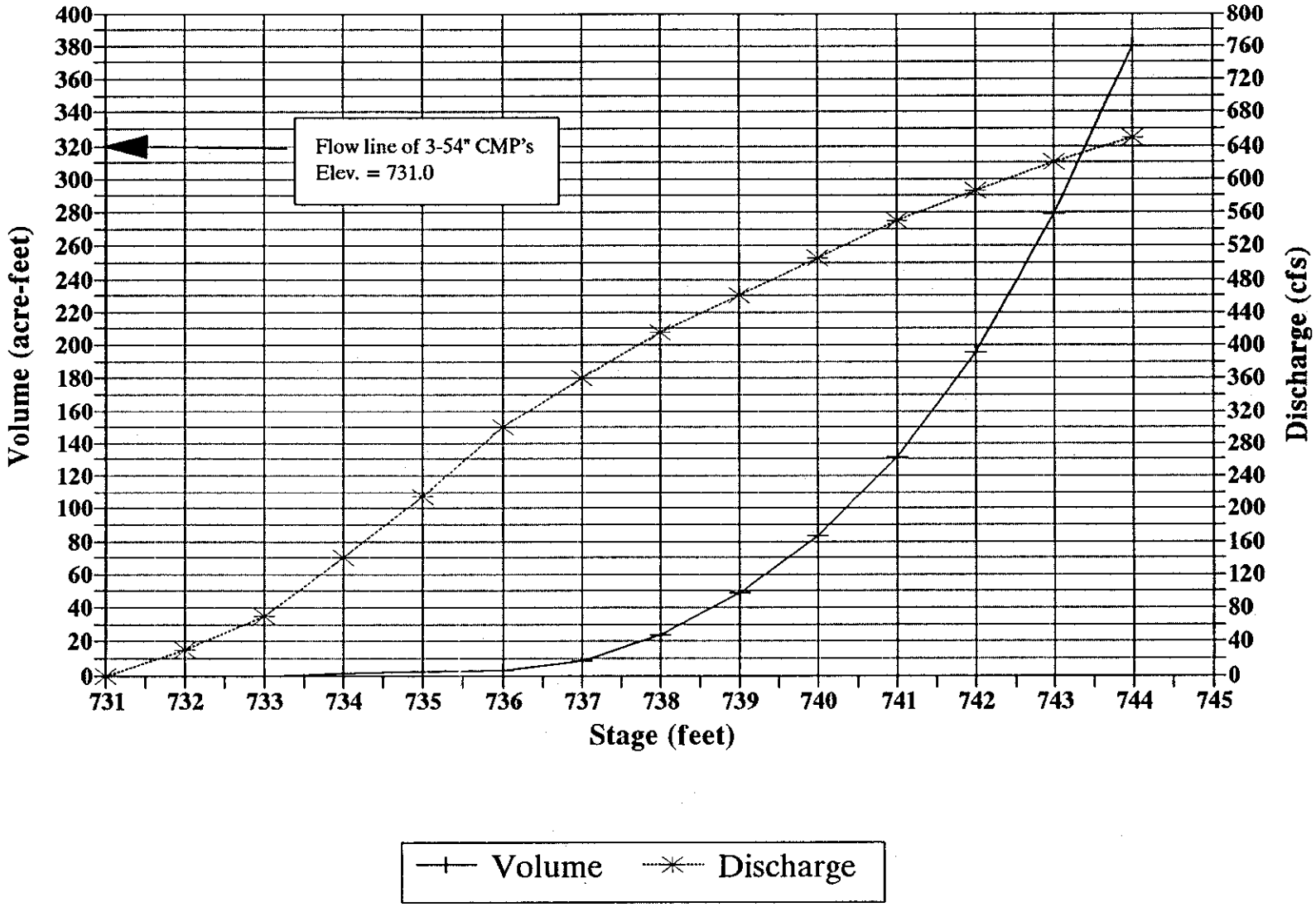
# FIGURE R-9
## Volume & Discharge vs Stage for GBC-9



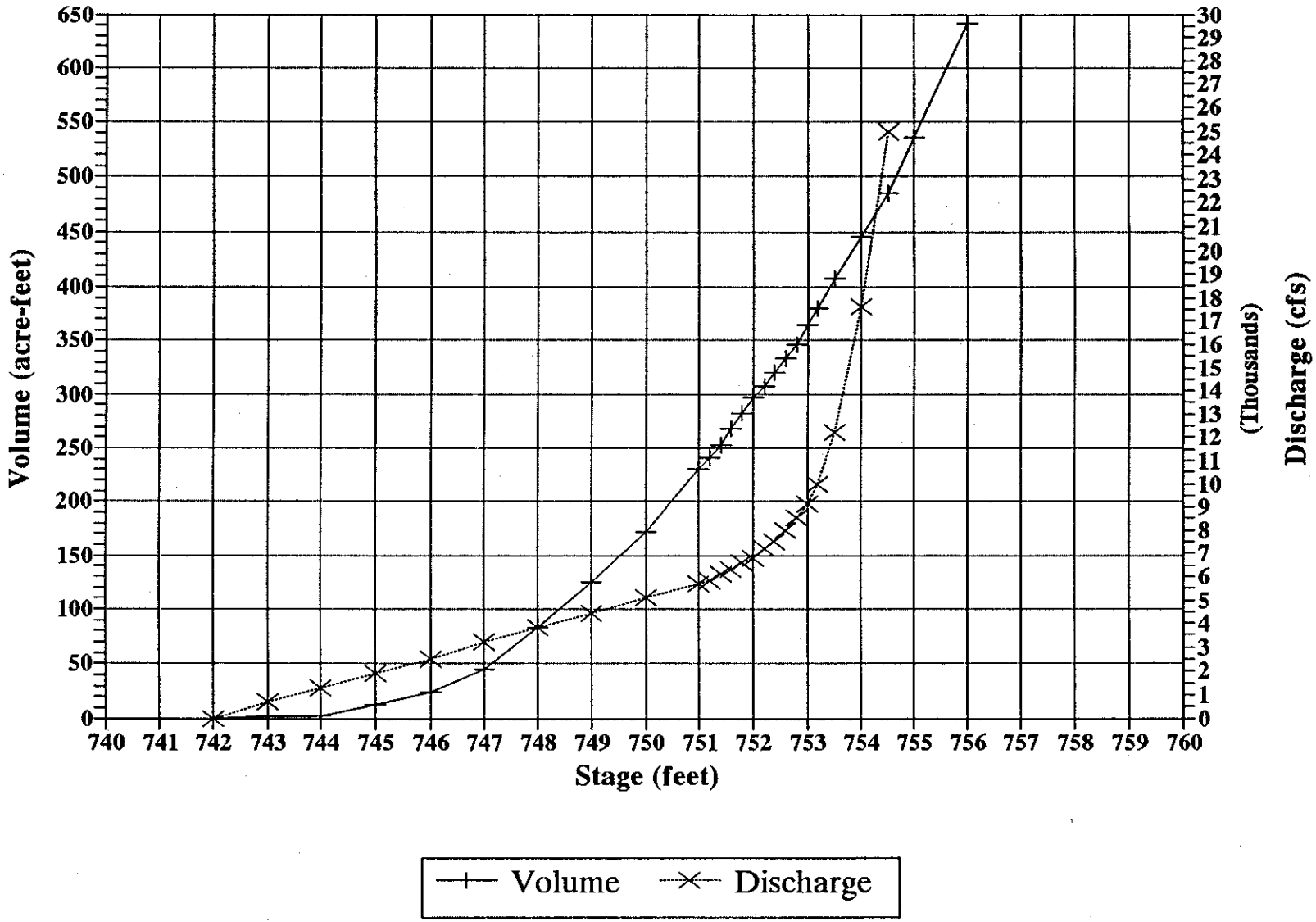

Note: Volume curve represents the total for C133 and C135.
Weir flow over the canal is not included. Refer to Figure R-8.

C135 Culverts — Storage

# FIGURE R-10
## Volume & Discharge vs Stage for GBC-10



# FIGURE R-11
## Storage & Discharge vs Stage for C151



Canal Structures

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

## C51 Summary Data

| C51 | | |
|---|---|---|
| Stage | Volume | Discharge |
| 727.5 | 0.0 | 0.0 |
| 728.0 | 0.0 | 10.0 |
| 729.0 | 1.0 | 30.0 |
| 730.0 | 3.0 | 75.0 |
| 731.0 | 7.0 | 135.0 |
| 732.0 | 12.0 | 225.0 |
| 733.0 | 20.0 | 275.0 |
| 734.0 | 35.0 | 350.0 |
| 735.0 | 58.0 | 360.0 |
| 736.0 | 98.0 | 395.0 |
| 737.0 | 171.0 | 425.0 |
| 738.0 | 280.0 | 455.0 |
| 739.0 | 426.0 | 480.0 |
| 739.5 | 517.5 | 495.0 |
| 739.6 | 535.8 | 529.5 |
| 739.7 | 554.1 | 738.2 |
| 739.8 | 572.4 | 1134.4 |
| 739.9 | 590.7 | 1769.7 |
| 740.0 | 609.0 | 2642.6 |
| 740.1 | 627.3 | 3735.0 |
| 740.2 | 645.6 | 4937.4 |
| 740.3 | 663.9 | 6304.3 |
| 740.4 | 682.2 | 7900.2 |
| 740.5 | 700.5 | 9656.8 |
| 740.6 | 718.8 | 11559.6 |
| 740.7 | 737.1 | 13649.9 |
| 740.8 | 755.4 | 15984.9 |
| 740.9 | 773.7 | 18445.3 |
| 741.0 | 792.0 | 21031.2 |

```
*************************************************
*  H    H    0000    BBBBB     CCCCC    W      W  *
*  H    H   0    0   B    B   C         W  WW  W  *
*  HHHHHH   0    0   BBBBB    C         W W  W W  *
*  H    H   0    0   B    B   C         WW    WW  *
*  H    H    0000    BBBBB     CCCCC    W      W  *
*************************************************
```

HYDRAULICS OF BRIDGE AND CULVERT WATERWAYS

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GALILEO SOFTWARE
16 RANCH ROAD
CHELMSFORD, MA 01824

VERSION 3.02
SERIAL NUMBER 1003

Gila Bend FIS
11358
CP51
tri
Fri Jan. 3, 1992
3:30:01 PM

--- HOBCW PROJECT DATA ---

| | | |
|---|---|---|
| NUMBER OF GROUND STATIONS | : | 6 |
| NUMBER OF ROAD STATIONS | : | 0 |
| NUMBER OF ROUGNESS COEFFICIENTS | : | 6 |
| STREAM SLOPE (ft/ft) | : | .00370 |
| MINIMUM FLOW (cfs) | : | .01 |
| MAXIMUM FLOW (cfs) | : | 550.00 |
| FLOW INCREMENT (cfs) | : | 25.00 |
| NUMBER OF CULVERTS | : | 3 |
| CULVERT CODE | : | 11311 |
| CULVERT SLOPE (ft/ft) | : | .01400 |
| CULVERT LENGTH (ft) | : | 100.00 |
| DOWNSTREAM CULVERT INVERT (ft) | : | 726.10 |
| CIRCULAR CULVERT DIAMETER | : | 4.00 |
| ENTRANCE LOSS COEFFICIENT Ke | : | .9 |
| CULVERT ROUGHNESS COEFFICIENT | : | .024 |

--- CROSS SECTION DESCRIPTION ---

| STATION NUMBER | STATION (ft) | GROUND ELEVATION (ft) | ROUGNESS FACTOR | ROAD ELEVATION (ft) |
|---|---|---|---|---|
| 1 | 100.00 | 728.00 | .0800 | |
| 2 | 300.00 | 727.50 | .0800 | |
| 3 | 308.00 | 726.00 | .0800 | |
| 4 | 316.00 | 726.00 | .0800 | |
| 5 | 324.00 | 727.50 | .0800 | |
| 6 | 524.00 | 728.00 | .0800 | |

--- HOBCW OUTPUT DATA ---

**********

STAGE ELEVATION = 726.02

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 307.91 | 308.00 | .0800 | .0 | .10 | .01 | .00 | .00 | .05 |
| 308.00 | 316.00 | .0800 | .1 | 8.00 | .02 | .18 | .01 | .08 |
| 316.00 | 316.09 | .0800 | .0 | .10 | .01 | .00 | .00 | .05 |
| TOTALS | | | .1 | | | .18 | .01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .102 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : .00
HEADWATER (ft) : 727.50
VELOCITY (fps) : .00

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : .00
HEADWATER (ft) : 727.50
VELOCITY (fps) : .00

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 1.483
UPSTREAM STAGE (ft) : 727.500

**********

STAGE ELEVATION = 727.40

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE (cfs) | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 300.54 | 308.00 | .0800 | 5.2 | 7.59 | .69 | 75.52 | 4.59 | .88 |
| 308.00 | 316.00 | .0800 | 11.2 | 8.00 | 1.40 | 260.04 | 15.82 | 1.41 |
| 316.00 | 323.46 | .0800 | 5.2 | 7.59 | .69 | 75.52 | 4.59 | .88 |
| TOTALS | | | 21.6 | | | 411.07 | 25.00 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .226 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 8.33
HEADWATER (ft) : 728.80
VELOCITY (fps) : 4.56

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 8.33
HEADWATER (ft) : 728.90
VELOCITY (fps) : 4.56

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 1.498
UPSTREAM STAGE (ft) : 728.898

**********

STAGE ELEVATION = 727.77

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 193.80 | 300.00 | .0800 | 14.1 | 106.20 | .13 | 68.15 | 4.15 | .29 |
| 300.00 | 308.00 | .0800 | 8.1 | 8.14 | 1.00 | 150.71 | 9.17 | 1.13 |
| 308.00 | 316.00 | .0800 | 14.1 | 8.00 | 1.77 | 383.24 | 23.31 | 1.65 |
| 316.00 | 324.00 | .0800 | 8.1 | 8.14 | 1.00 | 150.71 | 9.17 | 1.13 |
| 324.00 | 430.20 | .0800 | 14.1 | 106.20 | .13 | 68.15 | 4.15 | .29 |
| TOTALS | | | 58.6 | | | 820.96 | 49.94 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .469 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 16.65
HEADWATER (ft) : 729.29
VELOCITY (fps) : 5.57

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 16.65
HEADWATER (ft) : 729.52
VELOCITY (fps) : 5.57

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 1.750
UPSTREAM STAGE (ft) : 729.516

**********

STAGE ELEVATION = 727.91

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 137.82 | 300.00 | .0800 | 32.9 | 162.18 | .20 | 210.76 | 12.82 | .39 |
| 300.00 | 308.00 | .0800 | 9.2 | 8.14 | 1.14 | 186.90 | 11.37 | 1.23 |
| 308.00 | 316.00 | .0800 | 15.2 | 8.00 | 1.91 | 435.19 | 26.47 | 1.74 |
| 316.00 | 324.00 | .0800 | 9.2 | 8.14 | 1.14 | 186.90 | 11.37 | 1.23 |
| 324.00 | 486.18 | .0800 | 32.9 | 162.18 | .20 | 210.76 | 12.82 | .39 |
| TOTALS | | | 99.5 | | | 1230.51 | 74.85 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .414 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 24.95
HEADWATER (ft) : 729.72
VELOCITY (fps) : 6.24

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 24.95
HEADWATER (ft) : 730.01
VELOCITY (fps) : 6.24

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.105
UPSTREAM STAGE (ft) : 730.011

**********

STAGE ELEVATION = 728.00

LEFT END EXTENDED .00 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .00 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 50.5 | 200.00 | .25 | 374.29 | 22.77 | .45 |
| 300.00 | 308.00 | .0800 | 10.0 | 8.14 | 1.23 | 213.73 | 13.00 | 1.30 |
| 308.00 | 316.00 | .0800 | 16.0 | 8.00 | 2.00 | 472.69 | 28.75 | 1.79 |
| 316.00 | 324.00 | .0800 | 10.0 | 8.14 | 1.23 | 213.73 | 13.00 | 1.30 |
| 324.00 | 524.00 | .0800 | 50.5 | 200.00 | .25 | 374.29 | 22.77 | .45 |
| TOTALS | | | 137.0 | | | 1648.74 | 100.29 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .374 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 33.43
HEADWATER (ft) : 730.13
VELOCITY (fps) : 6.76

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 33.43
HEADWATER (ft) : 730.46
VELOCITY (fps) : 6.76

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.455
UPSTREAM STAGE (ft) : 730.457

**********

STAGE ELEVATION = 728.07

LEFT END EXTENDED .07 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .07 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 63.3 | 200.00 | .32 | 545.97 | 33.21 | .52 |
| 300.00 | 308.00 | .0800 | 10.5 | 8.14 | 1.29 | 232.29 | 14.13 | 1.34 |
| 308.00 | 316.00 | .0800 | 16.5 | 8.00 | 2.07 | 498.20 | 30.30 | 1.83 |
| 316.00 | 324.00 | .0800 | 10.5 | 8.14 | 1.29 | 232.29 | 14.13 | 1.34 |
| 324.00 | 524.00 | .0800 | 63.3 | 200.00 | .32 | 545.97 | 33.21 | .52 |
| TOTALS | | | 164.2 | | | 2054.73 | 124.98 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .331 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 41.66
HEADWATER (ft) : 730.50
VELOCITY (fps) : 7.16

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 41.66
HEADWATER (ft) : 730.85
VELOCITY (fps) : 7.16

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.786
UPSTREAM STAGE (ft) : 730.852

**********

STAGE ELEVATION = 728.12

LEFT END EXTENDED .12 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .12 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 75.1 | 200.00 | .38 | 725.44 | 44.13 | .59 |
| 300.00 | 308.00 | .0800 | 11.0 | 8.14 | 1.35 | 249.85 | 15.20 | 1.38 |
| 308.00 | 316.00 | .0800 | 17.0 | 8.00 | 2.13 | 522.06 | 31.76 | 1.87 |
| 316.00 | 324.00 | .0800 | 11.0 | 8.14 | 1.35 | 249.85 | 15.20 | 1.38 |
| 324.00 | 524.00 | .0800 | 75.1 | 200.00 | .38 | 725.44 | 44.13 | .59 |
| TOTALS | | | 189.1 | | | 2472.63 | 150.40 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .304 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 50.13
HEADWATER (ft) : 730.88
VELOCITY (fps) : 7.50

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 50.13
HEADWATER (ft) : 731.24
VELOCITY (fps) : 7.50

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.113
UPSTREAM STAGE (ft) : 731.237

**********

STAGE ELEVATION = 728.18

LEFT END EXTENDED .18 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .18 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 85.5 | 200.00 | .43 | 901.01 | 54.81 | .64 |
| 300.00 | 308.00 | .0800 | 11.4 | 8.14 | 1.40 | 265.83 | 16.17 | 1.42 |
| 308.00 | 316.00 | .0800 | 17.4 | 8.00 | 2.18 | 543.57 | 33.06 | 1.90 |
| 316.00 | 324.00 | .0800 | 11.4 | 8.14 | 1.40 | 265.83 | 16.17 | 1.42 |
| 324.00 | 524.00 | .0800 | 85.5 | 200.00 | .43 | 901.01 | 54.81 | .64 |
| TOTALS | | | 211.2 | | | 2877.27 | 175.02 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .286 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 58.34
HEADWATER (ft) : 731.25
VELOCITY (fps) : 7.77

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 58.34
HEADWATER (ft) : 730.37
VELOCITY (fps) : 7.80

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.070
UPSTREAM STAGE (ft) : 731.247

**********

STAGE ELEVATION = 728.23

LEFT END EXTENDED .23 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .23 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 95.3 | 200.00 | .48 | 1079.94 | 65.69 | .69 |
| 300.00 | 308.00 | .0800 | 11.8 | 8.14 | 1.45 | 281.24 | 17.11 | 1.45 |
| 308.00 | 316.00 | .0800 | 17.8 | 8.00 | 2.23 | 564.14 | 34.32 | 1.93 |
| 316.00 | 324.00 | .0800 | 11.8 | 8.14 | 1.45 | 281.24 | 17.11 | 1.45 |
| 324.00 | 524.00 | .0800 | 95.3 | 200.00 | .48 | 1079.94 | 65.69 | .69 |
| TOTALS | | | 232.0 | | | 3286.49 | 199.91 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .272 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 66.64
HEADWATER (ft) : 731.63
VELOCITY (fps) : 8.00

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 66.64
HEADWATER (ft) : 730.81
VELOCITY (fps) : 8.20

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.406
UPSTREAM STAGE (ft) : 731.633

**********

STAGE ELEVATION = 728.27

LEFT END EXTENDED .27 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .27 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 104.6 | 200.00 | .52 | 1261.27 | 76.72 | .73 |
| 300.00 | 308.00 | .0800 | 12.2 | 8.14 | 1.50 | 296.16 | 18.01 | 1.48 |
| 308.00 | 316.00 | .0800 | 18.2 | 8.00 | 2.27 | 583.92 | 35.52 | 1.95 |
| 316.00 | 324.00 | .0800 | 12.2 | 8.14 | 1.50 | 296.16 | 18.01 | 1.48 |
| 324.00 | 524.00 | .0800 | 104.6 | 200.00 | .52 | 1261.27 | 76.72 | .73 |
| TOTALS | | | 251.8 | | | 3698.78 | 224.99 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .263 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 75.00
HEADWATER (ft) : 732.04
VELOCITY (fps) : 8.19

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 75.00
HEADWATER (ft) : 731.35
VELOCITY (fps) : 8.60

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.771
UPSTREAM STAGE (ft) : 732.045

**********

STAGE ELEVATION = 728.32

LEFT END EXTENDED .32 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .32 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 113.4 | 200.00 | .57 | 1442.54 | 87.75 | .77 |
| 300.00 | 308.00 | .0800 | 12.5 | 8.14 | 1.54 | 310.52 | 18.89 | 1.51 |
| 308.00 | 316.00 | .0800 | 18.5 | 8.00 | 2.32 | 602.83 | 36.67 | 1.98 |
| 316.00 | 324.00 | .0800 | 12.5 | 8.14 | 1.54 | 310.52 | 18.89 | 1.51 |
| 324.00 | 524.00 | .0800 | 113.4 | 200.00 | .57 | 1442.54 | 87.75 | .77 |
| TOTALS | | | 270.4 | | | 4108.95 | 249.94 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .255 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 83.31
HEADWATER (ft) : 732.48
VELOCITY (fps) : 8.31

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 83.31
HEADWATER (ft) : 731.92
VELOCITY (fps) : 8.99

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 4.167
UPSTREAM STAGE (ft) : 732.484

**********

STAGE ELEVATION = 728.36

LEFT END EXTENDED .36 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .36 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 121.8 | 200.00 | .61 | 1625.27 | 98.86 | .81 |
| 300.00 | 308.00 | .0800 | 12.9 | 8.14 | 1.58 | 324.53 | 19.74 | 1.53 |
| 308.00 | 316.00 | .0800 | 18.9 | 8.00 | 2.36 | 621.18 | 37.78 | 2.00 |
| 316.00 | 324.00 | .0800 | 12.9 | 8.14 | 1.58 | 324.53 | 19.74 | 1.53 |
| 324.00 | 524.00 | .0800 | 121.8 | 200.00 | .61 | 1625.27 | 98.86 | .81 |
| TOTALS | | | 288.2 | | | 4520.77 | 274.99 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .249 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 91.66
HEADWATER (ft) : 732.96
VELOCITY (fps) : 8.37

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 91.66
HEADWATER (ft) : 732.52
VELOCITY (fps) : 9.38

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 4.604
UPSTREAM STAGE (ft) : 732.963

**********

STAGE ELEVATION = 728.40

LEFT END EXTENDED .40 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .40 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 130.0 | 200.00 | .65 | 1812.63 | 110.26 | .85 |
| 300.00 | 308.00 | .0800 | 13.2 | 8.14 | 1.62 | 338.50 | 20.59 | 1.56 |
| 308.00 | 316.00 | .0800 | 19.2 | 8.00 | 2.40 | 639.36 | 38.89 | 2.03 |
| 316.00 | 324.00 | .0800 | 13.2 | 8.14 | 1.62 | 338.50 | 20.59 | 1.56 |
| 324.00 | 524.00 | .0800 | 130.0 | 200.00 | .65 | 1812.63 | 110.26 | .85 |
| TOTALS | | | 305.7 | | | 4941.62 | 300.59 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .245 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 100.20
HEADWATER (ft) : 733.50
VELOCITY (fps) : 7.97

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 100.20
HEADWATER (ft) : 733.17
VELOCITY (fps) : 9.80

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.098
UPSTREAM STAGE (ft) : 733.497

**********

STAGE ELEVATION = 728.44

LEFT END EXTENDED .44 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .44 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 137.6 | 200.00 | .69 | 1992.75 | 121.21 | .88 |
| 300.00 | 308.00 | .0800 | 13.5 | 8.14 | 1.66 | 351.60 | 21.39 | 1.58 |
| 308.00 | 316.00 | .0800 | 19.5 | 8.00 | 2.44 | 656.34 | 39.92 | 2.05 |
| 316.00 | 324.00 | .0800 | 13.5 | 8.14 | 1.66 | 351.60 | 21.39 | 1.58 |
| 324.00 | 524.00 | .0800 | 137.6 | 200.00 | .69 | 1992.75 | 121.21 | .88 |
| TOTALS | | | 321.8 | | | 5345.02 | 325.13 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .241 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 108.38
HEADWATER (ft) : 734.06
VELOCITY (fps) : 8.62

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 108.38
HEADWATER (ft) : 733.82
VELOCITY (fps) : 10.21

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.618
UPSTREAM STAGE (ft) : 734.056

**********

STAGE ELEVATION = 728.48

LEFT END EXTENDED .48 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .48 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 145.0 | 200.00 | .72 | 2173.21 | 132.19 | .91 |
| 300.00 | 308.00 | .0800 | 13.8 | 8.14 | 1.70 | 364.44 | 22.17 | 1.61 |
| 308.00 | 316.00 | .0800 | 19.8 | 8.00 | 2.47 | 672.90 | 40.93 | 2.07 |
| 316.00 | 324.00 | .0800 | 13.8 | 8.14 | 1.70 | 364.44 | 22.17 | 1.61 |
| 324.00 | 524.00 | .0800 | 145.0 | 200.00 | .72 | 2173.21 | 132.19 | .91 |
| TOTALS | | | 337.4 | | | 5748.22 | 349.65 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .238 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 116.55
HEADWATER (ft) : 734.66
VELOCITY (fps) : 9.27

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 116.55
HEADWATER (ft) : 734.53
VELOCITY (fps) : 10.64

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 6.189
UPSTREAM STAGE (ft) : 734.665

**********

STAGE ELEVATION = 728.51

LEFT END EXTENDED .51 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .51 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE (cfs) | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 152.3 | 200.00 | .76 | 2359.89 | 143.55 | .94 |
| 300.00 | 308.00 | .0800 | 14.1 | 8.14 | 1.73 | 377.47 | 22.96 | 1.63 |
| 308.00 | 316.00 | .0800 | 20.1 | 8.00 | 2.51 | 689.64 | 41.95 | 2.09 |
| 316.00 | 324.00 | .0800 | 14.1 | 8.14 | 1.73 | 377.47 | 22.96 | 1.63 |
| 324.00 | 524.00 | .0800 | 152.3 | 200.00 | .76 | 2359.89 | 143.55 | .94 |
| TOTALS | | | 352.9 | | | 6164.35 | 374.96 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .236 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 124.99
HEADWATER (ft) : 735.35
VELOCITY (fps) : 9.95

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 124.99
HEADWATER (ft) : 735.29
VELOCITY (fps) : 11.10

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 6.837
UPSTREAM STAGE (ft) : 735.349

**********

STAGE ELEVATION = 728.55

LEFT END EXTENDED .55 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .55 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 159.4 | 200.00 | .80 | 2544.53 | 154.78 | .97 |
| 300.00 | 308.00 | .0800 | 14.4 | 8.14 | 1.77 | 390.13 | 23.73 | 1.65 |
| 308.00 | 316.00 | .0800 | 20.4 | 8.00 | 2.55 | 705.83 | 42.93 | 2.11 |
| 316.00 | 324.00 | .0800 | 14.4 | 8.14 | 1.77 | 390.13 | 23.73 | 1.65 |
| 324.00 | 524.00 | .0800 | 159.4 | 200.00 | .80 | 2544.53 | 154.78 | .97 |
| TOTALS | | | 367.9 | | | 6575.16 | 399.95 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .234 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 133.32
HEADWATER (ft) : 736.08
VELOCITY (fps) : 10.61

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 133.32
HEADWATER (ft) : 736.07
VELOCITY (fps) : 11.58

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 7.535
UPSTREAM STAGE (ft) : 736.082

**********

STAGE ELEVATION = 728.58

LEFT END EXTENDED .58 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .58 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 166.2 | 200.00 | .83 | 2728.36 | 165.96 | 1.00 |
| 300.00 | 308.00 | .0800 | 14.6 | 8.14 | 1.80 | 402.54 | 24.49 | 1.67 |
| 308.00 | 316.00 | .0800 | 20.6 | 8.00 | 2.58 | 721.63 | 43.89 | 2.13 |
| 316.00 | 324.00 | .0800 | 14.6 | 8.14 | 1.80 | 402.54 | 24.49 | 1.67 |
| 324.00 | 524.00 | .0800 | 166.2 | 200.00 | .83 | 2728.36 | 165.96 | 1.00 |
| TOTALS | | | 382.3 | | | 6983.41 | 424.78 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .232 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 141.59
HEADWATER (ft) : 736.87
VELOCITY (fps) : 11.27

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 141.59
HEADWATER (ft) : 736.91
VELOCITY (fps) : 12.08

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 8.324
UPSTREAM STAGE (ft) : 736.905

**********

STAGE ELEVATION = 728.61

LEFT END EXTENDED .61 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .61 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 172.8 | 200.00 | .86 | 2911.44 | 177.10 | 1.02 |
| 300.00 | 308.00 | .0800 | 14.9 | 8.14 | 1.83 | 414.71 | 25.23 | 1.69 |
| 308.00 | 316.00 | .0800 | 20.9 | 8.00 | 2.61 | 737.08 | 44.83 | 2.14 |
| 316.00 | 324.00 | .0800 | 14.9 | 8.14 | 1.83 | 414.71 | 25.23 | 1.69 |
| 324.00 | 524.00 | .0800 | 172.8 | 200.00 | .86 | 2911.44 | 177.10 | 1.02 |
| TOTALS | | | 396.3 | | | 7389.37 | 449.48 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .231 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 149.83
HEADWATER (ft) : 737.71
VELOCITY (fps) : 11.92

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 149.83
HEADWATER (ft) : 737.80
VELOCITY (fps) : 12.59

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 9.189
UPSTREAM STAGE (ft) : 737.804

**********

STAGE ELEVATION = 728.65

LEFT END EXTENDED .65 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .65 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 179.5 | 200.00 | .90 | 3101.01 | 188.63 | 1.05 |
| 300.00 | 308.00 | .0800 | 15.2 | 8.14 | 1.86 | 427.14 | 25.98 | 1.71 |
| 308.00 | 316.00 | .0800 | 21.2 | 8.00 | 2.65 | 752.81 | 45.79 | 2.16 |
| 316.00 | 324.00 | .0800 | 15.2 | 8.14 | 1.86 | 427.14 | 25.98 | 1.71 |
| 324.00 | 524.00 | .0800 | 179.5 | 200.00 | .90 | 3101.01 | 188.63 | 1.05 |
| TOTALS | | | 410.4 | | | 7809.10 | 475.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .230 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 158.34
HEADWATER (ft) : 738.64
VELOCITY (fps) : 12.60

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 158.34
HEADWATER (ft) : 738.74
VELOCITY (fps) : 13.15

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 10.096
UPSTREAM STAGE (ft) : 738.743

**********

STAGE ELEVATION = 728.68

LEFT END EXTENDED .68 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .68 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 185.8 | 200.00 | .93 | 3287.05 | 199.94 | 1.08 |
| 300.00 | 308.00 | .0800 | 15.4 | 8.14 | 1.90 | 439.18 | 26.71 | 1.73 |
| 308.00 | 316.00 | .0800 | 21.4 | 8.00 | 2.68 | 768.00 | 46.72 | 2.18 |
| 316.00 | 324.00 | .0800 | 15.4 | 8.14 | 1.90 | 439.18 | 26.71 | 1.73 |
| 324.00 | 524.00 | .0800 | 185.8 | 200.00 | .93 | 3287.05 | 199.94 | 1.08 |
| TOTALS | | | 424.0 | | | 8220.46 | 500.03 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .229 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 166.68
HEADWATER (ft) : 739.62
VELOCITY (fps) : 13.26

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 166.68
HEADWATER (ft) : 739.71
VELOCITY (fps) : 13.71

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 11.031
UPSTREAM STAGE (ft) : 739.710

**********

STAGE ELEVATION = 728.71

LEFT END EXTENDED .71 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .71 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0800 | 192.1 | 200.00 | .96 | 3473.35 | 211.28 | 1.10 |
| 300.00 | 308.00 | .0800 | 15.7 | 8.14 | 1.93 | 451.10 | 27.44 | 1.75 |
| 308.00 | 316.00 | .0800 | 21.7 | 8.00 | 2.71 | 782.99 | 47.63 | 2.20 |
| 316.00 | 324.00 | .0800 | 15.7 | 8.14 | 1.93 | 451.10 | 27.44 | 1.75 |
| 324.00 | 524.00 | .0800 | 192.1 | 200.00 | .96 | 3473.35 | 211.28 | 1.10 |
| TOTALS | | | 437.2 | | | 8631.89 | 525.06 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .228 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 175.02
HEADWATER (ft) : 740.65
VELOCITY (fps) : 13.93

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 175.02
HEADWATER (ft) : 740.72
VELOCITY (fps) : 14.29

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 12.013
UPSTREAM STAGE (ft) : 740.723

--- SUMMARY OF RESULTS ---

| FLOW (cfs) | TAILWATER ELEVATION (ft) | HEADWATER ELEVATION (ft) | BACKWATER (ft) |
|---|---|---|---|
| .01 | 726.02 | 727.50 | 1.48 |
| 25.00 | 727.40 | 728.90 | 1.50 |
| 49.94 | 727.77 | 729.52 | 1.75 |
| 74.85 | 727.91 | 730.01 | 2.11 |
| 100.29 | 728.00 | 730.46 | 2.46 |
| 124.98 | 728.07 | 730.85 | 2.79 |
| 150.40 | 728.12 | 731.24 | 3.11 |
| 175.02 | 728.18 | 731.25 | 3.07 |
| 199.91 | 728.23 | 731.63 | 3.41 |
| 224.99 | 728.27 | 732.04 | 3.77 |
| 249.94 | 728.32 | 732.48 | 4.17 |
| 274.99 | 728.36 | 732.96 | 4.60 |
| 300.59 | 728.40 | 733.50 | 5.10 |
| 325.13 | 728.44 | 734.06 | 5.62 |
| 349.65 | 728.48 | 734.66 | 6.19 |
| 374.96 | 728.51 | 735.35 | 6.84 |
| 399.95 | 728.55 | 736.08 | 7.53 |
| 424.78 | 728.58 | 736.91 | 8.32 |
| 449.48 | 728.61 | 737.80 | 9.19 |
| 475.01 | 728.65 | 738.74 | 10.10 |
| 500.03 | 728.68 | 739.71 | 11.03 |
| 525.06 | 728.71 | 740.72 | 12.01 |

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************
```

PROJECT: Gila Bend F.I.S.
ENGINEER: C51 at the Gila Bend Canal
DATE: 2/16/1992
TIME: 17:44. 6

---

INPUT PARAMETERS

---

| | |
|---|---|
| STARTING WSEL: | 739.50 |
| MAXIMUM WSEL: | 741.10 |
| STEP SIZE: | 0.10 |
| BREADTH OF WEIR: | 75.00 |

```
**********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/16/1992
    TIME:  17:44. 6
**********************************************
```

| POINT | ELEVATION | STATION |
|---|---|---|
| 1 | 745.20 | 0.00 |
| 2 | 742.40 | 611.00 |
| 3 | 740.50 | 1204.00 |
| 4 | 740.70 | 1799.00 |
| 5 | 739.70 | 2399.00 |
| 6 | 739.60 | 2999.00 |
| 7 | 739.50 | 3600.00 |
| 8 | 739.50 | 4204.00 |
| 9 | 739.90 | 4829.00 |
| 10 | 739.60 | 5430.00 |
| 11 | 740.00 | 5732.00 |
| 12 | 739.70 | 6152.00 |
| 13 | 740.00 | 6659.00 |
| 14 | 740.30 | 7162.00 |
| 15 | 740.20 | 7686.00 |
| 16 | 745.20 | 7686.10 |

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/16/1992
    TIME:  17:44. 6
*********************************************
```

INPUT COEFFICENT VALUES.

| POINT | HEAD | COEFFICIENT |
|---|---|---|
| 1 | 0.00 | 0.0000 |
| 2 | 0.20 | 2.6800 |
| 3 | 0.40 | 2.7000 |
| 4 | 0.60 | 2.7000 |
| 5 | 0.80 | 2.6400 |
| 6 | 1.00 | 2.6300 |
| 7 | 1.20 | 2.6400 |
| 8 | 1.40 | 2.6400 |
| 9 | 1.60 | 2.6300 |
| 10 | 1.80 | 2.6300 |
| 11 | 2.00 | 2.6300 |
| 12 | 2.50 | 2.6300 |
| 13 | 5.70 | 2.6300 |

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/16/1992
    TIME:  17:44. 6
*********************************************
```

| ELEVATION | DISCHARGE (CFS) | ELEVATION | DISCHARGE (CFS) |
|---|---|---|---|
| 739.50 | 0.00 | 741.00 | 20521.24 |
| 739.60 | 31.99 | | |
| 739.70 | 238.19 | | |
| 739.80 | 631.89 | | |
| 739.90 | 1264.66 | | |
| 740.00 | 2132.63 | | |
| 740.10 | 3225.00 | | |
| 740.20 | 4427.38 | | |
| 740.30 | 5794.34 | | |
| 740.40 | 7390.21 | | |
| 740.50 | 9146.75 | | |
| 740.60 | 11049.59 | | |
| 740.70 | 13139.93 | | |
| 740.80 | 15474.88 | | |
| 740.90 | 17935.25 | | |

## C52 Summary Data

| C52 | | |
|---|---|---|
| Stage | Volume | Discharge |
| 731.0 | 0.0 | 0.0 |
| 732.0 | 0.0 | 8.0 |
| 733.0 | 2.0 | 12.0 |
| 734.0 | 6.0 | 27.0 |
| 735.0 | 16.0 | 40.0 |
| 736.0 | 31.0 | 47.0 |
| 737.0 | 55.0 | 54.0 |
| 738.0 | 89.0 | 60.0 |
| 739.0 | 135.0 | 66.0 |
| 740.0 | 192.0 | 94.3 |
| 740.1 | 197.7 | 215.5 |
| 740.2 | 203.4 | 396.8 |
| 740.3 | 209.1 | 701.8 |
| 740.4 | 214.8 | 1099.0 |
| 740.5 | 220.5 | 1698.3 |
| 740.6 | 226.2 | 2430.2 |
| 740.7 | 231.9 | 3277.1 |
| 740.8 | 237.6 | 4233.3 |
| 740.9 | 243.3 | 5321.4 |
| 741.0 | 249.0 | 6480.3 |

```
 ***************************************************
*  H    H    OOOO    BBBBB     CCCCC    W      W  *
*  H    H   O    O   B    B   C         W  WW  W  *
*  HHHHHH   O    O   BBBBB    C         W W  W W  *
*  H    H   O    O   B    B   C         WW    WW  *
*  H    H    OOOO    BBBBB     CCCCC    W      W  *
 ***************************************************
```

HYDRAULICS OF BRIDGE AND CULVERT WATERWAYS

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GALILEO SOFTWARE
16 RANCH ROAD
CHELMSFORD, MA 01824

VERSION 3.02
SERIAL NUMBER 1003

Gila Bend FIS
11358
CP52
trl
Fri Jan. 3, 1992
3:30:01 PM

--- HOBCW PROJECT DATA ---

| | | |
|---|---|---|
| NUMBER OF GROUND STATIONS | : | 6 |
| NUMBER OF ROAD STATIONS | : | 0 |
| NUMBER OF ROUGNESS COEFFICIENTS | : | 6 |
| STREAM SLOPE (ft/ft) | : | .00500 |
| MINIMUM FLOW (cfs) | : | .01 |
| MAXIMUM FLOW (cfs) | : | 80.00 |
| FLOW INCREMENT (cfs) | : | 5.00 |
| NUMBER OF CULVERTS | : | 1 |
| CULVERT CODE | : | 11311 |
| CULVERT SLOPE (ft/ft) | : | .01000 |
| CULVERT LENGTH (ft) | : | 100.00 |
| DOWNSTREAM CULVERT INVERT (ft) | : | 730.30 |
| CIRCULAR CULVERT DIAMETER | : | 3.00 |
| ENTRANCE LOSS COEFFICIENT Ke | : | .9 |
| CULVERT ROUGHNESS COEFFICIENT | : | .024 |

--- CROSS SECTION DESCRIPTION ---

| STATION NUMBER | STATION (ft) | GROUND ELEVATION (ft) | ROUGNESS FACTOR | ROAD ELEVATION (ft) |
|---|---|---|---|---|
| 1 | 100.00 | 732.00 | .0600 | |
| 2 | 300.00 | 731.00 | .0600 | |
| 3 | 308.00 | 730.00 | .0350 | |
| 4 | 313.00 | 730.00 | .0350 | |
| 5 | 321.00 | 731.00 | .0600 | |
| 6 | 521.00 | 732.00 | .0600 | |

--- HOBCW OUTPUT DATA ---

**********

STAGE ELEVATION = 730.01

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE (cfs) | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 307.90 | 308.00 | .0600 | .0 | .10 | .01 | .00 | .00 | .06 |
| 308.00 | 313.00 | .0350 | .1 | 5.00 | .01 | .15 | .01 | .16 |
| 313.00 | 313.10 | .0350 | .0 | .10 | .01 | .00 | .00 | .10 |
| TOTALS | | | .1 | | | .15 | .01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .258 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : .01
HEADWATER (ft) : 731.30
VELOCITY (fps) : .00

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : .01
HEADWATER (ft) : 731.30
VELOCITY (fps) : .00

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 1.287
UPSTREAM STAGE (ft) : 731.300

**********

STAGE ELEVATION = 730.43

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 304.53 | 308.00 | .0600 | .8 | 3.50 | .22 | 6.70 | .47 | .63 |
| 308.00 | 313.00 | .0350 | 2.2 | 5.00 | .43 | 52.82 | 3.73 | 1.72 |
| 313.00 | 316.47 | .0350 | .8 | 3.50 | .22 | 11.49 | .81 | 1.08 |
| TOTALS | | | 3.7 | | | 71.01 | 5.02 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .495 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 5.02
HEADWATER (ft) : 732.37
VELOCITY (fps) : 3.60

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 5.02
HEADWATER (ft) : 731.51
VELOCITY (fps) : 4.00

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 1.933
UPSTREAM STAGE (ft) : 732.366

**********

STAGE ELEVATION = 730.62

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 303.05 | 308.00 | .0600 | 1.5 | 4.98 | .31 | 17.22 | 1.22 | .80 |
| 308.00 | 313.00 | .0350 | 3.1 | 5.00 | .62 | 95.24 | 6.73 | 2.18 |
| 313.00 | 317.95 | .0350 | 1.5 | 4.98 | .31 | 29.52 | 2.09 | 1.37 |
| TOTALS | | | 6.1 | | | 141.98 | 10.04 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .524 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 10.04
HEADWATER (ft) : 732.80
VELOCITY (fps) : 4.38

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 10.04
HEADWATER (ft) : 732.04
VELOCITY (fps) : 4.85

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.181
UPSTREAM STAGE (ft) : 732.798

**********

STAGE ELEVATION = 730.75

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 301.96 | 308.00 | .0600 | 2.3 | 6.08 | .37 | 29.31 | 2.07 | .91 |
| 308.00 | 313.00 | .0350 | 3.8 | 5.00 | .75 | 132.79 | 9.39 | 2.49 |
| 313.00 | 319.04 | .0350 | 2.3 | 6.08 | .37 | 50.24 | 3.55 | 1.56 |
| TOTALS | | | 8.3 | | | 212.33 | 15.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .539 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 15.01
HEADWATER (ft) : 733.18
VELOCITY (fps) : 4.88

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 15.01
HEADWATER (ft) : 732.47
VELOCITY (fps) : 5.47

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.423
UPSTREAM STAGE (ft) : 733.178

**********

STAGE ELEVATION = 730.87

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 301.05 | 308.00 | .0600 | 3.0 | 7.00 | .43 | 42.59 | 3.01 | 1.00 |
| 308.00 | 313.00 | .0350 | 4.3 | 5.00 | .87 | 167.74 | 11.86 | 2.73 |
| 313.00 | 319.95 | .0350 | 3.0 | 7.00 | .43 | 73.02 | 5.16 | 1.71 |
| TOTALS | | | 10.4 | | | 283.35 | 20.04 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .549 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 20.04
HEADWATER (ft) : 733.53
VELOCITY (fps) : 5.25

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 20.04
HEADWATER (ft) : 732.88
VELOCITY (fps) : 5.99

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.665
UPSTREAM STAGE (ft) : 733.533

**********

STAGE ELEVATION = 730.97

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 300.27 | 308.00 | .0600 | 3.7 | 7.79 | .48 | 56.60 | 4.00 | 1.07 |
| 308.00 | 313.00 | .0350 | 4.8 | 5.00 | .97 | 200.35 | 14.17 | 2.93 |
| 313.00 | 320.73 | .0350 | 3.7 | 7.79 | .48 | 97.02 | 6.86 | 1.84 |
| TOTALS | | | 12.3 | | | 353.97 | 25.03 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .556 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 25.03
HEADWATER (ft) : 733.88
VELOCITY (fps) : 5.53

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 25.03
HEADWATER (ft) : 733.31
VELOCITY (fps) : 6.46

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.910
UPSTREAM STAGE (ft) : 733.875

**********

STAGE ELEVATION = 731.05

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 290.89 | 300.00 | .0600 | .2 | 9.11 | .02 | .41 | .03 | .14 |
| 300.00 | 308.00 | .0600 | 4.4 | 8.06 | .54 | 71.79 | 5.08 | 1.16 |
| 308.00 | 313.00 | .0350 | 5.2 | 5.00 | 1.05 | 228.64 | 16.17 | 3.09 |
| 313.00 | 321.00 | .0350 | 4.4 | 8.06 | .54 | 123.07 | 8.70 | 1.99 |
| 321.00 | 330.11 | .0600 | .2 | 9.11 | .02 | .41 | .03 | .14 |
| TOTALS | | | 14.4 | | | 424.33 | 30.00 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .744 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 30.00
HEADWATER (ft) : 734.22
VELOCITY (fps) : 5.73

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 30.00
HEADWATER (ft) : 733.83
VELOCITY (fps) : 6.89

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.177
UPSTREAM STAGE (ft) : 734.222

**********

STAGE ELEVATION = 731.11

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 278.15 | 300.00 | .0600 | 1.2 | 21.85 | .05 | 4.26 | .30 | .25 |
| 300.00 | 308.00 | .0600 | 4.9 | 8.06 | .60 | 86.31 | 6.10 | 1.25 |
| 308.00 | 313.00 | .0350 | 5.5 | 5.00 | 1.11 | 252.33 | 17.84 | 3.22 |
| 313.00 | 321.00 | .0350 | 4.9 | 8.06 | .60 | 147.95 | 10.46 | 2.15 |
| 321.00 | 342.85 | .0600 | 1.2 | 21.85 | .05 | 4.26 | .30 | .25 |
| TOTALS | | | 17.7 | | | 495.10 | 35.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .887 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 35.01
HEADWATER (ft) : 734.59
VELOCITY (fps) : 5.84

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 35.01
HEADWATER (ft) : 734.40
VELOCITY (fps) : 7.32

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.481
UPSTREAM STAGE (ft) : 734.591

**********

STAGE ELEVATION = 731.16

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 267.69 | 300.00 | .0600 | 2.6 | 32.31 | .08 | 12.08 | .85 | .33 |
| 300.00 | 308.00 | .0600 | 5.3 | 8.06 | .66 | 99.01 | 7.00 | 1.32 |
| 308.00 | 313.00 | .0350 | 5.8 | 5.00 | 1.16 | 272.47 | 19.27 | 3.32 |
| 313.00 | 321.00 | .0350 | 5.3 | 8.06 | .66 | 169.72 | 12.00 | 2.27 |
| 321.00 | 353.31 | .0600 | 2.6 | 32.31 | .08 | 12.08 | .85 | .33 |
| TOTALS | | | 21.6 | | | 565.36 | 39.98 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .938 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 39.98
HEADWATER (ft) : 734.99
VELOCITY (fps) : 5.66

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 39.98
HEADWATER (ft) : 735.00
VELOCITY (fps) : 7.73

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.842
UPSTREAM STAGE (ft) : 735.004

**********

STAGE ELEVATION = 731.21

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 258.70 | 300.00 | .0600 | 4.3 | 41.30 | .10 | 23.24 | 1.64 | .39 |
| 300.00 | 308.00 | .0600 | 5.7 | 8.06 | .70 | 110.46 | 7.81 | 1.38 |
| 308.00 | 313.00 | .0350 | 6.0 | 5.00 | 1.21 | 290.26 | 20.52 | 3.40 |
| 313.00 | 321.00 | .0350 | 5.7 | 8.06 | .70 | 189.36 | 13.39 | 2.37 |
| 321.00 | 362.30 | .0600 | 4.3 | 41.30 | .10 | 23.24 | 1.64 | .39 |
| TOTALS | | | 25.9 | | | 636.56 | 45.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .952 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 45.01
HEADWATER (ft) : 735.43
VELOCITY (fps) : 6.37

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 45.01
HEADWATER (ft) : 735.66
VELOCITY (fps) : 8.16

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 4.457
UPSTREAM STAGE (ft) : 735.664

**********

STAGE ELEVATION = 731.25

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 250.94 | 300.00 | .0600 | 6.0 | 49.06 | .12 | 36.79 | 2.60 | .43 |
| 300.00 | 308.00 | .0600 | 6.0 | 8.06 | .74 | 120.76 | 8.54 | 1.43 |
| 308.00 | 313.00 | .0350 | 6.2 | 5.00 | 1.25 | 305.99 | 21.64 | 3.47 |
| 313.00 | 321.00 | .0350 | 6.0 | 8.06 | .74 | 207.02 | 14.64 | 2.46 |
| 321.00 | 370.06 | .0600 | 6.0 | 49.06 | .12 | 36.79 | 2.60 | .43 |
| TOTALS | | | 30.2 | | | 707.35 | 50.02 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .950 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 50.02
HEADWATER (ft) : 735.92
VELOCITY (fps) : 7.08

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 50.02
HEADWATER (ft) : 736.36
VELOCITY (fps) : 8.60

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.120
UPSTREAM STAGE (ft) : 736.365

**********

STAGE ELEVATION = 731.28

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 244.03 | 300.00 | .0600 | 7.8 | 55.97 | .14 | 52.28 | 3.70 | .47 |
| 300.00 | 308.00 | .0600 | 6.2 | 8.06 | .77 | 130.24 | 9.21 | 1.48 |
| 308.00 | 313.00 | .0350 | 6.4 | 5.00 | 1.28 | 320.27 | 22.65 | 3.54 |
| 313.00 | 321.00 | .0350 | 6.2 | 8.06 | .77 | 223.26 | 15.79 | 2.53 |
| 321.00 | 376.97 | .0600 | 7.8 | 55.97 | .14 | 52.28 | 3.70 | .47 |
| TOTALS | | | 34.5 | | | 778.32 | 55.04 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .940 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 55.04
HEADWATER (ft) : 736.47
VELOCITY (fps) : 7.79

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 55.04
HEADWATER (ft) : 737.13
VELOCITY (fps) : 9.05

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.852
UPSTREAM STAGE (ft) : 737.132

**********

STAGE ELEVATION = 731.31

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 237.78 | 300.00 | .0600 | 9.7 | 62.22 | .16 | 69.33 | 4.90 | .51 |
| 300.00 | 308.00 | .0600 | 6.5 | 8.06 | .80 | 139.05 | 9.83 | 1.52 |
| 308.00 | 313.00 | .0350 | 6.6 | 5.00 | 1.31 | 333.41 | 23.58 | 3.60 |
| 313.00 | 321.00 | .0350 | 6.5 | 8.06 | .80 | 238.37 | 16.86 | 2.60 |
| 321.00 | 383.22 | .0600 | 9.7 | 62.22 | .16 | 69.33 | 4.90 | .51 |
| TOTALS | | | 38.9 | | | 849.48 | 60.07 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .926 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 60.07
HEADWATER (ft) : 737.08
VELOCITY (fps) : 8.50

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 60.07
HEADWATER (ft) : 737.98
VELOCITY (fps) : 9.54

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 6.666
UPSTREAM STAGE (ft) : 737.977

**********

STAGE ELEVATION = 731.34

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 232.07 | 300.00 | .0600 | 11.5 | 67.93 | .17 | 87.63 | 6.20 | .54 |
| 300.00 | 308.00 | .0600 | 6.7 | 8.06 | .83 | 147.31 | 10.42 | 1.55 |
| 308.00 | 313.00 | .0350 | 6.7 | 5.00 | 1.34 | 345.60 | 24.44 | 3.65 |
| 313.00 | 321.00 | .0350 | 6.7 | 8.06 | .83 | 252.52 | 17.86 | 2.66 |
| 321.00 | 388.93 | .0600 | 11.5 | 67.93 | .17 | 87.63 | 6.20 | .54 |
| TOTALS | | | 43.2 | | | 920.68 | 65.10 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .912 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 65.10
HEADWATER (ft) : 737.76
VELOCITY (fps) : 9.21

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 65.10
HEADWATER (ft) : 738.86
VELOCITY (fps) : 10.05

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 7.519
UPSTREAM STAGE (ft) : 738.859

**********

STAGE ELEVATION = 731.37

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 226.78 | 300.00 | .0600 | 13.4 | 73.22 | .18 | 107.01 | 7.57 | .56 |
| 300.00 | 308.00 | .0600 | 6.9 | 8.06 | .86 | 155.11 | 10.97 | 1.58 |
| 308.00 | 313.00 | .0350 | 6.8 | 5.00 | 1.37 | 357.04 | 25.25 | 3.70 |
| 313.00 | 321.00 | .0350 | 6.9 | 8.06 | .86 | 265.91 | 18.80 | 2.71 |
| 321.00 | 394.22 | .0600 | 13.4 | 73.22 | .18 | 107.01 | 7.57 | .56 |
| TOTALS | | | 47.5 | | | 992.08 | 70.15 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .897 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 70.15
HEADWATER (ft) : 738.51
VELOCITY (fps) : 9.92

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 70.15
HEADWATER (ft) : 739.80
VELOCITY (fps) : 10.59

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 8.438
UPSTREAM STAGE (ft) : 739.803

**********

STAGE ELEVATION = 731.39

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 221.86 | 300.00 | .0600 | 15.3 | 78.14 | .20 | 127.27 | 9.00 | .59 |
| 300.00 | 308.00 | .0600 | 7.1 | 8.06 | .88 | 162.53 | 11.49 | 1.61 |
| 308.00 | 313.00 | .0350 | 7.0 | 5.00 | 1.39 | 367.82 | 26.01 | 3.74 |
| 313.00 | 321.00 | .0350 | 7.1 | 8.06 | .88 | 278.61 | 19.70 | 2.76 |
| 321.00 | 399.14 | .0600 | 15.3 | 78.14 | .20 | 127.27 | 9.00 | .59 |
| TOTALS | | | 51.7 | | | 1063.50 | 75.20 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .883 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 75.20
HEADWATER (ft) : 739.33
VELOCITY (fps) : 10.64

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 75.20
HEADWATER (ft) : 740.81
VELOCITY (fps) : 11.16

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 9.422
UPSTREAM STAGE (ft) : 740.812

--- SUMMARY OF RESULTS ---

| FLOW (cfs) | TAILWATER ELEVATION (ft) | HEADWATER ELEVATION (ft) | BACKWATER (ft) |
|---|---|---|---|
| .01 | 730.01 | 731.30 | 1.29 |
| 5.02 | 730.43 | 732.37 | 1.93 |
| 10.04 | 730.62 | 732.80 | 2.18 |
| 15.01 | 730.75 | 733.18 | 2.42 |
| 20.04 | 730.87 | 733.53 | 2.67 |
| 25.03 | 730.97 | 733.88 | 2.91 |
| 30.00 | 731.05 | 734.22 | 3.18 |
| 35.01 | 731.11 | 734.59 | 3.48 |
| 39.98 | 731.16 | 735.00 | 3.84 |
| 45.01 | 731.21 | 735.66 | 4.46 |
| 50.02 | 731.25 | 736.36 | 5.12 |
| 55.04 | 731.28 | 737.13 | 5.85 |
| 60.07 | 731.31 | 737.98 | 6.67 |
| 65.10 | 731.34 | 738.86 | 7.52 |
| 70.15 | 731.37 | 739.80 | 8.44 |
| 75.20 | 731.39 | 740.81 | 9.42 |

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Gila Bend F.I.S.
    ENGINEER:  C52 at the Gila Bend Canal
    DATE:   2/16/1992
    TIME:  17:44.47




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:       739.90
    MAXIMUM WSEL:        741.10
    STEP SIZE:             0.10
    BREADTH OF WEIR:      75.00
```

```
*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/16/1992
    TIME:  17:44.47
*********************************************
```

| POINT | ELEVATION | STATION |
|---|---|---|
| 1 | 745.20 | 7686.00 |
| 2 | 740.20 | 7686.10 |
| 3 | 740.30 | 8183.00 |
| 4 | 740.40 | 8675.00 |
| 5 | 739.90 | 9179.00 |
| 6 | 739.90 | 9674.10 |
| 7 | 740.20 | 10182.50 |
| 8 | 740.40 | 10418.00 |
| 9 | 740.50 | 10785.00 |
| 10 | 740.80 | 11288.00 |
| 11 | 745.20 | 11288.10 |

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/16/1992
    TIME:  17:44.47
*********************************************
```

INPUT COEFFICENT VALUES.

| POINT | HEAD | COEFFICIENT |
|---|---|---|
| 1 | 0.00 | 0.0000 |
| 2 | 0.20 | 2.6800 |
| 3 | 0.40 | 2.7000 |
| 4 | 0.60 | 2.7000 |
| 5 | 0.80 | 2.6400 |
| 6 | 1.00 | 2.6300 |
| 7 | 1.20 | 2.6400 |
| 8 | 1.40 | 2.6400 |
| 9 | 1.60 | 2.6300 |
| 10 | 1.80 | 2.6300 |
| 11 | 2.00 | 2.6300 |
| 12 | 2.50 | 2.6300 |
| 13 | 5.70 | 2.6300 |

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/16/1992
    TIME:  17:44.47
*********************************************
```

| ELEVATION | DISCHARGE (CFS) |
|---|---|
| 739.90 | 0.00 |
| 740.00 | 23.26 |
| 740.10 | 144.50 |
| 740.20 | 325.79 |
| 740.30 | 630.83 |
| 740.40 | 1027.99 |
| 740.50 | 1627.25 |
| 740.60 | 2359.24 |
| 740.70 | 3206.11 |
| 740.80 | 4162.34 |
| 740.90 | 5250.44 |
| 741.00 | 6409.28 |

## C53 Summary Data

| C53 | | |
|---|---|---|
| Stage | Volume | Discharge |
| 727.7 | 0.0 | 0.0 |
| 727.9 | 0.0 | 3.0 |
| 728.0 | 0.0 | 5.0 |
| 729.0 | 1.0 | 20.0 |
| 730.0 | 4.0 | 50.0 |
| 731.0 | 9.0 | 95.0 |
| 732.0 | 17.0 | 150.0 |
| 733.0 | 26.0 | 200.0 |
| 733.4 | 31.0 | 216.0 |
| 734.0 | 38.0 | 240.0 |
| 735.0 | 53.0 | 275.0 |
| 736.0 | 85.0 | 305.0 |
| 737.0 | 144.0 | 330.0 |
| 738.0 | 234.0 | 355.0 |
| 739.0 | 353.0 | 375.0 |
| 740.0 | 503.0 | 395.0 |
| 740.1 | 518.0 | 395.5 |
| 740.2 | 533.0 | 400.3 |
| 740.3 | 548.0 | 416.8 |
| 740.4 | 563.0 | 454.7 |
| 740.5 | 578.0 | 505.0 |
| 740.6 | 593.0 | 635.1 |
| 740.7 | 608.0 | 885.7 |
| 740.8 | 623.0 | 1292.4 |
| 740.9 | 638.0 | 1777.4 |
| 741.0 | 653.0 | 2333.9 |
| 741.1 | 668.0 | 2965.3 |
| 741.2 | 683.0 | 3780.2 |
| 741.3 | 698.0 | 4904.8 |
| 741.4 | 713.0 | 6207.8 |
| 741.5 | 728.0 | 7691.3 |
| 741.6 | 743.0 | 9376.6 |
| 741.7 | 758.0 | 11373.2 |
| 741.8 | 773.0 | 13485.1 |

```
 ***************************************************
*  H    H    OOOO    BBBBB     CCCCC    W      W  *
*  H    H   O    O   B    B   C         W  WW  W  *
*  HHHHHH   O    O   BBBBB    C         W W  W W  *
*  H    H   O    O   B    B   C         WW    WW  *
*  H    H    OOOO    BBBBB     CCCCC    W      W  *
 ***************************************************
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HYDRAULICS OF BRIDGE AND CULVERT WATERWAYS

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GALILEO SOFTWARE
16 RANCH ROAD
CHELMSFORD, MA 01824

VERSION 3.02
SERIAL NUMBER 1003

Gila Bend FIS
11358
CP53
WCD
Sat Jan. 4,1992

--- CROSS SECTION DESCRIPTION ---

| STATION NUMBER | STATION (ft) | GROUND ELEVATION (ft) | ROUGNESS FACTOR | ROAD ELEVATION (ft) |
|---|---|---|---|---|
| 1 | 100.00 | 731.70 | .0350 | |
| 2 | 300.00 | 727.70 | .0350 | |
| 3 | 313.50 | 723.20 | .0400 | |
| 4 | 331.50 | 723.20 | .0400 | |
| 5 | 345.00 | 727.70 | .0350 | |
| 6 | 545.00 | 731.70 | .0350 | |

**********

STAGE ELEVATION = 723.86

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 311.51 | 313.50 | .0350 | .7 | 2.10 | .31 | 12.93 | .90 | 1.36 |
| 313.50 | 331.50 | .0400 | 11.9 | 18.00 | .66 | 336.81 | 23.33 | 1.96 |
| 331.50 | 333.49 | .0400 | .7 | 2.10 | .31 | 11.31 | .78 | 1.19 |
| TOTALS | | | 13.2 | | | 361.05 | 25.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .435 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 12.51
HEADWATER (ft) : 729.13
VELOCITY (fps) : 7.76

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 12.51
HEADWATER (ft) : 729.28
VELOCITY (fps) : 7.76

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.421
UPSTREAM STAGE (ft) : 729.284

**********

STAGE ELEVATION = 724.44

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 309.79 | 313.50 | .0350 | 2.3 | 3.91 | .59 | 68.32 | 4.73 | 2.06 |
| 313.50 | 331.50 | .0400 | 22.3 | 18.00 | 1.24 | 953.35 | 66.05 | 2.97 |
| 331.50 | 335.21 | .0400 | 2.3 | 3.91 | .59 | 59.78 | 4.14 | 1.80 |
| TOTALS | | | 26.9 | | | 1081.45 | 74.92 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .491 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 37.46
HEADWATER (ft) : 730.30
VELOCITY (fps) : 10.65

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 37.46
HEADWATER (ft) : 730.57
VELOCITY (fps) : 10.65

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 6.136
UPSTREAM STAGE (ft) : 730.574

**********

STAGE ELEVATION = 724.84

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 308.57 | 313.50 | .0350 | 4.1 | 5.20 | .78 | 145.74 | 10.10 | 2.49 |
| 313.50 | 331.50 | .0400 | 29.6 | 18.00 | 1.64 | 1530.73 | 106.05 | 3.58 |
| 331.50 | 336.43 | .0400 | 4.1 | 5.20 | .78 | 127.52 | 8.83 | 2.18 |
| TOTALS | | | 37.7 | | | 1803.99 | 124.98 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .519 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 62.49
HEADWATER (ft) : 731.28
VELOCITY (fps) : 12.25

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 62.49
HEADWATER (ft) : 731.58
VELOCITY (fps) : 12.25

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 6.732
UPSTREAM STAGE (ft) : 731.576

**********

STAGE ELEVATION = 725.18

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE (cfs) | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 307.58 | 313.50 | .0350 | 5.8 | 6.24 | .94 | 237.71 | 16.47 | 2.82 |
| 313.50 | 331.50 | .0400 | 35.5 | 18.00 | 1.97 | 2078.26 | 143.99 | 4.05 |
| 331.50 | 337.42 | .0400 | 5.8 | 6.24 | .94 | 208.00 | 14.41 | 2.46 |
| TOTALS | | | 47.2 | | | 2523.97 | 174.87 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .538 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 87.43
HEADWATER (ft) : 732.29
VELOCITY (fps) : 13.35

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 87.43
HEADWATER (ft) : 732.50
VELOCITY (fps) : 13.35

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 7.323
UPSTREAM STAGE (ft) : 732.498

**********

STAGE ELEVATION = 725.46

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 306.71 | 313.50 | .0350 | 7.7 | 7.15 | 1.07 | 341.68 | 23.67 | 3.08 |
| 313.50 | 331.50 | .0400 | 40.7 | 18.00 | 2.26 | 2607.22 | 180.63 | 4.44 |
| 331.50 | 338.29 | .0400 | 7.7 | 7.15 | 1.07 | 298.97 | 20.71 | 2.70 |
| TOTALS | | | 56.1 | | | 3247.86 | 225.02 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .553 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 112.51
HEADWATER (ft) : 733.51
VELOCITY (fps) : 14.16

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 112.51
HEADWATER (ft) : 733.44
VELOCITY (fps) : 14.16

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 8.049
UPSTREAM STAGE (ft) : 733.512

**********

STAGE ELEVATION = 725.72

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 305.95 | 313.50 | .0350 | 9.5 | 7.96 | 1.19 | 454.67 | 31.50 | 3.31 |
| 313.50 | 331.50 | .0400 | 45.3 | 18.00 | 2.52 | 3116.95 | 215.95 | 4.76 |
| 331.50 | 339.05 | .0400 | 9.5 | 7.96 | 1.19 | 397.84 | 27.56 | 2.90 |
| TOTALS | | | 64.4 | | | 3969.46 | 275.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .564 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 137.51
HEADWATER (ft) : 735.01
VELOCITY (fps) : 14.73

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 137.51
HEADWATER (ft) : 734.45
VELOCITY (fps) : 14.73

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 9.291
UPSTREAM STAGE (ft) : 735.009

**********

STAGE ELEVATION = 725.95

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 305.25 | 313.50 | .0350 | 11.4 | 8.70 | 1.30 | 575.60 | 39.88 | 3.51 |
| 313.50 | 331.50 | .0400 | 49.5 | 18.00 | 2.75 | 3611.95 | 250.24 | 5.05 |
| 331.50 | 339.75 | .0400 | 11.4 | 8.70 | 1.30 | 503.65 | 34.89 | 3.07 |
| TOTALS | | | 72.2 | | | 4691.20 | 325.02 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .574 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 162.51
HEADWATER (ft) : 736.83
VELOCITY (fps) : 15.01

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 162.51
HEADWATER (ft) : 735.58
VELOCITY (fps) : 15.01

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 10.877
UPSTREAM STAGE (ft) : 736.828

**********

STAGE ELEVATION = 726.17

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 304.60 | 313.50 | .0350 | 13.2 | 9.38 | 1.41 | 703.40 | 48.73 | 3.69 |
| 313.50 | 331.50 | .0400 | 53.4 | 18.00 | 2.97 | 4094.20 | 283.65 | 5.31 |
| 331.50 | 340.40 | .0400 | 13.2 | 9.38 | 1.41 | 615.48 | 42.64 | 3.23 |
| TOTALS | | | 79.8 | | | 5413.08 | 375.03 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .582 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 187.51
HEADWATER (ft) : 738.97
VELOCITY (fps) : 14.92

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 187.51
HEADWATER (ft) : 738.05
VELOCITY (fps) : 15.20

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 12.805
UPSTREAM STAGE (ft) : 738.971

--- SUMMARY OF RESULTS ---

| FLOW (cfs) | TAILWATER ELEVATION (ft) | HEADWATER ELEVATION (ft) | BACKWATER (ft) |
|---|---|---|---|
| .01 | 723.21 | 727.70 | 4.49 |
| 25.01 | 723.86 | 729.28 | 5.42 |
| 50.01 | 724.18 | 730.00 | 5.81 |
| 74.92 | 724.44 | 730.57 | 6.14 |
| 100.00 | 724.65 | 731.09 | 6.44 |
| 124.98 | 724.84 | 731.58 | 6.73 |
| 149.94 | 725.02 | 732.04 | 7.02 |
| 174.87 | 725.18 | 732.50 | 7.32 |
| 200.01 | 725.32 | 732.96 | 7.64 |
| 225.02 | 725.46 | 733.51 | 8.05 |
| 250.02 | 725.59 | 734.22 | 8.63 |
| 275.01 | 725.72 | 735.01 | 9.29 |
| 300.02 | 725.84 | 735.88 | 10.04 |
| 325.02 | 725.95 | 736.83 | 10.88 |
| 350.02 | 726.06 | 737.86 | 11.80 |
| 375.03 | 726.17 | 738.97 | 12.80 |
| 400.03 | 726.27 | 740.16 | 13.89 |

```
*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/16/1992
    TIME:  17:45.26
*********************************************
```

| POINT | ELEVATION | STATION |
|---|---|---|
| --- | --- | --- |

| POINT | ELEVATION | STATION | POINT | ELEVATION | STATION |
|---|---|---|---|---|---|
| 1 | 745.20 | 11288.00 | 16 | 741.60 | 16722.90 |
| 2 | 740.80 | 11288.10 | 17 | 741.40 | 17135.40 |
| 3 | 740.40 | 11794.00 | 18 | 741.50 | 17534.40 |
| 4 | 740.50 | 12307.50 | 19 | 741.90 | 17943.90 |
| 5 | 740.70 | 12815.50 | 20 | 741.90 | 18350.90 |
| 6 | 740.70 | 13018.00 | 21 | 741.70 | 18763.40 |
| 7 | 740.00 | 13214.00 | 22 | 741.80 | 19159.40 |
| 8 | 740.90 | 13458.00 | 23 | 745.20 | 19159.50 |
| 9 | 741.30 | 13854.00 | | | |
| 10 | 741.00 | 14252.20 | | | |
| 11 | 741.10 | 14656.90 | | | |
| 12 | 741.20 | 15059.20 | | | |
| 13 | 741.00 | 15471.70 | | | |
| 14 | 741.10 | 15872.40 | | | |
| 15 | 741.40 | 16279.90 | | | |

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/16/1992
    TIME:  17:45.26
*********************************************
```

| ELEVATION | DISCHARGE (CFS) | ELEVATION | DISCHARGE (CFS) |
|---|---|---|---|
| 740.00 | 0.00 | 741.50 | 7296.33 |
| 740.10 | 0.47 | 741.60 | 8981.59 |
| 740.20 | 5.28 | 741.70 | 10978.23 |
| 740.30 | 21.82 | 741.80 | 13090.13 |
| 740.40 | 59.73 | 741.90 | 15424.15 |
| 740.50 | 109.96 | 742.00 | 18038.83 |
| 740.60 | 240.13 | | |
| 740.70 | 490.72 | | |
| 740.80 | 897.36 | | |
| 740.90 | 1382.37 | | |
| 741.00 | 1938.89 | | |
| 741.10 | 2570.26 | | |
| 741.20 | 3385.19 | | |
| 741.30 | 4509.80 | | |
| 741.40 | 5812.84 | | |

## C36 Summary Data

| C36 | | |
|---|---|---|
| Stage | Volume | Discharge |
| 726.0 | 0.0 | 0.0 |
| 727.0 | 0.0 | 0.0 |
| 727.9 | 0.0 | 0.0 |
| 728.0 | 0.0 | 23.0 |
| 729.0 | 0.0 | 250.0 |
| 730.0 | 0.0 | 690.0 |
| 731.0 | 0.0 | 1150.0 |
| 732.0 | 0.0 | 1750.0 |
| 733.0 | 0.0 | 2500.0 |
| 733.4 | 1.0 | 2860.0 |
| 734.0 | 2.0 | 3400.0 |
| 735.0 | 10.0 | 4500.0 |
| 736.0 | 24.0 | 5600.0 |
| 737.0 | 56.0 | 6900.0 |
| 738.0 | 112.0 | 8250.0 |
| 739.0 | 196.0 | 9700.0 |
| 740.0 | 309.0 | 11200.0 |
| 740.1 | 320.1 | 11345.0 |
| 740.2 | 331.2 | 11490.0 |
| 740.3 | 342.3 | 11635.0 |
| 740.4 | 353.4 | 11780.0 |
| 740.5 | 364.5 | 11925.0 |
| 740.6 | 375.6 | 12070.0 |
| 740.7 | 386.7 | 12215.0 |
| 740.8 | 397.8 | 12360.0 |
| 740.9 | 408.9 | 12505.0 |
| 741.0 | 420.0 | 12650.0 |
| 741.1 | 431.6 | 12795.5 |
| 741.2 | 443.2 | 12968.8 |
| 741.3 | 454.8 | 13244.7 |
| 741.4 | 466.4 | 13560.1 |
| 741.5 | 478.0 | 13926.8 |
| 741.6 | 489.6 | 14369.7 |
| 741.7 | 501.2 | 14865.6 |

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2;  May 1991            *
 *  386 Extended Memory version, August 1991 *
 *  Dodson & Associates, Inc 1-800-235-8069  *
 *  RUN DATE    08FEB92    TIME   14:51:41   *
 *****************************************
```

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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X           X     X
X     X  X         X                 X
XXXXXXX  XXXX      X          XXXXX   XXXXX
X     X  X         X                 X
X     X  X         X     X           X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

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1
   08FEB92       14:51:41                                                                    PAGE    1
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                                                                THIS RUN EXECUTED 08FEB92     14:51:41
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
```

```
T1 Gila Bend Floodplain Delineation Study, 11358 01/08/92
T2 FILENAME= C36.H2  Special Bridge Model Of GBC Canal Over-Chute.
T3       Q=500

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        2.        0.        0.      0.0050      0.        0.        0.      730.0      0.

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    1.0        0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.       43.        1.        8.       55.       26.       56.       46.       47.        5.
    38.       53.       54.                 150

NC     .030      .030      .025       0.1       0.3
QT    14.0      500.0     1000.0    1500.0    2000.0    2500.0    3000.0    3500.0    4000.0    4500.0
QT  5000.0     6000.0     8000.0   10000.0   14000.0
X1     1.0        8.0     5947.0    6052.0       0.0       0.0       0.0
GR   733.4     5243.0      730.6    5863.0     731.1    5947.0     725.0    5965.0     725.0    6035.0
GR   731.1     6052.0      731.8    6152.0     732.0    6171.0

NC    0.03      0.030     0.015       0.3       0.5
X1     2.0        6.0     5972.0    6028.0     275.0     275.0     275.0
GR   738.0     5472.0      730.4    5972.0     727.4    5982.0     727.4    6018.0     730.4    6028.0
GR   738.0     6528.0

X1     3.0       10.0     5959.0    6044.2       160       160       160
GR   743.0     2075.0      742.0    2075.0     742.0    3475.0     741.0    4775.0     741.0    5475.0
GR   741.0     5959.0      727.9    5985.0     727.9    6018.0     741.0    6044.2     743.0    6344.0
```

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1
   08FEB92       14:51:41                                                                    PAGE    2
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```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
     1.000      1.36    726.36    726.14    730.00    726.75      0.38      0.00      0.00    731.10
     500.0       0.0     500.0       0.0       0.0     100.7       0.0       0.0       0.0     731.10
      0.00      0.00      4.97      0.00     0.000     0.025     0.000     0.000    725.00   5960.98
  0.004992        0.        0.        0.         0        17         6      0.00     77.82   6038.80

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    726.36

STA=    5961.    6052.
  PER Q=    100.0
   AREA=    100.7
    VEL=      5.0
  DEPTH=      1.3

CCHV=    0.300 CEHV=    0.500
*SECNO 2.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      1.71    729.11    729.11      0.00    729.87      0.76      1.03      0.19    730.40
     500.0       0.0     500.0       0.0       0.0      71.4       0.0       0.5       0.4     730.40
      0.01      0.00      7.00      0.00     0.000     0.015     0.000     0.000    727.40   5976.29
  0.002938      275.      275.      275.         0        11         0      0.00     47.41   6023.71

FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=    729.11

STA=    5976.    6028.
  PER Q=    100.0
   AREA=     71.4
    VEL=      7.0
```

```
STA=    5979.    6044.
  PER Q=    100.0
   AREA=    110.9
    VEL=      9.0
  DEPTH=      2.5

1
   08FEB92      14:51:41                                                                                PAGE    7

T1 Gila Bend Floodplain Delineation Study, 11358 01/08/92
T2 FILENAME= C36.H2  Special Bridge Model Of GBC Canal Over-Chute.
T3      Q=1500

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       4.        0.        0.      0.0050      0.        0.        0.      730.0       0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
   08FEB92      14:51:41                                                                                PAGE    8

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
     1.000      2.61    727.61    727.34    730.00    728.46      0.85      0.00      0.00    731.10
    1500.0       0.0    1500.0       0.0       0.0     202.2       0.0       0.0       0.0    731.10
      0.00      0.00      7.42      0.00     0.000     0.025     0.000     0.000    725.00   5957.30
  0.004969        0.        0.        0.         0        14         4      0.00     84.97   6042.27

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    727.61

STA=    5957.    6052.
  PER Q=    100.0
   AREA=    202.2
    VEL=      7.4
  DEPTH=      2.4

CCHV=    0.300 CEHV=    0.500
*SECNO 2.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      3.49    730.89    730.89      0.00    732.13      1.24      0.82      0.19    730.40
    1500.0       6.9    1486.2       6.9       8.0     165.6       8.0       1.2       0.6    730.40
      0.01      0.87      8.97      0.87     0.030     0.015     0.030     0.000    727.40   5939.56
  0.001974      275.      275.      275.         0        11         0      0.00    120.87   6060.44

FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=    730.89

STA=    5940.    5972.    6028.    6060.
  PER Q=      0.5      99.1      0.5
   AREA=      8.0     165.6      8.0
    VEL=      0.9       9.0      0.9
  DEPTH=      0.2       3.0      0.2

*SECNO 3.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
1
   08FEB92      14:51:41                                                                                PAGE    9

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

     3.000      3.69    731.59    731.59      0.00    733.17      1.58      0.35      0.17    741.00
    1500.0       0.0    1500.0       0.0       0.0     148.7       0.0       1.8       1.0    741.00
      0.01      0.00     10.08      0.00     0.000     0.015     0.000     0.000    727.90   5977.68
  0.002385      160.      160.      160.         0         8         0      0.00     47.69   6025.37

FLOW DISTRIBUTION FOR SECNO=      3.00          CWSEL=    731.59

STA=    5978.    6044.
  PER Q=    100.0
   AREA=    148.7
    VEL=     10.1
  DEPTH=      3.1

1
   08FEB92      14:51:41                                                                                PAGE   10

T1 Gila Bend Floodplain Delineation Study, 11358 01/08/92
T2 FILENAME= C36.H2  Special Bridge Model Of GBC Canal Over-Chute.
T3      Q=2000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       5.        0.        0.      0.0050      0.        0.        0.      730.0       0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    4.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
```

```
FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    728.52

STA=    5955.    6052.
  PER Q=    100.0
   AREA=    281.5
    VEL=      8.9
  DEPTH=      3.1

CCHV=    0.300 CEHV=    0.500
*SECNO 2.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      4.78    732.18    732.18      0.00    733.30      1.11      0.61      0.03    730.40
    2500.0     169.3    2161.4     169.3     104.4     237.8     104.4       2.3       1.2    730.40
      0.01      1.62      9.09      1.62     0.030     0.015     0.030     0.000    727.40   5854.78
  0.001250      275.      275.      275.         0        11         0      0.00    290.44   6145.22

FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=    732.18

STA=    5855.    5972.    6028.    6145.
  PER Q=      6.8      86.5      6.8
   AREA=    104.4     237.8    104.4
    VEL=      1.6       9.1      1.6
  DEPTH=      0.9       4.2      0.9

*SECNO 3.000
1
   08FEB92      14:51:41                                                                          PAGE   15

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.000      5.03    732.93    732.93      0.00    735.00      2.07      0.26      0.48    741.00
    2500.0       0.0    2500.0       0.0       0.0     216.6       0.0       3.5       1.8    741.00
      0.01      0.00     11.54      0.00     0.000     0.015     0.000     0.000    727.90   5975.01
  0.002205      160.      160.      160.         0         8         0      0.00     53.06   6028.07

FLOW DISTRIBUTION FOR SECNO=      3.00          CWSEL=    732.93

STA=    5975.    6044.
  PER Q=    100.0
   AREA=    216.6
    VEL=     11.5
  DEPTH=      4.1

1
   08FEB92      14:51:41                                                                          PAGE   16

T1 Gila Bend Floodplain Delineation Study, 11358 01/08/92
T2 FILENAME= C36.H2  Special Bridge Model Of GBC Canal Over-Chute.
T3       Q=3000

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0.        7.         0.         0.      0.0050        0.         0.         0.      730.0        0.

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

    6.0        0.        -1.0        0.         0.         0.        -1.         0.         0.        15.

1
   08FEB92      14:51:41                                                                          PAGE   17

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
     1.000      3.91    728.91    728.65    730.00    730.30      1.38      0.00      0.00    731.10
    3000.0       0.0    3000.0       0.0       0.0     317.7       0.0       0.0       0.0    731.10
      0.00      0.00      9.44      0.00     0.000     0.025     0.000     0.000    725.00   5953.46
  0.004958        0.        0.        0.         0        15         4      0.00     92.44   6045.90

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    728.91

STA=    5953.    6052.
  PER Q=    100.0
   AREA=    317.7
    VEL=      9.4
  DEPTH=      3.4

CCHV=    0.300 CEHV=    0.500
*SECNO 2.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      5.17    732.57    732.57      0.00    733.70      1.13      0.59      0.08    730.40
    3000.0     279.6    2440.8     279.6     154.9     259.5     154.9       2.8       1.4    730.40
      0.01      1.80      9.40      1.80     0.030     0.015     0.030     0.000    727.40   5829.23
  0.001191      275.      275.      275.         0        11         0      0.00    341.55   6170.77

FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=    732.57
```

```
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.000      6.16    734.06    734.06      0.00    736.51      2.44      0.24      0.65    741.00
    3500.0       0.0    3500.0       0.0       0.0     279.1       0.0       5.0       2.3    741.00
      0.01      0.00     12.54      0.00     0.000     0.015     0.000     0.000    727.90   5972.77
  0.002085      160.      160.      160.         0         8         0      0.00     57.56   6030.33

FLOW DISTRIBUTION FOR SECNO=      3.00          CWSEL=    734.06

STA=    5973.    6044.
  PER Q=    100.0
   AREA=    279.1
    VEL=     12.5
  DEPTH=      4.8

1
   08FEB92      14:51:41                                                                          PAGE   22

T1 Gila Bend Floodplain Delineation Study, 11358 01/08/92
T2 FILENAME= C36.H2  Special Bridge Model Of GBC Canal Over-Chute.
T3       Q=4000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       9.        0.        0.    0.0050       0.        0.        0.      730.0       0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    8.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
   08FEB92      14:51:41                                                                          PAGE   23

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
     1.000      4.62    729.62    729.37    730.00    731.30      1.68      0.00      0.00    731.10
    4000.0       0.0    4000.0       0.0       0.0     384.3       0.0       0.0       0.0    731.10
      0.00      0.00     10.41      0.00     0.000     0.025     0.000     0.000    725.00   5951.38
  0.004963        0.        0.        0.         0        11         4      0.00     96.49   6047.87

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    729.62

STA=    5951.    6052.
  PER Q=    100.0
   AREA=    384.3
    VEL=     10.4
  DEPTH=      4.0

CCHV=    0.300 CEHV=    0.500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      5.77    733.17    733.17      0.00    734.34      1.17      0.58      0.15    730.40
    4000.0     527.1    2945.8     527.1     251.8     292.9     251.8       3.7       1.6    730.40
      0.01      2.09     10.06      2.09     0.030     0.015     0.030     0.000    727.40   5789.97
  0.001158      275.      275.      275.         0        11         0      0.00    420.07   6210.03

FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=    733.17

STA=    5790.    5972.    6028.    6210.
  PER Q=     13.2     73.6     13.2
   AREA=    251.8    292.9    251.8
    VEL=      2.1     10.1      2.1
  DEPTH=      1.4      5.2      1.4

1
   08FEB92      14:51:41                                                                          PAGE   24

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 3.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.000      6.68    734.58    734.58      0.00    737.18      2.60      0.24      0.71    741.00
    4000.0       0.0    4000.0       0.0       0.0     309.2       0.0       5.8       2.5    741.00
      0.01      0.00     12.94      0.00     0.000     0.015     0.000     0.000    727.90   5971.75
  0.002034      160.      160.      160.         0         8         0      0.00     59.61   6031.36

FLOW DISTRIBUTION FOR SECNO=      3.00          CWSEL=    734.58

STA=    5972.    6044.
  PER Q=    100.0
   AREA=    309.2
    VEL=     12.9
  DEPTH=      5.2

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```
     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF10

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 *SECNO 1.000
      1.000      5.23    730.23    730.02    730.00    732.19      1.96      0.00      0.00    731.10
    5000.0        0.0    5000.0       0.0       0.0     445.0       0.0       0.0       0.0    731.10
      0.00       0.00     11.24      0.00     0.000     0.025     0.000     0.000    725.00   5949.55
  0.004999         0.        0.        0.         0         5         5      0.00    100.03   6049.59

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    730.23

 STA=    5950.    6052.
   PER Q=    100.0
    AREA=    445.0
     VEL=     11.2
   DEPTH=      4.4

 CCHV=    0.300 CEHV=    0.500
 *SECNO 2.000

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      2.000      6.23    733.63    733.63      0.00    734.86      1.23      0.58      0.22    730.40
    5000.0     799.7    3400.5     799.7     344.0     319.1     344.0       4.6       1.8    730.40
      0.01      2.32     10.66      2.32     0.030     0.015     0.030     0.000    727.40   5759.24
  0.001161      275.      275.      275.         0        11         0      0.00    481.51   6240.76

 FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=    733.63

 STA=    5759.    5972.    6028.    6241.
   PER Q=     16.0     68.0     16.0
    AREA=    344.0    319.1    344.0
     VEL=      2.3     10.7      2.3
   DEPTH=      1.6      5.7      1.6
```

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```
     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *SECNO 3.000

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      3.000      7.58    735.48    735.48      0.00    738.40      2.92      0.24      0.85    741.00
    5000.0       0.0    5000.0       0.0       0.0     364.4       0.0       7.1       2.8    741.00
      0.01      0.00     13.72      0.00     0.000     0.015     0.000     0.000    727.90   5969.96
  0.001997      160.      160.      160.         0        11         0      0.00     63.19   6033.15

 FLOW DISTRIBUTION FOR SECNO=      3.00          CWSEL=    735.48

 STA=    5970.    6044.
   PER Q=    100.0
    AREA=    364.4
     VEL=     13.7
   DEPTH=      5.8
```

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```
 T1 Gila Bend Floodplain Delineation Study, 11358 01/08/92
 T2 FILENAME= C36.H2  Special Bridge Model Of GBC Canal Over-Chute.
 T3       Q=6000

 J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       12.        0.        0.     0.0050       0.        0.        0.      730.0      0.

 J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    11.0        0.       -1.0       0.        0.        0.       -1.        0.        0.        15.
```

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```
     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF11

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 *SECNO 1.000

 3265 DIVIDED FLOW

      1.000      5.81    730.81    730.51    730.00    733.01      2.20      0.00      0.00    731.10
```

```
*SECNO 2.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000       7.32     734.72     734.72       0.00     736.03       1.32       0.42       0.11     730.40
    8000.0     1728.0     4544.1     1728.0      613.2      379.8      613.2        9.4        4.3     730.40
      0.01       2.82      11.96       2.82      0.030      0.015      0.030      0.000     727.40    5687.94
  0.001160       275.       275.       275.          0          8          0       0.00     624.11    6312.06

FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=    734.72

STA=    5688.     5972.     6028.     6312.
  PER Q=     21.6      56.8      21.6
   AREA=    613.2     379.8     613.2
    VEL=      2.8      12.0       2.8
  DEPTH=      2.2       6.8       2.2
```

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```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 3.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     3.000       9.90     737.80     737.80       0.00     741.45       3.64       0.23       1.16     741.00
    8000.0        0.0     8000.0        0.0        0.0      522.3        0.0       13.3        5.6     741.00
      0.01       0.00      15.32       0.00      0.000      0.015      0.000      0.000     727.90    5965.34
  0.001867       160.       160.       160.          0         11          0       0.00      72.47    6037.81

FLOW DISTRIBUTION FOR SECNO=      3.00          CWSEL=    737.80

STA=    5965.     6044.
  PER Q=    100.0
   AREA=    522.3
    VEL=     15.3
  DEPTH=      7.2
```

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```
T1 Gila Bend Floodplain Delineation Study, 11358 01/08/92
T2 FILENAME= C36.H2  Special Bridge Model Of GBC Canal Over-Chute.
T3       Q=10000

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       14.        0.        0.      0.0050       0.        0.        0.      730.0       0.

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   13.0        0.       -1.0       0.        0.        0.        -1.       0.        0.        15.
```

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```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED      0.92 FEET

3720 CRITICAL DEPTH ASSUMED
     1.000       7.92     732.92     732.92     730.00     734.11       1.19       0.00       0.00     731.10
   10000.0     2202.5     7307.9      489.5      768.1      724.6      166.1        0.0        0.0     731.10
      0.00       2.87      10.09       2.95      0.030      0.025      0.030      0.000     725.00    5349.90
  0.002249         0.         0.         0.          0         17          4       0.00     821.10    6171.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    732.92

STA=    5350.     5863.     5947.     6052.     6152.     6171.
  PER Q=     15.4       6.6      73.1       4.5       0.4
   AREA=    594.5     173.6     724.6     146.7      19.3
    VEL=      2.6       3.8      10.1       3.0       2.3
  DEPTH=      1.2       2.1       6.9       1.5       1.0

CCHV=    0.300 CEHV=    0.500
*SECNO 2.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000       7.75     735.15     735.15       0.00     736.64       1.49       0.46       0.15     730.40
   10000.0     2348.6     5302.7     2348.6      743.1      404.2      743.1       11.2        4.7     730.40
      0.01       3.16      13.12       3.16      0.030      0.015      0.030      0.000     727.40    5659.30
  0.001284       275.       275.       275.          0          5          0       0.00     681.40    6340.70

FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=    735.15

STA=    5659.     5972.     6028.     6341.
  PER Q=     23.5      53.0      23.5
   AREA=    743.1     404.2     743.1
    VEL=      3.2      13.1       3.2
  DEPTH=      2.4       7.2       2.4
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14000.0 | 5655.1 | 8136.8 | 208.1 | 4889.2 | 926.4 | 239.2 | 31.1 | 14.7 | 741.00 |
| 0.02 | 1.16 | 8.78 | 0.87 | 0.030 | 0.015 | 0.030 | 0.000 | 727.90 | 2075.00 |
| 0.000358 | 160. | 160. | 160. | 0 | 17 | 0 | 0.00 | 4237.01 | 6312.01 |

FLOW DISTRIBUTION FOR SECNO= 3.00 CWSEL= 742.79

| STA= | 2075. | 3475. | 4775. | 5475. | 5959. | 6044. | 6312. |
|---|---|---|---|---|---|---|---|
| PER Q= | 6.3 | 13.3 | 12.3 | 8.5 | 58.1 | 1.5 | |
| AREA= | 1101.3 | 1672.5 | 1250.6 | 864.7 | 926.4 | 239.2 | |
| VEL= | 0.8 | 1.1 | 1.4 | 1.4 | 8.8 | 0.9 | |
| DEPTH= | 0.8 | 1.3 | 1.8 | 1.8 | 10.9 | 0.9 | |

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THIS RUN EXECUTED 08FEB92 14:51:48

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Q=500

SUMMARY PRINTOUT

| | SECNO | Q | CWSEL | DEPTH | VLOB | VCH | VROB | QWEIR | QPR | 10*KS | SECNO | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 500.00 | 726.36 | 1.36 | 0.00 | 4.97 | 0.00 | 0.00 | 0.00 | 49.92 | 1.00 | 5960.98 | 6038.80 |
| | 1.000 | 1000.00 | 727.05 | 2.05 | 0.00 | 6.42 | 0.00 | 0.00 | 0.00 | 49.86 | 1.00 | 5958.94 | 6040.72 |
| | 1.000 | 1500.00 | 727.61 | 2.61 | 0.00 | 7.42 | 0.00 | 0.00 | 0.00 | 49.69 | 1.00 | 5957.30 | 6042.27 |
| | 1.000 | 2000.00 | 728.07 | 3.07 | 0.00 | 8.27 | 0.00 | 0.00 | 0.00 | 50.87 | 1.00 | 5955.95 | 6043.55 |
| | 1.000 | 2500.00 | 728.52 | 3.52 | 0.00 | 8.88 | 0.00 | 0.00 | 0.00 | 49.79 | 1.00 | 5954.63 | 6044.80 |
| | 1.000 | 3000.00 | 728.91 | 3.91 | 0.00 | 9.44 | 0.00 | 0.00 | 0.00 | 49.58 | 1.00 | 5953.46 | 6045.90 |
| | 1.000 | 3500.00 | 729.28 | 4.28 | 0.00 | 9.95 | 0.00 | 0.00 | 0.00 | 49.52 | 1.00 | 5952.38 | 6046.92 |
| | 1.000 | 4000.00 | 729.62 | 4.62 | 0.00 | 10.41 | 0.00 | 0.00 | 0.00 | 49.63 | 1.00 | 5951.38 | 6047.87 |
| | 1.000 | 4500.00 | 729.91 | 4.91 | 0.00 | 10.89 | 0.00 | 0.00 | 0.00 | 50.48 | 1.00 | 5950.50 | 6048.70 |
| | 1.000 | 5000.00 | 730.23 | 5.23 | 0.00 | 11.24 | 0.00 | 0.00 | 0.00 | 49.99 | 1.00 | 5949.55 | 6049.59 |
| | 1.000 | 6000.00 | 730.81 | 5.81 | 0.77 | 11.91 | 0.00 | 0.00 | 0.00 | 49.87 | 1.00 | 5817.20 | 6051.18 |
| * | 1.000 | 8000.00 | 732.53 | 7.53 | 2.45 | 9.31 | 2.30 | 0.00 | 0.00 | 20.72 | 1.00 | 5435.85 | 6171.00 |
| * | 1.000 | 10000.00 | 732.92 | 7.92 | 2.87 | 10.09 | 2.95 | 0.00 | 0.00 | 22.49 | 1.00 | 5349.90 | 6171.00 |
| * | 1.000 | 14000.00 | 733.62 | 8.62 | 3.53 | 10.85 | 3.87 | 0.00 | 0.00 | 22.88 | 1.00 | 5243.00 | 6171.00 |
| * | 2.000 | 500.00 | 729.11 | 1.71 | 0.00 | 7.00 | 0.00 | 0.00 | 0.00 | 29.38 | 2.00 | 5976.29 | 6023.71 |
| * | 2.000 | 1000.00 | 730.03 | 2.63 | 0.00 | 8.48 | 0.00 | 0.00 | 0.00 | 26.03 | 2.00 | 5973.22 | 6026.78 |
| * | 2.000 | 1500.00 | 730.89 | 3.49 | 0.87 | 8.97 | 0.87 | 0.00 | 0.00 | 19.74 | 2.00 | 5939.56 | 6060.44 |
| * | 2.000 | 2000.00 | 731.68 | 4.28 | 1.37 | 8.85 | 1.37 | 0.00 | 0.00 | 14.02 | 2.00 | 5888.05 | 6111.95 |
| * | 2.000 | 2500.00 | 732.18 | 4.78 | 1.62 | 9.09 | 1.62 | 0.00 | 0.00 | 12.50 | 2.00 | 5854.78 | 6145.22 |
| * | 2.000 | 3000.00 | 732.57 | 5.17 | 1.80 | 9.40 | 1.80 | 0.00 | 0.00 | 11.91 | 2.00 | 5829.23 | 6170.77 |
| * | 2.000 | 3500.00 | 732.89 | 5.49 | 1.96 | 9.73 | 1.96 | 0.00 | 0.00 | 11.67 | 2.00 | 5808.14 | 6191.86 |
| * | 2.000 | 4000.00 | 733.17 | 5.77 | 2.09 | 10.06 | 2.09 | 0.00 | 0.00 | 11.58 | 2.00 | 5789.97 | 6210.03 |
| * | 2.000 | 4500.00 | 733.41 | 6.01 | 2.21 | 10.37 | 2.21 | 0.00 | 0.00 | 11.58 | 2.00 | 5773.86 | 6226.14 |
| * | 2.000 | 5000.00 | 733.63 | 6.23 | 2.32 | 10.66 | 2.32 | 0.00 | 0.00 | 11.61 | 2.00 | 5759.24 | 6240.76 |
| * | 2.000 | 6000.00 | 734.07 | 6.66 | 2.50 | 11.05 | 2.50 | 0.00 | 0.00 | 11.33 | 2.00 | 5730.88 | 6269.12 |
| * | 2.000 | 8000.00 | 734.72 | 7.32 | 2.82 | 11.96 | 2.82 | 0.00 | 0.00 | 11.60 | 2.00 | 5687.94 | 6312.06 |
| * | 2.000 | 10000.00 | 735.15 | 7.75 | 3.16 | 13.12 | 3.16 | 0.00 | 0.00 | 12.84 | 2.00 | 5659.30 | 6340.70 |
| * | 2.000 | 14000.00 | 736.06 | 8.66 | 3.57 | 14.27 | 3.57 | 0.00 | 0.00 | 12.97 | 2.00 | 5599.80 | 6400.20 |

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| | SECNO | Q | CWSEL | DEPTH | VLOB | VCH | VROB | QWEIR | QPR | 10*KS | SECNO | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 3.000 | 500.00 | 729.75 | 1.85 | 0.00 | 7.39 | 0.00 | 0.00 | 0.00 | 28.70 | 3.00 | 5981.34 | 6021.69 |
| * | 3.000 | 1000.00 | 730.77 | 2.87 | 0.00 | 9.02 | 0.00 | 0.00 | 0.00 | 25.44 | 3.00 | 5979.31 | 6023.73 |
| * | 3.000 | 1500.00 | 731.59 | 3.69 | 0.00 | 10.08 | 0.00 | 0.00 | 0.00 | 23.85 | 3.00 | 5977.68 | 6025.37 |
| * | 3.000 | 2000.00 | 732.30 | 4.40 | 0.00 | 10.89 | 0.00 | 0.00 | 0.00 | 22.80 | 3.00 | 5976.27 | 6026.80 |
| * | 3.000 | 2500.00 | 732.93 | 5.03 | 0.00 | 11.54 | 0.00 | 0.00 | 0.00 | 22.05 | 3.00 | 5975.01 | 6028.07 |
| * | 3.000 | 3000.00 | 733.52 | 5.62 | 0.00 | 12.08 | 0.00 | 0.00 | 0.00 | 21.42 | 3.00 | 5973.85 | 6029.24 |
| * | 3.000 | 3500.00 | 734.06 | 6.16 | 0.00 | 12.54 | 0.00 | 0.00 | 0.00 | 20.85 | 3.00 | 5972.77 | 6030.33 |
| * | 3.000 | 4000.00 | 734.58 | 6.68 | 0.00 | 12.94 | 0.00 | 0.00 | 0.00 | 20.34 | 3.00 | 5971.75 | 6031.36 |
| * | 3.000 | 4500.00 | 735.03 | 7.13 | 0.00 | 13.37 | 0.00 | 0.00 | 0.00 | 20.25 | 3.00 | 5970.85 | 6032.26 |
| * | 3.000 | 5000.00 | 735.48 | 7.58 | 0.00 | 13.72 | 0.00 | 0.00 | 0.00 | 19.97 | 3.00 | 5969.96 | 6033.15 |
| * | 3.000 | 6000.00 | 736.31 | 8.41 | 0.00 | 14.34 | 0.00 | 0.00 | 0.00 | 19.48 | 3.00 | 5968.31 | 6034.82 |
| * | 3.000 | 8000.00 | 737.80 | 9.90 | 0.00 | 15.32 | 0.00 | 0.00 | 0.00 | 18.67 | 3.00 | 5965.34 | 6037.81 |
| * | 3.000 | 10000.00 | 739.14 | 11.24 | 0.00 | 16.07 | 0.00 | 0.00 | 0.00 | 17.96 | 3.00 | 5962.70 | 6040.47 |
| * | 3.000 | 14000.00 | 742.79 | 14.89 | 1.16 | 8.78 | 0.87 | 0.00 | 0.00 | 3.58 | 3.00 | 2075.00 | 6312.01 |

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Q=500

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 0.00 | 0.00 | 0.00 | 725.00 | 500.00 | 726.36 | 726.14 | 726.75 | 49.92 | 4.97 | 100.67 | 70.77 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 725.00 | 1000.00 | 727.05 | 726.80 | 727.69 | 49.86 | 6.42 | 155.87 | 141.61 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 725.00 | 1500.00 | 727.61 | 727.34 | 728.46 | 49.69 | 7.42 | 202.23 | 212.80 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 725.00 | 2000.00 | 728.07 | 727.82 | 729.13 | 50.87 | 8.27 | 241.70 | 280.42 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 725.00 | 2500.00 | 728.52 | 728.24 | 729.74 | 49.79 | 8.88 | 281.50 | 354.31 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 725.00 | 3000.00 | 728.91 | 728.65 | 730.30 | 49.58 | 9.44 | 317.73 | 426.06 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 725.00 | 3500.00 | 729.28 | 729.01 | 730.81 | 49.52 | 9.95 | 351.93 | 497.39 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 725.00 | 4000.00 | 729.62 | 729.37 | 731.30 | 49.63 | 10.41 | 384.28 | 567.81 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 725.00 | 4500.00 | 729.91 | 729.70 | 731.76 | 50.48 | 10.89 | 413.34 | 633.39 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 725.00 | 5000.00 | 730.23 | 730.02 | 732.19 | 49.99 | 11.24 | 445.00 | 707.15 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 725.00 | 6000.00 | 730.81 | 730.51 | 733.01 | 49.87 | 11.91 | 511.54 | 849.65 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 725.00 | 8000.00 | 732.53 | 732.53 | 733.62 | 20.72 | 9.31 | 1356.70 | 1757.63 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 725.00 | 10000.00 | 732.92 | 732.92 | 734.11 | 22.49 | 10.09 | 1658.75 | 2108.62 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 725.00 | 14000.00 | 733.62 | 733.62 | 734.83 | 22.88 | 10.85 | 2285.05 | 2926.82 |

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CAUTION SECNO=      2.000  PROFILE=  8  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  9  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  9  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=      2.000  PROFILE= 12  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE= 12  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE= 13  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE= 13  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE= 14  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE= 14  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      3.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=      3.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE=  3  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      3.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE=  4  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      3.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE=  5  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      3.000  PROFILE=  6  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE=  6  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      3.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE=  7  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      3.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE=  8  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      3.000  PROFILE=  9  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE=  9  MINIMUM SPECIFIC ENERGY
1
   08FEB92      14:51:41                                                    PAGE   48

CAUTION SECNO=      3.000  PROFILE= 10  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE= 10  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      3.000  PROFILE= 11  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE= 11  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      3.000  PROFILE= 12  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE= 12  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      3.000  PROFILE= 13  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE= 13  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      3.000  PROFILE= 14  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE= 14  MINIMUM SPECIFIC ENERGY
```

```
*******************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/16/1992
    TIME:  17:46. 3
*******************************************
```

| POINT | ELEVATION | STATION |
|---|---|---|
| 1 | 743.00 | 19159.40 |
| 2 | 741.80 | 19154.50 |
| 3 | 741.90 | 19805.40 |
| 4 | 741.80 | 20216.90 |
| 5 | 741.60 | 20743.90 |
| 6 | 741.00 | 21225.40 |
| 7 | 741.20 | 21770.40 |
| 8 | 741.70 | 22238.40 |
| 9 | 741.70 | 22689.40 |
| 10 | 743.80 | 23080.00 |
| 11 | 741.90 | 23595.00 |
| 12 | 743.00 | 23595.10 |

```
*******************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/16/1992
    TIME:  17:46. 3
*******************************************
```

| ELEVATION | DISCHARGE (CFS) | ELEVATION | DISCHARGE (CFS) |
|---|---|---|---|
| 741.00 | 0.00 | 742.50 | 8938.78 |
| 741.10 | 2.99 | 742.60 | 10368.81 |
| 741.20 | 33.79 | 742.70 | 11884.74 |
| 741.30 | 167.20 | 742.80 | 13500.78 |
| 741.40 | 340.07 | 742.90 | 15201.79 |
| 741.50 | 564.31 | | |
| 741.60 | 864.67 | | |
| 741.70 | 1218.11 | | |
| 741.80 | 1656.73 | | |
| 741.90 | 2298.64 | | |
| 742.00 | 3093.82 | | |
| 742.10 | 4080.64 | | |
| 742.20 | 5147.98 | | |
| 742.30 | 6328.71 | | |
| 742.40 | 7592.89 | | |

## C11 Summary Data

| C11 | | |
|---|---|---|
| Stage | Volume | Discharge |
| 726.0 | 0.0 | 0.0 |
| 727.0 | 9.0 | 0.0 |
| 727.9 | 20.0 | 0.0 |
| 728.0 | 21.0 | 0.0 |
| 729.0 | 35.0 | 0.0 |
| 730.0 | 52.0 | 0.0 |
| 731.0 | 71.0 | 0.0 |
| 732.0 | 92.0 | 0.0 |
| 733.0 | 116.0 | 0.0 |
| 733.4 | 126.0 | 0.0 |
| 734.0 | 142.0 | 85.0 |
| 735.0 | 171.0 | 284.0 |
| 736.0 | 202.0 | 567.0 |
| 737.0 | 238.0 | 965.0 |
| 738.0 | 281.0 | 1532.0 |
| 739.0 | 334.0 | 2241.0 |
| 740.0 | 398.0 | 2950.0 |
| 740.1 | 405.4 | 3035.6 |
| 740.2 | 412.8 | 3121.2 |
| 740.3 | 420.2 | 3206.8 |
| 740.4 | 427.6 | 3292.4 |
| 740.5 | 435.0 | 3378.0 |
| 740.6 | 442.4 | 3463.6 |
| 740.7 | 449.8 | 3549.2 |
| 740.8 | 457.2 | 3634.8 |
| 740.9 | 464.6 | 3720.4 |
| 741.0 | 472.0 | 3806.0 |
| 741.1 | 481.2 | 3895.6 |
| 741.2 | 490.4 | 3985.2 |
| 741.3 | 499.6 | 4074.8 |
| 741.4 | 508.8 | 4179.0 |
| 741.5 | 518.0 | 4348.4 |
| 741.6 | 527.2 | 4573.3 |
| 741.7 | 536.4 | 4904.2 |

```
1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version   4.6.2:  May 1991                *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE    08FEB92    TIME    16:00:53   *
 *********************************************

*************************************
 *  U.S. ARMY CORPS OF ENGINEERS     *
 *  HYDROLOGIC ENGINEERING CENTER    *
 *  609 SECOND STREET, SUITE D       *
 *  DAVIS, CALIFORNIA 95616-4687     *
 *        (916) 756-1104             *
*************************************

X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X            X     X
X     X  X         X                        X
XXXXXXX  XXXX      X           XXXXX    XXXXX
X     X  X         X                  X
X     X  X         X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX

1
   08FEB92      16:00:53                                                                                PAGE    1


                                                                                THIS RUN EXECUTED 08FEB92    16:00:53
*************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2:  May 1991
*************************************


 T1 Gila Bend Floodplain Delineation Study, 11358 02/10/92
 T2 FILENAME= C11.H2              dge Model Of GBC Canal Over-Chute.
 T3      Q=500

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       2.        0.        0.       .007       0.        0.        0.      733.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38.       43.        1.        8.       55.       26.       56.       46.       47.        5.
     38.       53.       54.                 150

NC      .030      .030      .025       0.1       0.3
QT      9.0     500.0    1000.0    1500.0    2000.0    2500.0    3000.0    3500.0    4000.0    4500.0
X1      1.0       6.0    5940.0    6060.0       0.0       0.0       0.0
GR    736.0    5440.0     735.0    5940.0     729.9    5950.0     729.9    6050.0     735.0    6060.0
GR    736.0    6560.0

NC     0.03      0.03     0.015       0.3       0.5
X1      2.0       6.0    5973.0    6028.0       340       340
GR    743.0    5969.0     741.0      5973     733.3      5990     733.3      6010     741.0      6028
GR    743.0    6032.0
1
   08FEB92      16:00:53                                                                                PAGE    2

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *PROF 1

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 *SECNO 1.000
      1.000     1.00    730.90    730.81    733.00    731.27      0.37      0.00      0.00    735.00
      500.0      0.0     500.0       0.0       0.0     102.2       0.0       0.0       0.0    735.00
       0.00     0.00      4.89      0.00     0.000     0.025     0.000     0.000    729.90   5948.03
   0.006973       0.        0.        0.         0        14         4      0.00    103.93   6051.97


 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    730.90

 STA=    5948.    6060.
   PER Q=     100.0
    AREA=     102.2
     VEL=       4.9
   DEPTH=       1.0

 CCHV=    0.300 CEHV=    0.500
 *SECNO 2.000

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      2.000     2.43    735.73    735.73      0.00    736.74      1.01      1.41      0.32    741.00
      500.0      0.0     500.0       0.0       0.0      62.0       0.0       0.6       0.5    741.00
       0.01     0.00      8.06      0.00     0.000     0.015     0.000     0.000    733.30   5984.63
   0.002746     340.      340.      340.         0        17         0      0.00     31.05   6015.68


 FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=    735.73

 STA=    5985.    6028.
   PER Q=     100.0
    AREA=      62.0
     VEL=       8.1
   DEPTH=       2.0
```

```
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      4.64    737.94    737.94      0.00    739.68      1.74      1.28      0.44    741.00
    1500.0       0.0    1500.0       0.0       0.0     141.6       0.0       1.3       0.6    741.00
      0.01      0.00     10.60      0.00     0.000     0.015     0.000     0.000    733.30   5979.76
  0.002337      340.      340.      340.         0        17         0      0.00     41.07   6020.84

FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=    737.94

STA=    5980.    6028.
  PER Q=     100.0
   AREA=     141.6
    VEL=      10.6
  DEPTH=       3.4

1
   08FEB92      16:00:53                                                                          PAGE    7

T1 Gila Bend Floodplain Delineation Study, 11358 01/09/92
T2 FILENAME= C11.H2  Special Bridge Model Of GBC Canal Over-Chute.
T3       Q=2000

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       5.       0.       0.       .007      0.      0.       0.      733.0     0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    4.0       0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

1
   08FEB92      16:00:53                                                                          PAGE    8

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
     1.000      2.29    732.19    732.18    733.00    733.27      1.08      0.00      0.00    735.00
    2000.0       0.0    2000.0       0.0       0.0     239.4       0.0       0.0       0.0    735.00
      0.00      0.00      8.35      0.00     0.000     0.025     0.000     0.000    729.90   5945.51
  0.007010        0.        0.        0.         0        15         5      0.00    108.99   6054.49

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    732.19

STA=    5946.    6060.
  PER Q=     100.0
   AREA=     239.4
    VEL=       8.4
  DEPTH=       2.2

CCHV=    0.300 CEHV=    0.500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      5.45    738.75    738.75      0.00    740.74      1.99      1.25      0.46    741.00
    2000.0       0.0    2000.0       0.0       0.0     176.5       0.0       1.6       0.6    741.00
      0.01      0.00     11.33      0.00     0.000     0.015     0.000     0.000    733.30   5977.97
  0.002246      340.      340.      340.         0        17         0      0.00     44.77   6022.74

FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=    738.75

STA=    5978.    6028.
  PER Q=     100.0
   AREA=     176.5
    VEL=      11.3
  DEPTH=       3.9

1
   08FEB92      16:00:53                                                                          PAGE    9

T1 Gila Bend Floodplain Delineation Study, 11358 01/09/92
T2 FILENAME= C11.H2  Special Bridge Model Of GBC Canal Over-Chute.
T3       Q=2500

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       6.       0.       0.       .007      0.      0.       0.      733.0     0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    5.0       0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

1
   08FEB92      16:00:53                                                                          PAGE   10

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5
```

```
T3      Q=3500

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        8.        0.        0.       .007       0.        0.        0.      733.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    7.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      3.28    733.18    733.18    733.00    734.74      1.56      0.00      0.00    735.00
    3500.0       0.0    3500.0       0.0       0.0     348.9       0.0       0.0       0.0    735.00
      0.00      0.00     10.03      0.00     0.000     0.025     0.000     0.000    729.90   5943.57
  0.006445        0.        0.        0.         0         8         3      0.00    112.85   6056.43

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    733.18

STA=    5944.    6060.
  PER Q=    100.0
   AREA=    348.9
    VEL=     10.0
  DEPTH=      3.1

CCHV=    0.300 CEHV=    0.500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.000      7.40    740.70    740.70      0.00    743.26      2.56      1.15      0.50    741.00
    3500.0       0.0    3500.0       0.0       0.0     272.7       0.0       2.4       0.6    741.00
      0.01      0.00     12.84      0.00     0.000     0.015     0.000     0.000    733.30   5973.65
  0.002071      340.      340.      340.         0        17         0      0.00     53.66   6027.31

FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=    740.70

STA=    5974.    6028.
  PER Q=    100.0
   AREA=    272.7
    VEL=     12.8
  DEPTH=      5.1
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 01/09/92
T2 FILENAME= C11.H2  Special Bridge Model Of GBC Canal Over-Chute.
T3      Q=4000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        9.        0.        0.       .007       0.        0.        0.      733.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    8.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      3.59    733.49    733.49    733.00    735.17      1.69      0.00      0.00    735.00
    4000.0       0.0    4000.0       0.0       0.0     383.8       0.0       0.0       0.0    735.00
      0.00      0.00     10.42      0.00     0.000     0.025     0.000     0.000    729.90   5942.97
  0.006219        0.        0.        0.         0         8         4      0.00    114.06   6057.03

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    733.49

STA=    5943.    6060.
  PER Q=    100.0
   AREA=    383.8
    VEL=     10.4
  DEPTH=      3.4

CCHV=    0.300 CEHV=    0.500
*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS
```

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 1.000 | 3500.00 | 733.18 | 3.28 | 0.00 | 10.03 | 0.00 | 0.00 | 0.00 | 64.45 | 1.00 | 5943.57 | 6056.43 |
| * | 1.000 | 4000.00 | 733.49 | 3.59 | 0.00 | 10.42 | 0.00 | 0.00 | 0.00 | 62.19 | 1.00 | 5942.97 | 6057.03 |
| * | 1.000 | 4500.00 | 733.76 | 3.86 | 0.00 | 10.84 | 0.00 | 0.00 | 0.00 | 61.46 | 1.00 | 5942.43 | 6057.57 |
| * | 2.000 | 500.00 | 735.73 | 2.43 | 0.00 | 8.06 | 0.00 | 0.00 | 0.00 | 27.46 | 2.00 | 5984.63 | 6015.68 |
| * | 2.000 | 1000.00 | 736.97 | 3.67 | 0.00 | 9.61 | 0.00 | 0.00 | 0.00 | 24.74 | 2.00 | 5981.89 | 6018.58 |
| * | 2.000 | 1500.00 | 737.94 | 4.64 | 0.00 | 10.60 | 0.00 | 0.00 | 0.00 | 23.37 | 2.00 | 5979.76 | 6020.84 |
| * | 2.000 | 2000.00 | 738.75 | 5.45 | 0.00 | 11.33 | 0.00 | 0.00 | 0.00 | 22.46 | 2.00 | 5977.97 | 6022.74 |
| * | 2.000 | 2500.00 | 739.46 | 6.16 | 0.00 | 11.93 | 0.00 | 0.00 | 0.00 | 21.80 | 2.00 | 5976.39 | 6024.41 |
| * | 2.000 | 3000.00 | 740.10 | 6.80 | 0.00 | 12.44 | 0.00 | 0.00 | 0.00 | 21.30 | 2.00 | 5974.98 | 6025.90 |
| * | 2.000 | 3500.00 | 740.70 | 7.40 | 0.00 | 12.84 | 0.00 | 0.00 | 0.00 | 20.71 | 2.00 | 5973.65 | 6027.31 |
| * | 2.000 | 4000.00 | 741.19 | 7.89 | 0.02 | 13.37 | 0.02 | 0.00 | 0.00 | 20.57 | 2.00 | 5972.62 | 6028.38 |
| * | 2.000 | 4500.00 | 741.64 | 8.34 | 0.96 | 13.89 | 0.96 | 0.00 | 0.00 | 19.93 | 2.00 | 5971.72 | 6029.28 |

1

08FEB92 16:00:53 PAGE 20

Q=500

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 0.00 | 0.00 | 0.00 | 729.90 | 500.00 | 730.90 | 730.81 | 731.27 | 69.73 | 4.89 | 102.19 | 59.88 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 729.90 | 1000.00 | 731.42 | 731.34 | 732.05 | 70.05 | 6.41 | 156.01 | 119.48 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 729.90 | 1500.00 | 731.83 | 731.78 | 732.70 | 70.11 | 7.49 | 200.28 | 179.14 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 729.90 | 2000.00 | 732.19 | 732.18 | 733.27 | 70.10 | 8.35 | 239.41 | 238.88 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 729.90 | 2500.00 | 732.54 | 732.54 | 733.80 | 68.29 | 9.01 | 277.38 | 302.52 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 729.90 | 3000.00 | 732.87 | 732.87 | 734.28 | 65.71 | 9.53 | 314.70 | 370.09 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 729.90 | 3500.00 | 733.18 | 733.18 | 734.74 | 64.45 | 10.03 | 348.85 | 435.98 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 729.90 | 4000.00 | 733.49 | 733.49 | 735.17 | 62.19 | 10.42 | 383.81 | 507.22 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 729.90 | 4500.00 | 733.76 | 733.76 | 735.58 | 61.46 | 10.84 | 415.09 | 574.00 |
| * | 2.000 | 340.00 | 0.00 | 0.00 | 733.30 | 500.00 | 735.73 | 735.73 | 736.74 | 27.46 | 8.06 | 62.04 | 95.41 |
| * | 2.000 | 340.00 | 0.00 | 0.00 | 733.30 | 1000.00 | 736.97 | 736.97 | 738.41 | 24.74 | 9.61 | 104.10 | 201.06 |
| * | 2.000 | 340.00 | 0.00 | 0.00 | 733.30 | 1500.00 | 737.94 | 737.94 | 739.68 | 23.37 | 10.60 | 141.58 | 310.30 |
| * | 2.000 | 340.00 | 0.00 | 0.00 | 733.30 | 2000.00 | 738.75 | 738.75 | 740.74 | 22.46 | 11.33 | 176.49 | 422.05 |
| * | 2.000 | 340.00 | 0.00 | 0.00 | 733.30 | 2500.00 | 739.46 | 739.46 | 741.67 | 21.80 | 11.93 | 209.57 | 535.42 |
| * | 2.000 | 340.00 | 0.00 | 0.00 | 733.30 | 3000.00 | 740.10 | 740.10 | 742.50 | 21.30 | 12.44 | 241.23 | 649.97 |
| * | 2.000 | 340.00 | 0.00 | 0.00 | 733.30 | 3500.00 | 740.70 | 740.70 | 743.26 | 20.71 | 12.84 | 272.68 | 769.04 |
| * | 2.000 | 340.00 | 0.00 | 0.00 | 733.30 | 4000.00 | 741.19 | 741.19 | 743.97 | 20.57 | 13.37 | 299.15 | 881.94 |
| * | 2.000 | 340.00 | 0.00 | 0.00 | 733.30 | 4500.00 | 741.64 | 741.64 | 744.63 | 19.93 | 13.89 | 324.81 | 1007.94 |

1

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Q=500

SUMMARY PRINTOUT TABLE 150

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 1.000 | 500.00 | 730.90 | 0.00 | 0.00 | -2.10 | 103.93 | 0.00 |
| | 1.000 | 1000.00 | 731.42 | 0.51 | 0.00 | -1.58 | 105.94 | 0.00 |
| | 1.000 | 1500.00 | 731.83 | 0.41 | 0.00 | -1.17 | 107.57 | 0.00 |
| | 1.000 | 2000.00 | 732.19 | 0.36 | 0.00 | -0.81 | 108.99 | 0.00 |
| * | 1.000 | 2500.00 | 732.54 | 0.35 | 0.00 | -0.46 | 110.34 | 0.00 |
| * | 1.000 | 3000.00 | 732.87 | 0.34 | 0.00 | -0.13 | 111.66 | 0.00 |
| * | 1.000 | 3500.00 | 733.18 | 0.30 | 0.00 | 0.18 | 112.85 | 0.00 |
| * | 1.000 | 4000.00 | 733.49 | 0.31 | 0.00 | 0.49 | 114.06 | 0.00 |
| * | 1.000 | 4500.00 | 733.76 | 0.27 | 0.00 | 0.76 | 115.13 | 0.00 |
| * | 2.000 | 500.00 | 735.73 | 0.00 | 4.83 | 0.00 | 31.05 | 340.00 |
| * | 2.000 | 1000.00 | 736.97 | 1.24 | 5.56 | 0.00 | 36.69 | 340.00 |
| * | 2.000 | 1500.00 | 737.94 | 0.96 | 6.11 | 0.00 | 41.07 | 340.00 |
| * | 2.000 | 2000.00 | 738.75 | 0.81 | 6.56 | 0.00 | 44.77 | 340.00 |
| * | 2.000 | 2500.00 | 739.46 | 0.71 | 6.93 | 0.00 | 48.01 | 340.00 |
| * | 2.000 | 3000.00 | 740.10 | 0.64 | 7.23 | 0.00 | 50.92 | 340.00 |
| * | 2.000 | 3500.00 | 740.70 | 0.60 | 7.53 | 0.00 | 53.66 | 340.00 |
| * | 2.000 | 4000.00 | 741.19 | 0.48 | 7.70 | 0.00 | 56.75 | 340.00 |
| * | 2.000 | 4500.00 | 741.64 | 0.45 | 7.88 | 0.00 | 57.56 | 340.00 |

1

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SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      1.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  6  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  9  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      2.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  3  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  4  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  5  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  6  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  6  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  7  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  8  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  9  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  9  MINIMUM SPECIFIC ENERGY
```

```
*******************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/16/1992
    TIME:  17:51. 6
*******************************************
```

| POINT | ELEVATION | STATION |
|---|---|---|
| 1 | 743.00 | 23595.00 |
| 2 | 741.90 | 23595.10 |
| 3 | 741.90 | 24201.00 |
| 4 | 742.20 | 24714.00 |
| 5 | 741.60 | 25165.50 |
| 6 | 741.30 | 25540.50 |
| 7 | 741.30 | 25833.50 |
| 8 | 741.70 | 26345.50 |
| 9 | 741.80 | 26855.50 |
| 10 | 743.10 | 27344.50 |
| 11 | 742.30 | 27838.50 |
| 12 | 742.60 | 28336.00 |
| 13 | 742.70 | 28587.50 |
| 14 | 742.50 | 29134.50 |
| 15 | 742.90 | 29424.50 |
| 16 | 742.50 | 30073.50 |
| 17 | 742.80 | 30727.50 |
| 18 | 742.70 | 31326.50 |
| 19 | 743.00 | 31326.60 |

```
*********************************************
   UNEVEN WEIR FLOW PROGRAM
   FORTRAN VERSION 1.0
   PROJECT:  Gila Bend F.I.S.
   DATE:   2/16/1992
   TIME:  17:51. 6
*********************************************
```

| ELEVATION | DISCHARGE (CFS) | ELEVATION | DISCHARGE (CFS) |
|---|---|---|---|
| 741.30 | 0.00 | 742.80 | 10859.66 |
| 741.40 | 14.55 | 742.90 | 13039.39 |
| 741.50 | 94.43 | 743.00 | 15450.36 |
| 741.60 | 229.65 | | |
| 741.70 | 470.96 | | |
| 741.80 | 744.06 | | |
| 741.90 | 1128.17 | | |
| 742.00 | 1656.91 | | |
| 742.10 | 2339.18 | | |
| 742.20 | 3134.40 | | |
| 742.30 | 4079.12 | | |
| 742.40 | 5118.51 | | |
| 742.50 | 6268.03 | | |
| 742.60 | 7550.80 | | |
| 742.70 | 9053.08 | | |

## C12 Summary Data

| C12 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Culvert Discharge (cfs) | | | | Weir Discharge (cfs) | | | Totals for C12 | |
| Stage | 12A | 12B | Total | SR-85 | Canal | Total | Volume | Discharge |
| 730.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 731.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.0 | 0.0 |
| 732.0 | 15.0 | 0.0 | 15.0 | 0.0 | 0.0 | 0.0 | 12.0 | 15.0 |
| 733.0 | 30.0 | 5.0 | 35.0 | 0.0 | 0.0 | 0.0 | 22.0 | 35.0 |
| 734.0 | 70.0 | 14.0 | 84.0 | 0.0 | 0.0 | 0.0 | 36.0 | 84.0 |
| 735.0 | 120.0 | 30.0 | 150.0 | 0.0 | 0.0 | 0.0 | 52.0 | 150.0 |
| 736.0 | 175.0 | 51.0 | 226.0 | 0.0 | 0.0 | 0.0 | 72.0 | 226.0 |
| 737.0 | 225.0 | 74.0 | 299.0 | 0.0 | 0.0 | 0.0 | 99.0 | 299.0 |
| 738.0 | 260.0 | 96.0 | 356.0 | 0.0 | 0.0 | 0.0 | 132.0 | 356.0 |
| 739.0 | 285.0 | 111.0 | 396.0 | 0.0 | 0.0 | 0.0 | 171.0 | 396.0 |
| 740.0 | 315.0 | 124.0 | 439.0 | 0.0 | 0.0 | 0.0 | 216.0 | 439.0 |
| 741.0 | 345.0 | 137.0 | 482.0 | 0.0 | 0.0 | 0.0 | 266.0 | 482.0 |
| 741.1 | 348.0 | 138.3 | 486.3 | 0.0 | 0.0 | 0.0 | 271.7 | 486.3 |
| 741.2 | 351.0 | 139.6 | 490.6 | 0.0 | 0.0 | 0.0 | 277.4 | 490.6 |
| 741.3 | 354.0 | 140.9 | 494.9 | 0.0 | 0.0 | 0.0 | 283.1 | 494.9 |
| 741.4 | 357.0 | 142.2 | 499.2 | 0.0 | 0.0 | 0.0 | 288.8 | 499.2 |
| 741.5 | 360.0 | 143.5 | 503.5 | 0.0 | 0.3 | 0.3 | 294.5 | 503.8 |
| 741.6 | 363.0 | 144.8 | 507.8 | 0.0 | 3.6 | 3.6 | 300.2 | 511.4 |
| 741.7 | 366.0 | 146.1 | 512.1 | 0.0 | 14.9 | 14.9 | 305.9 | 527.0 |
| 741.8 | 369.0 | 147.4 | 516.4 | 0.0 | 40.8 | 40.8 | 311.6 | 557.2 |
| 741.9 | 372.0 | 148.7 | 520.7 | 0.0 | 71.4 | 71.4 | 317.3 | 592.1 |
| 742.0 | 375.0 | 150.0 | 525.0 | 0.0 | 112.8 | 112.8 | 323.0 | 637.8 |
| 742.1 | 378.0 | 151.3 | 529.3 | 0.4 | 166.2 | 166.6 | 329.5 | 695.9 |
| 742.2 | 381.0 | 152.6 | 533.6 | 4.6 | 232.4 | 237.0 | 336.0 | 770.6 |
| 742.3 | 384.0 | 153.9 | 537.9 | 19.0 | 312.0 | 331.0 | 342.5 | 868.9 |
| 742.4 | 387.0 | 155.2 | 542.2 | 51.9 | 406.0 | 457.9 | 349.0 | 1000.1 |
| 742.5 | 390.0 | 156.5 | 546.5 | 90.8 | 515.3 | 606.1 | 355.5 | 1152.6 |
| 742.6 | 393.0 | 157.8 | 550.8 | 143.9 | 640.9 | 784.7 | 362.0 | 1335.5 |
| 742.7 | 396.0 | 159.1 | 555.1 | 215.3 | 782.2 | 997.5 | 368.5 | 1552.6 |
| 742.8 | 399.0 | 160.4 | 559.4 | 311.9 | 948.2 | 1260.1 | 375.0 | 1819.5 |
| 742.9 | 402.0 | 161.7 | 563.7 | 441.4 | 1146.8 | 1588.2 | 381.5 | 2151.9 |
| 743.0 | 405.0 | 163.0 | 568.0 | 594.5 | 1367.1 | 1961.6 | 388.0 | 2529.6 |
| 743.1 | 408.0 | 164.3 | 572.3 | 778.8 | 1623.4 | 2402.2 | 397.9 | 2974.5 |

## C12 Summary Data

| C12 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Culvert Discharge (cfs) | | | | Weir Discharge (cfs) | | | Totals for C12 | |
| Stage | 12A | 12B | Total | SR-85 | Canal | Total | Volume | Discharge |
| 743.2 | 411.0 | 165.6 | 576.6 | 996.3 | 1912.3 | 2908.6 | 407.8 | 3485.2 |
| 743.3 | 414.0 | 166.9 | 580.9 | 1243.7 | 2235.4 | 3479.2 | 417.7 | 4060.1 |
| 743.4 | 417.0 | 168.2 | 585.2 | 1525.5 | 2593.8 | 4119.3 | 427.6 | 4704.5 |
| 743.5 | 420.0 | 169.5 | 589.5 | 1836.5 | 2993.8 | 4830.3 | 437.5 | 5419.8 |
| 743.6 | 423.0 | 170.8 | 593.8 | 2180.5 | 3433.0 | 5613.5 | 447.4 | 6207.3 |
| 743.7 | 426.0 | 172.1 | 598.1 | 2550.6 | 3894.6 | 6445.2 | 457.3 | 7043.3 |
| 743.8 | 429.0 | 173.4 | 602.4 | 2953.1 | 4380.2 | 7333.2 | 467.2 | 7935.6 |
| 743.9 | 432.0 | 174.7 | 606.7 | 3385.2 | 4895.5 | 8280.8 | 477.1 | 8887.5 |
| 744.0 | 435.0 | 176.0 | 611.0 | 3814.3 | 5410.8 | 9225.1 | 487.0 | 9836.1 |

```
 ************************************************
*  H    H    0000    BBBBB     CCCCC    W      W  *
*  H    H   0    0   B    B   C         W  WW  W  *
*  HHHHHH   0    0   BBBBB    C         W W  W W  *
*  H    H   0    0   B    B   C         WW    WW  *
*  H    H    0000    BBBBB     CCCCC    W      W  *
 ************************************************
```

HYDRAULICS OF BRIDGE AND CULVERT WATERWAYS

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GALILEO SOFTWARE
16 RANCH ROAD
CHELMSFORD, MA 01824

VERSION 3.02
SERIAL NUMBER 1003

Gila Bend FIS
11358
CPI2A
WCD
Sat Jan. 4,1992

--- HOBCW PROJECT DATA ---

| | | |
|---|---|---|
| NUMBER OF GROUND STATIONS | : | 6 |
| NUMBER OF ROAD STATIONS | : | 0 |
| NUMBER OF ROUGNESS COEFFICIENTS | : | 6 |
| STREAM SLOPE (ft/ft) | : | .00630 |
| MINIMUM FLOW (cfs) | : | .01 |
| MAXIMUM FLOW (cfs) | : | 350.00 |
| FLOW INCREMENT (cfs) | : | 25.00 |
| NUMBER OF CULVERTS | : | 2 |
| CULVERT CODE | : | 11333 |
| CULVERT SLOPE (ft/ft) | : | .03700 |
| CULVERT LENGTH (ft) | : | 97.65 |
| DOWNSTREAM CULVERT INVERT (ft) | : | 727.60 |
| CIRCULAR CULVERT DIAMETER | : | 4.00 |
| ENTRANCE LOSS COEFFICIENT Ke | : | .5 |
| CULVERT ROUGHNESS COEFFICIENT | : | .024 |

--- CROSS SECTION DESCRIPTION ---

| STATION NUMBER | STATION (ft) | GROUND ELEVATION (ft) | ROUGNESS FACTOR | ROAD ELEVATION (ft) |
|---|---|---|---|---|
| 1 | 100.00 | 732.00 | .0600 | |
| 2 | 300.00 | 730.00 | .0600 | |
| 3 | 315.00 | 727.60 | .0400 | |
| 4 | 325.00 | 727.60 | .0400 | |
| 5 | 340.00 | 730.00 | .0600 | |
| 6 | 540.00 | 732.00 | .0600 | |

--- HOBCW OUTPUT DATA ---

**********

STAGE ELEVATION = 727.61

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 314.95 | 315.00 | .0600 | .0 | .05 | .00 | .00 | .00 | .05 |
| 315.00 | 325.00 | .0400 | .1 | 10.00 | .01 | .13 | .01 | .12 |
| 325.00 | 325.05 | .0400 | .0 | .05 | .00 | .00 | .00 | .08 |
| TOTALS | | | .1 | | | .13 | .01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .235 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : .01
HEADWATER (ft) : 731.21
VELOCITY (fps) : .00

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : .01
HEADWATER (ft) : 731.21
VELOCITY (fps) : .00

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.604
UPSTREAM STAGE (ft) : 731.213

**********

STAGE ELEVATION = 728.39

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 310.06 | 315.00 | .0600 | 1.9 | 5.00 | .39 | 25.77 | 2.05 | 1.05 |
| 315.00 | 325.00 | .0400 | 7.9 | 10.00 | .79 | 250.70 | 19.90 | 2.52 |
| 325.00 | 329.94 | .0400 | 1.9 | 5.00 | .39 | 38.65 | 3.07 | 1.57 |
| TOTALS | | | 11.8 | | | 315.12 | 25.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .534 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 12.51
HEADWATER (ft) : 732.64
VELOCITY (fps) : 7.24

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 12.51
HEADWATER (ft) : 732.80
VELOCITY (fps) : 7.24

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 4.407
UPSTREAM STAGE (ft) : 732.797

**********

STAGE ELEVATION = 728.74

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 307.90 | 315.00 | .0600 | 4.0 | 7.19 | .56 | 68.01 | 5.40 | 1.34 |
| 315.00 | 325.00 | .0400 | 11.4 | 10.00 | 1.14 | 459.83 | 36.50 | 3.21 |
| 325.00 | 332.10 | .0400 | 4.0 | 7.19 | .56 | 102.02 | 8.10 | 2.01 |
| TOTALS | | | 19.4 | | | 629.86 | 49.99 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .569 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 25.00
HEADWATER (ft) : 733.27
VELOCITY (fps) : 8.85

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 25.00
HEADWATER (ft) : 733.51
VELOCITY (fps) : 8.85

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 4.772
UPSTREAM STAGE (ft) : 733.509

**********

STAGE ELEVATION = 729.00

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 306.26 | 315.00 | .0600 | 6.1 | 8.85 | .69 | 118.18 | 9.38 | 1.54 |
| 315.00 | 325.00 | .0400 | 14.0 | 10.00 | 1.40 | 649.49 | 51.55 | 3.69 |
| 325.00 | 333.74 | .0400 | 6.1 | 8.85 | .69 | 177.27 | 14.07 | 2.30 |
| TOTALS | | | 26.2 | | | 944.94 | 75.00 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .589 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 37.50
HEADWATER (ft) : 733.81
VELOCITY (fps) : 9.93

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 37.50
HEADWATER (ft) : 734.09
VELOCITY (fps) : 9.93

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.090
UPSTREAM STAGE (ft) : 734.089

**********

STAGE ELEVATION = 729.22

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE (cfs) | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 304.91 | 315.00 | .0600 | 8.1 | 10.22 | .80 | 173.52 | 13.77 | 1.69 |
| 315.00 | 325.00 | .0400 | 16.1 | 10.00 | 1.61 | 825.71 | 65.54 | 4.06 |
| 325.00 | 335.09 | .0400 | 8.1 | 10.22 | .80 | 260.28 | 20.66 | 2.54 |
| TOTALS | | | 32.4 | | | 1259.51 | 99.97 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .601 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 49.99
HEADWATER (ft) : 734.31
VELOCITY (fps) : 10.74

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 49.99
HEADWATER (ft) : 734.61
VELOCITY (fps) : 10.74

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.390
UPSTREAM STAGE (ft) : 734.605

**********

STAGE ELEVATION = 729.40

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 303.73 | 315.00 | .0600 | 10.2 | 11.41 | .89 | 232.69 | 18.47 | 1.82 |
| 315.00 | 325.00 | .0400 | 18.0 | 10.00 | 1.80 | 991.89 | 78.73 | 4.37 |
| 325.00 | 336.27 | .0400 | 10.2 | 11.41 | .89 | 349.03 | 27.70 | 2.73 |
| TOTALS | | | 38.3 | | | 1573.61 | 124.90 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .611 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 62.45
HEADWATER (ft) : 734.79
VELOCITY (fps) : 11.39

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 62.45
HEADWATER (ft) : 735.09
VELOCITY (fps) : 11.39

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.683
UPSTREAM STAGE (ft) : 735.087

**********

STAGE ELEVATION = 729.57

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 302.68 | 315.00 | .0600 | 12.1 | 12.48 | .97 | 295.41 | 23.45 | 1.93 |
| 315.00 | 325.00 | .0400 | 19.7 | 10.00 | 1.97 | 1151.44 | 91.39 | 4.64 |
| 325.00 | 337.32 | .0400 | 12.1 | 12.48 | .97 | 443.11 | 35.17 | 2.90 |
| TOTALS | | | 44.0 | | | 1889.95 | 150.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .618 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 75.01
HEADWATER (ft) : 735.28
VELOCITY (fps) : 11.94

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 75.01
HEADWATER (ft) : 735.55
VELOCITY (fps) : 11.94

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.984
UPSTREAM STAGE (ft) : 735.555

**********

STAGE ELEVATION = 729.72

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 301.72 | 315.00 | .0600 | 14.1 | 13.44 | 1.05 | 360.43 | 28.61 | 2.03 |
| 315.00 | 325.00 | .0400 | 21.2 | 10.00 | 2.12 | 1303.90 | 103.49 | 4.87 |
| 325.00 | 338.28 | .0400 | 14.1 | 13.44 | 1.05 | 540.65 | 42.91 | 3.04 |
| TOTALS | | | 49.4 | | | 2204.99 | 175.02 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .624 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 87.51
HEADWATER (ft) : 735.81
VELOCITY (fps) : 12.40

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 87.51
HEADWATER (ft) : 736.01
VELOCITY (fps) : 12.40

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 6.290
UPSTREAM STAGE (ft) : 736.014

**********

STAGE ELEVATION = 729.86

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 300.85 | 315.00 | .0600 | 16.0 | 14.33 | 1.12 | 427.63 | 33.94 | 2.12 |
| 315.00 | 325.00 | .0400 | 22.6 | 10.00 | 2.26 | 1450.93 | 115.16 | 5.09 |
| 325.00 | 339.15 | .0400 | 16.0 | 14.33 | 1.12 | 641.44 | 50.91 | 3.18 |
| TOTALS | | | 54.7 | | | 2520.00 | 200.02 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .629 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 100.01
HEADWATER (ft) : 736.39
VELOCITY (fps) : 12.79

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 100.01
HEADWATER (ft) : 736.48
VELOCITY (fps) : 12.79

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 6.612
UPSTREAM STAGE (ft) : 736.477

**********

STAGE ELEVATION = 730.00

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 300.03 | 315.00 | .0600 | 17.9 | 15.16 | 1.18 | 496.83 | 39.44 | 2.20 |
| 315.00 | 325.00 | .0400 | 24.0 | 10.00 | 2.40 | 1593.54 | 126.48 | 5.28 |
| 325.00 | 339.97 | .0400 | 17.9 | 15.16 | 1.18 | 745.25 | 59.15 | 3.30 |
| TOTALS | | | 59.8 | | | 2835.62 | 225.07 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .634 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 112.54
HEADWATER (ft) : 737.03
VELOCITY (fps) : 13.10

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 112.54
HEADWATER (ft) : 736.95
VELOCITY (fps) : 13.10

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 7.031
UPSTREAM STAGE (ft) : 737.026

**********

STAGE ELEVATION = 730.10

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 289.63 | 300.00 | .0600 | .5 | 10.37 | .05 | 1.85 | .15 | .27 |
| 300.00 | 315.00 | .0600 | 19.6 | 15.19 | 1.29 | 573.15 | 45.49 | 2.33 |
| 315.00 | 325.00 | .0400 | 25.0 | 10.00 | 2.50 | 1715.02 | 136.13 | 5.44 |
| 325.00 | 340.00 | .0400 | 19.6 | 15.19 | 1.29 | 859.72 | 68.24 | 3.49 |
| 340.00 | 350.37 | .0600 | .5 | 10.37 | .05 | 1.85 | .15 | .27 |
| TOTALS | | | 65.2 | | | 3151.60 | 250.15 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .768 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 125.08
HEADWATER (ft) : 737.74
VELOCITY (fps) : 13.36

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 125.08
HEADWATER (ft) : 737.44
VELOCITY (fps) : 13.36

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 7.636
UPSTREAM STAGE (ft) : 737.739

**********

STAGE ELEVATION = 730.20

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 279.90 | 300.00 | .0600 | 2.0 | 20.11 | .10 | 10.82 | .86 | .42 |
| 300.00 | 315.00 | .0600 | 21.0 | 15.19 | 1.38 | 646.24 | 51.29 | 2.44 |
| 315.00 | 325.00 | .0400 | 26.0 | 10.00 | 2.60 | 1827.60 | 145.06 | 5.58 |
| 325.00 | 340.00 | .0400 | 21.0 | 15.19 | 1.38 | 969.36 | 76.94 | 3.66 |
| 340.00 | 360.10 | .0600 | 2.0 | 20.11 | .10 | 10.82 | .86 | .42 |
| TOTALS | | | 72.1 | | | 3464.84 | 275.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .857 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 137.51
HEADWATER (ft) : 738.52
VELOCITY (fps) : 13.55

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 137.51
HEADWATER (ft) : 737.96
VELOCITY (fps) : 13.55

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 8.321
UPSTREAM STAGE (ft) : 738.522

**********

STAGE ELEVATION = 730.29

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 271.03 | 300.00 | .0600 | 4.2 | 28.97 | .14 | 28.67 | 2.28 | .54 |
| 300.00 | 315.00 | .0600 | 22.3 | 15.19 | 1.47 | 715.85 | 56.82 | 2.54 |
| 315.00 | 325.00 | .0400 | 26.9 | 10.00 | 2.69 | 1932.63 | 153.40 | 5.70 |
| 325.00 | 340.00 | .0400 | 22.3 | 15.19 | 1.47 | 1073.77 | 85.23 | 3.81 |
| 340.00 | 368.97 | .0600 | 4.2 | 28.97 | .14 | 28.67 | 2.28 | .54 |
| TOTALS | | | 80.0 | | | 3779.59 | 300.00 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .915 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 150.00
HEADWATER (ft) : 739.39
VELOCITY (fps) : 11.94

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 150.00
HEADWATER (ft) : 738.35
VELOCITY (fps) : 12.60

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 9.100
UPSTREAM STAGE (ft) : 739.390

**********

STAGE ELEVATION = 730.37

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 262.96 | 300.00 | .0600 | 6.9 | 37.04 | .19 | 55.18 | 4.38 | .64 |
| 300.00 | 315.00 | .0600 | 23.6 | 15.19 | 1.55 | 781.58 | 62.04 | 2.63 |
| 315.00 | 325.00 | .0400 | 27.7 | 10.00 | 2.77 | 2030.14 | 161.14 | 5.82 |
| 325.00 | 340.00 | .0400 | 23.6 | 15.19 | 1.55 | 1172.36 | 93.05 | 3.95 |
| 340.00 | 377.04 | .0600 | 6.9 | 37.04 | .19 | 55.18 | 4.38 | .64 |
| TOTALS | | | 88.5 | | | 4094.44 | 324.99 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .950 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 162.49
HEADWATER (ft) : 740.34
VELOCITY (fps) : 12.93

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 162.49
HEADWATER (ft) : 739.58
VELOCITY (fps) : 13.43

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 9.969
UPSTREAM STAGE (ft) : 740.340

--- SUMMARY OF RESULTS ---

| FLOW (cfs) | TAILWATER ELEVATION (ft) | HEADWATER ELEVATION (ft) | BACKWATER (ft) |
|---|---|---|---|
| .01 | 727.61 | 731.21 | 3.60 |
| 25.01 | 728.39 | 732.80 | 4.41 |
| 49.99 | 728.74 | 733.51 | 4.77 |
| 75.00 | 729.00 | 734.09 | 5.09 |
| 99.97 | 729.22 | 734.61 | 5.39 |
| 124.90 | 729.40 | 735.09 | 5.68 |
| 150.01 | 729.57 | 735.55 | 5.98 |
| 175.02 | 729.72 | 736.01 | 6.29 |
| 200.02 | 729.86 | 736.48 | 6.61 |
| 225.07 | 730.00 | 737.03 | 7.03 |
| 250.15 | 730.10 | 737.74 | 7.64 |
| 275.01 | 730.20 | 738.52 | 8.32 |
| 300.00 | 730.29 | 739.39 | 9.10 |
| 324.99 | 730.37 | 740.34 | 9.97 |

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Gila Bend F.I.S.
    ENGINEER:  C12 Weir Flow Over Gila Bend Canal To North
    DATE:   2/17/1992
    TIME:   9:57.18




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:        741.40
    MAXIMUM WSEL:         744.00
    STEP SIZE:              0.10
    BREADTH OF WEIR:       75.00
```

```
*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/17/1992
    TIME:   9:57.18
*********************************************
```

| POINT | ELEVATION | STATION |
|---|---|---|
| 1 | 744.00 | 2220.00 |
| 2 | 742.50 | 2220.10 |
| 3 | 743.50 | 2650.00 |
| 4 | 741.40 | 3230.00 |
| 5 | 744.60 | 3550.00 |

1

```
**********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/17/1992
    TIME:   9:57.18
**********************************************
```

INPUT COEFFICENT VALUES.

| POINT | HEAD | COEFFICIENT |
|---|---|---|
| 1 | 0.00 | 0.0000 |
| 2 | 0.20 | 2.6800 |
| 3 | 0.40 | 2.7000 |
| 4 | 0.60 | 2.7000 |
| 5 | 0.80 | 2.6400 |
| 6 | 1.00 | 2.6300 |
| 7 | 1.20 | 2.6400 |
| 8 | 1.40 | 2.6400 |
| 9 | 1.60 | 2.6300 |
| 10 | 1.80 | 2.6300 |
| 11 | 2.00 | 2.6300 |
| 12 | 2.50 | 2.6300 |
| 13 | 5.00 | 2.6300 |

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/17/1992
    TIME:   9:57.18
*********************************************
```

| ELEVATION | DISCHARGE (CFS) | ELEVATION | DISCHARGE (CFS) |
|---|---|---|---|
| 741.40 | 0.00 | 742.90 | 1146.80 |
| 741.50 | 0.32 | 743.00 | 1367.13 |
| 741.60 | 3.60 | 743.10 | 1623.40 |
| 741.70 | 14.90 | 743.20 | 1912.29 |
| 741.80 | 40.77 | 743.30 | 2235.43 |
| 741.90 | 71.38 | 743.40 | 2593.76 |
| 742.00 | 112.81 | 743.50 | 2993.81 |
| 742.10 | 166.15 | 743.60 | 3432.98 |
| 742.20 | 232.43 | 743.70 | 3894.62 |
| 742.30 | 312.02 | 743.80 | 4380.17 |
| 742.40 | 406.04 | 743.90 | 4895.53 |
| 742.50 | 515.29 | | |
| 742.60 | 640.87 | | |
| 742.70 | 782.17 | | |
| 742.80 | 948.19 | | |

1

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Gila Bend F.I.S.
    ENGINEER:  C12 S.R.85 Weir Flow To West
    DATE:   2/17/1992
    TIME:   9:56.34




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:        742.00
    MAXIMUM WSEL:         744.00
    STEP SIZE:              0.10
    BREADTH OF WEIR:       75.00
```

```
*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/17/1992
    TIME:   9:56.34
*********************************************
```

| POINT | ELEVATION | STATION |
|---|---|---|
| 1 | 744.30 | 1000.00 |
| 2 | 742.00 | 1460.00 |
| 3 | 743.40 | 1850.00 |
| 4 | 742.50 | 2220.00 |
| 5 | 744.00 | 2220.10 |

1

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/17/1992
    TIME:   9:56.34
*********************************************
```

INPUT COEFFICENT VALUES.

| POINT | HEAD | COEFFICIENT |
|---|---|---|
| 1 | 0.00 | 0.0000 |
| 2 | 0.20 | 2.6800 |
| 3 | 0.40 | 2.7000 |
| 4 | 0.60 | 2.7000 |
| 5 | 0.80 | 2.6400 |
| 6 | 1.00 | 2.6300 |
| 7 | 1.20 | 2.6400 |
| 8 | 1.40 | 2.6400 |
| 9 | 1.60 | 2.6300 |
| 10 | 1.80 | 2.6300 |
| 11 | 2.00 | 2.6300 |
| 12 | 2.50 | 2.6300 |
| 13 | 5.00 | 2.6300 |

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/17/1992
    TIME:   9:56.34
*********************************************
```

| ELEVATION | DISCHARGE (CFS) | ELEVATION | DISCHARGE (CFS) |
|---|---|---|---|
| 742.00 | 0.00 | 743.50 | 1836.47 |
| 742.10 | 0.41 | 743.60 | 2180.54 |
| 742.20 | 4.58 | 743.70 | 2550.58 |
| 742.30 | 18.95 | 743.80 | 2953.05 |
| 742.40 | 51.87 | 743.90 | 3385.24 |
| 742.50 | 90.80 | | |
| 742.60 | 143.85 | | |
| 742.70 | 215.30 | | |
| 742.80 | 311.94 | | |
| 742.90 | 441.44 | | |
| 743.00 | 594.51 | | |
| 743.10 | 778.75 | | |
| 743.20 | 996.33 | | |
| 743.30 | 1243.74 | | |
| 743.40 | 1525.52 | | |

```
 ************************************************
* H    H    0000    BBBBB     CCCCC    W      W  *
* H    H   0    0   B    B   C         W  WW  W  *
* HHHHHH   0    0   BBBBB    C         W W  W W  *
* H    H   0    0   B    B   C         WW    WW  *
* H    H    0000    BBBBB     CCCCC    W      W  *
 ************************************************
```

HYDRAULICS OF BRIDGE AND CULVERT WATERWAYS

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GALILEO SOFTWARE
16 RANCH ROAD
CHELMSFORD, MA 01824

VERSION 3.02
SERIAL NUMBER 1003

Gila Bend FIS
11358
CP12B
WCD
Sat Jan. 4,1992

--- HOBCW PROJECT DATA ---

| | | |
|---|---|---|
| NUMBER OF GROUND STATIONS | : | 6 |
| NUMBER OF ROAD STATIONS | : | 0 |
| NUMBER OF ROUGNESS COEFFICIENTS | : | 6 |
| STREAM SLOPE (ft/ft) | : | .00630 |
| MINIMUM FLOW (cfs) | : | .01 |
| MAXIMUM FLOW (cfs) | : | 160.00 |
| FLOW INCREMENT (cfs) | : | 10.00 |
| NUMBER OF CULVERTS | : | 1 |
| CULVERT CODE | : | 11311 |
| CULVERT SLOPE (ft/ft) | : | .03700 |
| CULVERT LENGTH (ft) | : | 97.65 |
| DOWNSTREAM CULVERT INVERT (ft) | : | 728.60 |
| CIRCULAR CULVERT DIAMETER | : | 4.00 |
| ENTRANCE LOSS COEFFICIENT Ke | : | .9 |
| CULVERT ROUGHNESS COEFFICIENT | : | .024 |

--- CROSS SECTION DESCRIPTION ---

| STATION NUMBER | STATION (ft) | GROUND ELEVATION (ft) | ROUGNESS FACTOR | ROAD ELEVATION (ft) |
|---|---|---|---|---|
| 1 | 100.00 | 733.00 | .0600 | |
| 2 | 300.00 | 732.00 | .0600 | |
| 3 | 315.00 | 728.60 | .0400 | |
| 4 | 320.00 | 728.60 | .0400 | |
| 5 | 335.00 | 732.00 | .0600 | |
| 6 | 535.00 | 733.00 | .0600 | |

--- HOBCW OUTPUT DATA ---

**********

STAGE ELEVATION = 728.61

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 314.94 | 315.00 | .0600 | .0 | .06 | .01 | .00 | .00 | .07 |
| 315.00 | 320.00 | .0400 | .1 | 5.00 | .01 | .14 | .01 | .17 |
| 320.00 | 320.06 | .0400 | .0 | .06 | .01 | .00 | .00 | .10 |
| TOTALS | | | .1 | | | .14 | .01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .255 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : .01
HEADWATER (ft) : 732.21
VELOCITY (fps) : .00

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : .01
HEADWATER (ft) : 732.21
VELOCITY (fps) : .00

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.600
UPSTREAM STAGE (ft) : 732.213

**********

STAGE ELEVATION = 729.27

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 312.02 | 315.00 | .0600 | 1.0 | 3.05 | .33 | 11.87 | .94 | .94 |
| 315.00 | 320.00 | .0400 | 3.4 | 5.00 | .68 | 96.49 | 7.66 | 2.27 |
| 320.00 | 322.98 | .0400 | 1.0 | 3.05 | .33 | 17.80 | 1.41 | 1.41 |
| TOTALS | | | 5.4 | | | 126.16 | 10.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .521 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 10.01
HEADWATER (ft) : 733.62
VELOCITY (fps) : 6.78

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 10.01
HEADWATER (ft) : 733.75
VELOCITY (fps) : 6.78

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 4.477
UPSTREAM STAGE (ft) : 733.752

**********

STAGE ELEVATION = 729.57

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 310.74 | 315.00 | .0600 | 2.1 | 4.37 | .47 | 30.83 | 2.45 | 1.19 |
| 315.00 | 320.00 | .0400 | 4.8 | 5.00 | .97 | 175.22 | 13.91 | 2.88 |
| 320.00 | 324.26 | .0400 | 2.1 | 4.37 | .47 | 46.24 | 3.67 | 1.78 |
| TOTALS | | | 8.9 | | | 252.28 | 20.02 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .553 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 20.02
HEADWATER (ft) : 734.18
VELOCITY (fps) : 8.30

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 20.02
HEADWATER (ft) : 734.44
VELOCITY (fps) : 8.30

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 4.875
UPSTREAM STAGE (ft) : 734.440

**********

STAGE ELEVATION = 729.78

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 309.78 | 315.00 | .0600 | 3.1 | 5.35 | .58 | 52.90 | 4.20 | 1.36 |
| 315.00 | 320.00 | .0400 | 5.9 | 5.00 | 1.18 | 245.56 | 19.49 | 3.30 |
| 320.00 | 325.22 | .0400 | 3.1 | 5.35 | .58 | 79.35 | 6.30 | 2.04 |
| TOTALS | | | 12.1 | | | 377.81 | 29.99 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .570 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 29.99
HEADWATER (ft) : 734.68
VELOCITY (fps) : 9.32

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 29.99
HEADWATER (ft) : 734.99
VELOCITY (fps) : 9.32

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.212
UPSTREAM STAGE (ft) : 734.995

**********

STAGE ELEVATION = 729.96

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 308.99 | 315.00 | .0600 | 4.1 | 6.16 | .66 | 77.21 | 6.13 | 1.50 |
| 315.00 | 320.00 | .0400 | 6.8 | 5.00 | 1.36 | 311.02 | 24.69 | 3.62 |
| 320.00 | 326.01 | .0400 | 4.1 | 6.16 | .66 | 115.82 | 9.19 | 2.25 |
| TOTALS | | | 15.0 | | | 504.04 | 40.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .582 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 40.01
HEADWATER (ft) : 735.14
VELOCITY (fps) : 10.10

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 40.01
HEADWATER (ft) : 735.49
VELOCITY (fps) : 10.10

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.526
UPSTREAM STAGE (ft) : 735.488

**********

STAGE ELEVATION = 730.12

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 308.30 | 315.00 | .0600 | 5.1 | 6.87 | .74 | 103.02 | 8.18 | 1.61 |
| 315.00 | 320.00 | .0400 | 7.6 | 5.00 | 1.52 | 372.44 | 29.56 | 3.89 |
| 320.00 | 326.70 | .0400 | 5.1 | 6.87 | .74 | 154.52 | 12.26 | 2.41 |
| TOTALS | | | 17.8 | | | 629.97 | 50.00 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .590 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 50.00
HEADWATER (ft) : 735.59
VELOCITY (fps) : 10.74

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 50.00
HEADWATER (ft) : 735.94
VELOCITY (fps) : 10.74

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.826
UPSTREAM STAGE (ft) : 735.944

**********

STAGE ELEVATION = 730.26

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 307.69 | 315.00 | .0600 | 6.1 | 7.49 | .81 | 130.02 | 10.32 | 1.71 |
| 315.00 | 320.00 | .0400 | 8.3 | 5.00 | 1.66 | 430.77 | 34.19 | 4.13 |
| 320.00 | 327.31 | .0400 | 6.1 | 7.49 | .81 | 195.03 | 15.48 | 2.56 |
| TOTALS | | | 20.4 | | | 755.82 | 59.99 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .596 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 59.99
HEADWATER (ft) : 736.04
VELOCITY (fps) : 11.28

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 59.99
HEADWATER (ft) : 736.38
VELOCITY (fps) : 11.28

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 6.123
UPSTREAM STAGE (ft) : 736.380

**********

STAGE ELEVATION = 730.38

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 307.14 | 315.00 | .0600 | 7.0 | 8.06 | .87 | 158.00 | 12.54 | 1.79 |
| 315.00 | 320.00 | .0400 | 8.9 | 5.00 | 1.78 | 486.58 | 38.62 | 4.33 |
| 320.00 | 327.86 | .0400 | 7.0 | 8.06 | .87 | 237.00 | 18.81 | 2.69 |
| TOTALS | | | 22.9 | | | 881.58 | 69.97 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .601 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 69.97
HEADWATER (ft) : 736.51
VELOCITY (fps) : 11.73

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 69.97
HEADWATER (ft) : 736.80
VELOCITY (fps) : 11.73

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 6.420
UPSTREAM STAGE (ft) : 736.803

**********

STAGE ELEVATION = 730.50

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 306.63 | 315.00 | .0600 | 7.9 | 8.58 | .93 | 186.82 | 14.83 | 1.87 |
| 315.00 | 320.00 | .0400 | 9.5 | 5.00 | 1.90 | 540.28 | 42.88 | 4.52 |
| 320.00 | 328.37 | .0400 | 7.9 | 8.58 | .93 | 280.22 | 22.24 | 2.80 |
| TOTALS | | | 25.4 | | | 1007.32 | 79.95 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .606 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 79.95
HEADWATER (ft) : 737.02
VELOCITY (fps) : 12.13

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 79.95
HEADWATER (ft) : 737.22
VELOCITY (fps) : 12.13

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 6.723
UPSTREAM STAGE (ft) : 737.221

**********

STAGE ELEVATION = 730.61

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 306.15 | 315.00 | .0600 | 8.9 | 9.07 | .98 | 216.35 | 17.17 | 1.94 |
| 315.00 | 320.00 | .0400 | 10.0 | 5.00 | 2.01 | 592.18 | 47.00 | 4.69 |
| 320.00 | 328.85 | .0400 | 8.9 | 9.07 | .98 | 324.52 | 25.76 | 2.90 |
| TOTALS | | | 27.8 | | | 1133.05 | 89.93 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .609 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 89.93
HEADWATER (ft) : 737.57
VELOCITY (fps) : 12.48

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 89.93
HEADWATER (ft) : 737.64
VELOCITY (fps) : 12.48

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 7.036
UPSTREAM STAGE (ft) : 737.641

**********

STAGE ELEVATION = 730.71

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 305.71 | 315.00 | .0600 | 9.8 | 9.52 | 1.03 | 246.51 | 19.57 | 2.00 |
| 315.00 | 320.00 | .0400 | 10.5 | 5.00 | 2.11 | 642.52 | 51.00 | 4.84 |
| 320.00 | 329.29 | .0400 | 9.8 | 9.52 | 1.03 | 369.77 | 29.35 | 3.00 |
| TOTALS | | | 30.1 | | | 1258.80 | 99.91 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .612 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 99.91
HEADWATER (ft) : 738.19
VELOCITY (fps) : 12.78

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 99.91
HEADWATER (ft) : 738.07
VELOCITY (fps) : 12.78

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 7.485
UPSTREAM STAGE (ft) : 738.191

**********

STAGE ELEVATION = 730.80

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 305.29 | 315.00 | .0600 | 10.7 | 9.96 | 1.07 | 277.59 | 22.03 | 2.06 |
| 315.00 | 320.00 | .0400 | 11.0 | 5.00 | 2.20 | 692.02 | 54.93 | 4.99 |
| 320.00 | 329.71 | .0400 | 10.7 | 9.96 | 1.07 | 416.39 | 33.05 | 3.09 |
| TOTALS | | | 32.4 | | | 1386.01 | 110.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .615 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 110.01
HEADWATER (ft) : 738.89
VELOCITY (fps) : 13.04

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 110.01
HEADWATER (ft) : 738.51
VELOCITY (fps) : 13.04

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 8.085
UPSTREAM STAGE (ft) : 738.887

**********

STAGE ELEVATION = 730.89

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 304.89 | 315.00 | .0600 | 11.6 | 10.37 | 1.12 | 308.89 | 24.52 | 2.12 |
| 315.00 | 320.00 | .0400 | 11.5 | 5.00 | 2.29 | 739.79 | 58.72 | 5.13 |
| 320.00 | 330.11 | .0400 | 11.6 | 10.37 | 1.12 | 463.33 | 36.78 | 3.18 |
| TOTALS | | | 34.6 | | | 1512.01 | 120.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .618 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 120.01
HEADWATER (ft) : 739.65
VELOCITY (fps) : 13.27

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 120.01
HEADWATER (ft) : 738.97
VELOCITY (fps) : 13.27

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 8.760
UPSTREAM STAGE (ft) : 739.651

**********

STAGE ELEVATION = 730.98

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 304.51 | 315.00 | .0600 | 12.5 | 10.75 | 1.16 | 340.63 | 27.04 | 2.17 |
| 315.00 | 320.00 | .0400 | 11.9 | 5.00 | 2.38 | 786.44 | 62.42 | 5.25 |
| 320.00 | 330.49 | .0400 | 12.5 | 10.75 | 1.16 | 510.95 | 40.56 | 3.25 |
| TOTALS | | | 36.8 | | | 1638.03 | 130.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .620 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 130.01
HEADWATER (ft) : 740.50
VELOCITY (fps) : 13.45

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 130.01
HEADWATER (ft) : 739.45
VELOCITY (fps) : 13.45

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 9.520
UPSTREAM STAGE (ft) : 740.497

**********

STAGE ELEVATION = 731.06

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 304.15 | 315.00 | .0600 | 13.3 | 11.12 | 1.20 | 372.77 | 29.59 | 2.22 |
| 315.00 | 320.00 | .0400 | 12.3 | 5.00 | 2.46 | 832.02 | 66.04 | 5.37 |
| 320.00 | 330.85 | .0400 | 13.3 | 11.12 | 1.20 | 559.15 | 44.38 | 3.33 |
| TOTALS | | | 39.0 | | | 1763.94 | 140.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .622 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 140.01
HEADWATER (ft) : 741.43
VELOCITY (fps) : 13.57

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 140.01
HEADWATER (ft) : 739.96
VELOCITY (fps) : 13.57

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 10.368
UPSTREAM STAGE (ft) : 741.427

**********

STAGE ELEVATION = 731.14

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 303.81 | 315.00 | .0600 | 14.2 | 11.48 | 1.24 | 405.30 | 32.17 | 2.27 |
| 315.00 | 320.00 | .0400 | 12.7 | 5.00 | 2.54 | 876.69 | 69.58 | 5.49 |
| 320.00 | 331.19 | .0400 | 14.2 | 11.48 | 1.24 | 607.94 | 48.25 | 3.40 |
| TOTALS | | | 41.1 | | | 1889.93 | 150.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .623 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 150.01
HEADWATER (ft) : 742.44
VELOCITY (fps) : 11.94

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 150.01
HEADWATER (ft) : 740.24
VELOCITY (fps) : 12.60

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 11.306
UPSTREAM STAGE (ft) : 742.443

--- SUMMARY OF RESULTS ---

| FLOW (cfs) | TAILWATER ELEVATION (ft) | HEADWATER ELEVATION (ft) | BACKWATER (ft) |
|---|---|---|---|
| .01 | 728.61 | 732.21 | 3.60 |
| 10.01 | 729.27 | 733.75 | 4.48 |
| 20.02 | 729.57 | 734.44 | 4.88 |
| 29.99 | 729.78 | 734.99 | 5.21 |
| 40.01 | 729.96 | 735.49 | 5.53 |
| 50.00 | 730.12 | 735.94 | 5.83 |
| 59.99 | 730.26 | 736.38 | 6.12 |
| 69.97 | 730.38 | 736.80 | 6.42 |
| 79.95 | 730.50 | 737.22 | 6.72 |
| 89.93 | 730.61 | 737.64 | 7.04 |
| 99.91 | 730.71 | 738.19 | 7.48 |
| 110.01 | 730.80 | 738.89 | 8.09 |
| 120.01 | 730.89 | 739.65 | 8.76 |
| 130.01 | 730.98 | 740.50 | 9.52 |
| 140.01 | 731.06 | 741.43 | 10.37 |
| 150.01 | 731.14 | 742.44 | 11.31 |

## C142 Summary Data

| C142 | | | | | | |
|---|---|---|---|---|---|---|
| | Volume | Discharge (cfs) | | | | |
| Stage | (ac-ft) | Canal (7B) | Canal (7D) | Culvert | Culvert + Canal (7D) | Total |
| 731.9 | 0 | 0 | 0 | 0 | 0 | 0 |
| 732.0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 733.0 | 0 | 0 | 0 | 12 | 12 | 12 |
| 734.0 | 0 | 0 | 0 | 40 | 40 | 40 |
| 735.0 | 1 | 0 | 0 | 73 | 73 | 73 |
| 736.0 | 2 | 0 | 0 | 112 | 112 | 112 |
| 737.0 | 4 | 0 | 0 | 143 | 143 | 143 |
| 738.0 | 8 | 0 | 0 | 170 | 170 | 170 |
| 739.0 | 14 | 0 | 0 | 190 | 190 | 190 |
| 740.0 | 24 | 0 | 0 | 212 | 212 | 212 |
| 741.0 | 34 | 0 | 0 | 234 | 234 | 234 |
| 742.0 | 44 | 0 | 0 | 256 | 256 | 256 |
| 743.0 | 54 | 0 | 0 | 278 | 278 | 278 |
| 743.5 | 59 | 0 | 0 | 289 | 289 | 289 |
| 743.6 | 60 | 0 | 0 | 291 | 291 | 291 |
| 743.7 | 61 | 0 | 2 | 293 | 296 | 296 |
| 743.8 | 62 | 0 | 9 | 296 | 305 | 305 |
| 743.9 | 63 | 0 | 26 | 298 | 324 | 324 |
| 744.0 | 64 | 0 | 45 | 300 | 345 | 345 |
| 744.1 | 65 | 0 | 72 | 302 | 374 | 374 |
| 744.2 | 66 | 0 | 106 | 304 | 410 | 410 |
| 744.3 | 67 | 0 | 148 | 307 | 454 | 454 |
| 744.4 | 68 | 0 | 198 | 309 | 507 | 507 |
| 744.5 | 69 | 0 | 258 | 311 | 569 | 569 |
| 744.6 | 70 | 0 | 327 | 313 | 641 | 641 |
| 744.7 | 71 | 0 | 407 | 315 | 722 | 722 |
| 744.8 | 72 | 0 | 495 | 318 | 812 | 812 |
| 744.9 | 73 | 0 | 592 | 320 | 912 | 912 |
| 745.0 | 74 | 0 | 700 | 322 | 1022 | 1022 |
| 745.1 | 75 | 0 | 822 | 324 | 1146 | 1146 |
| 745.2 | 76 | 7 | 970 | 326 | 1297 | 1304 |
| 745.3 | 77 | 57 | 1159 | 329 | 1488 | 1545 |

## C142 Summary Data

| C142 | | | | | | |
|---|---|---|---|---|---|---|
| | Volume | Discharge (cfs) | | | | |
| Stage | (ac-ft) | Canal (7B) | Canal (7D) | Culvert | Culvert + Canal (7D) | Total |
| 745.4 | 78 | 206 | 1399 | 331 | 1730 | 1936 |
| 745.5 | 79 | 422 | 1746 | 333 | 2079 | 2502 |
| 745.6 | 80 | 707 | 2149 | 335 | 2484 | 3190 |
| 745.7 | 81 | 1082 | 2653 | 337 | 2990 | 4072 |
| 745.8 | 82 | 1531 | 3214 | 340 | 3553 | 5084 |
| 745.9 | 83 | 2059 | 3842 | 342 | 4184 | 6243 |
| 746.0 | 84 | 2587 | 4470 | 344 | 4814 | 7402 |

```
 ************************************************
*  H    H    OOOO    BBBBB     CCCCC    W      W  *
*  H    H   O    O   B    B   C         W  WW  W  *
*  HHHHHH   O    O   BBBBB    C         W W  W W  *
*  H    H   O    O   B    B   C         WW    WW  *
*  H    H    OOOO    BBBBB     CCCCC    W      W  *
 ************************************************
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HYDRAULICS OF BRIDGE AND CULVERT WATERWAYS

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GALILEO SOFTWARE
16 RANCH ROAD
CHELMSFORD, MA 01824

VERSION 3.02
SERIAL NUMBER 1003

Gila Bend FIS
11358
CP142
WCD
Sat Jan. 4,1992

--- HOBCW PROJECT DATA ---

| | | |
|---|---|---|
| NUMBER OF GROUND STATIONS | : | 6 |
| NUMBER OF ROAD STATIONS | : | 0 |
| NUMBER OF ROUGNESS COEFFICIENTS | : | 6 |
| STREAM SLOPE (ft/ft) | : | .00570 |
| MINIMUM FLOW (cfs) | : | .01 |
| MAXIMUM FLOW (cfs) | : | 400.00 |
| FLOW INCREMENT (cfs) | : | 10.00 |
| NUMBER OF CULVERTS | : | 1 |
| CULVERT CODE | : | 41535 |
| CULVERT SLOPE (ft/ft) | : | .02470 |
| CULVERT LENGTH (ft) | : | 95.30 |
| DOWNSTREAM CULVERT INVERT (ft) | : | 729.70 |
| BOX CULVERT WIDTH (ft) | : | 6.00 |
| BOX CULVERT HEIGHT (ft) | : | 3.00 |
| ENTRANCE LOSS COEFFICIENT Ke | : | .5 |
| CULVERT ROUGHNESS COEFFICIENT | : | .012 |

--- CROSS SECTION DESCRIPTION ---

| STATION NUMBER | STATION (ft) | GROUND ELEVATION (ft) | ROUGNESS FACTOR | ROAD ELEVATION (ft) |
|---|---|---|---|---|
| 1 | 100.00 | 735.00 | .0700 | |
| 2 | 300.00 | 733.00 | .0700 | |
| 3 | 310.00 | 729.70 | .0350 | |
| 4 | 322.00 | 729.70 | .0350 | |
| 5 | 332.00 | 733.00 | .0700 | |
| 6 | 532.00 | 735.00 | .0700 | |

--- HOBCW OUTPUT DATA ---

**********

STAGE ELEVATION = 729.71

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 309.98 | 310.00 | .0700 | .0 | .03 | .00 | .00 | .00 | .04 |
| 310.00 | 322.00 | .0350 | .1 | 12.00 | .01 | .17 | .01 | .13 |
| 322.00 | 322.02 | .0350 | .0 | .03 | .00 | .00 | .00 | .08 |
| TOTALS | | | .1 | | | .17 | .01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .253 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : .01
HEADWATER (ft) : 732.05
VELOCITY (fps) : .00

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : .01
HEADWATER (ft) : 732.05
VELOCITY (fps) : .00

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.347
UPSTREAM STAGE (ft) : 732.054

**********

STAGE ELEVATION = 730.13

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 308.69 | 310.00 | .0700 | .3 | 1.38 | .21 | 2.10 | .16 | .56 |
| 310.00 | 322.00 | .0350 | 5.2 | 12.00 | .43 | 126.29 | 9.53 | 1.83 |
| 322.00 | 323.31 | .0350 | .3 | 1.38 | .21 | 4.20 | .32 | 1.12 |
| TOTALS | | | 5.8 | | | 132.59 | 10.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .506 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 10.01
HEADWATER (ft) : 732.88
VELOCITY (fps) : 7.07

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 10.01
HEADWATER (ft) : 732.83
VELOCITY (fps) : 7.07

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.742
UPSTREAM STAGE (ft) : 732.876

**********

STAGE ELEVATION = 730.35

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 308.04 | 310.00 | .0700 | .6 | 2.07 | .31 | 6.13 | .46 | .73 |
| 310.00 | 322.00 | .0350 | 7.8 | 12.00 | .65 | 246.69 | 18.62 | 2.40 |
| 322.00 | 323.96 | .0350 | .6 | 2.07 | .31 | 12.27 | .93 | 1.46 |
| TOTALS | | | 9.0 | | | 265.09 | 20.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .547 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 20.01
HEADWATER (ft) : 733.28
VELOCITY (fps) : 9.19

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 20.01
HEADWATER (ft) : 733.28
VELOCITY (fps) : 9.19

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.934
UPSTREAM STAGE (ft) : 733.281

**********

STAGE ELEVATION = 730.52

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 307.53 | 310.00 | .0700 | 1.0 | 2.61 | .39 | 11.41 | .86 | .85 |
| 310.00 | 322.00 | .0350 | 9.8 | 12.00 | .82 | 363.56 | 27.45 | 2.80 |
| 322.00 | 324.47 | .0350 | 1.0 | 2.61 | .39 | 22.82 | 1.72 | 1.70 |
| TOTALS | | | 11.8 | | | 397.79 | 30.03 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .572 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 30.03
HEADWATER (ft) : 733.63
VELOCITY (fps) : 10.69

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 30.03
HEADWATER (ft) : 733.66
VELOCITY (fps) : 10.69

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.146
UPSTREAM STAGE (ft) : 733.662

**********

STAGE ELEVATION = 730.66

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 307.09 | 310.00 | .0700 | 1.4 | 3.07 | .46 | 17.64 | 1.33 | .95 |
| 310.00 | 322.00 | .0350 | 11.5 | 12.00 | .96 | 477.31 | 36.04 | 3.12 |
| 322.00 | 324.91 | .0350 | 1.4 | 3.07 | .46 | 35.27 | 2.66 | 1.90 |
| TOTALS | | | 14.3 | | | 530.21 | 40.03 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .591 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 40.03
HEADWATER (ft) : 733.95
VELOCITY (fps) : 11.85

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 40.03
HEADWATER (ft) : 734.00
VELOCITY (fps) : 11.85

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.341
UPSTREAM STAGE (ft) : 734.002

**********

STAGE ELEVATION = 730.79

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 306.70 | 310.00 | .0700 | 1.8 | 3.48 | .52 | 24.65 | 1.86 | 1.03 |
| 310.00 | 322.00 | .0350 | 13.1 | 12.00 | 1.09 | 588.42 | 44.42 | 3.40 |
| 322.00 | 325.30 | .0350 | 1.8 | 3.48 | .52 | 49.30 | 3.72 | 2.07 |
| TOTALS | | | 16.7 | | | 662.37 | 50.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .606 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 50.01
HEADWATER (ft) : 734.25
VELOCITY (fps) : 12.84

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 50.01
HEADWATER (ft) : 734.31
VELOCITY (fps) : 12.84

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.523
UPSTREAM STAGE (ft) : 734.314

**********

STAGE ELEVATION = 730.91

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 306.34 | 310.00 | .0700 | 2.2 | 3.85 | .57 | 32.35 | 2.44 | 1.11 |
| 310.00 | 322.00 | .0350 | 14.5 | 12.00 | 1.21 | 697.45 | 52.66 | 3.63 |
| 322.00 | 325.66 | .0350 | 2.2 | 3.85 | .57 | 64.71 | 4.89 | 2.21 |
| TOTALS | | | 18.9 | | | 794.51 | 59.98 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .618 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 59.98
HEADWATER (ft) : 734.52
VELOCITY (fps) : 13.70

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 59.98
HEADWATER (ft) : 734.61
VELOCITY (fps) : 13.70

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.697
UPSTREAM STAGE (ft) : 734.605

**********

STAGE ELEVATION = 731.02

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 306.01 | 310.00 | .0700 | 2.6 | 4.20 | .62 | 40.65 | 3.07 | 1.17 |
| 310.00 | 322.00 | .0350 | 15.8 | 12.00 | 1.32 | 804.35 | 60.73 | 3.85 |
| 322.00 | 325.99 | .0350 | 2.6 | 4.20 | .62 | 81.29 | 6.14 | 2.34 |
| TOTALS | | | 21.0 | | | 926.29 | 69.93 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .629 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 69.93
HEADWATER (ft) : 734.79
VELOCITY (fps) : 14.44

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 69.93
HEADWATER (ft) : 734.88
VELOCITY (fps) : 14.44

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.864
UPSTREAM STAGE (ft) : 734.880

**********

STAGE ELEVATION = 731.12

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 305.71 | 310.00 | .0700 | 3.0 | 4.52 | .67 | 49.60 | 3.74 | 1.23 |
| 310.00 | 322.00 | .0350 | 17.0 | 12.00 | 1.42 | 910.91 | 68.77 | 4.04 |
| 322.00 | 326.29 | .0350 | 3.0 | 4.52 | .67 | 99.20 | 7.49 | 2.46 |
| TOTALS | | | 23.1 | | | 1059.70 | 80.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .638 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 80.01
HEADWATER (ft) : 735.05
VELOCITY (fps) : 15.11

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 80.01
HEADWATER (ft) : 735.15
VELOCITY (fps) : 15.11

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 4.028
UPSTREAM STAGE (ft) : 735.145

**********

STAGE ELEVATION = 731.21

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 305.42 | 310.00 | .0700 | 3.5 | 4.83 | .72 | 58.99 | 4.45 | 1.29 |
| 310.00 | 322.00 | .0350 | 18.1 | 12.00 | 1.51 | 1015.18 | 76.64 | 4.22 |
| 322.00 | 326.58 | .0350 | 3.5 | 4.83 | .72 | 117.98 | 8.91 | 2.57 |
| TOTALS | | | 25.1 | | | 1192.15 | 90.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .646 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 90.01
HEADWATER (ft) : 735.32
VELOCITY (fps) : 15.73

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 90.01
HEADWATER (ft) : 735.40
VELOCITY (fps) : 15.73

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 4.185
UPSTREAM STAGE (ft) : 735.398

**********

STAGE ELEVATION = 731.30

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 305.14 | 310.00 | .0700 | 3.9 | 5.11 | .76 | 68.85 | 5.20 | 1.34 |
| 310.00 | 322.00 | .0350 | 19.2 | 12.00 | 1.60 | 1118.10 | 84.41 | 4.39 |
| 322.00 | 326.86 | .0350 | 3.9 | 5.11 | .76 | 137.69 | 10.40 | 2.67 |
| TOTALS | | | 27.0 | | | 1324.64 | 100.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .653 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 100.01
HEADWATER (ft) : 735.59
VELOCITY (fps) : 16.29

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 100.01
HEADWATER (ft) : 735.64
VELOCITY (fps) : 16.29

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 4.338
UPSTREAM STAGE (ft) : 735.641

**********

STAGE ELEVATION = 731.39

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 304.88 | 310.00 | .0700 | 4.3 | 5.39 | .80 | 79.12 | 5.97 | 1.38 |
| 310.00 | 322.00 | .0350 | 20.3 | 12.00 | 1.69 | 1219.66 | 92.08 | 4.54 |
| 322.00 | 327.12 | .0350 | 4.3 | 5.39 | .80 | 158.24 | 11.95 | 2.77 |
| TOTALS | | | 28.9 | | | 1457.02 | 110.00 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .660 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 110.00
HEADWATER (ft) : 735.88
VELOCITY (fps) : 16.81

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 110.00
HEADWATER (ft) : 735.88
VELOCITY (fps) : 16.81

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 4.488
UPSTREAM STAGE (ft) : 735.876

**********

STAGE ELEVATION = 731.47

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 304.64 | 310.00 | .0700 | 4.7 | 5.65 | .84 | 89.79 | 6.78 | 1.43 |
| 310.00 | 322.00 | .0350 | 21.2 | 12.00 | 1.77 | 1320.01 | 99.66 | 4.69 |
| 322.00 | 327.36 | .0350 | 4.7 | 5.65 | .84 | 179.59 | 13.56 | 2.86 |
| TOTALS | | | 30.7 | | | 1589.39 | 120.00 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .666 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 120.00
HEADWATER (ft) : 736.17
VELOCITY (fps) : 17.30

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 120.00
HEADWATER (ft) : 736.10
VELOCITY (fps) : 17.30

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 4.703
UPSTREAM STAGE (ft) : 736.174

**********

STAGE ELEVATION = 731.55

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 304.40 | 310.00 | .0700 | 5.2 | 5.90 | .88 | 100.84 | 7.61 | 1.47 |
| 310.00 | 322.00 | .0350 | 22.2 | 12.00 | 1.85 | 1419.30 | 107.15 | 4.83 |
| 322.00 | 327.60 | .0350 | 5.2 | 5.90 | .88 | 201.68 | 15.23 | 2.94 |
| TOTALS | | | 32.6 | | | 1721.82 | 129.99 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .671 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 129.99
HEADWATER (ft) : 736.49
VELOCITY (fps) : 17.76

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 129.99
HEADWATER (ft) : 736.33
VELOCITY (fps) : 17.76

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 4.941
UPSTREAM STAGE (ft) : 736.490

**********

STAGE ELEVATION = 731.63

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 304.17 | 310.00 | .0700 | 5.6 | 6.14 | .91 | 112.24 | 8.47 | 1.51 |
| 310.00 | 322.00 | .0350 | 23.1 | 12.00 | 1.92 | 1517.51 | 114.57 | 4.96 |
| 322.00 | 327.83 | .0350 | 5.6 | 6.14 | .91 | 224.47 | 16.95 | 3.02 |
| TOTALS | | | 34.3 | | | 1854.22 | 139.99 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .677 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 139.99
HEADWATER (ft) : 736.83
VELOCITY (fps) : 18.18

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 139.99
HEADWATER (ft) : 736.54
VELOCITY (fps) : 18.18

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.203
UPSTREAM STAGE (ft) : 736.828

**********

STAGE ELEVATION = 731.70

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE (cfs) | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 303.95 | 310.00 | .0700 | 6.0 | 6.38 | .95 | 123.96 | 9.36 | 1.55 |
| 310.00 | 322.00 | .0350 | 24.0 | 12.00 | 2.00 | 1614.72 | 121.91 | 5.08 |
| 322.00 | 328.05 | .0350 | 6.0 | 6.38 | .95 | 247.91 | 18.72 | 3.09 |
| TOTALS | | | 36.1 | | | 1986.59 | 149.98 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .681 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 149.98
HEADWATER (ft) : 737.19
VELOCITY (fps) : 18.58

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 149.98
HEADWATER (ft) : 736.75
VELOCITY (fps) : 18.58

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.490
UPSTREAM STAGE (ft) : 737.188

**********

STAGE ELEVATION = 731.77

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 303.73 | 310.00 | .0700 | 6.5 | 6.60 | .98 | 135.99 | 10.27 | 1.58 |
| 310.00 | 322.00 | .0350 | 24.8 | 12.00 | 2.07 | 1710.96 | 129.17 | 5.20 |
| 322.00 | 328.27 | .0350 | 6.5 | 6.60 | .98 | 271.98 | 20.53 | 3.17 |
| TOTALS | | | 37.8 | | | 2118.92 | 159.98 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .686 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 159.98
HEADWATER (ft) : 737.57
VELOCITY (fps) : 18.95

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 159.98
HEADWATER (ft) : 736.96
VELOCITY (fps) : 18.95

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.804
UPSTREAM STAGE (ft) : 737.573

**********

STAGE ELEVATION = 731.84

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE (cfs) | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 303.52 | 310.00 | .0700 | 6.9 | 6.82 | 1.01 | 148.33 | 11.20 | 1.62 |
| 310.00 | 322.00 | .0350 | 25.6 | 12.00 | 2.14 | 1806.40 | 136.38 | 5.32 |
| 322.00 | 328.48 | .0350 | 6.9 | 6.82 | 1.01 | 296.65 | 22.40 | 3.24 |
| TOTALS | | | 39.5 | | | 2251.38 | 169.98 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .690 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 169.98
HEADWATER (ft) : 737.98
VELOCITY (fps) : 19.32

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 169.98
HEADWATER (ft) : 737.16
VELOCITY (fps) : 19.32

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 6.147
UPSTREAM STAGE (ft) : 737.984

**********

STAGE ELEVATION = 731.90

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 303.32 | 310.00 | .0700 | 7.4 | 7.03 | 1.05 | 160.94 | 12.15 | 1.65 |
| 310.00 | 322.00 | .0350 | 26.4 | 12.00 | 2.20 | 1900.92 | 143.52 | 5.43 |
| 322.00 | 328.68 | .0350 | 7.4 | 7.03 | 1.05 | 321.88 | 24.30 | 3.30 |
| TOTALS | | | 41.2 | | | 2383.74 | 179.97 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .694 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 179.97
HEADWATER (ft) : 738.42
VELOCITY (fps) : 19.66

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 179.97
HEADWATER (ft) : 737.38
VELOCITY (fps) : 19.66

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 6.518
UPSTREAM STAGE (ft) : 738.422

**********

STAGE ELEVATION = 731.97

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 303.13 | 310.00 | .0700 | 7.8 | 7.24 | 1.08 | 173.82 | 13.12 | 1.68 |
| 310.00 | 322.00 | .0350 | 27.2 | 12.00 | 2.27 | 1994.67 | 150.59 | 5.53 |
| 322.00 | 328.87 | .0350 | 7.8 | 7.24 | 1.08 | 347.65 | 26.25 | 3.37 |
| TOTALS | | | 42.8 | | | 2516.15 | 189.97 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .697 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 189.97
HEADWATER (ft) : 738.89
VELOCITY (fps) : 19.99

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 189.97
HEADWATER (ft) : 737.65
VELOCITY (fps) : 19.99

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 6.918
UPSTREAM STAGE (ft) : 738.887

**********

STAGE ELEVATION = 732.03

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 302.94 | 310.00 | .0700 | 8.2 | 7.44 | 1.11 | 186.96 | 14.12 | 1.71 |
| 310.00 | 322.00 | .0350 | 28.0 | 12.00 | 2.33 | 2087.58 | 157.61 | 5.63 |
| 322.00 | 329.06 | .0350 | 8.2 | 7.44 | 1.11 | 373.92 | 28.23 | 3.43 |
| TOTALS | | | 44.4 | | | 2648.46 | 199.95 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .701 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 199.95
HEADWATER (ft) : 739.38
VELOCITY (fps) : 20.29

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 199.95
HEADWATER (ft) : 737.93
VELOCITY (fps) : 20.29

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 7.348
UPSTREAM STAGE (ft) : 739.379

**********

STAGE ELEVATION = 732.09

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 302.75 | 310.00 | .0700 | 8.7 | 7.63 | 1.14 | 200.36 | 15.13 | 1.74 |
| 310.00 | 322.00 | .0350 | 28.7 | 12.00 | 2.39 | 2179.86 | 164.58 | 5.73 |
| 322.00 | 329.25 | .0350 | 8.7 | 7.63 | 1.14 | 400.71 | 30.25 | 3.49 |
| TOTALS | | | 46.0 | | | 2780.92 | 209.96 | |

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--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .704 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 209.96
HEADWATER (ft) : 739.90
VELOCITY (fps) : 20.60

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 209.96
HEADWATER (ft) : 738.22
VELOCITY (fps) : 20.60

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 7.807
UPSTREAM STAGE (ft) : 739.900

**********

STAGE ELEVATION = 732.15

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 302.57 | 310.00 | .0700 | 9.1 | 7.82 | 1.16 | 213.98 | 16.16 | 1.77 |
| 310.00 | 322.00 | .0350 | 29.4 | 12.00 | 2.45 | 2271.36 | 171.48 | 5.83 |
| 322.00 | 329.43 | .0350 | 9.1 | 7.82 | 1.16 | 427.96 | 32.31 | 3.55 |
| TOTALS | | | 47.6 | | | 2913.31 | 219.95 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .707 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 219.95
HEADWATER (ft) : 740.45
VELOCITY (fps) : 20.88

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 219.95
HEADWATER (ft) : 738.53
VELOCITY (fps) : 20.88

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 8.295
UPSTREAM STAGE (ft) : 740.447

**********

STAGE ELEVATION = 732.21

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 302.39 | 310.00 | .0700 | 9.5 | 8.01 | 1.19 | 227.83 | 17.20 | 1.80 |
| 310.00 | 322.00 | .0350 | 30.1 | 12.00 | 2.51 | 2362.17 | 178.34 | 5.92 |
| 322.00 | 329.61 | .0350 | 9.5 | 8.01 | 1.19 | 455.66 | 34.40 | 3.60 |
| TOTALS | | | 49.2 | | | 3045.66 | 229.94 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .710 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 229.94
HEADWATER (ft) : 741.02
VELOCITY (fps) : 21.16

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 229.94
HEADWATER (ft) : 738.85
VELOCITY (fps) : 21.16

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 8.812
UPSTREAM STAGE (ft) : 741.022

**********

STAGE ELEVATION = 732.27

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 302.22 | 310.00 | .0700 | 10.0 | 8.19 | 1.22 | 241.91 | 18.26 | 1.83 |
| 310.00 | 322.00 | .0350 | 30.8 | 12.00 | 2.57 | 2452.35 | 185.15 | 6.01 |
| 322.00 | 329.78 | .0350 | 10.0 | 8.19 | 1.22 | 483.81 | 36.53 | 3.66 |
| TOTALS | | | 50.8 | | | 3178.07 | 239.94 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .713 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 239.94
HEADWATER (ft) : 741.62
VELOCITY (fps) : 21.42

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 239.94
HEADWATER (ft) : 739.19
VELOCITY (fps) : 21.42

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 9.357
UPSTREAM STAGE (ft) : 741.624

**********

STAGE ELEVATION = 732.32

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 302.05 | 310.00 | .0700 | 10.4 | 8.37 | 1.25 | 256.20 | 19.34 | 1.86 |
| 310.00 | 322.00 | .0350 | 31.5 | 12.00 | 2.62 | 2541.90 | 191.91 | 6.10 |
| 322.00 | 329.95 | .0350 | 10.4 | 8.37 | 1.25 | 512.39 | 38.68 | 3.71 |
| TOTALS | | | 52.3 | | | 3310.49 | 249.94 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .716 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 249.94
HEADWATER (ft) : 742.25
VELOCITY (fps) : 21.68

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 249.94
HEADWATER (ft) : 739.54
VELOCITY (fps) : 21.68

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 9.929
UPSTREAM STAGE (ft) : 742.253

**********

STAGE ELEVATION = 732.38

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 301.89 | 310.00 | .0700 | 10.9 | 8.54 | 1.27 | 270.69 | 20.44 | 1.88 |
| 310.00 | 322.00 | .0350 | 32.1 | 12.00 | 2.68 | 2630.84 | 198.62 | 6.18 |
| 322.00 | 330.11 | .0350 | 10.9 | 8.54 | 1.27 | 541.37 | 40.87 | 3.76 |
| TOTALS | | | 53.9 | | | 3442.90 | 259.93 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .718 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 259.93
HEADWATER (ft) : 742.91
VELOCITY (fps) : 21.92

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 259.93
HEADWATER (ft) : 739.91
VELOCITY (fps) : 21.92

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 10.529
UPSTREAM STAGE (ft) : 742.907

**********

STAGE ELEVATION = 732.43

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 301.72 | 310.00 | .0700 | 11.3 | 8.72 | 1.30 | 285.37 | 21.55 | 1.91 |
| 310.00 | 322.00 | .0350 | 32.8 | 12.00 | 2.73 | 2719.17 | 205.29 | 6.26 |
| 322.00 | 330.28 | .0350 | 11.3 | 8.72 | 1.30 | 570.75 | 43.09 | 3.81 |
| TOTALS | | | 55.4 | | | 3575.30 | 269.93 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .721 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 269.93
HEADWATER (ft) : 743.59
VELOCITY (fps) : 22.16

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 269.93
HEADWATER (ft) : 740.29
VELOCITY (fps) : 22.16

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 11.155
UPSTREAM STAGE (ft) : 743.587

**********

STAGE ELEVATION = 732.48

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 301.56 | 310.00 | .0700 | 11.7 | 8.88 | 1.32 | 300.25 | 22.67 | 1.93 |
| 310.00 | 322.00 | .0350 | 33.4 | 12.00 | 2.78 | 2806.92 | 211.92 | 6.34 |
| 322.00 | 330.44 | .0350 | 11.7 | 8.88 | 1.32 | 600.50 | 45.34 | 3.86 |
| TOTALS | | | 56.9 | | | 3707.68 | 279.92 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .723 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 279.92
HEADWATER (ft) : 744.29
VELOCITY (fps) : 22.39

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 279.92
HEADWATER (ft) : 740.69
VELOCITY (fps) : 22.39

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 11.807
UPSTREAM STAGE (ft) : 744.291

**********

STAGE ELEVATION = 732.54

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 301.41 | 310.00 | .0700 | 12.2 | 9.05 | 1.35 | 315.31 | 23.81 | 1.95 |
| 310.00 | 322.00 | .0350 | 34.0 | 12.00 | 2.84 | 2894.13 | 218.50 | 6.42 |
| 322.00 | 330.59 | .0350 | 12.2 | 9.05 | 1.35 | 630.63 | 47.61 | 3.91 |
| TOTALS | | | 58.4 | | | 3840.07 | 289.92 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .725 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 289.92
HEADWATER (ft) : 745.02
VELOCITY (fps) : 22.62

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 289.92
HEADWATER (ft) : 741.10
VELOCITY (fps) : 22.62

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 12.485
UPSTREAM STAGE (ft) : 745.021

**********

STAGE ELEVATION = 732.59

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 301.25 | 310.00 | .0700 | 12.6 | 9.21 | 1.37 | 330.56 | 24.96 | 1.98 |
| 310.00 | 322.00 | .0350 | 34.6 | 12.00 | 2.89 | 2980.82 | 225.05 | 6.50 |
| 322.00 | 330.75 | .0350 | 12.6 | 9.21 | 1.37 | 661.12 | 49.91 | 3.95 |
| TOTALS | | | 59.9 | | | 3972.50 | 299.92 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .728 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 299.92
HEADWATER (ft) : 745.77
VELOCITY (fps) : 22.84

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 299.92
HEADWATER (ft) : 741.52
VELOCITY (fps) : 22.84

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 13.188
UPSTREAM STAGE (ft) : 745.774

**********

STAGE ELEVATION = 732.64

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE (cfs) | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 301.10 | 310.00 | .0700 | 13.1 | 9.37 | 1.39 | 345.99 | 26.12 | 2.00 |
| 310.00 | 322.00 | .0350 | 35.2 | 12.00 | 2.94 | 3067.04 | 231.56 | 6.57 |
| 322.00 | 330.90 | .0350 | 13.1 | 9.37 | 1.39 | 691.99 | 52.24 | 4.00 |
| TOTALS | | | 61.4 | | | 4105.02 | 309.92 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .730 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 309.92
HEADWATER (ft) : 746.55
VELOCITY (fps) : 23.04

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 309.92
HEADWATER (ft) : 741.96
VELOCITY (fps) : 23.04

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 13.917
UPSTREAM STAGE (ft) : 746.553

**********

STAGE ELEVATION = 732.69

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 300.95 | 310.00 | .0700 | 13.5 | 9.52 | 1.42 | 361.57 | 27.30 | 2.02 |
| 310.00 | 322.00 | .0350 | 35.8 | 12.00 | 2.98 | 3152.63 | 238.02 | 6.65 |
| 322.00 | 331.05 | .0350 | 13.5 | 9.52 | 1.42 | 723.14 | 54.60 | 4.04 |
| TOTALS | | | 62.8 | | | 4237.34 | 319.91 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .732 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 319.91
HEADWATER (ft) : 747.36
VELOCITY (fps) : 23.25

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 319.91
HEADWATER (ft) : 742.41
VELOCITY (fps) : 23.25

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 14.670
UPSTREAM STAGE (ft) : 747.355

**********

STAGE ELEVATION = 732.73

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE (cfs) | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 300.81 | 310.00 | .0700 | 13.9 | 9.68 | 1.44 | 377.34 | 28.49 | 2.04 |
| 310.00 | 322.00 | .0350 | 36.4 | 12.00 | 3.03 | 3237.86 | 244.45 | 6.72 |
| 322.00 | 331.19 | .0350 | 13.9 | 9.68 | 1.44 | 754.67 | 56.98 | 4.09 |
| TOTALS | | | 64.3 | | | 4369.86 | 329.92 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .734 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 329.92
HEADWATER (ft) : 748.18
VELOCITY (fps) : 23.44

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 329.92
HEADWATER (ft) : 742.88
VELOCITY (fps) : 23.44

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 15.450
UPSTREAM STAGE (ft) : 748.184

**********

STAGE ELEVATION = 732.78

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 300.67 | 310.00 | .0700 | 14.4 | 9.83 | 1.46 | 393.25 | 29.69 | 2.07 |
| 310.00 | 322.00 | .0350 | 37.0 | 12.00 | 3.08 | 3322.56 | 250.85 | 6.79 |
| 322.00 | 331.33 | .0350 | 14.4 | 9.83 | 1.46 | 786.51 | 59.38 | 4.13 |
| TOTALS | | | 65.7 | | | 4502.33 | 339.92 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .736 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 339.92
HEADWATER (ft) : 749.04
VELOCITY (fps) : 23.64

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 339.92
HEADWATER (ft) : 743.36
VELOCITY (fps) : 23.64

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 16.257
UPSTREAM STAGE (ft) : 749.038

**********

STAGE ELEVATION = 732.83

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 300.52 | 310.00 | .0700 | 14.8 | 9.98 | 1.48 | 409.31 | 30.90 | 2.09 |
| 310.00 | 322.00 | .0350 | 37.5 | 12.00 | 3.13 | 3406.70 | 257.20 | 6.85 |
| 322.00 | 331.48 | .0350 | 14.8 | 9.98 | 1.48 | 818.62 | 61.80 | 4.17 |
| TOTALS | | | 67.2 | | | 4634.63 | 349.91 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .737 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 349.91
HEADWATER (ft) : 749.92
VELOCITY (fps) : 23.82

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 349.91
HEADWATER (ft) : 743.86
VELOCITY (fps) : 23.82

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 17.090
UPSTREAM STAGE (ft) : 749.918

**********

STAGE ELEVATION = 732.87

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 300.39 | 310.00 | .0700 | 15.2 | 10.12 | 1.51 | 425.40 | 32.12 | 2.11 |
| 310.00 | 322.00 | .0350 | 38.1 | 12.00 | 3.17 | 3489.78 | 263.47 | 6.92 |
| 322.00 | 331.61 | .0350 | 15.2 | 10.12 | 1.51 | 850.79 | 64.23 | 4.21 |
| TOTALS | | | 68.6 | | | 4765.97 | 359.82 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .739 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 359.82
HEADWATER (ft) : 750.82
VELOCITY (fps) : 19.99

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 359.82
HEADWATER (ft) : 744.66
VELOCITY (fps) : 19.99

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 17.946
UPSTREAM STAGE (ft) : 750.819

**********

STAGE ELEVATION = 732.92

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 300.25 | 310.00 | .0700 | 15.7 | 10.27 | 1.53 | 442.07 | 33.38 | 2.13 |
| 310.00 | 322.00 | .0350 | 38.6 | 12.00 | 3.22 | 3574.67 | 269.88 | 6.99 |
| 322.00 | 331.75 | .0350 | 15.7 | 10.27 | 1.53 | 884.15 | 66.75 | 4.25 |
| TOTALS | | | 70.0 | | | 4900.89 | 370.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .741 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 370.01
HEADWATER (ft) : 751.78
VELOCITY (fps) : 20.56

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 370.01
HEADWATER (ft) : 745.38
VELOCITY (fps) : 20.56

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 18.858
UPSTREAM STAGE (ft) : 751.777

**********

STAGE ELEVATION = 732.96

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 300.11 | 310.00 | .0700 | 16.1 | 10.41 | 1.55 | 458.60 | 34.62 | 2.15 |
| 310.00 | 322.00 | .0350 | 39.2 | 12.00 | 3.26 | 3657.64 | 276.15 | 7.05 |
| 322.00 | 331.89 | .0350 | 16.1 | 10.41 | 1.55 | 917.21 | 69.25 | 4.29 |
| TOTALS | | | 71.4 | | | 5033.46 | 380.02 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .743 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 380.02
HEADWATER (ft) : 752.75
VELOCITY (fps) : 21.11

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 380.02
HEADWATER (ft) : 746.11
VELOCITY (fps) : 21.11

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 19.788
UPSTREAM STAGE (ft) : 752.751

**********

STAGE ELEVATION = 733.01

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 299.32 | 300.00 | .0700 | .0 | .68 | .00 | .00 | .00 | .04 |
| 300.00 | 310.00 | .0700 | 16.6 | 10.53 | 1.57 | 475.77 | 35.92 | 2.17 |
| 310.00 | 322.00 | .0350 | 39.7 | 12.00 | 3.31 | 3739.42 | 282.32 | 7.11 |
| 322.00 | 332.00 | .0350 | 16.6 | 10.53 | 1.57 | 951.53 | 71.84 | 4.34 |
| 332.00 | 332.68 | .0700 | .0 | .68 | .00 | .00 | .00 | .04 |
| TOTALS | | | 72.8 | | | 5166.72 | 390.08 | |

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--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .759 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 390.08
HEADWATER (ft) : 753.77
VELOCITY (fps) : 21.67

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 390.08
HEADWATER (ft) : 746.86
VELOCITY (fps) : 21.67

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 20.760
UPSTREAM STAGE (ft) : 753.766

--- SUMMARY OF RESULTS ---

| FLOW (cfs) | TAILWATER ELEVATION (ft) | HEADWATER ELEVATION (ft) | BACKWATER (ft) |
|---|---|---|---|
| .01 | 729.71 | 732.05 | 2.35 |
| 10.01 | 730.13 | 732.88 | 2.74 |
| 20.01 | 730.35 | 733.28 | 2.93 |
| 30.03 | 730.52 | 733.66 | 3.15 |
| 40.03 | 730.66 | 734.00 | 3.34 |
| 50.01 | 730.79 | 734.31 | 3.52 |
| 59.98 | 730.91 | 734.61 | 3.70 |
| 69.93 | 731.02 | 734.88 | 3.86 |
| 80.01 | 731.12 | 735.15 | 4.03 |
| 90.01 | 731.21 | 735.40 | 4.19 |
| 100.01 | 731.30 | 735.64 | 4.34 |
| 110.00 | 731.39 | 735.88 | 4.49 |
| 120.00 | 731.47 | 736.17 | 4.70 |
| 129.99 | 731.55 | 736.49 | 4.94 |
| 139.99 | 731.63 | 736.83 | 5.20 |
| 149.98 | 731.70 | 737.19 | 5.49 |
| 159.98 | 731.77 | 737.57 | 5.80 |
| 169.98 | 731.84 | 737.98 | 6.15 |
| 179.97 | 731.90 | 738.42 | 6.52 |
| 189.97 | 731.97 | 738.89 | 6.92 |
| 199.95 | 732.03 | 739.38 | 7.35 |
| 209.96 | 732.09 | 739.90 | 7.81 |
| 219.95 | 732.15 | 740.45 | 8.30 |
| 229.94 | 732.21 | 741.02 | 8.81 |
| 239.94 | 732.27 | 741.62 | 9.36 |
| 249.94 | 732.32 | 742.25 | 9.93 |
| 259.93 | 732.38 | 742.91 | 10.53 |
| 269.93 | 732.43 | 743.59 | 11.16 |
| 279.92 | 732.48 | 744.29 | 11.81 |
| 289.92 | 732.54 | 745.02 | 12.48 |
| 299.92 | 732.59 | 745.77 | 13.19 |
| 309.92 | 732.64 | 746.55 | 13.92 |
| 319.91 | 732.69 | 747.36 | 14.67 |
| 329.92 | 732.73 | 748.18 | 15.45 |
| 339.92 | 732.78 | 749.04 | 16.26 |
| 349.91 | 732.83 | 749.92 | 17.09 |
| 359.82 | 732.87 | 750.82 | 17.95 |
| 370.01 | 732.92 | 751.78 | 18.86 |
| 380.02 | 732.96 | 752.75 | 19.79 |
| 390.08 | 733.01 | 753.77 | 20.76 |

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
*********************************************


    PROJECT:  Gila Bend F.I.S.
    ENGINEER:  C142 at the Gila Bend Canal
    DATE:   2/18/1992
    TIME:  14:17.22




---------------------------------------------
    INPUT PARAMETERS
---------------------------------------------


    STARTING WSEL:        743.50
    MAXIMUM WSEL:         746.00
    STEP SIZE:              0.10
    BREADTH OF WEIR:       75.00
```

```
*********************************************
    INPUT ELEVATION/STATION TABLE.
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/18/1992
    TIME:  14:17.22
*********************************************
```

| POINT | ELEVATION | STATION |
|---|---|---|
| POINT | ELEVATION | STATION |
| 1 | 746.00 | 9999.90 |
| 2 | 745.90 | 1000.00 |
| 3 | 745.30 | 1550.00 |
| 4 | 745.10 | 2000.00 |
| 5 | 745.10 | 2100.00 |
| 6 | 745.80 | 2950.00 |
| 7 | 745.20 | 3150.00 |
| 8 | 745.40 | 3400.00 |
| 9 | 745.60 | 3670.00 |
| 10 | 745.10 | 3900.00 |
| 11 | 745.50 | 4140.00 |
| 12 | 744.90 | 4330.00 |
| 13 | 745.70 | 4470.00 |
| 14 | 743.50 | 4600.00 |
| 15 | 745.50 | 4960.00 |

| POINT | ELEVATION | STATION |
|---|---|---|
| 16 | 746.10 | 5280.00 |

```
*********************************************
    WEIR COEFFICIENT TABLE
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/18/1992
    TIME:  14:17.22
*********************************************
```

INPUT COEFFICENT VALUES.

| POINT | HEAD | COEFFICIENT |
|---|---|---|
| 1 | 0.00 | 0.0000 |
| 2 | 0.20 | 2.6800 |
| 3 | 0.40 | 2.7000 |
| 4 | 0.60 | 2.7000 |
| 5 | 0.80 | 2.6400 |
| 6 | 1.00 | 2.6300 |
| 7 | 1.20 | 2.6400 |
| 8 | 1.40 | 2.6400 |
| 9 | 1.60 | 2.6300 |
| 10 | 1.80 | 2.6300 |
| 11 | 2.00 | 2.6300 |
| 12 | 2.50 | 2.6300 |
| 13 | 5.00 | 2.6300 |

```
*********************************************
    UNEVEN WEIR FLOW PROGRAM
    FORTRAN VERSION 1.0
    PROJECT:  Gila Bend F.I.S.
    DATE:   2/18/1992
    TIME:  14:17.22
*********************************************
```

| ELEVATION | DISCHARGE (CFS) | ELEVATION | DISCHARGE (CFS) |
|---|---|---|---|
| 743.50 | 0.00 | 745.00 | 699.70 |
| 743.60 | 0.20 | 745.10 | 821.77 |
| 743.70 | 2.29 | 745.20 | 977.25 |
| 743.80 | 9.47 | 745.30 | 1216.09 |
| 743.90 | 25.91 | 745.40 | 1605.32 |
| 744.00 | 45.37 | 745.50 | 2168.62 |
| 744.10 | 71.69 | 745.60 | 2855.04 |
| 744.20 | 105.60 | 745.70 | 3734.78 |
| 744.30 | 147.72 | 745.80 | 4744.58 |
| 744.40 | 198.30 | 745.90 | 5901.14 |
| 744.50 | 258.06 | | |
| 744.60 | 327.49 | | |
| 744.70 | 407.07 | | |
| 744.80 | 494.50 | | |
| 744.90 | 591.83 | | |

## C133 Summary Data

| PND3: C133 + C135 | | | | | | |
|---|---|---|---|---|---|---|
| | | Discharge | | | | |
| Stage | Volume (ac-ft) | Divert To West (cfs) | Weir Flow Over Canal (cfs) | C133 Overchute (cfs) | C135 Culverts (cfs) | Total Flow (cfs) |
| 731.3 | 0 | --- | --- | 0 | 0 | 0 |
| 735.2 | 2 | --- | --- | 2000 | 0 | 2000 |
| 736.0 | 4 | --- | --- | 2615 | 3 | 2618 |
| 737.0 | 6 | --- | --- | 3770 | 11 | 3781 |
| 738.0 | 11 | --- | --- | 4850 | 30 | 4880 |
| 738.2 | 12 | --- | --- | 5000 | 35 | 5035 |
| 739.0 | 17 | --- | --- | 6200 | 53 | 6253 |
| 740.0 | 26 | --- | --- | 7600 | 70 | 7670 |
| 740.4 | 30 | --- | --- | 8200 | 75 | 8275 |
| 741.0 | 38 | --- | --- | 9000 | 82 | 9082 |
| 742.0 | 54 | --- | --- | 10500 | 91 | 10591 |
| 742.3 | 59 | --- | --- | 11000 | 92 | 11092 |
| 743.0 | 81 | --- | --- | 12000 | 94 | 12094 |
| 744.0 | 124 | --- | --- | 13900 | 97 | 13997 |
| 744.5 | 139 | --- | --- | 14700 | 99 | 14799 |
| 745.0 | 164 | --- | --- | 15770 | 100 | 15870 |
| 745.5 | 180 | --- | --- | 16900 | 102 | 17002 |
| 745.7 | 187 | 0 | 0 | 17400 | 102 | 17502 |
| 746.0 | 194 | 100 | 100 | 18050 | 103 | 18353 |
| 746.1 | 204 | 200 | 220 | 18300 | 104 | 18824 |
| 746.2 | 211 | 300 | 400 | 18500 | 105 | 19305 |
| 746.3 | 216 | 400 | 620 | 18800 | 106 | 19926 |
| 746.4 | 218 | 495 | 940 | 19000 | 106 | 20541 |
| 746.5 | 221 | 640 | 1370 | 19200 | 107 | 21317 |
| 746.9 | 226 | 1400 | 3860 | 20200 | 110 | 25570 |

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2;  May 1991            *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE     02APR92    TIME    14:39:11   *
 *****************************************

*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************

X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX   XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX

1
   02APR92      14:39:11                                                                                    PAGE    1


                                                                                THIS RUN EXECUTED 02APR92    14:39:11
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
 T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
 T3      C133 Weir Flow To West over Levee      J. MISCHLER - (602) 244-8100

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                         0.0036

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                 -1

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        42         1        43        26        51         4         8        53        54
      13        15        40

 NC    0.035     0.035     0.035       0.1       0.3
 QT        3       100       500      1000      2000      4000
 X1     3886        21    9991.4   10017.3
 X3       10                                                                   740       740
 GR    749.0    8674.0       747      8675       744      9130     743.9      9325     743.8      9525
 GR    743.7      9765     743.6      9915     743.6      9975     746.6      9985     731.3    9991.4
 GR    731.3   10017.3       740     10030     740.1     10050     740.1     10051     740.2     10251
 GR    740.3     10616     740.4     10941     740.5     11276     740.6     11946       741     12190
 GR    749.0     12191

 SB      0.9      1.25         3         0       0.1         0      0.01         0     731.3     731.3
 X1     3888        21    9991.4   10017.3        10        10        10
 X2                            1     731.4     745.5
 X3       10                                                                 745.5     745.5
 BT      -14      9130     749.3                9325     747.2                9525     745.7
 BT               9765     745.8                9915     746.7                9975     746.7
 BT               9985     749.0               10051     749.0               10251     749.0
 BT              10616     749.0               10941     749.0               11276     749.0
 BT              11946     749.0               12191     749.0
 GR    749.0      8674       747      8675       744      9130     743.9      9325     743.8      9525
 GR    743.7      9765     743.6      9915     743.6      9975     746.6      9985     731.3    9991.4
 GR    731.3   10017.3       740     10030     740.1     10050     740.1     10051     740.2     10251
 GR    740.3     10616     740.4     10941     740.5     11276     740.6     11946       741     12190
 GR    749.0     12191
1
   02APR92      14:39:11                                                                                    PAGE    2

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CCHV=    0.100 CEHV=    0.300
 *SECNO 3886.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       740.00 ELREA=       740.00

   3886.000      1.29    732.59      0.00      0.00    732.73      0.14      0.00      0.00    731.30
      100.0       0.0     100.0       0.0       0.0      33.4       0.0       0.0       0.0    731.30
       0.00      0.00      2.99      0.00     0.000     0.035     0.000     0.000    731.30   9991.40
   0.003536        0.        0.        0.         0         0         7      0.00     25.90  10017.30


 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.90      1.25      3.00      0.00      0.10      0.00      0.01      0.00    731.30    731.30

 *SECNO 3888.000

 3265 DIVIDED FLOW


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO = *****
```

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| 1941726.00 | 732.73 | 0.00 | 100. | 0. | 0. | 0. | 731.40 | 745.50 | 313. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3888.000 | 14.70 | 746.00 | 0.00 | 0.00 | 746.00 | 0.00 | 13.27 | 0.00 | 731.30 |
| 100.0 | 8.1 | 5.2 | 86.7 | 2223.7 | 380.7 | 12141.3 | 1.7 | 0.4 | 731.30 |
| 0.39 | 0.00 | 0.01 | 0.01 | 0.035 | 0.035 | 0.035 | 0.000 | 731.30 | 8826.75 |
| 0.000000 | 10. | 10. | 10. | 0 | 0 | 15 | 0.00 | 3361.62 | 12190.63 |

1
02APR92 14:39:11 PAGE 3

T1 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2 GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3 GILA BEND CANAL AS WEIR J. MISCHLER - (602) 244-8100

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 3 | | | 0.0036 | | | | | |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | | -1 | | | | | | | |

1
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 2

CCHV= 0.100 CEHV= 0.300
*SECNO 3886.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 740.00 ELREA= 740.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3886.000 | 3.37 | 734.67 | 0.00 | 0.00 | 735.18 | 0.51 | 0.00 | 0.00 | 731.30 |
| 500.0 | 0.0 | 500.0 | 0.0 | 0.0 | 87.3 | 0.0 | 0.0 | 0.0 | 731.30 |
| 0.00 | 0.00 | 5.72 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 731.30 | 9991.40 |
| 0.003594 | 0. | 0. | 0. | 0 | 0 | 6 | 0.00 | 25.90 | 10017.30 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.90 | 1.25 | 3.00 | 0.00 | 0.10 | 0.00 | 0.01 | 0.00 | 731.30 | 731.30 |

*SECNO 3888.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = *****

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| ********** | 735.18 | 0.00 | 501. | 0. | 0. | 0. | 731.40 | 745.50 | 437. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3888.000 | 15.11 | 746.41 | 0.00 | 0.00 | 746.41 | 0.00 | 11.23 | 0.00 | 731.30 |
| 500.0 | 48.0 | 23.8 | 428.2 | 2717.7 | 391.4 | 13040.0 | 1.9 | 0.4 | 731.30 |
| 0.08 | 0.02 | 0.06 | 0.03 | 0.035 | 0.035 | 0.035 | 0.000 | 731.30 | 8764.03 |
| 0.000000 | 10. | 10. | 10. | 0 | 0 | 13 | 0.00 | 3425.94 | 12190.68 |

1
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T1 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2 GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3 GILA BEND CANAL AS WEIR J. MISCHLER - (602) 244-8100

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 4 | | | 0.0036 | | | | | |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3 | | -1 | | | | | | | |

1
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 3

CCHV= 0.100 CEHV= 0.300
*SECNO 3886.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 740.00 ELREA= 740.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3886.000 | 5.11 | 736.41 | 0.00 | 0.00 | 737.30 | 0.89 | 0.00 | 0.00 | 731.30 |
| 1000.0 | 0.0 | 1000.0 | 0.0 | 0.0 | 132.4 | 0.0 | 0.0 | 0.0 | 731.30 |
| 0.00 | 0.00 | 7.55 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 731.30 | 9991.40 |
| 0.003592 | 0. | 0. | 0. | 0 | 0 | 5 | 0.00 | 25.90 | 10017.30 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.90 | 1.25 | 3.00 | 0.00 | 0.10 | 0.00 | 0.01 | 0.00 | 731.30 | 731.30 |

*SECNO 3888.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = *****

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| ********** | 737.30 | 0.00 | 1006. | 0. | 0. | 0. | 731.40 | 745.50 | 588. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3888.000 | 15.43 | 746.73 | 0.00 | 0.00 | 746.73 | 0.00 | 9.43 | 0.00 | 731.30 |
| 1000.0 | 107.1 | 44.7 | 848.2 | 3117.5 | 399.7 | 13734.3 | 2.0 | 0.4 | 731.30 |
| 0.05 | 0.03 | 0.11 | 0.06 | 0.035 | 0.035 | 0.035 | 0.000 | 731.30 | 8715.58 |
| 0.000000 | 10. | 10. | 10. | 0 | 0 | 12 | 0.00 | 3475.13 | 12190.72 |

1

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T1 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2 GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3 GILA BEND CANAL AS WEIR J. MISCHLER - (602) 244-8100

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 5 | | | 0.0036 | | | | | |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 4 | | -1 | | | | | | | |

1

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 4

CCHV= 0.100 CEHV= 0.300
*SECNO 3886.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 740.00 ELREA= 740.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3886.000 | 7.76 | 739.06 | 0.00 | 0.00 | 740.60 | 1.54 | 0.00 | 0.00 | 731.30 |
| 2000.0 | 0.0 | 2000.0 | 0.0 | 0.0 | 200.9 | 0.0 | 0.0 | 0.0 | 731.30 |
| 0.00 | 0.00 | 9.96 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 731.30 | 9991.40 |
| 0.003580 | 0. | 0. | 0. | 0 | 0 | 4 | 0.00 | 25.90 | 10017.30 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.90 | 1.25 | 3.00 | 0.00 | 0.10 | 0.00 | 0.01 | 0.00 | 731.30 | 731.30 |

*SECNO 3888.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 79.34

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| ********** | 740.60 | 0.00 | 2001. | 0. | 0. | 0. | 731.40 | 745.50 | 646. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3888.000 | 15.85 | 747.15 | 0.00 | 0.00 | 747.15 | 0.00 | 6.56 | 0.00 | 731.30 |
| 2000.0 | 242.7 | 83.0 | 1674.3 | 3667.2 | 410.6 | 14650.9 | 2.2 | 0.4 | 731.30 |
| 0.02 | 0.07 | 0.20 | 0.11 | 0.035 | 0.035 | 0.035 | 0.000 | 731.30 | 8674.92 |
| 0.000001 | 10. | 10. | 10. | 0 | 0 | 12 | 0.00 | 3515.85 | 12190.77 |

1

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T1 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2 GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3 GILA BEND CANAL AS WEIR J. MISCHLER - (602) 244-8100

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|

```
                6                          0.0036
 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      15                  -1
1
   02APR92      14:39:11                                                                                          PAGE   10

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 5

 CCHV=    0.100 CEHV=    0.300
 *SECNO 3886.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
   3886.000      9.85    741.15    741.15      0.00    741.49      0.34      0.00      0.00    731.30
     4000.0      46.6    1753.3    2200.1      20.3     255.2    1612.8       0.0       0.0    731.30
       0.00      2.29      6.87      1.36     0.035     0.035     0.035     0.000    731.30   9987.28
   0.001239        0.        0.        0.         0        16         0      0.00   2202.74  12190.02


 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.90      1.25      3.00      0.00      0.10      0.00      0.01      0.00    731.30    731.30

 *SECNO 3888.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO = 27.44

 PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

  EGPRS      EGLWC      H3        QWEIR     QPR       BAREA     TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                                  AREA
 **********   744.97     0.00      4008.       0.        0.         0.      731.40    745.50      707.


   3888.000    16.46    747.76      0.00      0.00    747.76      0.00      6.27      0.00    731.30
     4000.0    563.9     150.2    3285.9    4463.9     426.3   15966.1       2.6       0.7    731.30
       0.01     0.13      0.35      0.21     0.035     0.035     0.035     0.000    731.30   8674.62
   0.000002      10.       10.       10.         0         0        11      0.00   3516.22  12190.84

1
   02APR92      14:39:11                                                                                          PAGE   11


*************************************                                    THIS RUN EXECUTED 02APR92     14:39:14
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************

 NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

 C133 Weir Flow To West o

 SUMMARY PRINTOUT

       SECNO     ELMIN     CWSEL     Q         VCH       DIFWSX    TOPWID    DEPTH     SSTA      ENDST     QLOB      QROB      ELTRD
    3886.000    731.30    732.59    100.00     2.99      0.00      25.90      1.29    9991.40   10017.30     0.00      0.00      0.00
    3886.000    731.30    734.67    500.00     5.72      0.00      25.90      3.37    9991.40   10017.30     0.00      0.00      0.00
    3886.000    731.30    736.41   1000.00     7.55      0.00      25.90      5.11    9991.40   10017.30     0.00      0.00      0.00
    3886.000    731.30    739.06   2000.00     9.96      0.00      25.90      7.76    9991.40   10017.30     0.00      0.00      0.00
 *  3886.000    731.30    741.15   4000.00     6.87      0.00    2202.74      9.85    9987.28   12190.02    46.59   2200.12      0.00

 *  3888.000    731.30    746.00    100.00     0.01     13.41    3361.62     14.70    8826.75   12190.63     8.10     86.72    745.50
 *  3888.000    731.30    746.41    500.00     0.06     11.74    3425.94     15.11    8764.03   12190.68    48.01    428.21    745.50
 *  3888.000    731.30    746.73   1000.00     0.11     10.32    3475.13     15.43    8715.58   12190.72   107.07    848.19    745.50
 *  3888.000    731.30    747.15   2000.00     0.20      8.10    3515.85     15.85    8674.92   12190.77   242.70   1674.32    745.50
 *  3888.000    731.30    747.76   4000.00     0.35      6.60    3516.22     16.46    8674.62   12190.84   563.90   3285.88    745.50

1
   02APR92      14:39:11                                                                                          PAGE   12


 SUMMARY OF ERRORS AND SPECIAL NOTES

 CAUTION SECNO=   3886.000  PROFILE=  5  CRITICAL DEPTH ASSUMED

 WARNING SECNO=   3888.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   3888.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   3888.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   3888.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   3888.000  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2;  May 1991            *
 *  386 Extended Memory version, August 1991 *
 *  Dodson & Associates, Inc 1-800-235-8069  *
 *  RUN DATE    02APR92    TIME   14:46:39   *
 *****************************************
```

```
*************************************
 *  U.S. ARMY CORPS OF ENGINEERS     *
 *  HYDROLOGIC ENGINEERING CENTER    *
 *  609 SECOND STREET, SUITE D       *
 *  DAVIS, CALIFORNIA 95616-4687     *
 *          (916) 756-1104           *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                   X
X     X  X        X     X             X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

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1
   02APR92       14:46:39                                                                                    PAGE    1
```

THIS RUN EXECUTED 02APR92  14:46:39

```
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
```

```
T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      C133 Weir Flow To North over GBC        J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                         0.0036

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                  -1

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        42         1        43        26        51         4         8        53        54
     13        15        40

NC    0.035     0.035     0.035       0.1       0.3
QT        3       100       500      1000      2000      4000
X1     3886        21    9991.4   10017.3
X3       10                                                                   740       740
GR    749.0    8674.0       747      8675       744      9130     743.9      9325     743.8      9525
GR    743.7      9765     743.6      9915     743.6      9975     746.6      9985     731.3    9991.4
GR    731.3   10017.3       740     10030     740.1     10050     740.1     10051     740.2     10251
GR    740.3     10616     740.4     10941     740.5     11276     740.6     11946       741     12190
GR    749.0     12191

SB      0.9      1.25         3         0       0.1         0      0.01         0     731.3     731.3
X1     3888        21    9991.4   10017.3        10        10        10
X2                            1     731.4     745.5
X3       10                                                                 745.5     745.5
BT      -15      9130     749.3                9325     749.0                9525     749.0
BT               9765     749.0                9915     749.0                9975     749.0
BT               9985     746.7               10051     745.5               10251     746.0
BT              10616     746.6               10941     746.6               11276     746.0
BT              11946     746.1               12190     746.7               12191     749.0
GR    749.0    8674.0     747.0      8675       744      9130     743.9      9325     743.8      9525
GR    743.7      9765     743.6      9915     743.6      9975     746.6      9985     731.3    9991.4
GR    731.3   10017.3       740     10030     740.1     10050     740.1     10051     740.2     10251
GR    740.3     10616     740.4     10941     740.5     11276     740.6     11946       741     12190
GR    749.0     12191
```

```
1
   02APR92       14:46:39                                                                                    PAGE    2

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CCHV=    0.100 CEHV=    0.300
*SECNO 3886.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       740.00 ELREA=       740.00

  3886.000      1.29    732.59      0.00      0.00    732.73      0.14      0.00      0.00    731.30
     100.0       0.0     100.0       0.0       0.0      33.4       0.0       0.0       0.0    731.30
      0.00      0.00      2.99      0.00     0.000     0.035     0.000     0.000    731.30   9991.40
  0.003536        0.        0.        0.         0         0         7      0.00     25.90  10017.30


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.90      1.25      3.00      0.00      0.10      0.00      0.01      0.00    731.30    731.30

*SECNO 3888.000

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO = *****
```

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| 1941726.00 | 732.73 | 0.00 | 100. | 0. | 0. | 0. | 731.40 | 745.50 | 441. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3888.000 | 14.73 | 746.03 | 0.00 | 0.00 | 746.03 | 0.00 | 13.30 | 0.00 | 731.30 |
| 100.0 | 8.2 | 5.1 | 86.7 | 2255.8 | 381.4 | 12201.1 | 1.7 | 0.4 | 731.30 |
| 0.39 | 0.00 | 0.01 | 0.01 | 0.035 | 0.035 | 0.035 | 0.000 | 731.30 | 8822.58 |
| 0.000000 | 10. | 10. | 10. | 0 | 0 | 15 | 0.00 | 3365.90 | 12190.63 |

1

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T1 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2 GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3 GILA BEND CANAL AS WEIR J. MISCHLER - (602) 244-8100

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 3 | | | 0.0036 | | | | | |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | | -1 | | | | | | | |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 2

CCHV= 0.100 CEHV= 0.300
*SECNO 3886.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 740.00 ELREA= 740.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3886.000 | 3.37 | 734.67 | 0.00 | 0.00 | 735.18 | 0.51 | 0.00 | 0.00 | 731.30 |
| 500.0 | 0.0 | 500.0 | 0.0 | 0.0 | 87.3 | 0.0 | 0.0 | 0.0 | 731.30 |
| 0.00 | 0.00 | 5.72 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 731.30 | 9991.40 |
| 0.003594 | 0. | 0. | 0. | 0 | 0 | 6 | 0.00 | 25.90 | 10017.30 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.90 | 1.25 | 3.00 | 0.00 | 0.10 | 0.00 | 0.01 | 0.00 | 731.30 | 731.30 |

*SECNO 3888.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = *****

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| ********** | 735.18 | 0.00 | 500. | 0. | 0. | 0. | 731.40 | 745.50 | 1287. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3888.000 | 14.96 | 746.26 | 0.00 | 0.00 | 746.26 | 0.00 | 11.08 | 0.00 | 731.30 |
| 500.0 | 45.4 | 24.5 | 430.1 | 2537.3 | 387.6 | 12717.2 | 1.8 | 0.4 | 731.30 |
| 0.08 | 0.02 | 0.06 | 0.03 | 0.035 | 0.035 | 0.035 | 0.000 | 731.30 | 8786.56 |
| 0.000000 | 10. | 10. | 10. | 0 | 0 | 13 | 0.00 | 3402.84 | 12190.66 |

1

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T1 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2 GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3 GILA BEND CANAL AS WEIR J. MISCHLER - (602) 244-8100

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 4 | | | 0.0036 | | | | | |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3 | | -1 | | | | | | | |

1

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 3

CCHV= 0.100 CEHV= 0.300
*SECNO 3886.000

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 740.00 ELREA= 740.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3886.000 | 5.11 | 736.41 | 0.00 | 0.00 | 737.30 | 0.89 | 0.00 | 0.00 | 731.30 |
| 1000.0 | 0.0 | 1000.0 | 0.0 | 0.0 | 132.4 | 0.0 | 0.0 | 0.0 | 731.30 |
| 0.00 | 0.00 | 7.55 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 731.30 | 9991.40 |
| 0.003592 | 0. | 0. | 0. | 0 | 0 | 5 | 0.00 | 25.90 | 10017.30 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.90 | 1.25 | 3.00 | 0.00 | 0.10 | 0.00 | 0.01 | 0.00 | 731.30 | 731.30 |

*SECNO 3888.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = *****

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| ********** | 737.30 | 0.00 | 1002. | 0. | 0. | 0. | 731.40 | 745.50 | 1544. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3888.000 | 15.12 | 746.42 | 0.00 | 0.00 | 746.42 | 0.00 | 9.12 | 0.00 | 731.30 |
| 1000.0 | 96.3 | 47.5 | 856.2 | 2728.4 | 391.6 | 13069.0 | 1.9 | 0.4 | 731.30 |
| 0.04 | 0.04 | 0.12 | 0.07 | 0.035 | 0.035 | 0.035 | 0.000 | 731.30 | 8762.71 |
| 0.000000 | 10. | 10. | 10. | 0 | 0 | 12 | 0.00 | 3427.30 | 12190.68 |

1

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T1 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2 GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3 GILA BEND CANAL AS WEIR J. MISCHLER - (602) 244-8100

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 5 | | | 0.0036 | | | | | |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 4 | | -1 | | | | | | | |

1

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 4

CCHV= 0.100 CEHV= 0.300
*SECNO 3886.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 740.00 ELREA= 740.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3886.000 | 7.76 | 739.06 | 0.00 | 0.00 | 740.60 | 1.54 | 0.00 | 0.00 | 731.30 |
| 2000.0 | 0.0 | 2000.0 | 0.0 | 0.0 | 200.9 | 0.0 | 0.0 | 0.0 | 731.30 |
| 0.00 | 0.00 | 9.96 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 731.30 | 9991.40 |
| 0.003580 | 0. | 0. | 0. | 0 | 0 | 4 | 0.00 | 25.90 | 10017.30 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.90 | 1.25 | 3.00 | 0.00 | 0.10 | 0.00 | 0.01 | 0.00 | 731.30 | 731.30 |

*SECNO 3888.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 68.42

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| ********** | 740.60 | 0.00 | 2006. | 0. | 0. | 0. | 731.40 | 745.50 | 2177. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3888.000 | 15.34 | 746.64 | 0.00 | 0.00 | 746.64 | 0.00 | 6.04 | 0.00 | 731.30 |
| 2000.0 | 207.8 | 91.1 | 1701.2 | 2998.8 | 397.3 | 13531.1 | 2.0 | 0.4 | 731.30 |
| 0.02 | 0.07 | 0.23 | 0.13 | 0.035 | 0.035 | 0.035 | 0.000 | 731.30 | 8729.76 |
| 0.000001 | 10. | 10. | 10. | 0 | 0 | 11 | 0.00 | 3460.94 | 12190.71 |

1

02APR92 14:46:39 PAGE 9

T1 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2 GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3 GILA BEND CANAL AS WEIR J. MISCHLER - (602) 244-8100

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 6 | | | 0.0036 | | | | | |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 15 | | -1 | | | | | | | |

1

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 5

CCHV= 0.100 CEHV= 0.300
*SECNO 3886.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3886.000 | 9.85 | 741.15 | 741.15 | 0.00 | 741.49 | 0.34 | 0.00 | 0.00 | 731.30 |
| 4000.0 | 46.6 | 1753.3 | 2200.1 | 20.3 | 255.2 | 1612.8 | 0.0 | 0.0 | 731.30 |
| 0.00 | 2.29 | 6.87 | 1.36 | 0.035 | 0.035 | 0.035 | 0.000 | 731.30 | 9987.28 |
| 0.001239 | 0. | 0. | 0. | 0 | 16 | 0 | 0.00 | 2202.74 | 12190.02 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.90 | 1.25 | 3.00 | 0.00 | 0.10 | 0.00 | 0.01 | 0.00 | 731.30 | 731.30 |

*SECNO 3888.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 21.85

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| ********** | 744.97 | 0.00 | 4023. | 0. | 0. | 0. | 731.40 | 745.50 | 2206. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3888.000 | 15.62 | 746.92 | 0.00 | 0.00 | 746.92 | 0.00 | 5.43 | 0.00 | 731.30 |
| 4000.0 | 453.5 | 172.9 | 3373.6 | 3360.9 | 404.6 | 14144.5 | 2.3 | 0.7 | 731.30 |
| 0.01 | 0.13 | 0.43 | 0.24 | 0.035 | 0.035 | 0.035 | 0.000 | 731.30 | 8686.96 |
| 0.000003 | 10. | 10. | 10. | 0 | 0 | 10 | 0.00 | 3503.78 | 12190.74 |

1

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THIS RUN EXECUTED 02APR92 14:46:43

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

C133 Weir Flow To North

SUMMARY PRINTOUT

| | SECNO | ELMIN | CWSEL | Q | VCH | DIFWSX | TOPWID | DEPTH | SSTA | ENDST | QLOB | QROB | ELTRD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3886.000 | 731.30 | 732.59 | 100.00 | 2.99 | 0.00 | 25.90 | 1.29 | 9991.40 | 10017.30 | 0.00 | 0.00 | 0.00 |
| | 3886.000 | 731.30 | 734.67 | 500.00 | 5.72 | 0.00 | 25.90 | 3.37 | 9991.40 | 10017.30 | 0.00 | 0.00 | 0.00 |
| | 3886.000 | 731.30 | 736.41 | 1000.00 | 7.55 | 0.00 | 25.90 | 5.11 | 9991.40 | 10017.30 | 0.00 | 0.00 | 0.00 |
| | 3886.000 | 731.30 | 739.06 | 2000.00 | 9.96 | 0.00 | 25.90 | 7.76 | 9991.40 | 10017.30 | 0.00 | 0.00 | 0.00 |
| * | 3886.000 | 731.30 | 741.15 | 4000.00 | 6.87 | 0.00 | 2202.74 | 9.85 | 9987.28 | 12190.02 | 46.59 | 2200.12 | 0.00 |
| * | 3888.000 | 731.30 | 746.03 | 100.00 | 0.01 | 13.44 | 3365.90 | 14.73 | 8822.58 | 12190.63 | 8.20 | 86.65 | 745.50 |
| * | 3888.000 | 731.30 | 746.26 | 500.00 | 0.06 | 11.59 | 3402.84 | 14.96 | 8786.56 | 12190.66 | 45.36 | 430.14 | 745.50 |
| * | 3888.000 | 731.30 | 746.42 | 1000.00 | 0.12 | 10.01 | 3427.30 | 15.12 | 8762.71 | 12190.68 | 96.32 | 856.19 | 745.50 |
| * | 3888.000 | 731.30 | 746.64 | 2000.00 | 0.23 | 7.58 | 3460.94 | 15.34 | 8729.76 | 12190.71 | 207.76 | 1701.17 | 745.50 |
| * | 3888.000 | 731.30 | 746.92 | 4000.00 | 0.43 | 5.77 | 3503.78 | 15.62 | 8686.96 | 12190.74 | 453.49 | 3373.57 | 745.50 |

1

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 3886.000 PROFILE= 5 CRITICAL DEPTH ASSUMED

WARNING SECNO= 3888.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 3888.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 3888.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 3888.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 3888.000 PROFILE= 5 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2;  May 1991            *
 *  386 Extended Memory version, August 1991 *
 *  Dodson & Associates, Inc 1-800-235-8069  *
 *  RUN DATE    02APR92    TIME   16:07:52   *
 *****************************************

                                        X     X  XXXXXXX   XXXXX              XXXXX
                                        X     X  X        X     X           X     X
                                        X     X  X        X                        X
                                        XXXXXXX  XXXX     X          XXXXX    XXXXX
                                        X     X  X        X                  X
                                        X     X  X        X     X            X
                                        X     X  XXXXXXX   XXXXX             XXXXXXX
1
   02APR92      16:07:52                                                                                    PAGE    1


                                                                                  THIS RUN EXECUTED 02APR92    16:07:52
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************

 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
 T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
 T3      SAND TANK WASH AT C133                    J. MISCHLER - (602) 244-8100

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                         0.0011

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1                  -1

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        42         1        43        26        51         4         8        53        54
      13        15        40

         SECTIONS ARE LABELED AS  RIVER MILES * 1000, i.e., SECTION 676 IS AT
         A POINT ON SAND TANK WASH 0.676 UPSTREAM OF THE CONFLUENCE WITH THE
         GILA RIVER.

         J1.5 STRT = 0.0011 WAS OBTAINED BY (727.7 SPOT EL-727.5 SPOT EL)/180'

         FLOW UPSTREAM OF PIMA OCCURS ACROSS BOTH SAND TANK AND BENDER WASHES.
         SECTIONS INCLUDE BOTH CHANNELS.  BANK STATIONS ARE CHOSEN FOR SAND
         TANK WASH, BUT N VALUES FOR BENDER ARE HANDLED BY USE OF NH CARDS.

         RETURN THE FULL SAND TANK WASH Q SINCE THE MODEL IS NOW AT A POINT
         UPSTREAM OF THE SPLIT.

 NC     0.06      0.06     0.035       0.1       0.3
 QT        5      5000     10000     15000     18000     20000
 NH        8      0.06    9917.9     0.025   10045.2      0.06   10116.8     0.035   10819.5      0.05
 NH    10880      0.03   10902.6      0.05   10917.6     0.035   11371.5
 X1     3747        94    9917.9   10116.8       285       285       285
 GR    737.9    8808.5     737.7    8928.3     737.6    8978.8     737.5    9001.6     737.4    9033.4
 GR    737.6    9070.4     737.3    9100.9     737.5    9135.6     737.4    9166.7     737.1    9202.9
 GR    736.8    9219.5     736.5    9250.3     735.8    9290.0     735.2    9323.6     734.8    9350.1
 GR    735.2    9379.6     735.6    9398.3     736.5    9424.5     736.5    9458.3     736.7    9495.3
 GR    735.9    9522.0     735.2    9538.5     734.2    9565.2     732.4    9585.3     732.0    9601.8
 GR    730.9    9621.1     730.6    9645.5     729.9    9661.1     730.2    9665.9     730.7    9694.2
 GR    730.8    9743.3     730.9    9792.3     731.4    9808.9     731.9    9828.0     731.9    9849.1
 GR    731.9    9872.3     731.4    9888.4     731.8    9896.3     735.0    9909.6     736.7    9917.9
1
   02APR92      16:07:52                                                                                    PAGE    2

 GR    735.3    9923.0     730.2    9932.6     727.3    9943.4     727.0    9946.4     727.5    9985.5
 GR    727.6   10000.0     727.3   10045.2     735.3   10098.9     735.8   10116.8     732.2   10127.2
 GR    732.5   10151.6     732.5   10188.2     732.5   10205.4     733.1   10237.8     732.8   10303.2
 GR    732.8   10351.8     732.1   10381.3     732.3   10407.4     732.2   10428.8     733.5   10453.1
 GR    733.8   10486.4     734.3   10530.1     733.7   10544.0     732.3   10550.0     732.4   10575.4
 GR    732.1   10603.1     731.3   10615.3     731.5   10641.0     732.0   10671.4     731.2   10687.4
 GR    730.4   10706.3     731.5   10717.8     731.4   10727.8     731.2   10746.5     730.6   10819.5
 GR    729.8   10874.5     728.6   10880.0     728.0   10897.2     728.0   10902.6     734.5   10917.6
 GR    734.5   10972.1     735.8   11005.5     735.6   11043.3     735.4   11095.5     735.8   11134.5
 GR    736.5   11172.3     736.8   11214.4     735.9   11227.4     736.4   11242.8     736.6   11282.5
 GR    737.1   11317.7     737.1   11339.8     738.0   11359.2     738.4   11371.5

         SOUTHERN PACIFIC RAILROAD BRIDGES - SPECIAL BRIDGE METHOD
         THE 9-SPAN SAND TANK BRIDGE HAS TIMBER PIERS AND CONCRETE ABUTMENTS.
         THE 3-SPAN BENDER WASH BRIDGE IS SIMILAR.

         SINCE THE SAND TANK STRUCTURE WILL PASS THE VAST MAJORITY OF THE FLOW,
         AND SINCE HEC-2 REQUIRES A COMMON CHANNEL INVERT AND RISE, THOSE VALUES
         ARE SET TO MATCH THE SAND TANK STRUCTURE.  THE BENDER WASH BRIDGE IS
         MODELED AS IF IT WERE A PART OF THE SAND TANK BRIDGE:
```

| | SAND | BENDER | MODEL |
|---|---|---|---|
| ELCHU | 728.1 | 729.0 | 728.1 |
| ELCHD | 728.0 | 729.2 | 728.0 |
| LOW CHD | 734.0 | 735.0 | 734.0 |
| BWC | 133 | 42 | 175 |
| BWP | 16 | 4 | 20 |
| BAREA | 672 | 227 | 899 |

REPEAT SECTION 3747 AT THE DOWNSTREAM FACE OF THE BRIDGES. USE PSXECE = 110 FT * 0.001 FT/FT

REPEAT GR CARDS SO THAT THE CHANNEL BOTTOMS CAN BE MADE TO CONFORM TO INVERTS OF THE CULVERT OPENINGS.

```
NH        8      0.06    9923.0     0.025   10057.0      0.06   10098.9     0.035   10819.5      0.05
NH    10874      0.03   10902.6      0.05   10917.6     0.035   11371.5
X1     3768        89    9923.0   10098.9       110       110       110                   0.1
GR    737.9    8808.5     737.7    8928.3     737.6    8978.8     737.5    9001.6     737.4    9033.4
GR    737.6    9070.4     737.3    9100.9     737.5    9135.6     737.4    9166.7     737.1    9202.9
GR    736.8    9219.5     736.5    9250.3     735.8    9290.0     735.2    9323.6     734.8    9350.1
GR    735.2    9379.6     735.6    9398.3     736.5    9424.5     736.5    9458.3     736.7    9495.3
GR    735.9    9522.0     735.2    9538.5     734.2    9565.2     732.4    9585.3     732.0    9601.8
GR    730.9    9621.1     730.6    9645.5     729.9    9661.1     730.2    9665.9     730.7    9694.2
GR    730.8    9743.3     730.9    9792.3     731.4    9808.9     731.9    9828.0     731.9    9849.1
GR    731.9    9872.3     731.4    9888.4     731.8    9896.3     735.0    9909.6     736.7    9917.9
GR    735.3    9923.0     727.9    9924.0     727.9   10000.0     727.9   10057.0     735.3   10098.9
GR    735.8   10116.8     732.2   10127.2     732.5   10151.6     732.5   10188.2     732.5   10205.4
GR    733.1   10237.8     732.8   10303.2     732.8   10351.8     732.1   10381.3     732.3   10407.4
GR    732.2   10428.8     733.5   10453.1     733.8   10486.4     734.3   10530.1     733.7   10544.0
GR    732.3   10550.0     732.4   10575.4     732.1   10603.1     731.3   10615.3     731.5   10641.0
GR    732.0   10671.4     731.2   10687.4     730.4   10706.3     731.5   10717.8     731.4   10727.8
1
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GR    731.2   10746.5     730.6   10819.5     729.1   10874.0     729.1   10902.6     734.5   10917.6
GR    734.5   10972.1     735.8   11005.5     735.6   11043.3     735.4   11095.5     735.8   11134.5
GR    736.5   11172.3     736.8   11214.4     735.9   11227.4     736.4   11242.8     736.6   11282.5
GR    737.1   11317.7     737.1   11339.8     738.0   11359.2     738.4   11371.5
```

ELTRD = 737.3 + 0.1 HV = 737.4
ADD TWO POINTS AT THE BEGINNING TO MATCH BT. BT STATIONS ARE ADJUSTED SLIGHTLY TO MATCH GR'S.

```
NH        8      0.06    9923.0     0.025   10098.9      0.06   10530.1     0.035   10819.5      0.05
NH    10874      0.03   10902.6      0.05   10917.6     0.035   11371.5
SB     1.25      1.56         3         0       175        20       899         0    728.1     728.0
X1     3782        91    9923.0   10098.9        74        74        74                   0.2
X2                            1     734.0      737.4
BT      -13      8170     739.4                 8450     739.1                  8636.6     739.1
BT              8928.3     739.0               9202.9     738.3                  9522.0     739.1
BT              9792.3     737.3              10000.0     737.9                 10237.8     738.2
BT             10486.4     738.5              10717.8     738.6                 11134.5     739.1
BT             11282.5     739.3
GR    739.2      8170     738.9      8450     737.9    8808.5     737.7    8928.3     737.6    8978.8
GR    737.5    9001.6     737.4    9033.4     737.6    9070.4     737.3    9100.9     737.5    9135.6
GR    737.4    9166.7     737.1    9202.9     736.8    9219.5     736.5    9250.3     735.8    9290.0
GR    735.2    9323.6     734.8    9350.1     735.2    9379.6     735.6    9398.3     736.5    9424.5
GR    736.5    9458.3     736.7    9495.3     735.9    9522.0     735.2    9538.5     734.2    9565.2
GR    732.4    9585.3     732.0    9601.8     730.9    9621.1     730.6    9645.5     729.9    9661.1
GR    730.2    9665.9     730.7    9694.2     730.8    9743.3     730.9    9792.3     731.4    9808.9
GR    731.9    9828.0     731.9    9849.1     731.9    9872.3     731.4    9888.4     731.8    9896.3
GR    735.0    9909.6     736.7    9917.9     735.3    9923.0     727.9    9924.0     727.9   10000.0
GR    727.9   10057.0     735.3   10098.9     735.8   10116.8     732.2   10127.2     732.5   10151.6
GR    732.5   10188.2     732.5   10205.4     733.1   10237.8     732.8   10303.2     732.8   10351.8
GR    732.1   10381.3     732.3   10407.4     732.2   10428.8     733.5   10453.1     733.8   10486.4
GR    734.3   10530.1     733.7   10544.0     732.3   10550.0     732.4   10575.4     732.1   10603.1
GR    731.3   10615.3     731.5   10641.0     732.0   10671.4     731.2   10687.4     730.4   10706.3
GR    731.5   10717.8     731.4   10727.8     731.2   10746.5     730.6   10819.5     728.8   10874.0
GR    728.8   10902.6     734.5   10917.6     734.5   10972.1     735.8   11005.5     735.6   11043.3
GR    735.4   11095.5     735.8   11134.5     736.5   11172.3     736.8   11214.4     735.9   11227.4
GR    736.4   11242.8     736.6   11282.5     737.1   11317.7     737.1   11339.8     738.0   11359.2
GR    738.4   11371.5

NH        8      0.06    9920.0     0.025   10081.0      0.06   10177.8     0.035   11117.0      0.05
NH    11139      0.03   11161.9      0.05   11185.8     0.035   11371.9
X1     3836        91       9920   10177.8       295       255       285
GR    739.9    8879.7     739.1    8922.7     737.9    8959.4     737.7    8998.9     736.9    9040.4
GR    736.1    9081.8     735.9    9119.0     736.7    9150.8     737.0    9176.3     737.4    9211.1
GR    736.8    9239.2     737.7    9261.4     737.9    9285.5     737.5    9297.9     737.4    9347.8
GR    738.1    9380.6     736.9    9407.2     736.7    9446.4     736.5    9485.5     734.9    9520.8
GR    735.4    9559.2     735.2    9601.0     736.0    9644.5     735.3    9714.6     734.9    9766.0
GR    734.4    9803.9     734.2    9834.5     735.2    9872.5     734.6    9893.6     734.7    9915.2
GR    734.7    9920.0     731.5    9927.1     730.7    9934.8     731.7    9941.7     731.6    9949.0
GR    730.6    9954.0     729.6    9958.3     729.7    9973.5     729.4   10000.0     729.0   10021.1
GR    730.5   10032.2     730.5   10047.0     729.8   10060.0     731.0   10067.5     731.8   10081.0
GR    733.8   10091.7     734.1   10106.1     734.9   10139.3     735.4   10177.8     735.0   10213.8
GR    733.6   10244.3     732.8   10272.6     732.3   10319.9     732.2   10380.3     732.0   10445.9
1
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GR    732.3   10519.6     732.6   10583.2     732.5   10633.2     732.2   10667.3     732.9   10705.1
GR    733.1   10758.1     733.6   10812.5     733.7   10873.0     733.9   10933.4     734.5   10981.0
GR    735.2   11004.5     735.9   11024.6     736.2   11039.7     738.2   11049.2     739.5   11057.4
GR    738.7   11066.4     739.7   11075.9     736.9   11081.7     739.9   11089.0     740.0   11092.6
GR    736.8   11102.6     737.2   11109.9     738.2   11117.0     730.6   11139.0     730.5   11151.0
GR    730.7   11161.9     732.9   11172.1     738.5   11185.8     736.3   11191.1     738.7   11201.5
GR    738.8   11224.6     737.8   11246.0     738.4   11279.6     738.9   11313.7     739.6   11351.7
```

THIS SECTION IS IN THE "THROAT" OF THE GILA BEND CANAL WHICH CROSSES BENEATH SAND TANK WASH IN AN INVERTED SIPHON.

POINTS LEFT OF 9950 ACTUALLY FOLLOW THE LEVEE UPSTREAM WHICH WAS BUILT TO PROTECT A RESIDENTIAL AREA. THE LEVEE IS HIGHER THAN THE GILA BEND CANAL. POINTS TO THE RIGHT FOLLOW THE GILA BEND CANAL BANK.

THE INVERTED SIPHON ACTS AS AN OPEN CHANNEL. BANKS OF THE GILA BEND CANAL ACT AS WEIRS. SEVERAL MODELING METHODS WERE EMPLOYED:

1. MODEL AS TYPICAL OPEN CHANNEL WITH GR CARDS
2. MODEL AS A SPECIAL BRIDGE WITH A TRAPEZIODAL OPENING
3. MODEL SEPARATELY AS AN OPEN CHANNEL BETWEEN BANK STATIONS AND A WEIR OUTSIDE OF THE BANK STATIONS

THE METHOD THAT MOST CLOSELY APPROXIMATES TRUE CONDITIONS IS NUMBER 3, TO MODEL THE CHANNEL AND WEIR SEPARATELY.

THE CHANNEL GEOMETRY USED TO DEVELOP THE CHANNEL RATING IS SHOWN ON THE

GR CARDS. THE MODEL WHICH COMPUTES THE WEIR RATING IS INCLUDED AS A
SEPARATE MODEL TITLED WEIR1.IN

```
NC    0.025      0.025      0.025
X1     3888          9     9953.4    10038.6       295.0       250.0       275.0
GR    744.8     9953.4      739.0     9962.8       732.0      9973.7       731.3      9991.4       731.3     10000.0
GR    731.3    10017.3      732.0    10020.6       743.6     10033.4       745.2     10038.6
```

1

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 1

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 3747.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3747.000 | 5.48 | 732.48 | 0.00 | 0.00 | 732.77 | 0.29 | 0.00 | 0.00 | 736.70 |
| 5000.0 | 470.5 | 3335.1 | 1194.4 | 421.2 | 656.0 | 563.5 | 0.0 | 0.0 | 735.80 |
| 0.00 | 1.12 | 5.09 | 2.12 | 0.060 | 0.026 | 0.037 | 0.000 | 727.00 | 9584.38 |
| 0.001121 | 285. | 285. | 285. | 0 | 0 | 3 | 0.00 | 922.88 | 10912.94 |

1490 NH CARD USED
*SECNO 3768.000

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3768.000 | 4.61 | 732.61 | 0.00 | 0.00 | 732.89 | 0.28 | 0.12 | 0.00 | 735.40 |
| 5000.0 | 478.4 | 3368.4 | 1153.1 | 428.5 | 674.1 | 567.7 | 4.2 | 2.4 | 735.40 |
| 0.01 | 1.12 | 5.00 | 2.03 | 0.060 | 0.025 | 0.037 | 0.000 | 728.00 | 9584.12 |
| 0.001102 | 110. | 110. | 110. | 0 | 0 | 0 | 0.00 | 987.49 | 10912.06 |

1490 NH CARD USED

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.56 | 3.00 | 0.00 | 175.00 | 20.00 | 899.00 | 0.00 | 728.10 | 728.00 |

*SECNO 3782.000

3265 DIVIDED FLOW

CLASS A LOW FLOW

3420 BRIDGE W.S.= 732.39 BRIDGE VELOCITY= 7.44 CALCULATED CHANNEL AREA= 664.

1

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

| EGPRS | EGLWC | H3 | QWEIR | QLOW | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 732.98 | 0.10 | 0. | 5000. | 899. | 915. | 734.00 | 737.40 | 0. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3782.000 | 4.62 | 732.72 | 0.00 | 0.00 | 732.98 | 0.27 | 0.09 | 0.00 | 735.50 |
| 5000.0 | 469.6 | 3322.8 | 1207.6 | 431.9 | 675.8 | 591.9 | 7.0 | 4.1 | 735.50 |
| 0.01 | 1.09 | 4.92 | 2.04 | 0.060 | 0.025 | 0.037 | 0.000 | 728.10 | 9584.00 |
| 0.001037 | 74. | 74. | 74. | 0 | 0 | 0 | 0.00 | 989.34 | 10912.38 |

1490 NH CARD USED
*SECNO 3836.000

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3836.000 | 4.27 | 733.27 | 733.27 | 0.00 | 733.91 | 0.64 | 0.49 | 0.11 | 734.70 |
| 5000.0 | 0.0 | 3573.9 | 1426.1 | 0.0 | 482.8 | 506.5 | 15.5 | 9.4 | 735.40 |
| 0.03 | 0.00 | 7.40 | 2.82 | 0.000 | 0.025 | 0.034 | 0.000 | 729.00 | 9923.18 |
| 0.003650 | 295. | 285. | 255. | 20 | 10 | 0 | 0.00 | 727.42 | 11173.00 |

*SECNO 3888.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3888.000 | 6.86 | 738.16 | 738.16 | 0.00 | 741.08 | 2.92 | 1.22 | 0.68 | 744.80 |
| 5000.0 | 0.0 | 5000.0 | 0.0 | 0.0 | 364.6 | 0.0 | 19.6 | 11.7 | 745.20 |
| 0.03 | 0.00 | 13.71 | 0.00 | 0.000 | 0.025 | 0.000 | 0.000 | 731.30 | 9964.11 |
| 0.005619 | 295. | 275. | 250. | 20 | 14 | 0 | 0.00 | 63.28 | 10027.39 |

1

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T1 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2 GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3 SAND TANK AT GB CANAL J. MISCHLER - (602) 244-8100

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J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                3                           0.0011

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     2                   -1

1
   02APR92      16:07:52                                                                                    PAGE    8

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 3747.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

  3747.000      6.83    733.83      0.00      0.00    734.13      0.30      0.00      0.00    736.70
   10000.0    1394.8    5001.3    3603.9     859.9     867.5    1441.2       0.0       0.0    735.80
      0.00      1.62      5.77      2.50     0.060     0.026     0.037     0.000    727.00   9569.31
  0.001113      285.      285.      285.         0         0         4      0.00   1240.58  10916.06

1490 NH CARD USED
*SECNO 3768.000

3265 DIVIDED FLOW

  3768.000      5.96    733.96      0.00      0.00    734.25      0.29      0.12      0.00    735.40
   10000.0    1382.0    5088.1    3530.0     867.5     894.8    1450.3       8.1       3.1    735.40
      0.01      1.59      5.69      2.43     0.060     0.025     0.037     0.000    728.00   9569.06
  0.001063      110.      110.      110.         0         0         0      0.00   1247.45  10915.81

1490 NH CARD USED

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS      731.59 , NOT     733.96 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25      1.56      3.00      0.00    175.00     20.00    899.00      0.00    728.10    728.00

*SECNO 3782.000

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.83

1
   02APR92      16:07:52                                                                                    PAGE    9

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

PRESSURE FLOW

 EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     TRAPEZOID AREA    ELLC      ELTRD     WEIRLN
   736.96    735.12      0.00        0.    10000.      899.       915.    734.00    737.40        0.

  3782.000      8.80    736.90      0.00      0.00    736.96      0.05      2.70      0.00    735.50
   10000.0    1740.8    3682.5    4576.8    2162.0    1390.0    4116.7      17.3       5.9    735.50
      0.02      0.81      2.65      1.11     0.060     0.025     0.042     0.000    728.10   9229.30
  0.000133       74.       74.       74.         2         0         0      0.00   2045.78  11289.86

1490 NH CARD USED
*SECNO 3836.000

3265 DIVIDED FLOW

  3836.000      7.94    736.94      0.00      0.00    737.01      0.07      0.05      0.01    734.70
   10000.0     481.9    3602.9    5915.1     875.2    1303.3    3530.1      58.7      18.1    735.40
      0.06      0.55      2.76      1.68     0.060     0.024     0.035     0.000    729.00   9038.37
  0.000239      295.      285.      255.         2         0         0      0.00   1848.36  11193.87

*SECNO 3888.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  3888.000     10.42    741.72    741.72      0.00    745.93      4.21      0.17      1.24    744.80
   10000.0       0.0   10000.0       0.0       0.0     607.1       0.0      77.9      24.1    745.20
      0.06      0.00     16.47      0.00     0.000     0.025     0.000     0.000    731.30   9958.40
  0.005113      295.      275.      250.        20        11         0      0.00     72.93  10031.32

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   02APR92      16:07:52                                                                                    PAGE   10

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
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T3      SAND TANK AT GB CANAL                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                4                         0.0011

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3                  -1

1
   02APR92      16:07:52                                                                          PAGE   11

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 3747.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

  3747.000      7.77    734.77      0.00      0.00    735.08      0.31      0.00      0.00    736.70
   15000.0    2286.0    6316.6    6397.4    1183.6    1024.3    2190.8       0.0       0.0    735.80
      0.00      1.93      6.17      2.92     0.060     0.026     0.036     0.000    727.00   9549.99
  0.001105      285.      285.      285.         0         0         4      0.00   1389.24  10979.02

1490 NH CARD USED
*SECNO 3768.000

3265 DIVIDED FLOW

  3768.000      6.89    734.89      0.00      0.00    735.20      0.31      0.12      0.00    735.40
   15000.0    2253.8    6467.2    6279.1    1191.3    1054.2    2201.5      11.2       3.5    735.40
      0.01      1.89      6.13      2.85     0.060     0.026     0.036     0.000    728.00   9549.42
  0.001053      110.      110.      110.         0         0         0      0.00   1392.13  10979.58

1490 NH CARD USED

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS     732.70 , NOT     734.89 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25      1.56      3.00      0.00    175.00     20.00    899.00      0.00    728.10    728.00

*SECNO 3782.000
3280 CROSS SECTION   3782.00 EXTENDED      0.23 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.26

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

1
   02APR92      16:07:52                                                                          PAGE   12

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

  EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     TRAPEZOID AREA    ELLC      ELTRD     WEIRLN
   741.63    737.20      0.00     3559.    11535.     899.      915.    734.00    737.40     1972.

  3782.000     10.73    738.83      0.00      0.00    738.88      0.04      3.67      0.00    735.50
   15000.0    2970.9    4568.4    7460.8    4050.6    1729.0    6519.9      25.4       7.1    735.50
      0.02      0.73      2.64      1.14     0.060     0.025     0.042     0.000    728.10   8546.06
  0.000099       74.       74.       74.         2         0         4      0.00   2825.44  11371.50

1490 NH CARD USED
*SECNO 3836.000

3265 DIVIDED FLOW

  3836.000      9.86    738.86      0.00      0.00    738.91      0.05      0.03      0.00    734.70
   15000.0    1607.6    4455.1    8937.4    2564.9    1798.0    5431.1      94.3      23.5    735.40
      0.06      0.63      2.48      1.65     0.060     0.026     0.035     0.000    729.00   8930.10
  0.000147      295.      285.      255.         2         0         0      0.00   2350.00  11310.83

*SECNO 3888.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  3888.000     13.35    744.65    744.65      0.00    749.67      5.02      0.11      1.49    744.80
   15000.0       0.0   15000.0       0.0       0.0     834.0       0.0     126.9      31.1    745.20
      0.07      0.00     17.98      0.00     0.000     0.025     0.000     0.000    731.30   9953.64
  0.004811      295.      275.      250.        20        11         0      0.00     83.18  10036.82

1
   02APR92      16:07:52                                                                          PAGE   13

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
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T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SAND TANK AT GB CANAL                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                5                           0.0011

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      4                 -1

1
   02APR92      16:07:52                                                                                PAGE   14

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 3747.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

  3747.000      8.24    735.24      0.00      0.00    735.57      0.32      0.00      0.00    736.70
   18000.0    2815.8    7027.6    8156.6    1370.0    1106.2    2599.7       0.0       0.0    735.80
      0.00      2.06      6.35      3.14     0.060     0.026     0.036     0.000    727.00   9321.26
  0.001101      285.      285.      285.         0         0         5      0.00   1481.69  10991.16

1490 NH CARD USED
*SECNO 3768.000

3265 DIVIDED FLOW

  3768.000      7.36    735.36      0.00      0.00    735.68      0.33      0.12      0.00    735.40
   18000.0    2774.0    7214.8    8011.2    1379.2    1136.4    2610.3      12.9       3.7    735.40
      0.01      2.01      6.35      3.07     0.060     0.026     0.036     0.000    728.00   9320.09
  0.001049      110.      110.      110.         0         0         0      0.00   1485.34  10991.70

1490 NH CARD USED

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS     733.31 , NOT     735.36 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25      1.56      3.00       0.00    175.00     20.00    899.00      0.00    728.10    728.00

*SECNO 3782.000
3280 CROSS SECTION   3782.00 EXTENDED      0.59 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.98

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

1
   02APR92      16:07:52                                                                                PAGE   15

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA     TRAPEZOID AREA      ELLC      ELTRD     WEIRLN
   745.07    738.59     0.00      6645.    11383.      899.      915.      734.00    737.40     2923.

  3782.000     11.09    739.19      0.00      0.00    739.24      0.06      3.56      0.00    735.50
   18000.0    3679.7    5301.8    9018.6    4565.1    1791.6    6972.5      28.6       7.6    735.50
      0.02      0.81      2.96      1.29     0.060     0.025     0.042     0.000    728.10   8368.19
  0.000118       74.       74.       74.         2         0         5      0.00   3003.31  11371.50

1490 NH CARD USED
*SECNO 3836.000

3265 DIVIDED FLOW

  3836.000     10.22    739.22      0.00      0.00    739.28      0.07      0.04      0.00    734.70
   18000.0    2109.5    5183.0   10707.5    2923.9    1890.9    5834.5     103.4      24.7    735.40
      0.06      0.72      2.74      1.84     0.060     0.027     0.035     0.000    729.00   8916.33
  0.000171      295.      285.      255.         2         0         0      0.00   2396.44  11330.99

*SECNO 3888.000
3280 CROSS SECTION   3888.00 EXTENDED      1.18 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  3888.000     14.68    745.98    745.98      0.00    751.59      5.62      0.13      1.67    744.80
   18000.0       0.0   18000.0       0.0       0.0     946.4       0.0     139.0      32.4    745.20
      0.06      0.00     19.02      0.00     0.000     0.025     0.000     0.000    731.30   9953.40
  0.004820      295.      275.      250.        20        11         0      0.00     85.20  10038.60

1
   02APR92      16:07:52                                                                                PAGE   16
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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SAND TANK AT GB CANAL                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                6                           0.0011

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15                  -1

1
   02APR92      16:07:52                                                                                    PAGE   17

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 3747.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

  3747.000      8.53    735.53      0.00      0.00    735.86      0.33      0.00      0.00    736.70
   20000.0    3184.6    7453.8    9361.7    1499.8    1157.7    2854.2       0.0       0.0    735.80
      0.00      2.12      6.44      3.28     0.060     0.026     0.036     0.000    727.00   9305.20
  0.001105      285.      285.      285.         0         0         5      0.00   1583.14  11108.03

1490 NH CARD USED
*SECNO 3768.000

3265 DIVIDED FLOW

  3768.000      7.64    735.64      0.00      0.00    735.98      0.33      0.12      0.00    735.40
   20000.0    3127.3    7701.0    9171.8    1510.1    1186.9    2867.6      14.0       4.0    735.40
      0.01      2.07      6.49      3.20     0.060     0.026     0.036     0.000    728.00   9303.99
  0.001047      110.      110.      110.         0         0         0      0.00   1595.15  11110.13

1490 NH CARD USED

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS     733.70 , NOT     735.64 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25      1.56      3.00       0.00    175.00     20.00    899.00      0.00    728.10    728.00

*SECNO 3782.000
3280 CROSS SECTION   3782.00 EXTENDED      0.77 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.80

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

1
   02APR92      16:07:52                                                                                    PAGE   18

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     TRAPEZOID AREA    ELLC      ELTRD     WEIRLN
   747.63    739.34      0.00      8806.    11241.      899.      915.    734.00    737.40      3113.

  3782.000     11.27    739.37      0.00      0.00    739.43      0.06      3.45      0.00    735.50
   20000.0    4159.4    5792.8   10047.8    4859.4    1823.2    7201.0      30.5       8.1    735.50
      0.02      0.86      3.18      1.40     0.060     0.025     0.042     0.000    728.10   8200.59
  0.000133       74.       74.       74.         2         0         5      0.00   3170.91  11371.50

1490 NH CARD USED
*SECNO 3836.000

3265 DIVIDED FLOW

  3836.000     10.40    739.40      0.00      0.00    739.48      0.07      0.04      0.00    734.70
   20000.0    2440.6    5672.2   11887.2    3109.0    1938.2    6044.2     108.6      25.8    735.40
      0.05      0.79      2.93      1.97     0.060     0.027     0.035     0.000    729.00   8906.47
  0.000191      295.      285.      255.         2         0         0      0.00   2422.62  11340.95

*SECNO 3888.000
3280 CROSS SECTION   3888.00 EXTENDED      2.03 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  3888.000     15.53    746.83    746.83      0.00    752.81      5.98      0.14      1.77    744.80
   20000.0       0.0   20000.0       0.0       0.0    1018.9       0.0     145.8      33.7    745.20
      0.06      0.00     19.63      0.00     0.000     0.025     0.000     0.000    731.30   9953.40
  0.004763      295.      275.      250.        20        11         0      0.00     85.20  10038.60
```

THIS RUN EXECUTED 02APR92 16:08:06

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SAND TANK WASH AT C133

SUMMARY PRINTOUT

| | SECNO | ELMIN | CWSEL | Q | VCH | DIFWSX | TOPWID | DEPTH | SSTA | ENDST | QLOB | QROB | ELTRD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3747.000 | 727.00 | 732.48 | 5000.00 | 5.09 | 0.00 | 922.88 | 5.48 | 9584.38 | 10912.94 | 470.51 | 1194.36 | 0.00 |
| | 3747.000 | 727.00 | 733.83 | 10000.00 | 5.77 | 0.00 | 1240.58 | 6.83 | 9569.31 | 10916.06 | 1394.85 | 3603.87 | 0.00 |
| | 3747.000 | 727.00 | 734.77 | 15000.00 | 6.17 | 0.00 | 1389.24 | 7.77 | 9549.99 | 10979.02 | 2286.04 | 6397.40 | 0.00 |
| | 3747.000 | 727.00 | 735.24 | 18000.00 | 6.35 | 0.00 | 1481.69 | 8.24 | 9321.26 | 10991.16 | 2815.75 | 8156.61 | 0.00 |
| | 3747.000 | 727.00 | 735.53 | 20000.00 | 6.44 | 0.00 | 1583.14 | 8.53 | 9305.20 | 11108.03 | 3184.56 | 9361.69 | 0.00 |
| | 3768.000 | 728.00 | 732.61 | 5000.00 | 5.00 | 0.13 | 987.49 | 4.61 | 9584.12 | 10912.06 | 478.44 | 1153.12 | 0.00 |
| | 3768.000 | 728.00 | 733.96 | 10000.00 | 5.69 | 0.13 | 1247.45 | 5.96 | 9569.06 | 10915.81 | 1381.97 | 3529.98 | 0.00 |
| | 3768.000 | 728.00 | 734.89 | 15000.00 | 6.13 | 0.12 | 1392.13 | 6.89 | 9549.42 | 10979.58 | 2253.75 | 6279.08 | 0.00 |
| | 3768.000 | 728.00 | 735.36 | 18000.00 | 6.35 | 0.12 | 1485.34 | 7.36 | 9320.09 | 10991.70 | 2773.99 | 8011.24 | 0.00 |
| | 3768.000 | 728.00 | 735.64 | 20000.00 | 6.49 | 0.11 | 1595.15 | 7.64 | 9303.99 | 11110.13 | 3127.27 | 9171.76 | 0.00 |
| | 3782.000 | 728.10 | 732.72 | 5000.00 | 4.92 | 0.10 | 989.34 | 4.62 | 9584.00 | 10912.38 | 469.59 | 1207.63 | 737.40 |
| * | 3782.000 | 728.10 | 736.90 | 10000.00 | 2.65 | 2.95 | 2045.78 | 8.80 | 9229.30 | 11289.86 | 1740.77 | 4576.76 | 737.40 |
| * | 3782.000 | 728.10 | 738.83 | 15000.00 | 2.64 | 3.94 | 2825.44 | 10.73 | 8546.06 | 11371.50 | 2970.89 | 7460.75 | 737.40 |
| * | 3782.000 | 728.10 | 739.19 | 18000.00 | 2.96 | 3.83 | 3003.31 | 11.09 | 8368.19 | 11371.50 | 3679.67 | 9018.58 | 737.40 |
| * | 3782.000 | 728.10 | 739.37 | 20000.00 | 3.18 | 3.72 | 3170.91 | 11.27 | 8200.59 | 11371.50 | 4159.40 | 10047.83 | 737.40 |
| * | 3836.000 | 729.00 | 733.27 | 5000.00 | 7.40 | 0.55 | 727.42 | 4.27 | 9923.18 | 11173.00 | 0.00 | 1426.08 | 0.00 |
| | 3836.000 | 729.00 | 736.94 | 10000.00 | 2.76 | 0.03 | 1848.36 | 7.94 | 9038.37 | 11193.87 | 481.92 | 5915.13 | 0.00 |
| | 3836.000 | 729.00 | 738.86 | 15000.00 | 2.48 | 0.03 | 2350.00 | 9.86 | 8930.10 | 11310.83 | 1607.56 | 8937.35 | 0.00 |
| | 3836.000 | 729.00 | 739.22 | 18000.00 | 2.74 | 0.03 | 2396.44 | 10.22 | 8916.33 | 11330.99 | 2109.53 | 10707.49 | 0.00 |
| | 3836.000 | 729.00 | 739.40 | 20000.00 | 2.93 | 0.03 | 2422.62 | 10.40 | 8906.47 | 11340.95 | 2440.62 | 11887.21 | 0.00 |
| * | 3888.000 | 731.30 | 738.16 | 5000.00 | 13.71 | 4.89 | 63.28 | 6.86 | 9964.11 | 10027.39 | 0.00 | 0.00 | 0.00 |
| * | 3888.000 | 731.30 | 741.72 | 10000.00 | 16.47 | 4.78 | 72.93 | 10.42 | 9958.40 | 10031.32 | 0.00 | 0.00 | 0.00 |
| * | 3888.000 | 731.30 | 744.65 | 15000.00 | 17.98 | 5.79 | 83.18 | 13.35 | 9953.64 | 10036.82 | 0.00 | 0.00 | 0.00 |
| * | 3888.000 | 731.30 | 745.98 | 18000.00 | 19.02 | 6.76 | 85.20 | 14.68 | 9953.40 | 10038.60 | 0.00 | 0.00 | 0.00 |
| * | 3888.000 | 731.30 | 746.83 | 20000.00 | 19.63 | 7.43 | 85.20 | 15.53 | 9953.40 | 10038.60 | 0.00 | 0.00 | 0.00 |



SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=   3782.000  PROFILE=  2  HYDRAULIC JUMP D.S.
WARNING SECNO=   3782.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   3782.000  PROFILE=  3  HYDRAULIC JUMP D.S.
WARNING SECNO=   3782.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   3782.000  PROFILE=  4  HYDRAULIC JUMP D.S.
WARNING SECNO=   3782.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   3782.000  PROFILE=  5  HYDRAULIC JUMP D.S.
WARNING SECNO=   3782.000  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   3836.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   3836.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   3836.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   3888.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   3888.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   3888.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   3888.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   3888.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   3888.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   3888.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   3888.000  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   3888.000  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   3888.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   3888.000  PROFILE=  4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   3888.000  PROFILE=  4  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   3888.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   3888.000  PROFILE=  5  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   3888.000  PROFILE=  5  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

## C135 Summary Data

| PND3: C133 + C135 | | | | | | |
|---|---|---|---|---|---|---|
| | | Discharge | | | | |
| Stage | Volume (ac-ft) | Divert To West (cfs) | Weir Flow Over Canal (cfs) | C133 Overchute (cfs) | C135 Culverts (cfs) | Total Flow (cfs) |
| 731.3 | 0 | --- | --- | 0 | 0 | 0 |
| 735.2 | 2 | --- | --- | 2000 | 0 | 2000 |
| 736.0 | 4 | --- | --- | 2615 | 3 | 2618 |
| 737.0 | 6 | --- | --- | 3770 | 11 | 3781 |
| 738.0 | 11 | --- | --- | 4850 | 30 | 4880 |
| 738.2 | 12 | --- | --- | 5000 | 35 | 5035 |
| 739.0 | 17 | --- | --- | 6200 | 53 | 6253 |
| 740.0 | 26 | --- | --- | 7600 | 70 | 7670 |
| 740.4 | 30 | --- | --- | 8200 | 75 | 8275 |
| 741.0 | 38 | --- | --- | 9000 | 82 | 9082 |
| 742.0 | 54 | --- | --- | 10500 | 91 | 10591 |
| 742.3 | 59 | --- | --- | 11000 | 92 | 11092 |
| 743.0 | 81 | --- | --- | 12000 | 94 | 12094 |
| 744.0 | 124 | --- | --- | 13900 | 97 | 13997 |
| 744.5 | 139 | --- | --- | 14700 | 99 | 14799 |
| 745.0 | 164 | --- | --- | 15770 | 100 | 15870 |
| 745.5 | 180 | --- | --- | 16900 | 102 | 17002 |
| 745.7 | 187 | 0 | 0 | 17400 | 102 | 17502 |
| 746.0 | 194 | 100 | 100 | 18050 | 103 | 18353 |
| 746.1 | 204 | 200 | 220 | 18300 | 104 | 18824 |
| 746.2 | 211 | 300 | 400 | 18500 | 105 | 19305 |
| 746.3 | 216 | 400 | 620 | 18800 | 106 | 19926 |
| 746.4 | 218 | 495 | 940 | 19000 | 106 | 20541 |
| 746.5 | 221 | 640 | 1370 | 19200 | 107 | 21317 |
| 746.9 | 226 | 1400 | 3860 | 20200 | 110 | 25570 |

```
*************************************************
* H    H    OOOO    BBBBB     CCCCC    W      W  *
* H    H   O    O   B    B   C         W  WW  W  *
* HHHHHH   O    O   BBBBB    C         W W  W W  *
* H    H   O    O   B    B   C         WW    WW  *
* H    H    OOOO    BBBBB     CCCCC    W      W  *
*************************************************
```

HYDRAULICS OF BRIDGE AND CULVERT WATERWAYS

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GALILEO SOFTWARE
16 RANCH ROAD
CHELMSFORD, MA 01824

VERSION 3.02
SERIAL NUMBER 1003

Gila Bend FIS
11358
CP135
WCD
Monday January 6,1992

--- HOBCW PROJECT DATA ---

| | | |
|---|---|---|
| NUMBER OF GROUND STATIONS | : | 6 |
| NUMBER OF ROAD STATIONS | : | 0 |
| NUMBER OF ROUGNESS COEFFICIENTS | : | 6 |
| STREAM SLOPE (ft/ft) | : | .01110 |
| MINIMUM FLOW (cfs) | : | .01 |
| MAXIMUM FLOW (cfs) | : | 160.00 |
| FLOW INCREMENT (cfs) | : | 10.00 |
| NUMBER OF CULVERTS | : | 2 |
| CULVERT CODE | : | 11311 |
| CULVERT SLOPE (ft/ft) | : | .04330 |
| CULVERT LENGTH (ft) | : | 122.50 |
| DOWNSTREAM CULVERT INVERT (ft) | : | 730.40 |
| CIRCULAR CULVERT DIAMETER | : | 2.50 |
| ENTRANCE LOSS COEFFICIENT Ke | : | .9 |
| CULVERT ROUGHNESS COEFFICIENT | : | .024 |

--- CROSS SECTION DESCRIPTION ---

| STATION NUMBER | STATION (ft) | GROUND ELEVATION (ft) | ROUGNESS FACTOR | ROAD ELEVATION (ft) |
|---|---|---|---|---|
| 1 | 100.00 | 739.00 | .0600 | |
| 2 | 300.00 | 738.00 | .0600 | |
| 3 | 305.00 | 735.70 | .0300 | |
| 4 | 325.00 | 735.70 | .0300 | |
| 5 | 330.00 | 738.00 | .0600 | |
| 6 | 530.00 | 739.00 | .0600 | |

--- HOBCW OUTPUT DATA ---

**********

STAGE ELEVATION = 735.70

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 304.99 | 305.00 | .0600 | .0 | .01 | .00 | .00 | .00 | .04 |
| 305.00 | 325.00 | .0300 | .1 | 20.00 | .00 | .11 | .01 | .14 |
| 325.00 | 325.01 | .0300 | .0 | .01 | .00 | .00 | .00 | .08 |
| TOTALS | | | .1 | | | .11 | .01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .370 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : .01
HEADWATER (ft) : 735.70
VELOCITY (fps) : .00

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : .01
HEADWATER (ft) : 735.70
VELOCITY (fps) : .00

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : .000
UPSTREAM STAGE (ft) : 735.704

**********

STAGE ELEVATION = 735.94

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 304.47 | 305.00 | .0600 | .1 | .58 | .11 | .37 | .04 | .60 |
| 305.00 | 325.00 | .0300 | 4.9 | 20.00 | .24 | 94.12 | 9.92 | 2.04 |
| 325.00 | 325.53 | .0300 | .1 | .58 | .11 | .74 | .08 | 1.20 |
| TOTALS | | | 5.0 | | | 95.23 | 10.03 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .733 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 5.02
HEADWATER (ft) : 736.81
VELOCITY (fps) : 6.19

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 5.02
HEADWATER (ft) : 736.95
VELOCITY (fps) : 6.19

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 1.004
UPSTREAM STAGE (ft) : 736.947

**********

STAGE ELEVATION = 736.07

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 304.20 | 305.00 | .0600 | .1 | .88 | .17 | 1.10 | .12 | .79 |
| 305.00 | 325.00 | .0300 | 7.3 | 20.00 | .37 | 186.63 | 19.66 | 2.68 |
| 325.00 | 325.80 | .0300 | .1 | .88 | .17 | 2.20 | .23 | 1.58 |
| TOTALS | | | 7.6 | | | 189.93 | 20.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .788 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 10.01
HEADWATER (ft) : 737.32
VELOCITY (fps) : 7.53

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 10.01
HEADWATER (ft) : 737.52
VELOCITY (fps) : 7.53

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 1.453
UPSTREAM STAGE (ft) : 737.520

**********

STAGE ELEVATION = 736.17

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 303.98 | 305.00 | .0600 | .2 | 1.12 | .21 | 2.09 | .22 | .93 |
| 305.00 | 325.00 | .0300 | 9.3 | 20.00 | .47 | 278.94 | 29.39 | 3.14 |
| 325.00 | 326.02 | .0300 | .2 | 1.12 | .21 | 4.19 | .44 | 1.86 |
| TOTALS | | | 9.8 | | | 285.22 | 30.05 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .823 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 15.03
HEADWATER (ft) : 737.77
VELOCITY (fps) : 8.44

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 15.03
HEADWATER (ft) : 738.00
VELOCITY (fps) : 8.44

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 1.832
UPSTREAM STAGE (ft) : 737.999

**********

STAGE ELEVATION = 736.25

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 303.80 | 305.00 | .0600 | .3 | 1.33 | .25 | 3.29 | .35 | 1.04 |
| 305.00 | 325.00 | .0300 | 11.1 | 20.00 | .55 | 370.02 | 38.98 | 3.52 |
| 325.00 | 326.20 | .0300 | .3 | 1.33 | .25 | 6.58 | .69 | 2.08 |
| TOTALS | | | 11.7 | | | 379.89 | 40.02 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .848 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 20.01
HEADWATER (ft) : 738.23
VELOCITY (fps) : 9.10

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 20.01
HEADWATER (ft) : 738.44
VELOCITY (fps) : 9.10

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.183
UPSTREAM STAGE (ft) : 738.437

**********

STAGE ELEVATION = 736.33

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 303.63 | 305.00 | .0600 | .4 | 1.51 | .29 | 4.67 | .49 | 1.14 |
| 305.00 | 325.00 | .0300 | 12.6 | 20.00 | .63 | 460.67 | 48.53 | 3.84 |
| 325.00 | 326.37 | .0300 | .4 | 1.51 | .29 | 9.35 | .98 | 2.27 |
| TOTALS | | | 13.5 | | | 474.69 | 50.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .869 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 25.01
HEADWATER (ft) : 738.74
VELOCITY (fps) : 9.62

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 25.01
HEADWATER (ft) : 738.86
VELOCITY (fps) : 9.62

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.530
UPSTREAM STAGE (ft) : 738.861

**********

STAGE ELEVATION = 736.40

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 303.47 | 305.00 | .0600 | .5 | 1.68 | .32 | 6.24 | .66 | 1.22 |
| 305.00 | 325.00 | .0300 | 14.1 | 20.00 | .70 | 552.14 | 58.17 | 4.13 |
| 325.00 | 326.53 | .0300 | .5 | 1.68 | .32 | 12.49 | 1.32 | 2.44 |
| TOTALS | | | 15.2 | | | 570.87 | 60.14 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .887 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 30.07
HEADWATER (ft) : 739.34
VELOCITY (fps) : 10.05

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 30.07
HEADWATER (ft) : 739.30
VELOCITY (fps) : 10.05

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.936
UPSTREAM STAGE (ft) : 739.339

**********

STAGE ELEVATION = 736.47

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 303.33 | 305.00 | .0600 | .6 | 1.84 | .35 | 7.93 | .84 | 1.30 |
| 305.00 | 325.00 | .0300 | 15.4 | 20.00 | .77 | 641.28 | 67.56 | 4.39 |
| 325.00 | 326.67 | .0300 | .6 | 1.84 | .35 | 15.86 | 1.67 | 2.59 |
| TOTALS | | | 16.7 | | | 665.08 | 70.07 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .902 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 35.04
HEADWATER (ft) : 740.03
VELOCITY (fps) : 10.38

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 35.04
HEADWATER (ft) : 739.74
VELOCITY (fps) : 10.38

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.564
UPSTREAM STAGE (ft) : 740.034

**********

STAGE ELEVATION = 736.53

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 303.19 | 305.00 | .0600 | .8 | 1.99 | .38 | 9.77 | 1.03 | 1.36 |
| 305.00 | 325.00 | .0300 | 16.7 | 20.00 | .83 | 730.33 | 76.94 | 4.62 |
| 325.00 | 326.81 | .0300 | .8 | 1.99 | .38 | 19.53 | 2.06 | 2.73 |
| TOTALS | | | 18.2 | | | 759.63 | 80.03 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .915 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 40.02
HEADWATER (ft) : 740.86
VELOCITY (fps) : 10.62

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 40.02
HEADWATER (ft) : 740.21
VELOCITY (fps) : 10.62

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 4.325
UPSTREAM STAGE (ft) : 740.858

**********

STAGE ELEVATION = 736.59

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 303.06 | 305.00 | .0600 | .9 | 2.13 | .41 | 11.74 | 1.24 | 1.43 |
| 305.00 | 325.00 | .0300 | 17.8 | 20.00 | .89 | 819.17 | 86.30 | 4.84 |
| 325.00 | 326.94 | .0300 | .9 | 2.13 | .41 | 23.47 | 2.47 | 2.86 |
| TOTALS | | | 19.6 | | | 854.38 | 90.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .927 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 45.01
HEADWATER (ft) : 741.82
VELOCITY (fps) : 10.76

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 45.01
HEADWATER (ft) : 740.73
VELOCITY (fps) : 10.76

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.228
UPSTREAM STAGE (ft) : 741.820

**********

STAGE ELEVATION = 736.65

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 302.94 | 305.00 | .0600 | 1.0 | 2.27 | .43 | 13.84 | 1.46 | 1.49 |
| 305.00 | 325.00 | .0300 | 19.0 | 20.00 | .95 | 908.15 | 95.68 | 5.04 |
| 325.00 | 327.06 | .0300 | 1.0 | 2.27 | .43 | 27.68 | 2.92 | 2.98 |
| TOTALS | | | 20.9 | | | 949.68 | 100.05 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .938 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 50.03
HEADWATER (ft) : 742.93
VELOCITY (fps) : 10.19

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 50.03
HEADWATER (ft) : 745.92
VELOCITY (fps) : 10.19

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 9.270
UPSTREAM STAGE (ft) : 745.919

**********

STAGE ELEVATION = 736.70

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 302.82 | 305.00 | .0600 | 1.1 | 2.40 | .45 | 15.95 | 1.68 | 1.54 |
| 305.00 | 325.00 | .0300 | 20.0 | 20.00 | 1.00 | 992.38 | 104.55 | 5.22 |
| 325.00 | 327.18 | .0300 | 1.1 | 2.40 | .45 | 31.90 | 3.36 | 3.09 |
| TOTALS | | | 22.2 | | | 1040.24 | 109.60 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .947 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 54.80
HEADWATER (ft) : 744.12
VELOCITY (fps) : 11.16

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 54.80
HEADWATER (ft) : 747.82
VELOCITY (fps) : 11.16

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 11.122
UPSTREAM STAGE (ft) : 747.824

**********

STAGE ELEVATION = 736.76

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 302.70 | 305.00 | .0600 | 1.2 | 2.53 | .48 | 18.39 | 1.94 | 1.60 |
| 305.00 | 325.00 | .0300 | 21.1 | 20.00 | 1.06 | 1084.48 | 114.26 | 5.41 |
| 325.00 | 327.30 | .0300 | 1.2 | 2.53 | .48 | 36.77 | 3.87 | 3.20 |
| TOTALS | | | 23.5 | | | 1139.64 | 120.07 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .957 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 60.03
HEADWATER (ft) : 745.56
VELOCITY (fps) : 12.23

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 60.03
HEADWATER (ft) : 750.11
VELOCITY (fps) : 12.23

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 13.350
UPSTREAM STAGE (ft) : 750.105

**********

STAGE ELEVATION = 736.81

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 302.60 | 305.00 | .0600 | 1.3 | 2.65 | .50 | 20.80 | 2.19 | 1.65 |
| 305.00 | 325.00 | .0300 | 22.1 | 20.00 | 1.11 | 1171.51 | 123.43 | 5.58 |
| 325.00 | 327.40 | .0300 | 1.3 | 2.65 | .50 | 41.61 | 4.38 | 3.30 |
| TOTALS | | | 24.8 | | | 1233.91 | 130.00 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .966 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 65.00
HEADWATER (ft) : 747.06
VELOCITY (fps) : 13.24

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 65.00
HEADWATER (ft) : 752.46
VELOCITY (fps) : 13.24

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 15.650
UPSTREAM STAGE (ft) : 752.456

**********

STAGE ELEVATION = 736.85

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 302.49 | 305.00 | .0600 | 1.4 | 2.76 | .52 | 23.34 | 2.46 | 1.70 |
| 305.00 | 325.00 | .0300 | 23.1 | 20.00 | 1.15 | 1258.76 | 132.62 | 5.74 |
| 325.00 | 327.51 | .0300 | 1.4 | 2.76 | .52 | 46.67 | 4.92 | 3.39 |
| TOTALS | | | 26.0 | | | 1328.77 | 139.99 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .974 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 70.00
HEADWATER (ft) : 748.68
VELOCITY (fps) : 14.26

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 70.00
HEADWATER (ft) : 755.00
VELOCITY (fps) : 14.26

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 18.148
UPSTREAM STAGE (ft) : 755.003

**********

STAGE ELEVATION = 736.90

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 302.39 | 305.00 | .0600 | 1.6 | 2.88 | .55 | 25.97 | 2.74 | 1.74 |
| 305.00 | 325.00 | .0300 | 24.0 | 20.00 | 1.20 | 1345.77 | 141.79 | 5.90 |
| 325.00 | 327.61 | .0300 | 1.6 | 2.88 | .55 | 51.94 | 5.47 | 3.49 |
| TOTALS | | | 27.2 | | | 1423.68 | 149.99 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .981 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 75.00
HEADWATER (ft) : 750.40
VELOCITY (fps) : 15.28

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 75.00
HEADWATER (ft) : 757.74
VELOCITY (fps) : 15.28

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 20.833
UPSTREAM STAGE (ft) : 757.735

--- SUMMARY OF RESULTS ---

| FLOW (cfs) | TAILWATER ELEVATION (ft) | HEADWATER ELEVATION (ft) | BACKWATER (ft) |
|---|---|---|---|
| .01 | 735.70 | 735.70 | .00 |
| 10.03 | 735.94 | 736.95 | 1.00 |
| 20.01 | 736.07 | 737.52 | 1.45 |
| 30.05 | 736.17 | 738.00 | 1.83 |
| 40.02 | 736.25 | 738.44 | 2.18 |
| 50.01 | 736.33 | 738.86 | 2.53 |
| 60.14 | 736.40 | 739.34 | 2.94 |
| 70.07 | 736.47 | 740.03 | 3.56 |
| 80.03 | 736.53 | 740.86 | 4.33 |
| 90.01 | 736.59 | 741.82 | 5.23 |
| 100.05 | 736.65 | 745.92 | 9.27 |
| 109.60 | 736.70 | 747.82 | 11.12 |
| 120.07 | 736.76 | 750.11 | 13.35 |
| 130.00 | 736.81 | 752.46 | 15.65 |
| 139.99 | 736.85 | 755.00 | 18.15 |
| 149.99 | 736.90 | 757.74 | 20.83 |

## C136 Summary Data

| C136 | | |
|---|---|---|
| Stage | Volume (acre-feet) | Discharge (cfs) |
| 731 | 0 | 0 |
| 732 | 0 | 30 |
| 733 | 0 | 70 |
| 734 | 1 | 140 |
| 735 | 2 | 215 |
| 736 | 3 | 300 |
| 737 | 8 | 360 |
| 738 | 24 | 415 |
| 739 | 49 | 460 |
| 740 | 83 | 505 |
| 741 | 131 | 550 |
| 742 | 196 | 585 |
| 743 | 279 | 620 |
| 744 | 380 | 650 |

```
*************************************************
*  H    H    OOOO    BBBBB     CCCCC    W      W  *
*  H    H   O    O   B    B   C         W  WW  W  *
*  HHHHHH   O    O   BBBBB    C         W W  W W  *
*  H    H   O    O   B    B   C         WW    WW  *
*  H    H    OOOO    BBBBB     CCCCC    W      W  *
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HYDRAULICS OF BRIDGE AND CULVERT WATERWAYS

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GALILEO SOFTWARE
16 RANCH ROAD
CHELMSFORD, MA 01824

VERSION 3.02
SERIAL NUMBER 1003

Gila Bend FIS
11358
CP136
WCD
Tues January 7,1992

--- HOBCW PROJECT DATA ---

| | | |
|---|---|---|
| NUMBER OF GROUND STATIONS | : | 6 |
| NUMBER OF ROAD STATIONS | : | 0 |
| NUMBER OF ROUGNESS COEFFICIENTS | : | 6 |
| STREAM SLOPE (ft/ft) | : | .00480 |
| MINIMUM FLOW (cfs) | : | .01 |
| MAXIMUM FLOW (cfs) | : | 775.00 |
| FLOW INCREMENT (cfs) | : | 50.00 |
| NUMBER OF CULVERTS | : | 3 |
| CULVERT CODE | : | 11311 |
| CULVERT SLOPE (ft/ft) | : | .01000 |
| CULVERT LENGTH (ft) | : | 100.00 |
| DOWNSTREAM CULVERT INVERT (ft) | : | 730.00 |
| CIRCULAR CULVERT DIAMETER | : | 4.50 |
| ENTRANCE LOSS COEFFICIENT Ke | : | .9 |
| CULVERT ROUGHNESS COEFFICIENT | : | .024 |

--- CROSS SECTION DESCRIPTION ---

| STATION NUMBER | STATION (ft) | GROUND ELEVATION (ft) | ROUGNESS FACTOR | ROAD ELEVATION (ft) |
|---|---|---|---|---|
| 1 | 100.00 | 733.00 | .0600 | |
| 2 | 300.00 | 732.00 | .0600 | |
| 3 | 305.00 | 730.00 | .0300 | |
| 4 | 325.00 | 730.00 | .0300 | |
| 5 | 330.00 | 732.00 | .0600 | |
| 6 | 530.00 | 733.00 | .0600 | |

--- HOBCW OUTPUT DATA ---

**********

STAGE ELEVATION = 730.01

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 304.98 | 305.00 | .0600 | .0 | .02 | .00 | .00 | .00 | .03 |
| 305.00 | 325.00 | .0300 | .1 | 20.00 | .01 | .21 | .01 | .12 |
| 325.00 | 325.02 | .0300 | .0 | .02 | .00 | .00 | .00 | .07 |
| TOTALS | | | .1 | | | .21 | .01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .259 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : .00
HEADWATER (ft) : 731.00
VELOCITY (fps) : .00

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : .00
HEADWATER (ft) : 731.00
VELOCITY (fps) : .00

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : .995
UPSTREAM STAGE (ft) : 731.000

**********

STAGE ELEVATION = 730.81

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 302.99 | 305.00 | .0600 | .8 | 2.17 | .37 | 10.43 | .72 | .89 |
| 305.00 | 325.00 | .0300 | 16.1 | 20.00 | .81 | 690.98 | 47.87 | 2.97 |
| 325.00 | 327.01 | .0300 | .8 | 2.17 | .37 | 20.86 | 1.45 | 1.78 |
| TOTALS | | | 17.7 | | | 722.26 | 50.04 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .600 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 16.68
HEADWATER (ft) : 732.74
VELOCITY (fps) : 4.89

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 16.68
HEADWATER (ft) : 732.09
VELOCITY (fps) : 5.15

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 1.935
UPSTREAM STAGE (ft) : 732.740

**********

STAGE ELEVATION = 731.21

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 301.99 | 305.00 | .0600 | 1.8 | 3.24 | .56 | 30.52 | 2.11 | 1.16 |
| 305.00 | 325.00 | .0300 | 24.1 | 20.00 | 1.20 | 1351.70 | 93.65 | 3.89 |
| 325.00 | 328.01 | .0300 | 1.8 | 3.24 | .56 | 61.03 | 4.23 | 2.33 |
| TOTALS | | | 27.7 | | | 1443.25 | 99.99 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .648 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 33.33
HEADWATER (ft) : 733.49
VELOCITY (fps) : 5.93

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 33.33
HEADWATER (ft) : 732.95
VELOCITY (fps) : 6.28

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.284
UPSTREAM STAGE (ft) : 733.490

**********

STAGE ELEVATION = 731.52

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 301.20 | 305.00 | .0600 | 2.9 | 4.10 | .71 | 56.87 | 3.94 | 1.36 |
| 305.00 | 325.00 | .0300 | 30.4 | 20.00 | 1.52 | 1994.58 | 138.19 | 4.54 |
| 325.00 | 328.80 | .0300 | 2.9 | 4.10 | .71 | 113.74 | 7.88 | 2.72 |
| TOTALS | | | 36.2 | | | 2165.19 | 150.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .678 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 50.00
HEADWATER (ft) : 734.15
VELOCITY (fps) : 6.61

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 50.00
HEADWATER (ft) : 733.66
VELOCITY (fps) : 7.11

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.630
UPSTREAM STAGE (ft) : 734.152

**********

STAGE ELEVATION = 731.79

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 300.52 | 305.00 | .0600 | 4.0 | 4.83 | .83 | 88.12 | 6.11 | 1.52 |
| 305.00 | 325.00 | .0300 | 35.9 | 20.00 | 1.79 | 2622.53 | 181.69 | 5.07 |
| 325.00 | 329.48 | .0300 | 4.0 | 4.83 | .83 | 176.24 | 12.21 | 3.04 |
| TOTALS | | | 43.9 | | | 2886.89 | 200.01 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .700 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 66.67
HEADWATER (ft) : 734.78
VELOCITY (fps) : 7.08

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 66.67
HEADWATER (ft) : 734.33
VELOCITY (fps) : 7.82

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 2.984
UPSTREAM STAGE (ft) : 734.777

**********

STAGE ELEVATION = 732.03

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 293.26 | 300.00 | .0600 | .1 | 6.74 | .02 | .18 | .01 | .11 |
| 300.00 | 305.00 | .0600 | 5.2 | 5.39 | .96 | 124.55 | 8.63 | 1.67 |
| 305.00 | 325.00 | .0300 | 40.7 | 20.00 | 2.03 | 3233.97 | 224.06 | 5.51 |
| 325.00 | 330.00 | .0300 | 5.2 | 5.39 | .96 | 249.10 | 17.26 | 3.34 |
| 330.00 | 336.74 | .0600 | .1 | 6.74 | .02 | .18 | .01 | .11 |
| TOTALS | | | 51.2 | | | 3607.98 | 249.97 | |

**********

--- SUBCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = .860 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 83.32
HEADWATER (ft) : 735.41
VELOCITY (fps) : 7.43

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 83.32
HEADWATER (ft) : 734.99
VELOCITY (fps) : 8.47

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.374
UPSTREAM STAGE (ft) : 735.408

**********

STAGE ELEVATION = 732.23

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 254.08 | 300.00 | .0600 | 5.3 | 45.92 | .11 | 30.84 | 2.14 | .41 |
| 300.00 | 305.00 | .0600 | 6.1 | 5.39 | 1.14 | 166.33 | 11.52 | 1.87 |
| 305.00 | 325.00 | .0300 | 44.6 | 20.00 | 2.23 | 3769.73 | 261.17 | 5.86 |
| 325.00 | 330.00 | .0300 | 6.1 | 5.39 | 1.14 | 332.66 | 23.05 | 3.75 |
| 330.00 | 375.92 | .0600 | 5.3 | 45.92 | .11 | 30.84 | 2.14 | .41 |
| TOTALS | | | 67.4 | | | 4330.41 | 300.02 | |

**********

--- SUPERCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = 1.321 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 100.01
HEADWATER (ft) : 736.08
VELOCITY (fps) : 7.63

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 100.01
HEADWATER (ft) : 735.73
VELOCITY (fps) : 9.09

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 3.855
UPSTREAM STAGE (ft) : 736.084

**********

STAGE ELEVATION = 732.38

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 223.66 | 300.00 | .0600 | 14.6 | 76.34 | .19 | 119.62 | 8.29 | .57 |
| 300.00 | 305.00 | .0600 | 6.9 | 5.39 | 1.28 | 202.01 | 14.00 | 2.03 |
| 305.00 | 325.00 | .0300 | 47.6 | 20.00 | 2.38 | 4208.01 | 291.54 | 6.12 |
| 325.00 | 330.00 | .0300 | 6.9 | 5.39 | 1.28 | 404.03 | 27.99 | 4.05 |
| 330.00 | 406.34 | .0600 | 14.6 | 76.34 | .19 | 119.62 | 8.29 | .57 |
| TOTALS | | | 90.6 | | | 5053.30 | 350.10 | |

**********

--- SUPERCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = 1.431 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 116.70
HEADWATER (ft) : 736.84
VELOCITY (fps) : 7.34

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 116.70
HEADWATER (ft) : 736.63
VELOCITY (fps) : 9.72

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 4.454
UPSTREAM STAGE (ft) : 736.835

**********

STAGE ELEVATION = 732.50

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 199.15 | 300.00 | .0600 | 25.4 | 100.86 | .25 | 251.35 | 17.41 | .68 |
| 300.00 | 305.00 | .0600 | 7.5 | 5.39 | 1.40 | 232.75 | 16.13 | 2.14 |
| 305.00 | 325.00 | .0300 | 50.1 | 20.00 | 2.50 | 4575.06 | 316.97 | 6.33 |
| 325.00 | 330.00 | .0300 | 7.5 | 5.39 | 1.40 | 465.51 | 32.25 | 4.29 |
| 330.00 | 430.85 | .0600 | 25.4 | 100.86 | .25 | 251.35 | 17.41 | .68 |
| TOTALS | | | 116.0 | | | 5776.03 | 400.17 | |

**********

--- SUPERCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = 1.440 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 133.39
HEADWATER (ft) : 737.69
VELOCITY (fps) : 8.39

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 133.39
HEADWATER (ft) : 737.62
VELOCITY (fps) : 10.35

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 5.182
UPSTREAM STAGE (ft) : 737.686

**********

STAGE ELEVATION = 732.61

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 178.56 | 300.00 | .0600 | 36.9 | 121.44 | .30 | 412.43 | 28.57 | .78 |
| 300.00 | 305.00 | .0600 | 8.0 | 5.39 | 1.49 | 259.89 | 18.01 | 2.24 |
| 305.00 | 325.00 | .0300 | 52.1 | 20.00 | 2.61 | 4892.66 | 338.97 | 6.50 |
| 325.00 | 330.00 | .0300 | 8.0 | 5.39 | 1.49 | 519.78 | 36.01 | 4.48 |
| 330.00 | 451.44 | .0600 | 36.9 | 121.44 | .30 | 412.43 | 28.57 | .78 |
| TOTALS | | | 141.9 | | | 6497.20 | 450.14 | |

**********

--- SUPERCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = 1.419 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 150.05
HEADWATER (ft) : 738.65
VELOCITY (fps) : 9.43

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 150.05
HEADWATER (ft) : 738.68
VELOCITY (fps) : 11.02

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 6.072
UPSTREAM STAGE (ft) : 738.679

**********

STAGE ELEVATION = 732.70

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 160.71 | 300.00 | .0600 | 48.5 | 139.30 | .35 | 594.64 | 41.20 | .85 |
| 300.00 | 305.00 | .0600 | 8.5 | 5.39 | 1.58 | 284.40 | 19.70 | 2.32 |
| 305.00 | 325.00 | .0300 | 53.9 | 20.00 | 2.70 | 5175.12 | 358.54 | 6.65 |
| 325.00 | 330.00 | .0300 | 8.5 | 5.39 | 1.58 | 568.80 | 39.41 | 4.65 |
| 330.00 | 469.29 | .0600 | 48.5 | 139.30 | .35 | 594.64 | 41.20 | .85 |
| TOTALS | | | 167.9 | | | 7217.60 | 500.05 | |

**********

--- SUPERCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = 1.387 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 166.68
HEADWATER (ft) : 739.75
VELOCITY (fps) : 10.48

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 166.68
HEADWATER (ft) : 739.82
VELOCITY (fps) : 11.73

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 7.127
UPSTREAM STAGE (ft) : 739.823

**********

STAGE ELEVATION = 732.78

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 144.81 | 300.00 | .0600 | 60.2 | 155.19 | .39 | 793.21 | 54.95 | .91 |
| 300.00 | 305.00 | .0600 | 8.9 | 5.39 | 1.65 | 306.95 | 21.27 | 2.39 |
| 305.00 | 325.00 | .0300 | 55.5 | 20.00 | 2.78 | 5431.81 | 376.33 | 6.78 |
| 325.00 | 330.00 | .0300 | 8.9 | 5.39 | 1.65 | 613.90 | 42.53 | 4.79 |
| 330.00 | 485.19 | .0600 | 60.2 | 155.19 | .39 | 793.21 | 54.95 | .91 |
| TOTALS | | | 193.7 | | | 7939.06 | 550.03 | |

**********

--- SUPERCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = 1.354 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 183.34
HEADWATER (ft) : 741.00
VELOCITY (fps) : 11.53

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 183.34
HEADWATER (ft) : 741.09
VELOCITY (fps) : 12.49

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 8.310
UPSTREAM STAGE (ft) : 741.086

**********

STAGE ELEVATION = 732.85

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 130.57 | 300.00 | .0600 | 71.8 | 169.44 | .42 | 1002.53 | 69.46 | .97 |
| 300.00 | 305.00 | .0600 | 9.2 | 5.39 | 1.72 | 327.74 | 22.71 | 2.46 |
| 305.00 | 325.00 | .0300 | 56.9 | 20.00 | 2.85 | 5666.08 | 392.56 | 6.89 |
| 325.00 | 330.00 | .0300 | 9.2 | 5.39 | 1.72 | 655.48 | 45.41 | 4.92 |
| 330.00 | 499.43 | .0600 | 71.8 | 169.44 | .42 | 1002.53 | 69.46 | .97 |
| TOTALS | | | 219.0 | | | 8654.35 | 599.59 | |

**********

--- SUPERCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = 1.322 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 199.86
HEADWATER (ft) : 742.38
VELOCITY (fps) : 12.57

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 199.86
HEADWATER (ft) : 742.42
VELOCITY (fps) : 13.29

--- OUTLET CONTROL GOVERNS ---

BACKWATER (ft) : 9.571
UPSTREAM STAGE (ft) : 742.418

**********

STAGE ELEVATION = 732.91

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 117.33 | 300.00 | .0600 | 83.4 | 182.67 | .46 | 1225.14 | 84.88 | 1.02 |
| 300.00 | 305.00 | .0600 | 9.6 | 5.39 | 1.78 | 347.54 | 24.08 | 2.52 |
| 305.00 | 325.00 | .0300 | 58.3 | 20.00 | 2.91 | 5887.22 | 407.88 | 7.00 |
| 325.00 | 330.00 | .0300 | 9.6 | 5.39 | 1.78 | 695.07 | 48.16 | 5.03 |
| 330.00 | 512.67 | .0600 | 83.4 | 182.67 | .46 | 1225.14 | 84.88 | 1.02 |
| TOTALS | | | 244.2 | | | 9380.11 | 649.87 | |

**********

--- SUPERCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = 1.291 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 216.62
HEADWATER (ft) : 743.93
VELOCITY (fps) : 13.62

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 216.62
HEADWATER (ft) : 743.91
VELOCITY (fps) : 14.16

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 11.013
UPSTREAM STAGE (ft) : 743.927

**********

STAGE ELEVATION = 732.97

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 105.18 | 300.00 | .0600 | 94.9 | 194.83 | .49 | 1454.83 | 100.79 | 1.06 |
| 300.00 | 305.00 | .0600 | 9.9 | 5.39 | 1.83 | 366.13 | 25.37 | 2.57 |
| 305.00 | 325.00 | .0300 | 59.5 | 20.00 | 2.97 | 6093.39 | 422.16 | 7.10 |
| 325.00 | 330.00 | .0300 | 9.9 | 5.39 | 1.83 | 732.27 | 50.73 | 5.14 |
| 330.00 | 524.82 | .0600 | 94.9 | 194.83 | .49 | 1454.83 | 100.79 | 1.06 |
| TOTALS | | | 269.0 | | | 10101.45 | 699.85 | |

**********

--- SUPERCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = 1.262 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 233.28
HEADWATER (ft) : 745.62
VELOCITY (fps) : 14.67

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 233.28
HEADWATER (ft) : 745.47
VELOCITY (fps) : 15.07

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 12.644
UPSTREAM STAGE (ft) : 745.618

**********

STAGE ELEVATION = 733.03

LEFT END EXTENDED .03 FT. AT NORMAL DEPTH.

RIGHT END EXTENDED .03 FT. AT NORMAL DEPTH.

| STARTING STATION (ft) | ENDING STATION (ft) | ROUGHNESS FACTOR | CHANNEL AREA (sq ft) | WETTED PERIMETER (ft) | HYDRAULIC RADIUS (ft) | CONVEYANCE | DISCHARGE (cfs) | VELOCITY (fps) |
|---|---|---|---|---|---|---|---|---|
| 100.00 | 300.00 | .0600 | 105.3 | 200.00 | .53 | 1701.68 | 117.90 | 1.12 |
| 300.00 | 305.00 | .0600 | 10.1 | 5.39 | 1.88 | 382.54 | 26.50 | 2.62 |
| 305.00 | 325.00 | .0300 | 60.5 | 20.00 | 3.03 | 6274.10 | 434.68 | 7.18 |
| 325.00 | 330.00 | .0300 | 10.1 | 5.39 | 1.88 | 765.08 | 53.01 | 5.23 |
| 330.00 | 530.00 | .0600 | 105.3 | 200.00 | .53 | 1701.68 | 117.90 | 1.12 |
| TOTALS | | | 291.5 | | | 10825.09 | 749.98 | |

**********

--- SUPERCRITICAL FLOW IN CHANNEL, FROUDE NUMBER = 1.219 ---

INLET CONTROL RESULTS
DISCHARGE (cfs) : 249.99
HEADWATER (ft) : 747.46
VELOCITY (fps) : 15.72

OUTLET CONTROL RESULTS
DISCHARGE (cfs) : 249.99
HEADWATER (ft) : 747.14
VELOCITY (fps) : 16.02

--- INLET CONTROL GOVERNS ---

BACKWATER (ft) : 14.434
UPSTREAM STAGE (ft) : 747.461

--- SUMMARY OF RESULTS ---

| FLOW (cfs) | TAILWATER ELEVATION (ft) | HEADWATER ELEVATION (ft) | BACKWATER (ft) |
|---|---|---|---|
| .01 | 730.01 | 731.00 | .99 |
| 50.04 | 730.81 | 732.74 | 1.93 |
| 99.99 | 731.21 | 733.49 | 2.28 |
| 150.01 | 731.52 | 734.15 | 2.63 |
| 200.01 | 731.79 | 734.78 | 2.98 |
| 249.97 | 732.03 | 735.41 | 3.37 |
| 300.02 | 732.23 | 736.08 | 3.85 |
| 350.10 | 732.38 | 736.84 | 4.45 |
| 400.17 | 732.50 | 737.69 | 5.18 |
| 450.14 | 732.61 | 738.68 | 6.07 |
| 500.05 | 732.70 | 739.82 | 7.13 |
| 550.03 | 732.78 | 741.09 | 8.31 |
| 599.59 | 732.85 | 742.42 | 9.57 |
| 649.87 | 732.91 | 743.93 | 11.01 |
| 699.85 | 732.97 | 745.62 | 12.64 |
| 749.98 | 733.03 | 747.46 | 14.43 |

## C151 Summary Data

| | C151 | |
|---|---|---|
| Stage | Volume | Discharge |
| 742 | 0 | 0 |
| 743 | 1.8 | 700 |
| 744 | 2.5 | 1300 |
| 745 | 12 | 1900 |
| 746 | 24 | 2500 |
| 747 | 45 | 3200 |
| 748 | 82.6 | 3800 |
| 749 | 124 | 4400 |
| 750 | 172 | 5100 |
| 751 | 230 | 5700 |
| 751.2 | 241 | 5800 |
| 751.4 | 252 | 6100 |
| 751.6 | 268 | 6300 |
| 751.8 | 283 | 6600 |
| 752 | 296.4 | 6800 |
| 752.2 | 308 | 7200 |
| 752.4 | 321 | 7500 |
| 752.6 | 333 | 8000 |
| 752.8 | 346 | 8500 |
| 753 | 365 | 9100 |
| 753.2 | 380 | 10000 |
| 753.5 | 408 | 12200 |
| 754 | 446 | 17600 |
| 754.5 | 485 | 25000 |

```
1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version   4.6.2;  May 1991                *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-6069   *
 *  RUN DATE    27MAR92    TIME   15:49:57    *
 *********************************************

                                                                                                  *************************************
                                                                                                  *  U.S. ARMY CORPS OF ENGINEERS     *
                                                                                                  *  HYDROLOGIC ENGINEERING CENTER    *
                                                                                                  *  609 SECOND STREET, SUITE D       *
                                                                                                  *  DAVIS, CALIFORNIA 95616-4687     *
                                                                                                  *          (916) 756-1104           *
                                                                                                  *************************************

                                        X     X  XXXXXXX   XXXXX              XXXXX
                                        X     X  X        X     X            X     X
                                        X     X  X        X                        X
                                        XXXXXXX  XXXX     X          XXXXX    XXXXX
                                        X     X  X        X                  X
                                        X     X  X        X     X            X
                                        X     X  XXXXXXX   XXXXX             XXXXXXX
1
   27MAR92       15:49:57                                                                                                    PAGE    1


                                                                                                THIS RUN EXECUTED 27MAR92    15:49:57
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
 T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
 T3      CORNELIA RAILROAD BRIDGE                J. MISCHLER - (602) 244-8100

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                         0.0047

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                 -1


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        42         1        43        26        51         4         8        53        54
      13        15        40

 NC    0.035     0.035     0.035       0.3       0.5
 QT        5      5000     10000     15000     20000     25000
 X1        1        17      9930     10120                                                   -0.5
 GR      760      8000       756      8900       752      9770       748      9930       744      9970
 GR      742     10000       744     10090       748     10120       748     10270       752     10530
 GR      756     10650       756     10750       752     10980       748     11350       748     11580
 GR      752     12050       760     12070

 X1        2        18      9970     10090       100       100       100
 X3       10                                                                749.5       748
 GR      760      8000       756      8900       752      9770       748      9930       744      9970
 GR      742      9971       742     10089       744     10090       748     10120       748     10270
 GR      752     10530       756     10650       756     10750       752     10980       748     11350
 GR      748     11580       752     12050       760     12070

 SB     1.25      1.56       3.0         0        70         4       475         0       742       742
 X1        3        18      9970     10090        40        40        40
 X2                          1     749.2     752.1
 X3       10                                                                753.2     752.1
 BT      -13      8620     759.8                8920     757.7                9220     756.6
 BT               9600     754.8               10000     753.2               10200     753.3
 BT              10460     753.1               10810     752.1               11150     752.4
 BT              11480     752.1               11790     752.5               12050     752.5
 BT              12070       760
 GR      760      8000       756      8900       752      9770       748      9930       744      9970
 GR      742      9971       742     10089       744     10090       748     10120       748     10270
 GR      752     10530       756     10650       756     10750       752     10980       748     11350
1
   27MAR92       15:49:57                                                                                                    PAGE    2


 GR      748     11580       752     12050       760     12070

 X1        4        17      9930     10120       100       100       100                 0.5
 GR      760      8000       756      8900       752      9770       748      9930       744      9970
 GR      742     10000       744     10090       748     10120       748     10270       752     10530
 GR      756     10650       756     10750       752     10980       748     11350       748     11580
 GR      752     12050       760     12070
1
   27MAR92       15:49:57                                                                                                    PAGE    3


     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *PROF 1

 CCHV=    0.300 CEHV=    0.500
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
      1.000      5.85    747.35      0.00      0.00    748.11      0.77      0.00      0.00    747.50
     5000.0       0.0    5000.0       0.0       0.0     710.9       0.0       0.0       0.0    747.50
       0.00      0.00      7.03      0.00     0.000     0.035     0.000     0.000    741.50   9931.54
   0.004653        0.        0.        0.         0         0         6      0.00    187.30  10118.84


 *SECNO 2.000
```

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       749.50 ELREA=       748.00

     2.000      5.68    747.68      0.00      0.00    748.52      0.84      0.37      0.04    744.00
    5000.0       0.0    5000.0       0.0       0.0     679.9       0.0       1.6       0.4    744.00
      0.00      0.00      7.35      0.00     0.000     0.035     0.000     0.000    742.00   9970.00
  0.003052      100.      100.      100.         2         0         0      0.00    120.00  10090.00


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS     746.49 , NOT     747.68 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK       XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25     1.56      3.00       0.00    70.00      4.00    475.00      0.00    742.00    742.00

*SECNO 3.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.75

PRESSURE FLOW

 EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     TRAPEZOID AREA    ELLC      ELTRD     WEIRLN
   750.37    749.63     0.00        0.     5000.      475.      475.      749.20    752.10        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       753.20 ELREA=       752.10

     3.000      7.94    749.94      0.00      0.00    750.37      0.43      1.84      0.00    744.00
    5000.0       0.0    5000.0       0.0       0.0     950.7       0.0       2.3       0.5    744.00
      0.01      0.00      5.26      0.00     0.000     0.035     0.000     0.000    742.00   9970.00
  0.000998       40.       40.       40.         2         0         0      0.00    120.00  10090.00

1
   27MAR92       15:49:57                                                                          PAGE    4

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 4.000

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.42

     4.000      7.93    750.43      0.00      0.00    750.53      0.11      0.07      0.10    748.50
    5000.0      68.8    3382.6    1548.6      74.5    1106.7    1245.7       6.2       2.0    748.50
      0.02      0.92      3.06      1.24     0.035     0.035     0.035     0.000    742.50   9852.79
  0.000496      100.      100.      100.         2         0         0      0.00   1177.99  11806.79

1
   27MAR92       15:49:57                                                                          PAGE    5

T1       FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2       GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3       CORNELIA RAILROAD BRIDGE                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 3                           0.0047

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     2                   -1

1
   27MAR92       15:49:57                                                                          PAGE    6

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CCHV=    0.300 CEHV=    0.500
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.000      7.16    748.66    748.66      0.00    749.60      0.94      0.00      0.00    747.50
   10000.0      54.5    8159.3    1786.3      27.1     961.1     628.3       0.0       0.0    747.50
      0.00      2.01      8.49      2.84     0.035     0.035     0.035     0.000    741.50   9883.46
  0.004622        0.        0.        0.         0        16         0      0.00    936.51  11716.71

*SECNO 2.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       749.50 ELREA=       748.00

     2.000      7.25    749.25    749.25      0.00    750.24      0.99      0.38      0.03    744.00
   10000.0       0.0    7761.0    2239.0       0.0     868.4     789.7       3.8       2.1    744.00
      0.00      0.00      8.94      2.84     0.000     0.035     0.035     0.000    742.00   9970.00
  0.003253      100.      100.      100.         2         6         0      0.00    874.62  11727.25
```

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 749.12 , NOT 749.26 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| SB XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|
| 1.25 | 1.56 | 3.00 | 0.00 | 70.00 | 4.00 | 475.00 | 0.00 | 742.00 | 742.00 |

*SECNO 3.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

1
27MAR92 15:49:57 PAGE 7

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.68

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| 759.99 | 754.24 | 0.00 | 3909. | 6098. | 475. | 475. | 749.20 | 752.10 | 1882. |
| 3.000 | 11.21 | 753.21 | 0.00 | 0.00 | 753.25 | 0.03 | 3.00 | 0.00 | 744.00 |
| 10000.0 | 984.3 | 2829.7 | 6186.1 | 962.7 | 1343.6 | 5798.1 | 8.2 | 3.5 | 744.00 |
| 0.01 | 1.02 | 2.11 | 1.07 | 0.035 | 0.035 | 0.035 | 0.000 | 742.00 | 9506.14 |
| 0.000101 | 40. | 40. | 40. | 2 | 0 | 6 | 0.00 | 2203.04 | 12053.03 |

*SECNO 4.000

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.000 | 10.72 | 753.22 | 0.00 | 0.00 | 753.26 | 0.04 | 0.01 | 0.01 | 748.50 |
| 10000.0 | 470.4 | 3684.9 | 5844.7 | 491.6 | 1636.8 | 4809.3 | 25.5 | 8.4 | 748.50 |
| 0.03 | 0.96 | 2.25 | 1.22 | 0.035 | 0.035 | 0.035 | 0.000 | 742.50 | 9613.35 |
| 0.000160 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 2051.47 | 12051.80 |

1
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T1 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2 GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3 CORNELIA RAILROAD BRIDGE J. MISCHLER - (602) 244-8100

| J1 ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|
| | 4 | | | 0.0047 | | | | | |

| J2 NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|
| 3 | | -1 | | | | | | | |

1
27MAR92 15:49:57 PAGE 9

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 3

CCHV= 0.300 CEHV= 0.500
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 7.88 | 749.38 | 749.33 | 0.00 | 750.38 | 1.00 | 0.00 | 0.00 | 747.50 |
| 15000.0 | 197.7 | 10271.1 | 4531.2 | 70.7 | 1097.3 | 1200.8 | 0.0 | 0.0 | 747.50 |
| 0.00 | 2.80 | 9.36 | 3.77 | 0.035 | 0.035 | 0.035 | 0.000 | 741.50 | 9854.78 |
| 0.004709 | 0. | 0. | 0. | 0 | 9 | 0 | 0.00 | 1162.34 | 11800.95 |

*SECNO 2.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 7.75 | 749.75 | 749.75 | 0.00 | 750.89 | 1.14 | 0.43 | 0.07 | 744.00 |
| 15000.0 | 1113.5 | 9562.2 | 4334.3 | 211.6 | 928.3 | 1201.2 | 5.4 | 2.6 | 744.00 |
| 0.00 | 6.26 | 10.29 | 3.61 | 0.035 | 0.035 | 0.035 | 0.000 | 742.00 | 9859.88 |
| 0.003944 | 100. | 100. | 100. | 2 | 5 | 0 | 0.00 | 1122.15 | 11785.96 |

SPECIAL BRIDGE

| SB XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|
| 1.25 | 1.56 | 3.00 | 0.00 | 70.00 | 4.00 | 475.00 | 0.00 | 742.00 | 742.00 |

*SECNO 3.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.01

1
27MAR92 15:49:57 PAGE 10

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| 773.91 | 753.81 | 0.34 | 8861. | 6143. | 475. | 475. | 749.20 | 752.10 | 2205. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3.000 | 11.75 | 753.75 | 0.00 | 0.00 | 753.80 | 0.05 | 2.91 | 0.00 | 744.00 |
| 15000.0 | 1580.1 | 3822.0 | 9598.0 | 1244.6 | 1408.3 | 6684.7 | 10.8 | 4.2 | 744.00 |
| 0.01 | 1.27 | 2.71 | 1.44 | 0.035 | 0.035 | 0.035 | 0.000 | 742.00 | 9388.80 |
| 0.000157 | 40. | 40. | 40. | 2 | 0 | 7 | 0.00 | 2368.93 | 12054.38 |

*SECNO 4.000

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.000 | 11.26 | 753.76 | 0.00 | 0.00 | 753.83 | 0.07 | 0.02 | 0.01 | 748.50 |
| 15000.0 | 836.8 | 4983.5 | 9179.7 | 695.8 | 1740.1 | 5662.1 | 30.8 | 9.5 | 748.50 |
| 0.02 | 1.20 | 2.86 | 1.62 | 0.035 | 0.035 | 0.035 | 0.000 | 742.50 | 9495.15 |
| 0.000238 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 2218.58 | 12053.16 |

1
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T1 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2 GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3 CORNELIA RAILROAD BRIDGE J. MISCHLER - (602) 244-8100

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 5 | | | 0.0047 | | | | | |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 4 | | -1 | | | | | | | |

1
27MAR92 15:49:57 PAGE 12

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 4

CCHV= 0.300 CEHV= 0.500
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 8.44 | 749.94 | 0.00 | 0.00 | 750.98 | 1.04 | 0.00 | 0.00 | 747.50 |
| 20000.0 | 396.2 | 11982.7 | 7621.2 | 119.1 | 1203.7 | 1746.3 | 0.0 | 0.0 | 747.50 |
| 0.00 | 3.33 | 9.95 | 4.36 | 0.035 | 0.035 | 0.035 | 0.000 | 741.50 | 9832.38 |
| 0.004708 | 0. | 0. | 0. | 0 | 0 | 5 | 0.00 | 1338.75 | 11866.76 |

*SECNO 2.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2.000 | 8.30 | 750.30 | 750.30 | 0.00 | 751.51 | 1.21 | 0.45 | 0.09 | 744.00 |
| 20000.0 | 1572.3 | 11079.2 | 7348.5 | 278.0 | 994.2 | 1731.9 | 7.0 | 3.0 | 744.00 |
| 0.00 | 5.66 | 11.14 | 4.24 | 0.035 | 0.035 | 0.035 | 0.000 | 742.00 | 9837.94 |
| 0.004222 | 100. | 100. | 100. | 2 | 5 | 0 | 0.00 | 1294.96 | 11850.42 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.25 | 1.56 | 3.00 | 0.00 | 70.00 | 4.00 | 475.00 | 0.00 | 742.00 | 742.00 |

*SECNO 3.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.45

1
27MAR92 15:49:57 PAGE 13

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |

```
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     TRAPEZOID     ELLC      ELTRD     WEIRLN
                                                              AREA
   793.28    756.43    0.37    13986.     6064.     475.      475.      749.20    752.10     2317.

     3.000     12.18   754.18      0.00      0.00   754.25      0.07      2.74      0.00    744.00
   20000.0    2233.1   4722.6   13044.2    1509.7   1459.0    7397.7      13.1       4.8    744.00
      0.01      1.48     3.24      1.76     0.035    0.035     0.035     0.000    742.00   9296.86
  0.000214      40.      40.       40.         2        0         7      0.00   2498.92  12055.44

*SECNO 4.000

3265 DIVIDED FLOW

     4.000     11.69   754.19      0.00      0.00   754.29      0.10      0.03      0.01    748.50
   20000.0    1269.3   6169.1   12561.6     901.2   1821.2    6350.4      35.4      10.3    748.50
      0.02      1.41     3.39      1.98     0.035    0.035     0.035     0.000    742.50   9402.33
  0.000314      100.     100.      100.         2        0         0      0.00   2349.81  12054.23

1
   27MAR92      15:49:57                                                                          PAGE   14

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      CORNELIA RAILROAD BRIDGE                J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 6                         0.0047

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15                  -1

1
   27MAR92      15:49:57                                                                          PAGE   15

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CCHV=    0.300 CEHV=    0.500
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

     1.000      8.92   750.42      0.00      0.00   751.48      1.06      0.00      0.00    747.50
   25000.0     635.4  13435.0   10929.6     170.8   1295.2    2284.3       0.0       0.0    747.50
      0.00      3.72    10.37      4.78     0.035    0.035     0.035     0.000    741.50   9813.12
  0.004636        0.       0.        0.         0        0         4      0.00   1490.41  11923.33

*SECNO 2.000

3265 DIVIDED FLOW

     2.000      8.78   750.78    750.71      0.00   752.02      1.24      0.45      0.09    744.00
   25000.0    2046.3  12298.4   10655.3     346.1   1051.8    2264.9       8.5       3.4    744.00
      0.00      5.91    11.69      4.70     0.035    0.035     0.035     0.000    742.00   9818.72
  0.004311      100.     100.      100.         4        5         0      0.00   1446.34  11906.89

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25      1.56      3.00      0.00     70.00      4.00    475.00      0.00    742.00    742.00

*SECNO 3.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.02

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

1
   27MAR92      15:49:57                                                                          PAGE   16

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     TRAPEZOID     ELLC      ELTRD     WEIRLN
                                                              AREA
   817.88    759.23    0.36    19244.     5994.     475.      475.      749.20    752.10     2415.

     3.000     12.54   754.54      0.00      0.00   754.64      0.10      2.62      0.00    744.00
   25000.0    2941.8   5546.3   16511.9    1772.0   1503.2    8031.3      15.4       5.2    744.00
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.01 | 1.66 | 3.69 | 2.06 | 0.035 | 0.035 | 0.035 | 0.000 | 742.00 | 9216.85 |
| 0.000267 | 40. | 40. | 40. | 2 | 0 | 7 | 0.00 | 2612.04 | 12056.36 |

*SECNO 4.000

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4.000 | 12.06 | 754.56 | 0.00 | 0.00 | 754.68 | 0.12 | 0.03 | 0.01 | 748.50 |
| 25000.0 | 1766.3 | 7259.7 | 15974.0 | 1112.4 | 1891.8 | 6963.2 | 39.8 | 11.1 | 748.50 |
| 0.02 | 1.59 | 3.84 | 2.29 | 0.035 | 0.035 | 0.035 | 0.000 | 742.50 | 9321.50 |
| 0.000383 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 2464.09 | 12055.16 |





**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CORNELIA RAILROAD BRIDGE

SUMMARY PRINTOUT

| | SECNO | ELMIN | CWSEL | Q | VCH | DIFWSX | TOPWID | DEPTH | SSTA | ENDST | QLOB | QROB | ELTRD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 741.50 | 747.35 | 5000.00 | 7.03 | 0.00 | 187.30 | 5.85 | 9931.54 | 10118.84 | 0.00 | 0.00 | 0.00 |
| * | 1.000 | 741.50 | 748.66 | 10000.00 | 8.49 | 0.00 | 936.51 | 7.16 | 9883.46 | 11716.71 | 54.45 | 1786.27 | 0.00 |
| | 1.000 | 741.50 | 749.38 | 15000.00 | 9.36 | 0.00 | 1162.34 | 7.88 | 9854.78 | 11800.95 | 197.70 | 4531.17 | 0.00 |
| | 1.000 | 741.50 | 749.94 | 20000.00 | 9.95 | 0.00 | 1338.75 | 8.44 | 9832.38 | 11866.76 | 396.16 | 7621.16 | 0.00 |
| | 1.000 | 741.50 | 750.42 | 25000.00 | 10.37 | 0.00 | 1490.41 | 8.92 | 9813.12 | 11923.33 | 635.41 | 10929.59 | 0.00 |
| | 2.000 | 742.00 | 747.68 | 5000.00 | 7.35 | 0.34 | 120.00 | 5.68 | 9970.00 | 10090.00 | 0.00 | 0.00 | 0.00 |
| * | 2.000 | 742.00 | 749.25 | 10000.00 | 8.94 | 0.59 | 874.62 | 7.25 | 9970.00 | 11727.25 | 0.00 | 2238.97 | 0.00 |
| * | 2.000 | 742.00 | 749.75 | 15000.00 | 10.29 | 0.37 | 1122.15 | 7.75 | 9859.88 | 11785.96 | 1113.47 | 4334.34 | 0.00 |
| * | 2.000 | 742.00 | 750.30 | 20000.00 | 11.14 | 0.36 | 1294.96 | 8.30 | 9837.94 | 11850.42 | 1572.28 | 7348.47 | 0.00 |
| | 2.000 | 742.00 | 750.78 | 25000.00 | 11.69 | 0.36 | 1446.34 | 8.78 | 9818.72 | 11906.89 | 2046.27 | 10655.32 | 0.00 |
| * | 3.000 | 742.00 | 749.94 | 5000.00 | 5.26 | 2.25 | 120.00 | 7.94 | 9970.00 | 10090.00 | 0.00 | 0.00 | 752.10 |
| * | 3.000 | 742.00 | 753.21 | 10000.00 | 2.11 | 3.96 | 2203.04 | 11.21 | 9506.14 | 12053.03 | 984.26 | 6186.05 | 752.10 |
| * | 3.000 | 742.00 | 753.75 | 15000.00 | 2.71 | 4.00 | 2368.93 | 11.75 | 9388.80 | 12054.38 | 1580.05 | 9597.95 | 752.10 |
| * | 3.000 | 742.00 | 754.18 | 20000.00 | 3.24 | 3.87 | 2498.92 | 12.18 | 9296.86 | 12055.44 | 2233.13 | 13044.23 | 752.10 |
| * | 3.000 | 742.00 | 754.54 | 25000.00 | 3.69 | 3.76 | 2612.04 | 12.54 | 9216.85 | 12056.36 | 2941.83 | 16511.89 | 752.10 |
| * | 4.000 | 742.50 | 750.43 | 5000.00 | 3.06 | 0.49 | 1177.99 | 7.93 | 9852.79 | 11806.79 | 68.81 | 1548.61 | 0.00 |
| | 4.000 | 742.50 | 753.22 | 10000.00 | 2.25 | 0.01 | 2051.47 | 10.72 | 9613.35 | 12051.80 | 470.43 | 5844.67 | 0.00 |
| | 4.000 | 742.50 | 753.76 | 15000.00 | 2.86 | 0.01 | 2218.58 | 11.26 | 9495.15 | 12053.16 | 836.79 | 9179.70 | 0.00 |
| | 4.000 | 742.50 | 754.19 | 20000.00 | 3.39 | 0.01 | 2349.81 | 11.69 | 9402.33 | 12054.23 | 1269.30 | 12561.57 | 0.00 |
| | 4.000 | 742.50 | 754.56 | 25000.00 | 3.84 | 0.02 | 2464.09 | 12.06 | 9321.50 | 12055.16 | 1766.30 | 15973.99 | 0.00 |



SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      1.000  PROFILE=  2  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      2.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  3  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  4  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      3.000  PROFILE=  1  HYDRAULIC JUMP D.S.
WARNING SECNO=      3.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=      3.000  PROFILE=  2  HYDRAULIC JUMP D.S.
WARNING SECNO=      3.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      4.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

**FCD 90-67**

Section 3.2.3

### 3.2.3 Statistical Parameters

The statistical parameters used for this study were derived from the Design Manual. These parameters are the result of extensive study and analysis of historical record data by the Flood Control District, the State of Arizona, and consulting engineers. The parameters are based on assumption of randomness, non-climatic variability and non-cyclic behavior of precipitation and runoff. A paper entitled *Cyclic Streamflow Test for Validity of Randomness*[5] raises questions concerning the validity of these assumptions for frequency analysis in Arizona. The possibility that climatic patterns in Arizona may be cyclic, and that frequency analysis data used in a region may not have occurred during a rising climatic cycle, is reason for concern in the future. As more data is collected, and the picture becomes clearer for Arizona, this possibility should be explored and analyzed. Refer to Section 3.3 for a discussion of how statistical analysis of historical USGS crest-stage data was used for calibration of the HEC-1 computer models.

### 3.2.4 Precipitation

#### 3.2.4.1 Rainfall Distributions

The storm frequencies specified for analysis in this study are the 100-year 6-hour and the 100-year 24-hour duration storms. The rainfall distributions based on watershed area for the 6-hour duration storm were furnished by the District and are listed in the Design Manual. There are a total of five precipitation patterns for the 6-hour storm. Each precipitation pattern is valid up to certain watershed area. Each precipitation pattern and its appropriate watershed area was input to the HEC -1 model using the JD record option. The 24-hour rainfall distribution used for this study was the SCS Type II.

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[5]Refer to Section 6.5, Bibliography Reference Number 8.

#### 3.2.4.2 Precipitation Data

Point precipitation values used in this study were derived from the isopluvial maps in the Design Manual which in turn were derived using Bibliography Reference Number 34. Refer to Figures P-1 and P-2 for a depiction of these isopluvials overlaid on the watershed. These figures were used to estimate an average point precipitation value for the entire watershed for both storms under consideration. The point precipitation value used for the 100-year 6-hour storm was 3.70-inches and the point precipitation value used for the 24-hour storm is 4.53-inches.

#### 3.2.4.3 Aerial Precipitation Reduction

The precipitation reduction for the 100-year 6-hour duration storm is based upon the depth-area curve developed for the historic storm of 1954 over the Queen Creek area, as developed by the U.S. Army Corps of Engineers in 1974. The depth-area curve is listed in the Design Manual. Depth-area reduction was simulated in HEC-1 through use of the JD operation records.

The precipitation reduction factors used for the 100-year 24-hour storm were derived from information contained in *NOAA Technical Memorandum NWS HYDRO-40*. The point precipitation values versus watershed drainage area used for the 24-hour model are contained in Table P-1.

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1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

**FCD 90-67**

Table P-1

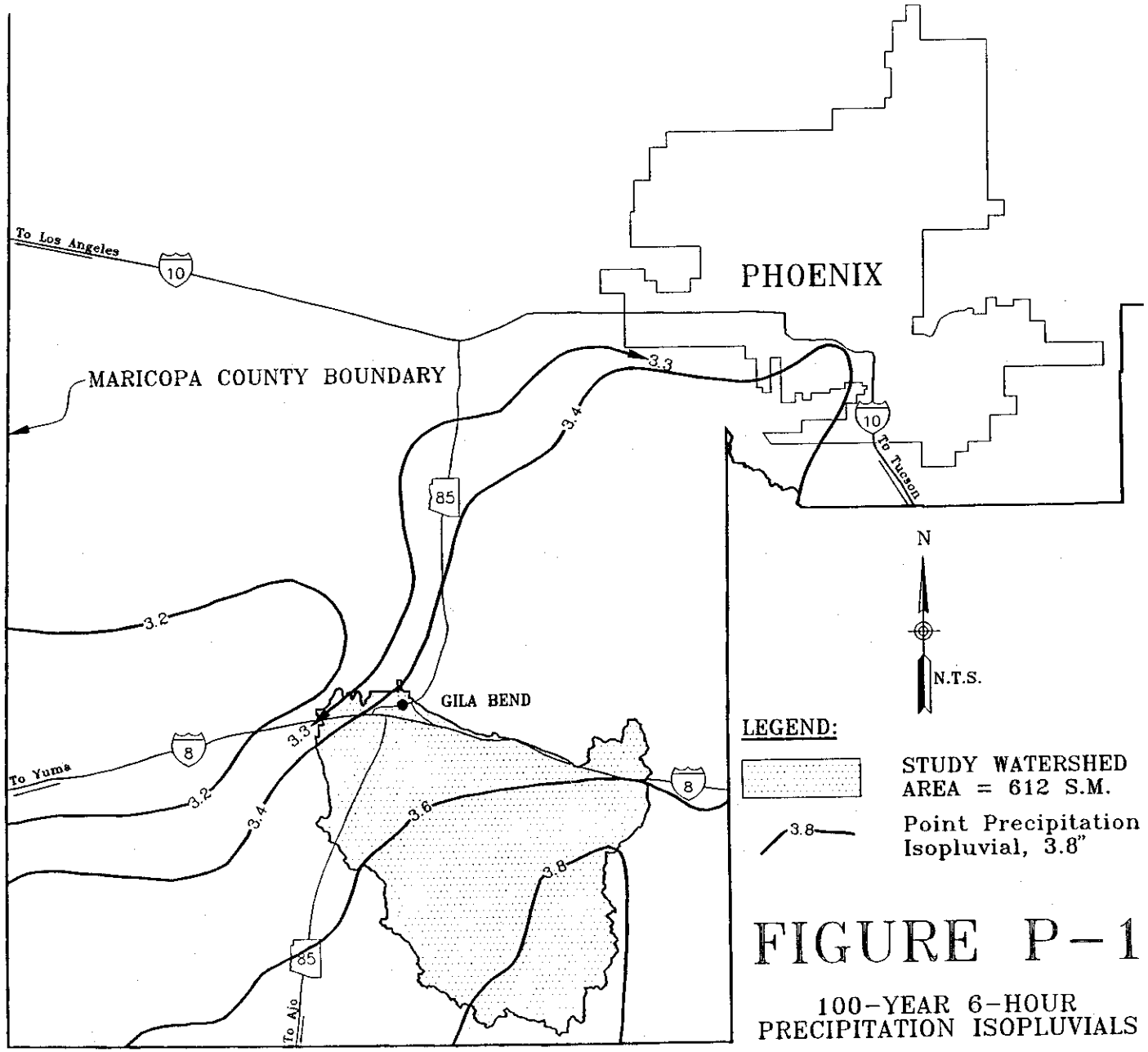
**Table P-1**

**Aerial Precipitation Reduction Data**
**100-Year 24-Hour Storm**

**2.54 Year Depth-Area Ratios**
**Zones A and C - Central Arizona**

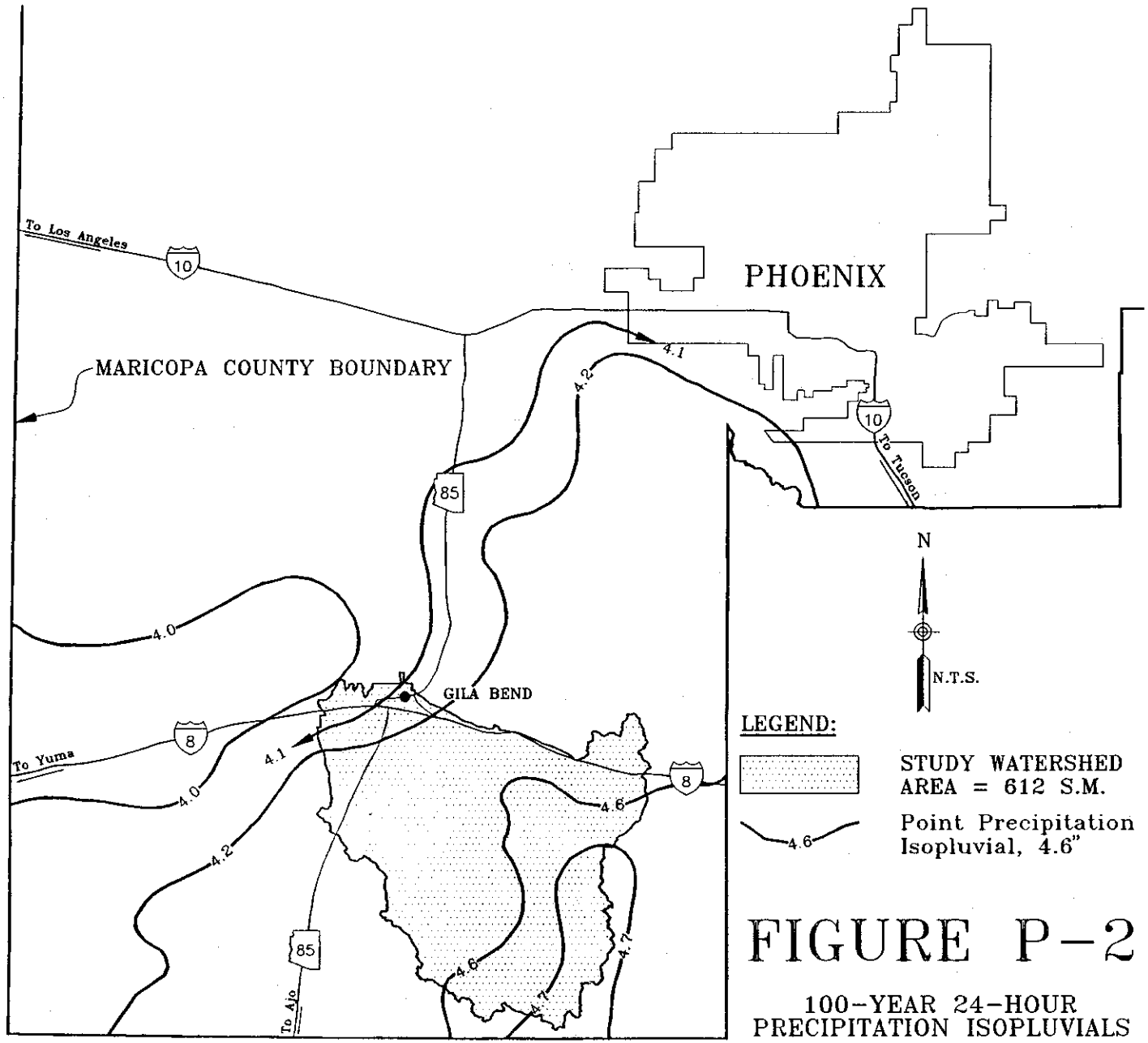
**NOAA Technical Memorandum NWS Hydro-40**

| Watershed Area (sq.mi.) | Reduction Factor | Point Precipitation (inches) |
|---|---|---|
| 0.01 | 1.00 | 4.53 |
| 5.0 | 0.98 | 4.44 |
| 10.0 | 0.95 | 4.30 |
| 50.0 | 0.88 | 4.00 |
| 80.0 | 0.86 | 3.90 |
| 100.0 | 0.85 | 3.85 |
| 200.0 | 0.82 | 3.71 |
| 500.0 | 0.78 | 3.53 |




# FIGURE P-1

100-YEAR 6-HOUR
PRECIPITATION ISOPLUVIALS




# FIGURE P-2

100-YEAR 24-HOUR
PRECIPITATION ISOPLUVIALS

### 3.2.5 Gage Data

#### 3.2.5.1 General

The Flood Control District of Maricopa County (District) has assembled gage data for various washes in Maricopa County. The data was compiled by the US Geological Survey (USGS) in cooperation with Maricopa County. The data is summarized in a state-wide report entitled *Basin Characteristics and Streamflow Statistics in Arizona, as of 1989*[6]. The data contained in this report was from streamflow gaging stations. In addition to the USGS gage data, the District maintains a recording flow gage on Sauceda Wash at State Route 85. The District also maintains three (3) precipitation recording gages in the area. The locations of these gages are identified on sheets 1, 2, and 5 of Exhibit "C" and are discussed in more detail in the following sections.

#### 3.2.5.2 Streamflow Gaging Stations

A crest-stage gage was established by the USGS on Bender Wash at Latitude 32°54'25", Longitude 112°33'05", in the NE¼ of Section 15, T.6S., R.3W. on October 1, 1966. Prior to this date, starting in 1963, the gage was located 0.65 miles downstream. Refer to concentration point C77 on sheet 2 of Exhibit "C". The gage was discontinued in 1979. The annual peak discharges recorded at this gage are listed in Table G-1. The actual dates of peaks recorded prior to 1966, and several peak flows after 1966, are unknown.

A crest-stage gage was established by the USGS on Sauceda Wash at Latitude 32°52'14", Longitude 112°45'30", in the SE¼, SW¼ of Section 27, T.6S., R.5W. in 1963. The gage was discontinued in 1979. A recording gage (FCDMC 523) was established at this site on February 28, 1990 by the District and the USGS. Refer to concentration point C33 on sheet 1 of

[6]Refer to Section 6.5, Bibliography Reference Number 38.

Exhibit "C". The annual peak discharges recorded at the crest-stage gage are listed in Table G-2. As with the Bender Wash gage, the actual dates of several peak flows are unknown. The following photograph was taken looking downstream at the gage site:

**Photograph of Gage FCDMC 523**

The significant peak flows of record since the recording gage was established are summarized in Table G-3. The precipitation gages referred to in Tables G-1, G-2, and G-3 are discussed in Section 3.2.5.3. The apparent general storm of August 14, 1990 was selected for simulation using the HEC-1 computer model prepared as a part of this study. Refer to Section 3.3 for the results of this effort.

The USGS has performed a Log-Pearson III frequency analysis on the crest-stage data compiled in Tables G-1 and G-2. The calculated 100-year recurrence interval peak discharges for the two gages are:

Bender Wash (C77): $Q_{100}$ = 12,600 cfs

Sauceda Wash (C33): $Q_{100}$ = 11,400 cfs

It is noted that the reliability of these values is uncertain, and the potential error is large. Research on-going by the Arizona Department of Water Resources (ADWR) has yielded the preliminary result that the cumulative departure from average for precipitation and runoff volumes in Arizona may be cyclic. The period of record for the two USGS crest-stage gages is 1963 through 1979. Comparing this period to the cyclic cumulative runoff volume curve developed by ADWR for the Gila River at Safford[7], it is noted that this period falls in the bottom of a cycle. Log-Pearson III estimates made for the Gila River using this period of record are relatively high when compared with estimates made using periods of record from other portions of the cycle. For example, the 100-year estimate for the Gila River from 1960 through 1980 is 238,000 cfs. The 100-year estimate for the full 73-year record is 151,000 cfs. Therefore, the Log-Pearson III estimates for the Bender Wash and Sauceda Wash gages could be high. More data and further research along these lines is needed. For the purposes of this study, the Log-Pearson III 100-year estimates for Bender Wash and Sand Tank Wash will be used as a confidence check of the HEC-1 model.

#### 3.2.5.3 Precipitation Stations

Three recording precipitation gages have been established on the study watershed by the District, in addition to the U.S. Weather Bureau gage in Gila Bend. These gages are located as follows:

FCDMC 520: Sauceda Wash Precipitation Gage established 02/28/90 at Latitude 32°52'49", Longitude 112°45'13", in the NE¼ Section 27, T.6S., R.5W. at the Sauceda Wash crossing of S.R. 85 south of Gila Bend (see sheet 1 of Exhibit "C").

[7]Refer to Section 6.5, Bibliography Reference Number 8.

FCDMC 605: Sand Tank Wash Precipitation Gage established 07/21/83 at Latitude 32°48'48", Longitude 112°38'26", in Section 14, T.7S., R.4W. located ten miles southeast of Gila Bend on the Barry M. Goldwater Military Reservation (see sheet 5 of Exhibit "C").

FCDMC 610: Bender Wash Precipitation Gage established 01/12/82 at Latitude 32°54'34", Longitude 112°32'32", in Section 14, T.6S., R.3W. east of Gila Bend, just east of the Sand Tank Mountains on the north side of Interstate 8 (see sheet 2 of Exhibit "C").

USWB 3393: Gila Bend Precipitation Gage established in December, 1892 at Latitude 32°57', Longitude 112°43', in the NW¼ Section 31, T.5S., R.4W. at the Gila Bend Police Department.

There was also a gage located in the vicinity of the Gila Bend Airport from February, 1944 through December, 1966. The data from this gage was not evaluated for this study.

The associated total storm precipitations for each of the District gages are included in Table G-3. The total storm precipitations for the Gila Bend gage for the dates of the crest-stage gage annual peak flows are included in Tables G-1 and G-2.

## TABLE G-1

## BENDER WASH CREST-STAGE GAGE RECORD ANNUAL PEAK FLOWS STATION NUMBER 09519750

| Rank K | Date | Flow (cfs) | Storm Type (speculation) | Gila Bend WBO Precipitation |
|---|---|---|---|---|
| 1 | 08/00/71 | 2670 | Thunderstorm | 1.05" (08/15/91) |
| 2 | 08/00/75 | 2290 | Thunderstorm | 0.05" (08/08/75) |
| 3 | 08/00/63 | 1740 | Thunderstorm | 0.25" (08/07/63) |
| 4 | 06/00/72 | 1550 | Thunderstorm | 0.40" (06/07/72) |
| 5 | 08/18/69 | 1500 | Thunderstorm | 0" |
| 6 | 00/00/64 | 1450 | Possibly due to Tropical Storm Tillie | 1.24" (09/13/64) |
| 7 | 09/25/76 | 1220 | Thunderstorm | 2.42"[8] |
| 8 | 08/03/74 | 1000 | Thunderstorm | 0.45" |
| 9 | 10/03/67 | 1010 | Thunderstorm | 0.37" (10/02/67) |
| 10 | 00/00/66 | 943 | Thunderstorm | --- |
| 11 | 09/03/67 | 300 | Hurricane Katrina | 0.90" |
| 12 | 00/00/78 | 110 | Thunderstorm | --- |
| 13 | 08/14/70 | 100 | Thunderstorm | 0.20" |
| 14 | 09/11/77 | 45 | Thunderstorm | 0.24" |
| 15 | 07/29/73 | 40 | Thunderstorm | 0.60" |
| 16 | 01/25/79 | 40 | General Storm | 0.39" |
| 17 | 12/22/65 | 20 | General Storm | 0.42" |

Watershed Area: 68.8 square miles (USGS), 69.67 square miles (B&N)

[8]Two-day total for 9/24 and 9/25, 1976.

## TABLE G-2

## SAUCEDA WASH CREST-STAGE GAGE RECORD ANNUAL PEAK FLOWS
## STATION NUMBER 09519760

| Rank K | Date | Flow (cfs) | Storm Type (speculation) | Gila Bend WBO Precipitation |
|---|---|---|---|---|
| 1 | 09/26/76 | 3150 | Thunderstorm | 0" |
| 2 | 08/00/70 | 2850 | Thunderstorm | 0.20" (08/14/70) |
| 3 | 08/15/77 | 2550 | Hurricane Doreen | 0.09" |
| 4 | 08/12/64 | 2160 | Thunderstorm | 0" |
| 5 | 08/00/71 | 1500 | Thunderstorm | 1.05" (08/15/71) |
| 6 | 09/00/63 | 1100 | Possibly due to Tropical Storm Katherine | 0.04" (09/04/63) |
| 7 | 10/02/67 | 840 | Thunderstorm | 0.37" |
| 8 | 08/00/72 | 630 | Thunderstorm | 1.60" (08/29/72) |
| 9 | 08/00/66 | 400 | Thunderstorm | 1.60" (08/19/66) |
| 10 | 10/04/67 | 350 | Thunderstorm | 0.25" |
| 11 | 08/03/74 | 250 | Thunderstorm | 0" |
| 12 | 08/08/78 | 180 | Thunderstorm | 0.01" |
| 13 | 08/00/69 | 130 | Thunderstorm | 0.04" (08/23/69) |
| 14 | 08/00/65 | 55 | Thunderstorm | 0.14" (08/14/65) |
| 15 | 08/12/79 | 20 | Thunderstorm | 0.16" |
| 16 | 00/00/73 | 0 | Thunderstorm | --- |

TABLE G-3

SAUCEDA WASH RECORDING STREAMFLOW GAGE PEAK FLOWS
FOR 1990 AND 1991
FCDMC GAGE NUMBER 523

| Date | Flow Duration (hrs.) | Flow (cfs) | Storm Type (speculation) | Total Precipitation | | |
|---|---|---|---|---|---|---|
| | | | | 520 | 605 | 610 |
| 07/03/90[9] | 6.8 | 1500 | Thunderstorm | 0.00 | 0.00 | 0.00 |
| 07/08/90 | 3.1 | 540 | Small Thunderstorm | 0.00 | 0.00 | 0.00 |
| 07/11/90[1] | 6.4 | 1200 | Large Thunderstorm | 0.28 | 0.63 | 0.39 |
| 07/24/90 | 1.8 | 600 | Small Thunderstorm | 0.00 | 0.00 | 0.00 |
| 08/04/90 | 1.4 | 180 | Small Thunderstorm | 0.00 | 0.00 | 0.00 |
| 08/11/90 | 0.2 | 180 | Small Thunderstorm | 0.00 | 0.00 | 0.00 |
| 08/14/90[1] | 26.9 | 1320 | General Storm | 0.35 | 1.61 | 0.55 |
| 08/21/90 | 0.12 | 1500 | Small Thunderstorm | 0.00 | 0.00 | 0.00 |
| 09/03/90[1] | 9.2 | 1380 | Large Thunderstorm | 0.00 | 0.35 | 0.71 |
| 09/05/90 | 5.6 | 360 | Large Thunderstorm | 0.35 | 0.39 | 0.55 |
| 02/27/91 | 0.1 | 180 | ----- | 0.00 | 0.00 | 0.00 |
| 03/01/91 | 23.1 | 360 | General Storm | 0.40 | 0.40 | 0.20 |
| 03/20/91 | 4.6 | 660 | General Storm | 0.44 | 0.95 | 0.44 |
| 03/27/91 | 10.1 | 540 | General Storm | 0.52 | 0.64 | 0.56 |
| 03/30/91 | 6.0 | 300 | General Storm | N/A | N/A | N/A |
| 04/01/91 | 6.8 | 300 | General Storm | N/A | N/A | N/A |
| 04/03/91 | 5.9 | 240 | General Storm | N/A | N/A | N/A |

[9] The runoff hydrograph for this storm has been plotted and used for comparison with HEC-1 model results. Refer to Section 3.3 Calibration.

# TABLE G-4
## LOG PEARSON III ANALYSIS SUMMARY FOR WASHES IN CENTRAL AND SOUTHERN AZ

| Station Number | Station Name | Drainage Area (sm) | Record Period 1 Start | Record Period 1 End | Record Period Start | Record Period End | Record Length (years) | Qmax (cfs) | Log Pearson III Discharge For 100-Year Storm cfs | Log Pearson III Discharge For 100-Year Storm cfs/sm |
|---|---|---|---|---|---|---|---|---|---|---|
| 447000 | Eagle Creek Near Morenci | 613.00 | 1945 | 1988 | | | 43 | 36,400 | 41,600 | 68 |
| 482500 | Santa Cruz River Near Tucson | 2222.00 | 1915 | 1988 | | | 73 | 52,700 | 32,000 | 14 |
| 484000 | Sabino Creek Near Tucson | 35.50 | 1932 | 1988 | | | 56 | 7,730 | 9,700 | 273 |
| 485850 | Rillito Creek Near Tucson | 892.00 | 1915 | 1981 | | | 66 | 24,000 | 23,800 | 27 |
| 504500 | Oak Creek Near Cornville | 357.00 | 1941 | 1988 | | | 47 | 26,400 | 41,400 | 116 |
| 510070 | West Fork Sycamore Creek Near Sunflower | 4.58 | 1966 | 1974 | 1983 | 1986 | 11 | 1,700 | 4,200 | 917 |
| 510080 | West Fork Sycamore Creek Near Sunflower | 9.80 | 1961 | 1979 | | | 18 | 3,480 | 9,800 | 1,000 |
| 510100 | East Fork Sycamore Creek Near Sunflower | 4.49 | 1961 | 1986 | | | 25 | 1,940 | 4,300 | 958 |
| 510150 | Sycamore Creek Near Sunflower | 53.40 | 1962 | 1976 | | | 14 | 16,100 | 44,000 | 824 |
| 510170 | Camp Creek Near Sunflower | 2.60 | 1963 | 1979 | | | 16 | 402 | 900 | 346 |
| 510180 | Rock Creek Near Sunflower | 15.00 | 1963 | 1972 | | | 9 | 1,900 | 5,600 | 373 |
| 510200 | Sycamore Creek Near Fort McDowell | 165.00 | 1960 | 1987 | | | 27 | 24,200 | 58,800 | 356 |
| 512100 | Indian bend Wash Near Scottsdale | 142.00 | 1961 | 1984 | | | 23 | 21,000 | 41,600 | 293 |
| *520130 | Darby Arroyo Near Ajo, AZ | 4.72 | 1966 | 1981 | | | 16 | 1,670 | 2,380 | 504 |
| *520160 | Gibson Arroyo at Ajo, AZ | 2.18 | 1967 | 1981 | | | 15 | 1,800 | 1,620 | 743 |
| *520170 | Rio Cornez Near Ajo, AZ | 243.00 | 1967 | 1980 | | | 14 | 8,030 | 11,800 | 49 |
| 512200 | Salt River Tributary Near S. Mntn. Park | 1.75 | 1961 | 1988 | | | 27 | 670 | 3,200 | 1,829 |
| 512300 | Cave Creek Near Cave Creek | 121.00 | 1958 | 1988 | | | 30 | 12,400 | 21,600 | 179 |
| 513780 | New River Near Rock Springs | 67.30 | 1962 | 1987 | | | 25 | 18,600 | 43,700 | 649 |
| 513800 | New River At Rock Springs | 85.70 | 1961 | 1982 | | | 21 | 19,500 | 42,900 | 501 |
| 513820 | Deadman Wash Near New River | 11.10 | 1960 | 1979 | | | 19 | 1,850 | 5,600 | 505 |
| 513860 | Skunk Creek Phoenix | 64.60 | 1960 | 1988 | | | 28 | 11,500 | 29,900 | 463 |
| *514200 | Waterman Wash Near Buckeye | 403.00 | 1964 | 1988 | | | 24 | 6,300 | 8,100 | 20 |
| 515500 | Hassayampa River At B.D. Near Wickenburg | 417.00 | 1946 | 1983 | | | 37 | 56,300 | 50,300 | 121 |
| 515800 | Hartman Wash Near Wickenburg | 5.57 | 1964 | 1979 | | | 15 | 2,600 | 7,800 | 1,400 |
| 516500 | Hassayampa River Near Morristown | 774.00 | 1939 | 1942 | 1964 | 1988 | 27 | 47,500 | 62,600 | 81 |
| 516600 | Ox Wash Near Morristown | 7.44 | 1963 | 1979 | | | 16 | 2,900 | 4,600 | 618 |
| 516800 | Jackrabbit Wash Near Tonopah | 137.00 | 1964 | 1979 | | | 15 | 6,840 | 32,500 | 237 |
| 517200 | Centennial Wash Tributary Near Wendon | 2.79 | 1963 | 1979 | | | 16 | 720 | 1,100 | 394 |
| 517280 | Tiger Wash Near Aguila | 85.20 | 1963 | 1979 | | | 16 | 4,550 | 10,300 | 121 |
| 517400 | Winters Wash Near Tonopah | 47.80 | 1962 | 1979 | | | 17 | 3,640 | 4,400 | 92 |
| *519600 | Rainbow Wash Tributary Near Buckeye | 3.45 | 1963 | 1979 | | | 16 | 1,430 | 2,100 | 609 |
| *519750 | Bender Wash Near Gila Bend | 68.80 | 1963 | 1979 | | | 16 | 2,670 | 13,100 | 190 |
| *519760 | Sauceda Wash Near Gila Bend | 126.00 | 1963 | 1979 | | | 16 | 3,150 | 11,300 | 90 |
| *519780 | Windmill Wash Near Gila Bend | 12.90 | 1964 | 1979 | | | 15 | 34,430 | 25,300 | 1,961 |
| *520100 | Military Wash Near Sentinel | 8.70 | 1963 | 1979 | | | 16 | 1,530 | 10,400 | 1,195 |
| *520200 | Black Gap Wash Near Ajo | 12.10 | 1963 | 1979 | | | 16 | 9,402 | 1,400 | 116 |
| *520230 | Crater Range Wash Near Ajo | 1.49 | 1963 | 1979 | | | 16 | 440 | 1,900 | 1,275 |

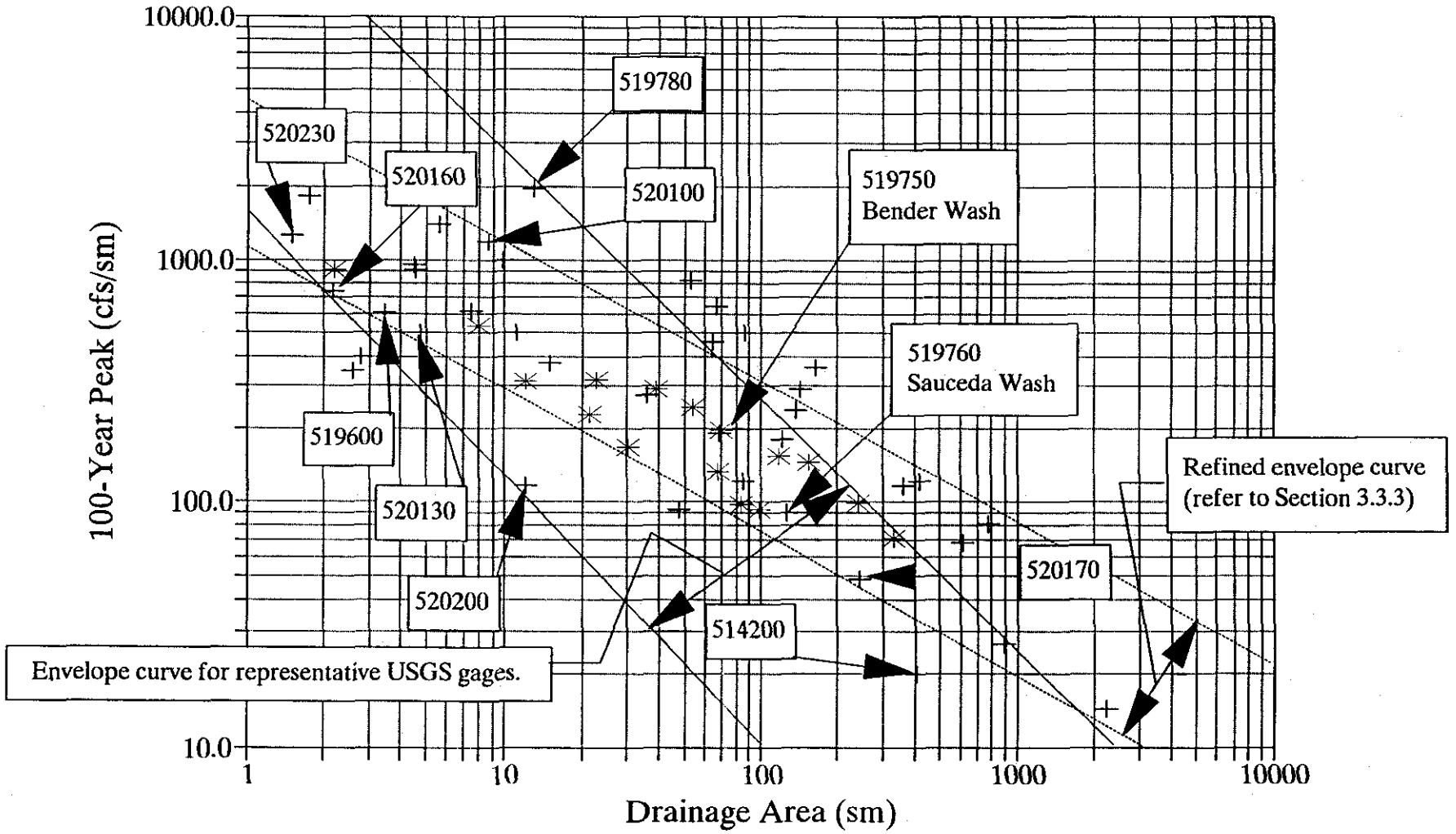
Note: An '*' denotes that that the wash is representative of the Gila Bend area.

**TABLE G-5**

**100-YEAR PEAK FLOWS FOR REPRESENTATIVE MODELED WASHES**
**(Plotted on Figure G-1)**

| HEC-1 I.D. | Discharge (cfs) | Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|
| 1M | 2018 | 2.19 | 921 |
| C62 | 4265 | 8.03 | 531 |
| C67 | 7228 | 22.56 | 320 |
| C71 | 11330 | 38.88 | 291 |
| C74 | 13013 | 53.61 | 243 |
| C77 | 13685 | 69.67 | 196 |
| 3F | 3798 | 12.14 | 313 |
| C8 | 8947 | 67.67 | 132 |
| C10 | 8087 | 84.02 | 96 |
| C28 | 5044 | 30.22 | 167 |
| C25 | 4919 | 21.63 | 227 |
| CPND1 | 9080 | 98.03 | 93 |
| C32 | 18041 | 118.06 | 153 |
| C132 | 23667 | 330.40 | 72 |
| C131 | 23787 | 241.57 | 98 |
| C127 | 22611 | 156.01 | 145 |

# FIGURE G-1: 100-Yr. Peak vs Area
## For Representative Washes




Note: The USGS gages listed in boxes are on washes that are representative of the Gila Bend area. The upper and lower envelope curve lines are based on these gages.

+ USGS LP3 Values ✳ Modeled Values

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# FLOODPLAIN DELINEATION STUDY

**FCD 90-67**

Section 3.3

## 3.3 Calibration

### 3.3.1 General

The calibration effort involved three separate checks using the limited physical data which is available on record. The first check involved the use of USGS crest-stage peak annual flow data for the two gages that are located on the study watershed. The second check used USGS peak annual flow data for representative washes in the vicinity of the study area. The third step in the process was to check the validity of the model of Sauceda Wash against the recording flow gage at the S.R. 85 crossing. These three calibration steps are discussed in detail in the following sections.

### 3.3.2 Step 1: USGS Crest-Stage Data

The first step was to compare the 100-year peak discharges calculated in the model with the Log Pearson III (LP3) projections for the Bender Wash and Sand Tank Wash gages discussed in Section 3.2.5. The HEC-1 model at this point included transmission losses based on infiltration rates from Table S-2 for the soils present in the routing reach. The rate input to the model was a composite of the left overbank, right overbank, and channel loss rates. The XKSAT values in Table S-2 have been estimated for each map unit by limiting the parameter to a maximum rate of 1.2-inches per hour. This was done so that the higher infiltration rates associated with channel bed soils are not averaged into the XKSAT value for the watershed as a whole. This ensures that rainfall losses are not accounted for twice in channel bottom areas. Therefore, the transmission loss rates included in the HEC-1 model at this point in the process were unrealistically low.

The comparison of computed discharges to Log Pearson III projections is as follows:

| Gage | HEC-1 I.D. | Modeled Discharge (cfs) | LP3 Discharge (cfs) | Percent Difference |
|---|---|---|---|---|
| Bender Wash | C77 | 14,800 | 12,600 | 17.5% |
| Sauceda Wash | C33 | 13,100 | 11,400 | 14.9% |

These results compare very well. The small differences could be accounted for in transmission losses so prior to entering the next calibration step the channel infiltration loss rates were increased to more realistic values with the goal of decreasing the difference between the model results and the LP3 estimates. The dominant soil types found in the channel beds are Carrizo-Momoli complexes in the Valley terrain class areas, and Momoli-Carrizo complexes in the Mountain terrain class areas. The Carrizo soils are characterized by infiltration rates greater than 20-inches per hour while the Momoli soils are characterized by rates ranging from 2- to 6-inches per hour. Successive HEC-1 runs were made using starting transmission loss values of 2-inches per hour for Mountain channel beds and 7-inches per hour for Valley channel beds.

The 7-inch per hour initial rate is based on judgement and the belief that 20-inches per hour is too high a rate to be sustained for the entire storm duration. Chapter 19 of *National Engineering Handbook, Section 4, Hydrology*[10] lists an effective hydraulic conductivity of >5-inches per hour for very clean gravel and large sand. The Carrizo-Momoli complex soils match this description. The 7-inch starting value was arrived at by proportioning as follows:

$$(2''/hr. \div 6''/hr.) \times 20''/hr = 7''/hr.$$

The Valley or Mountain selection was made by using the S-Graph type selected for the sub-basin which contained the reach in question. Composite loss rate values were calculated using the original left and right overbank loss rates, and the procedure

[10]Refer to Section 6.5, Bibliography Reference Number 31.

described in Section 3.2.2.2. The starting values were incremented by 1-inch for successive computer runs in order to determine the sensitivity of the model to changes of this type. The final values selected were 5-inches per hour for Mountain reaches and 10-inches per hour for Valley reaches. The comparisons of model results to the LP3 estimates using these rates are as follows:

| Gage | HEC-1 I.D. | Modeled Discharge (cfs) | LP3 Discharge (cfs) | Percent Difference |
|---|---|---|---|---|
| Bender Wash | C77 | 13,700 | 12,600 | 8.7% |
| Sauceda Wash | C33 | 11,300 | 11,400 | -1.0% |

### 3.3.3 Step 2: Comparison With Representative Washes

The second step taken in the calibration process was to determine how peak discharges from the model for a range of watershed areas compared with representative washes in the region. This was done on a cfs/square mile basis and the results are plotted on Figure G-1 in Section 3.2.5. Refer to Table G-4 for a table of LP3 100-year peak discharges for representative washes in central and southern Arizona. The washes deemed most representative of the study area have been identified with an asterisk in the 'Station Number' column. These representative washes are identified on Figure G-1 by listing the station numbers in a box. The peak discharges from the HEC-1 models which were selected for comparison are listed in Table G-5. These discharges are plotted on Figure G-1 using asterisks.

Upper and lower envelope curve lines have been drawn on Figure G-1 using solid lines to bound the USGS gage values selected as representative. It is readily seen that all of the modeled values from Table G-5 fall within the envelope. If the values for gages 519780 and 520200 are discarded because they have widely disparate discharge values but similar areas, then new, tighter, envelope curves could be drawn which reflect the skew of both the representative washes and the modeled washes. These envelope limits are indicated on Figure G-1 using dashed lines. The bottom line is that the modeled results appear to correlate well with the LP3 100-year estimates for similar watersheds.

### 3.3.4 Step 3: Analyze Sauceda Wash Recorded Hydrographs

The third step in the calibration and confidence process was to attempt to model one of the 1990 or 1991 storms recorded at the Sauceda Wash flow gage. The storm of August 14, 1990 was selected since it appears to have been a General Storm with a very intense precipitation period of short duration where the majority of the rainfall occurred. This would be similar to the characteristics of the 24-hour storm used for this study. The precipitation pattern for the August 14, 1990 storm, recorded at the Sand Tank Wash gage (FCDMC 605), is plotted in the form of a cumulative dimensionless precipitation distribution on Figure C-1. The total precipitation for the storm recorded at the gage was 1.61-inches. The recorded hydrograph from the Sauceda Wash stream flow gage has been plotted on Figure C-3. The precipitation pattern from Figure C-1 was input to the HEC-1 model using a total point precipitation of 1.9-inches. The point precipitation value was increased from 1.61-inches to 1.9-inches to account for the orographic effects of the Sauceda Mountains (refer to Figure P-2). The resulting peak discharge was substantially less than the recorded peak. There was also no response by the model from the precipitation which occurred in the first 12-hours of the storm. The point precipitation was increased in 0.1-inches increments up to 2.1-inches where the resultant peak discharge was the same order of magnitude as the recorded value. The modeled hydrograph was plotted on Figure C-2. Keep in mind that there is no precipitation data available for any portion of the upper Sauceda Wash watershed. This line of reasoning is based on speculation with the ultimate goal of comparing hydrograph shapes.

The time-to-peak of the modeled hydrograph was 25-hours into the storm, using the time base of the Sand Tank Wash precipitation gage. This time is approximately 4-hours after the recorded time-to-peak from the Sauceda Wash flow gage. The Sand Tank Wash gage is in a different watershed than the Sauceda Wash and is situated approximately 15-miles north of the centroid of the bulbous portion of the Sauceda Wash watershed (refer to Exhibit "A"). Based on the time lag, it is likely that the storm approached from the south or southwest , crossed the Sauceda Mountains, and moved north with the center of the storm passing between the Sauceda Wash and Bender Wash precipitation gages. If this speculation were true, the precipitation recorded at the

Sand Tank Wash gage would be higher than at the other two gages, which was the case. The storm would also have been moving at an average velocity of 3.8 mph to meet the 4-hour time difference, which is a reasonable rate.

Following this line of reasoning, the modeled hydrograph was shifted back 4-hours and plotted against the recorded hydrograph. The result is shown on Figure C-4. The precipitation pattern defined using the Sand Tank Wash gage data obviously does not reflect the full rainfall pattern for the first 19-hours of the storm. Sufficient precipitation fell during the early portion of the storm to cause the initial 300 cfs peak and the resultant gradually increasing base flow (refer to Figure C-3). Additional heavy precipitation probably occurred between 16- and 20-hours into the storm in order to smother the drop in peak between 18.5-hours and 20-hours which the model forecasts (refer to Figure C-2). The modeled peak of 520 cfs at 18.5 hours is due to sub-basin 4N which is the 7.6 square mile area immediately upstream of the gage. The rainfall distribution was modified to force more precipitation to fall in the 16- to 18-hour time frame but still allow 1.2-inches to fall at 19-hours. The rising limb then did drown the 520 cfs peak and more closely matched the recorded hydrograph. What is most significant is that the receding limb of the modeled hydrograph closely matches the receding limb of the recorded hydrograph. This indicates that the modeled timing of peaks and routing are probably reasonable.

Finally, three other storms of similar magnitude, based on comparing peak flow rates, were examined. The runoff hydrographs for these storms as recorded at the Sauceda Wash gage have been plotted on Figures C-5, C-6, and C-7. These storms were apparently short duration high intensity thunderstorms which probably impacted only the upper reaches of the watershed. The Sauceda Wash precipitation gage recorded no precipitation for two of the storms, and only 0.28-inches for the third. (Refer to Table G-3.) Under this situation, the first intermediate peak of 520 cfs present on Figure C-2 would likely not appear on the hydrograph. The rising limb would be expected to appear similar to the one on Figure C-2 after the 24-hour point. The three recorded hydrographs shown on Figures C-5, C-6, and C-7 all exhibit this shape, and all three also have similarly shaped receding limbs which correlate well with the shape

of the modeled hydrograph on Figure C-2. For a point of reference, the modeled hydrograph for the 100-year, 24-hour storm at C33 has been included as Figure C-8.

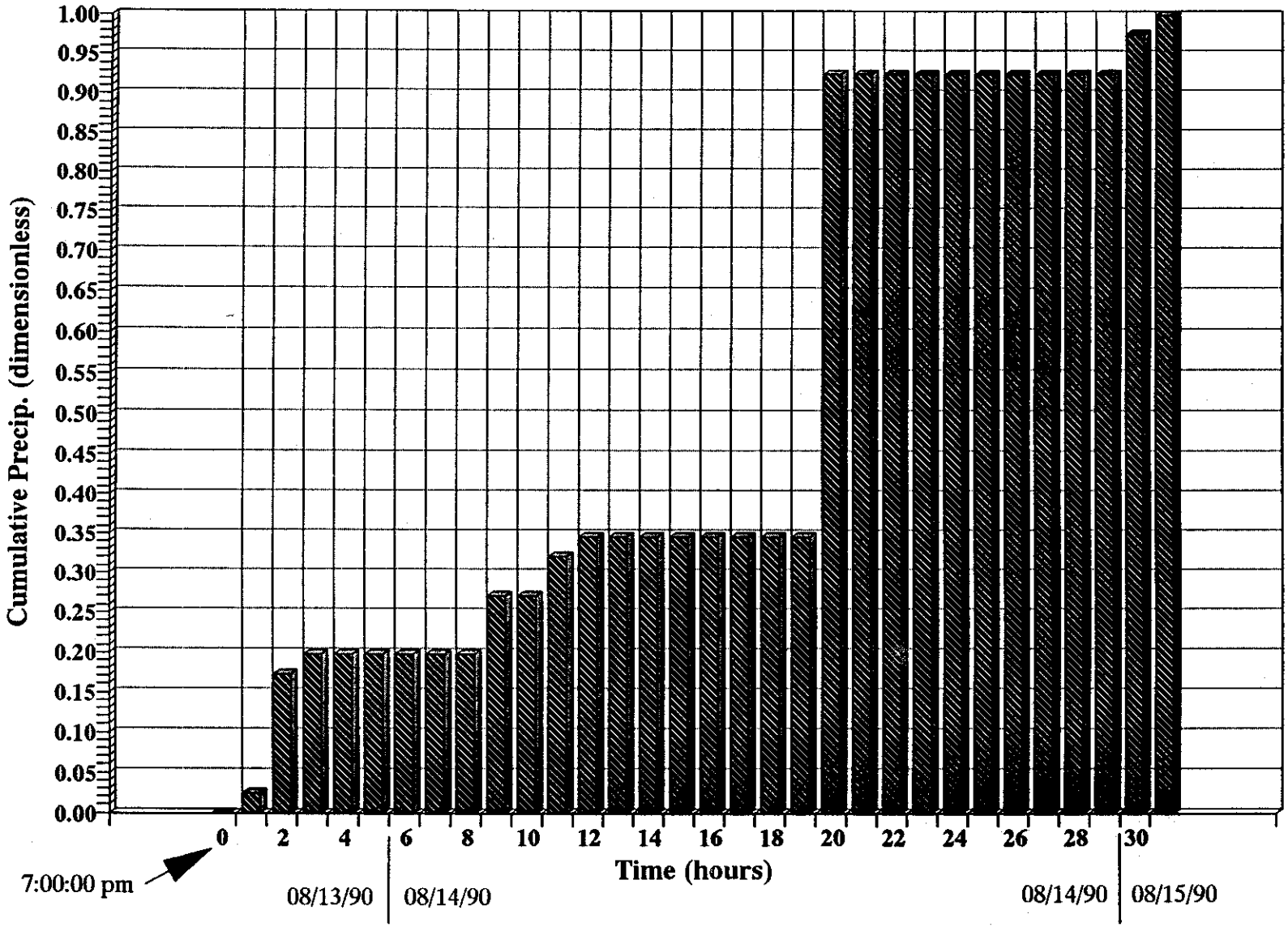
### 3.3.5 Summary

In summary, the model appears to provide a reasonable simulation of Sauceda Wash for smaller recurrence interval storms. The model also forecasts reasonable values for the 100-year duration storm for both Bender Wash and Sauceda Wash when comparing the results with the available USGS regression information. Since there is no other clear-cut evidence to the contrary, the model has been deemed a reasonable representation of the hydrology of the watershed. No further adjustments were made to the HEC-1 models.

# FIGURE C-1: Rainfall Distribution
## Sand Tank Wash Gage (605) 08/14/90

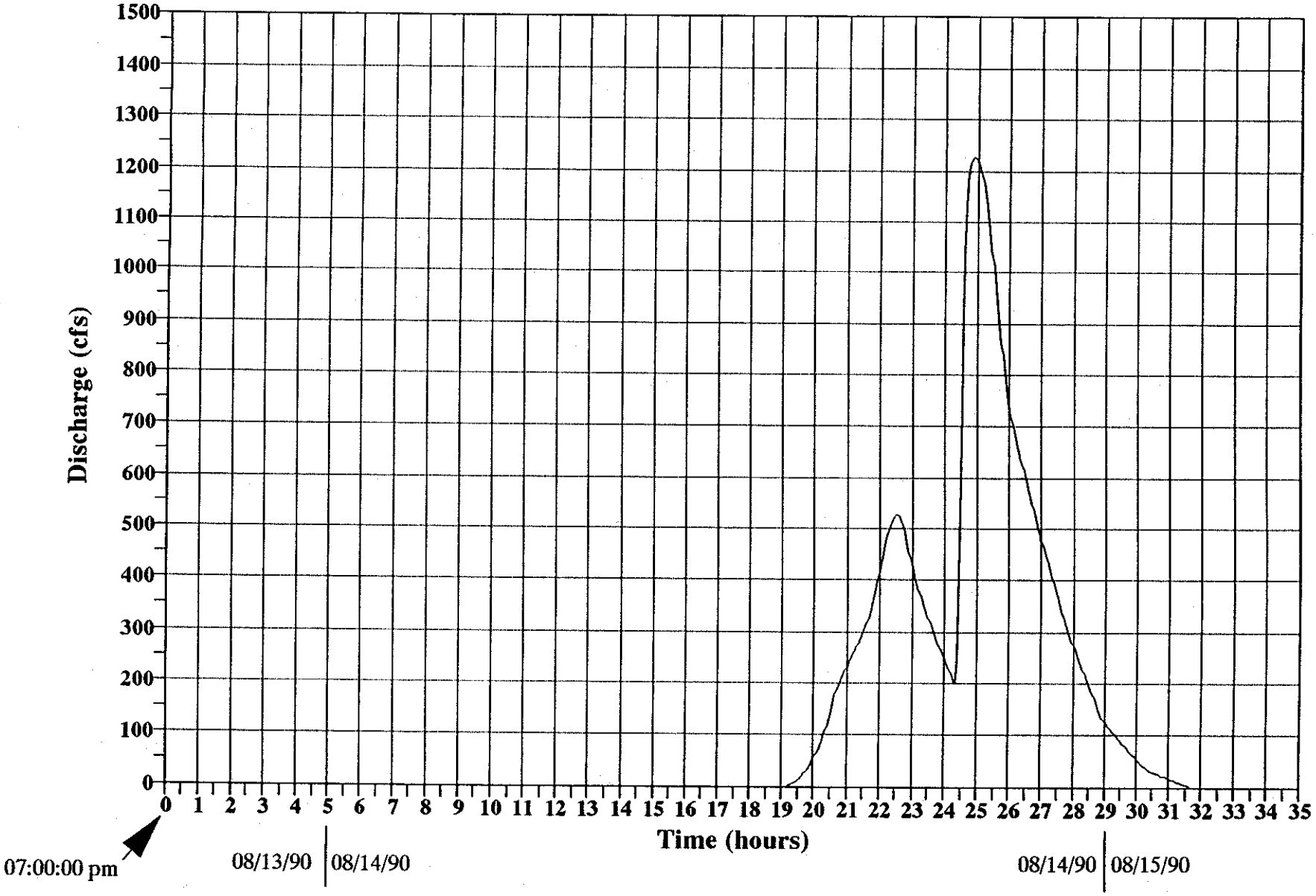
Storm Precipitation Starting at 1900 hours on 08/13/90

(Total Precipitation = 1.61 inches)

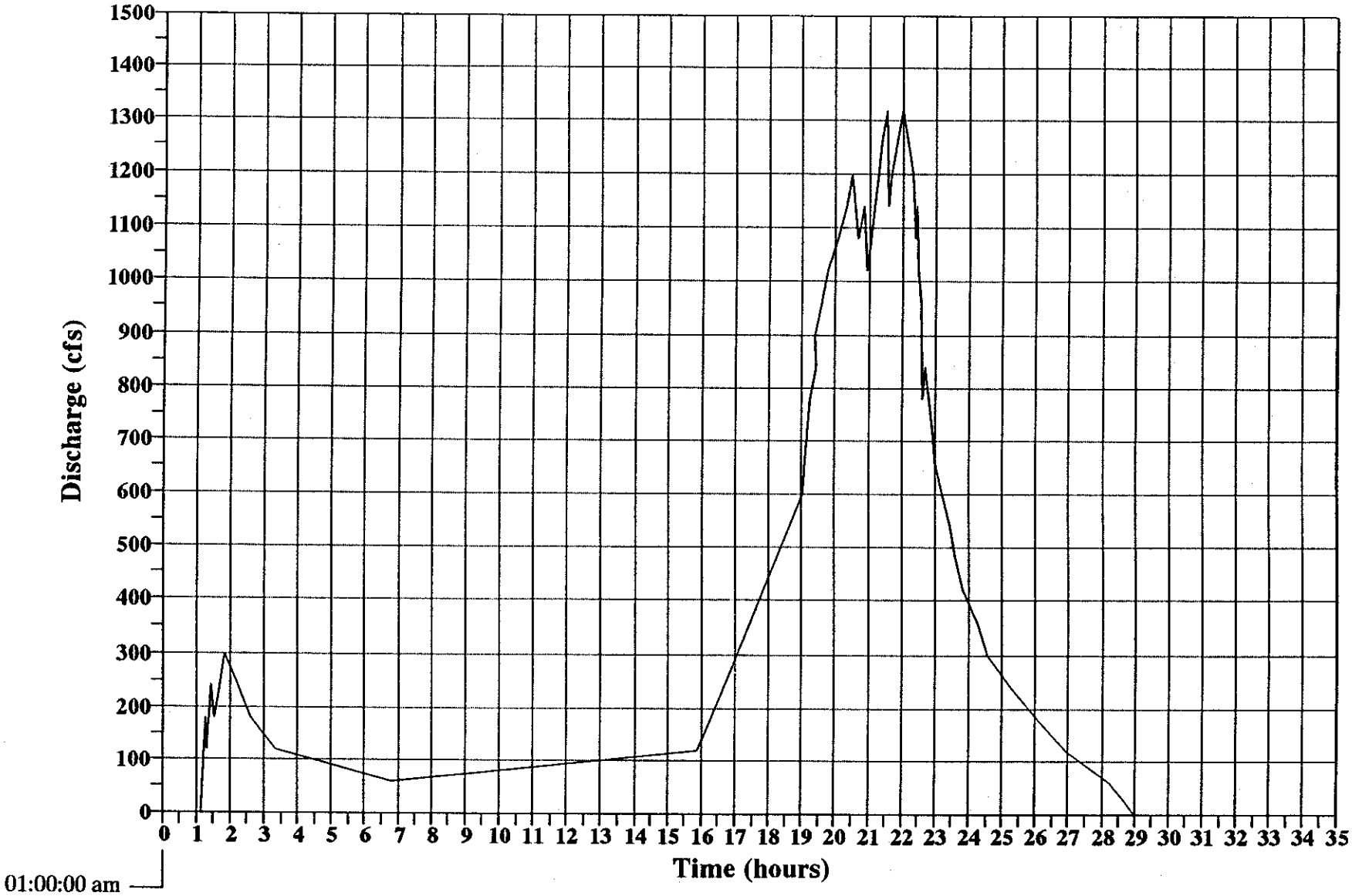


# FIGURE C-2: Sauceda Wash at C33
## Simulation of 08/14/90 Storm (P=2.1")

(Using the Precipitation Pattern from Figure 26)

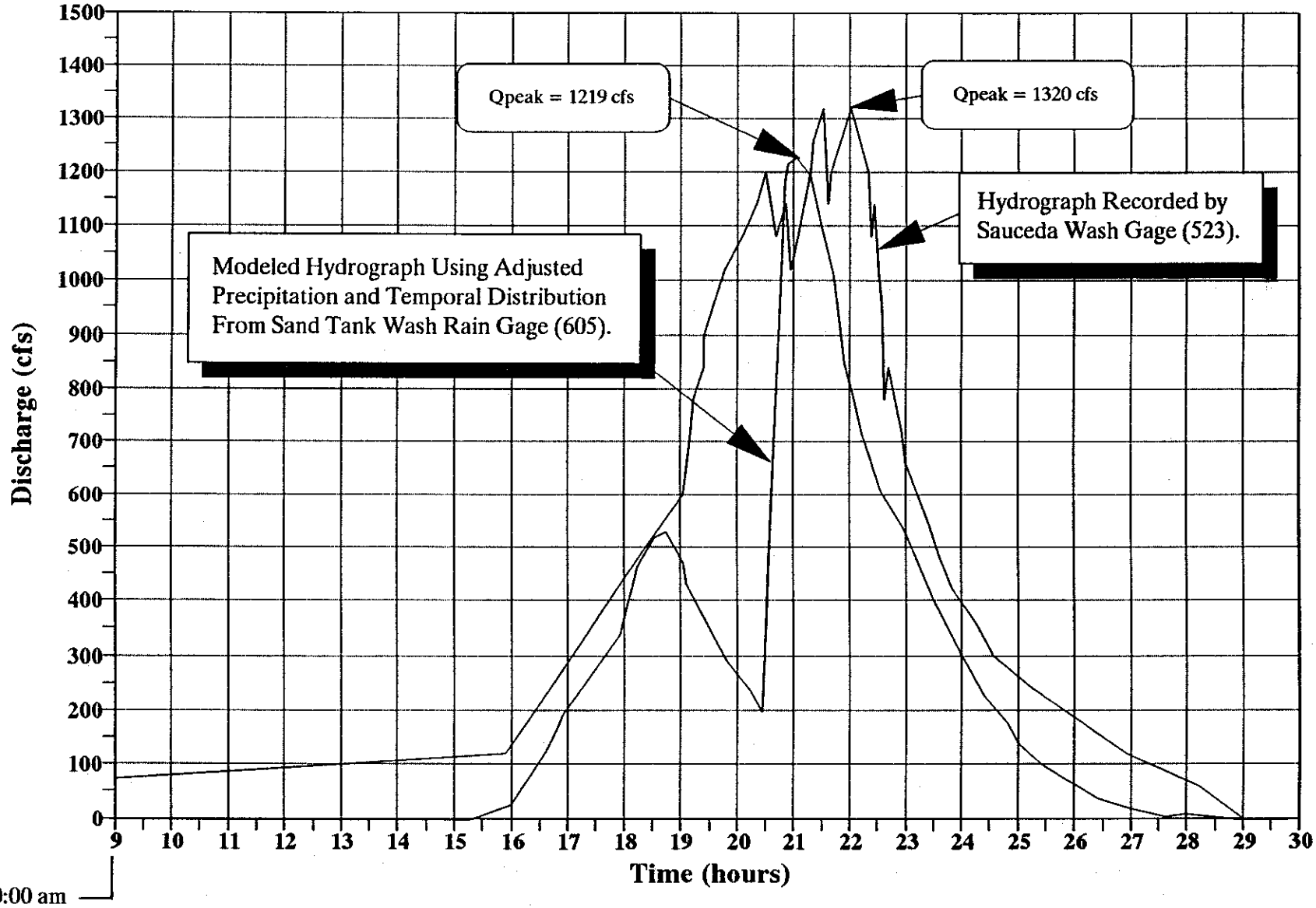


# FIGURE C-3: Sauceda Wash Gage at C33
## Recorded Hydrograph of 08/14/90 Storm

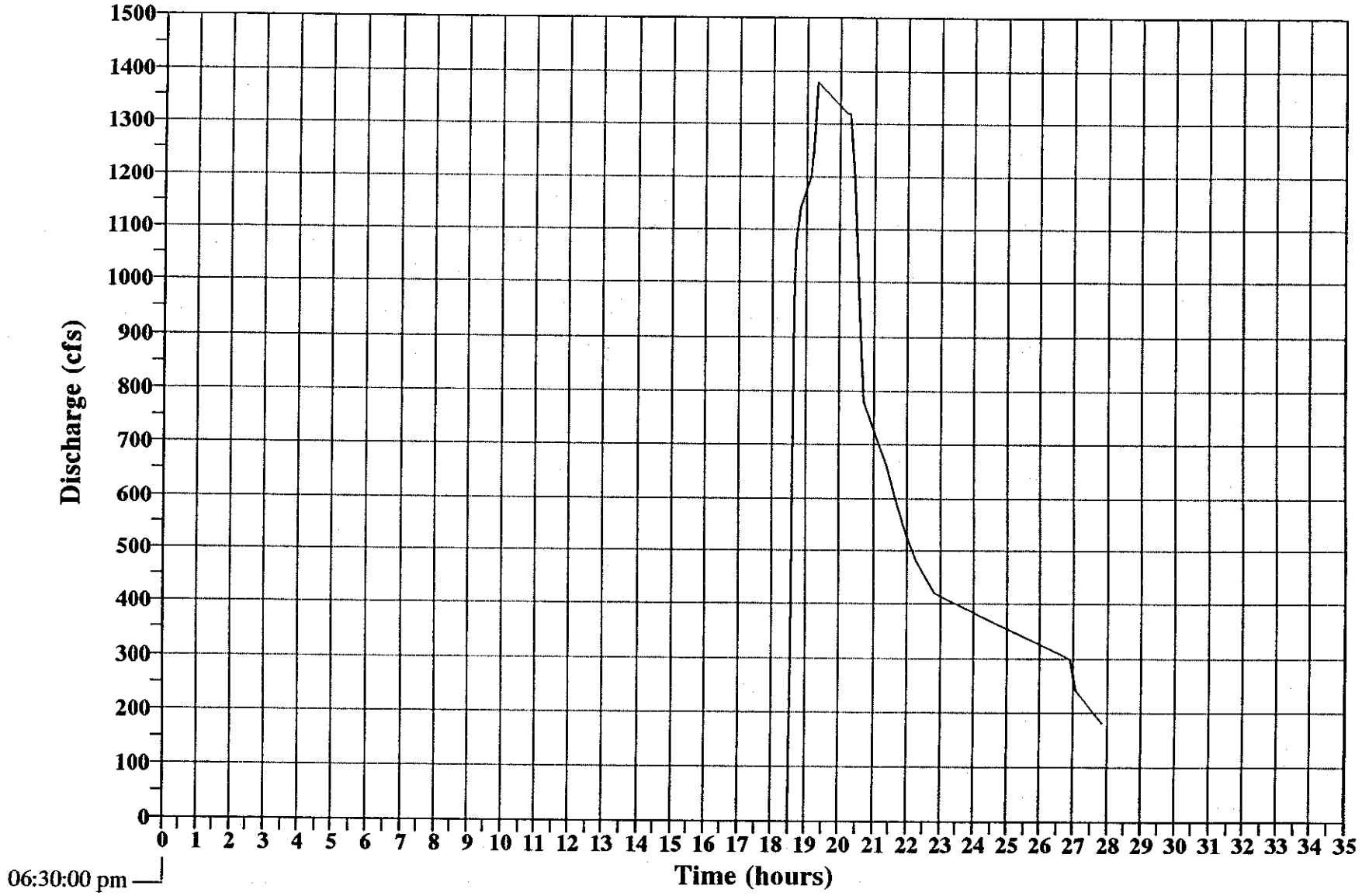


# FIGURE C-4: Sauceda Wash at C33
## Recorded Hydrograph vs Modeled

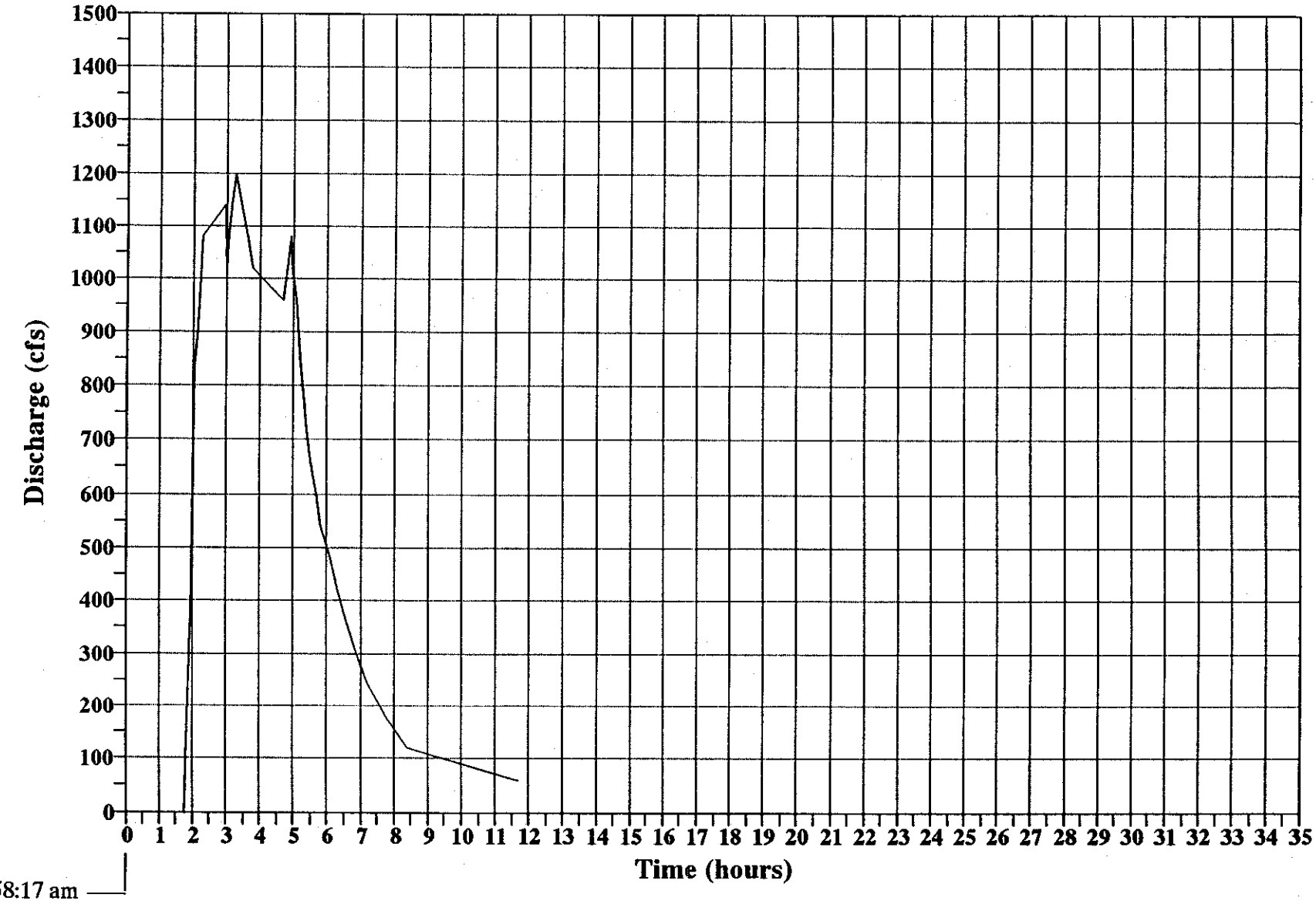
(Modeled Hydrograph Shifted 4 hours Back in Time)



# FIGURE C-5: Sauceda Wash at C33
## Recorded Hydrograph of 09/03/90 Storm

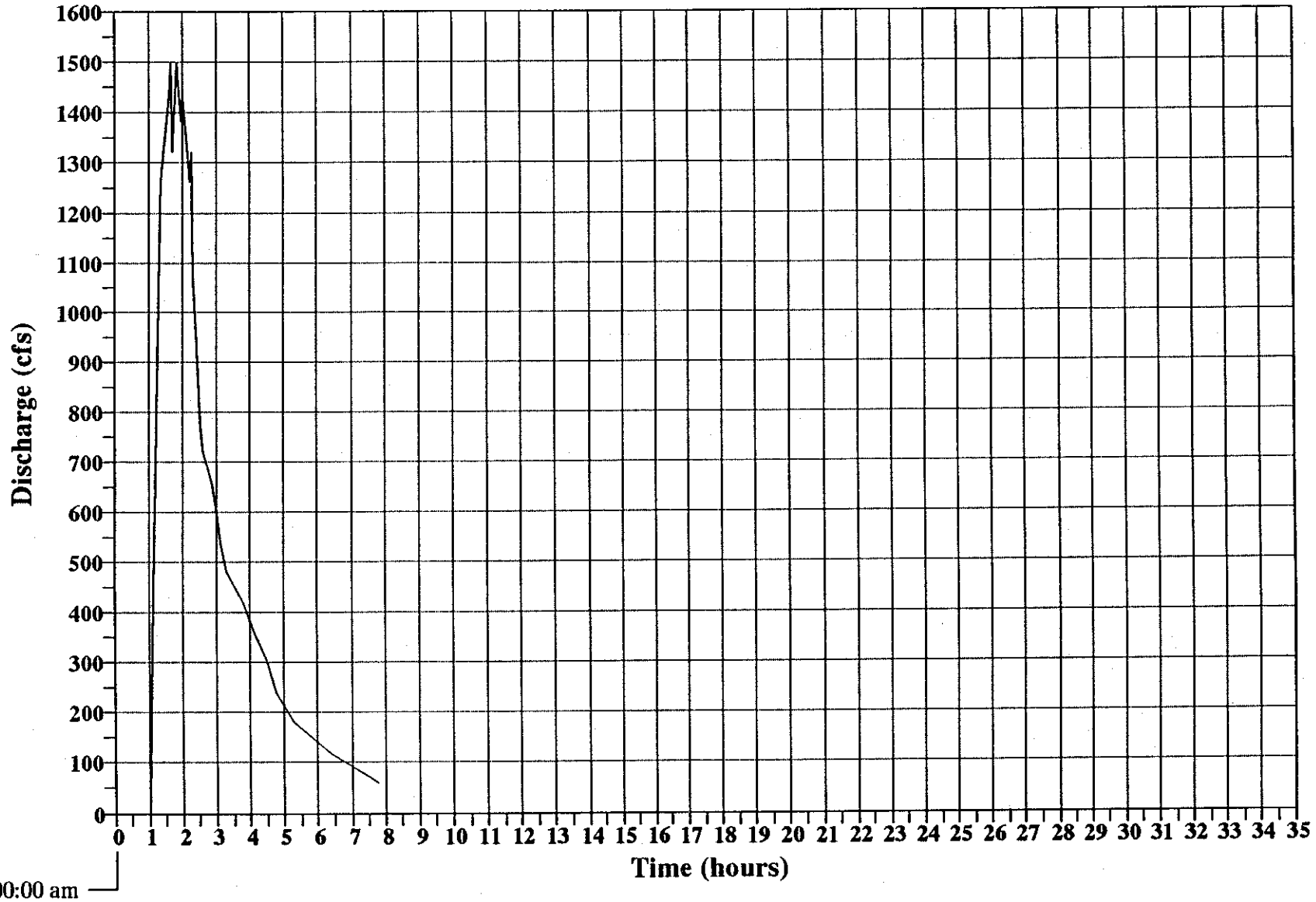


# FIGURE C-6: Sauceda Wash at C33
## Recorded Hydrograph of 07/11/90 Storm

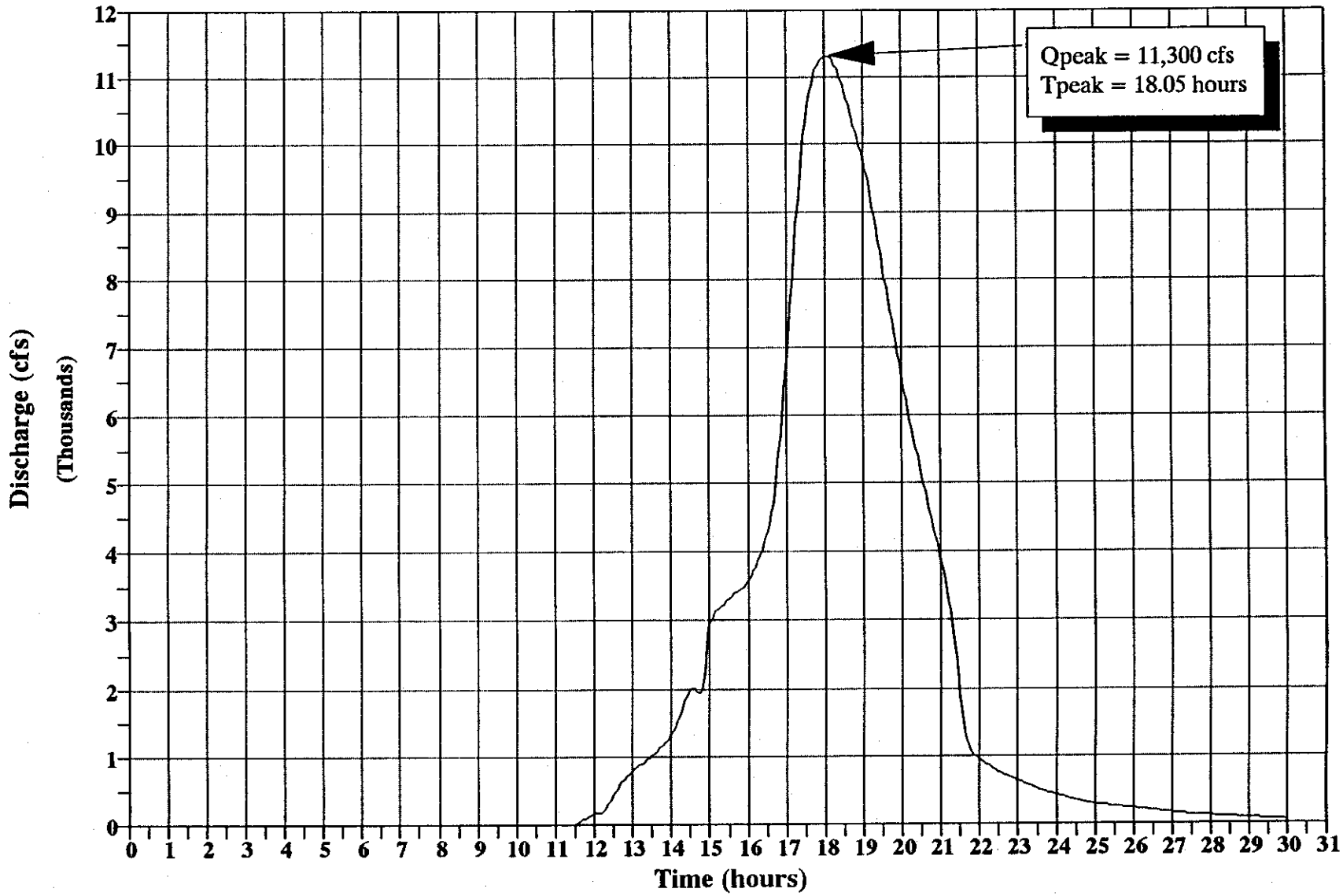



01:58:17 am

# FIGURE C-7: Sauceda Wash Gage at C33
## Recorded Hydrograph of 07/03/90



# FIGURE C-8: Sauceda Wash at C33
## 100-Year 24-Hour Storm



FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

Section 3.4

## 3.4 Special Problems and Solutions

### 3.4.1 Distributary Channel Flow Splits

#### 3.4.1.1 Discussion of Problem

There are numerous distributary flow areas present on the study watershed, particularly in the lower reaches of Bender Wash and Sand Tank Wash below the Maricopa and Sand Tank Mountains and upstream of Interstate 8. The significant flow split locations were identified during the sub-basin delineation process. The criteria used to determine whether a flow split was significant was:

1. Does the split cause diversion of flow into a separate watershed where peak discharges at downstream concentration points may be significantly affected?

2. If the washes downstream of the split reconverge, will modeling of the split provide a significantly better representation of the reach route hydraulics? The goal here was to better simulate routing down braided washes where an eight-point cross section does not adequately represent the hydraulics and storage characteristics of the reach. The use of a single 8-point cross section for distributary reaches of this type can result in poor estimates of flow depth and velocity, as well as reach storage and transmission loss characteristics.

3. Does backwater ponding upstream of Interstate 8, SR-85, and the Gila Bend Canal drainage cross structures cause significant commingling or diversion of flows?

The locations on the watershed selected for analysis using this criteria are identified on Exhibits "C" and "G" by use of a triangle symbol. Concentration points were established at these locations during the sub-basin delineation phase. The identified locations, and criteria number from above used for selection, are listed as follows:

| Concentration Point | Wash Names | Criteria Number | Description |
|---|---|---|---|
| C11 | Quilotosa Wash | 3 | Split caused by GBC. |
| C12 | Un-named Wash | 3 | Split caused by GBC. |
| C32 | Sauceda Wash | 2 | Natural split caused by geologic conditions. |
| C36 | Sauceda Wash | 2 | Split caused by GBC. |
| C40 | Sauceda Wash and Basin 6 | 1 | Natural split caused by geologic conditions. |
| C47 | Basin 6 | 2 | Natural split caused by geologic conditions. |
| C48 | Basin 6 | 2 | Natural split caused by geologic conditions. |
| C51 | Basin 6 | 3 | Split caused by GBC. |
| C78 | Bender Wash & Sand Tank Wash | 1 | Natural split caused by geologic conditions. |
| C79 | Bender Wash | 1 | Natural split caused by geologic conditions. |
| C80 | Bender Wash & Sand Tank Wash | 1 | Natural split caused by geologic conditions. |
| C81 | Bender Wash | 2 | Natural split caused by geologic conditions. |
| C82 | Bender Wash | 3 | Split caused by Interstate 8 structure capacity. |
| C84 | Sand Tank Wash | 2 | Natural split caused by geologic conditions. |
| C116 | Sand Tank Wash | 2 | Natural split caused by geologic conditions. |
| C132 | Sand Tank Wash | 1 | Split caused by Interstate 8 structure capacity. |
| C133 | Sand Tank Wash & Bender Wash | 3 | Split caused by GBC. |
| C142 | Scott Avenue Wash | 1,3 | Split caused by overflow along GBC. |
| C150 | Sand Tank Wash | 3 | Split caused by Interstate 8 structure capacity. |

The flow splits at the GBC structures are discussed in Section 3.4.3. The remainder of this discussion will only cover the natural flow splits and those caused by Interstate 8.

#### 3.4.1.2 Naturally Occurring Flow Splits

The conditions which cause flow splits at concentration points 47 and 48 were evaluated in the field. The flood plain at both locations is very shallow and broad. The splits appear to be caused by very low flat hills and dense vegetation. The judgement was made to use a 50/50 proportion for dividing hydrographs at these locations.

The remaining naturally occurring flow splits were also evaluated during the field reconnaissance phase. Typically, these splits are caused by geologic formations which protrude in the floodplain and are less scourable than the adjacent wash bottoms. This causes a single wash approaching the protrusion to split into two or more smaller washes that either reconverge downstream, or continue to diverge into separate watersheds. The channels upstream and downstream of the splits are typically well incised with stable well-vegetated banks. The hydraulics of these splits were modeled in HEC-1 using the hydrograph diversion operation. Diversion flow tables were estimated for each split using the HEC-2 computer program. An example is the flow diversion table for the split at C32.

| Hydrograph Diversion Table for Flow Split at C32 | | | |
|---|---|---|---|
| [1] Stage | [2] Total Flow Approaching Split (cfs) | [3] Flow Split to Left Branch (cfs) | [4] Flow Split to Right Branch (cfs) |
| 1192 | 0 | 0 | 0 |
| 1193 | 105 | 30 | 75 |
| 1194 | 615 | 275 | 340 |
| 1195 | 1875 | 775 | 1100 |
| 1196 | 4250 | 1500 | 2750 |
| 1197 | 7900 | 3100 | 4800 |
| 1198 | 12700 | 4500 | 8200 |
| 1198.4 | 15000 | 5300 | 9700 |

The diversion table in the HEC-1 model contains the data in columns 2 and 3. The following photographs were taken at C32.

Photograph Looking Downstream in Left Channel

Photograph Looking Downstream at Divider Area

Photograph Looking Downstream in Right Channel

The flow diversion tables estimated for each split were determined as follows:

*Step 1:* A cross section was taken through the fully developed split area from left to right perpendicular to the direction of flow. The definition of "fully developed" is a location downstream of the start of the split where the left and right channels are completely formed but flow is still present in the divider area. The average slope in both the left and right channels was shot in the field.

*Step 2:* The field cross section was separated into two cross sections by extending an imaginary vertical line through the high spot in the divider area. This forms separate cross sections for the left and right channels.

*Step 3:* The left and right channel cross sections were input to the HEC-2 computer program. Multiple runs were made using increasing discharge values until the capacity of sections were reached.

*Step 4:* The resultant stage versus discharge data was plotted and discharges corresponding to even foot stages were estimated. A flow diversion table similar to the above table for C32 was constructed for each split.

The key assumptions that have been made as a basis for the above process are:

1. The limitations and assumptions upon which HEC-2 is based also apply to this approach.

2. Scour which will occur as flow depths and velocities increase have the same relative effects on the conveyance capacity of both channels.

3. The basic structure of the geologic features which cause the split will not change in the near future of geologic time. In other words, the channels will not migrate substantially causing flow to divert to another separate watershed.

These assumptions have been accepted after a review of all of the flow splits modeled. The other diversion areas, which are not significant, have been assumed to have no measurable effects on downstream concentration points. These areas have been lumped in the model by careful sub-basin delineation.

HEC-1 does not retain the total watershed area associated with a diverted hydrograph when the hydrograph is recalled and combined with another hydrograph. The total watershed area must be entered on the HC record for the downstream combination point. There are a number of concentration points in the HEC-1 models that are affected by this requirement. The affected concentration points and the associated area calculations are listed in Table S-8 in Section 3.2.2.1.

#### 3.4.1.3 Flow Splits Caused by Interstate 8

Special consideration was given to the Bender Wash and Sand Tank Wash crossings of Interstate 8 at C82 and C132, respectively. The Bender Wash crossing consists of five sets of reinforced concrete box culverts (RCBC) which intercept the flow in Bender Wash over a length of approximately 0.56 miles. The total peak discharge from the 100-year 24-hour storm at this location is estimated to be 5,500 cfs. All five sets of culverts were modeled using HEC-2 to determine how much flow the culverts can convey before the

training dike on the west side of each structure is overtopped. Flow will overtop these dikes and migrate west to the next structure before the interstate is overtopped. A diversion table was then constructed using the total capacity of all five structures to control the amount diverted right (across the interstate), and the estimate of flow overtopping the most westerly training dike for diversion left along the south side of the interstate to Sand Tank Wash.

The Sand Tank Wash crossing of Interstate 8 consists of a bridge and two sets RCBC's. The same process applied to the Bender Wash crossing was used for the Sand Tank Wash crossing. The total 100-year 24-hour peak discharge in Sand Tank Wash was 23,700 cfs, including 500 cfs diverted from Bender Wash. Of this total, 14,900 cfs was modeled to cross the interstate, and 8100 cfs overtopped the most westerly training dike. Attenuation of the flow resulting from storage effects upstream of the interstate were assumed to be negligible, by inspection.

The 8100 cfs overflow moves west along the interstate to the Scott Avenue Wash crossing at C150. This peak discharge is substantially higher than the peak discharge from sub-basin 7A. The Scott Avenue Wash RCBC structure under Interstate 8 cannot convey the entire peak. The runoff ponded against the interstate at this point overtops Martin Avenue, a local north-south street situated approximately 600 feet west of the Scott Avenue Wash. Interstate 8 is bridged over Martin Avenue at this location. The ponded runoff can flow north through the Scott Avenue Wash RCBC, north under the Interstate 8 bridges over Martin Avenue, and west over Martin Avenue where flow enters a large gravel pit on the north side of the Pioneer Cemetery. The hydraulics of this flow split situation were modeled using HEC-2. The effects of storage in the ponding area were assumed to be negligible. Stage versus discharge curves for the three possible flow directions were developed from the HEC-2 results and used to prepare a flow diversion table for input to HEC-1. There are small culverts which also cross under the interstate in the vicinity of this ponding area which will convey flow north to Scott Avenue Wash. The

capacity of these culverts was assumed to be negligible. The flow rates for the Scott Avenue Wash RCBC and the Martin Avenue flow north under the interstate were totalled for the purposes of the diversion simulation in HEC-1. The peak discharges for these two locations can be separated using the stage versus discharge curves after peak outflows are determined using HEC-1. Refer to Table F-4 for a summary of these results. The peak discharge continuing north was estimated to be 3500 cfs. The peak discharge which overtops Martin Avenue and drains into the gravel pit was estimated to be 4600 cfs.

The flow which enters the gravel pit ultimately ponds against the east side of the Tucson, Cornelia, and Gila Bend Railroad, concentrating at C151. There is sufficient storage volume associated with the gravel pit to warrant a reservoir route. The storage data for this operation was derived using the 1"=400' scale mapping prepared as a part of this study. Runoff from sub-basin 3K also impacts concentration point C151.

Runoff from sub-basin 3K will peak and pass before the overflow from Sand Tank Wash and Bender Wash reach C151. This assumption was verified using the HEC-1 model. Also, runoff from sub-basin 3K can be assumed to have negligible impact on the gravel pit. The gravel pit was assumed to be dry when runoff from C150 enters the pit. The railroad crosses under Interstate 8 approximately 2200 feet north of C151. The peak stage at C151 was checked to ensure that runoff ponded at this location will not spill under the interstate along the railroad. Outflow from the reservoir route at C151 impacts concentration point C12 at the Gila Bend Canal and SR-85. The peak discharge leaving C151 was estimated to be 4100 cfs, which also is the controlling peak flow rate at C12. The reservoir routed hydrograph from C151 was combined with the runoff hydrograph from sub-basin 3K at C12 to prove this assumption is true.

There are two cross drain structures under the GBC at C12. The two structures were treated as one unit for the purposes of this study. A reservoir

route and a flow split were modeled at C12 because water ponded upstream of the canal can overtop SR-85 and impact the pond at C11. Runoff can also overtop the GBC and continue northwest. The hydraulics of the canal cross drain structures were modeled using HOBCW. The hydraulics of the SR-85 and GBC spillovers were modeled using the U.S. Army Corps of Engineers uneven broadcrested weir formula. The 100-year 24-hour peak flow of 4000 cfs from the reservoir route does in fact overtop SR-85 and the GBC.

The peak flow overtopping SR-85 was estimated to be 1200 cfs. The total flow through the C12 RCBC's and overtopping the canal was estimated to be 2800 cfs. The hydraulic calculations, and storage and discharge versus stage curves for C151 and C12, are contained under Section 3.2.2.3 because both involve storage routing.

Concentration points C133 and C135 were combined in the HEC-1 model and named PND3. This is where Sand Tank Wash and Bender Wash impact the GBC. The flow split at PND3 was done in order to simulate two (2) conditions. The first is flow which can overtop the levee on the west side of Sand Tank Wash upstream of the GBC. This levee, which extends south from the canal, was constructed by the U.S. Army Corps of Engineers to provide flood protection for the development west of Sand Tank Wash. The flow which can overtop this levee was combined with the total runoff at C142 for Scott Avenue Wash.

The second condition occurs downstream of the GBC overchute at C133. Keep in mind that the capacity of the three CMP culverts at C135 is negligible when compared with the capacity of the overchute. There are two sets of RCBC's under Business Loop 8 (BL-8) to convey flow from Bender Wash and Sand Tank Wash. The original Bender Wash channel is well defined immediately downstream of the GBC, even though upstream of the canal Bender Wash has been physically diverted to Sand Tank Wash. After the 100-year peak flow passes the GBC, the limited capacity of the Southern Pacific Railroad bridge for Sand Tank Wash will not convey the entire peak.

Runoff ponds against the railroad and spills east into the Bender Wash channel. The floodplain delineation HEC-2 model was used to simulate the hydraulics of this situation and create a flow split diversion table. In summary, the HEC-1 modeling logic for C133 used the following progression:

1. The capacity of the three 30"CMP culverts at C135 was added to the capacity of the concrete lined overchute at C133.

2. The total flow from Bender Wash and Sand Tank Wash was put through a reservoir route. The total capacity of the C133 and C135 structures in combination with the weir flow capacity of the west levee was used to control outflow from the reservoir.

3. A flow diversion operation was done to divert the runoff which overtops the west levee and impacts C142.

4. The runoff hydrograph resultant from this diversion, which continues in Sand Tank Wash, was then put through a second diversion operation to split the hydrograph between Sand Tank Wash and Bender Wash. The resultant hydrographs were then routed downstream to C141 where Bender Wash and Sand Tank Wash recombine. The effects of storage downstream of the GBC and upstream of BL-8 were assumed to be negligible.

The hydraulic calculations and resultant storage and discharge versus stage curve for C133 are contained in Section 3.2.2.3 because this operation involved storage routing.

The total flow at C142 includes overflow from C150 and C133, as well as runoff from sub-basin 7A. The 100-year peak flow exceeds the capacity of the GBC cross drain structure at C142 and overtops the canal. The flow which overtops the canal will sheet into both sub-basins 7B and 7D. This situation was simulated by use of a diversion operation., The canal overflow was modeled using the U.S. Army Crops of Engineers uneven broadcrested weir formula. An imaginary vertical wall was drawn where the ridge separating sub-basins 7B and 7D intersects the GBC. The diversion operation split the hydrograph by placing the flow over the canal east of this wall plus the flow through the C142 structure into sub-basin 7D. The flow over the

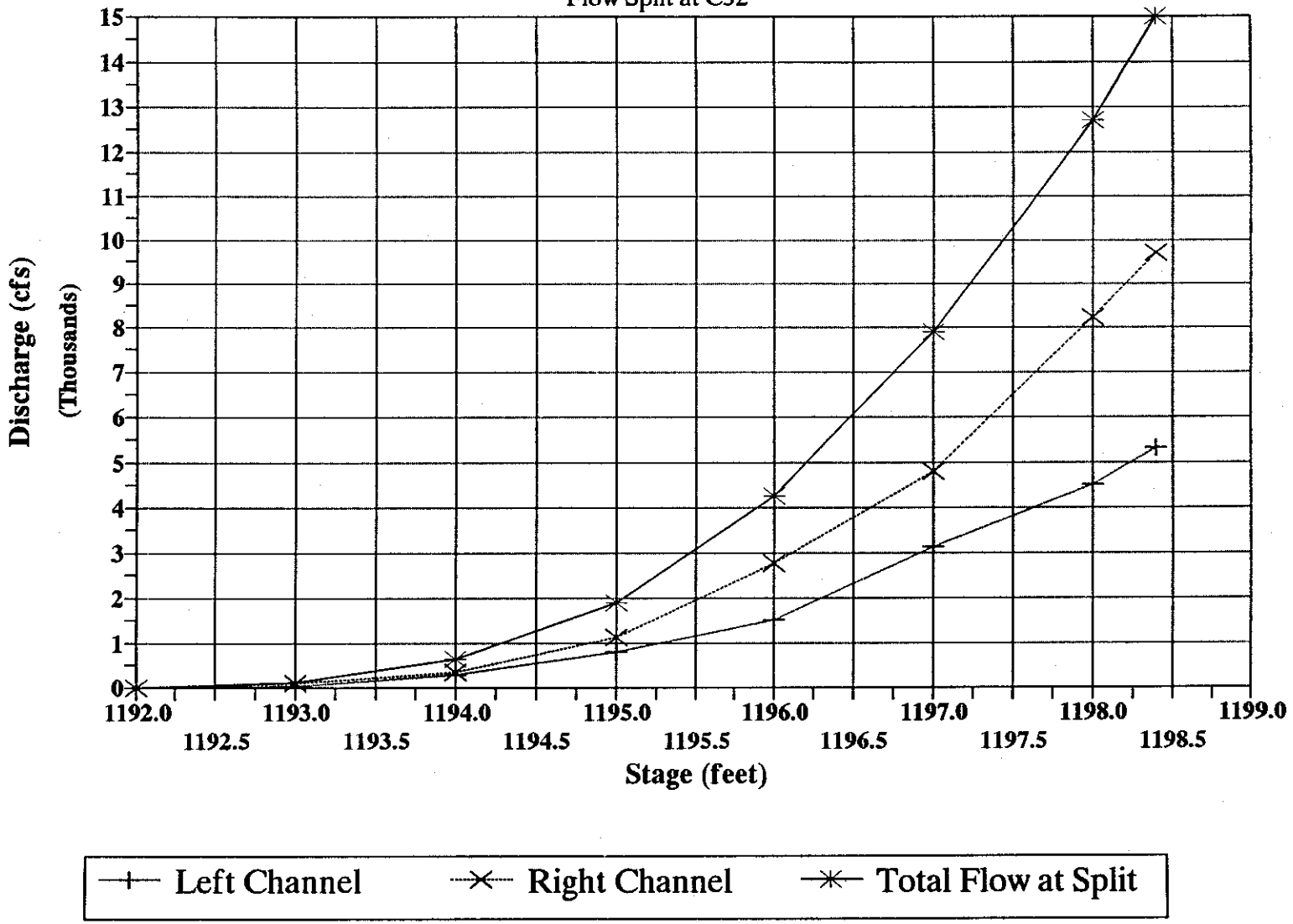
canal west of the wall was placed into sub-basin 7B. A reservoir route was done on the inflow hydrograph to C142. Therefore, the hydraulic calculations and resultant storage and discharge versus stage curve are included under Section 3.2.2.3.

#### 3.4.1.4 Summary

The stage versus discharge curves for the flow split locations, which did not include a reservoir route analysis, follow. These curves are titled Figures D-1 through D-13. Printouts of the hydraulic calculations for each split follow the figures.

# FIGURE D-1
## Discharge vs Stage Curve

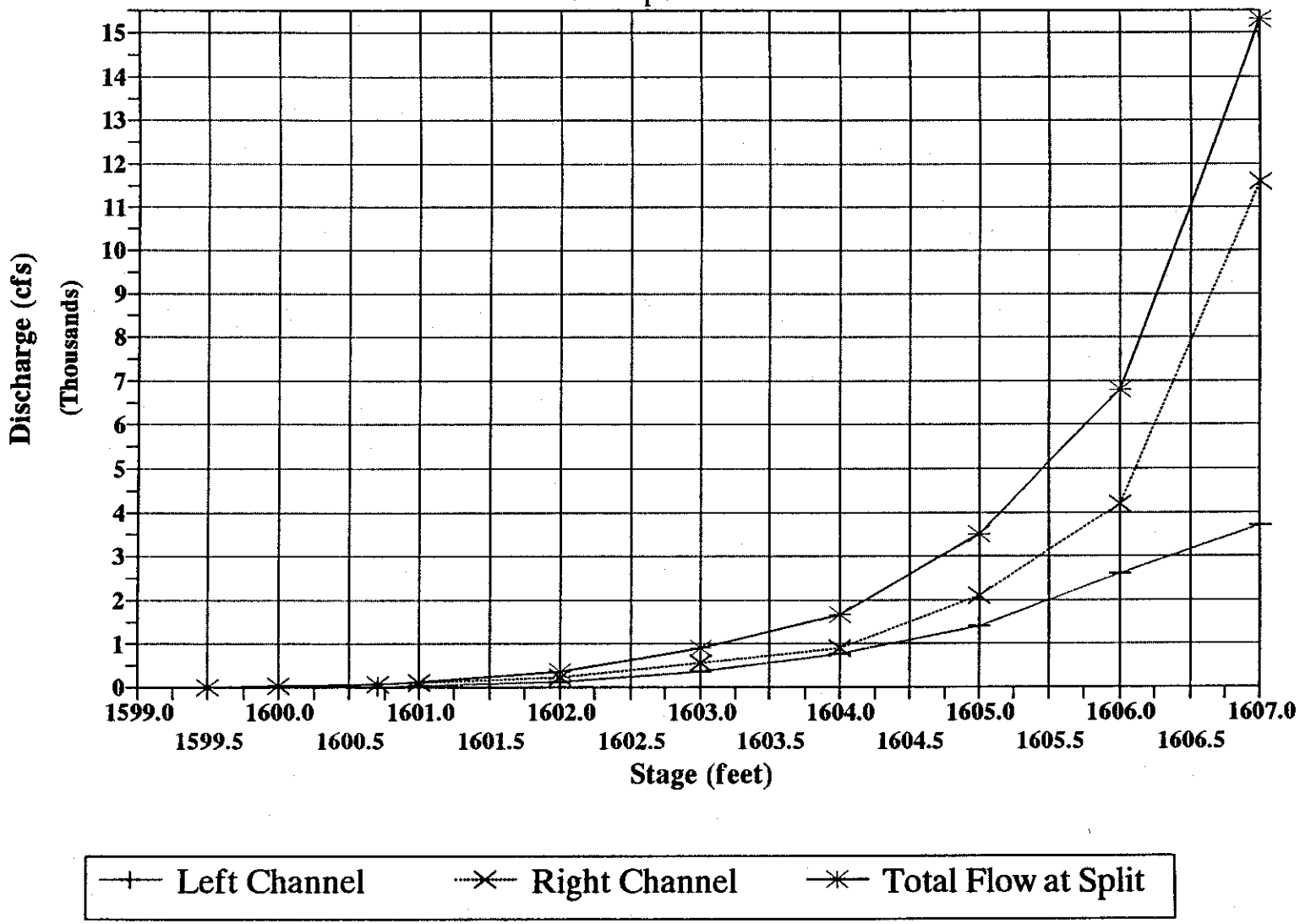
Flow Split at C32



# FIGURE D-2

**Discharge vs Stage Curve**

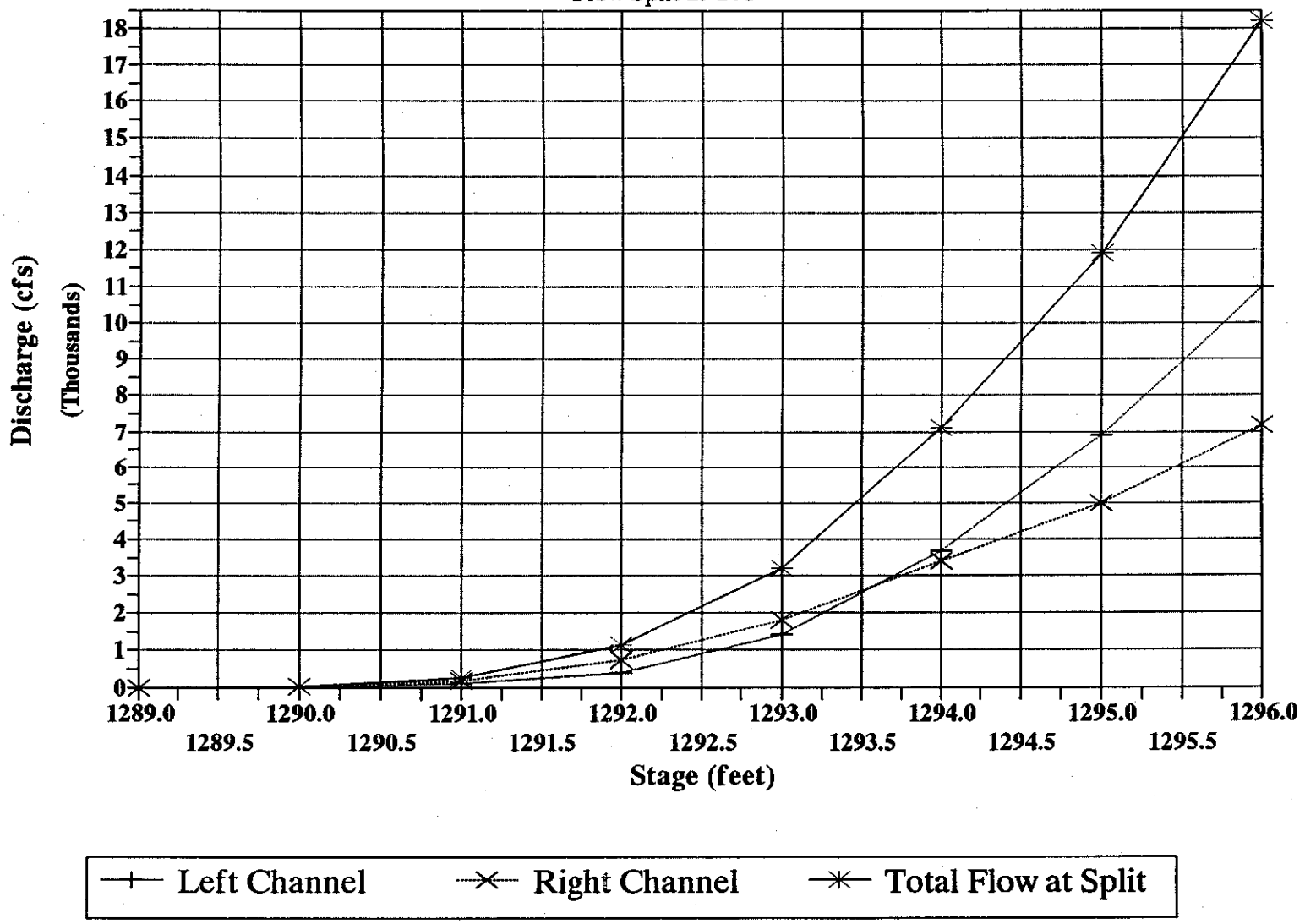
Flow Split at C40



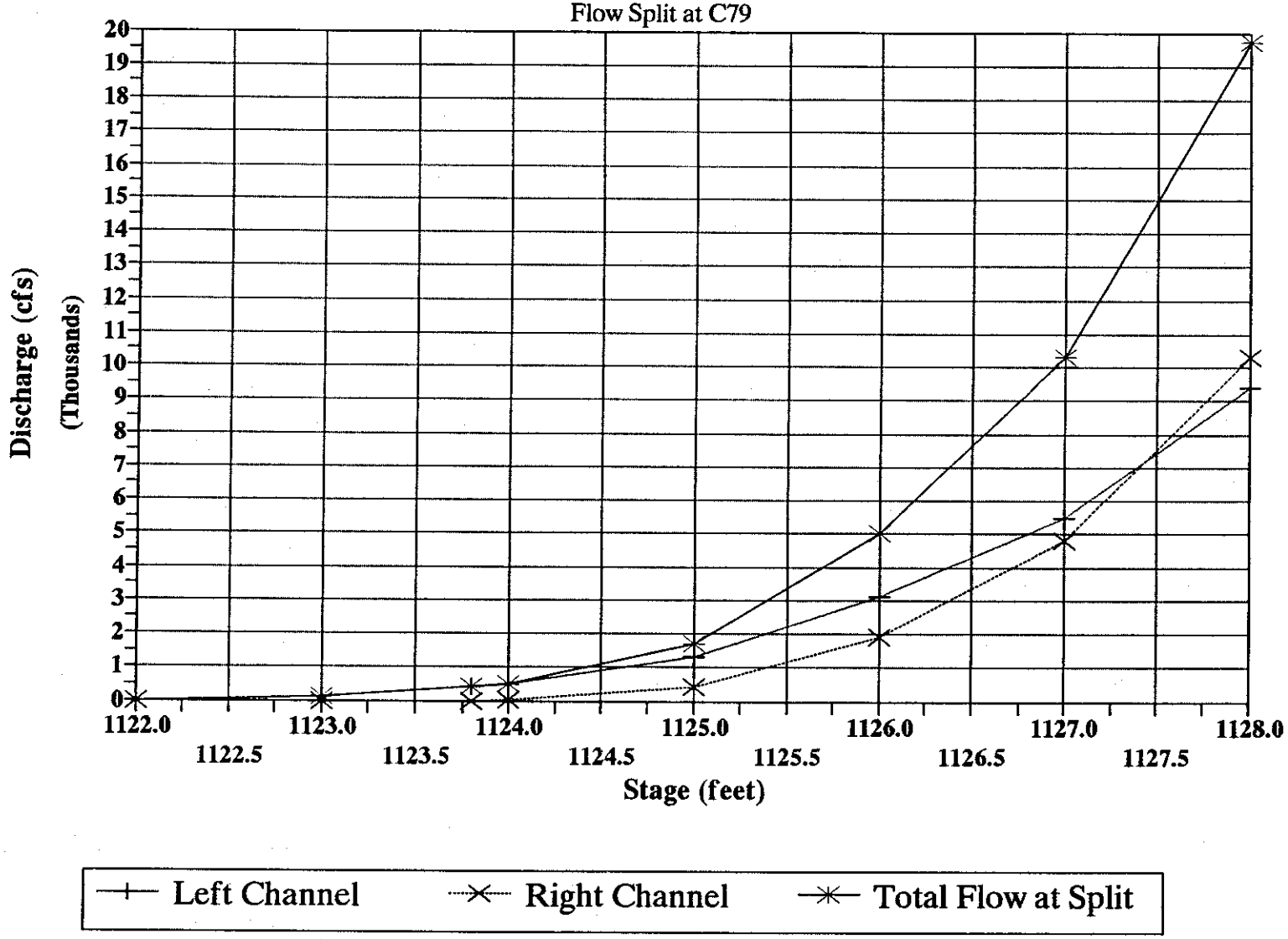
# FIGURE D-3

**Discharge vs Stage Curve**

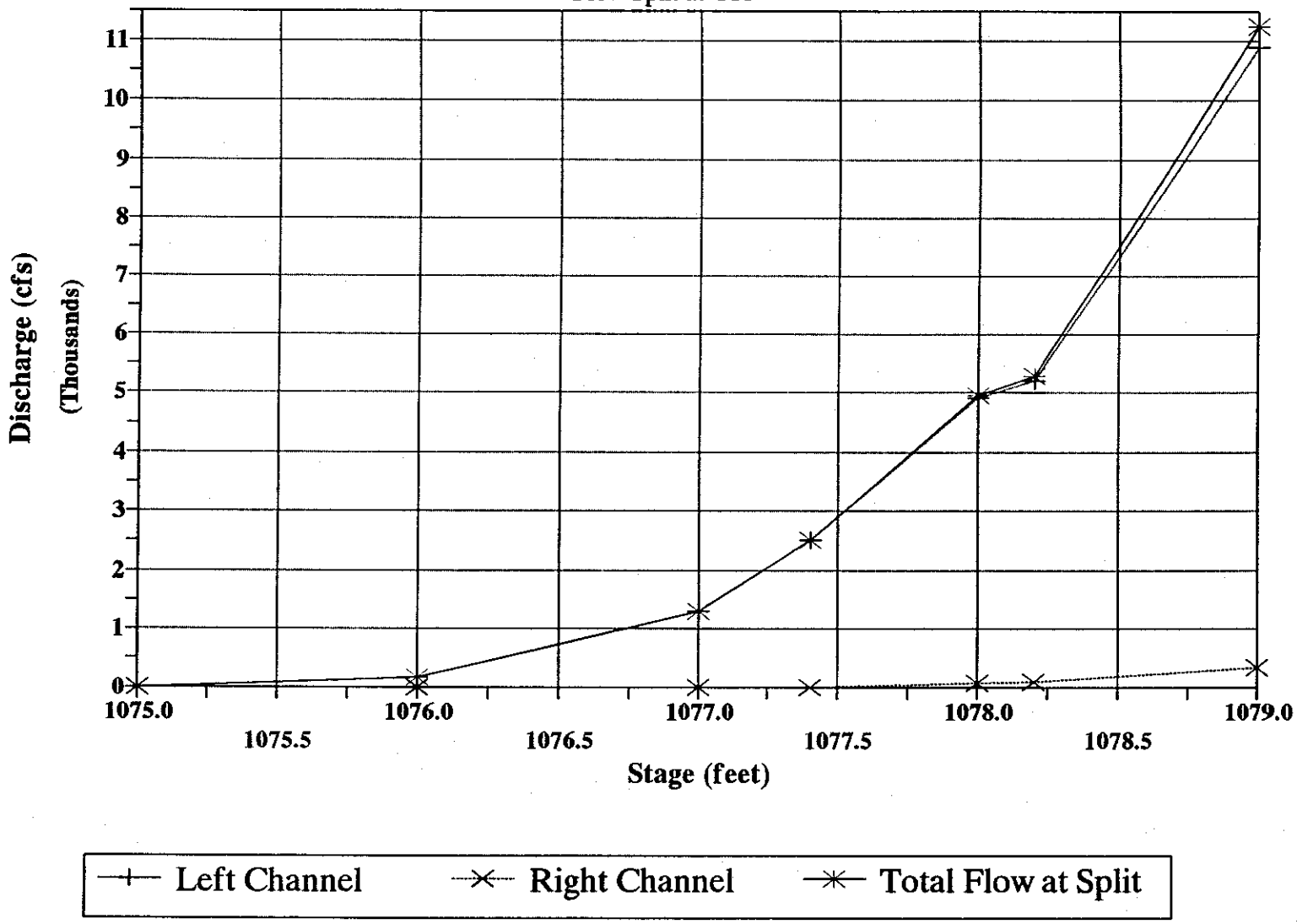
Flow Split at C78



# FIGURE D-4
## Discharge vs Stage Curve
Flow Split at C79



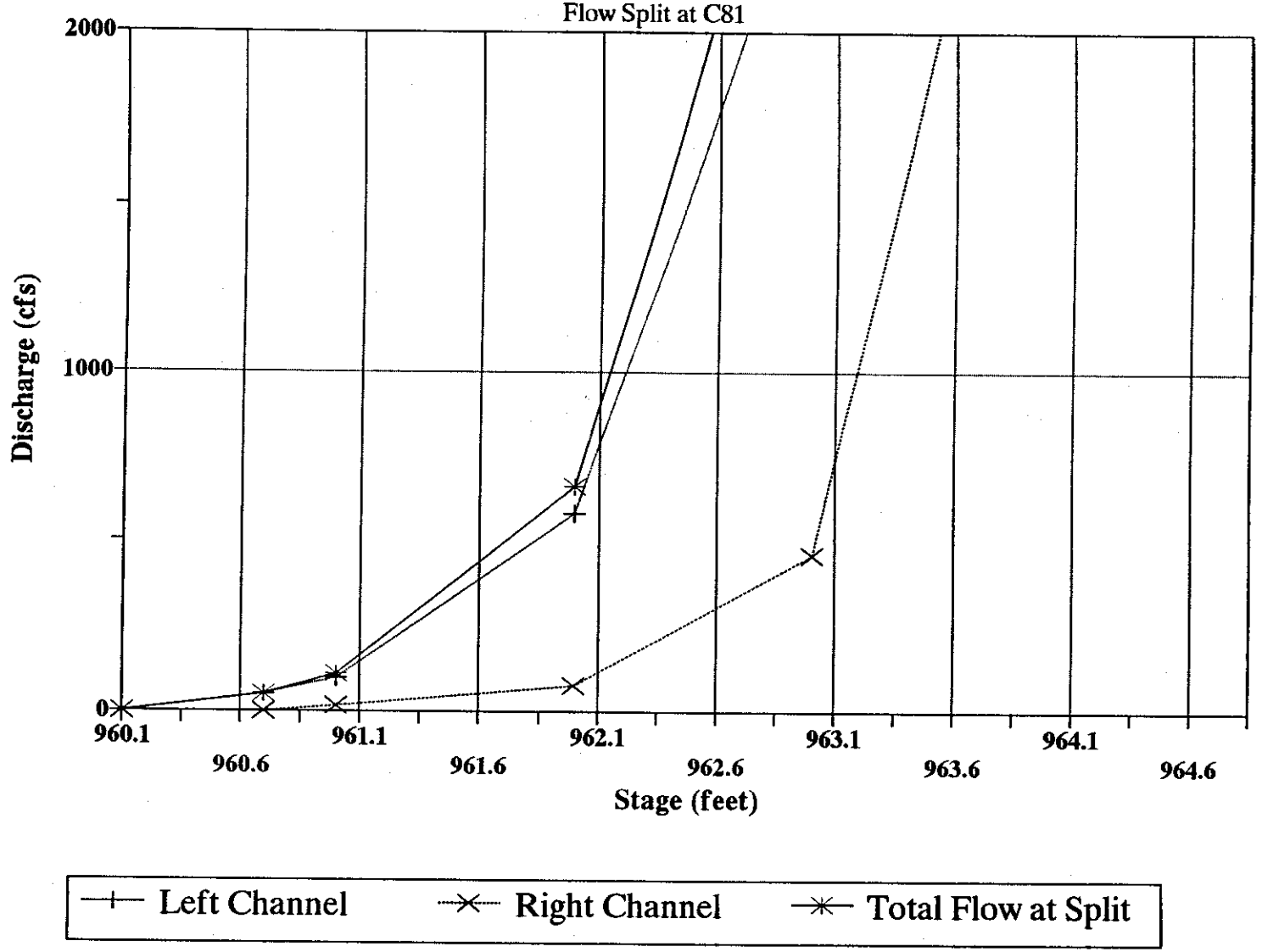
# FIGURE D-5
## Discharge vs Stage Curve
Flow Split at C80



# FIGURE D-6

**Discharge vs Stage Curve**

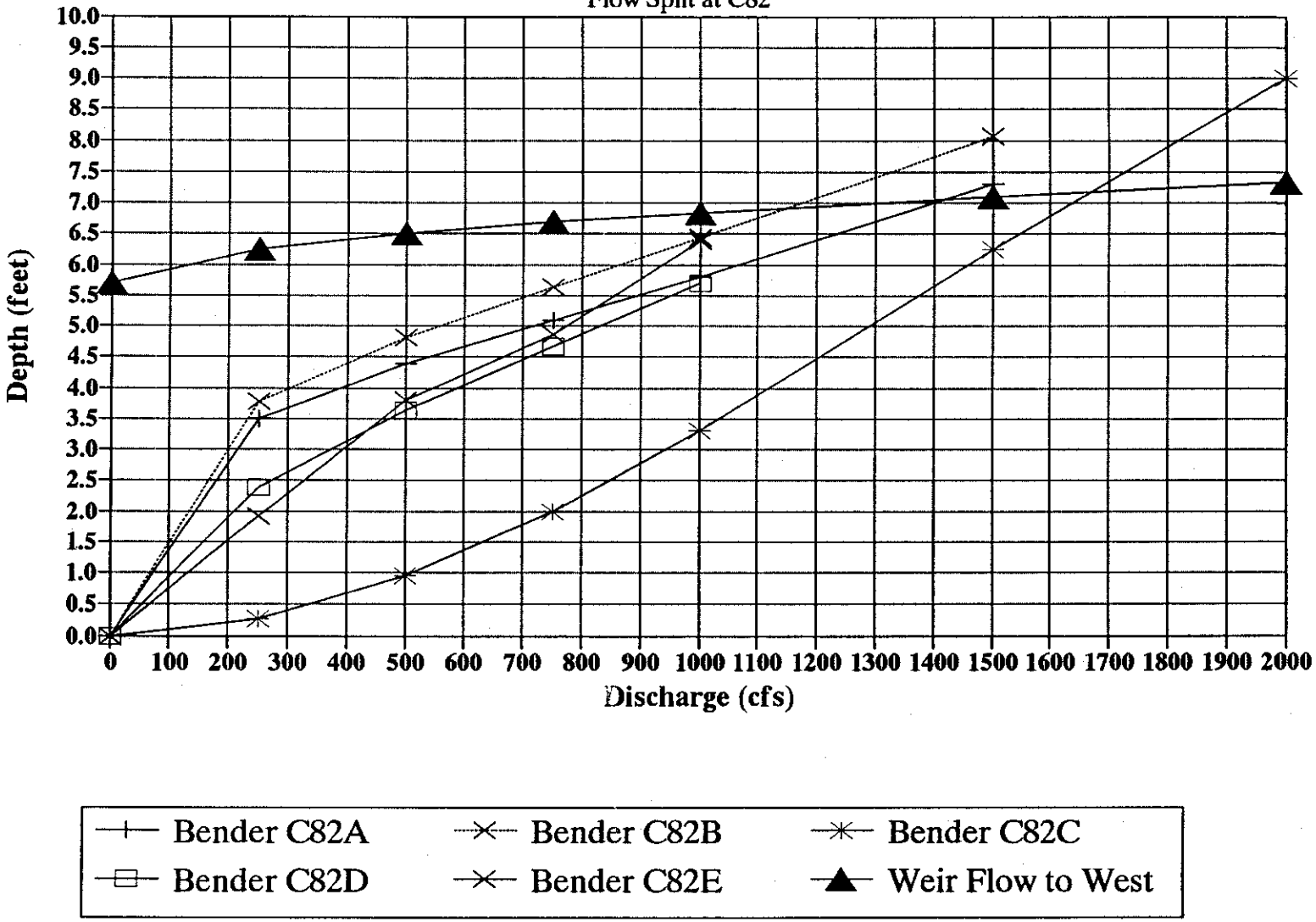
Flow Split at C81



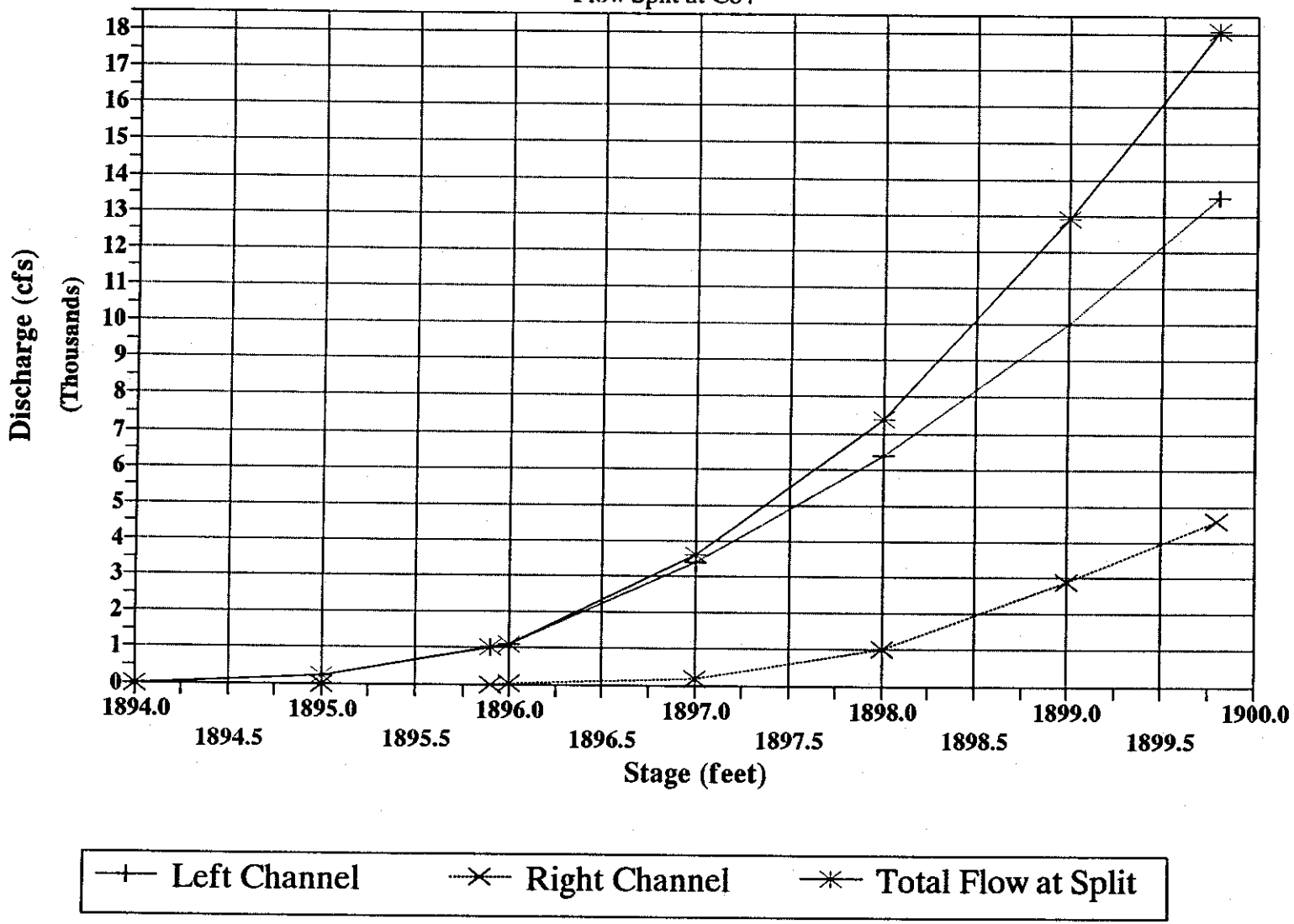
# FIGURE D-7

**Depth vs Discharge Curve**

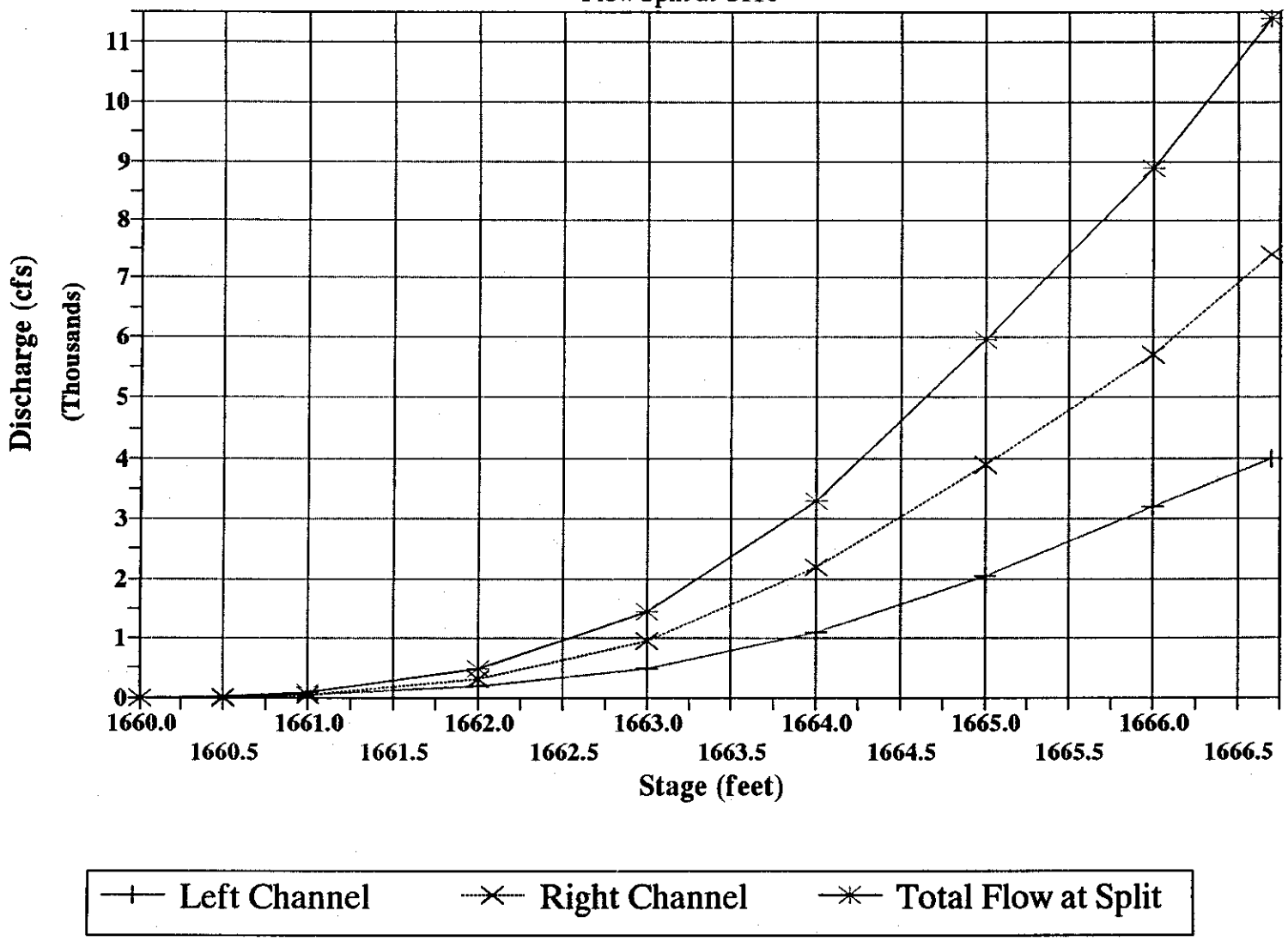
Flow Split at C82



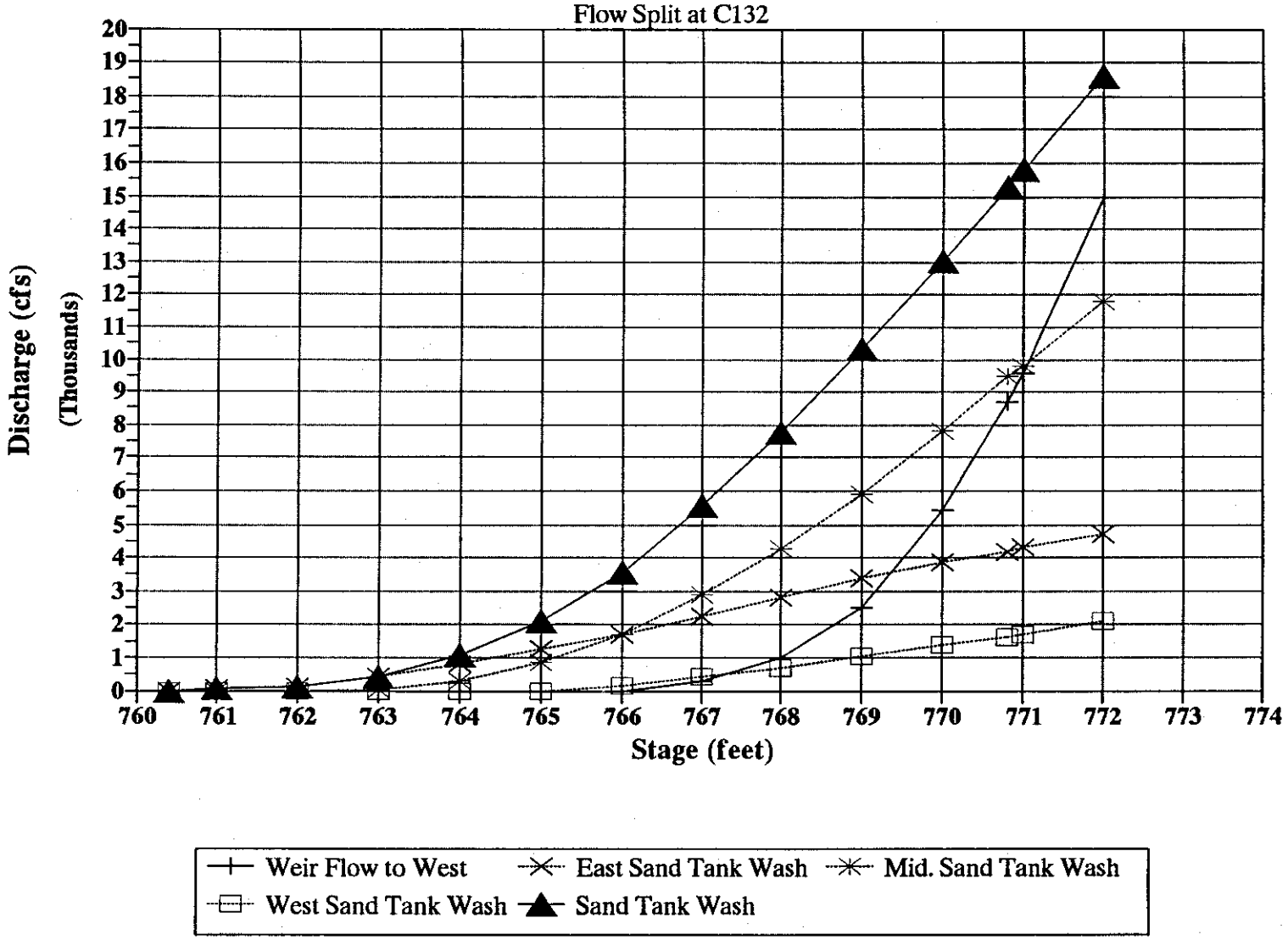
# FIGURE D-8
## Discharge vs Stage Curve
Flow Split at C84



# FIGURE D-9
## Discharge vs Stage Curve
Flow Split at C116



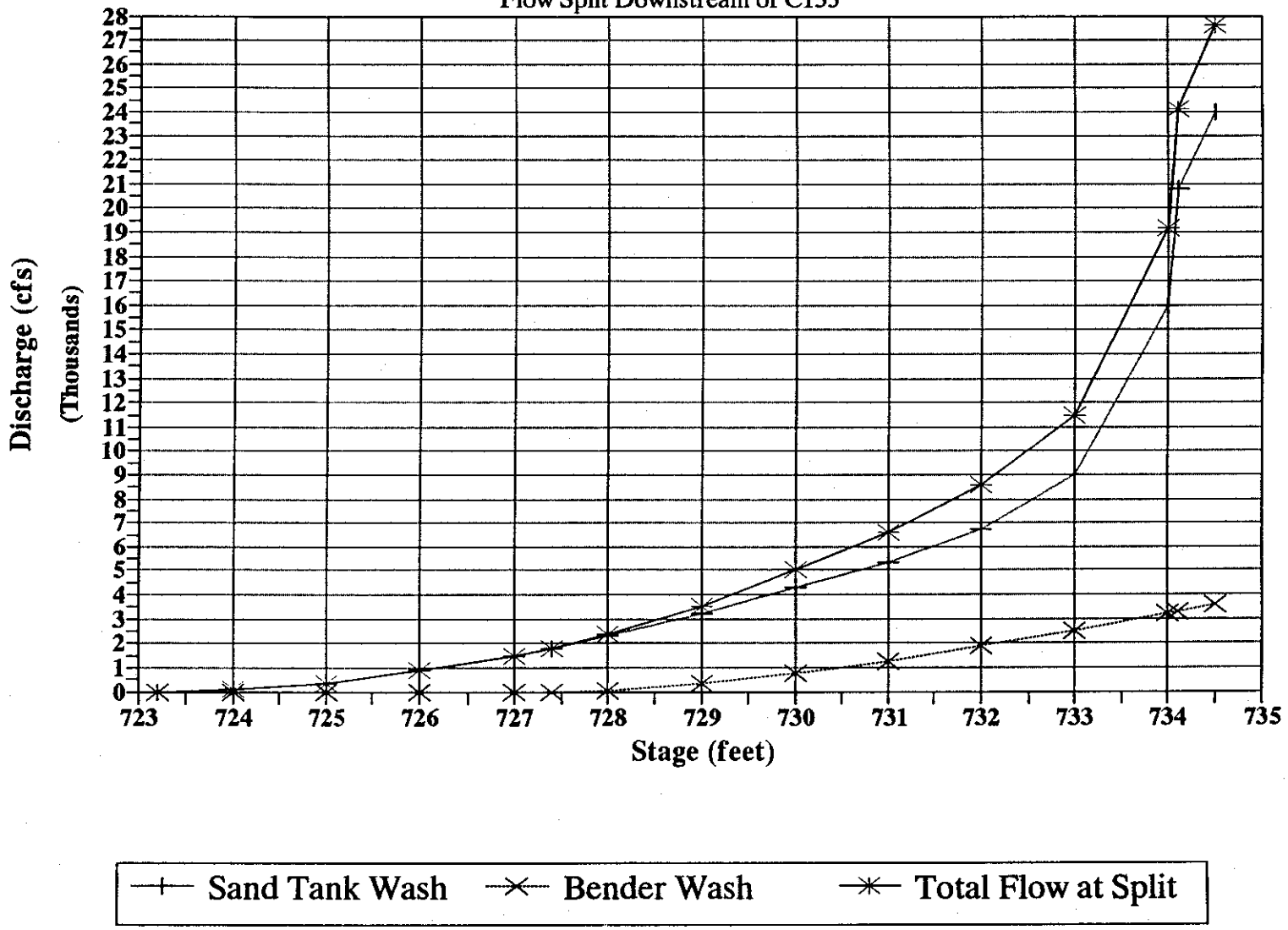
# FIGURE D-10
## Discharge vs Stage Curve



# FIGURE D-11

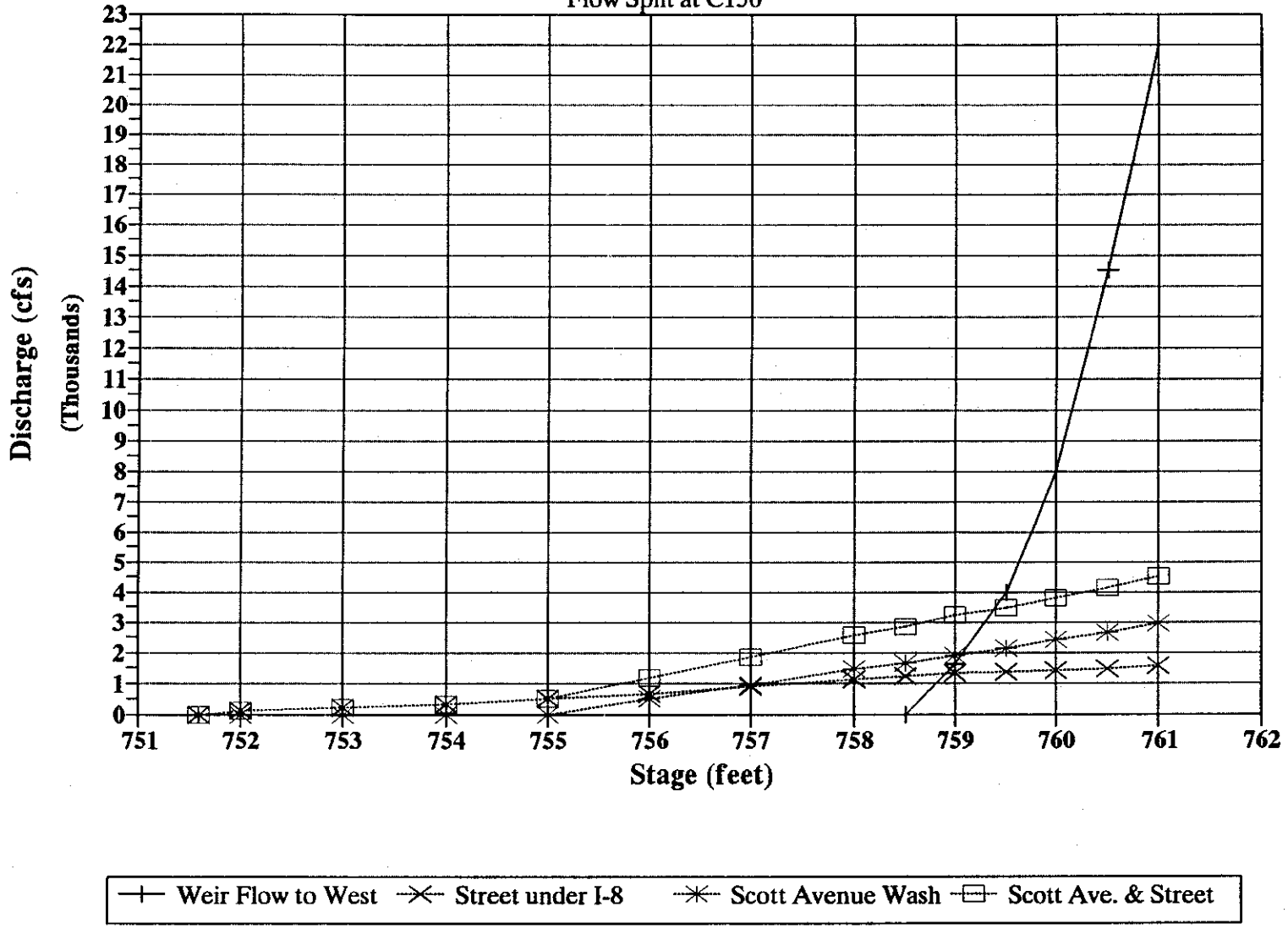
**Discharge vs Stage Curve**

Flow Split Downstream of C133



# FIGURE D-12
## Discharge vs Stage Curve

Flow Split at C150



Flow Splits

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

## C32 Summary Data

| Stage | Left Channel | Right Channel | Total Flow |
|---|---|---|---|
| 1192 | 0 | 0 | 0 |
| 1193 | 30 | 75 | 105 |
| 1194 | 275 | 340 | 615 |
| 1195 | 775 | 1100 | 1875 |
| 1196 | 1500 | 2750 | 4250 |
| 1197 | 3100 | 4800 | 7900 |
| 1198 | 4500 | 8200 | 12700 |
| 1198.4 | 5300 | 9700 | 15000 |

```
1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version   4.6.2;  May 1991                *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE    31MAR92    TIME   15:42:47    *
 *********************************************

                                                    *************************************
                                                    *  U.S. ARMY CORPS OF ENGINEERS     *
                                                    *  HYDROLOGIC ENGINEERING CENTER    *
                                                    *  609 SECOND STREET, SUITE D       *
                                                    *  DAVIS, CALIFORNIA 95616-4687     *
                                                    *          (916) 756-1104           *
                                                    *************************************

                                    X     X  XXXXXXX   XXXXX              XXXXX
                                    X     X  X         X     X            X     X
                                    X     X  X         X                  X
                                    XXXXXXX  XXXX      X           XXXXX   XXXXX
                                    X     X  X         X                  X
                                    X     X  X         X     X            X
                                    X     X  XXXXXXX   XXXXX              XXXXXXX
1
   31MAR92       15:42:47                                                                                    PAGE    1


                                                                                  THIS RUN EXECUTED 31MAR92     15:42:47
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************


 T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
 T2 FILENAME= C32-LEFT.H2
 T3 Flow Split At CP 32 For Left Side

 J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        2.        0.        0.     0.0076       0.        0.        0.     1194.0      0.

 J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.0        0.       -1.0       0.        0.        0.       -1.        0.        0.        15.


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38.       43.        1.        8.       55.       26.       56.       46.       47.        5.
     38.       53.       54.                 150

 NC    0.040     0.025     0.070     0.1       0.3
 NH      6.      0.040  1303.0     0.070  1311.0     0.025  1335.0     0.070  1380.0     0.070
 NH   1464.0     0.010  1464.1
 QT     13.0      25.0      50.0     75.0     100.0     200.0     400.0     600.0     800.0    1000.0
 QT   1500.0   5000.0   10000.0   15000.0
 X1      1.0       8.0  1303.0  1380.0        0.0       0.0       0.0
 GR   1198.4   1000.0   1197.2   1261.0   1197.3   1303.0   1192.1   1311.0   1192.6   1335.0
 GR   1193.1   1380.0   1195.2   1464.0   1210.0   1464.1
1
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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *PROF 1

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000     0.85   1192.95   1192.68   1194.00   1192.98      0.02      0.00      0.00   1197.30
       25.0      0.0      25.0       0.0       0.0      20.6       0.0       0.0       0.0   1193.10
       0.00     0.00      1.21      0.00     0.000     0.054     0.000     0.000   1192.10   1309.69
   0.007498       0.        0.        0.         0        17         5      0.00     57.02   1366.71


 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1192.95

 STA=    1310.    1380.
   PER Q=    100.0
    AREA=     20.6
     VEL=      1.2
   DEPTH=      0.4

1
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 T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
 T2 FILENAME= C32-LEFT.H2  Flow Split At CP 32 For Left Side
 T3       Q=50

 J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        3.        0.        0.     0.0076       0.        0.        0.     1194.0      0.

 J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2.0        0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
```

```
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      1.07   1193.17   1192.85   1194.00   1193.21      0.03      0.00      0.00   1197.30
      50.0       0.0      50.0       0.0       0.0      35.2       0.1       0.0       0.0   1193.10
      0.00      0.00      1.42      0.20     0.000     0.057     0.070     0.000   1192.10   1309.35
  0.007521        0.        0.        0.         0        18         4      0.00     73.61   1382.95

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1193.17

STA=    1309.    1380.    1383.
  PER Q=    100.0      0.0
   AREA=     35.2      0.1
    VEL=      1.4      0.2
  DEPTH=      0.5      0.0

1
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T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-LEFT.H2  Flow Split At CP 32 For Left Side
T3      Q=75

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       4.        0.        0.     0.0076       0.        0.        0.     1194.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      1.21   1193.31   1192.97   1194.00   1193.35      0.04      0.00      0.00   1197.30
      75.0       0.0      74.6       0.4       0.0      44.7       0.9       0.0       0.0   1193.10
      0.00      0.00      1.67      0.41     0.000     0.057     0.070     0.000   1192.10   1309.14
  0.007618        0.        0.        0.         0        14         5      0.00     79.18   1388.33

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1193.31

STA=    1309.    1380.    1388.
  PER Q=     99.5      0.5
   AREA=     44.7      0.9
    VEL=      1.7      0.4
  DEPTH=      0.6      0.1

1
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T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-LEFT.H2  Flow Split At CP 32 For Left Side
T3      Q=100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       5.        0.        0.     0.0076       0.        0.        0.     1194.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    4.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      1.32   1193.42   1193.06   1194.00   1193.48      0.05      0.00      0.00   1197.30
      100.0       0.0      98.8       1.2       0.0      53.0       2.1       0.0       0.0   1193.10
      0.00      0.00      1.86      0.55     0.000     0.057     0.070     0.000   1192.10   1308.96
  0.007633        0.        0.        0.         0         8         5      0.00     84.02   1392.98

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1193.42

STA=    1309.    1380.    1393.
```

```
  PER Q=     98.8      1.2
   AREA=     53.0      2.1
    VEL=      1.9      0.6
  DEPTH=      0.7      0.2

1
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T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-LEFT.H2  Flow Split At CP 32 For Left Side
T3       Q=200

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       6.        0.        0.      0.0076      0.        0.        0.      1194.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    5.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      1.69   1193.79   1193.30   1194.00   1193.88      0.09      0.00      0.00   1197.30
     200.0       0.0     191.3       8.7       0.0      79.2       9.6       0.0       0.0   1193.10
      0.00      0.00      2.41      0.91     0.000     0.057     0.070     0.000   1192.10   1308.40
  0.007618        0.        0.        0.         0        14         5      0.00     99.28   1407.68

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1193.79

STA=    1308.    1380.    1408.
  PER Q=     95.6      4.4
   AREA=     79.2      9.6
    VEL=      2.4      0.9
  DEPTH=      1.1      0.3

1
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T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-LEFT.H2  Flow Split At CP 32 For Left Side
T3       Q=400

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       7.        0.        0.      0.0076      0.        0.        0.      1194.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    6.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      2.22   1194.32   1193.68   1194.00   1194.45      0.14      0.00      0.00   1197.30
     400.0       0.0     360.8      39.2       0.0     116.9      29.6       0.0       0.0   1193.10
      0.00      0.00      3.09      1.33     0.000     0.057     0.070     0.000   1192.10   1307.59
  0.007573        0.        0.        0.         0        15         5      0.00    121.06   1428.65

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1194.32

STA=    1308.    1380.    1429.
  PER Q=     90.2      9.8
   AREA=    116.9     29.6
    VEL=      3.1      1.3
  DEPTH=      1.6      0.6

1
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T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-LEFT.H2  Flow Split At CP 32 For Left Side
T3       Q=600

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       8.        0.        0.      0.0076      0.        0.        0.      1194.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    7.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.
```

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1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 7

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
     1.000      2.61   1194.71   1193.97   1194.00   1194.89      0.17      0.00      0.00   1197.30
     600.0       0.0     516.6      83.4       0.0     145.9      52.2       0.0       0.0   1193.10
      0.00      0.00      3.54      1.60     0.000     0.057     0.070     0.000   1192.10   1306.98
  0.007553        0.        0.        0.         0         5         5      0.00    137.62   1444.60

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1194.71

 STA=    1307.    1380.    1445.
   PER Q=      86.1      13.9
    AREA=     145.9      52.2
     VEL=       3.5       1.6
   DEPTH=       2.0       0.8

1
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 T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
 T2 FILENAME= C32-LEFT.H2  Flow Split At CP 32 For Left Side
 T3       Q=800

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       9.        0.        0.     0.0076       0.        0.        0.     1194.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     8.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 8

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
     1.000      2.95   1195.05   1194.23   1194.00   1195.25      0.20      0.00      0.00   1197.30
     800.0       0.0     662.8     137.2       0.0     170.2      75.7       0.0       0.0   1193.10
      0.00      0.00      3.90      1.81     0.000     0.058     0.070     0.000   1192.10   1306.47
  0.007563        0.        0.        0.         0         8         5      0.00    151.35   1457.82

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1195.05

 STA=    1306.    1380.    1458.
   PER Q=      82.9      17.1
    AREA=     170.2      75.7
     VEL=       3.9       1.8
   DEPTH=       2.3       1.0

1
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 T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
 T2 FILENAME= C32-LEFT.H2  Flow Split At CP 32 For Left Side
 T3       Q=1000

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.      10.        0.        0.     0.0076       0.        0.        0.     1194.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     9.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 9

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
     1.000      3.22   1195.32   1194.45   1194.00   1195.55      0.23      0.00      0.00   1197.30
    1000.0       0.0     797.3     202.7       0.0     190.7      98.7       0.0       0.0   1193.10
      0.00      0.00      4.18      2.05     0.000     0.058     0.070     0.000   1192.10   1306.04
```

```
  0.007572        0.        0.        0.        0        11        5      0.00    157.96   1464.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1195.32

STA=    1306.    1380.    1464.
  PER Q=     79.7     20.3
   AREA=    190.7     98.7
    VEL=      4.2      2.1
  DEPTH=      2.6      1.2

1
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T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-LEFT.H2  Flow Split At CP 32 For Left Side
T3      Q=1500

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       11.       0.        0.      0.0076      0.        0.        0.      1194.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   10.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF10

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
    1.000      3.80   1195.90   1194.91   1194.00   1196.19      0.29      0.00      0.00   1197.30
   1500.0       0.0    1106.6     393.4       0.0     233.6     147.1       0.0       0.0   1193.10
     0.00      0.00      4.74      2.67     0.000     0.058     0.070     0.000   1192.10   1305.15
  0.007606       0.        0.        0.         0        14         4      0.00    158.86   1464.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1195.90

STA=    1305.    1380.    1464.
  PER Q=     73.8     26.2
   AREA=    233.6    147.1
    VEL=      4.7      2.7
  DEPTH=      3.1      1.8

1
   31MAR92      15:42:47                                                                                PAGE   21

T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-LEFT.H2  Flow Split At CP 32 For Left Side
T3      Q=5000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       12.       0.        0.      0.0076      0.        0.        0.      1194.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   11.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
   31MAR92      15:42:47                                                                                PAGE   22

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF11

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
    1.000      6.24   1198.34   1196.84   1194.00   1198.86      0.54      0.00      0.00   1197.30
   5000.0     472.4    2858.1    1659.5     186.6     419.8     351.8       0.0       0.0   1193.10
     0.00      2.53      6.83      4.72     0.040     0.058     0.070     0.000   1192.10   1013.46
  0.007682       0.        0.        0.         0        20        11      0.00    450.56   1464.02

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1198.34

STA=    1013.    1261.    1303.    1380.    1464.
  PER Q=      6.3      3.1     57.4     33.2
   AREA=    140.9     45.7    419.8    351.8
    VEL=      2.2      3.4      6.8      4.7
  DEPTH=      0.6      1.1      5.5      4.2

1
   31MAR92      15:42:47                                                                                PAGE   23

T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-LEFT.H2  Flow Split At CP 32 For Left Side
T3      Q=10000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
```

```
      0.       13.       0.       0.    0.0076      0.       0.       0.    1194.0      0.
 J2  NPROF    IPLOT    PRFVS    XSECV    XSECH     FN     ALLDC     IBW     CHNIM    ITRACE
    12.0       0.      -1.0      0.       0.       0.      -1.       0.       0.      15.
1
   31MAR92     15:42:47                                                                          PAGE   24

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF12

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
 3280 CROSS SECTION       1.00 EXTENDED       1.34 FEET

      1.000      7.64   1199.74   1199.04   1194.00   1200.41      0.67      0.00      0.00   1197.30
    10000.0    3172.3    4182.0    2645.7     611.6     527.9     469.8       0.0       0.0   1193.10
       0.00      5.19      7.92      5.63     0.040     0.058     0.070     0.000   1192.10   1000.00
   0.007609        0.        0.        0.         0        28        10      0.00    464.03   1464.03

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1199.74

 STA=    1000.     1261.     1303.     1380.     1464.
   PER Q=     25.5       6.2      41.8      26.5
    AREA=    506.9     104.7     527.9     469.8
     VEL=      5.0       6.0       7.9       5.6
   DEPTH=      1.9       2.5       6.9       5.6
1
   31MAR92     15:42:47                                                                          PAGE   25

 T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
 T2 FILENAME= C32-LEFT.H2  Flow Split At CP 32 For Left Side
 T3       Q=15000

 J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS     Q        WSEL     FQ
      0.       14.       0.       0.    0.0076      0.       0.       0.    1194.0      0.
 J2  NPROF    IPLOT    PRFVS    XSECV    XSECH     FN     ALLDC     IBW     CHNIM    ITRACE
    13.0       0.      -1.0      0.       0.       0.      -1.       0.       0.      15.
1
   31MAR92     15:42:47                                                                          PAGE   26

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF13

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
 3280 CROSS SECTION       1.00 EXTENDED       2.37 FEET

      1.000      8.67   1200.77   1199.74   1194.00   1201.62      0.85      0.00      0.00   1197.30
    15000.0    6257.4    5270.0    3472.5     922.9     607.0     556.2       0.0       0.0   1193.10
       0.00      6.78      8.68      6.24     0.040     0.058     0.070     0.000   1192.10   1000.00
   0.007586        0.        0.        0.         0        23         9      0.00    464.04   1464.04

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1200.77

 STA=    1000.     1261.     1303.     1380.     1464.     1464.
   PER Q=     34.3       7.4      35.1      23.1       0.0
    AREA=    775.1     147.8     607.0     556.1       0.1
     VEL=      6.6       7.5       8.7       6.2       0.9
   DEPTH=      3.0       3.5       7.9       6.6       2.8
1
   31MAR92     15:42:47                                                                          PAGE   27


 ************************************                                THIS RUN EXECUTED 31MAR92    15:42:53
   HEC-2 WATER SURFACE PROFILES

   Version   4.6.2;  May 1991
 ************************************

 NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

 Split At CP 32 For Left

 SUMMARY PRINTOUT

      SECNO       Q       CWSEL     DEPTH     VLOB      VCH       VROB      QWEIR     QPR       10*KS     SECNO     SSTA      ENDST

      1.000     25.00   1192.95      0.85      0.00      1.21      0.00      0.00      0.00     74.98      1.00   1309.69   1366.71
      1.000     50.00   1193.17      1.07      0.00      1.42      0.20      0.00      0.00     75.21      1.00   1309.35   1382.95
```

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 75.00 | 1193.31 | 1.21 | 0.00 | 1.67 | 0.41 | 0.00 | 0.00 | 76.18 | 1.00 | 1309.14 | 1388.33 |
| 1.000 | 100.00 | 1193.42 | 1.32 | 0.00 | 1.86 | 0.55 | 0.00 | 0.00 | 76.33 | 1.00 | 1308.96 | 1392.98 |
| 1.000 | 200.00 | 1193.79 | 1.69 | 0.00 | 2.41 | 0.91 | 0.00 | 0.00 | 76.18 | 1.00 | 1308.40 | 1407.68 |
| 1.000 | 400.00 | 1194.32 | 2.22 | 0.00 | 3.09 | 1.33 | 0.00 | 0.00 | 75.73 | 1.00 | 1307.59 | 1428.65 |
| 1.000 | 600.00 | 1194.71 | 2.61 | 0.00 | 3.54 | 1.60 | 0.00 | 0.00 | 75.53 | 1.00 | 1306.98 | 1444.60 |
| 1.000 | 800.00 | 1195.05 | 2.95 | 0.00 | 3.90 | 1.81 | 0.00 | 0.00 | 75.63 | 1.00 | 1306.47 | 1457.82 |
| 1.000 | 1000.00 | 1195.32 | 3.22 | 0.00 | 4.18 | 2.05 | 0.00 | 0.00 | 75.72 | 1.00 | 1306.04 | 1464.00 |
| 1.000 | 1500.00 | 1195.90 | 3.80 | 0.00 | 4.74 | 2.67 | 0.00 | 0.00 | 76.05 | 1.00 | 1305.15 | 1464.00 |
| 1.000 | 5000.00 | 1198.34 | 6.24 | 2.53 | 6.83 | 4.72 | 0.00 | 0.00 | 76.82 | 1.00 | 1013.46 | 1464.02 |
| 1.000 | 10000.00 | 1199.74 | 7.64 | 5.19 | 7.92 | 5.63 | 0.00 | 0.00 | 76.09 | 1.00 | 1000.00 | 1464.03 |
| 1.000 | 15000.00 | 1200.77 | 8.67 | 6.78 | 8.68 | 6.24 | 0.00 | 0.00 | 75.86 | 1.00 | 1000.00 | 1464.04 |

1

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Split At CP 32 For Left

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.10 | 25.00 | 1192.95 | 1192.68 | 1192.98 | 74.98 | 1.21 | 20.60 | 2.89 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.10 | 50.00 | 1193.17 | 1192.86 | 1193.21 | 75.21 | 1.42 | 35.34 | 5.77 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.10 | 75.00 | 1193.31 | 1192.97 | 1193.35 | 76.18 | 1.67 | 45.60 | 8.59 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.10 | 100.00 | 1193.42 | 1193.06 | 1193.48 | 76.33 | 1.86 | 55.10 | 11.45 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.10 | 200.00 | 1193.79 | 1193.30 | 1193.88 | 76.18 | 2.41 | 88.78 | 22.92 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.10 | 400.00 | 1194.32 | 1193.68 | 1194.45 | 75.73 | 3.09 | 146.53 | 45.96 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.10 | 600.00 | 1194.71 | 1193.97 | 1194.89 | 75.53 | 3.54 | 198.11 | 69.04 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.10 | 800.00 | 1195.05 | 1194.23 | 1195.25 | 75.63 | 3.90 | 245.87 | 91.99 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.10 | 1000.00 | 1195.32 | 1194.45 | 1195.55 | 75.72 | 4.18 | 289.41 | 114.92 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.10 | 1500.00 | 1195.90 | 1194.91 | 1196.19 | 76.05 | 4.74 | 380.74 | 172.00 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.10 | 5000.00 | 1198.34 | 1196.84 | 1198.88 | 76.82 | 6.83 | 958.20 | 570.45 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.10 | 10000.00 | 1199.74 | 1199.04 | 1200.41 | 76.09 | 7.92 | 1609.36 | 1146.41 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.10 | 15000.00 | 1200.77 | 1199.74 | 1201.62 | 75.86 | 8.68 | 2086.08 | 1722.16 |

1

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Split At CP 32 For Left

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1192.95 | 0.00 | 0.00 | -1.05 | 57.02 | 0.00 |
| 1.000 | 50.00 | 1193.17 | 0.22 | 0.00 | -0.83 | 73.61 | 0.00 |
| 1.000 | 75.00 | 1193.31 | 0.13 | 0.00 | -0.69 | 79.18 | 0.00 |
| 1.000 | 100.00 | 1193.42 | 0.12 | 0.00 | -0.58 | 84.02 | 0.00 |
| 1.000 | 200.00 | 1193.79 | 0.37 | 0.00 | -0.21 | 99.28 | 0.00 |
| 1.000 | 400.00 | 1194.32 | 0.52 | 0.00 | 0.32 | 121.06 | 0.00 |
| 1.000 | 600.00 | 1194.71 | 0.40 | 0.00 | 0.71 | 137.62 | 0.00 |
| 1.000 | 800.00 | 1195.05 | 0.33 | 0.00 | 1.05 | 151.35 | 0.00 |
| 1.000 | 1000.00 | 1195.32 | 0.28 | 0.00 | 1.32 | 157.96 | 0.00 |
| 1.000 | 1500.00 | 1195.90 | 0.58 | 0.00 | 1.90 | 158.85 | 0.00 |
| 1.000 | 5000.00 | 1198.34 | 2.44 | 0.00 | 4.34 | 450.56 | 0.00 |
| 1.000 | 10000.00 | 1199.74 | 1.40 | 0.00 | 5.74 | 464.03 | 0.00 |
| 1.000 | 15000.00 | 1200.77 | 1.03 | 0.00 | 6.77 | 464.04 | 0.00 |

1

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SUMMARY OF ERRORS AND SPECIAL NOTES

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1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version   4.6.2;  May 1991                *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE    31MAR92    TIME   15:43:17    *
 *********************************************

                                                                                    *************************************
                                                                                    *  U.S. ARMY CORPS OF ENGINEERS     *
                                                                                    *  HYDROLOGIC ENGINEERING CENTER    *
                                                                                    *  609 SECOND STREET, SUITE D       *
                                                                                    *  DAVIS, CALIFORNIA 95616-4687     *
                                                                                    *        (916) 756-1104             *
                                                                                    *************************************

                                        X     X  XXXXXXX   XXXXX              XXXXX
                                        X     X  X        X     X           X     X
                                        X     X  X        X                       X
                                        XXXXXXX  XXXX     X           XXXXX   XXXXX
                                        X     X  X        X                 X
                                        X     X  X        X     X           X
                                        X     X  XXXXXXX   XXXXX            XXXXXXX
1
   31MAR92       15:43:17                                                                                          PAGE    1

                                                                                THIS RUN EXECUTED 31MAR92     15:43:17
*************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
*************************************

 T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
 T2 FILENAME= C32-RGHT.H2
 T3 Flow Split At CP 32 For Right Side

 J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       2.        0.        0.     0.0066       0.        0.        0.      1194.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN       ALLDC     IBW       CHNIM     ITRACE

     1.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38.       43.        1.        8.       55.       26.       56.       46.       47.        5.
     38.       53.       54.                 150

 NC    0.070     0.025     0.050       0.1       0.3
 NH      5.      0.010    1464.      0.070    1606.0     0.025    1636.0     0.070    1648.0     0.050
 NH   2071.0
 QT     13.0      25.0      50.0      75.0     100.0     200.0     400.0     600.0     800.0    1000.0
 QT   1500.0    5000.0   10000.0   15000.0
 X1      1.0      10.0    1596.0    1648.0       0.0       0.0       0.0
 GR   1210.0    1463.9    1195.2    1464.0    1192.9    1494.0    1195.6    1563.0    1194.1    1596.0
 GR   1192.3    1606.0    1192.0    1636.0    1197.3    1648.0    1193.1    1741.0    1199.4    2071.0
1
   31MAR92       15:43:17                                                                                          PAGE    2

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 1

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000      0.53   1192.53   1192.42   1194.00   1192.60      0.07      0.00      0.00   1194.10
       25.0       0.0      25.0       0.0       0.0      12.0       0.0       0.0       0.0   1197.30
       0.00      0.00      2.08      0.00     0.000     0.030     0.000     0.000   1192.00   1604.70
   0.006596        0.        0.        0.         0        21         6      0.00     32.51   1637.21

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1192.53

 STA=    1605.     1648.
   PER Q=     100.0
    AREA=      12.0
     VEL=       2.1
   DEPTH=       0.4

1
   31MAR92       15:43:17                                                                                          PAGE    3

 T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
 T2 FILENAME= C32-RGHT.H2  Flow Split At CP 32 For Right Side
 T3       Q=50

 J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       3.        0.        0.     0.0066       0.        0.        0.      1194.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN       ALLDC     IBW       CHNIM     ITRACE

     2.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

1
   31MAR92       15:43:17                                                                                          PAGE    4

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
```

```
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      0.76   1192.76   1192.58   1194.00   1192.86      0.10      0.00      0.00   1194.10
      50.0       0.0      50.0       0.0       0.0      19.6       0.0       0.0       0.0   1197.30
      0.00      0.00      2.58      0.00     0.000     0.032     0.000     0.000   1192.00   1603.43
  0.006588        0.        0.        0.         0        17         5      0.00     34.29   1637.73

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1192.76

STA=    1603.     1648.
  PER Q=     100.0
   AREA=      19.6
    VEL=       2.5
  DEPTH=       0.6

1
   31MAR92      15:43:17                                                                          PAGE    5

T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-RGHT.H2  Flow Split At CP 32 For Right Side
T3      Q=75

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        4.        0.        0.     0.0066       0.        0.        0.     1194.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

1
   31MAR92      15:43:17                                                                          PAGE    6

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.96   1192.96   1192.71   1194.00   1193.08      0.13      0.00      0.00   1194.10
      75.0       0.0      75.0       0.0       0.1      26.4       0.0       0.0       0.0   1197.30
      0.00      0.02      2.84      0.00     0.070     0.034     0.000     0.000   1192.00   1493.27
  0.006589        0.        0.        0.         0        22         4      0.00     37.96   1638.16

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1192.96

STA=    1493.     1495.     1648.
  PER Q=       0.0     100.0
   AREA=       0.1      26.4
    VEL=       0.0       2.8
  DEPTH=       0.0       0.7

1
   31MAR92      15:43:17                                                                          PAGE    7

T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-RGHT.H2  Flow Split At CP 32 For Right Side
T3      Q=100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        8.        0.        0.     0.0066       0.        0.        0.     1194.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    4.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

1
   31MAR92      15:43:17                                                                          PAGE    8

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      1.13   1193.13   1192.83   1194.00   1193.27      0.14      0.00      0.00   1194.10
     100.0       0.4      99.6       0.0       1.0      32.7       0.0       0.0       0.0   1197.30
      0.00      0.40      3.04      0.02     0.070     0.036     0.050     0.000   1192.00   1491.02
```

```
 0.006556        0.        0.        0.        0       18        4     0.00     48.12   1742.50

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1193.13

STA=    1491.    1494.    1500.    1648.    1743.
  PER Q=      0.1      0.3     99.6      0.0
   AREA=      0.3      0.7     32.7      0.0
    VEL=      0.4      0.4      3.0      0.0
  DEPTH=      0.1      0.1      0.9      0.0

1
   31MAR92      15:43:17                                                                          PAGE    9

T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-RGHT.H2  Flow Split At CP 32 For Right Side
T3      Q=200

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       6.       0.       0.     0.0066     0.       0.       0.     1194.0     0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    5.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      1.61   1193.61   1193.26   1194.00   1193.79      0.18      0.00      0.00   1194.10
     200.0      8.5     181.9       9.6       9.8      51.6       9.8       0.0       0.0   1197.30
      0.00     0.87      3.53      0.98     0.070     0.040     0.050     0.000   1192.00   1484.71
  0.006672       0.        0.        0.         0        14         5      0.00    106.63   1767.84

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1193.61

STA=    1485.    1494.    1512.    1648.    1741.    1768.
  PER Q=      1.4      2.8     90.9      1.4      3.4
   AREA=      3.3      6.5     51.6      2.9      6.9
    VEL=      0.9      0.9      3.5      1.0      1.0
  DEPTH=      0.4      0.4      1.3      0.0      0.3

1
   31MAR92      15:43:17                                                                          PAGE   11

T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-RGHT.H2  Flow Split At CP 32 For Right Side
T3      Q=400

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       7.       0.       0.     0.0066     0.       0.       0.     1194.0     0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    6.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

1
   31MAR92      15:43:17                                                                          PAGE   12

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.17   1194.17   1193.83   1194.00   1194.35      0.18      0.00      0.00   1194.10
     400.0     39.0     294.3      66.7      31.0      75.5      42.4       0.0       0.0   1197.30
      0.00     1.26      3.90      1.57     0.070     0.043     0.050     0.000   1192.00   1477.48
  0.006493       0.        0.        0.         0        11         5      0.00    174.72   1796.86

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1194.17

STA=    1477.    1494.    1526.    1596.    1648.    1741.    1797.
  PER Q=      3.3      6.5      0.0     73.6      5.0     11.7
   AREA=     10.5     20.5      0.0     75.5     12.6     29.8
    VEL=      1.3      1.3      0.0      3.9      1.6      1.6
  DEPTH=      0.6      0.6      0.0      1.7      0.1      0.5

1
   31MAR92      15:43:17                                                                          PAGE   13
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T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-RGHT.H2  Flow Split At CP 32 For Right Side
T3       Q=600

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        8.        0.        0.     0.0066       0.        0.        0.     1194.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    7.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

1
   31MAR92      15:43:17                                                                                PAGE   14

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3268 DIVIDED FLOW

     1.000      2.49   1194.49   1194.12   1194.00   1194.70      0.21      0.00      0.00   1194.10
     600.0      73.3     390.0     136.7      50.5      90.2      72.1       0.0       0.0   1197.30
      0.00      1.45      4.32      1.90     0.070     0.044     0.050     0.000   1192.00   1473.24
  0.006607        0.        0.        0.         0         8         6      0.00    219.35   1813.87

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1194.49

STA=    1473.    1494.    1535.    1596.    1648.    1741.    1814.
  PER Q=      4.1      8.0      0.2     65.0      6.8     16.0
   AREA=     16.5     32.4      1.7     90.2     21.4     50.7
    VEL=      1.5      1.5      0.6      4.3      1.9      1.9
  DEPTH=      0.8      0.8      0.0      2.0      0.2      0.7

1
   31MAR92      15:43:17                                                                                PAGE   15

T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-RGHT.H2  Flow Split At CP 32 For Right Side
T3       Q=800

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        9.        0.        0.     0.0066       0.        0.        0.     1194.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    8.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.75   1194.75   1194.35   1194.00   1194.97      0.22      0.00      0.00   1194.10
     800.0     112.3     471.3     216.4      70.9     102.2     101.7       0.0       0.0   1197.30
      0.00      1.58      4.61      2.13     0.070     0.044     0.050     0.000   1192.00   1469.84
  0.006607        0.        0.        0.         0        11         6      0.00    255.24   1827.56

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1194.75

STA=    1470.    1494.    1541.    1596.    1648.    1741.    1828.
  PER Q=      4.6      9.0      0.5     58.9      8.0     19.0
   AREA=     22.4     43.8      4.7    102.2     30.2     71.5
    VEL=      1.6      1.6      0.8      4.6      2.1      2.1
  DEPTH=      0.9      0.9      0.1      2.2      0.3      0.8

1
   31MAR92      15:43:17                                                                                PAGE   17

T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-RGHT.H2  Flow Split At CP 32 For Right Side
T3       Q=1000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       10.        0.        0.     0.0066       0.        0.        0.     1194.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    9.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

1
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 9

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.97   1194.97   1194.54   1194.00   1195.20      0.23      0.00      0.00   1194.10
    1000.0     154.5     543.9     301.7      91.2     112.4     130.6       0.0       0.0   1197.30
      0.00      1.69      4.84      2.31     0.070     0.044     0.050     0.000   1192.00   1466.98
  0.006606        0.        0.        0.         0        11         6      0.00    285.37   1839.05

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1194.97

STA=    1467.    1494.    1547.    1596.    1648.    1741.    1839.
  PER Q=      4.9      9.7      0.8     54.4      9.0     21.2
   AREA=     28.0     54.8      8.4    112.4     38.8     91.8
    VEL=      1.8      1.8      1.0      4.8      2.3      2.3
  DEPTH=      1.0      1.0      0.2      2.4      0.4      0.9

1
   31MAR92      15:43:17                                                                          PAGE   19

T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-RGHT.H2  Flow Split At CP 32 For Right Side
T3       Q=1500

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       11.       0.        0.      0.0066      0.        0.        0.      1194.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   10.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
   31MAR92      15:43:17                                                                          PAGE   20

SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF10

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      3.42   1195.42   1194.90   1194.00   1195.66      0.25      0.00      0.00   1194.10
    1500.0     272.3     698.5     529.2     140.8     133.3     199.7       0.0       0.0   1197.30
      0.00      1.93      5.24      2.65     0.070     0.045     0.050     0.000   1192.00   1464.00
  0.006544        0.        0.        0.         0        14         5      0.00    343.48   1862.27

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1195.42

STA=    1464.    1494.    1558.    1596.    1648.    1741.    1862.
  PER Q=      5.7     10.8      1.6     46.6     10.5     24.8
   AREA=     41.0     80.8     19.0    133.3     59.3    140.4
    VEL=      2.1      2.0      1.3      5.2      2.6      2.7
  DEPTH=      1.4      1.3      0.5      2.8      0.6      1.2

1
   31MAR92      15:43:17                                                                          PAGE   21

T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-RGHT.H2  Flow Split At CP 32 For Right Side
T3       Q=5000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       12.       0.        0.      0.0066      0.        0.        0.      1194.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   11.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
   31MAR92      15:43:17                                                                          PAGE   22

SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF11

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
```

```
3265 DIVIDED FLOW

     1.000      5.13   1197.13   1196.23   1194.00   1197.47      0.34      0.00      0.00   1194.10
    5000.0    1238.2    1436.9    2324.8     366.2     218.4     604.7       0.0       0.0   1197.30
      0.00      3.38      6.58      3.84     0.070     0.047     0.050     0.000   1192.00   1463.99
  0.006582        0.        0.        0.         0        20         6      0.00    483.84   1952.01

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1197.13

STA=    1464.     1494.     1563.     1596.     1648.     1741.     1952.
  PER Q=      6.4      13.8       4.5      28.7      13.8      32.7
   AREA=     92.4     198.6      75.2     218.4     179.7     425.0
    VEL=      3.5       3.5       3.0       6.6       3.8       3.8
  DEPTH=      3.1       2.9       2.3       4.2       1.9       2.0

1
   31MAR92      15:43:17                                                                          PAGE   23

T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-RGHT.H2  Flow Split At CP 32 For Right Side
T3       Q=10000

J1  ICHECK     INQ       NINV      IDIR      STRT     METRIC    HVINS     Q         WSEL      FQ

     0.        13.       0.        0.      0.0066      0.        0.        0.      1194.0     0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN       ALLDC     IBW       CHNIM     ITRACE

   12.0        0.       -1.0       0.        0.        0.       -1.       0.        0.        15.

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF12

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      6.52   1198.52   1197.25   1194.00   1199.01      0.49      0.00      0.00   1194.10
   10000.0    2421.9    2299.6    5278.4     550.0     290.8    1078.4       0.0       0.0   1197.30
      0.00      4.40      7.91      4.89     0.070     0.047     0.050     0.000   1192.00   1463.98
  0.006621        0.        0.        0.         0        23         7      0.00    560.96   2024.94

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1198.52

STA=    1464.     1494.     1563.     1596.     1648.     1741.     2025.
  PER Q=      5.9      13.4       5.0      23.0      16.6      36.2
   AREA=    134.1     294.7     121.1     290.8     308.8     769.6
    VEL=      4.4       4.5       4.1       7.9       5.4       4.7
  DEPTH=      4.5       4.3       3.7       5.6       3.3       2.7

1
   31MAR92      15:43:17                                                                          PAGE   25

T1 Gila Bend Floodplain Delineation Study, 11358 12/2/91
T2 FILENAME= C32-RGHT.H2  Flow Split At CP 32 For Right Side
T3       Q=15000

J1  ICHECK     INQ       NINV      IDIR      STRT     METRIC    HVINS     Q         WSEL      FQ

     0.        14.       0.        0.      0.0066      0.        0.        0.      1194.0     0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN       ALLDC     IBW       CHNIM     ITRACE

   13.0        0.       -1.0       0.        0.        0.       -1.       0.        0.        15.

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   31MAR92      15:43:17                                                                          PAGE   26

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED      0.16 FEET

     1.000      7.56   1199.56   1198.04   1194.00   1200.18      0.62      0.00      0.00   1194.10
   15000.0    3465.7    3050.4    8463.8     687.0     344.8    1497.3       0.0       0.0   1197.30
      0.00      5.07      8.85      5.65     0.070     0.047     0.050     0.000   1192.00   1463.97
  0.006603        0.        0.        0.         0        26         8      0.00    607.03   2071.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1199.56

STA=    1464.     1494.     1563.     1596.     1648.     1741.     2071.
  PER Q=      5.4      12.8       5.0      20.3      17.4      39.0
   AREA=    165.3     366.3     155.4     344.8     405.4    1091.9
    VEL=      4.9       5.2       4.8       8.8       6.4       5.4
  DEPTH=      5.5       5.3       4.7       6.6       4.4       3.3

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**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
**********

THIS RUN EXECUTED 31MAR92 15:43:23

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Split At CP 32 For Right

SUMMARY PRINTOUT

| SECNO | Q | CWSEL | DEPTH | VLOB | VCH | VROB | QWEIR | QPR | 10*KS | SECNO | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1192.53 | 0.53 | 0.00 | 2.08 | 0.00 | 0.00 | 0.00 | 65.96 | 1.00 | 1604.70 | 1637.21 |
| 1.000 | 50.00 | 1192.76 | 0.76 | 0.00 | 2.55 | 0.00 | 0.00 | 0.00 | 65.88 | 1.00 | 1603.43 | 1637.73 |
| 1.000 | 75.00 | 1192.96 | 0.96 | 0.02 | 2.84 | 0.00 | 0.00 | 0.00 | 65.89 | 1.00 | 1493.27 | 1638.16 |
| 1.000 | 100.00 | 1193.13 | 1.13 | 0.40 | 3.04 | 0.02 | 0.00 | 0.00 | 65.56 | 1.00 | 1491.02 | 1742.50 |
| 1.000 | 200.00 | 1193.61 | 1.61 | 0.87 | 3.53 | 0.98 | 0.00 | 0.00 | 66.72 | 1.00 | 1484.71 | 1767.84 |
| 1.000 | 400.00 | 1194.17 | 2.17 | 1.26 | 3.90 | 1.57 | 0.00 | 0.00 | 64.93 | 1.00 | 1477.48 | 1796.86 |
| 1.000 | 600.00 | 1194.49 | 2.49 | 1.45 | 4.32 | 1.90 | 0.00 | 0.00 | 66.07 | 1.00 | 1473.24 | 1813.87 |
| 1.000 | 800.00 | 1194.75 | 2.75 | 1.58 | 4.61 | 2.13 | 0.00 | 0.00 | 66.07 | 1.00 | 1469.84 | 1827.56 |
| 1.000 | 1000.00 | 1194.97 | 2.97 | 1.69 | 4.84 | 2.31 | 0.00 | 0.00 | 66.06 | 1.00 | 1466.98 | 1839.05 |
| 1.000 | 1500.00 | 1195.42 | 3.42 | 1.93 | 5.24 | 2.65 | 0.00 | 0.00 | 65.44 | 1.00 | 1464.00 | 1862.27 |
| 1.000 | 5000.00 | 1197.13 | 5.13 | 3.38 | 6.58 | 3.84 | 0.00 | 0.00 | 65.82 | 1.00 | 1463.99 | 1952.01 |
| 1.000 | 10000.00 | 1198.52 | 6.52 | 4.40 | 7.91 | 4.89 | 0.00 | 0.00 | 66.21 | 1.00 | 1463.98 | 2024.94 |
| 1.000 | 15000.00 | 1199.56 | 7.56 | 5.07 | 8.85 | 5.65 | 0.00 | 0.00 | 66.03 | 1.00 | 1463.97 | 2071.00 |

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Split At CP 32 For Right

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.00 | 25.00 | 1192.53 | 1192.42 | 1192.60 | 65.96 | 2.08 | 12.01 | 3.08 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.00 | 50.00 | 1192.76 | 1192.58 | 1192.86 | 65.88 | 2.55 | 19.61 | 6.16 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.00 | 75.00 | 1192.96 | 1192.71 | 1193.08 | 65.89 | 2.84 | 26.46 | 9.24 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.00 | 100.00 | 1193.13 | 1192.83 | 1193.27 | 65.56 | 3.04 | 33.75 | 12.35 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.00 | 200.00 | 1193.61 | 1193.26 | 1193.79 | 66.72 | 3.53 | 71.18 | 24.48 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.00 | 400.00 | 1194.17 | 1193.83 | 1194.35 | 64.93 | 3.90 | 148.84 | 49.64 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.00 | 600.00 | 1194.49 | 1194.12 | 1194.70 | 66.07 | 4.32 | 212.84 | 73.81 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.00 | 800.00 | 1194.75 | 1194.35 | 1194.97 | 66.07 | 4.61 | 274.83 | 98.42 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.00 | 1000.00 | 1194.97 | 1194.54 | 1195.20 | 66.06 | 4.84 | 334.12 | 123.03 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.00 | 1500.00 | 1195.42 | 1194.90 | 1195.66 | 65.44 | 5.24 | 473.85 | 185.43 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.00 | 5000.00 | 1197.13 | 1196.23 | 1197.47 | 65.82 | 6.58 | 1189.27 | 616.29 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.00 | 10000.00 | 1198.52 | 1197.25 | 1199.01 | 66.21 | 7.91 | 1919.11 | 1228.99 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1192.00 | 15000.00 | 1199.56 | 1198.04 | 1200.18 | 66.03 | 8.85 | 2529.08 | 1845.92 |

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Split At CP 32 For Right

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1192.53 | 0.00 | 0.00 | -1.47 | 32.51 | 0.00 |
| 1.000 | 50.00 | 1192.76 | 0.23 | 0.00 | -1.24 | 34.29 | 0.00 |
| 1.000 | 75.00 | 1192.96 | 0.19 | 0.00 | -1.04 | 37.96 | 0.00 |
| 1.000 | 100.00 | 1193.13 | 0.17 | 0.00 | -0.87 | 48.12 | 0.00 |
| 1.000 | 200.00 | 1193.61 | 0.48 | 0.00 | -0.39 | 106.63 | 0.00 |
| 1.000 | 400.00 | 1194.17 | 0.55 | 0.00 | 0.17 | 174.72 | 0.00 |
| 1.000 | 600.00 | 1194.49 | 0.32 | 0.00 | 0.49 | 219.35 | 0.00 |
| 1.000 | 800.00 | 1194.75 | 0.26 | 0.00 | 0.75 | 255.24 | 0.00 |
| 1.000 | 1000.00 | 1194.97 | 0.22 | 0.00 | 0.97 | 285.37 | 0.00 |
| 1.000 | 1500.00 | 1195.42 | 0.44 | 0.00 | 1.42 | 343.48 | 0.00 |
| 1.000 | 5000.00 | 1197.13 | 1.71 | 0.00 | 3.13 | 483.84 | 0.00 |
| 1.000 | 10000.00 | 1198.52 | 1.39 | 0.00 | 4.52 | 560.96 | 0.00 |
| 1.000 | 15000.00 | 1199.56 | 1.04 | 0.00 | 5.56 | 607.03 | 0.00 |

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SUMMARY OF ERRORS AND SPECIAL NOTES

## C40 Summary Data

| Stage | Left Channel | Right Channel | Total Flow |
|---|---|---|---|
| 1599.5 | 0 | 0 | 0 |
| 1600 | 0 | 15 | 15 |
| 1600.7 | 0 | 60 | 60 |
| 1601 | 15 | 95 | 110 |
| 1602 | 125 | 220 | 345 |
| 1603 | 350 | 550 | 900 |
| 1604 | 760 | 900 | 1660 |
| 1605 | 1400 | 2100 | 3500 |
| 1606 | 2600 | 4200 | 6800 |
| 1607 | 3700 | 11600 | 15300 |

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2;  May 1991            *
 *  386 Extended Memory version, August 1991 *
 *  Dodson & Associates, Inc 1-800-235-8069  *
 *  RUN DATE    31MAR92    TIME   15:43:45   *
 *****************************************

*************************************
 *  U.S. ARMY CORPS OF ENGINEERS     *
 *  HYDROLOGIC ENGINEERING CENTER    *
 *  609 SECOND STREET, SUITE D       *
 *  DAVIS, CALIFORNIA 95616-4687     *
 *        (916) 756-1104             *
*************************************

                                   X     X  XXXXXXX   XXXXX              XXXXX
                                   X     X  X        X     X            X     X
                                   X     X  X        X                  X
                                   XXXXXXX  XXXX     X          XXXXX    XXXXX
                                   X     X  X        X                  X
                                   X     X  X        X     X            X
                                   X     X  XXXXXXX   XXXXX             XXXXXXX
1
   31MAR92      15:43:45                                                                                PAGE    1


                                                                                THIS RUN EXECUTED 31MAR92    15:43:45
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************


 T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
 T2 FILENAME= C40-LEFT.H2
 T3 Flow Split At CP 40 For Left Side

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       2.        0.        0.    0.0100       0.        0.        0.    1602.0       0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38.       43.        1.        8.       55.       26.       56.       46.       47.        5.
     38.       53.       54.                 150

 NC    0.060     0.045     0.070     0.1       0.3
 NH      6.      0.060  1036.0     0.080  1045.0     0.045  1078.0     0.080  1083.0     0.070
 NH   1090.0     0.010  1090.1
 QT     13.0      25.0     50.0     75.0     100.0    200.0     400.0     600.0     800.0    1000.0
 QT   1500.0    5000.0 10000.0 15000.0
 X1      1.0       8.0  1036.0  1090.0       0.0      0.0       0.0
 GR   1640.0     600.0  1603.7  1000.0  1603.2  1036.0  1601.0  1045.0  1600.7  1078.0
 GR   1602.0    1083.0  1602.0  1090.0  1620.0  1090.1
1
   31MAR92      15:43:45                                                                                PAGE    2

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000      0.58  1601.28  1601.10  1602.00  1601.32     0.04     0.00     0.00  1603.20
       25.0       0.0     25.0      0.0      0.0     15.0      0.0      0.0      0.0  1602.00
       0.00      0.00     1.67     0.00    0.000    0.049    0.000    0.000  1600.70  1043.86
   0.009909        0.       0.       0.        0       17        5     0.00    36.37  1080.23

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1601.28

 STA=    1044.    1083.
   PER Q=    100.0
    AREA=     15.0
     VEL=      1.7
   DEPTH=      0.4

1
   31MAR92      15:43:45                                                                                PAGE    3

 T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
 T2 FILENAME= C40-LEFT.H2  Flow Split At CP 40 For Left Side
 T3       Q=50

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       3.        0.        0.    0.0100       0.        0.        0.    1602.0       0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
```

```
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      0.81   1601.51   1601.25   1602.00   1601.58      0.07      0.00      0.00   1603.20
      50.0       0.0      50.0       0.0       0.0      23.6       0.0       0.0       0.0   1602.00
      0.00      0.00      2.11      0.00     0.000     0.051     0.000     0.000   1600.70   1042.91
  0.009895        0.        0.        0.         0        18         4      0.00     38.22   1081.12

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1601.51

STA=    1043.    1083.
  PER Q=     100.0
   AREA=      23.6
    VEL=       2.1
  DEPTH=       0.6

1
   31MAR92      15:43:45                                                                          PAGE    5

T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-LEFT.H2  Flow Split At CP 40 For Left Side
T3      Q=75

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       4.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

1
   31MAR92      15:43:45                                                                          PAGE    6

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      1.00   1601.70   1601.38   1602.00   1601.79      0.09      0.00      0.00   1603.20
      75.0       0.0      75.0       0.0       0.0      31.0       0.0       0.0       0.0   1602.00
      0.00      0.00      2.42      0.00     0.000     0.052     0.000     0.000   1600.70   1042.14
  0.010020        0.        0.        0.         0        11         2      0.00     39.71   1081.85

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1601.70

STA=    1042.    1083.
  PER Q=     100.0
   AREA=      31.0
    VEL=       2.4
  DEPTH=       0.8

1
   31MAR92      15:43:45                                                                          PAGE    7

T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-LEFT.H2  Flow Split At CP 40 For Left Side
T3      Q=100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       5.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    4.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      1.17   1601.87   1601.49   1602.00   1601.98      0.11      0.00      0.00   1603.20
      100.0       0.0     100.0       0.0       0.0      37.8       0.0       0.0       0.0   1602.00
      0.00      0.00      2.65      0.00     0.000     0.053     0.000     0.000   1600.70   1041.44
  0.009988        0.        0.        0.         0        14         4      0.00     41.05   1082.50

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1601.87

STA=    1041.    1083.
```

```
   PER Q=     100.0
    AREA=      37.8
     VEL=       2.6
   DEPTH=       0.9

1
   31MAR92      15:43:45                                                                                PAGE    9

 T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
 T2 FILENAME= C40-LEFT.H2  Flow Split At CP 40 For Left Side
 T3       Q=200

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       6.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     5.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
   31MAR92      15:43:45                                                                                PAGE   10

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 5

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000      1.75   1602.45   1601.84   1602.00   1602.59      0.14      0.00      0.00   1603.20
      200.0       0.0     200.0       0.0       0.0      65.5       0.0       0.0       0.0   1602.00
       0.00      0.00      3.05      0.00     0.000     0.057     0.000     0.000   1600.70   1039.09
   0.009919        0.        0.        0.         0         8         5      0.00     50.92   1090.00

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1602.45

 STA=    1039.    1090.
   PER Q=     100.0
    AREA=      65.5
     VEL=       3.1
   DEPTH=       1.3

1
   31MAR92      15:43:45                                                                                PAGE   11

 T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
 T2 FILENAME= C40-LEFT.H2  Flow Split At CP 40 For Left Side
 T3       Q=400

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       7.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     6.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
   31MAR92      15:43:45                                                                                PAGE   12

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 6

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000      2.46   1603.16   1602.39   1602.00   1603.40      0.23      0.00      0.00   1603.20
      400.0       0.0     400.0       0.0       0.0     103.0       0.0       0.0       0.0   1602.00
       0.00      0.00      3.86      0.15     0.000     0.058     0.010     0.000   1600.70   1036.16
   0.009944        0.        0.        0.         0        11         5      0.00     53.85   1090.01

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1603.16

 STA=    1036.    1090.    1090.
   PER Q=     100.0      0.0
    AREA=     103.0      0.0
     VEL=       3.9      0.1
   DEPTH=       1.9      0.6

1
   31MAR92      15:43:45                                                                                PAGE   13

 T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
 T2 FILENAME= C40-LEFT.H2  Flow Split At CP 40 For Left Side
 T3       Q=600

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       8.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     7.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.
```

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      2.97   1603.67   1602.79   1602.00   1603.99      0.32      0.00      0.00   1603.20
     600.0       7.5     592.5       0.0       7.9     130.5       0.0       0.0       0.0   1602.00
      0.00      0.94      4.54      0.15     0.060     0.059     0.010     0.000   1600.70   1002.19
  0.009985        0.        0.        0.         0        14         5      0.00     87.82   1090.01

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1603.67

STA=    1002.    1036.    1090.    1090.
  PER Q=      1.2      98.8       0.0
   AREA=      7.9     130.5       0.0
    VEL=      0.9       4.5       0.1
  DEPTH=      0.2       2.4       0.8
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-LEFT.H2  Flow Split At CP 40 For Left Side
T3      Q=800

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        9.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    8.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.
```



```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      3.36   1604.06   1603.13   1602.00   1604.43      0.37      0.00      0.00   1603.20
     800.0      39.5     760.5       0.0      22.6     151.4       0.0       0.0       0.0   1602.00
      0.00      1.75      5.02      0.15     0.060     0.059     0.010     0.000   1600.70    996.05
  0.010007        0.        0.        0.         0        17         4      0.00     93.96   1090.01

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1604.06

STA=     996.     1000.    1036.    1090.    1090.
  PER Q=      0.1       4.9      95.1       0.0
   AREA=      0.7      21.9     151.4       0.0
    VEL=      0.8       1.8       5.0       0.1
  DEPTH=      0.2       0.6       2.8       1.0
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-LEFT.H2  Flow Split At CP 40 For Left Side
T3      Q=1000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       10.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    9.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.
```



```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 9

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      3.69   1604.39   1603.52   1602.00   1604.81      0.42      0.00      0.00   1603.20
    1000.0      83.5     916.5       0.0      36.4     169.3       0.0       0.0       0.0   1602.00
      0.00      2.29      5.41      0.15     0.060     0.059     0.010     0.000   1600.70    992.41
```

```
  0.010018        0.        0.        0.        0        17        5      0.00     97.61   1090.01

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1604.39

STA=     992.    1000.    1036.    1090.    1090.
  PER Q=       0.3       8.0      91.6       0.0
   AREA=       2.6      33.8     169.3       0.0
    VEL=       1.2       2.4       5.4       0.1
  DEPTH=       0.3       0.9       3.1       1.2

1
   31MAR92      15:43:45                                                                          PAGE   19

T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-LEFT.H2  Flow Split At CP 40 For Left Side
T3       Q=1500

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       11.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   10.0        0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

1
   31MAR92      15:43:45                                                                          PAGE   20

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF10

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      4.38   1605.08   1604.28   1602.00   1605.61      0.53      0.00      0.00   1603.20
    1500.0     222.3    1277.7       0.0      69.4     206.8       0.0       0.0       0.0   1602.00
      0.00      3.21      6.18      0.15     0.060     0.059     0.010     0.000   1600.70    984.75
  0.009993        0.        0.        0.         0        17         6      0.00    105.26   1090.02

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1605.08

STA=     985.    1000.    1036.    1090.    1090.
  PER Q=       1.4      13.5      85.2       0.0
   AREA=      10.5      58.8     206.8       0.0
    VEL=       1.9       3.4       6.2       0.1
  DEPTH=       0.7       1.6       3.8       1.5

1
   31MAR92      15:43:45                                                                          PAGE   21

T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-LEFT.H2  Flow Split At CP 40 For Left Side
T3       Q=5000

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       12.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   11.0        0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

1
   31MAR92      15:43:45                                                                          PAGE   22

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF11

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      7.40   1608.10   1606.83   1602.00   1609.16      1.06      0.00      0.00   1603.20
    5000.0    1611.9    3388.0       0.1     274.2     369.8       0.1       0.0       0.0   1602.00
      0.00      5.88      9.16      0.99     0.060     0.059     0.010     0.000   1600.70    951.50
  0.010129        0.        0.        0.         0        26         7      0.00    138.53   1090.03

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1608.10

STA=     952.    1000.    1036.    1090.    1090.
  PER Q=       9.0      23.3      67.8       0.0
   AREA=     106.7     167.4     369.8       0.1
    VEL=       4.2       6.9       9.2       1.0
  DEPTH=       2.2       4.7       6.8       3.1

1
   31MAR92      15:43:45                                                                          PAGE   23

T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-LEFT.H2  Flow Split At CP 40 For Left Side
T3       Q=10000

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
```

```
      0.       13.        0.        0.    0.0100        0.        0.        0.    1602.0        0.
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH        FN    ALLDC       IBW    CHNIM    ITRACE
   12.0        0.      -1.0        0.        0.        0.       -1.        0.       0.       15.
1
   31MAR92      15:43:45                                                                                PAGE   24

    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA  R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL        XNCH     XNR       WTN       ELMIN  SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT     CORAR     TOPWID ENDST

 *PROF12

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000     10.10   1610.80   1609.21   1602.00   1612.36      1.56      0.00      0.00   1603.20
    10000.0    4101.9    5897.8       0.3     542.2     515.4       0.2       0.0       0.0   1602.00
       0.00      7.57     11.44      1.26     0.060     0.059     0.010     0.000   1600.70    921.78
   0.010145        0.        0.        0.         0        29         8      0.00    168.27   1090.05

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1610.80

 STA=     922.     1000.     1036.     1090.     1090.
   PER Q=     16.1      24.9      59.0       0.0
    AREA=    277.7     264.6     515.4       0.2
     VEL=      5.8       9.4      11.4       1.3
   DEPTH=      3.5       7.3       9.5       4.4
1
   31MAR92      15:43:45                                                                                PAGE   25

 T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
 T2 FILENAME= C40-LEFT.H2  Flow Split At CP 40 For Left Side
 T3      Q=15000

 J1  ICHECK      INQ      NINV      IDIR      STRT    METRIC     HVINS         Q      WSEL        FQ
       0.       14.        0.        0.    0.0100        0.        0.        0.    1602.0        0.
 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH        FN    ALLDC       IBW    CHNIM    ITRACE
   13.0        0.      -1.0        0.        0.        0.       -1.        0.       0.       15.
1
   31MAR92      15:43:45                                                                                PAGE   26

    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS  L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA  R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL        XNCH     XNR       WTN       ELMIN  SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT     CORAR     TOPWID ENDST

 *PROF13

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000     12.18   1612.88   1611.02   1602.00   1614.80      1.92      0.00      0.00   1603.20
    15000.0    6894.0    8105.5       0.5     803.4     627.7       0.3       0.0       0.0   1602.00
       0.00      8.58     12.91      1.44     0.060     0.059     0.010     0.000   1600.70    898.87
   0.009937        0.        0.        0.         0        32         9      0.00    191.19   1090.06

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1612.88

 STA=     899.     1000.     1036.     1090.     1090.
   PER Q=     21.0      24.9      54.0       0.0
    AREA=    464.0     339.4     627.7       0.3
     VEL=      6.8      11.0      12.9       1.4
   DEPTH=      4.6       9.4      11.6       5.4
1
   31MAR92      15:43:45                                                                                PAGE   27


                                                                                THIS RUN EXECUTED 31MAR92    15:43:51
*************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
*************************************

 NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

 Split At CP 40 For Left

 SUMMARY PRINTOUT
```

| SECNO | Q | CWSEL | DEPTH | VLOB | VCH | VROB | QWEIR | QPR | 10*KS | SECNO | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1601.28 | 0.58 | 0.00 | 1.67 | 0.00 | 0.00 | 0.00 | 99.09 | 1.00 | 1043.86 | 1080.23 |
| 1.000 | 50.00 | 1601.51 | 0.81 | 0.00 | 2.11 | 0.00 | 0.00 | 0.00 | 98.95 | 1.00 | 1042.91 | 1081.12 |
| 1.000 | 75.00 | 1601.70 | 1.00 | 0.00 | 2.42 | 0.00 | 0.00 | 0.00 | 100.20 | 1.00 | 1042.14 | 1081.85 |
| 1.000 | 100.00 | 1601.87 | 1.17 | 0.00 | 2.65 | 0.00 | 0.00 | 0.00 | 99.88 | 1.00 | 1041.44 | 1082.50 |
| 1.000 | 200.00 | 1602.45 | 1.75 | 0.00 | 3.05 | 0.00 | 0.00 | 0.00 | 99.19 | 1.00 | 1039.09 | 1090.00 |
| 1.000 | 400.00 | 1603.16 | 2.46 | 0.00 | 3.88 | 0.15 | 0.00 | 0.00 | 99.44 | 1.00 | 1036.16 | 1090.01 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 600.00 | 1603.67 | 2.97 | 0.94 | 4.54 | 0.15 | 0.00 | 0.00 | 99.85 | 1.00 | 1002.19 | 1090.01 |
| 1.000 | 800.00 | 1604.06 | 3.36 | 1.75 | 5.02 | 0.15 | 0.00 | 0.00 | 100.07 | 1.00 | 996.05 | 1090.01 |
| 1.000 | 1000.00 | 1604.39 | 3.69 | 2.29 | 5.41 | 0.15 | 0.00 | 0.00 | 100.18 | 1.00 | 992.41 | 1090.01 |
| 1.000 | 1500.00 | 1605.08 | 4.38 | 3.21 | 6.18 | 0.15 | 0.00 | 0.00 | 99.93 | 1.00 | 984.75 | 1090.02 |
| 1.000 | 5000.00 | 1608.10 | 7.40 | 5.88 | 9.16 | 0.99 | 0.00 | 0.00 | 101.29 | 1.00 | 951.50 | 1090.03 |
| 1.000 | 10000.00 | 1610.80 | 10.10 | 7.57 | 11.44 | 1.26 | 0.00 | 0.00 | 101.45 | 1.00 | 921.78 | 1090.05 |
| 1.000 | 15000.00 | 1612.88 | 12.18 | 8.58 | 12.91 | 1.44 | 0.00 | 0.00 | 99.37 | 1.00 | 898.87 | 1090.06 |

1

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Split At CP 40 For Left

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.00 | 0.00 | 0.00 | 1600.70 | 25.00 | 1601.28 | 1601.10 | 1601.32 | 99.09 | 1.67 | 14.95 | 2.51 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1600.70 | 50.00 | 1601.51 | 1601.25 | 1601.58 | 98.95 | 2.11 | 23.64 | 5.03 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1600.70 | 75.00 | 1601.70 | 1601.38 | 1601.79 | 100.20 | 2.42 | 30.97 | 7.49 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1600.70 | 100.00 | 1601.87 | 1601.49 | 1601.98 | 99.88 | 2.65 | 37.81 | 10.01 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1600.70 | 200.00 | 1602.45 | 1601.84 | 1602.59 | 99.19 | 3.05 | 65.51 | 20.08 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1600.70 | 400.00 | 1603.16 | 1602.39 | 1603.40 | 99.44 | 3.88 | 102.99 | 40.11 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1600.70 | 600.00 | 1603.67 | 1602.79 | 1603.99 | 99.85 | 4.54 | 138.40 | 60.05 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1600.70 | 800.00 | 1604.06 | 1603.13 | 1604.43 | 100.07 | 5.02 | 174.04 | 79.97 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1600.70 | 1000.00 | 1604.39 | 1603.52 | 1604.81 | 100.18 | 5.41 | 205.75 | 99.91 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1600.70 | 1500.00 | 1605.08 | 1604.28 | 1605.61 | 99.93 | 6.18 | 276.20 | 150.05 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1600.70 | 5000.00 | 1608.10 | 1606.83 | 1609.16 | 101.29 | 9.16 | 644.06 | 496.81 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1600.70 | 10000.00 | 1610.80 | 1609.21 | 1612.36 | 101.45 | 11.44 | 1057.87 | 992.83 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1600.70 | 15000.00 | 1612.88 | 1611.02 | 1614.80 | 99.37 | 12.91 | 1431.41 | 1504.78 |

1

31MAR92 15:43:45 PAGE 29

Split At CP 40 For Left

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1601.28 | 0.00 | 0.00 | -0.72 | 36.37 | 0.00 |
| 1.000 | 50.00 | 1601.51 | 0.23 | 0.00 | -0.49 | 38.22 | 0.00 |
| 1.000 | 75.00 | 1601.70 | 0.19 | 0.00 | -0.30 | 39.71 | 0.00 |
| 1.000 | 100.00 | 1601.87 | 0.17 | 0.00 | -0.13 | 41.05 | 0.00 |
| 1.000 | 200.00 | 1602.45 | 0.58 | 0.00 | 0.45 | 50.92 | 0.00 |
| 1.000 | 400.00 | 1603.16 | 0.72 | 0.00 | 1.16 | 53.85 | 0.00 |
| 1.000 | 600.00 | 1603.67 | 0.51 | 0.00 | 1.67 | 87.82 | 0.00 |
| 1.000 | 800.00 | 1604.06 | 0.39 | 0.00 | 2.06 | 93.96 | 0.00 |
| 1.000 | 1000.00 | 1604.39 | 0.33 | 0.00 | 2.39 | 97.61 | 0.00 |
| 1.000 | 1500.00 | 1605.08 | 0.69 | 0.00 | 3.08 | 105.26 | 0.00 |
| 1.000 | 5000.00 | 1608.10 | 3.02 | 0.00 | 6.10 | 138.53 | 0.00 |
| 1.000 | 10000.00 | 1610.80 | 2.70 | 0.00 | 8.80 | 168.27 | 0.00 |
| 1.000 | 15000.00 | 1612.80 | 2.08 | 0.00 | 10.88 | 191.19 | 0.00 |

1

31MAR92 15:43:45 PAGE 30

SUMMARY OF ERRORS AND SPECIAL NOTES

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2:  May 1991            *
 *  386 Extended Memory version, August 1991 *
 *  Dodson & Associates, Inc 1-800-235-8069  *
 *  RUN DATE    31MAR92    TIME   15:44:10   *
 *****************************************

*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************

X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X
XXXXXXX  XXXX     X           XXXXX   XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX

1
   31MAR92      15:44:10                                                                    PAGE    1


                                                                  THIS RUN EXECUTED 31MAR92    15:44:10
*************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2:  May 1991
*************************************

 T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
 T2 FILENAME= C40-H2.RGHT
 T3 Flow Split At CP 40 For Right Side

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       2.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38.       43.        1.        8.       55.       26.       56.       46.       47.        5.
     38.       53.       54.                 150

 NC    0.060     0.035     0.060     0.1       0.3
 NH      6.      0.010  1090.0       0.070  1095.0       0.080  1101.0     0.025  1119.0     0.080
 NH   1127.0     0.040  2300.0
 QT     13.0      25.0      50.0      75.0     100.0     200.0     400.0     600.0     800.0  1000.0
 QT   1500.0    5000.0 10000.0    15000.0
 X1      1.0      12.0    1095.0    1400.0       0.0       0.0       0.0
 X3       10
 GR   1620.0    1089.9    1602.0    1090.0    1602.0    1095.0    1600.0    1101.0    1599.5    1119.0
 GR   1602.4    1127.0    1601.5    1145.0    1603.5    1158.0    1604.0    1233.0    1606.0    1400.0
 GR   1606.0    2500.0    1608.0    3200.0
1
   31MAR92      15:44:10                                                                    PAGE    2

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1602.00 ELREA=      1606.00

      1.000     0.75   1600.25   1600.12   1602.00   1600.35      0.10      0.00      0.00   1602.00
       25.0      0.0      25.0       0.0       0.0       9.8       0.0       0.0       0.0   1606.00
       0.00     0.00      2.55      0.00     0.000     0.035     0.000     0.000   1599.50   1100.26
   0.010028       0.        0.        0.         0        11         5      0.00     20.80   1121.06

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1600.25

 STA=    1100.    1127.
   PER Q=     100.0
    AREA=      9.8
     VEL=      2.5
   DEPTH=      0.5

1
   31MAR92      15:44:10                                                                    PAGE    3

 T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
 T2 FILENAME= C40-H2.RGHT  Flow Split At CP 40 For Right Side
 T3      Q=50

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       3.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

1
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```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1602.00 ELREA=      1606.00

     1.000      1.06   1600.56   1600.34   1602.00   1600.70      0.14      0.00      0.00   1602.00
      50.0       0.0      50.0       0.0       0.0      16.5       0.0       0.0       0.0   1606.00
      0.00      0.00      3.02      0.00     0.000     0.040     0.000     0.000   1599.50   1099.33
  0.010059        0.        0.        0.         0        22         5      0.00     22.59   1121.92

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1600.56

STA=    1099.    1127.
  PER Q=    100.0
   AREA=     16.5
    VEL=      3.0
  DEPTH=      0.7
```

1



```
T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-H2.RGHT  Flow Split At CP 40 For Right Side
T3      Q=75

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        4.        0.        0.    0.0100       0.        0.        0.    1602.0       0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.
```

1



```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1602.00 ELREA=      1606.00

     1.000      1.32   1600.82   1600.52   1602.00   1600.99      0.17      0.00      0.00   1602.00
      75.0       0.0      75.0       0.0       0.0      22.7       0.0       0.0       0.0   1606.00
      0.00      0.00      3.30      0.00     0.000     0.043     0.000     0.000   1599.50   1098.54
  0.010056        0.        0.        0.         0        18         5      0.00     24.11   1122.65

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1600.82

STA=    1099.    1127.
  PER Q=    100.0
   AREA=     22.7
    VEL=      3.3
  DEPTH=      0.9
```

1



```
T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-H2.RGHT  Flow Split At CP 40 For Right Side
T3      Q=100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        5.        0.        0.    0.0100       0.        0.        0.    1602.0       0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    4.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.
```

1



```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
```

```
1490 NH CARD USED
*SECNO 1.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1602.00 ELREA=      1606.00

     1.000      1.56   1601.06   1600.67   1602.00   1601.25      0.19      0.00      0.00   1602.00
     100.0       0.0     100.0       0.0       0.0      28.5       0.0       0.0       0.0   1606.00
      0.00      0.00      3.50      0.00     0.000     0.045     0.000     0.000   1599.50   1097.83
  0.010039        0.        0.        0.         0        14         5      0.00     25.47   1123.30

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1601.06

STA=    1098.    1127.
  PER Q=    100.0
   AREA=     28.5
    VEL=      3.5
  DEPTH=      1.1

1
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T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-H2.RGHT  Flow Split At CP 40 For Right Side
T3      Q=200

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       6.        0.        0.    0.0100        0.        0.        0.    1602.0       0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    5.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1602.00 ELREA=      1606.00

     1.000      2.43   1601.93   1601.18   1602.00   1602.13      0.20      0.00      0.00   1602.00
     200.0       0.0     200.0       0.0       0.0      55.3       0.0       0.0       0.0   1606.00
      0.00      0.00      3.62      0.00     0.000     0.049     0.000     0.000   1599.50   1095.22
  0.010009        0.        0.        0.         0        14         5      0.00     41.81   1147.78

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1601.93

STA=    1095.    1158.
  PER Q=    100.0
   AREA=     55.3
    VEL=      3.6
  DEPTH=      1.3

1
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T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-H2.RGHT  Flow Split At CP 40 For Right Side
T3      Q=400

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       7.        0.        0.    0.0100        0.        0.        0.    1602.0       0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    6.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1602.00 ELREA=      1606.00

     1.000      3.17   1602.67   1602.07   1602.00   1602.94      0.27      0.00      0.00   1602.00
     400.0       5.0     395.0       0.0       3.4      93.8       0.0       0.0       0.0   1606.00
      0.00      1.48      4.21      0.00     0.070     0.048     0.000     0.000   1599.50   1090.00
  0.009805        0.        0.        0.         0         8         4      0.00     62.61   1152.61
```

```
FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1602.67

STA=    1090.    1095.    1158.
  PER Q=       1.2      98.8
   AREA=       3.4      93.8
    VEL=       1.5       4.2
  DEPTH=       0.7       1.6

1
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T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-H2.RGHT  Flow Split At CP 40 For Right Side
T3       Q=600

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       8.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    7.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1602.00 ELREA=      1606.00

     1.000      3.62   1603.12   1602.54   1602.00   1603.48      0.37      0.00      0.00   1602.00
     600.0     11.2     588.8       0.0       5.6     120.2       0.0       0.0       0.0    1606.00
      0.00      2.00      4.90      0.00      0.070     0.047     0.000     0.000   1599.50   1089.99
  0.010017       0.        0.        0.         0         8         5      0.00     65.52    1155.52

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1603.12

STA=    1090.    1095.    1158.
  PER Q=       1.9      98.1
   AREA=       5.6     120.2
    VEL=       2.0       4.9
  DEPTH=       1.1       2.0

1
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T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-H2.RGHT  Flow Split At CP 40 For Right Side
T3       Q=800

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       9.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    8.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1602.00 ELREA=      1606.00

     1.000      4.35   1603.85   1602.85   1602.00   1604.15      0.30      0.00      0.00   1602.00
     800.0     24.0     776.0       0.0       9.2     174.6       0.0       0.0       0.0    1606.00
      0.00      2.60      4.45      0.00      0.070     0.044     0.000     0.000   1599.50   1089.99
  0.010055       0.        0.        0.         0        11         4      0.00    119.90    1209.89

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1603.85

STA=    1090.    1095.    1233.
  PER Q=       3.0      97.0
   AREA=       9.2     174.6
    VEL=       2.6       4.4
  DEPTH=       1.8       1.5

1
   31MAR92      15:44:10                                                                                    PAGE   17

T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-H2.RGHT  Flow Split At CP 40 For Right Side
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T3       Q=1000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.      10.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    9.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 9

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1602.00 ELREA=      1606.00

     1.000      4.68   1604.18   1603.16   1602.00   1604.48      0.29      0.00      0.00   1602.00
    1000.0      30.7     969.3       0.0      10.9     220.9       0.0       0.0       0.0   1606.00
      0.00      2.81      4.39      0.00     0.070     0.043     0.000     0.000   1599.50   1089.99
  0.010029        0.        0.        0.         0        11         5      0.00    158.38   1248.37

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1604.18

STA=    1090.     1095.     1400.
  PER Q=       3.1      96.9
   AREA=      10.9     220.9
    VEL=       2.8       4.4
  DEPTH=       2.2       1.4

1
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T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-H2.RGHT  Flow Split At CP 40 For Right Side
T3       Q=1500

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.      11.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   10.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF10

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1602.00 ELREA=      1606.00

     1.000      5.19   1604.69   1604.08   1602.00   1605.03      0.34      0.00      0.00   1602.00
    1500.0      41.3    1458.7       0.0      13.5     309.5       0.0       0.0       0.0   1606.00
      0.00      3.06      4.71      0.00     0.070     0.042     0.000     0.000   1599.50   1089.99
  0.009892        0.        0.        0.         0        18         6      0.00    200.77   1290.75

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1604.69

STA=    1090.     1095.     1400.
  PER Q=       2.8      97.2
   AREA=      13.5     309.5
    VEL=       3.1       4.7
  DEPTH=       2.7       1.6

1
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T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-H2.RGHT  Flow Split At CP 40 For Right Side
T3       Q=5000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.      12.        0.        0.     0.0100       0.        0.        0.     1602.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   11.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF11

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      6.84   1606.34   1606.34   1602.00   1606.80      0.46      0.00      0.00   1602.00
    5000.0      73.0    4305.5     621.6      21.7     739.7     390.0       0.0       0.0   1606.00
      0.00      3.36      5.82      1.59     0.070     0.042     0.040     0.000   1599.50   1089.98
  0.008167        0.        0.        0.         0        21        15      0.00   1527.82   2617.79

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1606.34

STA=    1090.     1095.     1400.     2500.     2618.
  PER Q=      1.5      86.1      12.0       0.4
   AREA=     21.7     739.7     370.2      19.8
    VEL=      3.4       5.8       1.6       1.0
  DEPTH=      4.3       2.4       0.3       0.2

1
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T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-H2.RGHT  Flow Split At CP 40 For Right Side
T3       Q=10000

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       13.        0.        0.     0.0100       0.        0.        0.     1602.0       0.

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   12.0        0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF12

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      7.37   1606.87   1606.87   1602.00   1607.44      0.57      0.00      0.00   1602.00
   10000.0      92.2    6477.4    3430.4      24.4     901.9    1087.2       0.0       0.0   1606.00
      0.00      3.78      7.18      3.16     0.070     0.042     0.040     0.000   1599.50   1089.97
  0.009545        0.        0.        0.         0        21        17      0.00   1713.97   2803.94

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1606.87

STA=    1090.     1095.     1400.     2500.     2804.
  PER Q=      0.9      64.8      31.6       2.7
   AREA=     24.3     901.9     955.2     132.0
    VEL=      3.8       7.2       3.3       2.1
  DEPTH=      4.8       3.0       0.9       0.4

1
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T1 Gila Bend Floodplain Delineation Study, 11358 11/22/91
T2 FILENAME= C40-H2.RGHT  Flow Split At CP 40 For Right Side
T3       Q=15000

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       14.        0.        0.     0.0100       0.        0.        0.     1602.0       0.

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   13.0        0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      7.77   1607.27   1607.27   1602.00   1607.91      0.64      0.00      0.00   1602.00
   15000.0     103.5    8098.7    6797.8      26.4    1025.4    1684.2       0.0       0.0   1606.00
      0.00      3.91      7.90      4.04     0.070     0.042     0.040     0.000   1599.50   1089.97
  0.009729        0.        0.        0.         0        20        17      0.00   1855.65   2945.62
```

FLOW DISTRIBUTION FOR SECNO= 1.00 CWSEL= 1607.27

| STA= | 1090. | 1095. | 1400. | 2500. | 2946. |
|---|---|---|---|---|---|
| PER Q= | 0.7 | 54.0 | 40.2 | 5.1 | |
| AREA= | 26.4 | 1025.4 | 1400.5 | 283.7 | |
| VEL= | 3.9 | 7.9 | 4.3 | 2.7 | |
| DEPTH= | 5.2 | 3.4 | 1.3 | 0.6 | |

1



THIS RUN EXECUTED 31MAR92 15:44:17

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Split At CP 40 For Right

SUMMARY PRINTOUT

| | SECNO | Q | CWSEL | DEPTH | VLOB | VCH | VROB | QWEIR | QPR | 10*KS | SECNO | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 25.00 | 1600.25 | 0.75 | 0.00 | 2.55 | 0.00 | 0.00 | 0.00 | 100.28 | 1.00 | 1100.26 | 1121.06 |
| | 1.000 | 50.00 | 1600.56 | 1.06 | 0.00 | 3.02 | 0.00 | 0.00 | 0.00 | 100.59 | 1.00 | 1099.33 | 1121.92 |
| | 1.000 | 75.00 | 1600.82 | 1.32 | 0.00 | 3.30 | 0.00 | 0.00 | 0.00 | 100.56 | 1.00 | 1098.54 | 1122.65 |
| | 1.000 | 100.00 | 1601.06 | 1.56 | 0.00 | 3.50 | 0.00 | 0.00 | 0.00 | 100.39 | 1.00 | 1097.83 | 1123.30 |
| | 1.000 | 200.00 | 1601.93 | 2.43 | 0.00 | 3.62 | 0.00 | 0.00 | 0.00 | 100.09 | 1.00 | 1095.22 | 1147.78 |
| | 1.000 | 400.00 | 1602.67 | 3.17 | 1.48 | 4.21 | 0.00 | 0.00 | 0.00 | 98.05 | 1.00 | 1090.00 | 1152.61 |
| | 1.000 | 600.00 | 1603.12 | 3.62 | 2.00 | 4.90 | 0.00 | 0.00 | 0.00 | 100.17 | 1.00 | 1089.99 | 1155.52 |
| | 1.000 | 800.00 | 1603.85 | 4.35 | 2.60 | 4.45 | 0.00 | 0.00 | 0.00 | 100.55 | 1.00 | 1089.99 | 1209.89 |
| | 1.000 | 1000.00 | 1604.18 | 4.68 | 2.81 | 4.39 | 0.00 | 0.00 | 0.00 | 100.29 | 1.00 | 1089.99 | 1248.37 |
| | 1.000 | 1500.00 | 1604.69 | 5.19 | 3.06 | 4.71 | 0.00 | 0.00 | 0.00 | 98.92 | 1.00 | 1089.99 | 1290.75 |
| * | 1.000 | 5000.00 | 1606.34 | 6.84 | 3.36 | 5.82 | 1.59 | 0.00 | 0.00 | 81.67 | 1.00 | 1089.98 | 2617.79 |
| * | 1.000 | 10000.00 | 1606.87 | 7.37 | 3.78 | 7.18 | 3.16 | 0.00 | 0.00 | 95.45 | 1.00 | 1089.97 | 2803.94 |
| * | 1.000 | 15000.00 | 1607.27 | 7.77 | 3.91 | 7.90 | 4.04 | 0.00 | 0.00 | 97.29 | 1.00 | 1089.97 | 2945.62 |

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Split At CP 40 For Right

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 0.00 | 0.00 | 0.00 | 1599.50 | 25.00 | 1600.25 | 1600.12 | 1600.35 | 100.28 | 2.55 | 9.81 | 2.50 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1599.50 | 50.00 | 1600.56 | 1600.34 | 1600.70 | 100.59 | 3.02 | 16.55 | 4.99 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1599.50 | 75.00 | 1600.82 | 1600.52 | 1600.99 | 100.56 | 3.30 | 22.71 | 7.48 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1599.50 | 100.00 | 1601.06 | 1600.67 | 1601.25 | 100.39 | 3.50 | 28.55 | 9.98 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1599.50 | 200.00 | 1601.93 | 1601.18 | 1602.13 | 100.09 | 3.62 | 55.32 | 19.99 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1599.50 | 400.00 | 1602.67 | 1602.07 | 1602.94 | 98.05 | 4.21 | 97.16 | 40.40 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1599.50 | 600.00 | 1603.12 | 1602.54 | 1603.48 | 100.17 | 4.90 | 125.81 | 59.95 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1599.50 | 800.00 | 1603.85 | 1602.85 | 1604.15 | 100.55 | 4.45 | 183.81 | 79.78 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1599.50 | 1000.00 | 1604.18 | 1603.16 | 1604.48 | 100.29 | 4.39 | 231.80 | 99.85 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1599.50 | 1500.00 | 1604.69 | 1604.08 | 1605.03 | 98.92 | 4.71 | 322.95 | 150.81 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1599.50 | 5000.00 | 1606.34 | 1606.34 | 1606.80 | 81.67 | 5.82 | 1151.46 | 553.29 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1599.50 | 10000.00 | 1606.87 | 1606.87 | 1607.44 | 95.45 | 7.18 | 2013.54 | 1023.57 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1599.50 | 15000.00 | 1607.27 | 1607.27 | 1607.91 | 97.29 | 7.90 | 2736.01 | 1520.75 |

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Split At CP 40 For Right

SUMMARY PRINTOUT TABLE 150

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 1.000 | 25.00 | 1600.25 | 0.00 | 0.00 | -1.75 | 20.80 | 0.00 |
| | 1.000 | 50.00 | 1600.56 | 0.31 | 0.00 | -1.44 | 22.59 | 0.00 |
| | 1.000 | 75.00 | 1600.82 | 0.26 | 0.00 | -1.18 | 24.11 | 0.00 |
| | 1.000 | 100.00 | 1601.06 | 0.24 | 0.00 | -0.94 | 25.47 | 0.00 |
| | 1.000 | 200.00 | 1601.93 | 0.87 | 0.00 | -0.07 | 41.81 | 0.00 |
| | 1.000 | 400.00 | 1602.67 | 0.74 | 0.00 | 0.67 | 62.61 | 0.00 |
| | 1.000 | 600.00 | 1603.12 | 0.45 | 0.00 | 1.12 | 65.52 | 0.00 |
| | 1.000 | 800.00 | 1603.85 | 0.73 | 0.00 | 1.85 | 119.90 | 0.00 |
| | 1.000 | 1000.00 | 1604.18 | 0.34 | 0.00 | 2.18 | 158.38 | 0.00 |
| | 1.000 | 1500.00 | 1604.69 | 0.51 | 0.00 | 2.69 | 200.77 | 0.00 |
| * | 1.000 | 5000.00 | 1606.34 | 1.64 | 0.00 | 4.34 | 1527.82 | 0.00 |
| * | 1.000 | 10000.00 | 1606.87 | 0.53 | 0.00 | 4.87 | 1713.97 | 0.00 |
| * | 1.000 | 15000.00 | 1607.27 | 0.40 | 0.00 | 5.27 | 1855.65 | 0.00 |

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 1.000 PROFILE= 11 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 12 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 13 CRITICAL DEPTH ASSUMED

## C78 Summary Data

| Stage | Left Channel | Right Channel | Total Flow |
|---|---|---|---|
| 1289 | 0 | 0 | 0 |
| 1290 | 0 | 25 | 25 |
| 1291 | 90 | 180 | 270 |
| 1292 | 390 | 725 | 1115 |
| 1293 | 1400 | 1800 | 3200 |
| 1294 | 3700 | 3400 | 7100 |
| 1295 | 6900 | 5000 | 11900 |
| 1296 | 11000 | 7200 | 18200 |

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2;  May 1991            *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE    31MAR92    TIME   15:44:37    *
 *****************************************

*****************************************
 *  U.S. ARMY CORPS OF ENGINEERS          *
 *  HYDROLOGIC ENGINEERING CENTER         *
 *  609 SECOND STREET, SUITE D            *
 *  DAVIS, CALIFORNIA 95616-4687          *
 *          (916) 756-1104                *
*****************************************

X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX

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   31MAR92      15:44:37                                                                    PAGE    1


                                                                  THIS RUN EXECUTED 31MAR92     15:44:37
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************

 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C78-LEFT.H2
 T3 Flow Split At CP 78 For Left Side

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       2.        0.        0.    0.0080       0.        0.        0.    1290.2      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38.       43.       1.        8.        55.       26.       56.       46.       47.       5.
     38.       53.       54.                 150

 NC    0.070     0.025     0.070     0.1       0.3
 NH       7.     0.060  1150.0     0.070  1258.0     0.025  1282.0     0.070  1405.0     0.025
 NH  1417.0     0.070  1506.0     0.010  1506.1
 QT     13.0     25.0     50.0     75.0    100.0   200.0    400.0    600.0    800.0   1000.0
 QT  1500.0  5000.0 10000.0 15000.0
 X1      1.0     15.0  1150.0  1287.0      0.0     0.0      0.0
 GR  1296.6    928.0  1293.1  1000.0   1293.0  1150.0  1291.5  1225.0  1290.1  1258.0
 GR  1290.0   1282.0  1292.2  1287.0   1292.2  1338.0  1291.8  1394.0  1290.6  1405.0
 GR  1290.4   1417.0  1291.5  1422.0   1292.2  1476.0  1292.3  1506.0  1305.0  1506.1
1
   31MAR92      15:44:37                                                                    PAGE    2

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

      1.000     0.64   1290.54   1290.36   1290.20   1290.58     0.04      0.00      0.00   1293.00
       25.0      0.0      24.6       0.5       0.0      14.3      0.6       0.0       0.0   1292.20
       0.00     0.00      1.71      0.84     0.000     0.042    0.025     0.000   1290.00   1247.67
  0.008044       0.        0.        0.         0        14        7      0.00     44.47   1417.63

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1290.54

 STA=    1248.    1287.    1417.    1418.
   PER Q=     97.9      2.1      0.0
    AREA=     14.3      0.6      0.0
     VEL=      1.7      0.9      0.0
   DEPTH=      0.4      0.0      0.1

1
   31MAR92      15:44:37                                                                    PAGE    3

 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C78-LEFT.H2  Flow Split At CP 78 For Left Side
 T3       Q=50

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       3.        0.        0.    0.0080       0.        0.        0.    1290.2      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
   31MAR92      15:44:37                                                                    PAGE    4
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```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.75   1290.75   1290.54   1290.20   1290.81      0.06      0.00      0.00   1293.00
      50.0       0.0      43.3       6.7       0.0      22.5       3.4       0.0       0.0   1292.20
      0.00      0.00      1.92      1.96     0.000     0.047     0.026     0.000   1290.00   1242.62
  0.008147        0.        0.        0.         0        23         7      0.00     56.08   1418.60

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1290.75

STA=    1243.    1287.    1405.    1417.    1419.
  PER Q=     86.6      0.1     13.0      0.3
   AREA=     22.5      0.1      3.0      0.3
    VEL=      1.9      0.3      2.1      0.6
  DEPTH=      0.5      0.0      0.3      0.2
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-LEFT.H2  Flow Split At CP 78 For Left Side
T3      Q=75

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
     0.       4.       0.       0.     0.0080     0.       0.       0.     1290.2     0.
J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
    3.0       0.      -1.0      0.       0.       0.       -1.      0.       0.       15.
```



```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.91   1290.91   1290.66   1290.20   1290.98      0.07      0.00      0.00   1293.00
      75.0       0.0      59.8      15.2       0.0      29.3       6.0       0.0       0.0   1292.20
      0.00      0.00      2.04      2.55     0.000     0.049     0.027     0.000   1290.00   1238.89
  0.008052        0.        0.        0.         0        20         7      0.00     62.34   1419.32

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1290.91

STA=    1239.    1287.    1405.    1417.    1419.
  PER Q=     79.7      0.3     19.3      0.6
   AREA=     29.3      0.4      4.9      0.6
    VEL=      2.0      0.5      2.9      0.8
  DEPTH=      0.6      0.0      0.4      0.3
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-LEFT.H2  Flow Split At CP 78 For Left Side
T3      Q=100

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
     0.       5.       0.       0.     0.0080     0.       0.       0.     1290.2     0.
J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
    4.0       0.      -1.0      0.       0.       0.       -1.      0.       0.       15.
```



```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
```

```
3265 DIVIDED FLOW

     1.000      1.04   1291.04   1290.75   1290.20   1291.13      0.09      0.00      0.00   1293.00
     100.0       0.0      75.6      24.4       0.0      35.5       8.3       0.0       0.0   1292.20
      0.00      0.00      2.13      2.93     0.000     0.051     0.028     0.000   1290.00   1235.80
  0.008013        0.        0.        0.         0        23         7      0.00     67.54   1419.92

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1291.04

STA=    1236.    1287.    1405.    1417.    1420.
  PER Q=      75.6      0.6     23.0      0.8
   AREA=      35.5      0.9      6.5      0.9
    VEL=       2.1      0.7      3.5      0.9
  DEPTH=       0.7      0.0      0.5      0.3

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   31MAR92      15:44:37                                                                          PAGE    9

T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-LEFT.H2  Flow Split At CP 78 For Left Side
T3       Q=200

J1  ICHECK     INQ       NINV      IDIR      STRT     METRIC    HVINS      Q       WSEL       FQ

      0.        6.        0.        0.    0.0080       0.        0.       0.    1290.2       0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN      ALLDC     IBW     CHNIM    ITRACE

    5.0        0.      -1.0        0.        0.       0.       -1.       0.       0.       15.

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   31MAR92      15:44:37                                                                          PAGE   10

    SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV      HL      OLOSS   L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH      AROB     VOL       TWA    R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC      ICONT    CORAR    TOPWID   ENDST

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      1.44   1291.44   1291.03   1290.20   1291.57      0.13      0.00      0.00   1293.00
     200.0       0.0     136.0      64.0       0.0      56.8      17.0       0.0       0.0   1292.20
      0.00      0.00      2.39      3.77     0.000     0.054     0.030     0.000   1290.00   1226.43
  0.008031        0.        0.        0.         0        26         6      0.00     83.26   1421.72

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1291.44

STA=    1226.    1287.    1405.    1417.    1422.
  PER Q=      68.0      1.7     28.8      1.5
   AREA=      56.8      3.2     11.3      2.5
    VEL=       2.4      1.1      5.1      1.2
  DEPTH=       1.0      0.0      0.9      0.5

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   31MAR92      15:44:37                                                                          PAGE   11

T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-LEFT.H2  Flow Split At CP 78 For Left Side
T3       Q=400

J1  ICHECK     INQ       NINV      IDIR      STRT     METRIC    HVINS      Q       WSEL       FQ

      0.        7.        0.        0.    0.0080       0.        0.       0.    1290.2       0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN      ALLDC     IBW     CHNIM    ITRACE

    6.0        0.      -1.0        0.        0.       0.       -1.       0.       0.       15.

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   31MAR92      15:44:37                                                                          PAGE   12

    SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV      HL      OLOSS   L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH      AROB     VOL       TWA    R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC      ICONT    CORAR    TOPWID   ENDST

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.02   1292.02   1291.47   1290.20   1292.15      0.13      0.00      0.00   1293.00
     400.0       0.0     237.5     162.5       0.0      98.9      46.4       0.0       0.0   1292.20
      0.00      0.00      2.40      3.50     0.000     0.060     0.035     0.000   1290.00   1199.01
  0.007940        0.        0.        0.         0        29         5      0.00    186.45   1462.10

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1292.02

STA=    1199.    1287.    1394.    1405.    1417.    1422.    1462.
  PER Q=      59.4      0.4      3.7     31.9      2.6      2.0
   AREA=      98.9      3.4      9.0     18.2      5.3     10.4
    VEL=       2.4      0.4      1.7      7.0      1.9      0.8
```

```
DEPTH=     1.1     0.0     0.8     1.5     1.1     0.3
```

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31MAR92 15:44:37 PAGE 13

```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-LEFT.H2  Flow Split At CP 78 For Left Side
T3      Q=600

J1  ICHECK    INQ     NINV    IDIR    STRT     METRIC   HVINS   Q      WSEL    FQ
     0.       8.      0.      0.    0.0080     0.       0.      0.   1290.2    0.
J2  NPROF    IPLOT   PRFVS   XSECV   XSECH    FN       ALLDC   IBW    CHNIM   ITRACE
    7.0      0.     -1.0     0.      0.       0.       -1.     0.     0.      15.
```

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31MAR92 15:44:37 PAGE 14

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
    1.000      2.34   1292.34   1291.97   1290.20   1292.45      0.11      0.00      0.00   1293.00
    600.0       0.0     326.3     273.7       0.0     129.8      97.3       0.0       0.0   1292.20
     0.00      0.00      2.81      2.81     0.000     0.061     0.041     0.000   1290.00   1182.92
 0.008063        0.        0.        0.         0        32         5      0.00    323.08   1506.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1292.34

STA=    1183.    1287.    1338.    1394.    1405.    1417.    1422.    1476.    1506.
  PER Q=     54.4      0.6      3.0      4.3     29.5      2.7      5.3      0.2
   AREA=    129.8      7.2     19.1     12.6     22.1      7.0     26.6      2.8
    VEL=      2.5      0.5      0.9      2.1      8.0      2.3      1.2      0.4
  DEPTH=      1.2      0.1      0.3      1.1      1.8      1.4      0.5      0.1
```

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```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-LEFT.H2  Flow Split At CP 78 For Left Side
T3      Q=800

J1  ICHECK    INQ     NINV    IDIR    STRT     METRIC   HVINS   Q      WSEL    FQ
     0.       9.      0.      0.    0.0080     0.       0.      0.   1290.2    0.
J2  NPROF    IPLOT   PRFVS   XSECV   XSECH    FN       ALLDC   IBW    CHNIM   ITRACE
    8.0      0.     -1.0     0.      0.       0.       -1.     0.     0.      15.
```

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```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
    1.000      2.57   1292.57   1292.19   1290.20   1292.68      0.11      0.00      0.00   1293.00
    800.0       0.0     401.0     399.0       0.0     155.2     148.0       0.0       0.0   1292.20
     0.00      0.00      2.58      2.70     0.000     0.062     0.046     0.000   1290.00   1171.34
 0.007943        0.        0.        0.         0        32         6      0.00    334.66   1506.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1292.57

STA=    1171.    1287.    1338.    1394.    1405.    1417.    1422.    1476.    1506.
  PER Q=     50.1      2.3      5.2      4.4     26.8      2.6      7.4      1.1
   AREA=    155.2     19.0     32.1     15.1     24.9      8.1     39.0      9.7
    VEL=      2.6      1.0      1.3      2.3      8.6      2.6      1.5      0.9
  DEPTH=      1.3      0.4      0.6      1.4      2.1      1.6      0.7      0.3
```

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```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-LEFT.H2  Flow Split At CP 78 For Left Side
T3      Q=1000

J1  ICHECK    INQ     NINV    IDIR    STRT     METRIC   HVINS   Q      WSEL    FQ
     0.       10.     0.      0.    0.0080     0.       0.      0.   1290.2    0.
J2  NPROF    IPLOT   PRFVS   XSECV   XSECH    FN       ALLDC   IBW    CHNIM   ITRACE
    9.0      0.     -1.0     0.      0.       0.       -1.     0.     0.      15.
```

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```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 9

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
     1.000      2.76   1292.76   1292.32   1290.20   1292.87      0.12      0.00      0.00   1293.00
    1000.0       0.0     473.9     526.1       0.0     177.5     188.4       0.0       0.0   1292.20
      0.00      0.00      2.67      2.79     0.000     0.063     0.049     0.000   1290.00   1162.10
  0.008013        0.        0.        0.         0        37         7      0.00    343.90   1506.00

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1292.76

 STA=    1162.    1287.    1338.    1394.    1405.    1417.    1422.    1476.    1506.
   PER Q=    47.4      3.7      6.7      4.4     24.8      2.6      8.7      1.8
    AREA=   177.5     28.5     42.4     17.1     27.1      9.0     49.0     15.2
     VEL=     2.7      1.3      1.6      2.5      9.2      2.8      1.8      1.2
   DEPTH=     1.4      0.6      0.8      1.6      2.3      1.8      0.9      0.5

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    31MAR92      15:44:37                                                                                    PAGE   19

 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C78-LEFT.H2  Flow Split At CP 78 For Left Side
 T3       Q=1500

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0.       11.         0.         0.      0.0080        0.         0.         0.      1290.2       0.

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

    10.0        0.        -1.0        0.         0.         0.        -1.         0.         0.        15.

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    31MAR92      15:44:37                                                                                    PAGE   20

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF10

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
     1.000      3.13   1293.13   1292.51   1290.20   1293.27      0.14      0.00      0.00   1293.00
    1500.0       4.8     663.7     831.5      11.8     226.7     269.6       0.0       0.0   1292.20
      0.00      0.41      2.93      3.08     0.060     0.063     0.053     0.000   1290.00    999.42
  0.008016        0.        0.        0.         0        32         8      0.00    506.59   1506.01

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1293.13

 STA=     999.    1150.    1287.    1338.    1394.    1405.    1417.    1476.    1506.
   PER Q=     0.3     44.2      5.7      8.7      4.1     21.3     12.6      3.0
    AREA=    11.7    226.7     47.3     63.2     21.2     31.6     79.9     26.3
     VEL=     0.4      2.9      1.8      2.1      2.9     10.1      2.4      1.7
   DEPTH=     0.1      1.7      0.9      1.1      1.9      2.6      1.4      0.9

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    31MAR92      15:44:37                                                                                    PAGE   21

 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C78-LEFT.H2  Flow Split At CP 78 For Left Side
 T3       Q=5000

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0.       12.         0.         0.      0.0080        0.         0.         0.      1290.2       0.

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

    11.0        0.        -1.0        0.         0.         0.        -1.         0.         0.        15.

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    31MAR92      15:44:37                                                                                    PAGE   22

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF11

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
     1.000      4.52   1294.52   1293.63   1290.20   1294.79      0.27      0.00      0.00   1293.00
    5000.0     665.7    1829.8    2504.5     240.8     417.1     573.8       0.0       0.0   1292.20
      0.00      2.76      4.39      4.36     0.060     0.063     0.058     0.000   1290.00    970.84
  0.007989        0.        0.        0.         0        38         9      0.00    535.18   1506.02
```

```
FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1294.52

STA=     971.    1150.    1287.    1338.    1394.    1405.    1417.    1476.    1506.
  PER Q=    13.3     36.6      7.9      9.9      3.1     12.9     12.1      4.2
   AREA=  240.8    417.1    118.2    141.0     36.5     48.2    161.9     68.0
    VEL=    2.8      4.4      3.3      3.5      4.2     13.4      3.7      3.1
  DEPTH=    1.3      3.0      2.3      2.5      3.3      4.0      2.7      2.3

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   31MAR92      15:44:37                                                                    PAGE   23

T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-LEFT.H2  Flow Split At CP 78 For Left Side
T3      Q=10000

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       13.      0.       0.     0.0080     0.       0.       0.     1290.2     0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

   12.0       0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

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   31MAR92      15:44:37                                                                    PAGE   24

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF12

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      5.81   1295.81   1294.47   1290.20   1296.24      0.43      0.00      0.00   1293.00
   10000.0    2009.5    3300.0    4690.5     490.2     594.6     857.6       0.0       0.0   1292.20
      0.00      4.10      5.55      5.47     0.060     0.063     0.060     0.000   1290.00    944.18
  0.007969        0.        0.        0.         0        44         9      0.00    561.84   1506.03

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1295.81

STA=     944.    1150.    1287.    1338.    1394.    1417.    1476.    1506.
  PER Q=    20.1     33.0      8.2      9.9     13.0     11.5      4.4
   AREA=  490.2    594.6    184.3    213.5    114.5    238.3    106.9
    VEL=    4.1      5.6      4.5      4.6     11.3      4.8      4.1
  DEPTH=    2.4      4.3      3.6      3.8      5.0      4.0      3.6

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   31MAR92      15:44:37                                                                    PAGE   25

T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-LEFT.H2  Flow Split At CP 78 For Left Side
T3      Q=15000

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       14.      0.       0.     0.0080     0.       0.       0.     1290.2     0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

   13.0       0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

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   31MAR92      15:44:37                                                                    PAGE   26

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3840 SECTION NOT HIGH ENOUGH  1351.011  1346.600  1290.000  1346.600  1292.200        14
     1.000      6.84   1296.84   1295.17   1290.20   1297.40      0.56      0.00      0.00   1293.00
   15000.0    3541.9    4684.7    6773.4     711.6     735.1    1082.3       0.0       0.0   1292.20
      0.00      4.98      6.37      6.26     0.060     0.063     0.061     0.000   1290.00    928.00
  0.007917        0.        0.        0.         0        47         8      0.00    578.04   1506.04

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1296.84

STA=     928.    1000.    1150.    1287.    1338.    1394.    1417.    1476.    1506.
  PER Q=     3.3     20.3     31.2      8.3      9.8     11.7     11.1      4.4
   AREA=  143.2    568.4    735.1    236.6    271.0    138.1    298.9    137.7
    VEL=    3.5      5.4      6.4      5.3      5.4     12.7      5.6      4.7
  DEPTH=    2.0      3.8      5.4      4.6      4.8      6.0      5.1      4.6

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                                                                THIS RUN EXECUTED 31MAR92     15:44:45
**********************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Split At CP 78 For Left

SUMMARY PRINTOUT

| SECNO | Q | CWSEL | DEPTH | VLOB | VCH | VROB | QWEIR | QPR | 10*KS | SECNO | SSTA | END |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1290.54 | 0.54 | 0.00 | 1.71 | 0.84 | 0.00 | 0.00 | 80.44 | 1.00 | 1247.67 | 1417.63 |
| 1.000 | 50.00 | 1290.75 | 0.75 | 0.00 | 1.92 | 1.96 | 0.00 | 0.00 | 81.47 | 1.00 | 1242.62 | 1418.60 |
| 1.000 | 75.00 | 1290.91 | 0.91 | 0.00 | 2.04 | 2.55 | 0.00 | 0.00 | 80.52 | 1.00 | 1238.89 | 1419.32 |
| 1.000 | 100.00 | 1291.04 | 1.04 | 0.00 | 2.13 | 2.93 | 0.00 | 0.00 | 80.13 | 1.00 | 1235.80 | 1419.92 |
| 1.000 | 200.00 | 1291.44 | 1.44 | 0.00 | 2.39 | 3.77 | 0.00 | 0.00 | 80.31 | 1.00 | 1226.43 | 1421.72 |
| 1.000 | 400.00 | 1292.02 | 2.02 | 0.00 | 2.40 | 3.50 | 0.00 | 0.00 | 79.40 | 1.00 | 1199.01 | 1462.10 |
| 1.000 | 600.00 | 1292.34 | 2.34 | 0.00 | 2.51 | 2.81 | 0.00 | 0.00 | 80.63 | 1.00 | 1182.92 | 1506.00 |
| 1.000 | 800.00 | 1292.57 | 2.57 | 0.00 | 2.58 | 2.70 | 0.00 | 0.00 | 79.43 | 1.00 | 1171.34 | 1506.00 |
| 1.000 | 1000.00 | 1292.76 | 2.76 | 0.00 | 2.67 | 2.79 | 0.00 | 0.00 | 80.13 | 1.00 | 1162.10 | 1506.00 |
| 1.000 | 1500.00 | 1293.13 | 3.13 | 0.41 | 2.93 | 3.08 | 0.00 | 0.00 | 80.16 | 1.00 | 999.42 | 1506.01 |
| 1.000 | 5000.00 | 1294.52 | 4.52 | 2.76 | 4.39 | 4.36 | 0.00 | 0.00 | 79.89 | 1.00 | 970.84 | 1506.02 |
| 1.000 | 10000.00 | 1295.81 | 5.81 | 4.10 | 5.55 | 5.47 | 0.00 | 0.00 | 79.69 | 1.00 | 944.18 | 1506.03 |
| 1.000 | 15000.00 | 1296.84 | 6.84 | 4.98 | 6.37 | 6.26 | 0.00 | 0.00 | 79.17 | 1.00 | 928.00 | 1506.04 |

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Split At CP 78 For Left

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.00 | 0.00 | 0.00 | 1290.00 | 25.00 | 1290.54 | 1290.36 | 1290.58 | 80.44 | 1.71 | 14.93 | 2.79 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1290.00 | 50.00 | 1290.75 | 1290.54 | 1290.81 | 81.47 | 1.92 | 25.93 | 5.54 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1290.00 | 75.00 | 1290.91 | 1290.66 | 1290.98 | 80.52 | 2.04 | 35.30 | 8.36 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1290.00 | 100.00 | 1291.04 | 1290.75 | 1291.13 | 80.13 | 2.13 | 43.83 | 11.17 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1290.00 | 200.00 | 1291.44 | 1291.03 | 1291.57 | 80.31 | 2.39 | 73.80 | 22.32 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1290.00 | 400.00 | 1292.02 | 1291.47 | 1292.15 | 79.40 | 2.40 | 148.32 | 44.89 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1290.00 | 600.00 | 1292.34 | 1291.97 | 1292.45 | 80.63 | 2.51 | 227.08 | 66.82 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1290.00 | 800.00 | 1292.57 | 1292.19 | 1292.68 | 79.43 | 2.58 | 303.19 | 89.76 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1290.00 | 1000.00 | 1292.76 | 1292.32 | 1292.87 | 80.13 | 2.67 | 368.89 | 111.71 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1290.00 | 1500.00 | 1293.13 | 1292.51 | 1293.27 | 80.16 | 2.93 | 506.03 | 167.53 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1290.00 | 5000.00 | 1294.52 | 1293.63 | 1294.79 | 79.89 | 4.39 | 1231.69 | 559.40 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1290.00 | 10000.00 | 1295.81 | 1294.47 | 1296.24 | 79.69 | 5.55 | 1942.37 | 1120.22 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1290.00 | 15000.00 | 1296.84 | 1295.17 | 1297.40 | 79.17 | 6.37 | 2528.93 | 1685.78 |

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Split At CP 78 For Left

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1290.54 | 0.00 | 0.00 | 0.34 | 44.47 | 0.00 |
| 1.000 | 50.00 | 1290.75 | 0.21 | 0.00 | 0.55 | 56.08 | 0.00 |
| 1.000 | 75.00 | 1290.91 | 0.16 | 0.00 | 0.71 | 62.34 | 0.00 |
| 1.000 | 100.00 | 1291.04 | 0.13 | 0.00 | 0.84 | 67.54 | 0.00 |
| 1.000 | 200.00 | 1291.44 | 0.40 | 0.00 | 1.24 | 83.26 | 0.00 |
| 1.000 | 400.00 | 1292.02 | 0.58 | 0.00 | 1.82 | 186.45 | 0.00 |
| 1.000 | 600.00 | 1292.34 | 0.32 | 0.00 | 2.14 | 323.08 | 0.00 |
| 1.000 | 800.00 | 1292.57 | 0.23 | 0.00 | 2.37 | 334.66 | 0.00 |
| 1.000 | 1000.00 | 1292.76 | 0.18 | 0.00 | 2.56 | 343.90 | 0.00 |
| 1.000 | 1500.00 | 1293.13 | 0.37 | 0.00 | 2.93 | 506.59 | 0.00 |
| 1.000 | 5000.00 | 1294.52 | 1.39 | 0.00 | 4.32 | 535.18 | 0.00 |
| 1.000 | 10000.00 | 1295.81 | 1.30 | 0.00 | 5.61 | 561.84 | 0.00 |
| 1.000 | 15000.00 | 1296.84 | 1.03 | 0.00 | 6.64 | 578.04 | 0.00 |

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SUMMARY OF ERRORS AND SPECIAL NOTES

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1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version   4.6.2:  May 1991                *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE    31MAR92    TIME   15:45:04    *
 *********************************************

                                                  ***************************************
                                                  *  U.S. ARMY CORPS OF ENGINEERS       *
                                                  *  HYDROLOGIC ENGINEERING CENTER      *
                                                  *  609 SECOND STREET, SUITE D         *
                                                  *  DAVIS, CALIFORNIA 95616-4687       *
                                                  *        (916) 756-1104               *
                                                  ***************************************

                                  X     X  XXXXXXX   XXXXX              XXXXX
                                  X     X  X         X     X           X     X
                                  X     X  X         X                       X
                                  XXXXXXX  XXXX      X          XXXXX    XXXXX
                                  X     X  X         X                 X
                                  X     X  X         X     X           X
                                  X     X  XXXXXXX   XXXXX             XXXXXXX
1
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                                                                  THIS RUN EXECUTED 31MAR92     15:45:04
*************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2:  May 1991
*************************************


 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C78-RGHT.H2
 T3 Flow Split At CP 78 For Right Side

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       2.        0.        0.     0.010       0.        0.        0.     1289.5      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38.       43.       1.        8.        55.       26.       56.       46.       47.       5.
     38.       53.       54.                 150

NC    0.070     0.025     0.070     0.1       0.3
NH      9.      0.010     1506.0    0.070     1527.0    0.080     1535.0    0.025     1547.0    0.080
NH   1571.0     0.070     1626.0    0.035     1663.0    0.070     1675.0    0.060     1704.0
QT     13.0      25.0      50.0     75.0      100.0     200.0     400.0     600.0     800.0     1000.0
QT   1500.0    5000.0    10000.0   15000.0
X1      1.0      12.0     1527.0    1571.0      0.0       0.0       0.0
GR   1305.0    1505.9    1292.3    1506.0    1291.7    1527.0    1289.0    1535.0    1289.4    1547.0
GR   1291.3    1571.0    1291.7    1610.0    1291.2    1617.0    1290.3    1625.0    1290.5    1663.0
GR   1292.5    1675.0    1296.6    1704.0
1
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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000      0.99   1289.99   1289.68   1289.50   1290.05      0.06      0.00      0.00   1291.70
       25.0       0.0      25.0       0.0       0.0      13.1       0.0       0.0       0.0   1291.30
       0.00      0.00      1.91      0.00     0.000     0.054     0.000     0.000   1289.00   1532.07
  0.010047        0.        0.        0.         0        11         7      0.00     22.37   1554.44

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1289.99

 STA=    1532.     1571.
   PER Q=     100.0
    AREA=      13.1
     VEL=       1.9
   DEPTH=       0.6

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 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C78-RGHT.H2  Flow Split At CP 78 For Right Side
 T3       Q=50

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       3.        0.        0.     0.010       0.        0.        0.     1289.5      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
```

```
Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      1.39   1290.39   1289.93   1289.50   1290.46      0.07      0.00      0.00   1291.70
      80.0       0.0      49.6       0.4       0.0      23.3       0.8       0.0       0.0   1291.30
      0.00      0.00      2.13      0.51     0.000     0.060     0.035     0.000   1289.00   1530.89
  0.010021        0.        0.        0.         0        17         9      0.00     46.05   1641.68

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1290.39

STA=    1531.     1571.     1642.
  PER Q=      99.2      0.8
   AREA=      23.3      0.8
    VEL=       2.1      0.5
  DEPTH=       0.8      0.0
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-RGHT.H2  Flow Split At CP 78 For Right Side
T3      Q=75

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        4.        0.        0.      0.010       0.        0.        0.     1289.5     0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.
```



```
SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      1.58   1290.58   1290.12   1289.50   1290.65      0.07      0.00      0.00   1291.70
      75.0       0.0      65.5       9.5       0.0      29.0       7.2       0.0       0.0   1291.30
      0.00      0.00      2.26      1.32     0.000     0.062     0.036     0.000   1289.00   1530.32
  0.010197        0.        0.        0.         0        17         9      0.00     72.53   1663.47

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1290.58

STA=    1530.     1571.     1626.     1663.     1663.
  PER Q=      87.4      0.3      12.4      0.0
   AREA=      29.0      0.3       6.8      0.0
    VEL=       2.3      0.6       1.4      0.0
  DEPTH=       0.9      0.0       0.2      0.0
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-RGHT.H2  Flow Split At CP 78 For Right Side
T3      Q=100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        5.        0.        0.      0.010       0.        0.        0.     1289.5     0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    4.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.
```



```
SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW
```

```
     1.000      1.71   1290.71   1290.26   1289.50   1290.78      0.08      0.00      0.00   1291.70
     100.0       0.0      76.7      23.3       0.0      33.2      12.6       0.0       0.0   1291.30
      0.00      0.00      2.31      1.85     0.000     0.064     0.036     0.000   1289.00   1529.94
  0.010022        0.        0.        0.         0        21         9      0.00     76.46   1664.25

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1290.71

 STA=    1530.    1571.    1625.    1663.    1664.
   PER Q=     76.7      0.5     22.7      0.1
    AREA=     33.2      0.7     11.7      0.1
     VEL=      2.3      0.7      1.9      0.5
   DEPTH=      1.0      0.0      0.3      0.1

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 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C78-RGHT.H2  Flow Split At CP 78 For Right Side
 T3      Q=200

 J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0.       6.       0.       0.     0.010      0.       0.       0.     1289.5     0.

 J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     5.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 5

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

     1.000      2.06   1291.06   1290.72   1289.50   1291.17      0.11      0.00      0.00   1291.70
     200.0       0.0     115.3      84.7       0.0      46.0      28.5       0.0       0.0   1291.30
      0.00      0.00      2.51      2.97     0.000     0.066     0.037     0.000   1289.00   1528.90
  0.010125        0.        0.        0.         0        24         6      0.00     87.15   1666.35

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1291.06

 STA=    1529.    1571.    1625.    1663.    1666.
   PER Q=     57.7      1.4     40.5      0.4
    AREA=     46.0      2.6     25.0      0.9
     VEL=      2.5      1.1      3.2      0.9
   DEPTH=      1.2      0.0      0.7      0.3

1
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 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C78-RGHT.H2  Flow Split At CP 78 For Right Side
 T3      Q=400

 J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0.       7.       0.       0.     0.010      0.       0.       0.     1289.5     0.

 J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     6.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 6

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

     1.000      2.52   1291.52   1291.04   1289.50   1291.70      0.18      0.00      0.00   1291.70
     400.0       0.0     187.8     212.2       0.0      65.4      55.0       0.0       0.0   1291.30
      0.00      0.00      2.87      3.86     0.000     0.067     0.038     0.000   1289.00   1527.53
  0.010009        0.        0.        0.         0        23         4      0.00    121.71   1669.13

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1291.52

 STA=    1528.    1571.    1593.    1617.    1625.    1663.    1669.
   PER Q=     46.9      0.3      0.1      2.7     48.9      1.1
    AREA=     65.4      2.4      0.7      6.2     42.6      3.1
     VEL=      2.9      0.5      0.6      1.8      4.6      1.3
   DEPTH=      1.5      0.1      0.0      0.8      1.1      0.5
```

```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-RGHT.H2  Flow Split At CP 78 For Right Side
T3      Q=600

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       8.       0.       0.     0.010      0.       0.       0.     1289.5     0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    7.0       0.      -1.0      0.       0.       0.       -1.      0.       0.       15.
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      2.84   1291.84   1291.44   1289.50   1292.06      0.21      0.00      0.00   1291.70
     600.0       0.1     257.0     342.8       0.4      79.5      85.2       0.0       0.0   1291.30
      0.00      0.37      3.23      4.02     0.070     0.068     0.040     0.000   1289.00   1521.97
  0.009989        0.        0.        0.         0        26         6      0.00    149.09   1671.06

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1291.84

STA=    1522.    1527.    1571.    1610.    1617.    1625.    1663.    1671.
  PER Q=      0.0     42.8      2.3      0.5      3.3     49.6      1.5
   AREA=      0.4     79.5     13.4      2.8      8.8     54.9      5.4
    VEL=      0.4      3.2      1.0      1.1      2.2      5.4      1.6
  DEPTH=      0.1      1.8      0.3      0.4      1.1      1.4      0.7
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-RGHT.H2  Flow Split At CP 78 For Right Side
T3      Q=800

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       9.       0.       0.     0.010      0.       0.       0.     1289.5     0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    8.0       0.      -1.0      0.       0.       0.       -1.      0.       0.       15.
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      3.11   1292.11   1291.70   1289.50   1292.35      0.25      0.00      0.00   1291.70
     800.0       2.1     321.2     476.7       2.9      91.1     111.7       0.0       0.0   1291.30
      0.00      0.73      3.53      4.27     0.070     0.068     0.041     0.000   1289.00   1512.77
  0.009917        0.        0.        0.         0        27         6      0.00    159.87   1672.64

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1292.11

STA=    1513.    1527.    1571.    1610.    1617.    1625.    1663.    1673.
  PER Q=      0.3     40.1      4.5      0.9      3.5     48.9      1.8
   AREA=      2.9     91.1     23.7      4.6     10.9     64.8      7.7
    VEL=      0.7      3.5      1.5      1.6      2.6      6.0      1.8
  DEPTH=      0.2      2.1      0.6      0.7      1.4      1.7      0.8
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-RGHT.H2  Flow Split At CP 78 For Right Side
T3      Q=1000

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       10.      0.       0.     0.010      0.       0.       0.     1289.5     0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    9.0       0.      -1.0      0.       0.       0.       -1.      0.       0.       15.
```

```
SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 9

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      3.33   1292.33   1291.87   1289.50   1292.61      0.28      0.00      0.00   1291.70
    1000.0       7.0     382.3     610.8       6.9     100.8     134.4       0.0       0.0   1291.30
      0.00      1.01      3.79      4.54     0.070     0.068     0.042     0.000   1289.00   1506.00
  0.010008        0.        0.        0.         0        26         7      0.00    167.97   1673.97

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1292.33

STA=    1506.     1527.     1571.     1610.     1617.     1625.     1663.     1674.
  PER Q=      0.7      38.2       6.1       1.2       3.6      48.2       2.0
   AREA=      6.9     100.8      32.3       6.1      12.6      73.3      10.0
    VEL=      1.0       3.8       1.9       1.9       2.9       6.6       2.0
  DEPTH=      0.3       2.3       0.8       0.9       1.6       1.9       0.9

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T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-RGHT.H2  Flow Split At CP 78 For Right Side
T3       Q=1500

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        11.       0.        0.       0.010      0.        0.        0.      1289.5      0.

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   10.0        0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

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SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF10

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      3.80   1292.80   1292.22   1289.50   1293.16      0.36      0.00      0.00   1291.70
    1500.0      30.4     523.8     945.8      16.8     121.7     183.9       0.0       0.0   1291.30
      0.00      1.81      4.30      5.14     0.070     0.068     0.044     0.000   1289.00   1506.00
  0.010044        0.        0.        0.         0        29         7      0.00    171.14   1677.14

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1292.80

STA=    1506.     1527.     1571.     1610.     1617.     1625.     1663.     1675.     1677.
  PER Q=      2.0      34.9       8.6       1.6       3.7      46.4       2.6       0.0
   AREA=     16.8     121.7      50.8       9.5      16.4      91.3      15.6       0.3
    VEL=      1.8       4.3       2.5       2.6       3.4       7.6       2.5       0.7
  DEPTH=      0.8       2.8       1.3       1.4       2.1       2.4       1.3       0.2

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T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-RGHT.H2  Flow Split At CP 78 For Right Side
T3       Q=5000

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        12.       0.        0.       0.010      0.        0.        0.      1289.5      0.

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   11.0        0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
   31MAR92      15:45:04                                                                                PAGE   22

SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF11

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      6.03   1295.03   1293.99   1289.50   1295.82      0.79      0.00      0.00   1291.70
    5000.0     260.6    1399.7    3339.8      63.6     219.6     437.5       0.0       0.0   1291.30
      0.00      4.10      6.37      7.63     0.070     0.068     0.048     0.000   1289.00   1505.98
  0.010030        0.        0.        0.         0        35         8      0.00    186.89   1692.87

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1295.03
```

```
STA=    1506.    1527.    1571.    1610.    1617.    1625.    1663.    1675.    1693.
  PER Q=     5.2     28.0     13.5      2.5      3.8     41.5      4.1      1.3
   AREA=    63.6    219.6    137.5     25.0     34.2    175.8     42.3     22.6
    VEL=     4.1      6.4      4.9      5.0      5.6     11.8      4.9      2.9
  DEPTH=     3.0      5.0      3.5      3.6      4.3      4.6      3.5      1.3

1
   31MAR92      15:45:04                                                                    PAGE   23

T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-RGHT.H2  Flow Split At CP 78 For Right Side
T3       Q=10000

J1  ICHECK     INQ       NINV      IDIR      STRT     METRIC    HVINS      Q        WSEL       FQ

      0.       13.        0.        0.     0.010       0.        0.       0.     1289.5       0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN      ALLDC     IBW      CHNIM     ITRACE

   12.0        0.      -1.0        0.        0.        0.      -1.       0.        0.       15.

1
   31MAR92      15:45:04                                                                    PAGE   24

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL       OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL      TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID    ENDST

*PROF12

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED      0.55 FEET

     1.000      8.15   1297.15   1295.73   1289.50   1298.43      1.28      0.00      0.00   1291.70
   10000.0     599.9    2539.8    6860.2     108.3     313.1     711.4       0.0       0.0   1291.30
      0.00      5.54      8.11      9.64     0.070     0.068     0.050     0.000   1289.00   1505.96
  0.010119        0.        0.        0         0        41         8      0.00    198.04   1704.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1297.15

STA=    1506.    1527.    1571.    1610.    1617.    1625.    1663.    1675.    1704.
  PER Q=     6.0     25.4     14.9      2.7      3.8     39.1      4.6      3.5
   AREA=   108.3    313.1    220.4     39.9     51.2    256.6     67.8     75.5
    VEL=     5.5      8.1      6.8      6.8      7.3     15.3      6.7      4.6
  DEPTH=     5.1      7.1      5.7      5.7      6.4      6.8      5.7      2.6

1
   31MAR92      15:45:04                                                                    PAGE   25

T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C78-RGHT.H2  Flow Split At CP 78 For Right Side
T3       Q=15000

J1  ICHECK     INQ       NINV      IDIR      STRT     METRIC    HVINS      Q        WSEL       FQ

      0.       14.        0.        0.     0.010       0.        0.       0.     1289.5       0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN      ALLDC     IBW      CHNIM     ITRACE

   13.0        0.      -1.0        0.        0.        0.      -1.       0.        0.       15.

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   31MAR92      15:45:04                                                                    PAGE   26

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL       OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL      TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID    ENDST

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3840 SECTION NOT HIGH ENOUGH  1368.729  1346.600  1289.000  1355.000  1291.500        14
     1.000      9.88   1298.88   1297.17   1289.50   1300.58      1.70      0.00      0.00   1291.70
   15000.0     923.9    3622.4   10453.7     144.6     389.0     941.0       0.0       0.0   1291.30
      0.00      6.39      9.31     11.11     0.070     0.068     0.050     0.000   1289.00   1505.95
  0.009979        0.        0.        0         0        41         8      0.00    198.05   1704.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1298.88

STA=    1506.    1527.    1571.    1610.    1617.    1625.    1663.    1675.    1704.
  PER Q=     6.2     24.1     15.4      2.8      3.7     37.9      4.7      5.2
   AREA=   144.6    389.0    287.8     52.0     65.0    322.2     88.5    125.5
    VEL=     6.4      9.3      8.0      8.1      8.5     17.6      8.0      6.2
  DEPTH=     6.9      8.8      7.4      7.4      8.1      8.5      7.4      4.3

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   31MAR92      15:45:04                                                                    PAGE   27

                                                                  THIS RUN EXECUTED 31MAR92    15:45:12
**************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Split At CP 78 For Right

SUMMARY PRINTOUT

| SECNO | Q | CWSEL | DEPTH | VLOB | VCH | VROB | QWEIR | QPR | 10*KS | SECNO | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1289.99 | 0.99 | 0.00 | 1.91 | 0.00 | 0.00 | 0.00 | 100.47 | 1.00 | 1532.07 | 1554.44 |
| 1.000 | 50.00 | 1290.39 | 1.39 | 0.00 | 2.13 | 0.51 | 0.00 | 0.00 | 100.21 | 1.00 | 1530.89 | 1641.68 |
| 1.000 | 75.00 | 1290.58 | 1.58 | 0.00 | 2.26 | 1.32 | 0.00 | 0.00 | 101.97 | 1.00 | 1530.32 | 1663.47 |
| 1.000 | 100.00 | 1290.71 | 1.71 | 0.00 | 2.31 | 1.85 | 0.00 | 0.00 | 100.22 | 1.00 | 1529.94 | 1664.25 |
| 1.000 | 200.00 | 1291.06 | 2.06 | 0.00 | 2.51 | 2.97 | 0.00 | 0.00 | 101.25 | 1.00 | 1528.90 | 1666.35 |
| 1.000 | 400.00 | 1291.52 | 2.52 | 0.00 | 2.87 | 3.86 | 0.00 | 0.00 | 100.09 | 1.00 | 1527.53 | 1669.13 |
| 1.000 | 600.00 | 1291.84 | 2.84 | 0.37 | 3.23 | 4.02 | 0.00 | 0.00 | 99.89 | 1.00 | 1521.97 | 1671.06 |
| 1.000 | 800.00 | 1292.11 | 3.11 | 0.73 | 3.53 | 4.27 | 0.00 | 0.00 | 99.17 | 1.00 | 1512.77 | 1672.64 |
| 1.000 | 1000.00 | 1292.33 | 3.33 | 1.01 | 3.79 | 4.54 | 0.00 | 0.00 | 100.08 | 1.00 | 1506.00 | 1673.97 |
| 1.000 | 1500.00 | 1292.80 | 3.80 | 1.81 | 4.30 | 5.14 | 0.00 | 0.00 | 100.44 | 1.00 | 1506.00 | 1677.14 |
| 1.000 | 5000.00 | 1295.03 | 6.03 | 4.10 | 6.37 | 7.63 | 0.00 | 0.00 | 100.30 | 1.00 | 1506.98 | 1692.87 |
| 1.000 | 10000.00 | 1297.15 | 8.15 | 5.54 | 8.11 | 9.64 | 0.00 | 0.00 | 101.19 | 1.00 | 1506.96 | 1704.00 |
| 1.000 | 15000.00 | 1298.88 | 9.88 | 6.39 | 9.31 | 11.11 | 0.00 | 0.00 | 99.79 | 1.00 | 1506.95 | 1704.00 |

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Split At CP 78 For Right

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.00 | 0.00 | 0.00 | 1289.00 | 25.00 | 1289.99 | 1289.68 | 1290.05 | 100.47 | 1.91 | 13.11 | 2.49 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1289.00 | 50.00 | 1290.39 | 1289.93 | 1290.46 | 100.21 | 2.13 | 24.04 | 4.99 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1289.00 | 75.00 | 1290.58 | 1290.12 | 1290.65 | 101.97 | 2.26 | 36.19 | 7.43 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1289.00 | 100.00 | 1290.71 | 1290.26 | 1290.78 | 100.22 | 2.31 | 45.80 | 9.99 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1289.00 | 200.00 | 1291.06 | 1290.72 | 1291.17 | 101.25 | 2.51 | 74.50 | 19.88 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1289.00 | 400.00 | 1291.52 | 1291.04 | 1291.70 | 100.09 | 2.87 | 120.44 | 39.98 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1289.00 | 600.00 | 1291.84 | 1291.44 | 1292.06 | 99.89 | 3.23 | 165.08 | 60.03 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1289.00 | 800.00 | 1292.11 | 1291.70 | 1292.35 | 99.17 | 3.53 | 205.68 | 80.33 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1289.00 | 1000.00 | 1292.33 | 1291.87 | 1292.61 | 100.08 | 3.79 | 242.13 | 99.96 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1289.00 | 1500.00 | 1292.80 | 1292.22 | 1293.16 | 100.44 | 4.30 | 322.43 | 149.67 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1289.00 | 5000.00 | 1295.03 | 1293.99 | 1295.82 | 100.30 | 6.37 | 720.63 | 499.25 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1289.00 | 10000.00 | 1297.15 | 1295.73 | 1298.43 | 101.19 | 8.11 | 1132.81 | 994.09 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1289.00 | 15000.00 | 1298.88 | 1297.17 | 1300.58 | 99.79 | 9.31 | 1474.67 | 1501.55 |

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Split At CP 78 For Right

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1289.99 | 0.00 | 0.00 | 0.49 | 22.37 | 0.00 |
| 1.000 | 50.00 | 1290.39 | 0.40 | 0.00 | 0.89 | 46.05 | 0.00 |
| 1.000 | 75.00 | 1290.58 | 0.19 | 0.00 | 1.08 | 72.53 | 0.00 |
| 1.000 | 100.00 | 1290.71 | 0.13 | 0.00 | 1.21 | 76.46 | 0.00 |
| 1.000 | 200.00 | 1291.06 | 0.35 | 0.00 | 1.56 | 87.15 | 0.00 |
| 1.000 | 400.00 | 1291.52 | 0.46 | 0.00 | 2.02 | 121.71 | 0.00 |
| 1.000 | 600.00 | 1291.84 | 0.32 | 0.00 | 2.34 | 149.09 | 0.00 |
| 1.000 | 800.00 | 1292.11 | 0.26 | 0.00 | 2.61 | 159.87 | 0.00 |
| 1.000 | 1000.00 | 1292.33 | 0.22 | 0.00 | 2.83 | 167.97 | 0.00 |
| 1.000 | 1500.00 | 1292.80 | 0.47 | 0.00 | 3.30 | 171.14 | 0.00 |
| 1.000 | 5000.00 | 1295.03 | 2.22 | 0.00 | 5.53 | 186.89 | 0.00 |
| 1.000 | 10000.00 | 1297.15 | 2.13 | 0.00 | 7.65 | 198.04 | 0.00 |
| 1.000 | 15000.00 | 1298.88 | 1.73 | 0.00 | 9.38 | 198.05 | 0.00 |

1

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SUMMARY OF ERRORS AND SPECIAL NOTES

## C79 Summary Data

| Stage | Left Channel | Right Channel | Total Flow |
|---|---|---|---|
| 1122 | 0 | 0 | 0 |
| 1123 | 110 | 0 | 110 |
| 1123.8 | 400 | 0 | 400 |
| 1124 | 485 | 15 | 500 |
| 1125 | 1300 | 400 | 1700 |
| 1126 | 3100 | 1900 | 5000 |
| 1127 | 5500 | 4800 | 10300 |
| 1128 | 9400 | 10300 | 19700 |

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1*******************************************
 *  HEC-2 WATER SURFACE PROFILES            *
 *  Version   4.6.2;  May 1991              *
 *  386 Extended Memory version, August 1991 *
 *  Dodson & Associates, Inc 1-800-235-8069 *
 *  RUN DATE    31MAR92    TIME   15:46:09  *
 *******************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X            X     X
X     X  X         X                        X
XXXXXXX  XXXX      X          XXXXX     XXXXX
X     X  X         X                  X
X     X  X         X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   31MAR92      15:46:09                                                                                    PAGE    1
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                                                                                THIS RUN EXECUTED 31MAR92     15:46:09
*************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
*************************************

 T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
 T2 FILENAME= C79-LEFT.H2
 T3 Flow Split At CP 79 For Left Side

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       2.        0.        0.     0.0070       0.        0.        0.     1124.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38.       43.        1.        8.       55.       26.       56.       46.       47.        5.
     38.       53.       54.                 150

 NC    0.060     0.025     0.050     0.1       0.3
 NH      10.     0.060  1228.0     0.080  1241.0     0.025  1271.0     0.080  1281.0     0.070
 NH   1305.0     0.080  1318.0     0.025  1336.0     0.080  1369.0     0.050  1397.0     0.010
 NH   1397.1
 QT     13.0      25.0      50.0      75.0     100.0     200.0     400.0     600.0     800.0    1000.0
 QT   1500.0    5000.0   10000.0   15000.0
 X1      1.0      15.0     800.0    1369.0       0.0       0.0       0.0       0.0
 GR   1129.0     400.0    1122.0     600.0    1128.0     800.0    1127.4    1000.0    1124.8    1087.0
 GR   1125.5    1228.0    1122.0    1241.0    1122.4    1271.0    1125.9    1281.0    1126.1    1305.0
 GR   1123.2    1318.0    1123.1    1336.0    1126.0    1369.0    1127.0    1397.0    1140.0    1397.1
1
   31MAR92      15:46:09                                                                                    PAGE    2

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

      1.000      0.51   1122.51   1122.40   1124.00   1122.55      0.04      0.00      0.00   1128.00
       25.0       6.7      18.2       0.0       8.1       9.9       0.0       0.0       0.0   1126.00
       0.00      0.83      1.85      0.00     0.060     0.030     0.000     0.000   1122.00    585.37
   0.006948        0.         0.        0.         0        22         6      0.00     63.91   1271.32

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1122.51

 STA=     585.      600.      617.      1281.
   PER Q=      12.5      14.5      73.0
    AREA=       3.7       4.4       9.9
     VEL=       0.8       0.8       1.9
   DEPTH=       0.3       0.3       0.3

1
   31MAR92      15:46:09                                                                                    PAGE    3

 T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
 T2 FILENAME= C79-LEFT.H2  Flow Split At CP 79 For Left Side
 T3      Q=50

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       3.        0.        0.     0.0070       0.        0.        0.     1124.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
```

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.69   1122.69   1122.52   1124.00   1122.75      0.06      0.00      0.00   1128.00
      50.0      14.7      35.3       0.0      14.6      15.6       0.0       0.0       0.0   1126.00
      0.00      1.01      2.27      0.00     0.060     0.033     0.000     0.000   1122.00    580.40
  0.006901        0.        0.        0.         0        14         5      0.00     75.84   1271.82

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1122.69

STA=     580.      600.      623.     1281.
  PER Q=     13.6      15.8      70.6
   AREA=      6.7       7.8      15.6
    VEL=      1.0       1.0       2.3
  DEPTH=      0.3       0.3       0.5
```

1



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T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-LEFT.H2  Flow Split At CP 79 For Left Side
T3       Q=75

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        4.        0.        0.     0.0070       0.        0.        0.     1124.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.
```

1



```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.82   1122.82   1122.63   1124.00   1122.90      0.07      0.00      0.00   1128.00
      75.0      23.9      51.1       0.0      20.9      20.2       0.0       0.0       0.0   1126.00
      0.00      1.14      2.53      0.00     0.060     0.034     0.000     0.000   1122.00    576.52
  0.006989        0.        0.        0.         0        17         5      0.00     85.14   1272.21

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1122.82

STA=     577.      600.      627.     1281.
  PER Q=     14.7      17.2      68.1
   AREA=      9.7      11.3      20.2
    VEL=      1.1       1.1       2.5
  DEPTH=      0.4       0.4       0.6
```

1



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-LEFT.H2  Flow Split At CP 79 For Left Side
T3       Q=100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        5.        0.        0.     0.0070       0.        0.        0.     1124.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    4.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.
```

1



```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
```

```
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.94   1122.94   1122.71   1124.00   1123.02      0.08      0.00      0.00   1128.00
     100.0      34.2      65.8       0.0      27.3      24.3       0.0       0.0       0.0   1126.00
      0.00      1.25      2.71      0.00     0.060     0.036     0.000     0.000   1122.00    573.14
  0.006979        0.        0.        0.         0        22         4      0.00     93.22   1272.54

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1122.94

STA=     573.      600.      631.     1281.
  PER Q=      15.8      18.4      65.8
   AREA=      12.6      14.7      24.3
    VEL=       1.3       1.3       2.7
  DEPTH=       0.5       0.5       0.7
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-LEFT.H2  Flow Split At CP 79 For Left Side
T3       Q=200

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       6.       0.       0.     0.0070     0.       0.       0.     1124.0     0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    5.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      1.43   1123.43   1122.98   1124.00   1123.48      0.05      0.00      0.00   1128.00
     200.0     104.9      95.1       0.0      63.4      48.0       0.0       0.0       0.0   1126.00
      0.00      1.66      1.98      0.00     0.060     0.053     0.000     0.000   1122.00    559.12
  0.006991        0.        0.        0.         0        11         7      0.00    149.63   1339.76

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1123.43

STA=     559.      600.      648.     1369.
  PER Q=      24.2      28.2      47.5
   AREA=      29.2      34.1      48.0
    VEL=       1.7       1.7       2.0
  DEPTH=       0.7       0.7       0.8
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-LEFT.H2  Flow Split At CP 79 For Left Side
T3       Q=400

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       7.       0.       0.     0.0070     0.       0.       0.     1124.0     0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    6.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      1.86   1123.86   1123.26   1124.00   1123.94      0.08      0.00      0.00   1128.00
     400.0     212.7     187.3       0.0     107.4      76.5       0.0       0.0       0.0   1126.00
      0.00      1.98      2.45      0.00     0.060     0.053     0.000     0.000   1122.00    546.78
  0.007037        0.        0.        0.         0        23         5      0.00    186.06   1344.68

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1123.86

STA=     547.      600.      662.     1369.
```

```
  PER Q=     24.5     28.6     46.8
   AREA=     49.6     57.8     76.5
    VEL=      2.0      2.0      2.4
  DEPTH=      0.9      0.9      1.1

1
   31MAR92      15:46:09                                                                                PAGE   13

T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-LEFT.H2  Flow Split At CP 79 For Left Side
T3      Q=600

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        8.        0.        0.     0.0070       0.        0.        0.     1124.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    7.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

1
   31MAR92      15:46:09                                                                                PAGE   14

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.19   1124.19   1123.48   1124.00   1124.28      0.09      0.00      0.00   1128.00
     600.0     324.7     275.3       0.0     147.9     100.5       0.0       0.0       0.0   1126.00
      0.00      2.20      2.74      0.00     0.060     0.053     0.000     0.000   1122.00    537.55
  0.006987        0.        0.        0.         0        19         5      0.00    213.31   1348.36

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1124.19

STA=      538.      600.      673.     1369.
  PER Q=     25.0      29.1      45.9
   AREA=     68.3      79.6     100.5
    VEL=      2.2       2.2       2.7
  DEPTH=      1.1       1.1       1.3

1
   31MAR92      15:46:09                                                                                PAGE   15

T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-LEFT.H2  Flow Split At CP 79 For Left Side
T3      Q=800

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        9.        0.        0.     0.0070       0.        0.        0.     1124.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    8.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

1
   31MAR92      15:46:09                                                                                PAGE   16

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.45   1124.45   1123.67   1124.00   1124.56      0.11      0.00      0.00   1128.00
     800.0     439.4     360.6       0.0     185.8     121.9       0.0       0.0       0.0   1126.00
      0.00      2.37      2.96      0.00     0.060     0.053     0.000     0.000   1122.00    530.00
  0.006962        0.        0.        0.         0        15         5      0.00    235.60   1351.36

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1124.45

STA=      530.      600.      682.     1369.
  PER Q=     25.4      29.6      45.1
   AREA=     85.8     100.0     121.9
    VEL=      2.4       2.4       3.0
  DEPTH=      1.2       1.2       1.5

1
   31MAR92      15:46:09                                                                                PAGE   17

T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-LEFT.H2  Flow Split At CP 79 For Left Side
T3      Q=1000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
```

```
      0.       10.        0.        0.    0.0070        0.        0.        0.    1124.0        0.
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH        FN    ALLDC       IBW    CHNIM    ITRACE
    9.0        0.      -1.0        0.        0.        0.      -1.        0.       0.       15.
1
   31MAR92      15:46:09                                                                          PAGE   18

    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA   R-BANK ELEV
    TIME      VLOB      VCH       VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

 *PROF 9

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3266 DIVIDED FLOW

      1.000      2.68   1124.68   1123.83   1124.00   1124.80      0.12      0.00      0.00   1128.00
     1000.0     556.1     443.9       0.0     221.8     141.5       0.0       0.0       0.0   1126.00
       0.00      2.51      3.14      0.00     0.060     0.053     0.000     0.000   1122.00    523.52
   0.006956        0.        0.        0.         0        11         5      0.00    254.70   1353.94

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1124.68

 STA=     524.      600.      689.     1369.
   PER Q=     25.7      29.9      44.4
    AREA=    102.3     119.4     141.6
     VEL=      2.5       2.5       3.1
   DEPTH=      1.3       1.3       1.6

1
   31MAR92      15:46:09                                                                          PAGE   19

 T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
 T2 FILENAME= C79-LEFT.H2  Flow Split At CP 79 For Left Side
 T3      Q=1500

 J1  ICHECK      INQ      NINV      IDIR      STRT    METRIC     HVINS         Q      WSEL        FQ
      0.        11.        0.        0.    0.0070        0.        0.        0.    1124.0        0.
 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH        FN    ALLDC       IBW    CHNIM    ITRACE
    10.0        0.      -1.0        0.        0.        0.      -1.        0.       0.       15.
1
   31MAR92      15:46:09                                                                          PAGE   20

    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA   R-BANK ELEV
    TIME      VLOB      VCH       VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

 *PROF10

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

      1.000      3.30   1125.30   1124.18   1124.00   1125.41      0.11      0.00      0.00   1128.00
     1500.0     980.3     519.7       0.0     337.3     231.0       0.0       0.0       0.0   1126.00
       0.00      2.91      2.25      0.00     0.060     0.057     0.000     0.000   1122.00    505.68
   0.007062        0.        0.        0.         0         8         6      0.00    425.12   1361.05

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1125.30

 STA=     506.      600.      710.     1369.
   PER Q=     30.2      35.2      34.6
    AREA=    155.7     181.6     231.0
     VEL=      2.9       2.9       2.2
   DEPTH=      1.7       1.7       1.0

1
   31MAR92      15:46:09                                                                          PAGE   21

 T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
 T2 FILENAME= C79-LEFT.H2  Flow Split At CP 79 For Left Side
 T3      Q=5000

 J1  ICHECK      INQ      NINV      IDIR      STRT    METRIC     HVINS         Q      WSEL        FQ
      0.        12.        0.        0.    0.0070        0.        0.        0.    1124.0        0.
 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH        FN    ALLDC       IBW    CHNIM    ITRACE
    11.0        0.      -1.0        0.        0.        0.      -1.        0.       0.       15.
1
   31MAR92      15:46:09                                                                          PAGE   22

    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA   R-BANK ELEV
    TIME      VLOB      VCH       VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST
```

```
*PROF11

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      4.83   1126.83   1125.71   1124.00   1127.02      0.19      0.00      0.00   1128.00
    5000.0    2709.1    2277.5      13.4     721.7     700.9       9.6       0.0       0.0   1126.00
      0.00      3.75      3.25      1.39     0.060     0.061     0.050     0.000   1122.00    462.03
  0.007096        0.        0.        0.         0        14         5      0.00    672.02   1392.21

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1126.83

STA=     462.      600.      761.     1369.     1392.
  PER Q=      25.0      29.2      45.5       0.3
   AREA=     333.1     388.6     700.9       9.6
    VEL=       3.8       3.8       3.2       1.4
  DEPTH=       2.4       2.4       2.0       0.4

1
   31MAR92      15:46:09                                                                          PAGE   23

T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-LEFT.H2  Flow Split At CP 79 For Left Side
T3       Q=10000

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       13.        0.        0.     0.0070       0.        0.        0.     1124.0      0.

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   12.0        0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

1
   31MAR92      15:46:09                                                                          PAGE   24

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF12

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      6.19   1128.19   1126.60   1124.00   1128.44      0.25      0.00      0.00   1128.00
   10000.0    5262.4    4575.9     161.6    1183.6    1293.0      47.2       0.0       0.0   1126.00
      0.00      4.46      3.54      3.43     0.060     0.061     0.050     0.000   1122.00    423.28
  0.007006        0.        0.        0.         0        17         8      0.00    973.73   1397.01

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1128.19

STA=     423.      600.      800.     1369.     1397.
  PER Q=      24.0      28.6      45.8       1.6
   AREA=     546.5     637.1    1293.0      47.2
    VEL=       4.4       4.5       3.5       3.4
  DEPTH=       3.1       3.2       2.3       1.7

1
   31MAR92      15:46:09                                                                          PAGE   25

T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-LEFT.H2  Flow Split At CP 79 For Left Side
T3       Q=15000

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       14.        0.        0.     0.0070       0.        0.        0.     1124.0      0.

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   13.0        0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      6.92   1128.92   1127.17   1124.00   1129.26      0.34      0.00      0.00   1128.00
   15000.0    7342.7    7364.0     293.3    1469.9    1713.7      67.9       0.0       0.0   1126.00
      0.00      5.00      4.30      4.32     0.060     0.061     0.050     0.000   1122.00    402.16
  0.007096        0.        0.        0.         0        20         8      0.00    994.86   1397.01

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1128.92

STA=     402.      600.      800.     1369.     1397.
```

| | | | | |
|---|---|---|---|---|
| PER Q= | 21.8 | 27.2 | 49.1 | 2.0 |
| AREA= | 685.0 | 784.9 | 1713.7 | 67.9 |
| VEL= | 4.8 | 5.2 | 4.3 | 4.3 |
| DEPTH= | 3.5 | 3.9 | 3.0 | 2.4 |

1



THIS RUN EXECUTED 31MAR92 15:46:16

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*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2:  May 1991
*************************************
```

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Split At CP 79 For Left

SUMMARY PRINTOUT

| SECNO | Q | CWSEL | DEPTH | VLOB | VCH | VROB | QWEIR | QPR | 10*KS | SECNO | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1122.51 | 0.51 | 0.83 | 1.85 | 0.00 | 0.00 | 0.00 | 69.48 | 1.00 | 585.37 | 1271.32 |
| 1.000 | 50.00 | 1122.69 | 0.69 | 1.01 | 2.27 | 0.00 | 0.00 | 0.00 | 69.01 | 1.00 | 580.40 | 1271.82 |
| 1.000 | 75.00 | 1122.82 | 0.82 | 1.14 | 2.53 | 0.00 | 0.00 | 0.00 | 69.89 | 1.00 | 576.52 | 1272.21 |
| 1.000 | 100.00 | 1122.94 | 0.94 | 1.26 | 2.71 | 0.00 | 0.00 | 0.00 | 69.79 | 1.00 | 573.14 | 1272.54 |
| 1.000 | 200.00 | 1123.43 | 1.43 | 1.66 | 1.98 | 0.00 | 0.00 | 0.00 | 69.91 | 1.00 | 559.12 | 1339.76 |
| 1.000 | 400.00 | 1123.86 | 1.86 | 1.98 | 2.45 | 0.00 | 0.00 | 0.00 | 70.37 | 1.00 | 546.78 | 1344.68 |
| 1.000 | 600.00 | 1124.19 | 2.19 | 2.20 | 2.74 | 0.00 | 0.00 | 0.00 | 69.87 | 1.00 | 537.55 | 1348.36 |
| 1.000 | 800.00 | 1124.45 | 2.45 | 2.37 | 2.96 | 0.00 | 0.00 | 0.00 | 69.62 | 1.00 | 530.00 | 1351.36 |
| 1.000 | 1000.00 | 1124.68 | 2.68 | 2.51 | 3.14 | 0.00 | 0.00 | 0.00 | 69.56 | 1.00 | 523.52 | 1353.94 |
| 1.000 | 1500.00 | 1125.30 | 3.30 | 2.91 | 2.25 | 0.00 | 0.00 | 0.00 | 70.62 | 1.00 | 505.68 | 1361.05 |
| 1.000 | 5000.00 | 1126.83 | 4.83 | 3.75 | 3.25 | 1.39 | 0.00 | 0.00 | 70.96 | 1.00 | 462.03 | 1392.21 |
| 1.000 | 10000.00 | 1128.19 | 6.19 | 4.45 | 3.54 | 3.43 | 0.00 | 0.00 | 70.06 | 1.00 | 423.28 | 1397.01 |
| 1.000 | 15000.00 | 1128.92 | 6.92 | 5.00 | 4.30 | 4.32 | 0.00 | 0.00 | 70.96 | 1.00 | 402.16 | 1397.01 |

1



Split At CP 79 For Left

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.00 | 0.00 | 0.00 | 1122.00 | 25.00 | 1122.51 | 1122.40 | 1122.55 | 69.48 | 1.85 | 17.98 | 3.00 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1122.00 | 50.00 | 1122.69 | 1122.52 | 1122.75 | 69.01 | 2.27 | 30.15 | 6.02 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1122.00 | 75.00 | 1122.82 | 1122.63 | 1122.90 | 69.89 | 2.53 | 41.07 | 8.97 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1122.00 | 100.00 | 1122.94 | 1122.71 | 1123.02 | 69.79 | 2.71 | 51.60 | 11.97 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1122.00 | 200.00 | 1123.43 | 1122.98 | 1123.48 | 69.91 | 1.98 | 111.40 | 23.9[illegible] |
| 1.000 | 0.00 | 0.00 | 0.00 | 1122.00 | 400.00 | 1123.86 | 1123.26 | 1123.94 | 70.37 | 2.45 | 183.89 | 47.[illegible] |
| 1.000 | 0.00 | 0.00 | 0.00 | 1122.00 | 600.00 | 1124.19 | 1123.48 | 1124.28 | 69.87 | 2.74 | 248.41 | 71.[illegible] |
| 1.000 | 0.00 | 0.00 | 0.00 | 1122.00 | 800.00 | 1124.45 | 1123.67 | 1124.56 | 69.62 | 2.96 | 307.73 | 95.[illegible] |
| 1.000 | 0.00 | 0.00 | 0.00 | 1122.00 | 1000.00 | 1124.68 | 1123.83 | 1124.80 | 69.56 | 3.14 | 363.27 | 119.9[illegible] |
| 1.000 | 0.00 | 0.00 | 0.00 | 1122.00 | 1500.00 | 1125.30 | 1124.18 | 1125.41 | 70.62 | 2.25 | 568.33 | 178.49 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1122.00 | 5000.00 | 1126.83 | 1125.71 | 1127.02 | 70.96 | 3.25 | 1432.26 | 593.55 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1122.00 | 10000.00 | 1128.19 | 1126.60 | 1128.44 | 70.06 | 3.54 | 2523.83 | 1194.71 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1122.00 | 15000.00 | 1128.92 | 1127.17 | 1129.26 | 70.96 | 4.30 | 3251.47 | 1780.69 |

1



Split At CP 79 For Left

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1122.51 | 0.00 | 0.00 | -1.49 | 63.91 | 0.00 |
| 1.000 | 50.00 | 1122.69 | 0.17 | 0.00 | -1.31 | 75.84 | 0.00 |
| 1.000 | 75.00 | 1122.82 | 0.14 | 0.00 | -1.18 | 85.14 | 0.00 |
| 1.000 | 100.00 | 1122.94 | 0.12 | 0.00 | -1.06 | 93.22 | 0.00 |
| 1.000 | 200.00 | 1123.43 | 0.49 | 0.00 | -0.57 | 149.63 | 0.00 |
| 1.000 | 400.00 | 1123.86 | 0.43 | 0.00 | -0.14 | 186.06 | 0.00 |
| 1.000 | 600.00 | 1124.19 | 0.32 | 0.00 | 0.19 | 213.31 | 0.00 |
| 1.000 | 800.00 | 1124.45 | 0.26 | 0.00 | 0.45 | 235.60 | 0.00 |
| 1.000 | 1000.00 | 1124.68 | 0.23 | 0.00 | 0.68 | 254.70 | 0.00 |
| 1.000 | 1500.00 | 1125.30 | 0.62 | 0.00 | 1.30 | 425.12 | 0.00 |
| 1.000 | 5000.00 | 1126.83 | 1.53 | 0.00 | 2.83 | 672.02 | 0.00 |
| 1.000 | 10000.00 | 1128.19 | 1.36 | 0.00 | 4.19 | 973.73 | 0.00 |
| 1.000 | 15000.00 | 1128.92 | 0.74 | 0.00 | 4.92 | 994.86 | 0.00 |

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SUMMARY OF ERRORS AND SPECIAL NOTES

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1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version   4.6.2;  May 1991                *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE    31MAR92    TIME   15:46:33    *
 *********************************************

 ***************************************
 *  U.S. ARMY CORPS OF ENGINEERS       *
 *  HYDROLOGIC ENGINEERING CENTER      *
 *  609 SECOND STREET, SUITE D         *
 *  DAVIS, CALIFORNIA 95616-4687       *
 *          (916) 756-1104             *
 ***************************************

X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X            X     X
X     X  X         X                  X     X
XXXXXXX  XXXX      X          XXXXX   XXXXX
X     X  X         X                  X
X     X  X         X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX

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   31MAR92      15:46:33                                                                    PAGE    1


                                                                THIS RUN EXECUTED 31MAR92    15:46:33
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************


T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-RGHT.H2
T3 Flow Split At CP 79 For Right Side

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       2.        0.        0.     0.0070       0.        0.        0.     1125.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    1.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.       43.        1.        8.       55.       26.       56.       46.       47.        5.
    38.       53.       54.                 150

NC    0.050     0.025     0.070     0.1       0.3
NH      6.      0.010    1397.0    0.050    1442.0     0.070    1457.0     0.025    1514.0     0.070
NH   1528.0     0.050    2200.0
QT     13.0      25.0      50.0     75.0     100.0     200.0     400.0     600.0     800.0    1000.0
QT   1500.0    5000.0   10000.0   15000.0
X1      1.0      10.0    1442.0    1528.0      0.0       0.0       0.0       0.0
GR   1140.0    1396.9    1127.0    1397.0    1125.7    1442.0    1124.2    1457.0    1123.8    1514.0
GR   1126.8    1528.0    1124.2    1573.0    1126.8    1807.0    1123.8    2100.0    1128.0    2200.0
1
   31MAR92      15:46:33                                                                    PAGE    2

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.39   1124.19   1124.11   1125.00   1124.22      0.03      0.00      0.00   1125.70
      25.0       0.0      17.3       7.7       0.0      11.2       9.3       0.0       0.0   1126.80
      0.00      0.00      1.54      0.83     0.000     0.027     0.050     0.000   1123.80   1458.37
  0.006931        0.        0.        0.         0        11         7      0.00    104.85   2109.29

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1124.19

STA=    1458.     1528.     2100.     2109.
  PER Q=     69.2      24.8      6.0
   AREA=     11.2       7.4      1.8
    VEL=      1.5       0.8      0.8
  DEPTH=      0.2       0.0      0.2

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   31MAR92      15:46:33                                                                    PAGE    3

T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-RGHT.H2  Flow Split At CP 79 For Right Side
T3      Q=50

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       3.        0.        0.     0.0070       0.        0.        0.     1125.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    2.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

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   31MAR92      15:46:33                                                                    PAGE    4
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.50   1124.30   1124.20   1125.00   1124.35      0.04      0.00      0.00   1125.70
      50.0       0.0      34.7      15.3       0.0      17.9      15.9       0.0       0.0   1126.80
      0.00      0.00      1.94      0.96     0.000     0.028     0.050     0.000   1123.80   1455.97
  0.006934        0.        0.        0.         0        26         6      0.00    132.50   2111.97

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1124.30

STA=    1456.     1528.     1582.     2100.     2112.
  PER Q=     69.4      0.3      24.3       5.9
   AREA=     17.9      0.6      12.3       3.0
    VEL=      1.9      0.3       1.0       1.0
  DEPTH=      0.3      0.0       0.0       0.3

1
   31MAR92      15:46:33                                                                          PAGE    5

T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-RGHT.H2  Flow Split At CP 79 For Right Side
T3      Q=75

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        4.        0.        0.      0.0070      0.        0.        0.      1125.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.59   1124.39   1124.27   1125.00   1124.45      0.06      0.00      0.00   1125.70
      75.0       0.0      50.8      24.2       0.0      23.2      23.0       0.0       0.0   1126.80
      0.00      0.00      2.19      1.05     0.000     0.029     0.050     0.000   1123.80   1455.11
  0.006989        0.        0.        0.         0        18         6      0.00    153.54   2114.03

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1124.39

STA=    1455.     1528.     1573.     1590.     2100.     2114.
  PER Q=     67.8      0.2       1.1      24.9       6.1
   AREA=     23.2      0.3       1.6      17.0       4.1
    VEL=      2.2      0.5       0.5       1.1       1.1
  DEPTH=      0.4      0.0       0.1       0.0       0.3

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   31MAR92      15:46:33                                                                          PAGE    7

T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-RGHT.H2  Flow Split At CP 79 For Right Side
T3      Q=100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        5.        0.        0.      0.0070      0.        0.        0.      1125.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    4.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
```

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.67 | 1124.47 | 1124.33 | 1125.00 | 1124.53 | 0.06 | 0.00 | 0.00 | 1125.70 |
| 100.0 | 0.0 | 65.8 | 34.2 | 0.0 | 27.9 | 30.6 | 0.0 | 0.0 | 1126.80 |
| 0.00 | 0.00 | 2.36 | 1.12 | 0.000 | 0.030 | 0.050 | 0.000 | 1123.80 | 1454.35 |
| 0.006886 | 0. | 0. | 0. | 0 | 18 | 5 | 0.00 | 171.99 | 2115.83 |

FLOW DISTRIBUTION FOR SECNO= 1.00 CWSEL= 1124.47

| STA= | 1454. | 1528. | 1573. | 1597. | 2100. | 2116. |
|---|---|---|---|---|---|---|
| PER Q= | 65.8 | 0.4 | 2.0 | 25.6 | 6.2 | |
| AREA= | 27.9 | 0.6 | 3.2 | 21.6 | 5.3 | |
| VEL= | 2.4 | 0.6 | 0.6 | 1.2 | 1.2 | |
| DEPTH= | 0.4 | 0.0 | 0.1 | 0.0 | 0.3 | |

1

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T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-RGHT.H2 Flow Split At CP 79 For Right Side
T3 Q=200

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 6. | 0. | 0. | 0.0070 | 0. | 0. | 0. | 1125.0 | 0. |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 5.0 | 0. | -1.0 | 0. | 0. | 0. | -1. | 0. | 0. | 15. |

1

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.89 | 1124.69 | 1124.51 | 1125.00 | 1124.77 | 0.08 | 0.00 | 0.00 | 1125.70 |
| 200.0 | 0.0 | 118.3 | 81.7 | 0.0 | 42.3 | 60.9 | 0.0 | 0.0 | 1126.80 |
| 0.00 | 0.00 | 2.79 | 1.34 | 0.000 | 0.033 | 0.050 | 0.000 | 1123.80 | 1452.10 |
| 0.006939 | 0. | 0. | 0. | 0 | 14 | 4 | 0.00 | 226.61 | 2121.18 |

FLOW DISTRIBUTION FOR SECNO= 1.00 CWSEL= 1124.69

| STA= | 1452. | 1528. | 1573. | 1617. | 2100. | 2121. |
|---|---|---|---|---|---|---|
| PER Q= | 59.1 | 1.0 | 5.2 | 27.9 | 6.8 | |
| AREA= | 42.3 | 2.1 | 10.8 | 38.6 | 9.4 | |
| VEL= | 2.8 | 1.0 | 1.0 | 1.4 | 1.4 | |
| DEPTH= | 0.6 | 0.0 | 0.2 | 0.1 | 0.4 | |

1

31MAR92 15:46:33 PAGE 11

T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-RGHT.H2 Flow Split At CP 79 For Right Side
T3 Q=400

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 7. | 0. | 0. | 0.0070 | 0. | 0. | 0. | 1125.0 | 0. |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 6.0 | 0. | -1.0 | 0. | 0. | 0. | -1. | 0. | 0. | 15. |

1

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 1.19 | 1124.99 | 1124.76 | 1125.00 | 1125.09 | 0.10 | 0.00 | 0.00 | 1125.70 |
| 400.0 | 0.0 | 203.0 | 197.0 | 0.0 | 62.9 | 119.8 | 0.0 | 0.0 | 1126.80 |
| 0.00 | 0.00 | 3.22 | 1.65 | 0.000 | 0.036 | 0.050 | 0.000 | 1123.80 | 1449.09 |
| 0.007027 | 0. | 0. | 0. | 0 | 15 | 3 | 0.00 | 300.07 | 2128.36 |

FLOW DISTRIBUTION FOR SECNO= 1.00 CWSEL= 1124.99

| STA= | 1449. | 1528. | 1573. | 1644. | 2100. | 2128. |
|---|---|---|---|---|---|---|
| PER Q= | 50.7 | 1.8 | 9.5 | 30.5 | 7.4 | |
| AREA= | 62.9 | 5.4 | 28.2 | 69.3 | 16.9 | |
| VEL= | 3.2 | 1.3 | 1.3 | 1.8 | 1.8 | |

```
  DEPTH=      0.9      0.1      0.4      0.2      0.6

1
   31MAR92      15:46:33                                                                                    PAGE   13

 T1 Gila Bend Floodplain Delineation Study, 1135B 12/3/91
 T2 FILENAME= C79-RGHT.H2  Flow Split At CP 79 For Right Side
 T3      Q=600

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       8.        0.        0.      0.0070      0.        0.        0.      1125.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     7.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

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   31MAR92      15:46:33                                                                                    PAGE   14

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 7

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

      1.000      1.42   1125.22   1124.93   1125.00   1125.33      0.11      0.00      0.00   1125.70
      600.0       0.0     272.4     327.6       0.0      79.4     178.1       0.0       0.0   1126.80
       0.00      0.00      3.43      1.84     0.000     0.038     0.050     0.000   1123.80   1446.81
   0.006878        0.        0.        0.         0        11         5      0.00    355.62   2133.79

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1125.22

 STA=    1447.     1528.     1573.     1665.     2100.     2134.
   PER Q=      45.4      2.4      12.3      32.2      7.8
    AREA=      79.4      9.0      46.8      98.4     24.0
     VEL=       3.4      1.6       1.6       2.0      2.0
   DEPTH=       1.1      0.2       0.5       0.2      0.7

1
   31MAR92      15:46:33                                                                                    PAGE   15

 T1 Gila Bend Floodplain Delineation Study, 1135B 12/3/91
 T2 FILENAME= C79-RGHT.H2  Flow Split At CP 79 For Right Side
 T3      Q=800

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       9.        0.        0.      0.0070      0.        0.        0.      1125.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     8.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

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   31MAR92      15:46:33                                                                                    PAGE   16

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 8

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

      1.000      1.59   1125.39   1125.07   1125.00   1125.52      0.12      0.00      0.00   1125.70
      800.0       0.0     335.3     464.7       0.0      92.5     230.7       0.0       0.0   1126.80
       0.00      0.00      3.63      2.01     0.000     0.039     0.050     0.000   1123.80   1445.06
   0.007015        0.        0.        0.         0         8         6      0.00    398.02   2137.94

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1125.39

 STA=    1445.     1528.     1573.     1680.     2100.     2138.
   PER Q=      41.9      2.7      14.1      33.2      8.1
    AREA=      92.5     12.3      64.1     124.0     30.2
     VEL=       3.6      1.8       1.8       2.1      2.1
   DEPTH=       1.2      0.3       0.6       0.3      0.8

1
   31MAR92      15:46:33                                                                                    PAGE   17

 T1 Gila Bend Floodplain Delineation Study, 1135B 12/3/91
 T2 FILENAME= C79-RGHT.H2  Flow Split At CP 79 For Right Side
 T3      Q=1000

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       10.       0.        0.      0.0070      0.        0.        0.      1125.0      0.
```

```
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    9.0       0.        -1.0      0.        0.        0.        -1.       0.        0.        15.

1
    31MAR92       15:46:33                                                                                PAGE   18

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 9

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      1.75   1125.55   1125.19   1125.00   1125.68      0.13      0.00      0.00   1125.70
    1000.0       0.0     391.9     608.1       0.0     104.4     282.7       0.0       0.0   1126.80
      0.00      0.00      3.75      2.15     0.000     0.040     0.050     0.000   1123.80   1443.53
  0.007024        0.        0.        0.         0         8         6      0.00    435.38   2141.59

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1125.55

STA=    1444.     1528.     1573.     1694.     2100.     2142.
  PER Q=     39.2       3.0      15.6      33.9       8.3
   AREA=    104.4      15.7      81.7     149.0      36.3
    VEL=      3.8       1.9       1.9       2.3       2.3
  DEPTH=      1.3       0.3       0.7       0.4       0.9

1
    31MAR92       15:46:33                                                                                PAGE   19

T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-RGHT.H2  Flow Split At CP 79 For Right Side
T3       Q=1500

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

    0.        11.       0.        0.        0.0070    0.        0.        0.        1125.0    0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    10.0      0.        -1.0      0.        0.        0.        -1.       0.        0.        15.

1
    31MAR92       15:46:33                                                                                PAGE   20

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF10

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.05   1125.85   1125.43   1125.00   1126.00      0.15      0.00      0.00   1125.70
    1500.0       0.2     528.0     971.8       0.4     129.1     403.0       0.0       0.0   1126.80
      0.00      0.45      4.09      2.41     0.050     0.041     0.050     0.000   1123.80   1436.67
  0.007029        0.        0.        0.         0        11         6      0.00    513.88   2148.90

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1125.85

STA=    1437.     1442.     1528.     1573.     1722.     2100.     2149.
  PER Q=      0.0      35.2       3.5      18.0      34.8       8.5
   AREA=      0.4     129.1      23.7     123.1     206.0      50.2
    VEL=      0.5       4.1       2.2       2.2       2.5       2.5
  DEPTH=      0.1       1.6       0.5       0.8       0.5       1.0

1
    31MAR92       15:46:33                                                                                PAGE   21

T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-RGHT.H2  Flow Split At CP 79 For Right Side
T3       Q=5000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

    0.        12.       0.        0.        0.0070    0.        0.        0.        1125.0    0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    11.0      0.        -1.0      0.        0.        0.        -1.       0.        0.        15.

1
    31MAR92       15:46:33                                                                                PAGE   22

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
```

```
*PROF11

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      3.24   1127.04   1126.39   1125.00   1127.29      0.26      0.00      0.00   1125.70
    5000.0      59.7    1266.2    3674.0      30.9     228.7    1062.0       0.0       0.0   1126.80
      0.00      1.93      5.54      3.46     0.050     0.043     0.050     0.000   1123.80   1397.00
  0.007004        0.        0.        0.         0        20         4      0.00    780.05   2177.05

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1127.04

STA=    1397.    1442.    1528.    1573.    1807.    2100.    2177.
  PER Q=      1.2     25.3      4.6     23.8     36.6      8.5
   AREA=     30.9    228.7     69.1    359.5    508.7    124.7
    VEL=      1.9      5.5      3.3      3.3      3.6      3.4
  DEPTH=      0.7      2.7      1.5      1.5      1.7      1.6
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-RGHT.H2  Flow Split At CP 79 For Right Side
T3       Q=10000

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       13.      0.       0.     0.0070     0.       0.       0.     1125.0     0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

   12.0       0.      -1.0      0.       0.       0.       -1.      0.       0.       15.
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF12

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      4.16   1127.96   1127.19   1125.00   1128.36      0.40      0.00      0.00   1125.70
   10000.0     244.5    2082.3    7673.2      72.6     308.3    1673.4       0.0       0.0   1126.80
      0.00      3.37      6.75      4.59     0.050     0.043     0.050     0.000   1123.80   1396.99
  0.006994        0.        0.        0.         0        20         6      0.00    802.12   2199.11

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1127.96

STA=    1397.    1442.    1528.    1573.    1807.    2100.    2199.
  PER Q=      2.4     20.8      5.0     26.1     37.2      8.4
   AREA=     72.6    308.3    110.8    576.2    780.1    206.3
    VEL=      3.4      6.8      4.5      4.5      4.8      4.0
  DEPTH=      1.6      3.6      2.5      2.5      2.7      2.1
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/3/91
T2 FILENAME= C79-RGHT.H2  Flow Split At CP 79 For Right Side
T3       Q=15000

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       14.      0.       0.     0.0070     0.       0.       0.     1125.0     0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

   13.0       0.      -1.0      0.       0.       0.       -1.      0.       0.       15.
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED      0.69 FEET

     1.000      4.89   1128.69   1127.72   1125.00   1129.23      0.53      0.00      0.00   1125.70
   15000.0     449.8    2829.9   11720.4     105.4     371.1    2163.6       0.0       0.0   1126.80
      0.00      4.27      7.63      5.42     0.050     0.043     0.050     0.000   1123.80   1396.99
  0.006967        0.        0.        0.         0        23         6      0.00    803.01   2200.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1128.69

STA=    1397.    1442.    1528.    1573.    1807.    2100.    2200.
  PER Q=      3.0     18.9      5.1     26.8     37.1      9.1
   AREA=    105.4    371.1    143.6    746.9    993.8    279.2
```

| | | | | | | |
|---|---|---|---|---|---|---|
| VEL= | 4.3 | 7.6 | 5.4 | 5.4 | 5.6 | 4.9 |
| DEPTH= | 2.3 | 4.3 | 3.2 | 3.2 | 3.4 | 2.8 |



THIS RUN EXECUTED 31MAR92 15:46:40

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Split At CP 79 For Right

SUMMARY PRINTOUT

| SECNO | Q | CWSEL | DEPTH | VLOB | VCH | VROB | QWEIR | QPR | 10*KS | SECNO | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1124.19 | 0.39 | 0.00 | 1.54 | 0.83 | 0.00 | 0.00 | 69.31 | 1.00 | 1458.37 | 2109.29 |
| 1.000 | 50.00 | 1124.30 | 0.50 | 0.00 | 1.94 | 0.96 | 0.00 | 0.00 | 69.34 | 1.00 | 1455.97 | 2111.97 |
| 1.000 | 75.00 | 1124.39 | 0.59 | 0.00 | 2.19 | 1.05 | 0.00 | 0.00 | 69.89 | 1.00 | 1455.11 | 2114.03 |
| 1.000 | 100.00 | 1124.47 | 0.67 | 0.00 | 2.36 | 1.12 | 0.00 | 0.00 | 68.86 | 1.00 | 1454.35 | 2115.83 |
| 1.000 | 200.00 | 1124.69 | 0.89 | 0.00 | 2.79 | 1.34 | 0.00 | 0.00 | 69.39 | 1.00 | 1452.10 | 2121.18 |
| 1.000 | 400.00 | 1124.99 | 1.19 | 0.00 | 3.22 | 1.65 | 0.00 | 0.00 | 70.27 | 1.00 | 1449.09 | 2128.36 |
| 1.000 | 600.00 | 1125.22 | 1.42 | 0.00 | 3.43 | 1.84 | 0.00 | 0.00 | 68.78 | 1.00 | 1446.81 | 2133.79 |
| 1.000 | 800.00 | 1125.39 | 1.59 | 0.00 | 3.63 | 2.01 | 0.00 | 0.00 | 70.15 | 1.00 | 1445.06 | 2137.94 |
| 1.000 | 1000.00 | 1125.55 | 1.75 | 0.00 | 3.75 | 2.15 | 0.00 | 0.00 | 70.24 | 1.00 | 1443.53 | 2141.59 |
| 1.000 | 1500.00 | 1125.85 | 2.05 | 0.45 | 4.09 | 2.41 | 0.00 | 0.00 | 70.29 | 1.00 | 1436.67 | 2148.90 |
| 1.000 | 5000.00 | 1127.04 | 3.24 | 1.93 | 5.54 | 3.46 | 0.00 | 0.00 | 70.04 | 1.00 | 1397.00 | 2177.05 |
| 1.000 | 10000.00 | 1127.96 | 4.16 | 3.37 | 6.75 | 4.59 | 0.00 | 0.00 | 69.94 | 1.00 | 1396.99 | 2199.11 |
| 1.000 | 15000.00 | 1128.69 | 4.89 | 4.27 | 7.63 | 5.42 | 0.00 | 0.00 | 69.67 | 1.00 | 1396.99 | 2200.00 |



Split At CP 79 For Right

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.00 | 0.00 | 0.00 | 1123.80 | 25.00 | 1124.19 | 1124.11 | 1124.22 | 69.31 | 1.54 | 20.46 | 3.00 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1123.80 | 50.00 | 1124.30 | 1124.20 | 1124.35 | 69.34 | 1.94 | 33.83 | 6.00 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1123.80 | 75.00 | 1124.39 | 1124.27 | 1124.45 | 69.89 | 2.19 | 46.19 | 8.97 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1123.80 | 100.00 | 1124.47 | 1124.33 | 1124.53 | 68.86 | 2.36 | 58.53 | 12.05 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1123.80 | 200.00 | 1124.69 | 1124.51 | 1124.77 | 69.39 | 2.79 | 103.24 | 24.01 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1123.80 | 400.00 | 1124.99 | 1124.76 | 1125.09 | 70.27 | 3.22 | 182.71 | 47.72 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1123.80 | 600.00 | 1125.22 | 1124.93 | 1125.33 | 68.78 | 3.43 | 257.51 | 72.35 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1123.80 | 800.00 | 1125.39 | 1125.07 | 1125.52 | 70.15 | 3.63 | 323.15 | 95.52 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1123.80 | 1000.00 | 1125.55 | 1125.19 | 1125.68 | 70.24 | 3.75 | 387.09 | 119.32 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1123.80 | 1500.00 | 1125.85 | 1125.43 | 1126.00 | 70.29 | 4.09 | 532.45 | 178.91 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1123.80 | 5000.00 | 1127.04 | 1126.39 | 1127.29 | 70.04 | 5.54 | 1321.55 | 597.44 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1123.80 | 10000.00 | 1127.96 | 1127.19 | 1128.36 | 69.94 | 6.75 | 2054.31 | 1195.76 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1123.80 | 15000.00 | 1128.69 | 1127.72 | 1129.23 | 69.67 | 7.63 | 2640.08 | 1797.13 |



Split At CP 79 For Right

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1124.19 | 0.00 | 0.00 | -0.81 | 104.85 | 0.00 |
| 1.000 | 50.00 | 1124.30 | 0.11 | 0.00 | -0.70 | 132.50 | 0.00 |
| 1.000 | 75.00 | 1124.39 | 0.09 | 0.00 | -0.61 | 153.54 | 0.00 |
| 1.000 | 100.00 | 1124.47 | 0.08 | 0.00 | -0.53 | 171.99 | 0.00 |
| 1.000 | 200.00 | 1124.69 | 0.22 | 0.00 | -0.31 | 226.61 | 0.00 |
| 1.000 | 400.00 | 1124.99 | 0.30 | 0.00 | -0.01 | 300.07 | 0.00 |
| 1.000 | 600.00 | 1125.22 | 0.23 | 0.00 | 0.22 | 355.62 | 0.00 |
| 1.000 | 800.00 | 1125.39 | 0.17 | 0.00 | 0.39 | 398.02 | 0.00 |
| 1.000 | 1000.00 | 1125.55 | 0.16 | 0.00 | 0.55 | 435.38 | 0.00 |
| 1.000 | 1500.00 | 1125.85 | 0.31 | 0.00 | 0.85 | 513.88 | 0.00 |
| 1.000 | 5000.00 | 1127.04 | 1.18 | 0.00 | 2.04 | 780.05 | 0.00 |
| 1.000 | 10000.00 | 1127.96 | 0.93 | 0.00 | 2.96 | 802.12 | 0.00 |
| 1.000 | 15000.00 | 1128.69 | 0.73 | 0.00 | 3.69 | 803.01 | 0.00 |



SUMMARY OF ERRORS AND SPECIAL NOTES

## C80 Summary Data

| Stage | Left Channel | Right Channel | Total Flow |
|---|---|---|---|
| 1075 | 0 | 0 | 0 |
| 1076 | 170 | 0 | 170 |
| 1077 | 1300 | 0 | 1300 |
| 1077.4 | 2500 | 0 | 2500 |
| 1078 | 4900 | 50 | 4950 |
| 1078.2 | 5200 | 75 | 5275 |
| 1079 | 10900 | 340 | 11240 |

```
1*********************************************
 *  HEC-2 WATER SURFACE PROFILES             *
 *  Version   4.6.2:  May 1991               *
 *  386 Extended Memory version, August 1991 *
 *  Dodson & Associates, Inc 1-800-235-8069  *
 *  RUN DATE    31MAR92    TIME   15:46:57   *
 *********************************************

                                                                                    ****************************************
                                                                                    *  U.S. ARMY CORPS OF ENGINEERS        *
                                                                                    *  HYDROLOGIC ENGINEERING CENTER       *
                                                                                    *  609 SECOND STREET, SUITE D          *
                                                                                    *  DAVIS, CALIFORNIA 95616-4687        *
                                                                                    *        (916) 756-1104                *
                                                                                    ****************************************

                                        X     X  XXXXXXX   XXXXX              XXXXX
                                        X     X  X         X     X          X     X
                                        X     X  X         X                       X
                                        XXXXXXX  XXXX      X          XXXXX   XXXXX
                                        X     X  X         X                 X
                                        X     X  X         X     X           X
                                        X     X  XXXXXXX   XXXXX             XXXXXXX
1
   31MAR92       15:46:57                                                                                          PAGE    1

                                                                                THIS RUN EXECUTED 31MAR92     15:46:57
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2:  May 1991
*************************************

 T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
 T2 FILENAME= C80-LEFT.H2
 T3 Flow Split At CP 80 For Left Side

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        2.        0.        0.     0.0083      0.        0.        0.     1075.3      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38.       43.        1.        8.       55.       26.       56.       46.       47.        5.
     38.       53.       54.                 150

 NC    0.050     0.035     0.070     0.1       0.3
 NH      9.      0.050   1189.0     0.080   1254.0     0.025   1269.0     0.080   1343.0     0.070
 NH   1467.0     0.025   1505.0     0.080   1663.0     0.070   2078.0     0.010   2078.1
 QT     13.0      25.0      50.0      75.0     100.0     200.0     400.0     600.0     800.0   1000.0
 QT   1500.0    5000.0   10000.0   15000.0
 X1      1.0      18.0   1189.0    1343.0       0.0       0.0       0.0       0.0
 GR   1080.0     350.0   1075.0     600.0   1078.0     800.0   1078.2    1000.0   1077.9    1189.0
 GR   1076.3    1249.0   1075.0    1254.0   1075.2    1269.0   1076.1    1274.0   1077.2    1343.0
 GR   1075.3    1449.0   1076.2    1467.0   1075.9    1505.0   1076.9    1513.0   1077.9    1663.0
 GR   1077.5    1766.0   1079.2    2078.0   1090.0    2078.1
1
   31MAR92       15:46:57                                                                                          PAGE    2

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

      1.000     0.47   1075.47   1075.36   1075.30   1075.50      0.03      0.00      0.00   1077.90
      25.0      13.7      10.9       0.4      13.1       6.3       1.2       0.0       0.0   1077.20
      0.00      1.04      1.74      0.38     0.050     0.038     0.070     0.000   1075.00    576.28
  0.008370        0.        0.        0.         0        11         7      0.00     86.93   1452.49

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1075.47

 STA=      576.      600.      632.     1274.     1449.     1452.
   PER Q=     23.5      31.3      43.5       1.3       0.5
    AREA=      5.6       7.5       6.3       0.8       0.3
     VEL=      1.0       1.0       1.7       0.4       0.4
   DEPTH=      0.2       0.2       0.3       0.0       0.1

1
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 T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
 T2 FILENAME= C80-LEFT.H2  Flow Split At CP 80 For Left Side
 T3       Q=50

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        3.        0.        0.     0.0083      0.        0.        0.     1075.3      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
```

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.63   1075.63   1075.47   1075.30   1075.67      0.04      0.00      0.00   1077.90
      50.0      29.5      18.0       2.5      23.5       9.3       4.2       0.0       0.0   1077.20
      0.00      1.26      1.93      0.59     0.050     0.042     0.070     0.000   1075.00    568.28
  0.008264        0.        0.        0.         0        14         8      0.00    119.21   1455.69

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1075.63

STA=     568.      600.      642.     1274.     1449.     1456.
  PER Q=     25.3      33.7      36.0       3.7       1.3
   AREA=     10.1      13.4       9.3       3.1       1.1
    VEL=      1.3       1.3       1.9       0.6       0.6
  DEPTH=      0.3       0.3       0.5       0.0       0.2

1
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= C80-LEFT.H2  Flow Split At CP 80 For Left Side
T3      Q=75

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        4.        0.        0.      0.0083      0.        0.        0.      1075.3      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
```



```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.75   1075.75   1075.56   1075.30   1075.79      0.04      0.00      0.00   1077.90
      75.0      45.8      23.8       5.4      32.7      11.7       7.6       0.0       0.0   1077.20
      0.00      1.40      2.04      0.71     0.050     0.044     0.070     0.000   1075.00    562.54
  0.008194        0.        0.        0.         0        17         8      0.00    142.37   1457.98

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1075.75

STA=     563.      600.      650.     1274.     1449.     1458.
  PER Q=     26.1      34.9      31.8       5.3       1.9
   AREA=     14.0      18.7      11.7       5.6       2.0
    VEL=      1.4       1.4       2.0       0.7       0.7
  DEPTH=      0.4       0.4       0.6       0.0       0.2

1
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= C80-LEFT.H2  Flow Split At CP 80 For Left Side
T3      Q=100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        5.        0.        0.      0.0083      0.        0.        0.      1075.3      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    4.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
```



```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
```

```
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.84   1075.84   1075.63   1075.30   1075.88      0.04      0.00      0.00   1077.90
     100.0      62.2      28.9       8.9      41.3      13.6      11.1       0.0       0.0   1077.20
      0.00      1.51      2.12      0.60     0.050     0.046     0.070     0.000   1075.00    557.93
  0.008149        0.        0.        0.         0        17         8      0.00    161.00   1459.83

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1075.84

STA=     558.     600.     656.     1274.     1449.     1460.
  PER Q=     26.7     35.5     28.9      6.6       2.3
   AREA=     17.7     23.6     13.6      8.2       2.9
    VEL=      1.5      1.5      2.1      0.8       0.8
  DEPTH=      0.4      0.4      0.6      0.0       0.3
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= C80-LEFT.H2  Flow Split At CP 80 For Left Side
T3      Q=200

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       6.       0.       0.     0.0083     0.       0.       0.     1075.3     0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    5.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.
```



```
    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      1.10   1076.10   1075.82   1075.30   1076.15      0.05      0.00      0.00   1077.90
     200.0     126.7      45.3      28.0      70.2      19.5      26.7       0.0       0.0   1077.20
      0.00      1.81      2.32      1.05     0.060     0.050     0.065     0.000   1075.00    545.15
  0.008219        0.        0.        0.         0        20         9      0.00    239.14   1506.58

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1076.10

STA=     545.     600.     673.     1274.     1449.     1465.     1505.     1507.
  PER Q=     27.2     36.2     22.7      9.2       3.3       1.4       0.0
   AREA=     30.1     40.1     19.5     17.7       6.4       2.5       0.2
    VEL=      1.8      1.8      2.3      1.0       1.0       1.1       0.4
  DEPTH=      0.5      0.5      0.8      0.1       0.4       0.1       0.1
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= C80-LEFT.H2  Flow Split At CP 80 For Left Side
T3      Q=400

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       7.       0.       0.     0.0083     0.       0.       0.     1075.3     0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    6.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.
```



```
    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      1.32   1076.32   1076.10   1075.30   1076.45      0.14      0.00      0.00   1077.90
     400.0     207.6     120.0      72.4     101.3      26.4      50.0       0.0       0.0   1077.20
      0.00      2.05      4.84      1.45     0.060     0.023     0.056     0.000   1075.00    534.11
  0.008295        0.        0.        0.         0        26         9      0.00    309.18   1506.34

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1076.32

STA=     534.     600.     688.     1254.     1269.     1343.     1449.     1467.     1505.     1508.
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 22.2 | 29.7 | 1.0 | 28.2 | 0.8 | 8.9 | 3.4 | 5.7 | 0.1 |
| AREA= | 43.4 | 57.9 | 3.3 | 18.3 | 4.8 | 28.9 | 10.2 | 10.2 | 0.7 |
| VEL= | 2.0 | 2.0 | 1.2 | 6.2 | 0.7 | 1.2 | 1.3 | 2.2 | 0.6 |
| DEPTH= | 0.7 | 0.7 | 0.6 | 1.2 | 0.3 | 0.3 | 0.6 | 0.3 | 0.2 |

1

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T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= C80-LEFT.H2 Flow Split At CP 80 For Left Side
T3 Q=600

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 8. | 0. | 0. | 0.0083 | 0. | 0. | 0. | 1075.3 | 0. |
| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
| | 7.0 | 0. | -1.0 | 0. | 0. | 0. | -1. | 0. | 0. | 15. |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 1.000

3268 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 1.52 | 1076.52 | 1076.26 | 1075.30 | 1076.65 | 0.13 | 0.00 | 0.00 | 1077.90 |
| 600.0 | 303.1 | 158.1 | 138.8 | 133.9 | 36.1 | 74.1 | 0.0 | 0.0 | 1077.20 |
| 0.00 | 2.26 | 4.37 | 1.87 | 0.050 | 0.022 | 0.051 | 0.000 | 1075.00 | 524.25 |
| 0.008402 | 0. | 0. | 0. | 0 | 26 | 7 | 0.00 | 364.55 | 1509.92 |

FLOW DISTRIBUTION FOR SECNO= 1.00 CWSEL= 1076.52

| STA= | 524. | 600. | 701. | 1254. | 1269. | 1343. | 1449. | 1467. | 1505. | 1510. |
|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 21.6 | 28.9 | 0.8 | 24.3 | 1.3 | 9.6 | 3.7 | 9.6 | 0.2 | |
| AREA= | 57.4 | 76.5 | 5.2 | 21.2 | 9.7 | 41.2 | 13.8 | 17.7 | 1.5 | |
| VEL= | 2.3 | 2.3 | 0.9 | 6.9 | 0.8 | 1.4 | 1.6 | 3.3 | 0.8 | |
| DEPTH= | 0.8 | 0.8 | 0.4 | 1.4 | 0.3 | 0.4 | 0.8 | 0.5 | 0.3 | |

1

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T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= C80-LEFT.H2 Flow Split At CP 80 For Left Side
T3 Q=800

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 9. | 0. | 0. | 0.0083 | 0. | 0. | 0. | 1075.3 | 0. |
| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
| | 8.0 | 0. | -1.0 | 0. | 0. | 0. | -1. | 0. | 0. | 15. |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 1.68 | 1076.68 | 1076.25 | 1075.30 | 1076.81 | 0.13 | 0.00 | 0.00 | 1077.90 |
| 800.0 | 396.7 | 195.4 | 207.9 | 163.9 | 47.0 | 95.7 | 0.0 | 0.0 | 1077.20 |
| 0.00 | 2.42 | 4.16 | 2.17 | 0.050 | 0.024 | 0.050 | 0.000 | 1075.00 | 516.19 |
| 0.008396 | 0. | 0. | 0. | 0 | 34 | 6 | 0.00 | 409.78 | 1511.21 |

FLOW DISTRIBUTION FOR SECNO= 1.00 CWSEL= 1076.68

| STA= | 516. | 600. | 712. | 1254. | 1269. | 1343. | 1449. | 1467. | 1505. | 1511. |
|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 21.3 | 28.3 | 0.9 | 21.8 | 1.7 | 10.0 | 3.8 | 11.9 | 0.3 | |
| AREA= | 70.2 | 93.6 | 7.8 | 23.6 | 15.5 | 52.8 | 16.7 | 23.8 | 2.4 | |
| VEL= | 2.4 | 2.4 | 0.9 | 7.4 | 0.9 | 1.5 | 1.8 | 4.0 | 0.9 | |
| DEPTH= | 0.8 | 0.8 | 0.4 | 1.6 | 0.4 | 0.5 | 0.9 | 0.6 | 0.4 | |

1

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T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= C80-LEFT.H2 Flow Split At CP 80 For Left Side
T3 Q=1000

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|

```
      0.       10.       0.       0.    0.0083       0.       0.       0.    1075.3       0.
J2  NPROF     IPLOT     PRFVS    XSECV    XSECH      FN     ALLDC     IBW     CHNIM    ITRACE
    9.0        0.      -1.0      0.       0.        0.      -1.       0.       0.       15.
1
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    SECNO     DEPTH     CWSEL     CRIWS    WSELK     EG       HV       HL       OLOSS    L-BANK ELEV
    Q         QLOB      QCH       QROB     ALOB      ACH      AROB     VOL      TWA      R-BANK ELEV
    TIME      VLOB      VCH       VROB     XNL       XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE     XLOBL     XLCH      XLOBR    ITRIAL    IDC      ICONT    CORAR    TOPWID   ENDST

 *PROF 9

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

      1.000      1.82   1076.82   1076.58   1075.30   1076.95      0.13      0.00      0.00   1077.90
     1000.0     489.7     232.4     277.8     192.4      58.5     115.7       0.0       0.0   1077.20
       0.00      2.55      3.95      2.40     0.050     0.026     0.049     0.000   1075.00    509.20
   0.008348        0.        0.        0.         0        32         6      0.00    449.01   1512.33

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1076.82

 STA=     509.     600.     721.    1254.    1269.    1343.    1449.    1467.    1505.    1512.
   PER Q=    21.0     28.0      1.1     20.0      2.1     10.3      3.9     13.2      0.3
    AREA=    82.4    109.9     10.8     25.7     21.9     64.1     19.2     29.1      3.4
     VEL=     2.5      2.5      1.0      7.8      1.0      1.6      2.0      4.5      1.0
   DEPTH=     0.9      0.9      0.4      1.7      0.4      0.6      1.1      0.8      0.5
1
   31MAR92      15:46:57                                                                          PAGE   19

 T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
 T2 FILENAME= C80-LEFT.H2  Flow Split At CP 80 For Left Side
 T3       Q=1500

 J1  ICHECK     INQ      NINV     IDIR     STRT     METRIC    HVINS     Q       WSEL      FQ
      0.        11.       0.       0.    0.0083      0.       0.       0.    1075.3      0.
 J2  NPROF     IPLOT     PRFVS    XSECV    XSECH      FN     ALLDC     IBW     CHNIM    ITRACE
    10.0        0.      -1.0      0.       0.        0.      -1.       0.       0.       15.
1
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    SECNO     DEPTH     CWSEL     CRIWS    WSELK     EG       HV       HL       OLOSS    L-BANK ELEV
    Q         QLOB      QCH       QROB     ALOB      ACH      AROB     VOL      TWA      R-BANK ELEV
    TIME      VLOB      VCH       VROB     XNL       XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE     XLOBL     XLCH      XLOBR    ITRIAL    IDC      ICONT    CORAR    TOPWID   ENDST

 *PROF10

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

      1.000      2.10   1077.10   1076.25   1075.30   1077.24      0.14      0.00      0.00   1077.90
     1500.0     721.2     325.1     453.7     258.4      88.4     164.1       0.0       0.0   1077.20
       0.00      2.79      3.68      2.76     0.050     0.030     0.048     0.000   1075.00    494.76
   0.008240        0.        0.        0.         0        31         5      0.00    559.15   1543.71

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1077.10

 STA=     495.     600.     740.    1254.    1269.    1343.    1449.    1467.    1505.    1513.    1544.
   PER Q=    20.6     27.5      1.5     17.2      3.0     10.9      3.8     14.9      0.5      0.1
    AREA=   110.7    147.7     19.4     30.1     38.9     90.9     24.4     40.1      5.6      3.1
     VEL=     2.8      2.8      1.1      8.6      1.2      1.8      2.4      5.6      1.3      0.4
   DEPTH=     1.1      1.1      0.6      2.0      0.6      0.9      1.4      1.1      0.7      0.1
1
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 T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
 T2 FILENAME= C80-LEFT.H2  Flow Split At CP 80 For Left Side
 T3       Q=5000

 J1  ICHECK     INQ      NINV     IDIR     STRT     METRIC    HVINS     Q       WSEL      FQ
      0.        12.       0.       0.    0.0083      0.       0.       0.    1075.3      0.
 J2  NPROF     IPLOT     PRFVS    XSECV    XSECH      FN     ALLDC     IBW     CHNIM    ITRACE
    11.0        0.      -1.0      0.       0.        0.      -1.       0.       0.       15.
1
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    SECNO     DEPTH     CWSEL     CRIWS    WSELK     EG       HV       HL       OLOSS    L-BANK ELEV
    Q         QLOB      QCH       QROB     ALOB      ACH      AROB     VOL      TWA      R-BANK ELEV
    TIME      VLOB      VCH       VROB     XNL       XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE     XLOBL     XLCH      XLOBR    ITRIAL    IDC      ICONT    CORAR    TOPWID   ENDST
```

```
*PROF11

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      3.18   1078.18   1076.27   1075.30   1078.38      0.19      0.00      0.00   1077.90
    5000.0    2250.4     951.8    1797.8     631.0     242.1     553.3       0.0       0.0   1077.20
      0.00      3.57      3.93      3.25     0.050     0.047     0.053     0.000   1075.00    440.91
  0.008310        0.        0.        0.         0        33         8      0.00   1420.56   1891.13

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1078.18

STA=     441.     600.     800.    1189.    1254.    1269.    1343.    1449.    1467.    1505.    1663.    1891.
  PER Q=    18.7     25.8      0.5      2.9     10.6      5.5     12.3      3.1     14.5      4.1      2.0
   AREA=   253.1    336.4     41.5     77.6     46.2    118.4    204.8     43.8     81.0    131.5     92.3
    VEL=     3.7      3.8      0.7      1.9     11.5      2.3      3.0      3.5      9.0      1.5      1.1
  DEPTH=     1.6      1.7      0.1      1.2      3.1      1.6      1.9      2.4      2.1      0.8      0.4

1
   31MAR92      15:46:57                                                                          PAGE   23

T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= C80-LEFT.H2  Flow Split At CP 80 For Left Side
T3      Q=10000

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       13.      0.       0.       0.0083   0.       0.       0.       1075.3   0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

   12.0      0.       -1.0     0.       0.       0.       -1.      0.       0.       15.

1
   31MAR92      15:46:57                                                                          PAGE   24

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF12

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      3.91   1078.91   1076.27   1075.30   1079.15      0.24      0.00      0.00   1077.90
   10000.0    4778.7    1604.6    3616.6    1188.7     354.3    1001.1       0.0       0.0   1077.20
      0.00      4.02      4.53      3.61     0.050     0.052     0.057     0.000   1075.00    404.50
  0.008428        0.        0.        0.         0        34         8      0.00   1620.26   2024.77

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1078.91

STA=     405.     600.     800.    1000.    1189.    1254.    1269.    1343.    1449.    1505.    1663.    2025.
  PER Q=    16.3     23.6      3.8      4.0      3.3      7.6      5.2     10.5     14.3      5.7      5.6
   AREA=   382.2    482.0    162.0    162.5    124.9     57.1    172.2    282.0    165.6    246.6    307.0
    VEL=     4.3      4.9      2.4      2.5      2.6     13.3      3.0      3.7      8.7      2.3      1.8
  DEPTH=     2.0      2.4      0.8      0.9      1.9      3.8      2.3      2.7      3.0      1.6      0.8

1
   31MAR92      15:46:57                                                                          PAGE   25

T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= C80-LEFT.H2  Flow Split At CP 80 For Left Side
T3      Q=15000

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       14.      0.       0.       0.0083   0.       0.       0.       1075.3   0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

   13.0      0.       -1.0     0.       0.       0.       -1.      0.       0.       15.

1
   31MAR92      15:46:57                                                                          PAGE   26

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      4.45   1079.45   1076.27   1075.30   1079.75      0.30      0.00      0.00   1077.90
   15000.0    7374.4    2161.3    5464.4    1622.4     438.0    1392.8       0.0       0.0   1077.20
      0.00      4.55      4.93      3.92     0.050     0.055     0.059     0.000   1075.00    377.33
  0.008292        0.        0.        0.         0        34         9      0.00   1700.67   2078.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1079.45

STA=     377.     600.     800.    1000.    1189.    1254.    1269.    1343.    1449.    1505.    1663.    1766.    2078.
```

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 15.3 | 21.9 | 6.0 | 6.0 | 3.3 | 6.3 | 4.8 | 9.5 | 12.6 | 6.2 | 3.4 | 4.7 |
| AREA= | 495.8 | 590.7 | 270.7 | 265.2 | 160.2 | 65.3 | 212.5 | 339.6 | 196.0 | 332.4 | 180.6 | 344.3 |
| VEL= | 4.6 | 5.6 | 3.3 | 3.4 | 3.1 | 14.4 | 3.4 | 4.2 | 9.7 | 2.8 | 2.8 | 2.1 |
| DEPTH= | 2.2 | 3.0 | 1.4 | 1.4 | 2.5 | 4.4 | 2.9 | 3.2 | 3.5 | 2.1 | 1.8 | 1.1 |

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THIS RUN EXECUTED 31MAR92 15:47:06

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Split At CP 80 For Left

SUMMARY PRINTOUT

| SECNO | Q | CWSEL | DEPTH | VLOB | VCH | VROB | QWEIR | QPR | 10*KS | SECNO | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1075.47 | 0.47 | 1.04 | 1.74 | 0.38 | 0.00 | 0.00 | 83.70 | 1.00 | 576.28 | 1452.49 |
| 1.000 | 50.00 | 1075.63 | 0.63 | 1.26 | 1.93 | 0.59 | 0.00 | 0.00 | 82.64 | 1.00 | 568.28 | 1455.69 |
| 1.000 | 75.00 | 1075.75 | 0.75 | 1.40 | 2.04 | 0.71 | 0.00 | 0.00 | 81.94 | 1.00 | 562.54 | 1457.98 |
| 1.000 | 100.00 | 1075.84 | 0.84 | 1.51 | 2.12 | 0.80 | 0.00 | 0.00 | 81.49 | 1.00 | 557.93 | 1459.83 |
| 1.000 | 200.00 | 1076.10 | 1.10 | 1.81 | 2.32 | 1.05 | 0.00 | 0.00 | 82.19 | 1.00 | 545.15 | 1506.58 |
| 1.000 | 400.00 | 1076.32 | 1.32 | 2.05 | 4.54 | 1.45 | 0.00 | 0.00 | 82.95 | 1.00 | 534.11 | 1508.34 |
| 1.000 | 600.00 | 1076.52 | 1.52 | 2.26 | 4.37 | 1.87 | 0.00 | 0.00 | 84.02 | 1.00 | 524.25 | 1509.92 |
| 1.000 | 800.00 | 1076.68 | 1.68 | 2.42 | 4.16 | 2.17 | 0.00 | 0.00 | 83.96 | 1.00 | 516.19 | 1511.21 |
| 1.000 | 1000.00 | 1076.82 | 1.82 | 2.55 | 3.98 | 2.40 | 0.00 | 0.00 | 83.48 | 1.00 | 509.20 | 1512.33 |
| 1.000 | 1500.00 | 1077.10 | 2.10 | 2.79 | 3.68 | 2.76 | 0.00 | 0.00 | 82.40 | 1.00 | 494.76 | 1543.71 |
| 1.000 | 5000.00 | 1078.18 | 3.18 | 3.57 | 3.93 | 3.25 | 0.00 | 0.00 | 83.10 | 1.00 | 440.91 | 1891.13 |
| 1.000 | 10000.00 | 1078.91 | 3.91 | 4.02 | 4.53 | 3.61 | 0.00 | 0.00 | 84.28 | 1.00 | 404.50 | 2024.77 |
| 1.000 | 15000.00 | 1079.45 | 4.45 | 4.55 | 4.93 | 3.92 | 0.00 | 0.00 | 82.92 | 1.00 | 377.33 | 2078.00 |

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Split At CP 80 For Left

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.00 | 0.00 | 0.00 | 1075.00 | 25.00 | 1075.47 | 1075.36 | 1075.50 | 83.70 | 1.74 | 20.55 | 2.73 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1075.00 | 50.00 | 1075.63 | 1075.47 | 1075.67 | 82.64 | 1.93 | 37.03 | 5.50 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1075.00 | 75.00 | 1075.75 | 1075.56 | 1075.79 | 81.94 | 2.04 | 52.04 | 8.29 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1075.00 | 100.00 | 1075.84 | 1075.63 | 1075.88 | 81.49 | 2.12 | 66.03 | 11.08 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1075.00 | 200.00 | 1076.10 | 1075.82 | 1076.15 | 82.19 | 2.32 | 116.40 | 22.06 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1075.00 | 400.00 | 1076.32 | 1076.10 | 1076.45 | 82.95 | 4.54 | 177.72 | 43.92 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1075.00 | 600.00 | 1076.52 | 1076.26 | 1076.65 | 84.02 | 4.37 | 244.17 | 65.4[illegible] |
| 1.000 | 0.00 | 0.00 | 0.00 | 1075.00 | 800.00 | 1076.68 | 1076.25 | 1076.81 | 83.96 | 4.16 | 306.55 | 87.[illegible] |
| 1.000 | 0.00 | 0.00 | 0.00 | 1075.00 | 1000.00 | 1076.82 | 1076.58 | 1076.95 | 83.48 | 3.98 | 366.57 | 109.4[illegible] |
| 1.000 | 0.00 | 0.00 | 0.00 | 1075.00 | 1500.00 | 1077.10 | 1076.25 | 1077.24 | 82.40 | 3.68 | 510.94 | 165.25 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1075.00 | 5000.00 | 1078.18 | 1076.27 | 1078.38 | 83.10 | 3.93 | 1426.45 | 548.48 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1075.00 | 10000.00 | 1078.91 | 1076.27 | 1079.15 | 84.28 | 4.53 | 2544.07 | 1089.31 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1075.00 | 15000.00 | 1079.45 | 1076.27 | 1079.75 | 82.92 | 4.93 | 3453.20 | 1647.25 |

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Split At CP 80 For Left

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1075.47 | 0.00 | 0.00 | 0.17 | 86.93 | 0.00 |
| 1.000 | 50.00 | 1075.63 | 0.16 | 0.00 | 0.33 | 119.21 | 0.00 |
| 1.000 | 75.00 | 1075.75 | 0.11 | 0.00 | 0.45 | 142.37 | 0.00 |
| 1.000 | 100.00 | 1075.84 | 0.09 | 0.00 | 0.54 | 161.00 | 0.00 |
| 1.000 | 200.00 | 1076.10 | 0.26 | 0.00 | 0.80 | 239.14 | 0.00 |
| 1.000 | 400.00 | 1076.32 | 0.22 | 0.00 | 1.02 | 309.18 | 0.00 |
| 1.000 | 600.00 | 1076.52 | 0.20 | 0.00 | 1.21 | 364.55 | 0.00 |
| 1.000 | 800.00 | 1076.68 | 0.16 | 0.00 | 1.38 | 409.78 | 0.00 |
| 1.000 | 1000.00 | 1076.82 | 0.14 | 0.00 | 1.52 | 449.01 | 0.00 |
| 1.000 | 1500.00 | 1077.10 | 0.29 | 0.00 | 1.80 | 559.15 | 0.00 |
| 1.000 | 5000.00 | 1078.18 | 1.08 | 0.00 | 2.88 | 1420.56 | 0.00 |
| 1.000 | 10000.00 | 1078.91 | 0.73 | 0.00 | 3.61 | 1620.26 | 0.00 |
| 1.000 | 15000.00 | 1079.45 | 0.54 | 0.00 | 4.15 | 1700.67 | 0.00 |

1

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SUMMARY OF ERRORS AND SPECIAL NOTES

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1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version   4.6.2;  May 1991                *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE    31MAR92    TIME   15:47:22    *
 *********************************************
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*************************************
 *  U.S. ARMY CORPS OF ENGINEERS     *
 *  HYDROLOGIC ENGINEERING CENTER    *
 *  609 SECOND STREET, SUITE D       *
 *  DAVIS, CALIFORNIA 95616-4687     *
 *          (916) 756-1104           *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X           XXXXX   XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   31MAR92      15:47:22                                                                                PAGE    1
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                                                                                THIS RUN EXECUTED 31MAR92     15:47:22
*************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
*************************************

 T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
 T2 FILENAME= C80-RGHT.H2
 T3 Flow Split At CP 80 For Right Side

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       2.        0.        0.     0.0080      0.        0.        0.     1077.6      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38.       43.       1.        8.        55.       26.       56.       46.       47.       5.
     38.       53.       54.                 150

 NC    0.050     0.025     0.050     0.1       0.3
 NH      6.      0.010     1078.0    0.050     1325.0    0.070     1331.0    0.025     1361.0    0.070
 NH   1371.0     0.050     1795.0
 QT     13.0     25.0      50.0      75.0      100.0     200.0     400.0     600.0     800.0     1000.0
 QT   1500.0     5000.0    10000.0   15000.0
 X1      1.0     12.0      1325.0    1371.0    0.0       0.0       0.0       0.0
 GR   1090.0     1077.9    1079.2    1078.0    1079.0    1222.0    1079.5    1325.0    1077.4    1331.0
 GR   1077.5     1361.0    1079.4    1371.0    1079.9    1431.0    1077.9    1481.0    1079.9    1535.0
 GR   1078.4     1625.0    1081.9    1795.0
1
   31MAR92      15:47:22                                                                                PAGE    2

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000     0.41    1077.81   1077.72   1077.60   1077.89    0.07      0.00      0.00      1079.50
      25.0      0.0       25.0      0.0       0.0       11.5      0.0       0.0       0.0       1079.40
      0.00      0.00      2.18      0.00      0.000     0.030     0.000     0.000     1077.40   1329.81
   0.008067      0.        0.        0.        0         14        7        0.00      32.84     1362.66

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1077.81

 STA=    1330.    1371.
   PER Q=    100.0
    AREA=     11.5
     VEL=      2.2
   DEPTH=      0.3

1
   31MAR92      15:47:22                                                                                PAGE    3

 T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
 T2 FILENAME= C80-RGHT.H2  Flow Split At CP 80 For Right Side
 T3      Q=50

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       3.        0.        0.     0.0080      0.        0.        0.     1077.6      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
   31MAR92      15:47:22                                                                                PAGE    4

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
```

```
Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.62   1078.02   1077.88   1077.60   1078.14      0.11      0.00      0.00   1079.50
      50.0       0.0      49.8       0.2       0.0      18.5       0.4       0.0       0.0   1079.40
      0.00      0.00      2.69      0.42     0.000     0.033     0.050     0.000   1077.40   1329.22
  0.008120        0.        0.        0.         0        17         7      0.00     41.03   1484.37

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1078.02

STA=    1329.     1371.     1481.     1484.
  PER Q=      99.7       0.2       0.2
   AREA=      18.6       0.2       0.2
    VEL=       2.7       0.4       0.4
  DEPTH=       0.5       0.0       0.1

1
   31MAR92       15:47:22                                                                          PAGE    5

T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= CBO-RGHT.H2  Flow Split At CP 80 For Right Side
T3       Q=75

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

     0.         4.         0.         0.       0.0080       0.         0.         0.       1077.6       0.

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

    3.0        0.        -1.0        0.         0.         0.        -1.         0.         0.         15.

1
   31MAR92       15:47:22                                                                          PAGE    6

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.80   1078.20   1078.02   1077.60   1078.33      0.13      0.00      0.00   1079.50
      75.0       0.0      73.3       1.7       0.0      24.6       2.3       0.0       0.0   1079.40
      0.00      0.00      2.97      0.75     0.000     0.035     0.050     0.000   1077.40   1328.72
  0.007994        0.        0.        0.         0        23         8      0.00     51.46   1489.05

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1078.20

STA=    1329.     1371.     1481.     1489.
  PER Q=      97.7       1.1       1.2
   AREA=      24.6       1.1       1.2
    VEL=       3.0       0.7       0.7
  DEPTH=       0.7       0.0       0.1

1
   31MAR92       15:47:22                                                                          PAGE    7

T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= CBO-RGHT.H2  Flow Split At CP 80 For Right Side
T3       Q=100

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

     0.         5.         0.         0.       0.0080       0.         0.         0.       1077.6       0.

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

    4.0        0.        -1.0        0.         0.         0.        -1.         0.         0.         15.

1
   31MAR92       15:47:22                                                                          PAGE    8

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW
```

```
     1.000      0.94   1078.34   1078.14   1077.60   1078.49      0.15      0.00      0.00   1079.50
     100.0       0.0      95.1       4.9       0.0      29.9       5.1       0.0       0.0   1079.40
      0.00      0.00      3.18      0.97     0.000     0.036     0.050     0.000   1077.40   1328.31
  0.007980        0.        0.        0.         0        23         8      0.00     60.11   1492.93

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1078.34

 STA=    1328.    1371.    1481.    1493.
   PER Q=     95.1      2.4      2.6
    AREA=     29.9      2.4      2.6
     VEL=      3.2      1.0      1.0
   DEPTH=      0.8      0.0      0.2

1
    31MAR92      15:47:22                                                                          PAGE    9

 T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
 T2 FILENAME= C80-RGHT.H2  Flow Split At CP 80 For Right Side
 T3       Q=200

 J1  ICHECK     INQ       NINV      IDIR      STRT     METRIC    HVINS      Q        WSEL       FQ

       0.        6.        0.        0.    0.0080       0.        0.       0.     1077.6       0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN      ALLDC     IBW     CHNIM     ITRACE

     5.0        0.      -1.0        0.        0.       0.       -1.       0.       0.        15.

1
    31MAR92      15:47:22                                                                          PAGE   10

     SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL     OLOSS    L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL    TWA      R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN    ELMIN    SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR  TOPWID   ENDST

 *PROF 5

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

     1.000      1.35   1078.75   1078.53   1077.60   1078.92      0.18      0.00      0.00   1079.50
     200.0       0.0     166.5      33.5       0.0      45.6      25.2       0.0       0.0   1079.40
      0.00      0.00      3.65      1.33     0.000     0.039     0.050     0.000   1077.40   1327.15
  0.008045        0.        0.        0.         0        26         9      0.00    122.14   1641.86

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1078.75

 STA=    1327.    1371.    1481.    1504.    1625.    1642.
   PER Q=     83.3      6.7      7.3      1.5      1.2
    AREA=     45.6      9.0      9.7      3.6      2.9
     VEL=      3.7      1.5      1.5      0.8      0.8
   DEPTH=      1.1      0.1      0.4      0.0      0.2

1
    31MAR92      15:47:22                                                                          PAGE   11

 T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
 T2 FILENAME= C80-RGHT.H2  Flow Split At CP 80 For Right Side
 T3       Q=400

 J1  ICHECK     INQ       NINV      IDIR      STRT     METRIC    HVINS      Q        WSEL       FQ

       0.        7.        0.        0.    0.0080       0.        0.       0.     1077.6       0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN      ALLDC     IBW     CHNIM     ITRACE

     6.0        0.      -1.0        0.        0.       0.       -1.       0.       0.        15.

1
    31MAR92      15:47:22                                                                          PAGE   12

     SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL     OLOSS    L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB       ACH       AROB      VOL    TWA      R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN    ELMIN    SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR  TOPWID   ENDST

 *PROF 6

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

 3720 CRITICAL DEPTH ASSUMED
     1.000      1.58   1078.98   1078.98   1077.60   1079.33      0.35      0.00      0.00   1079.50
     400.0       0.0     295.7     104.3       0.0      55.3      48.9       0.0       0.0   1079.40
      0.00      0.00      5.34      2.13     0.000     0.041     0.050     0.000   1077.40   1326.48
  0.015379        0.        0.        0.         0        29         6      0.00    161.84   1653.29

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1078.98

 STA=    1326.    1371.    1481.    1510.    1625.    1653.
   PER Q=     73.9      9.0      9.7      4.1      3.3
    AREA=     55.3     14.6     15.8     10.2      8.2
     VEL=      5.3      2.4      2.4      1.6      1.6
   DEPTH=      1.3      0.1      0.5      0.1      0.3
```

```
1
   31MAR92      15:47:22                                                                                PAGE   13

T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= C80-RGHT.H2  Flow Split At CP 80 For Right Side
T3      Q=600

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       8.        0.        0.      0.0080      0.        0.        0.      1077.6      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    7.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
   31MAR92      15:47:22                                                                                PAGE   14

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.00   1079.40   1079.31   1077.60   1079.57      0.17      0.00      0.00   1079.50
     600.0      68.1     310.0     221.9      60.5      73.9     113.4       0.0       0.0   1079.40
      0.00      1.13      4.20      1.96     0.050     0.043     0.050     0.000   1077.40   1078.00
  0.008075        0.        0.        0.         0        33        10      0.00    460.43   1673.74

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1079.40

STA=    1078.     1222.     1305.     1371.     1481.     1522.     1625.     1674.
  PER Q=      8.8       2.6      51.7      10.4      11.2       8.5       6.9
   AREA=     43.7      16.8      73.9      28.3      30.5      30.2      24.5
    VEL=      1.2       0.9       4.2       2.2       2.2       1.7       1.7
  DEPTH=      0.3       0.2       1.6       0.3       0.8       0.3       0.5

1
   31MAR92      15:47:22                                                                                PAGE   15

T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= C80-RGHT.H2  Flow Split At CP 80 For Right Side
T3      Q=800

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       9.        0.        0.      0.0080      0.        0.        0.      1077.6      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    8.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
   31MAR92      15:47:22                                                                                PAGE   16

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.16   1079.56   1079.38   1077.60   1079.72      0.16      0.00      0.00   1079.50
     800.0     142.0     355.9     302.1      97.5      80.9     145.6       0.0       0.0   1079.40
      0.00      1.46      4.40      2.07     0.050     0.044     0.050     0.000   1077.40   1078.00
  0.007987        0.        0.        0.         0        30         9      0.00    523.72   1681.21

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1079.56

STA=    1078.     1222.     1325.     1371.     1390.     1481.     1526.     1625.     1681.
  PER Q=     13.0       4.8      44.5       0.1      10.1      10.9       9.3       7.5
   AREA=     65.9      31.7      80.9       1.5      34.3      37.1      40.2      32.5
    VEL=      1.6       1.2       4.4       0.5       2.3       2.3       1.8       1.8
  DEPTH=      0.5       0.3       1.8       0.1       0.4       0.8       0.4       0.6

1
   31MAR92      15:47:22                                                                                PAGE   17

T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= C80-RGHT.H2  Flow Split At CP 80 For Right Side
T3      Q=1000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       10.       0.        0.      0.0080      0.        0.        0.      1077.6      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
```

```
    9.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

1
   31MAR92      15:47:22                                                                          PAGE   18

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 9

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

     1.000      2.28   1079.68   1079.52   1077.60   1079.85      0.17      0.00      0.00   1079.50
    1000.0     220.3     398.7     381.0     127.4      86.5     175.5       0.0       0.0   1079.40
      0.00      1.73      4.61      2.17     0.050     0.044     0.050     0.000   1077.40   1078.00
  0.008032        0.        0.        0.         0        32         5      0.00    557.63   1687.08

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1079.68

 STA=    1078.     1222.     1325.     1371.     1404.     1481.     1529.     1625.     1687.
   PER Q=     15.4       6.7      39.9       0.3       9.7      10.5       9.7       7.8
    AREA=     83.3      44.1      86.5       4.6      39.5      42.7      49.0      39.7
     VEL=      1.8       1.5       4.6       0.7       2.5       2.5       2.0       2.0
   DEPTH=      0.6       0.4       1.9       0.1       0.5       0.9       0.5       0.6

1
   31MAR92      15:47:22                                                                          PAGE   19

 T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
 T2 FILENAME= C80-RGHT.H2  Flow Split At CP 80 For Right Side
 T3      Q=1500

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       11.       0.        0.      0.0080      0.        0.        0.      1077.6      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    10.0       0.       -1.0       0.        0.        0.       -1.        0.        0.       15.

1
   31MAR92      15:47:22                                                                          PAGE   20

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF10

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
     1.000      2.53   1079.93   1079.71   1077.60   1080.11      0.18      0.00      0.00   1079.50
    1500.0     421.7     487.3     591.0     190.0      98.2     251.5       0.0       0.0   1079.40
      0.00      2.22      4.96      2.35     0.050     0.044     0.050     0.000   1077.40   1077.99
  0.007872        0.        0.        0.         0        32         6      0.00    621.40   1699.39

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1079.93

 STA=    1078.     1222.     1325.     1371.     1431.     1481.     1535.     1625.     1699.
   PER Q=     18.6       9.6      32.5       1.3       9.3      10.0      10.5       8.4
    AREA=    119.8      70.2      98.2      16.9      51.6      55.7      70.3      57.0
     VEL=      2.3       2.0       5.0       1.1       2.7       2.7       2.2       2.2
   DEPTH=      0.8       0.7       2.1       0.3       1.0       1.0       0.8       0.8

1
   31MAR92      15:47:22                                                                          PAGE   21

 T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
 T2 FILENAME= C80-RGHT.H2  Flow Split At CP 80 For Right Side
 T3      Q=5000

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       12.       0.        0.      0.0080      0.        0.        0.      1077.6      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    11.0       0.       -1.0       0.        0.        0.       -1.        0.        0.       15.

1
   31MAR92      15:47:22                                                                          PAGE   22

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF11

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
```

```
1490 NH CARD USED
*SECNO 1.000
     1.000      3.56   1080.96   1080.46   1077.60   1081.27      0.31      0.00      0.00   1079.50
    5000.0    1738.6     946.7    2314.7     444.0     145.6     614.9       0.0       0.0   1079.40
      0.00      3.92      6.51      3.76     0.050     0.044     0.050     0.000   1077.40   1077.98
  0.008007        0.        0.        0.         0        36         8      0.00    671.36   1749.35

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1080.96

STA=    1078.    1222.    1325.    1371.    1431.    1481.    1535.    1625.    1749.
  PER Q=     21.4     13.4     18.9      5.0      8.9      9.6     12.9     10.0
   AREA=    267.9    176.1    145.5     78.6    103.0    111.2    162.9    159.2
    VEL=      4.0      3.8      6.5      3.2      4.3      4.3      3.9      3.1
  DEPTH=      1.9      1.7      3.2      1.3      2.1      2.1      1.8      1.3
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= C80-RGHT.H2  Flow Split At CP 80 For Right Side
T3      Q=10000

J1  ICHECK     INQ      NINV     IDIR     STRT     METRIC    HVINS     Q        WSEL     FQ

     0.        13.      0.       0.     0.0080     0.        0.        0.     1077.6     0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH     FN       ALLDC     IBW      CHNIM    ITRACE

   12.0       0.      -1.0      0.       0.        0.       -1.       0.       0.       15.
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF12

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED      0.04 FEET

     1.000      4.54   1081.94   1081.20   1077.60   1082.41      0.48      0.00      0.00   1079.50
   10000.0    3687.1    1488.9    4923.9     686.2     190.4    1007.4       0.0       0.0   1079.40
      0.00      5.24      7.82      4.89     0.050     0.044     0.050     0.000   1077.40   1077.97
  0.008077        0.        0.        0.         0        41         8      0.00    717.03   1795.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1081.94

STA=    1078.    1222.    1325.    1371.    1431.    1481.    1535.    1625.    1795.
  PER Q=     21.6     14.3     14.9      6.4      8.5      9.2     13.3     11.9
   AREA=    408.4    276.7    190.4    137.2    151.8    164.0    250.8    303.7
    VEL=      5.3      5.2      7.8      4.6      5.6      5.6      5.3      3.9
  DEPTH=      2.8      2.7      4.1      2.3      3.0      3.0      2.8      1.8
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 12/4/91
T2 FILENAME= C80-RGHT.H2  Flow Split At CP 80 For Right Side
T3      Q=15000

J1  ICHECK     INQ      NINV     IDIR     STRT     METRIC    HVINS     Q        WSEL     FQ

     0.        14.      0.       0.     0.0080     0.        0.        0.     1077.6     0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH     FN       ALLDC     IBW      CHNIM    ITRACE

   13.0       0.      -1.0      0.       0.        0.       -1.       0.       0.       15.
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED      0.78 FEET

     1.000      5.28   1082.68   1081.79   1077.60   1083.32      0.63      0.00      0.00   1079.50
   15000.0    5340.6    1968.6    7690.8     869.6     224.7    1323.9       0.0       0.0   1079.40
      0.00      6.14      8.76      5.81     0.050     0.044     0.050     0.000   1077.40   1077.97
  0.008124        0.        0.        0.         0        44         8      0.00    717.03   1795.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1082.68

STA=    1078.    1222.    1325.    1371.    1431.    1481.    1535.    1625.    1795.
  PER Q=     21.2     14.4     13.1      6.8      8.2      8.9     13.2     14.2
   AREA=    515.9    353.6    224.7    182.0    189.1    204.3    318.0    430.6
    VEL=      6.2      6.1      8.8      5.6      6.5      6.5      6.2      5.0
  DEPTH=      3.6      3.4      4.9      3.0      3.8      3.8      3.5      2.5
```

THIS RUN EXECUTED 31MAR92 15:47:30

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Split At CP 80 For Right

SUMMARY PRINTOUT

| | SECNO | Q | CWSEL | DEPTH | VLOB | VCH | VROB | QWEIR | QPR | 10*KS | SECNO | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 25.00 | 1077.81 | 0.41 | 0.00 | 2.18 | 0.00 | 0.00 | 0.00 | 80.67 | 1.00 | 1329.81 | 1362.66 |
| | 1.000 | 50.00 | 1078.02 | 0.62 | 0.00 | 2.69 | 0.42 | 0.00 | 0.00 | 81.20 | 1.00 | 1329.22 | 1484.37 |
| | 1.000 | 75.00 | 1078.20 | 0.80 | 0.00 | 2.97 | 0.75 | 0.00 | 0.00 | 79.94 | 1.00 | 1328.72 | 1489.05 |
| | 1.000 | 100.00 | 1078.34 | 0.94 | 0.00 | 3.18 | 0.97 | 0.00 | 0.00 | 79.80 | 1.00 | 1328.31 | 1492.93 |
| | 1.000 | 200.00 | 1078.75 | 1.35 | 0.00 | 3.65 | 1.33 | 0.00 | 0.00 | 80.45 | 1.00 | 1327.15 | 1641.86 |
| * | 1.000 | 400.00 | 1078.98 | 1.58 | 0.00 | 5.34 | 2.13 | 0.00 | 0.00 | 153.79 | 1.00 | 1326.48 | 1653.29 |
| | 1.000 | 600.00 | 1079.40 | 2.00 | 1.13 | 4.20 | 1.96 | 0.00 | 0.00 | 80.75 | 1.00 | 1078.00 | 1673.74 |
| | 1.000 | 800.00 | 1079.56 | 2.16 | 1.46 | 4.40 | 2.07 | 0.00 | 0.00 | 79.87 | 1.00 | 1078.00 | 1681.21 |
| | 1.000 | 1000.00 | 1079.68 | 2.28 | 1.73 | 4.61 | 2.17 | 0.00 | 0.00 | 80.32 | 1.00 | 1078.00 | 1687.08 |
| | 1.000 | 1500.00 | 1079.93 | 2.53 | 2.22 | 4.96 | 2.35 | 0.00 | 0.00 | 78.72 | 1.00 | 1077.99 | 1699.39 |
| | 1.000 | 5000.00 | 1080.96 | 3.56 | 3.92 | 6.51 | 3.76 | 0.00 | 0.00 | 80.07 | 1.00 | 1077.98 | 1749.35 |
| | 1.000 | 10000.00 | 1081.94 | 4.54 | 5.24 | 7.82 | 4.89 | 0.00 | 0.00 | 80.77 | 1.00 | 1077.97 | 1795.00 |
| | 1.000 | 15000.00 | 1082.68 | 5.28 | 6.14 | 8.76 | 5.81 | 0.00 | 0.00 | 81.24 | 1.00 | 1077.97 | 1795.00 |



Split At CP 80 For Right

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 0.00 | 0.00 | 0.00 | 1077.40 | 25.00 | 1077.81 | 1077.72 | 1077.89 | 80.67 | 2.18 | 11.45 | 2.78 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1077.40 | 50.00 | 1078.02 | 1077.88 | 1078.14 | 81.20 | 2.69 | 18.93 | 5.55 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1077.40 | 75.00 | 1078.20 | 1078.02 | 1078.33 | 79.94 | 2.97 | 26.95 | 8.39 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1077.40 | 100.00 | 1078.34 | 1078.14 | 1078.49 | 79.80 | 3.18 | 34.97 | 11.19 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1077.40 | 200.00 | 1078.75 | 1078.53 | 1078.92 | 80.45 | 3.65 | 70.79 | 22.30 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1077.40 | 400.00 | 1078.98 | 1078.98 | 1079.33 | 153.79 | 5.34 | 104.21 | 32.26 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1077.40 | 600.00 | 1079.40 | 1079.31 | 1079.57 | 80.75 | 4.20 | 247.82 | 66.77 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1077.40 | 800.00 | 1079.56 | 1079.38 | 1079.72 | 79.87 | 4.40 | 324.08 | 89.51 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1077.40 | 1000.00 | 1079.68 | 1079.52 | 1079.85 | 80.32 | 4.61 | 389.42 | 111.58 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1077.40 | 1500.00 | 1079.93 | 1079.71 | 1080.11 | 78.72 | 4.96 | 539.63 | 169.06 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1077.40 | 5000.00 | 1080.96 | 1080.46 | 1081.27 | 80.07 | 6.51 | 1204.39 | 558.77 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1077.40 | 10000.00 | 1081.94 | 1081.20 | 1082.41 | 80.77 | 7.82 | 1882.98 | 1112.68 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1077.40 | 15000.00 | 1082.68 | 1081.79 | 1083.32 | 81.24 | 8.76 | 2418.21 | 1664.19 |



Split At CP 80 For Right

SUMMARY PRINTOUT TABLE 150

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 1.000 | 25.00 | 1077.81 | 0.00 | 0.00 | 0.21 | 32.84 | 0.00 |
| | 1.000 | 50.00 | 1078.02 | 0.21 | 0.00 | 0.42 | 41.03 | 0.00 |
| | 1.000 | 75.00 | 1078.20 | 0.17 | 0.00 | 0.60 | 51.46 | 0.00 |
| | 1.000 | 100.00 | 1078.34 | 0.14 | 0.00 | 0.74 | 60.11 | 0.00 |
| | 1.000 | 200.00 | 1078.75 | 0.41 | 0.00 | 1.15 | 122.14 | 0.00 |
| * | 1.000 | 400.00 | 1078.98 | 0.24 | 0.00 | 1.38 | 161.84 | 0.00 |
| | 1.000 | 600.00 | 1079.40 | 0.42 | 0.00 | 1.80 | 460.43 | 0.00 |
| | 1.000 | 800.00 | 1079.56 | 0.15 | 0.00 | 1.96 | 523.72 | 0.00 |
| | 1.000 | 1000.00 | 1079.68 | 0.12 | 0.00 | 2.08 | 557.63 | 0.00 |
| | 1.000 | 1500.00 | 1079.93 | 0.25 | 0.00 | 2.33 | 621.40 | 0.00 |
| | 1.000 | 5000.00 | 1080.96 | 1.03 | 0.00 | 3.36 | 671.36 | 0.00 |
| | 1.000 | 10000.00 | 1081.94 | 0.98 | 0.00 | 4.34 | 717.03 | 0.00 |
| | 1.000 | 15000.00 | 1082.68 | 0.75 | 0.00 | 5.08 | 717.03 | 0.00 |



SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 1.000 PROFILE= 6 CRITICAL DEPTH ASSUMED

## C81 Summary Data

| Stage | Left Channel | Right Channel | Total Flow |
|---|---|---|---|
| 960.1 | 0 | 0 | 0 |
| 960.7 | 50 | 0 | 50 |
| 961 | 95 | 15 | 110 |
| 962 | 580 | 75 | 655 |
| 963 | 2600 | 460 | 3060 |
| 964 | 6200 | 3400 | 9600 |
| 964.7 | 9600 | 7000 | 16600 |

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2;  May 1991            *
 *  386 Extended Memory version, August 1991 *
 *  Dodson & Associates, Inc 1-800-235-8069 *
 *  RUN DATE    31MAR92    TIME   15:47:47 *
 *****************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX   XXXXX
X     X  X        X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

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THIS RUN EXECUTED 31MAR92  15:47:47

```
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
```

```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C81-LEFT.H2
T3 Flow Split At CP 81 For Left Side

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       2.       0.       0.     0.0071     0.       0.       0.     960.9      0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    1.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.      43.       1.       8.      55.      26.      56.      46.      47.       5.
    38.      53.      54.              150

NC    0.070    0.025    0.070    0.1      0.3
NH      10.    0.050 1398.0    0.070 1415.0    0.050 1637.0    0.070 1653.0    0.050
NH   1668.0    0.070 1706.0    0.025 1719.0    0.070 1724.0    0.050 1806.0    0.010
NH   1806.1
QT     13.0      25.0     50.0     75.0    100.0    200.0    400.0    600.0    800.0   1000.0
QT   1500.0    5000.0 10000.0 15000.0
X1      1.0      25.0 1699.0 1724.0      0.0      0.0      0.0
GR    964.7 1000.0    962.1 1081.0    960.1 1201.0    961.3 1234.0    962.5 1321.0
GR    962.4 1398.0    960.4 1403.0    960.6 1409.0    962.5 1415.0    961.9 1430.0
GR    963.6 1577.0    962.4 1628.0    963.5 1637.0    960.5 1647.0    962.3 1653.0
GR    962.3 1668.0    960.8 1675.0    962.4 1684.0    962.0 1699.0    960.1 1706.0
GR    960.1 1719.0    962.1 1724.0    961.6 1740.0    962.5 1806.0    975.0 1806.1
```

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```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000     0.49    960.59    960.47    960.90    960.63      0.04      0.00      0.00    962.00
      25.0     10.6      14.4       0.0      11.2       7.1       0.0       0.0       0.0    962.10
      0.00     0.95      2.01      0.00     0.050     0.036     0.000     0.000    960.10   1171.47
  0.007079       0.        0.        0.         0        14         6      0.00     65.98   1720.23

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    960.59

STA=    1171.     1201.     1215.     1409.     1647.     1724.
  PER Q=     28.6      13.1       0.8       0.0      57.5
   AREA=      7.3       3.3       0.6       0.0       7.1
    VEL=      1.0       1.0       0.3       0.0       2.0
  DEPTH=      0.2       0.2       0.0       0.0       0.4
```

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```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C81-LEFT.H2  Flow Split At CP 81 For Left Side
T3      Q=60

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       3.       0.       0.     0.0071     0.       0.       0.     960.9      0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    2.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.
```

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1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 2

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

      1.000      0.68    960.78    960.61    960.90    960.83      0.05      0.00      0.00    962.00
       50.0      26.6      23.4       0.0      22.7      10.3       0.0       0.0       0.0    962.10
       0.00      1.17      2.27      0.00     0.051     0.039     0.000     0.000    960.10   1159.98
   0.007093        0.        0.        0.         0        14         5      0.00     86.47   1720.71

 FLOW DISTRIBUTION FOR SECNO=       1.00          CWSEL=    960.78

 STA=    1160.    1201.    1220.    1403.    1409.    1647.    1648.    1724.
   PER Q=     34.3     15.7      0.2      2.6      0.1      0.1     46.9
    AREA=     14.0      6.4      0.2      1.7      0.2      0.1     10.3
     VEL=      1.2      1.2      0.6      0.8      0.3      0.5      2.3
   DEPTH=      0.3      0.3      0.0      0.3      0.0      0.1      0.6

1
   31MAR92      15:47:47                                                                                                PAGE    5

 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C81-LEFT.H2  Flow Split At CP 81 For Left Side
 T3      Q=75

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        4.        0.        0.      0.0071      0.        0.        0.      960.9     0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 3

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

      1.000      0.82    960.92    960.72    960.90    960.98      0.05      0.00      0.00    962.00
       75.0      44.1      30.9       0.0      33.3      12.8       0.0       0.0       0.0    962.10
       0.00      1.33      2.42      0.00     0.051     0.041     0.000     0.000    960.10   1151.68
   0.007093        0.        0.        0.         0        19         5      0.00    102.39   1721.05

 FLOW DISTRIBUTION FOR SECNO=       1.00          CWSEL=    960.92

 STA=    1152.    1201.    1224.    1403.    1409.    1410.    1647.    1648.    1676.    1724.
   PER Q=     37.4     17.1      0.3      3.4      0.1      0.2      0.2      0.0     41.2
    AREA=     20.3      9.3      0.3      2.5      0.2      0.3      0.3      0.1     12.8
     VEL=      1.4      1.4      0.7      1.0      0.5      0.6      0.6      0.0      2.4
   DEPTH=      0.4      0.4      0.0      0.4      0.2      0.0      0.2      0.0      0.7

1
   31MAR92      15:47:47                                                                                                PAGE    7

 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C81-LEFT.H2  Flow Split At CP 81 For Left Side
 T3      Q=100

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        5.        0.        0.      0.0071      0.        0.        0.      960.9     0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
   31MAR92      15:47:47                                                                                                PAGE    8

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 4

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
```

```
CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.93    961.03    960.79    960.90    961.09      0.06      0.00      0.00    962.00
     100.0      62.6      37.4       0.0      43.3      14.8       0.0       0.0       0.0    962.10
      0.00      1.44      2.53      0.00     0.052     0.042     0.000     0.000    960.10   1145.02
  0.007117        0.        0.        0.         0        15         6      0.00    115.31   1721.33

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    961.03

STA=    1145.    1201.    1227.    1403.    1409.    1410.    1647.    1649.    1675.    1676.    1724.
  PER Q=    39.4     18.0      0.4      3.8      0.2      0.3      0.3      0.1      0.1     37.4
   AREA=    26.1     12.0      0.5      3.2      0.3      0.5      0.5      0.1      0.2     14.8
    VEL=     1.5      1.5      0.8      1.2      0.6      0.7      0.7      0.4      0.4      2.5
  DEPTH=     0.5      0.5      0.0      0.5      0.2      0.0      0.3      0.0      0.1      0.8

1
   31MAR92      15:47:47                                                                          PAGE    9

T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= CB1-LEFT.H2  Flow Split At CP B1 For Left Side
T3       Q=200

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       6.       0.       0.     0.0071     0.       0.       0.     960.9      0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    5.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

1
   31MAR92      15:47:47                                                                          PAGE   10

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      1.25    961.35    961.03    960.90    961.42      0.07      0.00      0.00    962.00
     200.0     141.2      58.8       0.0      80.0      21.2       0.0       0.0       0.0    962.10
      0.00      1.76      2.78      0.00     0.052     0.045     0.000     0.000    960.10   1125.77
  0.007112        0.        0.        0.         0         8         7      0.00    155.05   1722.13

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    961.35

STA=    1126.    1201.    1234.    1409.    1678.    1724.
  PER Q=    43.3     20.4      4.7      2.2     29.4
   AREA=    47.2     21.6      6.4      4.9     21.2
    VEL=     1.8      1.9      1.5      0.9      2.8
  DEPTH=     0.6      0.7      0.0      0.0      1.0

1
   31MAR92      15:47:47                                                                          PAGE   11

T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= CB1-LEFT.H2  Flow Split At CP B1 For Left Side
T3       Q=400

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       7.       0.       0.     0.0071     0.       0.       0.     960.9      0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    6.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

1
   31MAR92      15:47:47                                                                          PAGE   12

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      1.65    961.75    961.33    960.90    961.84      0.09      0.00      0.00    962.00
     400.0     308.8      90.7       0.5     146.0      29.8       1.2       0.0       0.0    962.10
      0.00      2.13      3.04      0.44     0.052     0.048     0.050     0.000    960.10   1102.11
  0.007137        0.        0.        0.         0        14         7      0.00    234.25   1750.86

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    961.75
```

```
STA=    1102.    1201.    1234.    1409.    1680.    1724.    1751.
  PER Q=    45.0     22.4      6.3      3.5     22.7      0.1
   AREA=   81.5     34.6     17.0     11.9     29.8      1.2
    VEL=    2.2      2.6      1.5      1.2      3.0      0.4
  DEPTH=    0.8      1.0      0.1      0.0      1.3      0.0
```

1
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```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= CB1-LEFT.H2  Flow Split At CP 81 For Left Side
T3      Q=600

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       8.       0.       0.     0.0071     0.       0.       0.     960.9      0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    7.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.
```

1
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```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      1.92    962.02    961.54    960.90    962.11      0.10      0.00      0.00    962.00
     600.0     475.6     116.4       8.0     203.5      36.2       9.1       0.0       0.0    962.10
      0.00      2.34      3.21      0.88     0.052     0.050     0.050     0.000    960.10   1086.08
  0.007172        0.        0.        0.         0        17         7      0.00    318.89   1770.46

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    962.02

STA=    1086.    1201.    1234.    1286.    1409.    1675.    1699.    1724.    1770.
  PER Q=    44.9     21.9      3.9      4.4      3.4      0.9     19.4      1.3
   AREA=   110.1     43.4     18.6     12.4     15.0      4.2     36.2      9.1
    VEL=     2.4      3.0      1.3      2.1      1.3      1.3      3.2      0.9
  DEPTH=     1.0      1.3      0.4      0.1      0.1      0.2      1.5      0.2
```

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```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= CB1-LEFT.H2  Flow Split At CP 81 For Left Side
T3      Q=800

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       9.       0.       0.     0.0071     0.       0.       0.     960.9      0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    8.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.
```

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```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.11    962.21    961.72    960.90    962.32      0.11      0.00      0.00    962.00
     800.0     636.5     141.1      22.4     256.6      41.0      19.2       0.0       0.0    962.10
      0.00      2.48      3.44      1.17     0.052     0.050     0.050     0.000    960.10   1077.70
  0.007132        0.        0.        0.         0        17         7      0.00    390.69   1784.44

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    962.21

STA=    1078.    1201.    1234.    1300.    1409.    1653.    1699.    1724.    1784.
  PER Q=    44.5     20.5      5.5      4.1      3.1      1.8     17.6      2.8
   AREA=   132.9     49.7     29.8     14.3     19.0     11.0     41.0     19.2
    VEL=     2.7      3.3      1.6      2.3      1.3      1.3      3.4      1.2
  DEPTH=     1.1      1.5      0.5      0.1      0.1      0.2      1.6      0.3
```

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```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= CB1-LEFT.H2  Flow Split At CP 81 For Left Side
T3      Q=1000
```

```
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       10.       0.        0.      0.0071      0.        0.        0.      960.9     0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    9.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.
```

1

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```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 9

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.26    962.36    961.88    960.90    962.48      0.12      0.00      0.00    962.00
    1000.0    796.2     163.3      40.6     306.9      44.8      29.2       0.0       0.0    962.10
      0.00     2.59      3.64      1.39     0.052     0.050     0.050     0.000    960.10   1072.97
  0.007108       0.        0.        0.         0        17         7      0.00    458.08   1795.56

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    962.36

STA=    1073.    1201.    1234.    1311.    1409.    1653.    1699.    1724.    1796.
  PER Q=    44.1     19.2      6.6      3.8      3.8      2.1     16.3      4.1
   AREA=   151.9     54.7     40.5     15.9     28.0     15.7     44.8     29.2
    VEL=     2.9      3.5      1.6      2.4      1.4      1.3      3.6      1.4
  DEPTH=     1.2      1.7      0.5      0.2      0.1      0.3      1.8      0.4
```

1

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```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C81-LEFT.H2  Flow Split At CP 81 For Left Side
T3      Q=1500

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       11.       0.        0.      0.0071      0.        0.        0.      960.9     0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   10.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.
```

1

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```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF10

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.54    962.64    962.17    960.90    962.77      0.13      0.00      0.00    962.00
    1500.0    1195.3     208.6      96.1     434.4      51.9      51.7       0.0       0.0    962.10
      0.00     2.75      4.02      1.86     0.052     0.050     0.050     0.000    960.10   1064.12
  0.007105       0.        0.        0.         0        20         6      0.00    608.45   1806.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    962.64

STA=    1064.    1201.    1234.    1321.    1409.    1494.    1675.    1699.    1724.    1806.
  PER Q=    41.6     16.7      8.8      4.2      3.5      3.4      1.6     13.9      6.4
   AREA=   189.6     64.1     64.6     33.8     37.0     29.4     16.0     51.9     51.7
    VEL=     3.3      3.9      2.1      1.9      1.4      1.7      1.5      4.0      1.9
  DEPTH=     1.4      1.9      0.7      0.4      0.4      0.2      0.7      2.1      0.6
```

1

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```
T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C81-LEFT.H2  Flow Split At CP 81 For Left Side
T3      Q=5000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       12.       0.        0.      0.0071      0.        0.        0.      960.9     0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   11.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.
```

1

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```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
```

```
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF11

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000      3.66    963.76    963.08    960.90    963.99      0.23      0.00      0.00    962.00
    5000.0    4063.3     424.1     512.5    1100.1      79.8     143.4       0.0       0.0    962.10
      0.00      3.69      5.31      3.57     0.052     0.050     0.050     0.000    960.10   1029.29
  0.006986        0.        0.        0.         0        26         6      0.00    776.72   1806.01

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    963.76

 STA=    1029.    1201.    1234.    1321.    1398.    1415.    1577.    1653.    1684.    1699.    1724.    1806.
   PER Q=    32.3     10.6     12.2      6.0      3.0      9.0      3.7      3.5      1.1      8.5     10.3
    AREA=   362.1    101.0    161.8    100.8     44.6    171.8     77.8     56.8     23.4     79.8    143.4
     VEL=     4.5      5.2      3.8      3.0      3.4      2.6      2.4      3.0      2.4      5.3      3.6
   DEPTH=     2.1      3.1      1.9      1.3      2.6      1.1      1.0      1.8      1.6      3.2      1.7
1
    31MAR92      15:47:47                                                                                PAGE   23

 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C81-LEFT.H2  Flow Split At CP 81 For Left Side
 T3      Q=10000

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.      13.        0.        0.    0.0071       0.        0.        0.     960.9      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    12.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.
1
    31MAR92      15:47:47                                                                                PAGE   24

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF12

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
 3280 CROSS SECTION      1.00 EXTENDED      0.01 FEET

      1.000      4.61    964.71    963.80    960.90    965.08      0.37      0.00      0.00    962.00
   10000.0    8277.3     662.3    1060.5    1751.8     103.6     221.5       0.0       0.0    962.10
      0.00      4.72      6.39      4.79     0.052     0.050     0.050     0.000    960.10   1000.00
  0.007138        0.        0.        0.         0        29         7      0.00    806.02   1806.02

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    964.71

 STA=    1000.    1081.    1201.    1234.    1321.    1398.    1430.    1577.    1628.    1668.    1699.    1724.    1806.
   PER Q=     3.2     25.6      8.4     12.2      7.5      4.3     11.3      3.1      3.9      3.2      6.6     10.6
    AREA=   106.3    433.4    132.4    244.6    174.2     98.5    288.4     87.3     99.0     87.8    103.6    221.5
     VEL=     3.0      5.9      6.3      5.0      4.3      4.3      3.9      3.6      3.9      3.6      6.4      4.8
   DEPTH=     1.3      3.6      4.0      2.8      2.3      3.1      2.0      1.7      2.5      2.8      4.1      2.7
1
    31MAR92      15:47:47                                                                                PAGE   25

 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C81-LEFT.H2  Flow Split At CP 81 For Left Side
 T3      Q=15000

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.      14.        0.        0.    0.0071       0.        0.        0.     960.9      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    13.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.
1
    31MAR92      15:47:47                                                                                PAGE   26

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF13

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
 3280 CROSS SECTION      1.00 EXTENDED      0.75 FEET

      1.000      5.35    965.45    964.33    960.90    965.95      0.49      0.00      0.00    962.00
   15000.0   12538.7     874.9    1586.4    2271.1     122.2     282.4       0.0       0.0    962.10
      0.00      5.52      7.16      5.62     0.052     0.050     0.050     0.000    960.10   1000.00
  0.007191        0.        0.        0.         0        32         7      0.00    806.02   1806.02
```

FLOW DISTRIBUTION FOR SECNO= 1.00 CWSEL= 965.45

| STA= | 1000. | 1081. | 1201. | 1234. | 1321. | 1398. | 1430. | 1577. | 1628. | 1668. | 1699. | 1724. | 1806. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 4.5 | 23.4 | 7.5 | 12.1 | 8.1 | 4.1 | 13.0 | 3.8 | 4.0 | 3.1 | 5.8 | 10.6 | |
| AREA= | 166.4 | 522.6 | 156.9 | 309.2 | 231.4 | 122.2 | 397.6 | 125.2 | 128.7 | 110.8 | 122.2 | 282.4 | |
| VEL= | 4.0 | 6.7 | 7.1 | 5.9 | 5.2 | 5.0 | 4.9 | 4.6 | 4.7 | 4.2 | 7.2 | 5.6 | |
| DEPTH= | 2.1 | 4.4 | 4.8 | 3.6 | 3.0 | 3.8 | 2.7 | 2.5 | 3.2 | 3.6 | 4.9 | 3.4 | |



THIS RUN EXECUTED 31MAR92 15:47:57

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Split At CP 81 For Left

SUMMARY PRINTOUT

| SECNO | Q | CWSEL | DEPTH | VLOB | VCH | VROB | QWEIR | QPR | 10*KS | SECNO | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 960.59 | 0.49 | 0.95 | 2.01 | 0.00 | 0.00 | 0.00 | 70.79 | 1.00 | 1171.47 | 1720.23 |
| 1.000 | 50.00 | 960.78 | 0.68 | 1.17 | 2.27 | 0.00 | 0.00 | 0.00 | 70.93 | 1.00 | 1159.98 | 1720.71 |
| 1.000 | 75.00 | 960.92 | 0.82 | 1.33 | 2.42 | 0.00 | 0.00 | 0.00 | 70.93 | 1.00 | 1151.68 | 1721.05 |
| 1.000 | 100.00 | 961.03 | 0.93 | 1.44 | 2.53 | 0.00 | 0.00 | 0.00 | 71.17 | 1.00 | 1145.02 | 1721.33 |
| 1.000 | 200.00 | 961.35 | 1.25 | 1.76 | 2.78 | 0.00 | 0.00 | 0.00 | 71.12 | 1.00 | 1125.77 | 1722.13 |
| 1.000 | 400.00 | 961.75 | 1.65 | 2.13 | 3.04 | 0.44 | 0.00 | 0.00 | 71.37 | 1.00 | 1102.11 | 1750.86 |
| 1.000 | 600.00 | 962.02 | 1.92 | 2.34 | 3.21 | 0.88 | 0.00 | 0.00 | 71.72 | 1.00 | 1086.08 | 1770.46 |
| 1.000 | 800.00 | 962.21 | 2.11 | 2.48 | 3.44 | 1.17 | 0.00 | 0.00 | 71.32 | 1.00 | 1077.70 | 1784.44 |
| 1.000 | 1000.00 | 962.36 | 2.26 | 2.59 | 3.64 | 1.39 | 0.00 | 0.00 | 71.08 | 1.00 | 1072.97 | 1795.56 |
| 1.000 | 1500.00 | 962.64 | 2.54 | 2.75 | 4.02 | 1.86 | 0.00 | 0.00 | 71.05 | 1.00 | 1064.12 | 1806.00 |
| 1.000 | 5000.00 | 963.76 | 3.66 | 3.69 | 5.31 | 3.57 | 0.00 | 0.00 | 69.86 | 1.00 | 1029.29 | 1806.01 |
| 1.000 | 10000.00 | 964.71 | 4.61 | 4.72 | 6.39 | 4.79 | 0.00 | 0.00 | 71.38 | 1.00 | 1000.00 | 1806.02 |
| 1.000 | 15000.00 | 965.45 | 5.35 | 5.52 | 7.16 | 5.62 | 0.00 | 0.00 | 71.91 | 1.00 | 1000.00 | 1806.02 |



Split At CP 81 For Left

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.00 | 0.00 | 0.00 | 960.10 | 25.00 | 960.59 | 960.47 | 960.63 | 70.79 | 2.01 | 18.38 | 2.97 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.10 | 50.00 | 960.78 | 960.61 | 960.83 | 70.93 | 2.27 | 32.98 | 5.94 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.10 | 75.00 | 960.92 | 960.72 | 960.98 | 70.93 | 2.42 | 46.04 | 8.[illegible] |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.10 | 100.00 | 961.03 | 960.79 | 961.09 | 71.17 | 2.53 | 58.12 | 11.[illegible] |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.10 | 200.00 | 961.35 | 961.03 | 961.42 | 71.12 | 2.78 | 101.18 | 23.7[illegible] |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.10 | 400.00 | 961.75 | 961.33 | 961.84 | 71.37 | 3.04 | 176.00 | 47.35 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.10 | 600.00 | 962.02 | 961.54 | 962.11 | 71.72 | 3.21 | 248.87 | 70.85 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.10 | 800.00 | 962.21 | 961.72 | 962.32 | 71.32 | 3.44 | 316.79 | 94.73 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.10 | 1000.00 | 962.36 | 961.88 | 962.48 | 71.08 | 3.64 | 380.88 | 118.61 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.10 | 1500.00 | 962.64 | 962.17 | 962.77 | 71.05 | 4.02 | 538.08 | 177.95 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.10 | 5000.00 | 963.76 | 963.08 | 963.99 | 69.86 | 5.31 | 1323.36 | 598.23 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.10 | 10000.00 | 964.71 | 963.80 | 965.08 | 71.38 | 6.39 | 2076.93 | 1183.62 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.10 | 15000.00 | 965.45 | 964.33 | 965.95 | 71.91 | 7.16 | 2675.69 | 1768.86 |



Split At CP 81 For Left

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 960.59 | 0.00 | 0.00 | -0.31 | 65.98 | 0.00 |
| 1.000 | 50.00 | 960.78 | 0.19 | 0.00 | -0.12 | 86.47 | 0.00 |
| 1.000 | 75.00 | 960.92 | 0.14 | 0.00 | 0.02 | 102.39 | 0.00 |
| 1.000 | 100.00 | 961.03 | 0.11 | 0.00 | 0.13 | 115.31 | 0.00 |
| 1.000 | 200.00 | 961.35 | 0.32 | 0.00 | 0.45 | 155.05 | 0.00 |
| 1.000 | 400.00 | 961.75 | 0.39 | 0.00 | 0.85 | 234.25 | 0.00 |
| 1.000 | 600.00 | 962.02 | 0.27 | 0.00 | 1.12 | 318.89 | 0.00 |
| 1.000 | 800.00 | 962.21 | 0.19 | 0.00 | 1.31 | 390.69 | 0.00 |
| 1.000 | 1000.00 | 962.36 | 0.15 | 0.00 | 1.46 | 458.08 | 0.00 |
| 1.000 | 1500.00 | 962.64 | 0.28 | 0.00 | 1.74 | 608.45 | 0.00 |
| 1.000 | 5000.00 | 963.76 | 1.12 | 0.00 | 2.86 | 776.72 | 0.00 |
| 1.000 | 10000.00 | 964.71 | 0.95 | 0.00 | 3.81 | 806.02 | 0.00 |
| 1.000 | 15000.00 | 965.45 | 0.74 | 0.00 | 4.55 | 806.02 | 0.00 |



SUMMARY OF ERRORS AND SPECIAL NOTES

```
*  Version   4.6.2:  May 1991                    *
*  386 Extended Memory version, August 1991      *
*  Dodson & Associates, Inc 1-800-235-8069       *
*  RUN DATE    31MAR92     TIME    15:48:13      *
*************************************************

                                                  * US ARMY CORPS OF ENGINEERS *
                                                  * HYDROLOGIC ENGINEERING CENTER *
                                                  * 609 SECOND STREET, SUITE D    *
                                                  * DAVIS, CALIFORNIA 95616-4687  *
                                                  *      (916) 756-1104          *
                                                  ***********************************

X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X           X     X
X     X  X         X                       X
XXXXXXX  XXXX      X          XXXXX    XXXXX
X     X  X         X
X     X  X         X     X           X
X     X  XXXXXXX   XXXXX             XXXXXXX

1
   31MAR92       15:48:13                                                                    PAGE    1


                                                                  THIS RUN EXECUTED 31MAR92     15:48:13
************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2:  May 1991
************************************

 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= CB1-RGHT.H2
 T3 Flow Split At CPP 81 For Right Side

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       2.        0.        0.     0.0083       0.        0.        0.     960.9      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38.       43.        1.        8.       55.       26.       56.       46.       47.        5.
     38.       53.       54.                 150

 NC    0.050     0.025     0.050     0.1       0.3
 NH     10.      0.010  1806.0     0.050  2085.0     0.080  2092.0     0.025  2107.0     0.080
 NH  2113.0      0.050  2485.0     0.070  2492.0     0.025  2505.0     0.070  2513.0     0.050
 NH  2894.0
 QT     13.0      25.0      50.0     75.0     100.0     200.0     400.0     600.0     800.0    1000.0
 QT  1500.0    5000.0   10000.0  15000.0
 X1      1.0      28.0    2085.0   2513.0       0.0       0.0       0.0
 GR    975.0    1805.9     962.5   1806.0     962.3    1884.0     961.2    1891.0     961.2    1896.0
 GR    962.3    1902.0     963.5   1998.0     962.8    2010.0     963.4    2055.0     963.4    2085.0
 GR    960.8    2092.0     960.7   2107.0     962.6    2113.0     963.6    2134.0     961.3    2145.0
 GR    963.3    2157.0     962.7   2263.0     963.6    2299.0     963.1    2374.0     963.5    2485.0
 GR    961.8    2492.0     961.9   2505.0     963.1    2513.0     962.4    2564.0     963.2    2639.0
 GR    962.7    2729.0     964.3   2804.0     966.9    2894.0
1
   31MAR92       15:48:13                                                                    PAGE    2

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

      1.000      0.68    961.38    961.18    960.90    961.46      0.08      0.00      0.00    963.40
       25.0       0.9      24.1       0.0       1.1      10.7       0.0       0.0       0.0    963.10
       0.00      0.77      2.25      0.00     0.050     0.040     0.000     0.000    960.70   1889.83
   0.008292        0.        0.        0.         0        17         7      0.00     26.81   2145.50

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    961.38

 STA=    1890.    1891.    1896.    1897.    2157.
   PER Q=      0.2      3.2      0.0     96.5
    AREA=      0.1      0.9      0.1     10.7
     VEL=      0.5      0.9      0.0      2.2
   DEPTH=      0.1      0.2      0.1      0.5

1
   31MAR92       15:48:13                                                                    PAGE    3

 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= CB1-RGHT.H2  Flow Split At CPP 81 For Right Side
 T3       Q=50

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       3.        0.        0.     0.0083       0.        0.        0.     960.9      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
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    2.0        0.       -1.0        0.        0.        0.       -1.        0.        0.       15.

1
   31MAR92      15:48:13                                                                          PAGE    4

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 2

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

     1.000      1.02    961.72    961.44    960.90    961.80      0.08      0.00      0.00    963.40
      50.0       6.3      43.7       0.0       4.2      18.3       0.0       0.0       0.0    963.10
      0.00      1.50      2.38      0.00     0.050     0.045     0.000     0.000    960.70   1887.68
  0.008251        0.        0.        0.         0        23         7      0.00     36.44   2147.53

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    961.72

 STA=    1888.     1891.     1896.     1899.     2157.
   PER Q=      1.9       9.1       1.6      87.3
    AREA=      0.9       2.6       0.7      18.3
     VEL=      1.1       1.8       1.1       2.4
   DEPTH=      0.3       0.5       0.3       0.7

1
   31MAR92      15:48:13                                                                          PAGE    5

 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C81-RGHT.H2  Flow Split At CPP 81 For Right Side
 T3      Q=75

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        4.        0.        0.     0.0083       0.        0.        0.     960.9      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3.0       0.       -1.0       0.        0.        0.       -1.        0.        0.       15.

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 3

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000

 3265 DIVIDED FLOW

     1.000      1.27    961.97    961.61    960.90    962.05      0.08      0.00      0.00    963.40
      75.0      13.8      61.2       0.0       7.4      26.9       0.0       0.0       0.0    963.10
      0.00      1.86      2.27      0.00     0.050     0.043     0.000     0.000    960.70   1886.07
  0.008196        0.        0.        0.         0        23         8      0.00     57.83   2505.50

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    961.97

 STA=    1886.     1891.     1896.     1900.     2513.
   PER Q=      3.6      11.7       3.1      81.6
    AREA=      1.9       3.9       1.6      26.9
     VEL=      1.4       2.3       1.4       2.3
   DEPTH=      0.4       0.8       0.4       0.6

1
   31MAR92      15:48:13                                                                          PAGE    7

 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C81-RGHT.H2  Flow Split At CPP 81 For Right Side
 T3      Q=100

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        5.        0.        0.     0.0083       0.        0.        0.     960.9      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4.0       0.       -1.0       0.        0.        0.       -1.        0.        0.       15.

1
   31MAR92      15:48:13                                                                          PAGE    8

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 4
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CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      1.42    962.12    961.73    960.90    962.21      0.08      0.00      0.00    963.40
     100.0      19.9      80.1       0.0       9.6      33.7       0.0       0.0       0.0    963.10
      0.00      2.06      2.38      0.00     0.050     0.045     0.000     0.000    960.70   1885.13
  0.008292        0.        0.        0.         0        27         8      0.00     63.62   2506.48

FLOW DISTRIBUTION FOR SECNO=       1.00          CWSEL=    962.12

STA=    1885.    1891.    1896.    1901.    2513.
  PER Q=      4.3      11.8       3.7      80.1
   AREA=      2.7       4.6       2.3      33.7
    VEL=      1.6       2.6       1.6       2.4
  DEPTH=      0.5       0.9       0.5       0.7

1
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T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C81-RGHT.H2  Flow Split At CPP 81 For Right Side
T3      Q=200

J1  ICHECK     INQ      NINV      IDIR      STRT    METRIC    HVINS         Q      WSEL        FQ

      0.        6.        0.        0.    0.0083        0.        0.        0.     960.9        0.

J2  NPROF    IPLOT     PRFVS     XSECV     XSECH        FN    ALLDC       IBW    CHNIM    ITRACE

    5.0        0.     -1.0         0.        0.        0.       -1.        0.        0.       15.

1
   31MAR92      15:48:13                                                                          PAGE   10

    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS    L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA    R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL        XNCH     XNR        WTN       ELMIN  SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT      CORAR     TOPWID ENDST

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      1.83    962.53    962.11    960.90    962.62      0.09      0.00      0.00    963.40
     200.0      53.2     146.2       0.6      29.0      55.4       1.4       0.0       0.0    963.10
      0.00      1.84      2.64      0.44     0.050     0.049     0.050     0.000    960.70   1806.00
  0.008353        0.        0.        0.         0        29         7      0.00    194.74   2576.11

FLOW DISTRIBUTION FOR SECNO=       1.00          CWSEL=    962.53

STA=    1806.    1884.    1891.    1896.    1902.    1920.    2513.    2576.
  PER Q=      3.5       6.2      10.9       5.3       0.7      73.1       0.3
   AREA=     10.1       5.5       6.6       4.7       2.1      55.4       1.4
    VEL=      0.7       2.3       3.3       2.3       0.6       2.6       0.4
  DEPTH=      0.1       0.8       1.3       0.8       0.1       0.9       0.0

1
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T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C81-RGHT.H2  Flow Split At CPP 81 For Right Side
T3      Q=400

J1  ICHECK     INQ      NINV      IDIR      STRT    METRIC    HVINS         Q      WSEL        FQ

      0.        7.        0.        0.    0.0083        0.        0.        0.     960.9        0.

J2  NPROF    IPLOT     PRFVS     XSECV     XSECH        FN    ALLDC       IBW    CHNIM    ITRACE

    6.0        0.     -1.0         0.        0.        0.       -1.        0.        0.       15.

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS    L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA    R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL        XNCH     XNR        WTN       ELMIN  SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT      CORAR     TOPWID ENDST

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.24    962.94    962.62    960.90    963.01      0.06      0.00      0.00    963.40
     400.0     179.7     187.5      32.7      84.3      89.8      31.5       0.0       0.0    963.10
      0.00      2.13      2.09      1.04     0.050     0.051     0.050     0.000    960.70   1806.00
  0.008355        0.        0.        0.         0        32         5      0.00    436.57   2740.47
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```
FLOW DISTRIBUTION FOR SECNO=       1.00          CWSEL=    962.94

STA=    1806.    1884.    1891.    1896.    1902.    1954.    2021.    2513.    2564.    2615.    2740.
  PER Q=    19.2      6.3      8.6      5.4      5.3      0.1     46.9      3.1      4.0      1.1
   AREA=    42.5      8.4      8.7      7.2     16.6      1.0     89.8     10.8     13.9      6.8
    VEL=     1.8      3.0      3.9      3.0      1.3      0.5      2.1      1.1      1.1      0.7
  DEPTH=     0.5      1.2      1.7      1.2      0.3      0.0      0.7      0.2      0.3      0.1

1
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T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= CB1-RGHT.H2  Flow Split At CPP 81 For Right Side
T3      Q=600

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       8.       0.       0.     0.0083     0.       0.       0.     960.9      0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    7.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

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    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.45    963.15    962.84    960.90    963.21      0.06      0.00      0.00    963.40
     600.0     279.9     231.1      89.0     120.4     121.8      69.1       0.0       0.0    963.10
      0.00      2.32      1.90      1.29     0.050     0.051     0.050     0.000    960.70   1805.99
  0.008317        0.        0.        0.         0        34         7      0.00    620.37   2749.95

FLOW DISTRIBUTION FOR SECNO=       1.00          CWSEL=    963.15

STA=    1806.    1884.    1891.    1896.    1902.    1970.    2036.    2513.    2564.    2634.    2750.
  PER Q=    21.5      5.5      6.9      4.7      7.3      0.8     38.5      4.9      6.1      3.8
   AREA=    58.3      9.8      9.7      8.4     28.7      5.5    121.8     20.2     26.2     22.7
    VEL=     2.2      3.4      4.2      3.3      1.5      0.8      1.9      1.5      1.4      1.0
  DEPTH=     0.7      1.4      1.9      1.4      0.4      0.1      0.6      0.4      0.4      0.2

1
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T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= CB1-RGHT.H2  Flow Split At CPP 81 For Right Side
T3      Q=800

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       9.       0.       0.     0.0083     0.       0.       0.     960.9      0.

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    8.0      0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

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    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.59    963.29    962.97    960.90    963.35      0.07      0.00      0.00    963.40
     800.0     367.3     273.3     159.4     149.2     156.4     102.0       0.0       0.0    963.10
      0.00      2.46      1.75      1.56     0.050     0.051     0.050     0.000    960.70   1805.99
  0.008367        0.        0.        0.         0        30         8      0.00    759.94   2756.45

FLOW DISTRIBUTION FOR SECNO=       1.00          CWSEL=    963.29

STA=    1806.    1884.    1891.    1896.    1902.    1981.    2046.    2513.    2564.    2639.    2729.    2755.
  PER Q=    21.5      4.8      5.6      4.1      8.2      1.4     34.2      6.1      7.6      5.0      1.2
   AREA=    69.1     10.7     10.4      9.2     38.9     10.9    156.4     27.3     36.4     30.2      8.0
    VEL=     2.5      3.6      4.4      3.6      1.7      1.1      1.7      1.8      1.7      1.3      1.2
  DEPTH=     0.9      1.5      2.1      1.5      0.5      0.2      0.5      0.5      0.5      0.3      0.3

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   31MAR92      15:48:13                                                                          PAGE   17

T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= CB1-RGHT.H2  Flow Split At CPP 81 For Right Side
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T3      Q=1000

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       10.      0.       0.       0.0083   0.       0.       0.       960.9    0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    9.0       0.       -1.0     0.       0.       0.       -1.      0.       0.       15.

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 9

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.69    963.39    963.06    960.90    963.46      0.07      0.00      0.00    963.40
    1000.0     438.9     336.0     225.2     172.5     189.6     127.1       0.0       0.0    963.10
      0.00      2.54      1.77      1.77     0.050     0.051     0.050     0.000    960.70   1805.99
  0.008293        0.        0.        0.         0        29         9      0.00    836.03   2761.24

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    963.39

STA=    1806.    1884.    1891.    1896.    1902.    1989.    2054.    2513.    2564.    2639.    2729.    2761.
  PER Q=     20.5      4.3      5.0      3.7      8.5      1.9     33.6      6.5      8.4      6.1      1.5
   AREA=     77.1     11.5     10.9      9.8     47.3     15.9    189.6     32.5     44.1     39.4     11.1
    VEL=      2.7      3.7      4.6      3.7      1.8      1.2      1.8      2.0      1.9      1.6      1.3
  DEPTH=      1.0      1.6      2.2      1.6      0.5      0.2      0.5      0.6      0.6      0.4      0.3

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   31MAR92      15:48:13                                                                          PAGE   19

T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C81-RGHT.H2  Flow Split At CPP 81 For Right Side
T3      Q=1500

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       11.      0.       0.       0.0083   0.       0.       0.       960.9    0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

   10.0       0.       -1.0     0.       0.       0.       -1.      0.       0.       15.

1
   31MAR92      15:48:13                                                                          PAGE   20

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF10

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      2.88    963.58    963.25    960.90    963.66      0.08      0.00      0.00    963.40
    1500.0     610.5     515.6     373.9     224.3     263.8     174.8       0.0       0.0    963.10
      0.00      2.72      1.95      2.14     0.050     0.050     0.050     0.000    960.70   1805.99
  0.008304        0.        0.        0.         0        32        10      0.00    959.09   2770.10

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    963.58

STA=    1806.    1884.    1891.    1896.    1998.    2085.    2513.    2564.    2639.    2729.    2770.
  PER Q=     18.3      3.4      3.8     12.0      3.2     34.4      6.7      8.9      7.5      1.9
   AREA=     91.8     12.8     11.9     75.9     31.9    263.8     42.2     58.3     56.4     18.0
    VEL=      3.0      4.0      4.8      2.4      1.5      2.0      2.4      2.3      2.0      1.6
  DEPTH=      1.2      1.8      2.4      0.7      0.4      0.6      0.8      0.8      0.6      0.4

1
   31MAR92      15:48:13                                                                          PAGE   21

T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
T2 FILENAME= C81-RGHT.H2  Flow Split At CPP 81 For Right Side
T3      Q=5000

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       12.      0.       0.       0.0083   0.       0.       0.       960.9    0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

   11.0       0.       -1.0     0.       0.       0.       -1.      0.       0.       15.

1
   31MAR92      15:48:13                                                                          PAGE   22
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```
     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF11

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
     1.000      3.66     964.36     963.80     960.90     964.55       0.19       0.00       0.00     963.40
  5000.0     1685.7     1998.2     1316.2      441.5      597.1      389.2        0.0        0.0     963.10
     0.00      3.82       3.35       3.38      0.050      0.050      0.050      0.000     960.70    1805.99
 0.008324        0.         0.         0.          0         38         10       0.00     999.94    2805.92

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    964.36

 STA=    1806.     1884.     1896.     1998.     2055.     2085.     2513.     2564.     2639.     2729.     2804.
   PER Q=     12.7       3.7      11.3       4.5       1.5      40.0       6.1       8.5       8.6       3.1
    AREA=    152.5      34.0     155.4      71.0      28.7     597.1      81.9     116.7     126.5      64.2
     VEL=      4.2       5.4       3.6       3.1       2.6       3.3       3.7       3.6       3.4       2.4
   DEPTH=      2.0       2.8       1.5       1.2       1.0       1.4       1.6       1.6       1.4       0.9

1
    31MAR92      15:48:13                                                                                          PAGE   23

 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C81-RGHT.H2  Flow Split At CPP 81 For Right Side
 T3       Q=10000

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0.       13.         0.         0.     0.0083         0.         0.         0.     960.9        0.

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

    12.0        0.        -1.0        0.         0.         0.         -1.        0.         0.         15.

1
    31MAR92      15:48:13                                                                                          PAGE   24

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF12

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
     1.000      4.41     965.11     964.37     960.90     965.43       0.33       0.00       0.00     963.40
 10000.0     3149.1     4105.5     2745.4      651.6      919.4      619.6        0.0        0.0     963.10
     0.00      4.83       4.47       4.43      0.050      0.050      0.050      0.000     960.70    1805.98
 0.008336        0.         0.         0.          0         41         10       0.00    1026.01    2831.99

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=    965.11

 STA=    1806.     1884.     1902.     1998.     2055.     2085.     2513.     2564.     2639.     2729.     2804.     2832.
   PER Q=     10.9       3.9       9.8       4.9       2.0      41.1       5.8       8.2       8.8       4.5       0.2
    AREA=    211.3      63.2     212.0     113.9      51.3     919.4     120.3     173.1     194.3     120.6      11.3
     VEL=      5.2       6.2       4.6       4.3       3.9       4.5       4.8       4.7       4.5       3.7       1.5
   DEPTH=      2.7       3.5       2.2       2.0       1.7       2.1       2.4       2.3       2.2       1.6       0.4

1
    31MAR92      15:48:13                                                                                          PAGE   25

 T1 Gila Bend Floodplain Delineation Study, 11358 12/9/91
 T2 FILENAME= C81-RGHT.H2  Flow Split At CPP 81 For Right Side
 T3       Q=15000

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0.       14.         0.         0.     0.0083         0.         0.         0.     960.9        0.

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

    13.0        0.        -1.0        0.         0.         0.         -1.        0.         0.         15.

1
    31MAR92      15:48:13                                                                                          PAGE   26

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF13

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
 3840 SECTION NOT HIGH ENOUGH  1043.750  1016.900   960.700  1025.000   962.900        14
     1.000      5.02     965.72     964.82     960.90     966.16       0.44       0.00       0.00     963.40
 15000.0     4577.8     6202.1     4220.1      821.2     1179.5      819.9        0.0        0.0     963.10
     0.00      5.57       5.26       5.16      0.050      0.050      0.050      0.000     960.70    1805.97
 0.008290        0.         0.         0.          0         44         10       0.00    1047.05    2853.03
```

FLOW DISTRIBUTION FOR SECNO= 1.00 CWSEL= 965.72

| STA= | 1806. | 1884. | 1902. | 1998. | 2055. | 2085. | 2513. | 2564. | 2639. | 2729. | 2804. | 2853. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 10.1 | 3.4 | 9.7 | 5.1 | 2.2 | 41.3 | 5.6 | 8.1 | 8.9 | 5.1 | 0.5 | |
| AREA= | 258.7 | 74.1 | 270.4 | 148.5 | 69.5 | 1179.5 | 151.3 | 218.7 | 249.0 | 166.2 | 34.7 | |
| VEL= | 5.9 | 6.9 | 5.4 | 5.1 | 4.7 | 5.3 | 5.6 | 5.5 | 5.3 | 4.6 | 2.1 | |
| DEPTH= | 3.3 | 4.1 | 2.8 | 2.6 | 2.3 | 2.8 | 3.0 | 2.9 | 2.8 | 2.2 | 0.7 | |

1



THIS RUN EXECUTED 31MAR92 15:48:24

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Split At CPP 81 For Righ

SUMMARY PRINTOUT

| SECNO | Q | CWSEL | DEPTH | VLOB | VCH | VROB | QWEIR | QPR | 10*KS | SECNO | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 961.38 | 0.68 | 0.77 | 2.25 | 0.00 | 0.00 | 0.00 | 82.92 | 1.00 | 1889.83 | 2145.50 |
| 1.000 | 50.00 | 961.72 | 1.02 | 1.50 | 2.38 | 0.00 | 0.00 | 0.00 | 82.51 | 1.00 | 1887.68 | 2147.53 |
| 1.000 | 75.00 | 961.97 | 1.27 | 1.86 | 2.27 | 0.00 | 0.00 | 0.00 | 81.96 | 1.00 | 1886.07 | 2505.50 |
| 1.000 | 100.00 | 962.12 | 1.42 | 2.06 | 2.38 | 0.00 | 0.00 | 0.00 | 82.92 | 1.00 | 1885.13 | 2506.48 |
| 1.000 | 200.00 | 962.53 | 1.83 | 1.84 | 2.64 | 0.44 | 0.00 | 0.00 | 83.53 | 1.00 | 1806.00 | 2576.11 |
| 1.000 | 400.00 | 962.94 | 2.24 | 2.13 | 2.09 | 1.04 | 0.00 | 0.00 | 83.55 | 1.00 | 1806.00 | 2740.47 |
| 1.000 | 600.00 | 963.15 | 2.45 | 2.32 | 1.90 | 1.29 | 0.00 | 0.00 | 83.17 | 1.00 | 1805.99 | 2749.95 |
| 1.000 | 800.00 | 963.29 | 2.59 | 2.46 | 1.75 | 1.56 | 0.00 | 0.00 | 83.67 | 1.00 | 1805.99 | 2756.45 |
| 1.000 | 1000.00 | 963.39 | 2.69 | 2.54 | 1.77 | 1.77 | 0.00 | 0.00 | 82.93 | 1.00 | 1805.99 | 2761.24 |
| 1.000 | 1500.00 | 963.58 | 2.88 | 2.72 | 1.95 | 2.14 | 0.00 | 0.00 | 83.04 | 1.00 | 1805.99 | 2770.10 |
| 1.000 | 5000.00 | 964.36 | 3.66 | 3.82 | 3.35 | 3.38 | 0.00 | 0.00 | 83.24 | 1.00 | 1805.99 | 2805.92 |
| 1.000 | 10000.00 | 965.11 | 4.41 | 4.83 | 4.47 | 4.43 | 0.00 | 0.00 | 83.36 | 1.00 | 1805.98 | 2831.99 |
| 1.000 | 15000.00 | 965.72 | 5.02 | 5.57 | 5.26 | 5.15 | 0.00 | 0.00 | 82.90 | 1.00 | 1805.97 | 2853.03 |

1



Split At CPP 81 For Righ

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.00 | 0.00 | 0.00 | 960.70 | 25.00 | 961.38 | 961.18 | 961.46 | 82.92 | 2.25 | 11.86 | 2.75 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.70 | 50.00 | 961.72 | 961.44 | 961.80 | 82.51 | 2.38 | 22.57 | 5.50 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.70 | 75.00 | 961.97 | 961.61 | 962.05 | 81.96 | 2.27 | 34.35 | 8.28 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.70 | 100.00 | 962.12 | 961.73 | 962.21 | 82.92 | 2.38 | 43.32 | 10.98 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.70 | 200.00 | 962.53 | 962.11 | 962.62 | 83.53 | 2.64 | 85.73 | 21.88 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.70 | 400.00 | 962.94 | 962.62 | 963.01 | 83.55 | 2.09 | 205.58 | 43.76 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.70 | 600.00 | 963.15 | 962.84 | 963.21 | 83.17 | 1.90 | 311.24 | 65.79 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.70 | 800.00 | 963.29 | 962.97 | 963.35 | 83.67 | 1.75 | 407.56 | 87.46 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.70 | 1000.00 | 963.39 | 963.06 | 963.46 | 82.93 | 1.77 | 489.21 | 109.81 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.70 | 1500.00 | 963.58 | 963.25 | 963.66 | 83.04 | 1.95 | 662.94 | 164.60 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.70 | 5000.00 | 964.36 | 963.80 | 964.55 | 83.24 | 3.35 | 1427.88 | 548.02 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.70 | 10000.00 | 965.11 | 964.37 | 965.43 | 83.36 | 4.47 | 2190.63 | 1095.24 |
| 1.000 | 0.00 | 0.00 | 0.00 | 960.70 | 15000.00 | 965.72 | 964.82 | 966.16 | 82.90 | 5.26 | 2820.69 | 1647.41 |

1



Split At CPP 81 For Righ

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 961.38 | 0.00 | 0.00 | 0.48 | 26.81 | 0.00 |
| 1.000 | 50.00 | 961.72 | 0.34 | 0.00 | 0.82 | 36.44 | 0.00 |
| 1.000 | 75.00 | 961.97 | 0.25 | 0.00 | 1.07 | 57.83 | 0.00 |
| 1.000 | 100.00 | 962.12 | 0.15 | 0.00 | 1.22 | 63.62 | 0.00 |
| 1.000 | 200.00 | 962.53 | 0.41 | 0.00 | 1.63 | 194.74 | 0.00 |
| 1.000 | 400.00 | 962.94 | 0.42 | 0.00 | 2.04 | 436.57 | 0.00 |
| 1.000 | 600.00 | 963.15 | 0.20 | 0.00 | 2.25 | 620.37 | 0.00 |
| 1.000 | 800.00 | 963.29 | 0.14 | 0.00 | 2.39 | 759.94 | 0.00 |
| 1.000 | 1000.00 | 963.39 | 0.10 | 0.00 | 2.49 | 836.03 | 0.00 |
| 1.000 | 1500.00 | 963.58 | 0.19 | 0.00 | 2.68 | 959.09 | 0.00 |
| 1.000 | 5000.00 | 964.36 | 0.78 | 0.00 | 3.46 | 999.94 | 0.00 |
| 1.000 | 10000.00 | 965.11 | 0.75 | 0.00 | 4.21 | 1026.01 | 0.00 |
| 1.000 | 15000.00 | 965.72 | 0.61 | 0.00 | 4.82 | 1047.05 | 0.00 |

1



SUMMARY OF ERRORS AND SPECIAL NOTES

## C82 Summary Data

| Flow | Bender Wash (C82 at I-8) Flow Depth (feet) | | | | | |
|---|---|---|---|---|---|---|
| | A | B | C | D | E | Weir |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.70 |
| 250.00 | 3.50 | 3.77 | 0.26 | 2.39 | 1.91 | 6.25 |
| 500.00 | 4.40 | 4.82 | 0.95 | 3.63 | 3.81 | 6.50 |
| 750.00 | 5.10 | 5.63 | 2.00 | 4.67 | 4.85 | 6.69 |
| 1000.00 | 5.80 | 6.44 | 3.30 | 5.71 | 6.40 | 6.83 |
| 1500.00 | 7.30 | 8.06 | 6.25 | | | 7.09 |
| 2000.00 | | | 9.00 | | | 7.33 |

```
1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version   4.6.2;  May 1991                *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-0069   *
 *  RUN DATE    02APR92    TIME    10:27:58   *
 *********************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X
XXXXXXX  XXXX     X          XXXXX   XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   02APR92      10:27:58                                                                                    PAGE    1
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                                                                                THIS RUN EXECUTED 02APR92     10:27:58
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
 T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
 T3      BENDER WASH STRUCTURE A                    J. MISCHLER - (602) 244-8100

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                           -1

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1                  -1

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        42         1        43        26        51         4         8        53        54
      13        15        40

         INTERSTATE 8 CULVERT WEST OF BENDER WASH. THIS MODEL IS USED TO
         GENERATE A RATING CURVE FOR USE IN COMPUTING AN ELEVATION UPSTREAM
         OF INTERSTATE 8.


 NC    0.035     0.035      0.03       0.3       0.5
 QT        4       250       500      1000      1500
 X1     1738         5     800.0    1300.0
 GR    770.0     300.0     771.0     800.0     768.0    1000.0     768.0    1200.0     772.0    1300.0

 NC    0.035     0.035      0.03       0.3       0.5
 X1                 5     950.0    1100.0     450.0     450.0     450.0
 X3       10                                                        790       790
 GR    774.0     400.0     774.0     950.0    771.75     970.0    771.75    1020.0     774.0    1100.0

         WIER FLOW IS NOT ANTICIPATED, THEREFORE USE DUMMY RDLEN = 100 FT


 SC    5.014       0.4         3     100.0       3.7        10     200.0       8.1     774.0     772.0
 X1                  6     950.0    1020.0     200.0     200.0     200.0
 X2                            2                 790
 X3       10                                                        790       790
 GR    776.0     900.0     778.0     930.0     776.0     950.0     772.0     970.0     772.0    1020.0
 GR    776.0    1030.0
```

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1
   02APR92      10:27:58                                                                                    PAGE    2
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```
         REPEAT SECTION 200 FT UPSTREAM FOR CONTRACTION LOSSES. USE PSXECE =
              0.5

 X1                                                  200       200       200                   0.5
1
   02APR92      10:27:58                                                                                    PAGE    3

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1
0

 CCHV=    0.300 CEHV=    0.500
 *SECNO 1738.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
   1738.000      0.35    768.35    768.35      0.00    768.52      0.17      0.00      0.00    771.00
      250.0       0.0     250.0       0.0       0.0      76.7       0.0       0.0       0.0    772.00
       0.00      0.00      3.26      0.00     0.000     0.030     0.000     0.000    768.00    976.37
   0.019032        0.        0.        0.         0        17         0      0.00    232.50   1208.86


 CCHV=    0.300 CEHV=    0.500
 *SECNO 0.000
```

```
3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     0.000      1.04    772.79      0.00      0.00    772.96      0.17      4.44      0.00    774.00
     250.0       0.0     250.0       0.0       0.0      76.1       0.0       0.8       1.7    774.00
      0.04      0.00      3.28      0.00     0.000     0.030     0.000     0.000    771.75    960.75
  0.006018      450.      450.      450.         7         0         0      0.00     96.26   1057.01


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     5        0.014     0.40      3.00      100.00    3.70      10.00     200.00    8         1         774.00    772.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 0.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    775.428  EGOC =    775.562  PCWSE=    772.791  ELTRD=    790.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.75
1
   02APR92       10:27:58                                                                                    PAGE    4

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

SPECIAL CULVERT

     EGIC      EGOC       H4      QWEIR     QCULV      VCH     ACULV     ELTRD    WEIRLN
    775.43    775.56     2.60       0.      250.     1.200     185.0    790.00       0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     0.000      3.54    775.54      0.00      0.00    775.56      0.02      2.60      0.00    776.00
     250.0       0.0     250.0       0.0       0.0     208.3       0.0       1.4       2.1    772.00
      0.08      0.00      1.20      0.00     0.000     0.030     0.000     0.000    772.00    952.30
  0.000132      200.      200.      200.         2         0         0      0.00     67.70   1020.00

*SECNO 0.000
     0.000      3.07    775.57      0.00      0.00    775.60      0.03      0.03      0.00    776.50
     250.0       0.0     241.0       9.0       0.0     176.8      11.8       2.4       2.4    772.50
      0.13      0.00      1.36      0.76     0.000     0.030     0.035     0.000    772.50    954.67
  0.000202      200.      200.      200.         2         0         0      0.00     73.00   1027.67

1
   02APR92       10:27:58                                                                                    PAGE    5

T1       FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2       GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3       BENDER WASH - BEND1.RAT                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 3                           -1

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     2                   -1

1
   02APR92       10:27:58                                                                                    PAGE    6

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2
0

CCHV=    0.300 CEHV=    0.500
*SECNO 1738.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
  1738.000      0.55    768.55    768.55      0.00    768.80      0.25      0.00      0.00    771.00
     500.0       0.0     500.0       0.0       0.0     124.6       0.0       0.0       0.0    772.00
      0.00      0.00      4.01      0.00     0.000     0.030     0.000     0.000    768.00    963.14
  0.016673        0.        0.        0.         0        10         0      0.00    250.68   1213.82

CCHV=    0.300 CEHV=    0.500
*SECNO 0.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.54

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     0.000      1.44    773.19      0.00      0.00    773.46      0.28      4.65      0.01    774.00
     500.0       0.0     500.0       0.0       0.0     117.9       0.0       1.3       1.9    774.00
      0.03      0.00      4.24      0.00     0.000     0.030     0.000     0.000    771.75    957.22
  0.007018      450.      450.      450.         6         0         0      0.00    113.91   1071.13
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SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     5        0.014     0.40      3.00     100.00     3.70     10.00     200.00     8         1        774.00    772.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 0.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    776.305  EGOC =    776.480  PCWSE=    773.185  ELTRD=    790.000

3280 CROSS SECTION      0.00 EXTENDED      0.43 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.49

1
   02APR92      10:27:58                                                                                          PAGE    7

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

SPECIAL CULVERT

     EGIC      EGOC       H4      QWEIR     QCULV      VCH     ACULV     ELTRD    WEIRLN
   776.31    776.48     3.02        0.      500.     1.853     185.0    790.00        0.


3498 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     0.000      4.43    776.43      0.00      0.00    776.48      0.05      3.02      0.00    776.00
     500.0       0.0     500.0       0.0       0.0     269.9       0.0       2.1       2.3    772.00
      0.05      0.00      1.85      0.00     0.000     0.030     0.000     0.000    772.00    950.00
  0.000233      200.      200.      200.         2         0         0      0.00     70.00   1020.00

*SECNO 0.000
     0.000      3.98    776.48      0.00      0.00    776.54      0.06      0.05      0.00    776.50
     500.0       0.0     477.4      22.6       0.0     238.2      19.7       3.4       2.6    772.50
      0.09      0.00      2.00      1.15     0.000     0.030     0.035     0.000    772.50    950.13
  0.000321      200.      200.      200.         2         0         0      0.00     79.81   1029.94

1
   02APR92      10:27:58                                                                                          PAGE    8

T1       FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2       GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3       BENDER WASH - BEND1.RAT                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                4                           -1

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3                  -1

1
   02APR92      10:27:58                                                                                          PAGE    9

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3
0

CCHV=    0.300 CEHV=    0.500
*SECNO 1738.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
  1738.000      0.86    768.86    768.86      0.00    769.23      0.37      0.00      0.00    771.00
    1000.0       0.0    1000.0       0.0       0.0     204.9       0.0       0.0       0.0    772.00
      0.00      0.00      4.88      0.00     0.000     0.030     0.000     0.000    768.00    942.91
  0.014624        0.        0.        0.         0        10         0      0.00    278.50   1221.41

CCHV=    0.300 CEHV=    0.500
*SECNO 0.000

3498 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     0.000      1.96    773.70      0.00      0.00    774.17      0.47      4.89      0.06    774.00
    1000.0       0.0    1000.0       0.0       0.0     182.0       0.0       2.0       2.1    774.00
      0.02      0.00      5.49      0.00     0.000     0.030     0.000     0.000    771.75    952.66
  0.008406      450.      450.      450.         4         0         0      0.00    136.68   1089.34


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     5        0.014     0.40      3.00     100.00     3.70     10.00     200.00     8         1        774.00    772.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 0.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    777.726  EGOC =    777.937  PCWSE=    773.702  ELTRD=    790.000
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3280 CROSS SECTION       0.00 EXTENDED       1.82 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.02

1
   02APR92       10:27:58                                                                                    PAGE   10

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

SPECIAL CULVERT

    EGIC       EGOC       H4         QWEIR      QCULV      VCH        ACULV      ELTRD      WEIRLN
   777.73     777.94      3.77        0.       1000.      2.721      185.0      790.00        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     0.000      5.82     777.82      0.00       0.00     777.94       0.11       3.77       0.00     776.00
    1000.0       0.0    1000.0       0.0        0.0      367.6        0.0        3.3        2.6     772.00
      0.04      0.00      2.72      0.00      0.000      0.030      0.000      0.000     772.00     950.00
  0.000333      200.      200.      200.          2          0          0       0.00      70.00    1020.00

*SECNO 0.000

3265 DIVIDED FLOW

3280 CROSS SECTION       0.00 EXTENDED       1.40 FEET

     0.000      5.40     777.90      0.00       0.00     778.01       0.11       0.07       0.00     776.50
    1000.0      15.6      928.6      55.8       24.6      338.1       34.0        5.0        3.0     772.50
      0.06      0.63       2.75      1.64      0.035      0.030      0.035      0.000     772.50     900.00
  0.000379      200.      200.      200.          2          0          0       0.00     115.04    1030.00

1
   02APR92       10:27:58                                                                                    PAGE   11

T1       FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2       GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3       BENDER WASH - BEND1.RAT                    J. MISCHLER - (602) 244-8100

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                5                                 -1

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     15                    -1

1
   02APR92       10:27:58                                                                                    PAGE   12

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 4
0

CCHV=    0.300 CEHV=    0.500
*SECNO 1738.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
  1738.000      1.10     769.10     769.10       0.00     769.56       0.46       0.00       0.00     771.00
    1500.0       0.0     1500.0       0.0        0.0      275.3        0.0        0.0        0.0     772.00
      0.00      0.00       5.45      0.00      0.000      0.030      0.000      0.000     768.00     926.70
  0.013620        0.         0.        0.          0          7          0       0.00     300.78    1227.49

CCHV=    0.300 CEHV=    0.500
*SECNO 0.000
3280 CROSS SECTION       0.00 EXTENDED       0.05 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     0.000      2.30     774.05      0.00       0.00     774.70       0.64       5.05       0.09     774.00
    1500.0       0.0     1500.0       0.0        0.0      233.1        0.0        2.6        2.3     774.00
      0.02      0.00       6.43      0.00      0.000      0.030      0.000      0.000     771.75     950.00
  0.009390      450.      450.      450.          5          0          0       0.00     150.00    1100.00


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     5         0.014      0.40       3.00      100.00      3.70       10.00      200.00      8          1         774.00     772.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 0.000

SPECIAL CULVERT INLET CONTROL
EGIC =     779.510  EGOC =     779.159  PCWSE=     774.054  ELTRD=     790.000

3280 CROSS SECTION       0.00 EXTENDED       3.35 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.42

1
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL CULVERT

| EGIC | EGOC | H4 | QWEIR | QCULV | VCH | ACULV | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|
| 779.51 | 779.16 | 4.81 | 0. | 1500. | 3.159 | 185.0 | 790.00 | 0. |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 790.00 ELREA= 790.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 7.35 | 779.35 | 0.00 | 0.00 | 779.51 | 0.15 | 4.81 | 0.00 | 776.00 |
| 1500.0 | 0.0 | 1500.0 | 0.0 | 0.0 | 474.8 | 0.0 | 4.3 | 2.8 | 772.00 |
| 0.04 | 0.00 | 3.16 | 0.00 | 0.000 | 0.030 | 0.000 | 0.000 | 772.00 | 950.00 |
| 0.000319 | 200. | 200. | 200. | 2 | 0 | 0 | 0.00 | 70.00 | 1020.00 |

*SECNO 0.000
3280 CROSS SECTION 0.00 EXTENDED 2.97 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 6.96 | 779.46 | 0.00 | 0.00 | 779.58 | 0.12 | 0.06 | 0.01 | 776.50 |
| 1500.0 | 108.2 | 1306.6 | 85.3 | 98.4 | 447.7 | 49.7 | 6.7 | 3.3 | 772.50 |
| 0.06 | 1.10 | 2.92 | 1.72 | 0.035 | 0.030 | 0.035 | 0.000 | 772.50 | 900.00 |
| 0.000295 | 200. | 200. | 200. | 2 | 0 | 0 | 0.00 | 130.00 | 1030.00 |

1


THIS RUN EXECUTED 02APR92 10:28:02

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BENDER WASH STRUCTURE A

SUMMARY PRINTOUT

| | SECNO | ELMIN | CWSEL | Q | VCH | DIFWSX | TOPWID | DEPTH | SSTA | ENDST | QLOB | QROB | ELTRD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 1738.000 | 768.00 | 768.35 | 250.00 | 3.26 | 0.00 | 232.50 | 0.35 | 976.37 | 1208.86 | 0.00 | 0.00 | 0.00 |
| * | 1738.000 | 768.00 | 768.55 | 500.00 | 4.01 | 0.00 | 250.68 | 0.55 | 963.14 | 1213.82 | 0.00 | 0.00 | 0.00 |
| * | 1738.000 | 768.00 | 768.86 | 1000.00 | 4.88 | 0.00 | 278.50 | 0.86 | 942.91 | 1221.41 | 0.00 | 0.00 | 0.[illegible] |
| * | 1738.000 | 768.00 | 769.10 | 1500.00 | 5.45 | 0.00 | 300.78 | 1.10 | 926.70 | 1227.49 | 0.00 | 0.00 | 0.[illegible] |
| * | 0.000 | 771.75 | 772.79 | 250.00 | 3.28 | 4.44 | 96.26 | 1.04 | 960.75 | 1057.01 | 0.00 | 0.00 | 0.[illegible] |
| * | 0.000 | 771.75 | 773.19 | 500.00 | 4.24 | 4.63 | 113.91 | 1.44 | 957.22 | 1071.13 | 0.00 | 0.00 | 0.00 |
| | 0.000 | 771.75 | 773.70 | 1000.00 | 5.49 | 4.85 | 136.68 | 1.95 | 952.66 | 1089.34 | 0.00 | 0.00 | 0.00 |
| | 0.000 | 771.75 | 774.05 | 1500.00 | 6.43 | 4.95 | 150.00 | 2.30 | 950.00 | 1100.00 | 0.00 | 0.00 | 0.00 |
| * | 0.000 | 772.00 | 775.54 | 250.00 | 1.20 | 2.75 | 67.70 | 3.54 | 952.30 | 1020.00 | 0.00 | 0.00 | 790.00 |
| * | 0.000 | 772.00 | 776.43 | 500.00 | 1.85 | 3.24 | 70.00 | 4.43 | 950.00 | 1020.00 | 0.00 | 0.00 | 790.00 |
| * | 0.000 | 772.00 | 777.82 | 1000.00 | 2.72 | 4.12 | 70.00 | 5.82 | 950.00 | 1020.00 | 0.00 | 0.00 | 790.00 |
| * | 0.000 | 772.00 | 779.35 | 1500.00 | 3.16 | 5.30 | 70.00 | 7.35 | 950.00 | 1020.00 | 0.00 | 0.00 | 790.00 |
| | 0.000 | 772.50 | 775.57 | 250.00 | 1.36 | 0.03 | 73.00 | 3.07 | 954.67 | 1027.57 | 0.00 | 8.97 | 0.00 |
| | 0.000 | 772.50 | 776.48 | 500.00 | 2.00 | 0.05 | 79.81 | 3.98 | 950.13 | 1029.94 | 0.00 | 22.61 | 0.00 |
| | 0.000 | 772.50 | 777.90 | 1000.00 | 2.75 | 0.08 | 115.04 | 5.40 | 900.00 | 1030.00 | 15.59 | 55.81 | 0.00 |
| | 0.000 | 772.50 | 779.46 | 1500.00 | 2.92 | 0.11 | 130.00 | 6.96 | 900.00 | 1030.00 | 108.17 | 85.27 | 0.00 |

1


SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 1738.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1738.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1738.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1738.000 PROFILE= 4 CRITICAL DEPTH ASSUMED

WARNING SECNO= 0.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 0.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 0.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 0.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 0.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 0.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version    4.6.2;  May 1991               *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE    02APR92    TIME   10:28:21    *
 *********************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   02APR92      10:28:21                                                                    PAGE    1

*************************************                                THIS RUN EXECUTED 02APR92     10:28:21
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************

 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
 T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
 T3      BENDER WASH STRUCTURE B                  J. MISCHLER - (602) 244-8100

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                             -1

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1                  -1

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        42         1        43        26        51         4         8        53        54
      13        15        40

        INTERSTATE B CULVERT WEST OF BENDER WASH. THIS MODEL IS USED TO
        GENERATE A RATING CURVE FOR USE IN COMPUTING AN ELEVATION UPSTREAM
        OF INTERSTATE 8.


 NC    0.035     0.035     0.03      0.3       0.5
 QT        3       250       500      1000
 X1     1738         5     600.0    1100.0
 GR    770.0     100.0     771.0     600.0     768.0     800.0     768.0    1000.0     772.0    1100.0

 NC    0.035     0.035     0.03      0.3       0.5
 X1                 4     930.0    1300.0     450.0     450.0     450.0
 X3       10                                                                  790       790
 GR    774.0     930.0     772.2     980.0     772.2    1020.0     776.0    1300.0

        WIER FLOW IS NOT ANTICIPATED, THEREFORE USE DUMMY RDLEN = 100 FT


 SC    4.014       0.4         3     100.0       3.7        10     200.0       8.1     774.5     772.0
 X1                  6     970.0    1030.0     200.0     200.0     200.0
 X2                              2                 790
 X3       10                                                                  790       790
 GR    778.0     930.0     776.0     970.0     772.5     980.0     772.5    1020.0     776.0    1030.0
 GR    778.0    1300.0
1
   02APR92      10:28:21                                                                    PAGE    2

        REPEAT SECTION 200 FT UPSTREAM FOR CONTRACTION LOSSES. USE PSXECE =
             0.5

 X1                                                 200       200       200                 0.5
1
   02APR92      10:28:21                                                                    PAGE    3

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1
0

 CCHV=    0.300 CEHV=    0.500
 *SECNO 1738.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
   1738.000      0.35    768.35    768.35      0.00    768.52      0.17      0.00      0.00    771.00
      250.0       0.0     250.0       0.0       0.0      76.7       0.0       0.0       0.0    772.00
       0.00      0.00      3.26      0.00     0.000     0.030     0.000     0.000    768.00    776.37
  0.019032        0.        0.        0.         0        17         0      0.00    232.50   1008.86

 CCHV=    0.300 CEHV=    0.500
 *SECNO 0.000
```

```
3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.68

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     0.000      0.96    773.16      0.00      0.00    773.29      0.14      4.76      0.01    774.00
     250.0       0.0     250.0       0.0       0.0      84.8       0.0       0.8       1.9    776.00
      0.04      0.00      2.95      0.00     0.000     0.030     0.000     0.000    772.20    953.41
  0.006732      450.      450.      450.         7         0         0      0.00    137.12   1090.53


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     4        0.014     0.40      3.00      100.00    3.70      10.00     200.00    8         1         774.50    772.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 0.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    776.161  EGOC =    776.299  PCWSE=    773.159  ELTRD=    790.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.66
1
   02APR92       10:28:21                                                                                    PAGE    4

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

SPECIAL CULVERT

    EGIC      EGOC      H4        QWEIR     QCULV     VCH       ACULV     ELTRD     WEIRLN
   776.16    776.30     3.01       0.       250.      1.307     148.0     790.00      0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     0.000      3.77    776.27      0.00      0.00    776.30      0.03      3.01      0.00    776.00
     250.0       0.0     250.0       0.0       0.0     191.3       0.0       1.5       2.4    776.00
      0.08      0.00      1.31      0.00     0.000     0.030     0.000     0.000    772.50    970.00
  0.000152      200.      200.      200.         2         0         0      0.00     60.00   1030.00

*SECNO 0.000
     0.000      3.31    776.31      0.00      0.00    776.34      0.04      0.04      0.00    776.50
     250.0       0.0     250.0       0.0       0.0     163.3       0.0       2.3       2.6    776.50
      0.12      0.00      1.53      0.00     0.000     0.030     0.000     0.000    773.00    970.56
  0.000251      200.      200.      200.         2         0         0      0.00     58.87   1029.44

1
   02APR92       10:28:21                                                                                    PAGE    5

T1       FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2       GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3       BENDER WASH - BEND2.RAT                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                             -1

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2                  -1

1
   02APR92       10:28:21                                                                                    PAGE    6

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2
0

CCHV=    0.300 CEHV=    0.500
*SECNO 1738.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
  1738.000      0.55    768.55    768.55      0.00    768.80      0.25      0.00      0.00    771.00
     500.0       0.0     500.0       0.0       0.0     124.6       0.0       0.0       0.0    772.00
      0.00      0.00      4.01      0.00     0.000     0.030     0.000     0.000    768.00    763.14
  0.016673        0.        0.        0.         0        10         0      0.00    250.68   1013.82

CCHV=    0.300 CEHV=    0.500
*SECNO 0.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.48

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     0.000      1.28    773.48      0.00      0.00    773.69      0.21      4.88      0.01    774.00
     500.0       0.0     500.0       0.0       0.0     135.0       0.0       1.3       2.2    776.00
      0.03      0.00      3.70      0.00     0.000     0.030     0.000     0.000    772.20    944.32
  0.007614      450.      450.      450.         6         0         0      0.00    170.31   1114.63
```

```
SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     4        0.014     0.40      3.00      100.00    3.70      10.00     200.00    8         1         774.50    772.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 0.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    777.185  EGOC =    777.378  PCWSE=    773.482  ELTRD=    790.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.67

1
   02APR92      10:28:21                                                                                          PAGE    7

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

SPECIAL CULVERT

     EGIC      EGOC       H4      QWEIR     QCULV      VCH     ACULV     ELTRD    WEIRLN
   777.19    777.38     3.68         0.      500.    1.968     148.0    790.00        0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      790.00 ELREA=      790.00

     0.000      4.82    777.32      0.00      0.00    777.38      0.06      3.68      0.00    776.00
     500.0       0.0     500.0       0.0       0.0     254.1       0.0       2.2       2.7    776.00
      0.06      0.00      1.97      0.00     0.000     0.030     0.000     0.000    772.50    970.00
  0.000236      200.      200.      200.         2         0         0      0.00     60.00   1030.00

*SECNO 0.000
     0.000      4.37    777.37      0.00      0.00    777.43      0.06      0.05      0.00    776.50
     500.0       3.3     474.7      22.0       7.6     227.3      51.3       3.5       3.3    776.50
      0.09      0.43      2.09      0.43     0.035     0.030     0.035     0.000    773.00    952.57
  0.000309      200.      200.      200.         2         0         0      0.00    195.11   1147.68

1
   02APR92      10:28:21                                                                                          PAGE    8

T1       FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2       GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3       BENDER WASH - BEND2.RAT                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 4                           -1

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     15                  -1

1
   02APR92      10:28:21                                                                                          PAGE    9

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3
0

CCHV=    0.300 CEHV=    0.500
*SECNO 1738.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
  1738.000      0.86    768.86    768.86      0.00    769.23      0.37      0.00      0.00    771.00
    1000.0       0.0    1000.0       0.0       0.0     204.9       0.0       0.0       0.0    772.00
      0.00      0.00      4.88      0.00     0.000     0.030     0.000     0.000    768.00    742.91
  0.014624        0.        0.        0.         0        10         0      0.00    278.50   1021.41

CCHV=    0.300 CEHV=    0.500
*SECNO 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      790.00 ELREA=      790.00

     0.000      1.70    773.90      0.00      0.00    774.24      0.34      5.00      0.01    774.00
    1000.0       0.0    1000.0       0.0       0.0     214.6       0.0       2.2       2.5    776.00
      0.03      0.00      4.66      0.00     0.000     0.030     0.000     0.000    772.20    932.78
  0.008738      450.      450.      450.         4         0         0      0.00    212.47   1145.25

SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     4        0.014     0.40      3.00      100.00    3.70      10.00     200.00    8         1         774.50    772.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 0.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    778.868  EGOC =    779.069  PCWSE=    773.902  ELTRD=    790.000

3280 CROSS SECTION      0.00 EXTENDED      0.94 FEET
```

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 6.22

1

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL CULVERT

| EGIC | EGOC | H4 | QWEIR | QCULV | VCH | ACULV | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|
| 778.87 | 779.07 | 4.83 | 0. | 1000. | 2.844 | 148.0 | 790.00 | 0. |

3496 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 790.00 ELREA= 790.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 6.44 | 778.94 | 0.00 | 0.00 | 779.07 | 0.13 | 4.83 | 0.00 | 776.00 |
| 1000.0 | 0.0 | 1000.0 | 0.0 | 0.0 | 351.6 | 0.0 | 3.5 | 3.2 | 776.00 |
| 0.05 | 0.00 | 2.84 | 0.00 | 0.000 | 0.030 | 0.000 | 0.000 | 772.50 | 970.00 |
| 0.000320 | 200. | 200. | 200. | 2 | 0 | 0 | 0.00 | 60.00 | 1030.00 |

*SECNO 0.000
3280 CROSS SECTION 0.00 EXTENDED 0.60 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.42

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 6.10 | 779.10 | 0.00 | 0.00 | 779.14 | 0.04 | 0.04 | 0.03 | 776.50 |
| 1000.0 | 46.5 | 637.1 | 316.5 | 64.1 | 331.1 | 432.7 | 6.2 | 4.1 | 776.50 |
| 0.08 | 0.72 | 1.92 | 0.73 | 0.035 | 0.030 | 0.035 | 0.000 | 773.00 | 930.00 |
| 0.000159 | 200. | 200. | 200. | 2 | 0 | 0 | 0.00 | 370.00 | 1300.00 |

1

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THIS RUN EXECUTED 02APR92 10:28:24

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BENDER WASH STRUCTURE 8

SUMMARY PRINTOUT

| | SECNO | ELMIN | CWSEL | Q | VCH | DIFWSX | TOPWID | DEPTH | SSTA | ENDST | QLOB | QROB | EL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 1738.000 | 768.00 | 768.35 | 250.00 | 3.26 | 0.00 | 232.50 | 0.35 | 776.37 | 1008.86 | 0.00 | 0.00 | 0.00 |
| * | 1738.000 | 768.00 | 768.55 | 500.00 | 4.01 | 0.00 | 250.68 | 0.55 | 763.14 | 1013.82 | 0.00 | 0.00 | 0.00 |
| * | 1738.000 | 768.00 | 768.86 | 1000.00 | 4.88 | 0.00 | 278.50 | 0.86 | 742.91 | 1021.41 | 0.00 | 0.00 | 0.00 |
| * | 0.000 | 772.20 | 773.16 | 250.00 | 2.95 | 4.80 | 137.12 | 0.95 | 953.41 | 1090.53 | 0.00 | 0.00 | 0.00 |
| * | 0.000 | 772.20 | 773.48 | 500.00 | 3.70 | 4.93 | 170.31 | 1.28 | 944.32 | 1114.63 | 0.00 | 0.00 | 0.00 |
| | 0.000 | 772.20 | 773.90 | 1000.00 | 4.66 | 5.05 | 212.47 | 1.70 | 932.78 | 1145.25 | 0.00 | 0.00 | 0.00 |
| * | 0.000 | 772.50 | 776.27 | 250.00 | 1.31 | 3.11 | 60.00 | 3.77 | 970.00 | 1030.00 | 0.00 | 0.00 | 790.00 |
| * | 0.000 | 772.50 | 777.32 | 500.00 | 1.97 | 3.84 | 60.00 | 4.82 | 970.00 | 1030.00 | 0.00 | 0.00 | 790.00 |
| * | 0.000 | 772.50 | 778.94 | 1000.00 | 2.84 | 5.04 | 60.00 | 6.44 | 970.00 | 1030.00 | 0.00 | 0.00 | 790.00 |
| | 0.000 | 773.00 | 776.31 | 250.00 | 1.53 | 0.03 | 58.87 | 3.31 | 970.56 | 1029.44 | 0.00 | 0.00 | 0.00 |
| | 0.000 | 773.00 | 777.37 | 500.00 | 2.09 | 0.05 | 198.11 | 4.37 | 952.57 | 1147.68 | 3.26 | 22.00 | 0.00 |
| * | 0.000 | 773.00 | 779.10 | 1000.00 | 1.92 | 0.16 | 370.00 | 6.10 | 930.00 | 1300.00 | 46.45 | 316.46 | 0.00 |

1

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 1738.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1738.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1738.000 PROFILE= 3 CRITICAL DEPTH ASSUMED

WARNING SECNO= 0.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 0.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 0.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 0.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 0.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 0.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2:  May 1991            *
 *  386 Extended Memory version, August 1991 *
 *  Dodson & Associates, Inc 1-800-235-8069  *
 *  RUN DATE    02APR92    TIME   10:28:43   *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************
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```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X
XXXXXXX  XXXX     X          XXXXX   XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1

02APR92  10:28:43

PAGE 1

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*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2:  May 1991
*************************************
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THIS RUN EXECUTED 02APR92  10:28:43

```
T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      BENDER WASH STRUCTURE C                J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
                2                        0.0047

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     1                 -1

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38       42        1       43       26       51        4        8       53       54
     13       15       40

        SECTIONS ARE LABELED AS  RIVER MILES * 1000, i.e., SECTION 037 IS AT
        A POINT 0.037 MILES UPSTREAM OF THE CONFLUENCE WITH SAND TANKS WASH.

QT       2     1000     2000
NC    0.03     0.03     0.03      0.1      0.3
X1    1738       35   9989.9  10023.9    860.0    720.0    855.0
GR   776.0   9451.2    771.5   9481.6    770.6   9534.7    770.4   9575.2    770.5   9617.0
GR   768.8   9635.2    770.5   9691.8    770.9   9791.1    770.6   9870.8    769.9   9888.6
GR   767.6   9919.0    768.9   9946.7    770.4   9974.5    770.2   9989.9    766.8  10000.0
GR   768.6  10011.3    770.3  10023.9    769.3  10038.9    769.9  10061.3    770.6  10099.5
GR   770.7  10156.4    770.6  10189.2    768.9  10197.3    770.3  10209.7    769.0  10220.9
GR   770.3  10255.7    770.0  10337.4    770.0  10438.8    769.4  10532.4    767.5  10541.5
GR   769.7  10569.0    769.3  10641.2    769.3  10709.3    768.4  10759.5    770.0  10780.9

NC   0.035    0.035    0.03
X1    1903        9   9949.8  10037.1    900.0    880.0    871.0
GR   776.5   9880.5    775.5   9916.6    775.1   9949.8    773.8   9975.3    773.1   9997.9
GR   771.7  10000.0    772.8  10019.7    775.3  10037.1    776.8  10058.3

        BENDER WASH IS CONVEYED BENEATH INTERSTATE 8 BY A TWIN BARREL
        CONCRETE BOX CULVERT.  SIGNIFICANT SEDIMENT WAS NOTED AT THE TIME OF
        THE FIELD RECONNAISSANCE, RESULTING IN A REDUCED EFFECTIVE RISE
        OF 3.4 FEET INSTEAD OF 8 FEET AS CONSTRUCTED.

        THE CHANNEL DOWNSTREAM OF THE CULVERT HAS BEEN GRADED TO REMOVE
        SOME OF THE SEDIMENT, BUT THE CULVERT HAS NOT BEEN CLEARED BECAUSE
```

1

02APR92  10:28:43

PAGE 2

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        THE EQUIPMENT COULD NOT ENTER THE BOXES.

        REPEAT SECTION 1903 AT THE DOWNSTREAM FACE OF THE CULVERT.
        USE PSXECE = (772CONTOUR-768CONTOUR)*(180FT/640FT) = 1.1 FT
        REVISE CHANNEL BOTTOM TO REFLECT GRADING TO ELEV 774.1  (1.0 FT BELOW
        THE CULVERT SEDIMENT ELEVATION AS ESTIMATED DURING THE FIELD RECON.

        INCREASE EXPANSION/CONTRACTION COEFFICIENTS FOR THE CULVERT.

NC                                 0.3      0.5
X1    1940        7    9967     10033      100      240      195                1.1
X3      10                                                            781.4    781.4
GR   776.5   9880.5   775.5   9916.6    775.1   9949.8      773     9967      773    10033
GR   775.3  10037.1   776.8  10058.3

        WIER FLOW IS NOT ANTICIPATED.  USE SC.5 RDLEN = 500 FT.
        ELTRD = 782.4 + 0.5 HV = 782.9

SC   6.014      0.4      3      500     3.37       10      240      8.1    776.4    775.1
X1    1987                              250      250      250                1.3
X2                       2                782.9                             782.4    782.4
X3      10

        DEVELOP A SECTION UPSTREAM OF I-8 USING TOPO MAP DATA IN ORDER
        TO COMPUTE CONTRACTION LOSSES.

X1    2041        9    9900     10050      310      240      285
```

```
GR      780       9550        778       9620        779       9700        778       9800        780       9840
GR      780       9900        777      10000        780      10050        784      10240
1
   02APR92      10:28:43                                                                                    PAGE    3

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 1

 CCHV=    0.100 CEHV=    0.300
 *SECNO 1738.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

 3268 DIVIDED FLOW

   1738.000      2.96     769.76       0.00       0.00     769.92       0.17       0.00       0.00     770.20
     1000.0     349.8      174.9      475.3       99.4       41.2      181.5        0.0        0.0     770.30
       0.00      3.52       4.25       2.62      0.030      0.030      0.030      0.000     766.80    9624.96
   0.004686      860.       855.       720.          0          0          8       0.00     505.90   10777.64

 *SECNO 1903.000

 3301 HV CHANGED MORE THAN HVINS

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.68

   1903.000      3.50     775.20     775.13       0.00     775.96       0.76       5.86       0.18     775.10
     1000.0       0.3      999.7        0.0        0.5      143.3        0.0        4.7        6.1     775.30
       0.03      0.61       6.97       0.00      0.035      0.030      0.000      0.000     771.70    9940.90
   0.010238      900.       871.       880.          6         11          0       0.00      95.55   10036.45

 CCHV=    0.300 CEHV=    0.500
 *SECNO 1940.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.59

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       781.40 ELREA=       781.40

   1940.000      2.57     776.67       0.00       0.00     777.21       0.54       1.19       0.06     774.10
     1000.0       0.0     1000.0        0.0        0.0      169.4        0.0        5.4        6.4     774.10
       0.04      0.00       5.90       0.00      0.000      0.030      0.000      0.000     774.10    9967.00
   0.004039      100.       195.       240.          2          0          0       0.00      66.00   10033.00

1
   02APR92      10:28:43                                                                                    PAGE    4

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 SPECIAL CULVERT

 SC  CUNO      CUNV      ENTLC      COFQ      RDLEN      RISE      SPAN      CULVLN     CHRT      SCL       ELCHU     ELCHD
      6        0.014      0.40      3.00     500.00      3.37     10.00     240.00      8         1       776.40    775.10

 CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
 SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

 *SECNO 1987.000

 SPECIAL CULVERT OUTLET CONTROL
 EGIC =    779.703  EGOC =    779.887  PCWSE=    776.668  ELTRD=    782.900

 3280 CROSS SECTION   1987.00 EXTENDED      0.79 FEET

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.36

 SPECIAL CULVERT

      EGIC       EGOC        H4      QWEIR      QCULV       VCH      ACULV      ELTRD     WEIRLN
    779.70     779.89      2.68         0.      1000.     3.529      202.2     782.90         0.


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       782.40 ELREA=       782.40

   1987.000      4.29     779.69       0.00       0.00     779.89       0.19       2.68       0.00     775.40
     1000.0       0.0     1000.0        0.0        0.0      283.4        0.0        6.7        6.8     775.40
       0.06      0.00       3.53       0.00      0.000      0.030      0.000      0.000     775.40    9967.00
   0.000727      250.       250.       250.          2          0          0       0.00      66.00   10033.00

 *SECNO 2041.000
 3280 CROSS SECTION   2041.00 EXTENDED      0.10 FEET

   2041.000      3.10     780.10       0.00       0.00     780.14       0.04       0.20       0.05     780.00
     1000.0     577.8      422.2        0.0      414.5      239.8        0.2        9.9        8.8     780.00
       0.12      1.39       1.76       0.15      0.035      0.030      0.035      0.000     777.00    9550.00
   0.000677      310.       285.       240.          2          0          0       0.00     504.69   10054.69

1
   02APR92      10:28:43                                                                                    PAGE    5

 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
 T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
 T3      BENDER WASH                                  J. MISCHLER - (602) 244-8100
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J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                3                           0.0047

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     15                  -1

1
   02APR92      10:28:43                                                                                    PAGE    6

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CCHV=    0.100 CEHV=    0.300
*SECNO 1738.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3265 DIVIDED FLOW

3280 CROSS SECTION   1738.00 EXTENDED      0.16 FEET

  1738.000      3.36    770.16      0.00      0.00    770.36      0.20      0.00      0.00    770.20
    2000.0     606.1     249.0    1144.8     152.5      53.7     370.0       0.0       0.0    770.30
      0.00      3.98      4.64      3.09     0.030     0.030     0.030     0.000    766.80   9620.61
  0.004711      860.      855.      720.         0         0         6      0.00    776.94  10780.90

*SECNO 1903.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  1903.000      4.50    776.20    776.20      0.00    777.17      0.97      5.16      0.23    775.10
    2000.0     117.7    1870.1      12.2      38.5     229.6       5.7       8.6       9.5    775.30
      0.03      3.06      8.14      2.15     0.035     0.030     0.035     0.000    771.70   9891.48
  0.007523      900.      871.      880.         8        11         0      0.00    158.28  10049.76

CCHV=    0.300 CEHV=    0.500
*SECNO 1940.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      781.40 ELREA=      781.40

  1940.000      3.32    777.42      0.00      0.00    778.71      1.30      1.38      0.16    774.10
    2000.0       0.0    2000.0       0.0       0.0     218.9       0.0       9.7       9.9    774.10
      0.04      0.00      9.14      0.00     0.000     0.030     0.000     0.000    774.10   9967.00
  0.006879      100.      195.      240.         2         0         0      0.00     66.00  10033.00

1
   02APR92      10:28:43                                                                                    PAGE    7

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     6        0.014     0.40      3.00     500.00     3.37     10.00     240.00     8         1       776.40    775.10

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 1987.000

SPECIAL CULVERT INLET CONTROL
EGIC =    782.887  EGOC =    781.935  PCWSE=    777.417  ELTRD=    782.900

3280 CROSS SECTION   1987.00 EXTENDED      3.92 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.62

SPECIAL CULVERT

    EGIC      EGOC       H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
   782.89    781.93     4.17        0.     2000.     2.362     202.2    782.90        0.

  1987.000      7.42    782.82      0.00      0.00    782.89      0.07      4.17      0.00    775.40
    2000.0     681.9    1157.1     161.0     439.3     489.9     118.4      13.3      10.6    775.40
      0.07      1.55      2.36      1.36     0.035     0.030     0.035     0.000    775.40   9880.50
  0.000157      250.      250.      250.         2         0         0      0.00    177.80  10058.30

*SECNO 2041.000
3280 CROSS SECTION   2041.00 EXTENDED      2.92 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.57

  2041.000      5.92    782.92      0.00      0.00    782.93      0.01      0.03      0.02    780.00
    2000.0    1205.5     706.3      88.3    1401.1     662.6     202.1      24.5      13.3    780.00
      0.16      0.86      1.07      0.44     0.035     0.030     0.035     0.000    777.00   9550.00
  0.000064      310.      285.      240.         2         0         0      0.00    638.57  10188.57

1
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THIS RUN EXECUTED 02APR92 10:28:46

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BENDER WASH STRUCTURE C

SUMMARY PRINTOUT

| | SECNO | ELMIN | CWSEL | Q | VCH | DIFWSX | TOPWID | DEPTH | SSTA | ENDST | QLOB | QROB | ELTRD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1738.000 | 766.80 | 769.76 | 1000.00 | 4.25 | 0.00 | 505.90 | 2.96 | 9624.96 | 10777.64 | 349.83 | 475.26 | 0.00 |
| | 1738.000 | 766.80 | 770.16 | 2000.00 | 4.64 | 0.00 | 776.94 | 3.36 | 9620.61 | 10780.90 | 606.11 | 1144.84 | 0.00 |
| * | 1903.000 | 771.70 | 775.20 | 1000.00 | 6.97 | 5.44 | 95.55 | 3.50 | 9940.90 | 10036.45 | 0.29 | 0.00 | 0.00 |
| * | 1903.000 | 771.70 | 776.20 | 2000.00 | 8.14 | 6.03 | 158.28 | 4.50 | 9891.48 | 10049.76 | 117.69 | 12.21 | 0.00 |
| * | 1940.000 | 774.10 | 776.67 | 1000.00 | 5.90 | 1.47 | 66.00 | 2.57 | 9967.00 | 10033.00 | 0.00 | 0.00 | 0.00 |
| | 1940.000 | 774.10 | 777.42 | 2000.00 | 9.14 | 1.22 | 66.00 | 3.32 | 9967.00 | 10033.00 | 0.00 | 0.00 | 0.00 |
| * | 1987.000 | 775.40 | 779.69 | 1000.00 | 3.53 | 3.03 | 66.00 | 4.29 | 9967.00 | 10033.00 | 0.00 | 0.00 | 782.90 |
| * | 1987.000 | 775.40 | 782.82 | 2000.00 | 2.36 | 5.41 | 177.80 | 7.42 | 9880.50 | 10058.30 | 681.90 | 161.01 | 782.90 |
| | 2041.000 | 777.00 | 780.10 | 1000.00 | 1.76 | 0.41 | 504.69 | 3.10 | 9550.00 | 10054.69 | 577.81 | 0.03 | 0.00 |
| * | 2041.000 | 777.00 | 782.92 | 2000.00 | 1.07 | 0.10 | 638.57 | 5.92 | 9550.00 | 10188.57 | 1205.45 | 88.26 | 0.00 |

1



SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 1903.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO= 1903.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1903.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

WARNING SECNO= 1940.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1987.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 1987.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 2041.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version   4.6.2:  May 1991                *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE    02APR92    TIME   10:29:03    *
 *********************************************
```

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*************************************
 *  U.S. ARMY CORPS OF ENGINEERS     *
 *  HYDROLOGIC ENGINEERING CENTER    *
 *  609 SECOND STREET, SUITE D       *
 *  DAVIS, CALIFORNIA 95616-4687     *
 *        (916) 756-1104             *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X            X     X
X     X  X         X                  X
XXXXXXX  XXXX      X          XXXXX   XXXXX
X     X  X         X                  X
X     X  X         X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   02APR92      10:29:04                                                                    PAGE    1
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*************************************                                THIS RUN EXECUTED 02APR92     10:29:04
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2:  May 1991
*************************************
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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      BENDER WASH STRUCTURE D                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS     Q        WSEL     FQ
                2                          -1

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN        ALLDC     IBW      CHNIM    ITRACE
     1                 -1

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38       42        1       43       26       51        4         8        53       54
     13       15       40

        INTERSTATE 8 CULVERT EAST OF BENDER WASH. THIS MODEL IS USED TO
        GENERATE A RATING CURVE FOR USE IN COMPUTING AN ELEVATION UPSTREAM
        OF INTERSTATE 8.


NC   0.035    0.035    0.03     0.3      0.5
QT       3      250     500     750
X1       1        5   965.0  1025.0
GR   784.0    880.0   780.0   965.0    778.0   1000.0    780.0   1025.0    780.0   1230.0

NC   0.035    0.035    0.03     0.3      0.5
X1       2        4   650.0  1300.0   450.0    450.0    450.0
X3      10                                                      790       790
GR   782.0    650.0   779.3   980.0    779.3   1010.0    784.0  1300.0

        WIER FLOW IS NOT ANTICIPATED, THEREFORE USE DUMMY RDLEN = 100 FT


SC   3.014      0.4        3   100.0      3.7       10    200.0       8.1   780.3    780.0
X1       3        5    970.0  1030.0    200.0    200.0    200.0
X2                         2                 790
X3      10                                                      790       790
GR   784.0    950.0   784.0   970.0    780.0    980.0    780.0  1010.0    784.0   1030.0
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1
   02APR92      10:29:04                                                                    PAGE    2
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```
X1       4        2    800.0  1250.0      200      200      200
GR   780.0    800.0   784.0  1250.0
```

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1
   02APR92      10:29:04                                                                    PAGE    3
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1
0

CCHV=    0.300 CEHV=    0.500
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED
     1.000      1.76    779.76    779.76      0.00    780.21      0.45      0.00      0.00    780.00
     250.0       0.0     250.0       0.0       0.0      46.4       0.0       0.0       0.0    780.00
      0.00      0.00      5.39      0.00     0.000     0.030     0.000     0.000    778.00    969.23
  0.014099        0.        0.        0.         0        16         0      0.00     52.75   1021.98

CCHV=    0.300 CEHV=    0.500
*SECNO 2.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.82
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     2.000      1.57    780.87      0.00      0.00    780.89      0.01      0.55      0.13    782.00
     250.0       0.0     250.0       0.0       0.0     273.8       0.0       1.7       1.9    784.00
      0.14      0.00      0.91      0.00     0.000     0.030     0.000     0.000    779.30    788.11
  0.000416      450.      450.      450.         6         0         0      0.00    318.76   1106.87


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC      COFQ      RDLEN      RISE      SPAN     CULVLN     CHRT      SCL      ELCHU     ELCHD
     3        0.014      0.40      3.00     100.00      3.70     10.00    200.00      8         1       780.30    780.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 3.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    782.348  EGOC =    782.503  PCWSE=    780.874  ELTRD=    790.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.58

1
   02APR92       10:29:04                                                                                    PAGE    4

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

SPECIAL CULVERT

     EGIC       EGOC        H4       QWEIR      QCULV       VCH      ACULV      ELTRD     WEIRLN
    782.35     782.50      1.62        0.       250.      2.682      111.0     790.00        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     3.000      2.39    782.39      0.00      0.00    782.50      0.11      1.62      0.00    784.00
     250.0       0.0     250.0       0.0       0.0      93.2       0.0       2.5       2.8    784.00
      0.16      0.00      2.68      0.00     0.000     0.030     0.000     0.000    780.00    974.02
  0.001231      200.      200.      200.         2         0         0      0.00     47.94   1021.96

*SECNO 4.000
3280 CROSS SECTION       4.00 EXTENDED       2.59 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.09

     4.000      2.59    782.59      0.00      0.00    782.59      0.01      0.06      0.03    780.00
     250.0       0.0     250.0       0.0       0.0     376.3       0.0       3.6       3.5    784.00
      0.24      0.00      0.66      0.00     0.000     0.030     0.000     0.000    780.00    800.00
  0.000129      200.      200.      200.         2         0         0      0.00    290.99   1090.99

1
   02APR92       10:29:04                                                                                    PAGE    5

T1       FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2       GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3       BENDER WASH - BEND3.RAT                    J. MISCHLER - (602) 244-8100

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                 3                                -1                                         775.0

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     2                     -1

1
   02APR92       10:29:04                                                                                    PAGE    6

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2
0

CCHV=    0.300 CEHV=    0.500
*SECNO 1.000
3280 CROSS SECTION       1.00 EXTENDED       0.37 FEET

3720 CRITICAL DEPTH ASSUMED
     1.000      2.37    780.37    780.37    775.00    780.62      0.25      0.00      0.00    780.00
     500.0       1.5     375.0     123.5       1.4      82.1      75.6       0.0       0.0    780.00
      0.00      1.03      4.56      1.63     0.035     0.030     0.035     0.000    778.00    957.16
  0.005604        0.        0.        0.         0        31         0      0.00    272.84   1230.00

CCHV=    0.300 CEHV=    0.500
*SECNO 2.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.14

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     2.000      1.95    781.25      0.00      0.00    781.28      0.02      0.59      0.07    782.00
     500.0       0.0     500.0       0.0       0.0     409.9       0.0       2.9       3.4    784.00
      0.10      0.00      1.22      0.00     0.000     0.030     0.000     0.000    779.30    741.14
  0.000567      450.      450.      450.         5         0         0      0.00    389.45   1130.59
```

```
SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     3        0.014     0.40      3.00      100.00    3.70      10.00     200.00    8         1         780.30    780.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 3.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    783.599  EGOC =    783.781  PCWSE=    781.255  ELTRD=    790.000

SPECIAL CULVERT

     EGIC      EGOC       H4      QWEIR     QCULV      VCH     ACULV     ELTRD    WEIRLN
   783.60    783.78     2.50        0.       500.    3.163     111.0    790.00        0.

1
   02APR92      10:29:04                                                                                          PAGE    7

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

      3.000     3.63    783.63      0.00      0.00    783.78      0.16      2.50      0.00    784.00
      500.0      0.0     500.0       0.0       0.0     158.1       0.0       4.2       4.4    784.00
       0.12     0.00      3.16      0.00     0.000     0.030     0.000     0.000    780.00    970.93
   0.001077     200.      200.      200.         2         0         0      0.00     57.20   1028.13

*SECNO 4.000
3280 CROSS SECTION       4.00 EXTENDED       3.85 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.18

      4.000     3.85    783.85      0.00      0.00    783.86      0.01      0.03      0.04    780.00
      500.0      0.0     500.0       0.0       0.0     834.8       0.0       6.5       5.6    784.00
       0.21     0.00      0.60      0.00     0.000     0.030     0.000     0.000    780.00    800.00
   0.000062     200.      200.      200.         2         0         0      0.00    433.40   1233.40

1
   02APR92      10:29:04                                                                                          PAGE    8

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      BENDER WASH - BEND3.RAT                          J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                4                             -1                                    775.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     15                  -1

1
   02APR92      10:29:04                                                                                          PAGE    9

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3
0

CCHV=    0.300 CEHV=    0.500
*SECNO 1.000
3280 CROSS SECTION       1.00 EXTENDED       0.50 FEET

3720 CRITICAL DEPTH ASSUMED
      1.000     2.50    780.50    780.50    775.00    780.86      0.36      0.00      0.00    780.00
      750.0      3.9     508.2     237.9       2.6      89.9     102.3       0.0       0.0    780.00
       0.00     1.47      5.65      2.33     0.035     0.030     0.035     0.000    778.00    954.40
   0.007609       0.        0.        0.         0        23         0      0.00    275.60   1230.00

CCHV=    0.300 CEHV=    0.500
*SECNO 2.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.59

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

      2.000     2.28    781.58      0.00      0.00    781.61      0.03      0.65      0.10    782.00
      750.0      0.0     750.0       0.0       0.0     546.5       0.0       3.8       3.7    784.00
       0.09     0.00      1.37      0.00     0.000     0.030     0.000     0.000    779.30    701.32
   0.000591     450.      450.      450.         5         0         0      0.00    449.36   1150.69

SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     3        0.014     0.40      3.00      100.00    3.70      10.00     200.00    8         1         780.30    780.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES
```

```
*SECNO 3.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    784.688  EGOC =    784.853  PCWSE=    781.583  ELTRD=    790.000

3280 CROSS SECTION       3.00 EXTENDED       0.67 FEET
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

SPECIAL CULVERT

    EGIC       EGOC        H4      QWEIR      QCULV       VCH      ACULV      ELTRD     WEIRLN
   784.69     784.85      3.24         0.      750.     3.402      111.0     790.00         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     3.000      4.67     784.67       0.00       0.00     784.85       0.18       3.24       0.00     784.00
     750.0       0.0      750.0        0.0        0.0      220.5        0.0        5.6        4.9     784.00
      0.11      0.00       3.40       0.00      0.000      0.030      0.000      0.000     780.00     970.00
  0.000866      200.       200.       200.          2          0          0       0.00      60.00    1030.00

*SECNO 4.000
3280 CROSS SECTION       4.00 EXTENDED       4.92 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE.  KRATIO =  5.17

     4.000      4.92     784.92       0.00       0.00     784.92       0.01       0.02       0.05     780.00
     750.0       0.0      750.0        0.0        0.0     1313.5        0.0        9.1        6.1     784.00
      0.20      0.00       0.57       0.00      0.000      0.030      0.000      0.000     780.00     800.00
  0.000032      200.       200.       200.          2          0          0       0.00     450.00    1250.00
```



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                                                                                THIS RUN EXECUTED 02APR92    10:29:06
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BENDER WASH STRUCTURE D

SUMMARY PRINTOUT

       SECNO     ELMIN     CWSEL       Q       VCH    DIFWSX   TOPWID    DEPTH     SSTA     ENDST     QLOB     QROB    ELTRD
 *     1.000    778.00    779.76    250.00    5.39     0.00     52.75     1.76    969.23   1021.98     0.00     0.00     0.00
 *     1.000    778.00    780.37    500.00    4.56     0.00    272.84     2.37    957.16   1230.00     1.49   123.58     0.00
 *     1.000    778.00    780.50    750.00    5.65     0.00    275.60     2.50    954.40   1230.00     3.88   237.92     0.00

 *     2.000    779.30    780.87    250.00    0.91     1.12    318.76     1.57    788.11   1106.87     0.00     0.00     0.00
 *     2.000    779.30    781.25    500.00    1.22     0.89    389.45     1.95    741.14   1130.59     0.00     0.00     0.00
 *     2.000    779.30    781.58    750.00    1.37     1.08    449.36     2.28    701.32   1150.69     0.00     0.00     0.00

 *     3.000    780.00    782.39    250.00    2.68     1.52     47.94     2.39    974.02   1021.96     0.00     0.00   790.00
       3.000    780.00    783.63    500.00    3.16     2.37     57.20     3.63    970.93   1028.13     0.00     0.00   790.00
       3.000    780.00    784.67    750.00    3.40     3.09     60.00     4.67    970.00   1030.00     0.00     0.00   790.00

 *     4.000    780.00    782.59    250.00    0.66     0.20    290.99     2.59    800.00   1090.99     0.00     0.00     0.00
 *     4.000    780.00    783.85    500.00    0.60     0.23    433.40     3.85    800.00   1233.40     0.00     0.00     0.00
 *     4.000    780.00    784.92    750.00    0.57     0.25    450.00     4.92    800.00   1250.00     0.00     0.00     0.00
```



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 SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO=      1.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  3  CRITICAL DEPTH ASSUMED

WARNING SECNO=      2.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      2.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      2.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      3.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      4.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2;  May 1991            *
 *  386 Extended Memory version, August 1991 *
 *  Dodson & Associates, Inc 1-800-235-8069  *
 *  RUN DATE    02APR92    TIME   10:29:25   *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X     X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   02APR92      10:29:25                                                                    PAGE    1
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*************************************                                THIS RUN EXECUTED 02APR92    10:29:25
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
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```
T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      BENDER WASH STRUCTURE E                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                2                             -1

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1                  -1

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        42         1        43        26        51         4         8        53        54
     13        15        40

        INTERSTATE 8 CULVERT EAST OF BENDER WASH. THIS MODEL IS USED TO
        GENERATE A RATING CURVE FOR USE IN COMPUTING AN ELEVATION UPSTREAM
        OF INTERSTATE 8.


NC    0.035     0.035     0.03      0.3       0.5
QT        3       500       750      1000
X1        1         5     965.0    1025.0
GR    784.0     880.0     780.0     965.0     778.0    1000.0     780.0    1025.0     780.0    1230.0
NC    0.035     0.035     0.03      0.3       0.5
X1        2         6     970.0    1020.0     150.0     150.0     150.0
X3       10                                                                  790       790
GR    784.0     800.0     784.0     970.0    781.75     980.0    781.75    1010.0     784.0    1020.0
GR    786.0    1500.0

        WIER FLOW IS NOT ANTICIPATED, THEREFORE USE DUMMY RDLEN = 100 FT


SC    3.014       0.4         3     100.0       3.7        10     200.0       8.1     783.2     782.0
X1        3         6     970.0    1020.0     200.0     200.0     200.0
X2                              2                 790
X3       10                                                                  790       790
GR    784.0     650.0     784.0     970.0    782.75     980.0    782.75    1010.0     784.0    1020.0
GR    788.0    1100.0
1
   02APR92      10:29:25                                                                    PAGE    2


X1        4         2     650.0    1300.0       200       200       200
GR    784.0     650.0     788.0    1300.0
1
   02APR92      10:29:25                                                                    PAGE    3

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1
0

 CCHV=    0.300 CEHV=    0.500
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3280 CROSS SECTION       1.00 EXTENDED       0.36 FEET

 3720 CRITICAL DEPTH ASSUMED
      1.000      2.36    780.36    780.36      0.00    780.62      0.27      0.00      0.00    780.00
      500.0       1.4     379.2     119.4       1.3      81.3      72.9       0.0       0.0    780.00
       0.00      1.03      4.66      1.64     0.035     0.030     0.035     0.000    778.00    957.44
   0.005923        0.        0.        0.         0        25         0      0.00    272.56   1230.00

 CCHV=    0.300 CEHV=    0.500
 *SECNO 2.000
```

```
3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      790.00 ELREA=      790.00

     2.000      1.85    783.60    783.60      0.00    784.38      0.77      1.21      0.25    784.00
     500.0       0.0     500.0       0.0       0.0      70.9       0.0       0.4       0.5    784.00
      0.01      0.00      7.05      0.00     0.000     0.030     0.000     0.000    781.75    971.76
  0.011671      150.      150.      150.        20        15         0      0.00     46.48   1018.24


SPECIAL CULVERT

SC  CUNO      CUNV     ENTLC     COFQ     RDLEN     RISE     SPAN    CULVLN    CHRT     SCL     ELCHU    ELCHD
     3        0.014     0.40     3.00    100.00     3.70    10.00    200.00     8        1     783.20   782.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS: NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

 *SECNO 3.000
1
   02APR92      10:29:25                                                                                    PAGE    4

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


SPECIAL CULVERT OUTLET CONTROL
EGIC =    786.491  EGOC =    786.687  PCWSE=    783.604  ELTRD=    790.000

3280 CROSS SECTION       3.00 EXTENDED       2.56 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.44

SPECIAL CULVERT

    EGIC      EGOC       H4      QWEIR     QCULV      VCH     ACULV     ELTRD    WEIRLN
   786.49    786.69     2.31       0.       500.     2.805    111.0    790.00       0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      790.00 ELREA=      790.00

     3.000      3.81    786.56      0.00      0.00    786.69      0.12      2.31      0.00    784.00
     500.0       0.0     500.0       0.0       0.0     178.2       0.0       1.0       0.8    784.00
      0.03      3.00      2.81      0.00     0.000     0.030     0.000     0.000    782.75    970.00
  0.000591      200.      200.      200.         2         0         0      0.00     50.00   1020.00

*SECNO 4.000
3280 CROSS SECTION       4.00 EXTENDED       2.76 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.84

     4.000      2.77    786.77      0.00      0.00    786.78      0.01      0.06      0.03    784.00
     500.0       0.0     500.0       0.0       0.0     618.5       0.0       2.8       1.9    788.00
      0.09      0.00      0.81      0.00     0.000     0.030     0.000     0.000    784.00    650.00
  0.000175      200.      200.      200.         2         0         0      0.00    448.34   1098.34

1
   02APR92      10:29:25                                                                                    PAGE    5

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      BENDER WASH - BEND4.RAT                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                             -1                                    775.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2                   -1

1
   02APR92      10:29:25                                                                                    PAGE    6

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 2
0

CCHV=    0.300 CEHV=    0.500
*SECNO 1.000
3280 CROSS SECTION       1.00 EXTENDED       0.50 FEET

3720 CRITICAL DEPTH ASSUMED
     1.000      2.50    780.50    780.50    775.00    780.86      0.36      0.00      0.00    780.00
     780.0       3.9     508.2     237.9       2.8      89.9     102.3       0.0       0.0    780.00
      0.00      1.47      5.65      2.33     0.035     0.030     0.035     0.000    778.00    954.40
  0.007609        0.        0.        0.         0        23         0      0.00    275.60   1230.00

CCHV=    0.300 CEHV=    0.500
```

```
*SECNO 2.000
3280 CROSS SECTION       2.00 EXTENDED       0.10 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     2.000      2.35    784.10    784.10      0.00    785.07      0.97      1.36      0.30    784.00
     750.0       0.0     750.0       0.0       0.0      95.0       0.0       0.5       0.6    784.00
      0.01      0.00      7.89      0.00     0.000     0.030     0.000     0.000    781.75    970.00
  0.010925      150.      150.      150.        20        11         0      0.00     50.00   1020.00


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC      COFQ      RDLEN      RISE      SPAN     CULVLN      CHRT       SCL      ELCHU     ELCHD
     3        0.014     0.40       3.00     100.00      3.70     10.00    200.00       8          1       783.20    782.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 3.000
1
   02APR92       10:29:25                                                                                    PAGE    7

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


SPECIAL CULVERT OUTLET CONTROL
EGIC =    787.580  EGOC =    787.769  PCWSE=    784.101  ELTRD=    790.000

3280 CROSS SECTION       3.00 EXTENDED       3.60 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.39

SPECIAL CULVERT

     EGIC       EGOC        H4      QWEIR      QCULV       VCH      ACULV      ELTRD     WEIRLN
   787.58     787.77      2.70         0.       750.     3.258      111.0     790.00         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     3.000      4.85    787.60      0.00      0.00    787.77      0.16      2.70      0.00    784.00
     750.0       0.0     750.0       0.0       0.0     230.2       0.0       1.2       0.8    784.00
      0.02      0.00      3.26      0.00     0.000     0.030     0.000     0.000    782.75    970.00
  0.000567      200.      200.      200.         2         0         0      0.00     50.00   1020.00

*SECNO 4.000
3280 CROSS SECTION       4.00 EXTENDED       3.84 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.89

     4.000      3.84    787.84      0.00      0.00    787.85      0.01      0.03      0.05    784.00
     750.0       0.0     750.0       0.0       0.0    1195.7       0.0       4.5       2.3    788.00
      0.11      0.00      0.63      0.00     0.000     0.030     0.000     0.000    784.00    650.00
  0.000068      200.      200.      200.         2         0         0      0.00    623.38   1273.38

1
   02APR92       10:29:25                                                                                    PAGE    8

T1       FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2       GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3       BENDER WASH - BEND4.RAT                    J. MISCHLER - (602) 244-8100

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
                4                                 -1                                         775.0
J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
     15                    -1

1
   02APR92       10:29:25                                                                                    PAGE    9

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 3
0

CCHV=    0.300 CEHV=    0.500
*SECNO 1.000
3280 CROSS SECTION       1.00 EXTENDED       0.69 FEET

3720 CRITICAL DEPTH ASSUMED
     1.000      2.69    780.69    780.69    775.00    781.06      0.37      0.00      0.00    780.00
    1000.0       8.8     599.1     392.1       5.0     101.2     140.8       0.0       0.0    780.00
      0.00      1.76      5.92      2.79     0.035     0.030     0.035     0.000    778.00    950.40
```

```
  0.007133        0.        0.        0.        0        21        0      0.00    279.60   1230.00

CCHV=    0.300 CEHV=    0.500
*SECNO 2.000
3280 CROSS SECTION       2.00 EXTENDED       0.50 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     2.000       2.75    784.60    784.50      0.00    785.67      1.17      1.27      0.40    784.00
    1000.0        0.0    1000.0       0.0       0.0     115.2       0.0       0.6       0.6    784.00
      0.00       0.00      8.68      0.00     0.000     0.030     0.000     0.000    781.75    970.00
  0.010223       150.      150.      150.        20         8         0      0.00     50.00   1020.00


SPECIAL CULVERT

SC  CUNO       CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     3          0.014     0.40      3.00    100.00     3.70     10.00     200.00     8         1        783.20    782.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS: NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 3.000
1
   02APR92       10:29:25                                                                                    PAGE   10

    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


SPECIAL CULVERT INLET CONTROL
EGIC =    789.311  EGOC =    788.735  PCWSE=    784.604  ELTRD=    790.000

3280 CROSS SECTION       3.00 EXTENDED       5.15 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.15

SPECIAL CULVERT

     EGIC      EGOC        H4      QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
    789.31    788.73      3.64        0.     1000.     3.254     111.0    790.00        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

     3.000       6.40    789.15      0.00      0.00    789.31      0.16      3.64      0.00    784.00
    1000.0        0.0    1000.0       0.0       0.0     307.3       0.0       1.6       0.8    784.00
      0.02       0.00      3.25      0.00     0.000     0.030     0.000     0.000    782.75    970.00
  0.000385       200.      200.      200.         2         0         0      0.00     50.00   1020.00

*SECNO 4.000
3280 CROSS SECTION       4.00 EXTENDED       5.36 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.74

     4.000       5.37    789.37      0.00      0.00    789.37      0.00      0.01      0.05    784.00
    1000.0        0.0    1000.0       0.0       0.0    2187.0       0.0       7.3       2.4    788.00
      0.14       0.00      0.46      0.00     0.000     0.030     0.000     0.000    784.00    650.00
  0.000017       200.      200.      200.         2         0         0      0.00    650.00   1300.00

1
   02APR92       10:29:25                                                                                    PAGE   11


                                                                                THIS RUN EXECUTED 02APR92    10:29:29
************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BENDER WASH STRUCTURE E

SUMMARY PRINTOUT

       SECNO     ELMIN     CWSEL       Q        VCH     DIFWSX    TOPWID    DEPTH     SSTA      ENDST     QLOB      QROB      ELTRD
*      1.000    778.00    780.36    500.00     4.66      0.00    272.56     2.36    957.44   1230.00     1.39    119.41      0.00
*      1.000    778.00    780.80    750.00     5.65      0.00    275.60     2.80    954.40   1230.00     3.88    237.92      0.00
*      1.000    778.00    780.69   1000.00     5.92      0.00    279.60     2.69    950.40   1230.00     8.81    392.13      0.00

*      2.000    781.75    783.60    500.00     7.05      3.25     46.48     1.85    971.76   1018.24     0.00      0.00      0.00
*      2.000    781.75    784.10    750.00     7.89      3.60     50.00     2.35    970.00   1020.00     0.00      0.00      0.00
*      2.000    781.75    784.50   1000.00     8.68      3.82     50.00     2.75    970.00   1020.00     0.00      0.00      0.00

*      3.000    782.75    786.56    500.00     2.81      2.96     50.00     3.81    970.00   1020.00     0.00      0.00    790.00
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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 3.000 | 782.75 | 787.60 | 750.00 | 3.26 | 3.50 | 50.00 | 4.85 | 970.00 | 1020.00 | 0.00 | 0.00 | 790.00 |
| * | 3.000 | 782.75 | 789.15 | 1000.00 | 3.25 | 4.64 | 50.00 | 6.40 | 970.00 | 1020.00 | 0.00 | 0.00 | 790.00 |
| * | 4.000 | 784.00 | 786.77 | 500.00 | 0.81 | 0.20 | 448.34 | 2.77 | 650.00 | 1098.34 | 0.00 | 0.00 | 0.00 |
| * | 4.000 | 784.00 | 787.84 | 750.00 | 0.63 | 0.24 | 623.38 | 3.84 | 650.00 | 1273.38 | 0.00 | 0.00 | 0.00 |
| * | 4.000 | 784.00 | 789.37 | 1000.00 | 0.46 | 0.22 | 650.00 | 5.37 | 650.00 | 1300.00 | 0.00 | 0.00 | 0.00 |

1

02APR92 10:29:25 PAGE 12

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      1.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  3  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      2.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      2.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      2.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.000  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.000  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      3.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      4.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version   4.6.2;  May 1991                *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE    02APR92    TIME   10:30:20    *
 *********************************************

                                   X     X  XXXXXXX   XXXXX              XXXXX
                                   X     X  X         X     X            X     X
                                   X     X  X         X                        X
                                   XXXXXXX  XXXX      X          XXXXX    XXXXX
                                   X     X  X         X                  X
                                   X     X  X         X     X            X
                                   X     X  XXXXXXX   XXXXX              XXXXXXX
1
   02APR92      10:30:21                                                                                    PAGE    1


                                                                                  THIS RUN EXECUTED 02APR92    10:30:21
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
 T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
 T3      C82 WEIR FLOW TO WEST                    J. MISCHLER - (602) 244-8100

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                         0.0052

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1                  -1


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        42         1        43        26        51         4         8        53        54
      13        15        40

 NC    0.035     0.035     0.035       0.1       0.3
 QT        5         0       200       400       800      2000
 X1        1         4      1600      1750
 X3       10                                                                     777       777
 GR      780      1000       776      1600       776      1750       779      1760

 SB      0.9      1.56         3         0       0.1         0      0.01         0       776       776
 X1        3         4      1600      1750        10        10        10
 X2                            1     776.1     777.7
 X3       10                                                                   777.7     777.7
 BT       -4      1000       780                1600     777.7                 1750     777.7
 BT               1760       779
 GR      780      1000       776      1600       776      1750       779      1760
1
   02APR92      10:30:21                                                                                    PAGE    2

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CCHV=    0.100 CEHV=    0.300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       777.00 ELREA=       777.00

      1.000      0.00    776.00      0.00      0.00    776.00      0.00      0.00      0.00    776.00
        0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0    776.00
       0.00      0.00      0.01      0.00     0.000     0.035     0.000     0.000    776.00   1600.00
   0.005282        0.        0.        0.         0         0        17      0.00    150.00   1750.00


 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.90      1.56      3.00      0.00      0.10      0.00      0.01      0.00    776.00    776.00

 *SECNO 3.000

 6070,LOW FLOW BY NORMAL BRIDGE

 EGPRS=      0.000  EGLWC=     776.000  ELLC=     776.100  PCWSE=     776.000  ELTRD=     777.700

 3370 NORMAL BRIDGE, NRD=    4 MIN ELTRD=    777.70 MAX ELLC=    776.10

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
      3.000      1.87    777.87    777.87      0.00    777.87      0.00      0.00      0.00    776.00
        0.0       0.0       0.0       0.0       3.6      25.0       0.1       0.0       0.1    776.00
       0.00      0.00      0.00      0.00     0.000     0.036     0.000     0.000    776.00   1319.99
   0.000000       10.       10.       10.        20        17         0    -518.44    436.24   1756.22

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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      GILA BEND CANAL AS WIER                J. MISCHLER - (602) 244-8100

J1  ICHECK   INQ     NINV    IDIR    STRT     METRIC   HVINS    Q        WSEL     FQ
             3                       0.0036                                747

J2  NPROF    IPLOT   PRFVS   XSECV   XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     2               -1

1
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    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST

*PROF 2

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      777.00 ELREA=      777.00

     1.000     0.68   776.68     0.00   747.00   776.74     0.06     0.00     0.00   776.00
     200.0      0.0    200.0      0.0      0.0    101.8      0.0      0.0      0.0   776.00
      0.00     0.00     1.98     0.00    0.000    0.035    0.000    0.000   776.00  1600.00
  0.003588       0.       0.       0.        0        0        6     0.00   150.00  1750.00


SPECIAL BRIDGE

SB  XK       XKOR     COFQ     RDLEN    BWC      BWP      BAREA    SS       ELCHU    ELCHD
     0.90     1.56     3.00     0.00     0.10     0.00     0.01     0.00   776.00   776.00

*SECNO 3.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO = 11.99

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC      H3       QWEIR    QPR      BAREA    TRAPEZOID AREA    ELLC     ELTRD    WEIRLN
9690218.00  776.74     0.00     201.     0.       0.       0.               776.10   777.70   281.

     3.000     2.19   778.19     0.00     0.00   778.19     0.00     1.45     0.00   776.00
     200.0     80.9    117.4      1.7    359.2    328.3      8.0      0.1      0.1   776.00
      0.01     0.23     0.36     0.22    0.035    0.035    0.035    0.000   776.00  1271.75
  0.000025      10.      10.      10.        0        0       12     0.00   485.55  1757.29

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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      GILA BEND CANAL AS WIER                J. MISCHLER - (602) 244-8100

J1  ICHECK   INQ     NINV    IDIR    STRT     METRIC   HVINS    Q        WSEL     FQ
             4                       0.0036                                747

J2  NPROF    IPLOT   PRFVS   XSECV   XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     3               -1

1
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    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST

*PROF 3

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
7230 SLOPE-AREA TRIALS EXCEED 100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      777.00 ELREA=      777.00

     1.000     0.98   776.98     0.00   747.00   777.10     0.11     0.00     0.00   776.00
     400.0      0.0    400.0      0.0      0.0    147.2      0.0      0.0      0.0   776.00
      0.00     0.00     2.72     0.00    0.000    0.035    0.000    0.000   776.00  1600.00
  0.004203       0.       0.       0.        0        0      101     0.00   150.00  1750.00


SPECIAL BRIDGE

SB  XK       XKOR     COFQ     RDLEN    BWC      BWP      BAREA    SS       ELCHU    ELCHD
     0.90     1.56     3.00     0.00     0.10     0.00     0.01     0.00   776.00   776.00

*SECNO 3.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  8.01

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape
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```
 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
**********  777.10     0.00     400.        0.         0.       0.       776.10    777.70      343.

    3.000     2.42   778.42      0.00      0.00    778.42     0.00       1.32      0.00    776.00
    400.0    171.4    224.9       3.7     439.2     363.0      9.8        0.1       0.1    776.00
     0.01     0.39     0.62      0.38     0.035     0.035    0.035      0.000    776.00   1237.02
 0.000066      10.      10.       10.         0         0       12       0.00    521.05   1758.07

1
   02APR92      10:30:21                                                                          PAGE    7

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      GILA BEND CANAL AS WIER                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 5                         0.0036                                   747

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     4                   -1

1
   02APR92      10:30:21                                                                          PAGE    8

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
    1.000      1.27   777.27      0.00    747.00    777.38     0.11       0.00      0.00    776.00
    800.0     227.1    568.0       4.9     120.9     190.5      2.7        0.0       0.0    776.00
     0.00      1.88     2.98      1.83     0.035     0.035    0.035      0.000    776.00   1409.54
 0.003588        0.       0.        0.         0         0        5       0.00    344.69   1754.23

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.90      1.56      3.00      0.00      0.10      0.00      0.01      0.00    776.00    776.00

*SECNO 3.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.82

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
**********  777.54     0.00     801.        0.         0.       0.       776.10    777.70      431.

    3.000     2.73   778.73      0.00      0.00    778.75     0.01       1.36      0.00    776.00
    800.0    367.0    425.1       7.9     563.3     411.1     12.5        0.1       0.1    776.00
     0.00      0.65     1.03      0.63     0.035     0.035    0.035      0.000    776.00   1188.91
 0.000155      10.      10.       10.         1         0       11       0.00    570.23   1759.14

1
   02APR92      10:30:21                                                                          PAGE    9

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      GILA BEND CANAL AS WIER                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 6                         0.0036                                   747

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    15                   -1

1
   02APR92      10:30:21                                                                          PAGE   10

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
    1.000      2.01   778.01      0.00    747.00    778.20     0.19       0.00      0.00    776.00
   2000.0    768.4   1215.0      16.6     302.4     301.2      6.7        0.0       0.0    776.00
     0.00      2.54     4.03      2.47     0.035     0.035    0.035      0.000    776.00   1298.81
 0.003564        0.       0.        0.         0         0        5       0.00    457.88   1756.69

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.90      1.56      3.00      0.00      0.10      0.00      0.01      0.00    776.00    776.00

*SECNO 3.000
```

3280 CROSS SECTION 3.00 EXTENDED 0.33 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.93

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| ********** | 778.20 | 0.00 | 2002. | 0. | 0. | 0. | 776.10 | 777.70 | 596. |
| 3.000 | 3.33 | 779.33 | 0.00 | 0.00 | 779.37 | 0.04 | 1.17 | 0.00 | 776.00 |
| 2000.0 | 1012.5 | 964.9 | 22.6 | 832.4 | 499.7 | 18.3 | 0.2 | 0.1 | 776.00 |
| 0.00 | 1.22 | 1.93 | 1.23 | 0.035 | 0.035 | 0.035 | 0.000 | 776.00 | 1100.28 |
| 0.000416 | 10. | 10. | 10. | 2 | 0 | 10 | 0.00 | 659.72 | 1760.00 |

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THIS RUN EXECUTED 02APR92 10:30:24

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

C82 WEIR FLOW TO WEST

SUMMARY PRINTOUT

| | SECNO | ELMIN | CWSEL | Q | VCH | DIFWSX | TOPWID | DEPTH | SSTA | ENDST | QLOB | QROB | ELTRD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 776.00 | 776.00 | 0.00 | 0.01 | 0.00 | 150.00 | 0.00 | 1600.00 | 1750.00 | 0.00 | 0.00 | 0.00 |
| | 1.000 | 776.00 | 776.68 | 200.00 | 1.96 | 0.00 | 150.00 | 0.68 | 1600.00 | 1750.00 | 0.00 | 0.00 | 0.00 |
| | 1.000 | 776.00 | 776.98 | 400.00 | 2.72 | 0.00 | 150.00 | 0.98 | 1600.00 | 1750.00 | 0.00 | 0.00 | 0.00 |
| | 1.000 | 776.00 | 777.27 | 800.00 | 2.98 | 0.00 | 344.69 | 1.27 | 1409.54 | 1754.23 | 227.14 | 4.90 | 0.00 |
| | 1.000 | 776.00 | 778.01 | 2000.00 | 4.03 | 0.00 | 457.88 | 2.01 | 1298.81 | 1756.69 | 768.41 | 16.59 | 0.00 |
| * | 3.000 | 776.00 | 777.87 | 0.00 | 0.00 | 1.87 | 436.24 | 1.87 | 1319.99 | 1756.22 | 0.00 | 0.00 | 777.70 |
| * | 3.000 | 776.00 | 778.19 | 200.00 | 0.36 | 1.51 | 485.55 | 2.19 | 1271.75 | 1757.29 | 80.89 | 1.75 | 777.70 |
| * | 3.000 | 776.00 | 778.42 | 400.00 | 0.62 | 1.43 | 521.05 | 2.42 | 1237.02 | 1758.07 | 171.41 | 3.70 | 777.70 |
| * | 3.000 | 776.00 | 778.73 | 800.00 | 1.03 | 1.46 | 570.23 | 2.73 | 1188.91 | 1759.14 | 366.96 | 7.92 | 777.70 |
| * | 3.000 | 776.00 | 779.33 | 2000.00 | 1.93 | 1.32 | 659.72 | 3.33 | 1100.28 | 1760.00 | 1012.50 | 22.58 | 777.70 |

1
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SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      3.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      3.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=      3.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.000  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

## C84 Summary Data

| Stage | Left Channel | Right Channel | Total Flow |
|---|---|---|---|
| 1894 | 0 | 0 | 0 |
| 1895 | 200 | 0 | 200 |
| 1895.9 | 1000 | 0 | 1000 |
| 1896 | 1100 | 10 | 1110 |
| 1897 | 3400 | 190 | 3590 |
| 1898 | 6400 | 1000 | 7400 |
| 1899 | 10000 | 2900 | 12900 |
| 1899.8 | 13500 | 4600 | 18100 |

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2:  May 1991            *
 *  386 Extended Memory version, August 1991 *
 *  Dodson & Associates, Inc 1-800-235-8069  *
 *  RUN DATE    31MAR92    TIME   15:48:42   *
 *****************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X     X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

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31MAR92  15:48:42  PAGE 1

THIS RUN EXECUTED 31MAR92  15:48:42

```
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2:  May 1991
*************************************
```

```
T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-LEFT.H2
T3 Flow Split At CP 84 For Left Side

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        2.        0.        0.     0.0340       0.        0.        0.     1894.2      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    1.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.       43.        1.        8.       55.       26.       56.       46.       47.        5.
    38.       53.       54.                 150

NC    0.060     0.035     0.060     0.1       0.3
NH      5.      0.060   1157.0    0.070    1165.0     0.035    1189.0     0.070    1252.0     0.010
NH   1252.1
QT     13.0      25.0      50.0      75.0     100.0     200.0     400.0     600.0     800.0    1000.0
QT   1500.0    5000.0   10000.0   15000.0
X1      1.0      10.0    1157.0    1252.0       0.0       0.0       0.0
GR   1899.8    1000.0    1895.9    1013.0    1895.7    1058.0    1894.9    1106.0    1894.3    1145.0
GR   1894.9    1157.0    1894.1    1165.0    1894.0    1189.0    1897.5    1252.0    1910.0    1252.1
```

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```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3266 DIVIDED FLOW

     1.000      0.38   1894.38   1894.35   1894.20   1894.48      0.10      0.00      0.00   1894.90
      25.0       0.1      24.9       0.0       0.3       9.7       0.0       0.0       0.0   1897.50
      0.00      0.43      2.57      0.00     0.060     0.046     0.000     0.000   1894.00   1139.69
  0.034129        0.        0.        0.         0        14         7      0.00     40.63   1195.87

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1894.38

STA=    1140.     1145.     1147.     1252.
  PER Q=      0.5       0.0      99.5
   AREA=      0.2       0.1       9.7
    VEL=      0.5       0.0       2.6
  DEPTH=      0.0       0.0       0.3
```

1
31MAR92  15:48:42  PAGE 3

```
T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-LEFT.H2  Flow Split At CP 84 For Left Side
T3      Q=50

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        3.        0.        0.     0.0340       0.        0.        0.     1894.2      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    2.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.
```

1
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```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.55   1894.55   1894.52   1894.20   1894.68      0.14      0.00      0.00   1894.90
      50.0       2.9      47.1       0.0       2.6      15.5       0.0       0.0       0.0   1897.50
      0.00      1.13      3.03      0.00     0.060     0.050     0.000     0.000   1894.00   1129.07
  0.033954        0.        0.        0.         0        17         8      0.00     59.09   1198.81

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1894.55

STA=    1129.     1145.     1150.     1252.
  PER Q=       4.4       1.4      94.3
   AREA=       2.0       0.6      15.5
    VEL=       1.1       1.1       3.0
  DEPTH=       0.1       0.1       0.4

1
   31MAR92      15:48:42                                                                          PAGE    5

T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-LEFT.H2  Flow Split At CP 84 For Left Side
T3       Q=75

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       4.        0.        0.     0.0340       0.        0.        0.     1894.2      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

1
   31MAR92      15:48:42                                                                          PAGE    6

SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

     1.000      0.66   1894.66   1894.64   1894.20   1894.82      0.15      0.00      0.00   1894.90
      75.0       8.2      66.8       0.0       5.6      20.3       0.0       0.0       0.0   1897.50
      0.00      1.46      3.30      0.00     0.060     0.051     0.000     0.000   1894.00   1121.38
  0.033768        0.        0.        0.         0        20         8      0.00     72.47   1200.94

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1894.66

STA=    1121.     1145.     1152.     1252.
  PER Q=       8.4       2.6      89.1
   AREA=       4.3       1.3      20.3
    VEL=       1.5       1.5       3.3
  DEPTH=       0.2       0.2       0.5

1
   31MAR92      15:48:42                                                                          PAGE    7

T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-LEFT.H2  Flow Split At CP 84 For Left Side
T3       Q=100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       5.        0.        0.     0.0340       0.        0.        0.     1894.2      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    4.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

1
   31MAR92      15:48:42                                                                          PAGE    8

SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
```

```
3265 DIVIDED FLOW

     1.000      0.76   1894.76   1894.72   1894.20   1894.92      0.17      0.00      0.00   1894.90
     100.0      15.1      84.9       0.0       8.8      24.2       0.0       0.0       0.0   1897.50
      0.00      1.71      3.51      0.00     0.060     0.052     0.000     0.000   1894.00   1115.40
  0.034247        0.        0.        0.         0        23         9      0.00     82.86   1202.60

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1894.76

STA=    1115.    1145.    1154.    1252.
  PER Q=      11.5      3.5     84.9
   AREA=       6.7      2.1     24.2
    VEL=       1.7      1.7      3.5
  DEPTH=       0.2      0.2      0.5

1
   31MAR92      15:48:42                                                                          PAGE    9

T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-LEFT.H2  Flow Split At CP 84 For Left Side
T3      Q=200

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       6.        0.        0.     0.0340       0.        0.        0.     1894.2      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    5.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

1
   31MAR92      15:48:42                                                                          PAGE   10

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      1.00   1895.00   1895.00   1894.20   1895.26      0.26      0.00      0.00   1894.90
     200.0      40.1     159.9       0.0      20.9      36.0       0.0       0.0       0.0   1897.50
      0.00      1.91      4.44      0.00     0.060     0.038     0.000     0.000   1894.00   1099.75
  0.020467        0.        0.        0.         0        26         9      0.00    107.32   1207.07

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1895.00

STA=    1100.    1106.    1145.    1157.    1165.    1189.    1252.
  PER Q=       0.1     15.3      4.7      3.9     67.4      8.7
   AREA=       0.3     15.8      4.8      4.0     22.9      9.1
    VEL=       0.5      1.9      1.9      1.9      5.9      1.9
  DEPTH=       0.1      0.4      0.4      0.5      1.0      0.5

1
   31MAR92      15:48:42                                                                          PAGE   11

T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-LEFT.H2  Flow Split At CP 84 For Left Side
T3      Q=400

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       7.        0.        0.     0.0340       0.        0.        0.     1894.2      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    6.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

1
   31MAR92      15:48:42                                                                          PAGE   12

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      1.32   1895.32   1895.32   1894.20   1895.67      0.35      0.00      0.00   1894.90
     400.0     116.8     283.2       0.0      42.3      52.9       0.0       0.0       0.0   1897.50
      0.00      2.76      5.35      0.00     0.060     0.040     0.000     0.000   1894.00   1080.59
  0.022202        0.        0.        0.         0        29         7      0.00    132.23   1212.82

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1895.32

STA=    1081.    1106.    1145.    1157.    1165.    1189.    1252.
  PER Q=       1.8     21.0      6.4      4.6     56.8      9.5
   AREA=       5.4     28.2      8.7      6.6     30.6     15.8
    VEL=       1.3      3.0      3.0      2.8      7.4      2.4
  DEPTH=       0.2      0.7      0.7      0.8      1.3      0.7

1
   31MAR92      15:48:42                                                                          PAGE   13
```

```
T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-LEFT.H2  Flow Split At CP 84 For Left Side
T3      Q=600

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       8.        0.        0.      0.0340      0.        0.        0.      1894.2      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    7.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
   31MAR92      15:48:42                                                                          PAGE   14

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      1.56   1895.56   1895.56   1894.20   1895.98      0.42      0.00      0.00   1894.90
     600.0     202.9     397.1       0.0      61.8      66.5       0.0       0.0       0.0   1897.50
      0.00      3.28      5.98      0.00     0.060     0.041     0.000     0.000   1894.00   1066.57
  0.023396        0.        0.        0.         0        32         6      0.00    150.46   1217.03

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1895.56

STA=    1067.    1106.    1145.    1157.    1165.    1189.    1252.
  PER Q=      3.9      22.9       7.0      4.7     51.5     10.0
   AREA=     13.0      37.3      11.5      8.5     36.2     21.8
    VEL=      1.8       3.7       3.7      3.4      8.5      2.7
  DEPTH=      0.3       1.0       1.0      1.1      1.5      0.8

1
   31MAR92      15:48:42                                                                          PAGE   15

T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-LEFT.H2  Flow Split At CP 84 For Left Side
T3      Q=800

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       9.        0.        0.      0.0340      0.        0.        0.      1894.2      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    8.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

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   31MAR92      15:48:42                                                                          PAGE   16

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      1.78   1895.78   1895.78   1894.20   1896.23      0.45      0.00      0.00   1894.90
     800.0     299.9     500.1       0.0      83.6      80.1       0.0       0.0       0.0   1897.50
      0.00      3.59      6.24      0.00     0.060     0.041     0.000     0.000   1894.00   1040.57
  0.022337        0.        0.        0.         0        35         6      0.00    180.43   1220.99

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1895.78

STA=    1041.    1058.    1106.    1145.    1157.    1165.    1189.    1252.
  PER Q=      0.0       6.5      23.7      7.3      4.8     47.3     10.4
   AREA=      0.7      22.9      45.9     14.1     10.2     41.5     28.4
    VEL=      0.4       2.3       4.1      4.1      3.7      9.1      2.9
  DEPTH=      0.0       0.5       1.2      1.2      1.3      1.7      0.9

1
   31MAR92      15:48:42                                                                          PAGE   17

T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-LEFT.H2  Flow Split At CP 84 For Left Side
T3      Q=1000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.       10.       0.        0.      0.0340      0.        0.        0.      1894.2      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    9.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

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   31MAR92      15:48:42                                                                          PAGE   18

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
```

```
Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 9

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      1.95   1895.95   1895.95   1894.20   1896.43      0.48      0.00      0.00   1894.90
    1000.0     404.6     595.4       0.0     107.4      91.7       0.0       0.0       0.0   1897.50
      0.00      3.77      6.49      0.00     0.060     0.042     0.000     0.000   1894.00   1012.82
  0.022011        0.        0.        0.         0        35         6      0.00    211.35   1224.17

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1895.95

STA=    1013.    1058.    1106.    1145.    1157.    1165.    1189.    1252.
  PER Q=      0.7      8.7     23.7      7.3      4.7     44.2     10.6
   AREA=      6.9     31.4     52.8     16.2     11.6     45.7     34.4
    VEL=      1.1      2.8      4.5      4.5      4.0      9.7      3.1
  DEPTH=      0.2      0.7      1.4      1.4      1.5      1.9      1.0

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   31MAR92      15:48:42                                                                          PAGE   19

T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-LEFT.H2  Flow Split At CP 84 For Left Side
T3      Q=1500

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        11.       0.        0.      0.0340      0.        0.        0.      1894.2      0.

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   10.0        0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

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   31MAR92      15:48:42                                                                          PAGE   20

SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF10

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      2.27   1896.27   1896.27   1894.20   1896.85      0.59      0.00      0.00   1894.90
    1500.0     676.8     823.2       0.0     152.4     113.5       0.0       0.0       0.0   1897.50
      0.00      4.44      7.26      0.00     0.060     0.042     0.000     0.000   1894.00   1011.78
  0.023798        0.        0.        0.         0        38         4      0.00    217.99   1229.77

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1896.27

STA=    1012.    1013.    1058.    1106.    1145.    1157.    1165.    1189.    1252.
  PER Q=      0.0      3.2     11.5     23.2      7.1      4.5     39.4     10.9
   AREA=      0.2     20.9     46.3     64.9     20.0     14.1     53.2     46.2
    VEL=      1.2      2.3      3.7      5.4      5.4      4.8     11.1      3.6
  DEPTH=      0.2      0.5      1.0      1.7      1.7      1.8      2.2      1.1

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   31MAR92      15:48:42                                                                          PAGE   21

T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-LEFT.H2  Flow Split At CP 84 For Left Side
T3      Q=5000

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        12.       0.        0.      0.0340      0.        0.        0.      1894.2      0.

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   11.0        0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

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   31MAR92      15:48:42                                                                          PAGE   22

SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF11

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      3.64   1897.64   1897.64   1894.20   1898.83      1.19      0.00      0.00   1894.90
    5000.0    2716.6    2283.4       0.0     356.6     230.6       0.0       0.0       0.0   1897.50
      0.00      7.64      9.90      0.00     0.060     0.045     0.000     0.000   1894.00   1007.19
  0.028187        0.        0.        0.         0        44         6      0.00    244.81   1252.00
```

```
FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1897.64

STA=    1007.    1013.    1058.    1106.    1145.    1157.    1165.    1189.    1252.
  PER Q=      0.4     10.4     16.5     20.7      6.4      3.8     28.8     13.0
   AREA=      5.1     82.9    112.5    118.7     36.5     25.1     86.2    119.3
    VEL=      3.7      6.3      7.3      8.7      8.7      7.6     16.7      5.4
  DEPTH=      0.9      1.8      2.3      3.0      3.0      3.1      3.6      1.9

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   31MAR92      15:48:42                                                                                    PAGE   23

T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-LEFT.H2  Flow Split At CP 84 For Left Side
T3      Q=10000

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       13.      0.       0.     0.0340     0.       0.       0.     1894.2     0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

   12.0       0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

1
   31MAR92      15:48:42                                                                                    PAGE   24

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF12

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      5.02   1899.02   1899.20   1894.20   1900.88      1.86      0.00      0.00   1894.90
   10000.0    5622.8    4377.2       0.0     564.7     361.2       0.0       0.0       0.0   1897.50
      0.00      9.96     12.12      0.25     0.060     0.049     0.010     0.000   1894.00   1002.61
  0.027409        0.        0.        0.         0        47         7      0.00    249.40   1252.01

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1899.02

STA=    1003.    1013.    1058.    1106.    1145.    1157.    1165.    1189.    1252.
  PER Q=      0.9     12.9     17.6     19.0      5.8      3.5     24.4     15.9
   AREA=     16.2    144.8    178.4    172.3     53.0     36.1    119.2    205.8
    VEL=      5.4      8.9      9.8     11.0     11.0      9.6     20.5      7.7
  DEPTH=      1.6      3.2      3.7      4.4      4.4      4.5      5.0      3.3

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   31MAR92      15:48:42                                                                                    PAGE   25

T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-LEFT.H2  Flow Split At CP 84 For Left Side
T3      Q=15000

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       14.      0.       0.     0.0340     0.       0.       0.     1894.2     0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

   13.0       0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

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   31MAR92      15:48:42                                                                                    PAGE   26

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED      0.36 FEET

3720 CRITICAL DEPTH ASSUMED
     1.000      6.16   1900.16   1900.16   1894.20   1902.59      2.43      0.00      0.00   1894.90
   15000.0    8564.0    6435.9       0.0     743.2     469.8       0.0       0.0       0.0   1897.50
      0.00     11.52     13.70      0.24     0.060     0.051     0.010     0.000   1894.00   1000.00
  0.026272        0.        0.        0.         0        50         7      0.00    252.02   1252.02

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1900.16

STA=    1000.    1013.    1058.    1106.    1145.    1157.    1165.    1189.    1252.
  PER Q=      1.3     14.0     17.9     18.2      5.6      3.3     22.5     17.1
   AREA=     30.0    196.2    233.3    216.9     66.7     45.3    146.7    277.9
    VEL=      6.7     10.7     11.5     12.6     12.6     10.9     23.0      9.2
  DEPTH=      2.3      4.4      4.9      5.6      5.6      5.7      6.1      4.4

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   31MAR92      15:48:42                                                                                    PAGE   27

**********                                                                THIS RUN EXECUTED 31MAR92    15:48:49
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HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Split At CP 84 For Left

SUMMARY PRINTOUT

| | SECNO | Q | CWSEL | DEPTH | VLOB | VCH | VROB | QWEIR | QPR | 10*KS | SECNO | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 25.00 | 1894.38 | 0.38 | 0.43 | 2.57 | 0.00 | 0.00 | 0.00 | 341.29 | 1.00 | 1139.69 | 1195.87 |
| | 1.000 | 50.00 | 1894.55 | 0.55 | 1.13 | 3.03 | 0.00 | 0.00 | 0.00 | 339.54 | 1.00 | 1129.07 | 1198.81 |
| | 1.000 | 75.00 | 1894.66 | 0.66 | 1.46 | 3.30 | 0.00 | 0.00 | 0.00 | 337.68 | 1.00 | 1121.38 | 1200.94 |
| | 1.000 | 100.00 | 1894.76 | 0.76 | 1.71 | 3.51 | 0.00 | 0.00 | 0.00 | 342.47 | 1.00 | 1115.40 | 1202.60 |
| * | 1.000 | 200.00 | 1895.00 | 1.00 | 1.91 | 4.44 | 0.00 | 0.00 | 0.00 | 204.67 | 1.00 | 1099.75 | 1207.07 |
| * | 1.000 | 400.00 | 1895.32 | 1.32 | 2.76 | 5.35 | 0.00 | 0.00 | 0.00 | 222.02 | 1.00 | 1080.59 | 1212.82 |
| * | 1.000 | 600.00 | 1895.56 | 1.56 | 3.28 | 5.98 | 0.00 | 0.00 | 0.00 | 233.96 | 1.00 | 1066.57 | 1217.03 |
| * | 1.000 | 800.00 | 1895.78 | 1.78 | 3.59 | 6.24 | 0.00 | 0.00 | 0.00 | 223.37 | 1.00 | 1040.57 | 1220.99 |
| * | 1.000 | 1000.00 | 1895.95 | 1.95 | 3.77 | 6.49 | 0.00 | 0.00 | 0.00 | 220.11 | 1.00 | 1012.82 | 1224.17 |
| * | 1.000 | 1500.00 | 1896.27 | 2.27 | 4.44 | 7.26 | 0.00 | 0.00 | 0.00 | 237.98 | 1.00 | 1011.78 | 1229.77 |
| * | 1.000 | 5000.00 | 1897.64 | 3.64 | 7.64 | 9.90 | 0.00 | 0.00 | 0.00 | 281.87 | 1.00 | 1007.19 | 1252.00 |
| * | 1.000 | 10000.00 | 1899.02 | 5.02 | 9.96 | 12.12 | 0.25 | 0.00 | 0.00 | 274.09 | 1.00 | 1002.61 | 1252.01 |
| * | 1.000 | 15000.00 | 1900.16 | 6.16 | 11.52 | 13.70 | 0.24 | 0.00 | 0.00 | 262.72 | 1.00 | 1000.00 | 1252.02 |

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Split At CP 84 For Left

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1.000 | 0.00 | 0.00 | 0.00 | 1894.00 | 25.00 | 1894.38 | 1894.35 | 1894.48 | 341.29 | 2.57 | 9.95 | 1.35 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1894.00 | 50.00 | 1894.55 | 1894.52 | 1894.68 | 339.54 | 3.03 | 18.10 | 2.71 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1894.00 | 75.00 | 1894.66 | 1894.64 | 1894.82 | 337.68 | 3.30 | 25.88 | 4.08 |
| | 1.000 | 0.00 | 0.00 | 0.00 | 1894.00 | 100.00 | 1894.76 | 1894.72 | 1894.92 | 342.47 | 3.51 | 33.02 | 5.40 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1894.00 | 200.00 | 1895.00 | 1895.00 | 1895.26 | 204.67 | 4.44 | 56.94 | 13.98 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1894.00 | 400.00 | 1895.32 | 1895.32 | 1895.67 | 222.02 | 5.35 | 95.19 | 26.84 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1894.00 | 600.00 | 1895.56 | 1895.56 | 1895.98 | 233.96 | 5.98 | 128.22 | 39.23 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1894.00 | 800.00 | 1895.78 | 1895.78 | 1896.23 | 223.37 | 6.24 | 163.76 | 53.53 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1894.00 | 1000.00 | 1895.95 | 1895.95 | 1896.43 | 220.11 | 6.49 | 199.04 | 67.40 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1894.00 | 1500.00 | 1896.27 | 1896.27 | 1896.85 | 237.98 | 7.26 | 265.86 | 97.23 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1894.00 | 5000.00 | 1897.64 | 1897.64 | 1898.83 | 281.87 | 9.90 | 586.28 | 297.81 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1894.00 | 10000.00 | 1899.02 | 1899.02 | 1900.88 | 274.09 | 12.12 | 925.93 | 604.02 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1894.00 | 15000.00 | 1900.16 | 1900.16 | 1902.59 | 262.72 | 13.70 | 1213.04 | 925.44 |

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Split At CP 84 For Left

SUMMARY PRINTOUT TABLE 150

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 1.000 | 25.00 | 1894.38 | 0.00 | 0.00 | 0.18 | 40.63 | 0.00 |
| | 1.000 | 50.00 | 1894.55 | 0.16 | 0.00 | 0.35 | 59.09 | 0.00 |
| | 1.000 | 75.00 | 1894.66 | 0.12 | 0.00 | 0.46 | 72.47 | 0.00 |
| | 1.000 | 100.00 | 1894.76 | 0.09 | 0.00 | 0.56 | 82.85 | 0.00 |
| * | 1.000 | 200.00 | 1895.00 | 0.25 | 0.00 | 0.80 | 107.32 | 0.00 |
| * | 1.000 | 400.00 | 1895.32 | 0.32 | 0.00 | 1.12 | 132.23 | 0.00 |
| * | 1.000 | 600.00 | 1895.56 | 0.23 | 0.00 | 1.36 | 150.46 | 0.00 |
| * | 1.000 | 800.00 | 1895.78 | 0.22 | 0.00 | 1.58 | 180.43 | 0.00 |
| * | 1.000 | 1000.00 | 1895.95 | 0.18 | 0.00 | 1.75 | 211.35 | 0.00 |
| * | 1.000 | 1500.00 | 1896.27 | 0.31 | 0.00 | 2.07 | 217.99 | 0.00 |
| * | 1.000 | 5000.00 | 1897.64 | 1.38 | 0.00 | 3.44 | 244.81 | 0.00 |
| * | 1.000 | 10000.00 | 1899.02 | 1.37 | 0.00 | 4.82 | 249.40 | 0.00 |
| * | 1.000 | 15000.00 | 1900.16 | 1.14 | 0.00 | 5.96 | 252.02 | 0.00 |

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SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      1.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  6  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  7  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  8  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE=  9  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE= 10  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE= 11  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE= 12  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE= 13  CRITICAL DEPTH ASSUMED
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1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version   4.6.2:  May 1991                *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-6069   *
 *  RUN DATE    31MAR92    TIME   15:49:08    *
 *********************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X           XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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THIS RUN EXECUTED 31MAR92  15:49:08

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*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2:  May 1991
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T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-RGHT.H2
T3 Flow Split At CP 84 For Right Side

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 2. | 0. | 0. | 0.0290 | 0. | 0. | 0. | 1896.4 | 0. |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.0 | 0. | -1.0 | 0. | 0. | 0. | -1. | 0. | 0. | 15. |

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 38. | 43. | 1. | 8. | 55. | 26. | 56. | 46. | 47. | 5. |
| 38. | 53. | 54. | | 150 | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NC | 0.060 | 0.025 | 0.060 | 0.1 | 0.3 | | | | | |
| NH | 6. | 0.010 | 1252.0 | 0.060 | 1282.0 | 0.070 | 1287.0 | 0.025 | 1317.0 | 0.070 |
| NH | 1326.0 | 0.060 | 1523.0 | | | | | | | |
| QT | 13.0 | 25.0 | 50.0 | 75.0 | 100.0 | 200.0 | 400.0 | 600.0 | 800.0 | 1000.0 |
| QT | 1500.0 | 5000.0 | 10000.0 | 15000.0 | | | | | | |
| X1 | 1.0 | 12.0 | 1282.0 | 1326.0 | 0.0 | 0.0 | 0.0 | | | |
| GR | 1910.0 | 1251.9 | 1897.5 | 1252.0 | 1897.4 | 1282.0 | 1895.9 | 1287.0 | 1896.2 | 1317.0 |
| GR | 1897.1 | 1326.0 | 1896.3 | 1338.0 | 1896.5 | 1353.0 | 1897.5 | 1356.0 | 1896.6 | 1392.0 |
| GR | 1898.2 | 1443.0 | 1901.5 | 1523.0 | | | | | | |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=  0.100 CEHV=  0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.42 | 1896.32 | 1896.32 | 1896.40 | 1896.46 | 0.13 | 0.00 | 0.00 | 1897.40 |
| 25.0 | 0.0 | 25.0 | 0.0 | 0.0 | 8.5 | 0.0 | 0.0 | 0.0 | 1897.10 |
| 0.00 | 0.00 | 2.95 | 0.04 | 0.000 | 0.030 | 0.060 | 0.000 | 1895.90 | 1285.60 |
| 0.021112 | 0. | 0. | 0. | 0 | 15 | 4 | 0.00 | 34.44 | 1339.53 |

FLOW DISTRIBUTION FOR SECNO=  1.00  CWSEL=  1896.32

| STA= | 1286. | 1326. | 1340. |
|---|---|---|---|
| PER Q= | 100.0 | 0.0 | |
| AREA= | 8.5 | 0.0 | |
| VEL= | 2.9 | 0.0 | |
| DEPTH= | 0.3 | 0.0 | |

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T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-RGHT.H2  Flow Split At CP 84 For Right Side
T3  Q=50

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 3. | 0. | 0. | 0.0290 | 0. | 0. | 0. | 1896.4 | 0. |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2.0 | 0. | -1.0 | 0. | 0. | 0. | -1. | 0. | 0. | 15. |

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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.000      0.59   1896.49   1896.49   1896.40   1896.67      0.18      0.00      0.00   1897.40
      50.0       0.0      48.8       1.2       0.0      14.3       1.7       0.0       0.0   1897.10
      0.00      0.00      3.40      0.72     0.000     0.033     0.060     0.000   1895.90   1288.02
  0.018978        0.        0.        0.         0        11         6      0.00     52.37   1352.54

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1896.49

STA=    1285.    1326.    1338.    1353.
  PER Q=     97.6      0.4      2.0
   AREA=     14.3      0.3      1.4
    VEL=      3.4      0.7      0.7
  DEPTH=      0.4      0.0      0.1
```



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T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-RGHT.H2  Flow Split At CP 84 For Right Side
T3      Q=75

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        4.        0.        0.      0.0290      0.        0.        0.      1896.4      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.
```



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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.000      0.71   1896.61   1896.61   1896.40   1896.82      0.21      0.00      0.00   1897.40
      75.0       0.0      70.3       4.7       0.0      18.5       3.9       0.0       0.0   1897.10
      0.00      0.00      3.80      1.19     0.000     0.035     0.060     0.000   1895.90   1284.63
  0.019998        0.        0.        0.         0        14         7      0.00     57.27   1392.35

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1896.61

STA=    1285.    1326.    1338.    1353.    1392.
  PER Q=     93.8      1.0      5.2      0.0
   AREA=     18.5      0.7      3.2      0.0
    VEL=      3.8      1.0      1.2      0.0
  DEPTH=      0.5      0.1      0.2      0.0
```



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T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-RGHT.H2  Flow Split At CP 84 For Right Side
T3      Q=100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        5.        0.        0.      0.0290      0.        0.        0.      1896.4      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    4.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.
```



```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
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CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.000      0.81   1896.71   1896.71   1896.40   1896.95      0.23      0.00      0.00   1897.40
     100.0       0.0      90.5       9.5       0.0      22.4       6.6       0.0       0.0   1897.10
      0.00      0.00      4.04      1.45     0.000     0.037     0.060     0.000   1895.90   1284.28
  0.020164        0.        0.        0.         0        14         8      0.00     68.00   1396.67

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1896.71

STA=    1284.    1326.    1338.    1353.    1392.    1396.
  PER Q=     90.5      1.6      7.7      0.1      0.1
   AREA=     22.4      1.3      4.7      0.3      0.2
    VEL=      4.0      1.2      1.6      0.4      0.5
  DEPTH=      0.6      0.1      0.3      0.0      0.1
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T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-RGHT.H2  Flow Split At CP 84 For Right Side
T3      Q=200

J1  ICHECK    INQ     NINV     IDIR     STRT    METRIC    HVINS      Q     WSEL       FQ
     0.       6.       0.       0.   0.0290       0.       0.      0.   1896.4       0.
J2  NPROF   IPLOT    PRFVS    XSECV    XSECH       FN    ALLDC    IBW    CHNIM    ITRACE
    5.0      0.     -1.0       0.       0.       0.     -1.      0.       0.      15.
```



```
    SECNO    DEPTH    CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS   L-BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL     TWA     R-BANK ELEV
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN     ELMIN   SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR   TOPWID  ENDST

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.000      1.12   1897.02   1897.02   1896.40   1897.30      0.28      0.00      0.00   1897.40
     200.0       0.0     160.5      39.5       0.0      34.4      19.8       0.0       0.0   1897.10
      0.00      0.00      4.66      2.00     0.000     0.040     0.060     0.000   1895.90   1283.28
  0.021062        0.        0.        0.         0        17         7      0.00     99.17   1405.29

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1897.02

STA=    1283.    1326.    1338.    1353.    1355.    1392.    1405.
  PER Q=     80.2      3.5     12.1      0.3      2.2      1.8
   AREA=     34.4      3.9      9.3      0.4      3.5      2.8
    VEL=      4.7      1.8      2.6      1.4      1.3      1.3
  DEPTH=      0.8      0.3      0.6      0.3      0.1      0.2
```



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T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-RGHT.H2  Flow Split At CP 84 For Right Side
T3      Q=400

J1  ICHECK    INQ     NINV     IDIR     STRT    METRIC    HVINS      Q     WSEL       FQ
     0.       7.       0.       0.   0.0290       0.       0.      0.   1896.4       0.
J2  NPROF   IPLOT    PRFVS    XSECV    XSECH       FN    ALLDC    IBW    CHNIM    ITRACE
    6.0      0.     -1.0       0.       0.       0.     -1.      0.       0.      15.
```



```
    SECNO    DEPTH    CWSEL    CRIWS    WSELK       EG       HV       HL    OLOSS   L-BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL     TWA     R-BANK ELEV
    TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN     ELMIN   SSTA
    SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR   TOPWID  ENDST

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000

3265 DIVIDED FLOW

3720 CRITICAL DEPTH ASSUMED
     1.000      1.45   1897.35   1897.35   1896.40   1897.75      0.40      0.00      0.00   1897.40
     400.0       0.0     283.2     116.8       0.0      48.9      43.5       0.0       0.0   1897.10
      0.00      0.00      5.79      2.69     0.000     0.042     0.060     0.000   1895.90   1282.16
  0.023382        0.        0.        0.         0        21        11      0.00    127.42   1415.96
```

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FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1897.35

STA=    1282.    1326.    1338.    1353.    1356.    1392.    1416.
  PER Q=     70.8      5.6     13.1      0.6      5.6      4.4
   AREA=     48.9      7.8     14.3      1.1     11.3      9.0
    VEL=      5.8      2.8      3.7      2.1      2.0      2.0
  DEPTH=      1.1      0.7      1.0      0.4      0.3      0.4

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T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-RGHT.H2  Flow Split At CP 84 For Right Side
T3      Q=600

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       8.        0.        0.     0.0290       0.        0.        0.     1896.4      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    7.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      1.75   1897.65   1897.65   1896.40   1898.07      0.42      0.00      0.00   1897.40
     600.0      7.1     382.1     210.8       6.0      62.0      71.3       0.0       0.0   1897.10
      0.00      1.18      6.16      2.96     0.060     0.042     0.060     0.000   1895.90   1252.00
  0.019447       0.        0.        0.         0        23        10      0.00    173.49   1425.49

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1897.65

STA=    1252.    1282.    1326.    1338.    1353.    1356.    1392.    1425.
  PER Q=      1.2     63.7      6.3     12.5      0.8      8.9      6.6
   AREA=      6.0     62.0     11.4     18.8      2.0     21.6     17.6
    VEL=      1.2      6.2      3.3      4.0      2.5      2.5      2.2
  DEPTH=      0.2      1.4      1.0      1.3      0.7      0.6      0.5

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T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-RGHT.H2  Flow Split At CP 84 For Right Side
T3      Q=800

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.       9.        0.        0.     0.0290       0.        0.        0.     1896.4      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    8.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      1.94   1897.84   1897.84   1896.40   1898.33      0.49      0.00      0.00   1897.40
     800.0     21.6     475.9     302.5      11.7      70.4      90.8       0.0       0.0   1897.10
      0.00      1.85      6.76      3.33     0.060     0.042     0.060     0.000   1895.90   1252.00
  0.019801       0.        0.        0.         0        26         8      0.00    179.54   1431.54

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1897.84

STA=    1252.    1282.    1326.    1338.    1353.    1356.    1392.    1432.
  PER Q=      2.7     59.5      6.5     12.0      0.9     10.6      7.8
   AREA=     11.7     70.4     13.7     21.6      2.5     28.5     24.5
    VEL=      1.8      6.8      3.8      4.4      3.0      3.0      2.5
  DEPTH=      0.4      1.6      1.1      1.4      0.8      0.8      0.6

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T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-RGHT.H2  Flow Split At CP 84 For Right Side
T3      Q=1000

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
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      0.       10.        0.        0.    0.0290        0.        0.        0.    1896.4        0.
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH        FN    ALLDC       IBW    CHNIM    ITRACE
    9.0        0.      -1.0        0.        0.        0.       -1.        0.       0.       15.
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV      HL     OLOSS    L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB     VOL       TWA    R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH       XNR     WTN     ELMIN    SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC     ICONT   CORAR    TOPWID    ENDST

 *PROF 9

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000      2.11   1898.01   1898.01   1896.40   1898.55      0.55      0.00      0.00   1897.40
     1000.0      39.1     564.7     396.2      16.7      77.6     108.6       0.0       0.0   1897.10
       0.00      2.35      7.27      3.65     0.060     0.042     0.060     0.000   1895.90   1252.00
   0.020113        0.        0.        0.         0        26         6      0.00    184.79   1436.79

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1898.01

 STA=    1252.     1282.     1326.     1338.     1353.     1356.     1392.     1437.
   PER Q=      3.9      56.5       6.6      11.6       1.0      11.7       8.7
    AREA=     16.7      77.6      15.7      24.1       3.0      34.4      31.5
     VEL=      2.3       7.3       4.2       4.8       3.4       3.4       2.8
   DEPTH=      0.6       1.8       1.3       1.6       1.0       1.0       0.7
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 T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
 T2 FILENAME= C84-RGHT.H2  Flow Split At CP 84 For Right Side
 T3       Q=1500

 J1  ICHECK      INQ      NINV      IDIR      STRT    METRIC    HVINS         Q      WSEL        FQ
      0.        11.        0.        0.    0.0290        0.        0.        0.    1896.4        0.
 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH        FN    ALLDC       IBW    CHNIM    ITRACE
   10.0         0.      -1.0        0.        0.        0.       -1.        0.       0.       15.
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV      HL     OLOSS    L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB     VOL       TWA    R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH       XNR     WTN     ELMIN    SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC     ICONT   CORAR    TOPWID    ENDST

 *PROF10

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
 3720 CRITICAL DEPTH ASSUMED
      1.000      2.47   1898.37   1898.37   1896.40   1899.03      0.67      0.00      0.00   1897.40
     1500.0      88.9     766.8     644.3      27.5      93.5     150.5       0.0       0.0   1897.10
       0.00      3.24      8.20      4.28     0.060     0.042     0.060     0.000   1895.90   1251.99
   0.019957        0.        0.        0.         0        29         5      0.00    195.02   1447.01

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1898.37

 STA=    1252.     1282.     1326.     1338.     1353.     1356.     1392.     1443.     1447.
   PER Q=      5.9      51.1       6.5      10.8       1.1      13.3      11.2       0.0
    AREA=     27.5      93.5      20.0      29.5       4.1      47.4      49.2       0.3
     VEL=      3.2       8.2       4.9       5.5       4.2       4.2       3.4       0.7
   DEPTH=      0.9       2.1       1.7       2.0       1.4       1.3       1.0       0.1
1
   31MAR92      15:49:08                                                                          PAGE   21

 T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
 T2 FILENAME= C84-RGHT.H2  Flow Split At CP 84 For Right Side
 T3       Q=5000

 J1  ICHECK      INQ      NINV      IDIR      STRT    METRIC    HVINS         Q      WSEL        FQ
      0.        12.        0.        0.    0.0290        0.        0.        0.    1896.4        0.
 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH        FN    ALLDC       IBW    CHNIM    ITRACE
   11.0         0.      -1.0        0.        0.        0.       -1.        0.       0.       15.
1
   31MAR92      15:49:08                                                                          PAGE   22

    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV      HL     OLOSS    L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB     VOL       TWA    R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH       XNR     WTN     ELMIN    SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC     ICONT   CORAR    TOPWID    ENDST

 *PROF11
```

```
CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3720 CRITICAL DEPTH ASSUMED
     1.000      4.07   1899.97   1899.97   1896.40   1901.28      1.31      0.00      0.00   1897.40
    5000.0     468.7    1973.9    2557.4      75.7     164.2     376.5       0.0       0.0   1897.10
      0.00      6.19     12.02      6.79     0.060     0.042     0.060     0.000   1895.90   1251.98
  0.020207        0.        0.        0.         0        35         6      0.00    234.02   1486.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1899.97

STA=    1252.    1282.    1326.    1338.    1353.    1356.    1392.    1443.    1486.
  PER Q=      9.4     39.5      6.1      8.8      1.3     15.2     17.4      2.5
   AREA=     75.7    164.2     39.3     53.6      8.9    105.3    131.3     38.1
    VEL=      6.2     12.0      7.8      8.2      7.0      7.2      6.6      3.2
  DEPTH=      2.5      3.7      3.3      3.6      3.0      2.9      2.6      0.9

1
   31MAR92      15:49:08                                                                          PAGE   23

T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-RGHT.H2  Flow Split At CP 84 For Right Side
T3       Q=10000

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        13.       0.        0.       0.0290     0.        0.        0.       1896.4     0.

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   12.0        0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

1
   31MAR92      15:49:08                                                                          PAGE   24

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF12

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED      0.10 FEET

3720 CRITICAL DEPTH ASSUMED
     1.000      5.70   1901.60   1901.60   1896.40   1903.44      1.84      0.00      0.00   1897.40
   10000.0     993.9    3448.6    5557.4     124.6     235.8     668.8       0.0       0.0   1897.10
      0.00      7.98     14.62      8.31     0.060     0.042     0.060     0.000   1895.90   1251.97
  0.018465        0.        0.        0.         0        38         7      0.00    271.03   1523.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1901.60

STA=    1252.    1282.    1326.    1338.    1353.    1356.    1392.    1443.    1523.
  PER Q=      9.9     34.5      5.7      7.9      1.2     15.1     18.8      6.8
   AREA=    124.6    235.8     58.8     78.0     13.8    163.8    214.3    140.1
    VEL=      8.0     14.6      9.7     10.1      9.0      9.2      8.8      4.9
  DEPTH=      4.1      5.4      4.9      5.2      4.6      4.6      4.2      1.8

1
   31MAR92      15:49:08                                                                          PAGE   25

T1 Gila Bend Floodplain Delineation Study, 11358 12/10/91
T2 FILENAME= C84-RGHT.H2  Flow Split At CP 84 For Right Side
T3       Q=15000

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        14.       0.        0.       0.0290     0.        0.        0.       1896.4     0.

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   13.0        0.       -1.0       0.        0.        0.        -1.       0.        0.        15.

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   31MAR92      15:49:08                                                                          PAGE   26

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED      1.22 FEET

3720 CRITICAL DEPTH ASSUMED
     1.000      6.82   1902.72   1902.72   1896.40   1905.13      2.41      0.00      0.00   1897.40
   15000.0    1471.6    4806.2    8722.3     158.3     285.2     889.7       0.0       0.0   1897.10
      0.00      9.30     16.85      9.80     0.060     0.042     0.060     0.000   1895.90   1251.96
  0.019039        0.        0.        0.         0        41         7      0.00    271.04   1523.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1902.72
```

| STA= | 1252. | 1282. | 1326. | 1338. | 1353. | 1356. | 1392. | 1443. | 1523. |
|---|---|---|---|---|---|---|---|---|---|
| PER Q= | 9.8 | 32.0 | 5.4 | 7.4 | 1.2 | 14.8 | 18.8 | 10.5 | |
| AREA= | 158.3 | 285.2 | 72.3 | 94.8 | 17.2 | 204.2 | 271.5 | 229.8 | |
| VEL= | 9.3 | 16.9 | 11.3 | 11.7 | 10.6 | 10.9 | 10.4 | 6.8 | |
| DEPTH= | 5.3 | 6.5 | 6.0 | 6.3 | 5.7 | 5.7 | 5.3 | 2.9 | |

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31MAR92 15:49:08



THIS RUN EXECUTED 31MAR92 15:49:16

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Split At CP 84 For Right

SUMMARY PRINTOUT

| | SECNO | Q | CWSEL | DEPTH | VLOB | VCH | VROB | QWEIR | QPR | 10*KS | SECNO | SSTA | ENDST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 1.000 | 25.00 | 1896.32 | 0.42 | 0.00 | 2.95 | 0.04 | 0.00 | 0.00 | 211.12 | 1.00 | 1285.60 | 1339.53 |
| * | 1.000 | 50.00 | 1896.49 | 0.59 | 0.00 | 3.40 | 0.72 | 0.00 | 0.00 | 189.78 | 1.00 | 1285.02 | 1352.54 |
| * | 1.000 | 75.00 | 1896.61 | 0.71 | 0.00 | 3.80 | 1.19 | 0.00 | 0.00 | 199.98 | 1.00 | 1284.63 | 1392.35 |
| * | 1.000 | 100.00 | 1896.71 | 0.81 | 0.00 | 4.04 | 1.45 | 0.00 | 0.00 | 201.64 | 1.00 | 1284.28 | 1395.67 |
| * | 1.000 | 200.00 | 1897.02 | 1.12 | 0.00 | 4.66 | 2.00 | 0.00 | 0.00 | 210.62 | 1.00 | 1283.28 | 1405.29 |
| * | 1.000 | 400.00 | 1897.35 | 1.45 | 0.00 | 5.79 | 2.69 | 0.00 | 0.00 | 233.82 | 1.00 | 1282.16 | 1415.96 |
| * | 1.000 | 600.00 | 1897.65 | 1.75 | 1.18 | 6.16 | 2.96 | 0.00 | 0.00 | 194.47 | 1.00 | 1252.00 | 1425.49 |
| * | 1.000 | 800.00 | 1897.84 | 1.94 | 1.85 | 6.76 | 3.33 | 0.00 | 0.00 | 198.01 | 1.00 | 1252.00 | 1431.54 |
| * | 1.000 | 1000.00 | 1898.01 | 2.11 | 2.35 | 7.27 | 3.65 | 0.00 | 0.00 | 201.13 | 1.00 | 1252.00 | 1436.79 |
| * | 1.000 | 1500.00 | 1898.37 | 2.47 | 3.24 | 8.20 | 4.28 | 0.00 | 0.00 | 199.57 | 1.00 | 1251.99 | 1447.01 |
| * | 1.000 | 5000.00 | 1899.97 | 4.07 | 6.19 | 12.02 | 6.79 | 0.00 | 0.00 | 202.07 | 1.00 | 1251.98 | 1486.00 |
| * | 1.000 | 10000.00 | 1901.60 | 5.70 | 7.98 | 14.62 | 8.31 | 0.00 | 0.00 | 184.65 | 1.00 | 1251.97 | 1523.00 |
| * | 1.000 | 15000.00 | 1902.72 | 6.82 | 9.30 | 16.85 | 9.80 | 0.00 | 0.00 | 190.39 | 1.00 | 1251.96 | 1523.00 |

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31MAR92 15:49:08



Split At CP 84 For Right

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1895.90 | 25.00 | 1896.32 | 1896.32 | 1896.46 | 211.12 | 2.95 | 8.50 | 1.72 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1895.90 | 50.00 | 1896.49 | 1896.49 | 1896.67 | 189.78 | 3.40 | 16.03 | 3.63 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1895.90 | 75.00 | 1896.61 | 1896.61 | 1896.82 | 199.98 | 3.80 | 22.43 | 5.30 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1895.90 | 100.00 | 1896.71 | 1896.71 | 1896.95 | 201.64 | 4.04 | 28.94 | 7.04 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1895.90 | 200.00 | 1897.02 | 1897.02 | 1897.30 | 210.62 | 4.66 | 54.19 | 13.78 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1895.90 | 400.00 | 1897.35 | 1897.35 | 1897.75 | 233.82 | 5.79 | 92.37 | 26.16 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1895.90 | 600.00 | 1897.65 | 1897.65 | 1898.07 | 194.47 | 6.16 | 139.38 | 43.02 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1895.90 | 800.00 | 1897.84 | 1897.84 | 1898.33 | 198.01 | 6.76 | 172.89 | 56.85 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1895.90 | 1000.00 | 1898.01 | 1898.01 | 1898.55 | 201.13 | 7.27 | 202.89 | 70.51 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1895.90 | 1500.00 | 1898.37 | 1898.37 | 1899.03 | 199.57 | 8.20 | 271.44 | 106.18 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1895.90 | 5000.00 | 1899.97 | 1899.97 | 1901.28 | 202.07 | 12.02 | 616.45 | 351.74 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1895.90 | 10000.00 | 1901.60 | 1901.60 | 1903.44 | 184.65 | 14.62 | 1029.26 | 735.91 |
| * | 1.000 | 0.00 | 0.00 | 0.00 | 1895.90 | 15000.00 | 1902.72 | 1902.72 | 1905.13 | 190.39 | 16.85 | 1333.22 | 1087.11 |

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Split At CP 84 For Right

SUMMARY PRINTOUT TABLE 150

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| * | 1.000 | 25.00 | 1896.32 | 0.00 | 0.00 | -0.08 | 34.44 | 0.00 |
| * | 1.000 | 50.00 | 1896.49 | 0.17 | 0.00 | 0.09 | 52.37 | 0.00 |
| * | 1.000 | 75.00 | 1896.61 | 0.12 | 0.00 | 0.21 | 57.27 | 0.00 |
| * | 1.000 | 100.00 | 1896.71 | 0.10 | 0.00 | 0.31 | 68.00 | 0.00 |
| * | 1.000 | 200.00 | 1897.02 | 0.30 | 0.00 | 0.62 | 99.17 | 0.00 |
| * | 1.000 | 400.00 | 1897.35 | 0.33 | 0.00 | 0.95 | 127.42 | 0.00 |
| * | 1.000 | 600.00 | 1897.65 | 0.30 | 0.00 | 1.25 | 173.49 | 0.00 |
| * | 1.000 | 800.00 | 1897.84 | 0.19 | 0.00 | 1.44 | 179.54 | 0.00 |
| * | 1.000 | 1000.00 | 1898.01 | 0.16 | 0.00 | 1.61 | 184.79 | 0.00 |
| * | 1.000 | 1500.00 | 1898.37 | 0.36 | 0.00 | 1.97 | 195.02 | 0.00 |
| * | 1.000 | 5000.00 | 1899.97 | 1.61 | 0.00 | 3.57 | 234.02 | 0.00 |
| * | 1.000 | 10000.00 | 1901.60 | 1.63 | 0.00 | 5.20 | 271.03 | 0.00 |
| * | 1.000 | 15000.00 | 1902.72 | 1.12 | 0.00 | 6.32 | 271.04 | 0.00 |

1

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 1.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 5 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 6 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 7 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 8 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 9 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 10 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 11 CRITICAL DEPTH ASSUMED

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CAUTION SECNO=      1.000  PROFILE= 12  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.000  PROFILE= 13  CRITICAL DEPTH ASSUMED
```

## C116 Summary Data

| Stage | Left Channel | Right Channel | Total Flow |
|---|---|---|---|
| 1660 | 0 | 0 | 0 |
| 1660.5 | 15 | 0 | 15 |
| 1661 | 35 | 40 | 75 |
| 1662 | 175 | 315 | 490 |
| 1663 | 490 | 960 | 1450 |
| 1664 | 1100 | 2200 | 3300 |
| 1665 | 2050 | 3900 | 5950 |
| 1666 | 3200 | 5700 | 8900 |
| 1666.7 | 4000 | 7400 | 11400 |

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2:  May 1991            *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE   31MAR92    TIME   15:49:33     *
 *****************************************

*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************

X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X     X
XXXXXXX  XXXX     X          XXXXX   XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX

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   31MAR92      15:49:33                                                                    PAGE    1


                                                                THIS RUN EXECUTED 31MAR92    15:49:33
*************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2:  May 1991
*************************************

 T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
 T2 FILENAME= C116LEFT.H2
 T3 Flow Split At CP 116 For Left Side

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       2.        0.        0.     0.0092       0.        0.        0.     1662.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38.       43.        1.        8.       55.       26.       56.       46.       47.        5.
     38.       53.       54.                 150

 NC    0.070     0.035     0.070     0.1       0.3
 NH      5.      0.070   1072.0     0.080   1080.0     0.035   1116.0     0.070   1164.0     0.010
 NH   1164.1
 QT     13.0      25.0      50.0     75.0     100.0     200.0     400.0     600.0     800.0    1000.0
 QT   1500.0    5000.0   10000.0   15000.0
 XI      1.0       6.0    1072.0    1164.0       0.0       0.0       0.0
 GR   1667.2    1000.0    1663.4    1072.0    1660.0    1080.0    1661.2    1116.0    1662.8    1164.0
 GR   1690.0    1164.1
1
   31MAR92      15:49:33                                                                    PAGE    2

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000      0.87   1660.87   1660.68   1662.00   1660.93      0.07      0.00      0.00   1663.40
       25.0       0.0      25.0       0.0       0.0      12.1       0.0       0.0       0.0   1662.80
       0.00      0.00      2.06      0.00     0.000     0.039     0.000     0.000   1660.00   1077.96
   0.009189        0.        0.        0.         0        22         5      0.00     28.03   1105.99

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1660.87

 STA=    1078.    1116.
   PER Q=    100.0
    AREA=     12.1
     VEL=      2.1
   DEPTH=      0.4

1
   31MAR92      15:49:33                                                                    PAGE    3

 T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
 T2 FILENAME= C116LEFT.H2  Flow Split At CP 116 For Left Side
 T3       Q=50

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       3.        0.        0.     0.0092       0.        0.        0.     1662.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

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   31MAR92      15:49:33                                                                    PAGE    4

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
```

```
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 2

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000      1.13   1661.13   1660.90   1662.00   1661.22      0.09      0.00      0.00   1663.40
       50.0       0.0      50.0       0.0       0.0      20.5       0.0       0.0       0.0   1662.80
       0.00      0.00      2.44      0.00     0.000     0.039     0.000     0.000   1660.00   1077.35
   0.009089        0.        0.        0.         0        18         4      0.00     36.40   1113.76

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1661.13

 STA=    1077.    1116.
   PER Q=     100.0
    AREA=      20.5
     VEL=       2.4
   DEPTH=       0.6

1
    31MAR92       15:49:33
                                                                                                PAGE     5

 T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
 T2 FILENAME= C116LEFT.H2  Flow Split At CP 116 For Left Side
 T3       Q=75

 J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        4.        0.        0.     0.0092       0.        0.        0.     1662.0      0.
 J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3.0        0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

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    31MAR92       15:49:33
                                                                                                PAGE     6

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 3

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000      1.35   1661.35   1661.05   1662.00   1661.45      0.10      0.00      0.00   1663.40
       75.0       0.0      75.0       0.0       0.0      29.6       0.0       0.0       0.0   1662.80
       0.00      0.00      2.53      0.00     0.000     0.043     0.000     0.000   1660.00   1076.82
   0.009308        0.        0.        0.         0        11         4      0.00     43.79   1120.60

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1661.35

 STA=    1077.    1164.
   PER Q=     100.0
    AREA=      29.6
     VEL=       2.5
   DEPTH=       0.7

1
    31MAR92       15:49:33
                                                                                                PAGE     7

 T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
 T2 FILENAME= C116LEFT.H2  Flow Split At CP 116 For Left Side
 T3       Q=100

 J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        5.        0.        0.     0.0092       0.        0.        0.     1662.0      0.
 J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4.0        0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
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                                                                                                PAGE     8

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 4

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000      1.56   1661.56   1661.18   1662.00   1661.66      0.10      0.00      0.00   1663.40
       100.0       0.0     100.0       0.0       0.0      39.5       0.0       0.0       0.0   1662.80
       0.00      0.00      2.53      0.00     0.000     0.048     0.000     0.000   1660.00   1076.33
   0.009225        0.        0.        0.         0        14         5      0.00     50.53   1126.85

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1661.56

 STA=    1076.    1164.
```

```
  PER Q=     100.0
   AREA=      39.5
    VEL=       2.5
  DEPTH=       0.8
```

1

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```
T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
T2 FILENAME= C116LEFT.H2  Flow Split At CP 116 For Left Side
T3      Q=200

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
     0.       6.       0.       0.     0.0092     0.       0.       0.     1662.0     0.
J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
    5.0       0.      -1.0      0.       0.       0.      -1.       0.       0.       15.
```

1

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```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      2.13   1662.13   1661.56   1662.00   1662.24      0.12      0.00      0.00   1663.40
     200.0       0.0     200.0       0.0       0.0      73.1       0.0       0.0       0.0   1662.80
      0.00      0.00      2.73      0.00     0.000     0.054     0.000     0.000   1660.00   1075.00
  0.009248        0.        0.        0.         0        15         7      0.00     68.79   1143.79

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1662.13

STA=    1075.    1164.
  PER Q=     100.0
   AREA=      73.1
    VEL=       2.7
  DEPTH=       1.1
```

1

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```
T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
T2 FILENAME= C116LEFT.H2  Flow Split At CP 116 For Left Side
T3      Q=400

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
     0.       7.       0.       0.     0.0092     0.       0.       0.     1662.0     0.
J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
    6.0       0.      -1.0      0.       0.       0.      -1.       0.       0.       15.
```

1

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```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      2.83   1662.83   1662.06   1662.00   1662.98      0.15      0.00      0.00   1663.40
     400.0       0.0     400.0       0.0       0.0     129.7       0.0       0.0       0.0   1662.80
      0.00      0.00      3.08      0.00     0.000     0.058     0.000     0.000   1660.00   1073.34
  0.009213        0.        0.        0.         0         8         8      0.00     90.66   1164.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1662.83

STA=    1073.    1164.
  PER Q=     100.0
   AREA=     129.7
    VEL=       3.1
  DEPTH=       1.4
```

1

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```
T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
T2 FILENAME= C116LEFT.H2  Flow Split At CP 116 For Left Side
T3      Q=600

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
     0.       8.       0.       0.     0.0092     0.       0.       0.     1662.0     0.
J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
    7.0       0.      -1.0      0.       0.       0.      -1.       0.       0.       15.
```

```
1
   31MAR92      15:49:33                                                                                                PAGE   14

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 7

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000      3.23   1663.23   1662.42   1662.00   1663.43      0.20      0.00      0.00   1663.40
      600.0       0.0     600.0       0.0       0.0     165.9       0.0       0.0       0.0   1662.80
       0.00      0.00      3.62      0.00     0.000     0.059     0.000     0.000   1660.00   1072.40
   0.009339        0.        0.        0.         0        11        18      0.00     91.60   1164.00

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1663.23

 STA=    1072.    1164.
   PER Q=    100.0
    AREA=    165.9
     VEL=      3.6
   DEPTH=      1.8

1
   31MAR92      15:49:33                                                                                                PAGE   15

 T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
 T2 FILENAME= C116LEFT.H2  Flow Split At CP 116 For Left Side
 T3      Q=800

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0.        9.         0.         0.      0.0092        0.         0.         0.      1662.0       0.
 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     8.0        0.        -1.0        0.         0.         0.        -1.         0.         0.        15.
1
   31MAR92      15:49:33                                                                                                PAGE   16

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 8

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000      3.57   1663.57   1662.73   1662.00   1663.83      0.25      0.00      0.00   1663.40
      800.0       0.1     799.9       0.0       0.3     197.5       0.0       0.0       0.0   1662.80
       0.00      0.40      4.05      2.81     0.070     0.059     0.010     0.000   1660.00   1068.73
   0.009374        0.        0.        0.         0        11         8      0.00     96.27   1164.00

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1663.57

 STA=    1069.    1072.    1164.    1164.
   PER Q=      0.0    100.0      0.0
    AREA=      0.3    197.5      0.0
     VEL=      0.4      4.1      2.8
   DEPTH=      0.1      2.1      0.4

1
   31MAR92      15:49:33                                                                                                PAGE   17

 T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
 T2 FILENAME= C116LEFT.H2  Flow Split At CP 116 For Left Side
 T3      Q=1000

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0.       10.         0.         0.      0.0092        0.         0.         0.      1662.0       0.
 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     9.0        0.        -1.0        0.         0.         0.        -1.         0.         0.        15.
1
   31MAR92      15:49:33                                                                                                PAGE   18

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 9

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000      3.89   1663.89   1662.94   1662.00   1664.19      0.30      0.00      0.00   1663.40
     1000.0       1.8     998.2       0.0       2.3     226.7       0.0       0.0       0.0   1662.80
       0.00      0.80      4.40      5.58     0.070     0.059     0.010     0.000   1660.00   1062.72
```

```
  0.009217        0.        0.        0.        0        14        4      0.00    101.29   1164.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1663.89

STA=    1063.    1072.    1164.    1164.
  PER Q=      0.2      99.8      0.0
   AREA=      2.3     226.7      0.0
    VEL=      0.8       4.4      5.6
  DEPTH=      0.2       2.5      0.5

1
   31MAR92      15:49:33                                                                          PAGE   19

T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
T2 FILENAME= C116LEFT.H2  Flow Split At CP 116 For Left Side
T3      Q=1500

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       11.       0.       0.     0.0092      0.       0.       0.     1662.0     0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

   10.0       0.      -1.0      0.       0.       0.       -1.      0.       0.       15.

1
   31MAR92      15:49:33                                                                          PAGE   20

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF10

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      4.55   1664.55   1663.45   1662.00   1664.95      0.41      0.00      0.00   1663.40
    1500.0      17.6    1482.4       0.0      12.5     287.3       0.0       0.0       0.0   1662.80
      0.00      1.41      5.16      0.14     0.070     0.059     0.010     0.000   1660.00   1050.23
  0.009226        0.        0.        0.         0        14         5      0.00    113.78   1164.01

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1664.55

STA=    1050.    1072.    1164.
  PER Q=      1.2      98.8
   AREA=     12.5     287.3
    VEL=      1.4       5.2
  DEPTH=      0.6       3.1

1
   31MAR92      15:49:33                                                                          PAGE   21

T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
T2 FILENAME= C116LEFT.H2  Flow Split At CP 116 For Left Side
T3      Q=5000

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     0.       12.       0.       0.     0.0092      0.       0.       0.     1662.0     0.

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

   11.0       0.      -1.0      0..      0.       0.       -1.      0.       0.       15.

1
   31MAR92      15:49:33                                                                          PAGE   22

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF11

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED      0.28 FEET

     1.000      7.48   1667.48   1665.98   1662.00   1668.39      0.91      0.00      0.00   1663.40
    5000.0     538.1    4464.9       0.0     186.7     556.7       0.0       0.0       0.0   1662.80
      0.00      3.41      8.02      0.14     0.070     0.059     0.010     0.000   1660.00   1000.00
  0.009229        0.        0.        0.         0        23         7      0.00    164.02   1164.02

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1667.48

STA=    1000.    1072.    1164.    1164.
  PER Q=     10.7      89.3      0.0
   AREA=    156.7     556.7      0.0
    VEL=      3.4       8.0      0.1
  DEPTH=      2.2       6.1      2.3

1
   31MAR92      15:49:33                                                                          PAGE   23

T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
T2 FILENAME= C116LEFT.H2  Flow Split At CP 116 For Left Side
T3      Q=10000
```

```
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     0.       13.       0.        0.      0.0092      0.        0.        0.      1662.0      0.
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
   12.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.
1
   31MAR92      15:49:33                                                                                    PAGE   24

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF12

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
 3280 CROSS SECTION      1.00 EXTENDED      2.85 FEET

     1.000     10.05   1670.05   1668.29   1662.00   1671.44      1.39      0.00      0.00   1663.40
   10000.0    1923.1    8076.9       0.0     342.0     793.4       0.1       0.0       0.0   1662.80
      0.00      5.62     10.18      0.14     0.070     0.059     0.010     0.000   1660.00   1000.00
  0.009270        0.        0.        0.         0        26         7      0.00    164.03   1164.03

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1670.05

 STA=    1000.     1072.     1164.     1164.
   PER Q=      19.2      80.8      0.0
    AREA=     342.0     793.4      0.1
     VEL=       5.6      10.2      0.1
   DEPTH=       4.7       8.6      3.6
1
   31MAR92      15:49:33                                                                                    PAGE   25

 T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
 T2 FILENAME= C116LEFT.H2  Flow Split At CP 116 For Left Side
 T3      Q=15000

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     0.       14.       0.        0.      0.0092      0.        0.        0.      1662.0      0.
 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
   13.0       0.       -1.0       0.        0.        0.        -1.       0.        0.        15.
1
   31MAR92      15:49:33                                                                                    PAGE   26

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF13

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
 3280 CROSS SECTION      1.00 EXTENDED      4.90 FEET

     1.000     12.10   1672.10   1669.86   1662.00   1673.93      1.83      0.00      0.00   1663.40
   15000.0    3443.7   11556.1       0.2     489.5     981.9       0.2       0.0       0.0   1662.80
      0.00      7.04     11.77      0.95     0.070     0.059     0.010     0.000   1660.00   1000.00
  0.009325        0.        0.        0.         0        29         7      0.00    164.03   1164.03

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1672.10

 STA=    1000.     1072.     1164.     1164.
   PER Q=      23.0      77.0      0.0
    AREA=     489.5     981.9      0.2
     VEL=       7.0      11.8      1.0
   DEPTH=       6.8      10.7      4.6
1
   31MAR92      15:49:33                                                                                    PAGE   27


                                                                                THIS RUN EXECUTED 31MAR92     15:49:39
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************

 NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

 Split At CP 116 For Left

 SUMMARY PRINTOUT

      SECNO       Q       CWSEL     DEPTH     VLOB      VCH       VROB      QWEIR     QPR       10*KS     SECNO     SSTA      ENDST
```

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1660.87 | 0.87 | 0.00 | 2.06 | 0.00 | 0.00 | 0.00 | 91.59 | 1.00 | 1077.96 | 1105.99 |
| 1.000 | 50.00 | 1661.13 | 1.13 | 0.00 | 2.44 | 0.00 | 0.00 | 0.00 | 90.89 | 1.00 | 1077.35 | 1113.76 |
| 1.000 | 75.00 | 1661.35 | 1.35 | 0.00 | 2.53 | 0.00 | 0.00 | 0.00 | 93.08 | 1.00 | 1076.82 | 1120.60 |
| 1.000 | 100.00 | 1661.56 | 1.56 | 0.00 | 2.53 | 0.00 | 0.00 | 0.00 | 92.25 | 1.00 | 1076.33 | 1126.85 |
| 1.000 | 200.00 | 1662.13 | 2.13 | 0.00 | 2.73 | 0.00 | 0.00 | 0.00 | 92.48 | 1.00 | 1075.00 | 1143.79 |
| 1.000 | 400.00 | 1662.83 | 2.83 | 0.00 | 3.08 | 0.00 | 0.00 | 0.00 | 92.13 | 1.00 | 1073.34 | 1164.00 |
| 1.000 | 600.00 | 1663.23 | 3.23 | 0.00 | 3.62 | 0.00 | 0.00 | 0.00 | 93.39 | 1.00 | 1072.40 | 1164.00 |
| 1.000 | 800.00 | 1663.57 | 3.57 | 0.40 | 4.05 | 2.81 | 0.00 | 0.00 | 93.74 | 1.00 | 1068.73 | 1164.0 |
| 1.000 | 1000.00 | 1663.89 | 3.89 | 0.80 | 4.40 | 5.58 | 0.00 | 0.00 | 92.17 | 1.00 | 1062.72 | 1164.0 |
| 1.000 | 1500.00 | 1664.55 | 4.55 | 1.41 | 5.16 | 0.14 | 0.00 | 0.00 | 92.26 | 1.00 | 1050.23 | 1164.0 |
| 1.000 | 5000.00 | 1667.48 | 7.48 | 3.41 | 8.02 | 0.14 | 0.00 | 0.00 | 92.29 | 1.00 | 1000.00 | 1164.02 |
| 1.000 | 10000.00 | 1670.05 | 10.05 | 5.62 | 10.18 | 0.14 | 0.00 | 0.00 | 92.70 | 1.00 | 1000.00 | 1164.03 |
| 1.000 | 15000.00 | 1672.10 | 12.10 | 7.04 | 11.77 | 0.95 | 0.00 | 0.00 | 93.25 | 1.00 | 1000.00 | 1164.03 |

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Split At CP 116 For Left

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.00 | 25.00 | 1660.87 | 1660.68 | 1660.93 | 91.59 | 2.06 | 12.14 | 2.61 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.00 | 50.00 | 1661.13 | 1660.90 | 1661.22 | 90.89 | 2.44 | 20.48 | 5.24 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.00 | 75.00 | 1661.35 | 1661.05 | 1661.45 | 93.08 | 2.53 | 29.63 | 7.77 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.00 | 100.00 | 1661.56 | 1661.18 | 1661.66 | 92.25 | 2.53 | 39.46 | 10.41 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.00 | 200.00 | 1662.13 | 1661.56 | 1662.24 | 92.48 | 2.73 | 73.14 | 20.80 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.00 | 400.00 | 1662.83 | 1662.06 | 1662.98 | 92.13 | 3.08 | 129.66 | 41.87 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.00 | 600.00 | 1663.23 | 1662.42 | 1663.43 | 93.39 | 3.62 | 165.87 | 62.09 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.00 | 800.00 | 1663.57 | 1662.73 | 1663.83 | 93.74 | 4.05 | 197.75 | 82.63 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.00 | 1000.00 | 1663.89 | 1662.94 | 1664.19 | 92.17 | 4.40 | 228.96 | 104.16 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.00 | 1500.00 | 1664.55 | 1663.45 | 1664.96 | 92.26 | 5.16 | 299.82 | 156.16 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.00 | 5000.00 | 1667.48 | 1665.98 | 1668.39 | 92.29 | 8.02 | 713.46 | 520.46 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.00 | 10000.00 | 1670.05 | 1668.29 | 1671.44 | 92.70 | 10.18 | 1135.49 | 1038.65 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.00 | 15000.00 | 1672.10 | 1669.86 | 1673.93 | 93.25 | 11.77 | 1471.52 | 1553.34 |

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Split At CP 116 For Left

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1660.87 | 0.00 | 0.00 | -1.13 | 28.03 | 0.00 |
| 1.000 | 50.00 | 1661.13 | 0.26 | 0.00 | -0.87 | 36.40 | 0.00 |
| 1.000 | 75.00 | 1661.35 | 0.23 | 0.00 | -0.65 | 43.79 | 0.00 |
| 1.000 | 100.00 | 1661.56 | 0.21 | 0.00 | -0.44 | 50.53 | 0.00 |
| 1.000 | 200.00 | 1662.13 | 0.56 | 0.00 | 0.13 | 68.79 | 0.00 |
| 1.000 | 400.00 | 1662.83 | 0.70 | 0.00 | 0.83 | 90.66 | 0.00 |
| 1.000 | 600.00 | 1663.23 | 0.40 | 0.00 | 1.23 | 91.60 | 0.00 |
| 1.000 | 800.00 | 1663.57 | 0.34 | 0.00 | 1.57 | 95.27 | 0.00 |
| 1.000 | 1000.00 | 1663.89 | 0.32 | 0.00 | 1.89 | 101.29 | 0.00 |
| 1.000 | 1500.00 | 1664.55 | 0.66 | 0.00 | 2.55 | 113.78 | 0.00 |
| 1.000 | 5000.00 | 1667.48 | 2.93 | 0.00 | 5.48 | 164.02 | 0.00 |
| 1.000 | 10000.00 | 1670.05 | 2.57 | 0.00 | 8.05 | 164.03 | 0.00 |
| 1.000 | 15000.00 | 1672.10 | 2.05 | 0.00 | 10.10 | 164.03 | 0.00 |

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SUMMARY OF ERRORS AND SPECIAL NOTES

```
1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version   4.6.2:  May 1991                *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE    31MAR92    TIME   15:49:58    *
 *********************************************
```

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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

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1
   31MAR92      15:49:58                                                                    PAGE    1
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                                                                THIS RUN EXECUTED 31MAR92     15:49:58
*************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2:  May 1991
*************************************

 T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
 T2 FILENAME= C116RGHT.H2
 T3 Flow Split At CP 116 For Right Side

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       2.        0.        0.     0.0104       0.        0.        0.     1662.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38.       43.        1.        8.       55.       26.       56.       46.       47.        5.
     38.       53.       54.                 150

NC     0.060     0.045     0.070     0.1       0.3
NH       7.      0.010  1164.0       0.060  1209.0     0.070  1245.0     0.045  1290.0     0.070
NH    1302.0     0.070  1353.0       0.070  1398.0
QT      13.0     25.0      50.0      75.0     100.0    200.0     400.0     600.0     800.0  1000.0
QT    1500.0  5000.0    10000.0   15000.0
X1       1.0      8.0    1209.0    1302.0       0.0      0.0       0.0
GR    1690.0  1163.9    1662.8    1164.0    1662.0   1209.0    1660.6    1245.0    1660.5  1290.0
GR    1662.8  1302.0    1663.4    1353.0    1666.7   1398.0
1
   31MAR92      15:49:58                                                                    PAGE    2

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=     0.100 CEHV=     0.300
 1490 NH CARD USED
 *SECNO 1.000
      1.000     0.41   1660.91   1660.76   1662.00   1660.94      0.03      0.00      0.00   1662.00
       25.0      0.0      25.0       0.0       0.0      17.7       0.0       0.0       0.0   1662.80
       0.00     0.00      1.41      0.00     0.000     0.050     0.000     0.000   1660.50   1237.11
   0.010258       0.        0.        0.         0        25         6      0.00     55.01   1292.12

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1660.91

 STA=     1237.     1302.
   PER Q=     100.0
    AREA=     17.7
     VEL=      1.4
   DEPTH=      0.3

1
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 T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
 T2 FILENAME= C116RGHT.H2  Flow Split At CP 116 For Right Side
 T3       Q=50

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       3.        0.        0.     0.0104       0.        0.        0.     1662.0      0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.

1
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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
```

```
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      0.59   1661.09   1660.88   1662.00   1661.14      0.05      0.00      0.00   1662.00
      50.0       0.0      50.0       0.0       0.0      28.6       0.0       0.0       0.0   1662.80
      0.00      0.00      1.75      0.00     0.000     0.052     0.000     0.000   1660.50   1232.27
  0.010291        0.        0.        0.         0        11         5      0.00     60.83   1293.10

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1661.09

STA=    1232.    1302.
  PER Q=    100.0
   AREA=     28.5
    VEL=      1.7
  DEPTH=      0.5
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
T2 FILENAME= C116RGHT.H2  Flow Split At CP 116 For Right Side
T3      Q=75

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        4.        0.        0.      0.0104      0.        0.        0.      1662.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      0.74   1661.24   1660.97   1662.00   1661.30      0.06      0.00      0.00   1662.00
      75.0       0.0      75.0       0.0       0.0      38.0       0.0       0.0       0.0   1662.80
      0.00      0.00      1.97      0.00     0.000     0.053     0.000     0.000   1660.50   1228.43
  0.010389        0.        0.        0.         0        17         5      0.00     65.46   1293.88

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1661.24

STA=    1228.    1302.
  PER Q=    100.0
   AREA=     38.0
    VEL=      2.0
  DEPTH=      0.6
```



```
T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
T2 FILENAME= C116RGHT.H2  Flow Split At CP 116 For Right Side
T3      Q=100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        5.        0.        0.      0.0104      0.        0.        0.      1662.0      0.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    4.0       0.       -1.0       0.        0.        0.       -1.        0.        0.        15.
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      0.88   1661.38   1661.06   1662.00   1661.45      0.07      0.00      0.00   1662.00
     100.0       0.0     100.0       0.0       0.0      46.9       0.0       0.0       0.0   1662.80
      0.00      0.00      2.13      0.00     0.000     0.054     0.000     0.000   1660.50   1226.04
  0.010337        0.        0.        0.         0        18         4      0.00     69.53   1294.57

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1661.38

STA=    1226.    1302.
```

```
PER Q=     100.0
 AREA=      46.9
  VEL=       2.1
DEPTH=       0.7

1
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T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
T2 FILENAME= C116RGHT.H2  Flow Split At CP 116 For Right Side
T3      Q=200

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
     0.        6.       0.       0.     0.0104     0.       0.       0.     1662.0     0.
J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
    5.0        0.     -1.0       0.       0.       0.      -1.       0.       0.       15.
1
  31MAR92      15:49:58                                                                    PAGE   10

    SECNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
    Q         QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
    TIME      VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE     XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST

*PROF 5

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      1.29   1661.79   1661.33   1662.00   1661.89      0.10      0.00      0.00   1662.00
     200.0       0.0     200.0       0.0       0.0      78.2       0.0       0.0       0.0   1662.80
      0.00      0.00      2.56      0.00     0.000     0.057     0.000     0.000   1660.50   1214.44
  0.010330        0.        0.        0.         0        11         4      0.00     82.28   1296.72

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1661.79

STA=    1214.    1302.
  PER Q=     100.0
   AREA=      78.2
    VEL=       2.6
  DEPTH=       1.0

1
  31MAR92      15:49:58                                                                    PAGE   11

T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
T2 FILENAME= C116RGHT.H2  Flow Split At CP 116 For Right Side
T3      Q=400

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
     0.        7.       0.       0.     0.0104     0.       0.       0.     1662.0     0.
J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
    6.0        0.     -1.0       0.       0.       0.      -1.       0.       0.       15.
1
  31MAR92      15:49:58                                                                    PAGE   12

    SECNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
    Q         QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
    TIME      VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
    SLOPE     XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST

*PROF 6

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
     1.000      1.65   1662.15   1661.73   1662.00   1662.35      0.21      0.00      0.00   1662.00
     400.0       0.3     399.7       0.0       0.6     109.3       0.0       0.0       0.0   1662.80
      0.00      0.44      3.66      0.00     0.060     0.047     0.000     0.000   1660.50   1200.83
  0.010274        0.        0.        0.         0        15         4      0.00     97.75   1298.58

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1662.15

STA=    1201.    1209.    1245.    1290.    1302.
  PER Q=       0.1      14.6     82.0      3.3
   AREA=       0.6      30.4     71.8      7.1
    VEL=       0.4       1.9      4.6      1.9
  DEPTH=       0.1       0.8      1.6      0.8

1
  31MAR92      15:49:58                                                                    PAGE   13

T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
T2 FILENAME= C116RGHT.H2  Flow Split At CP 116 For Right Side
T3      Q=600

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
     0.        8.       0.       0.     0.0104     0.       0.       0.     1662.0     0.
J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
    7.0        0.     -1.0       0.       0.       0.      -1.       0.       0.       15.
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 7

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 1.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 2.01 | 1662.51 | 1662.03 | 1662.00 | 1662.78 | 0.27 | 0.00 | 0.00 | 1662.00 |
| 600.0 | 7.3 | 592.7 | 0.0 | 7.3 | 142.1 | 0.0 | 0.0 | 0.0 | 1662.80 |
| 0.00 | 1.01 | 4.17 | 0.00 | 0.060 | 0.049 | 0.000 | 0.000 | 1660.50 | 1180.41 |
| 0.010387 | 0. | 0. | 0. | 0 | 8 | 5 | 0.00 | 120.07 | 1300.48 |

FLOW DISTRIBUTION FOR SECNO= 1.00 CWSEL= 1662.51

| STA= | 1180. | 1209. | 1245. | 1290. | 1302. |
|---|---|---|---|---|---|
| PER Q= | 1.2 | 17.8 | 77.3 | 3.8 | |
| AREA= | 7.3 | 43.5 | 88.1 | 10.5 | |
| VEL= | 1.0 | 2.4 | 5.3 | 2.1 | |
| DEPTH= | 0.3 | 1.2 | 2.0 | 1.0 | |



T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
T2 FILENAME= C116RGHT.H2 Flow Split At CP 116 For Right Side
T3 Q=800

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 9. | 0. | 0. | 0.0104 | 0. | 0. | 0. | 1662.0 | 0. |
| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
| | 8.0 | 0. | -1.0 | 0. | 0. | 0. | -1. | 0. | 0. | 15. |



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 8

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 1.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 2.31 | 1662.81 | 1662.30 | 1662.00 | 1663.12 | 0.31 | 0.00 | 0.00 | 1662.00 |
| 800.0 | 25.6 | 774.4 | 0.0 | 18.4 | 170.0 | 0.0 | 0.0 | 0.0 | 1662.80 |
| 0.00 | 1.39 | 4.56 | 0.02 | 0.060 | 0.049 | 0.000 | 0.000 | 1660.50 | 1164.00 |
| 0.010320 | 0. | 0. | 0. | 0 | 11 | 5 | 0.00 | 138.83 | 1302.83 |

FLOW DISTRIBUTION FOR SECNO= 1.00 CWSEL= 1662.81

| STA= | 1164. | 1209. | 1245. | 1290. | 1302. |
|---|---|---|---|---|---|
| PER Q= | 3.2 | 19.3 | 73.4 | 4.1 | |
| AREA= | 18.4 | 54.4 | 101.7 | 13.9 | |
| VEL= | 1.4 | 2.8 | 5.8 | 2.4 | |
| DEPTH= | 0.4 | 1.5 | 2.3 | 1.2 | |



T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
T2 FILENAME= C116RGHT.H2 Flow Split At CP 116 For Right Side
T3 Q=1000

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 10. | 0. | 0. | 0.0104 | 0. | 0. | 0. | 1662.0 | 0. |
| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
| | 9.0 | 0. | -1.0 | 0. | 0. | 0. | -1. | 0. | 0. | 15. |



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 9

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 1.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 2.55 | 1663.06 | 1662.54 | 1662.00 | 1663.41 | 0.35 | 0.00 | 0.00 | 1662.00 |
| 1000.0 | 55.9 | 942.5 | 1.5 | 29.5 | 192.9 | 2.8 | 0.0 | 0.0 | 1662.80 |
| 0.00 | 1.89 | 4.89 | 0.55 | 0.060 | 0.050 | 0.070 | 0.000 | 1660.50 | 1164.00 |

```
  0.010342        0.        0.        0.        0        11        5      0.00    159.77   1323.77

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1663.06

 STA=    1164.    1209.    1245.    1290.    1302.    1324.
   PER Q=      5.6      19.9      69.9      4.5      0.2
    AREA=     29.5      63.2     112.8     16.9      2.8
     VEL=      1.9       3.1       6.2      2.7      0.5
   DEPTH=      0.7       1.8       2.5      1.4      0.1

1
   31MAR92      15:49:58                                                                          PAGE   19

 T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
 T2 FILENAME= C116RGHT.H2  Flow Split At CP 116 For Right Side
 T3      Q=1500

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.      11.        0.        0.    0.0104        0.        0.        0.    1662.0       0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    10.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

1
   31MAR92      15:49:58                                                                          PAGE   20

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF10

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
     1.000      3.06   1663.56   1663.06   1662.00   1663.99      0.43      0.00      0.00   1662.00
    1500.0     143.3    1326.7      30.0      52.1     239.5      23.5       0.0       0.0   1662.80
      0.00      2.75      5.54      1.28     0.060     0.051     0.070     0.000   1660.50   1164.00
  0.010389        0.        0.        0.         0        14         5      0.00    191.15   1355.14

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1663.56

 STA=    1164.    1209.    1245.    1290.    1302.    1353.    1355.
   PER Q=      9.6      20.2      63.3      5.0      2.0      0.0
    AREA=     52.1      81.3     135.3     22.9     23.3      0.2
     VEL=      2.8       3.7       7.0      3.3      1.3      0.4
   DEPTH=      1.2       2.3       3.0      1.9      0.5      0.1

1
   31MAR92      15:49:58                                                                          PAGE   21

 T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
 T2 FILENAME= C116RGHT.H2  Flow Split At CP 116 For Right Side
 T3      Q=5000

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.      12.        0.        0.    0.0104        0.        0.        0.    1662.0       0.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    11.0        0.      -1.0        0.        0.        0.       -1.        0.        0.       15.

1
   31MAR92      15:49:58                                                                          PAGE   22

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF11

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 1.000
     1.000      5.23   1665.73   1664.91   1662.00   1666.54      0.81      0.00      0.00   1662.00
    5000.0     809.3    3548.5     642.1     149.9     441.7     171.3       0.0       0.0   1662.80
      0.00      5.40      8.03      3.75     0.060     0.053     0.070     0.000   1660.50   1163.99
  0.010391        0.        0.        0.         0        20         6      0.00    220.80   1384.79

 FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1665.73

 STA=    1164.    1209.    1245.    1290.    1302.    1353.    1385.
   PER Q=     16.2      18.6      47.0      5.3     11.1      1.8
    AREA=    149.9     159.5     233.2     49.0    134.2     37.1
     VEL=      5.4       5.8      10.1      5.5      4.1      2.4
   DEPTH=      3.3       4.4       5.2      4.1      2.6      1.2

1
   31MAR92      15:49:58                                                                          PAGE   23

 T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
 T2 FILENAME= C116RGHT.H2  Flow Split At CP 116 For Right Side
 T3      Q=10000

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
```

```
      0.       13.       0.       0.    0.0104       0.       0.       0.    1662.0       0.
J2  NPROF    IPLOT    PRFVS    XSECV    XSECH       FN    ALLDC      IBW    CHNIM   ITRACE
   12.0       0.     -1.0       0.       0.       0.      -1.       0.       0.      15.
1
   31MAR92      15:49:58                                                                          PAGE   24

    SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG        HV        HL     OLOSS   L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA   R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN     ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR   TOPWID     ENDST

*PROF12

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED      1.07 FEET

     1.000      7.27   1667.77   1666.60   1662.00   1668.98      1.21      0.00      0.00   1662.00
   10000.0    1735.5    6327.4    1937.1     241.7     631.3     360.6       0.0       0.0   1662.80
      0.00      7.18     10.02      8.37     0.060     0.054     0.070     0.000   1660.50   1163.98
  0.010282        0.        0.        0         0        23         6      0.00    234.02   1398.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1667.77

STA=    1164.     1209.     1245.     1290.     1302.     1353.     1398.
  PER Q=      17.4      17.4      40.6       5.2      14.3       5.0
   AREA=     241.7     232.9     324.9      73.4     238.2     122.4
    VEL=       7.2       7.5      12.5       7.1       6.0       4.1
  DEPTH=       5.4       6.5       7.2       6.1       4.7       2.7
1
   31MAR92      15:49:58                                                                          PAGE   25

T1 Gila Bend Floodplain Delineation Study, 11358 11/26/91
T2 FILENAME= C116RGHT.H2  Flow Split At CP 116 For Right Side
T3       Q=15000

J1  ICHECK      INQ      NINV      IDIR      STRT    METRIC     HVINS         Q      WSEL        FQ
      0.       14.        0.        0.    0.0104       0.        0.        0.    1662.0        0.
J2  NPROF    IPLOT    PRFVS    XSECV    XSECH       FN    ALLDC      IBW    CHNIM   ITRACE
   13.0       0.     -1.0       0.       0.       0.      -1.       0.       0.      15.
1
   31MAR92      15:49:58                                                                          PAGE   26

    SECNO     DEPTH     CWSEL     CRIWS     WSELK       EG        HV        HL     OLOSS   L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA   R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL        XNCH      XNR       WTN     ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR   TOPWID     ENDST

*PROF13

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 1.000
3280 CROSS SECTION      1.00 EXTENDED      2.65 FEET

     1.000      8.85   1669.35   1667.87   1662.00   1670.93      1.58      0.00      0.00   1662.00
   15000.0    2626.1    8970.7    3403.2     312.7     777.8     511.9       0.0       0.0   1662.80
      0.00      8.40     11.53      6.65     0.060     0.054     0.070     0.000   1660.50   1163.98
  0.010407        0.        0.        0         0        26         7      0.00    234.02   1398.00

FLOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1669.35

STA=    1164.     1209.     1245.     1290.     1302.     1353.     1398.
  PER Q=      17.5      16.8      37.9       5.1      15.6       7.1
   AREA=     312.6     289.7     398.8      92.4     318.6     193.3
    VEL=       8.4       8.7      14.4       8.3       7.3       5.5
  DEPTH=       6.9       8.0       8.8       7.7       6.2       4.3
1
   31MAR92      15:49:58                                                                          PAGE   27


                                                                   THIS RUN EXECUTED 31MAR92    15:50:04
************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Split At CP 116 For Righ

SUMMARY PRINTOUT

     SECNO       Q      CWSEL     DEPTH      VLOB       VCH      VROB     QWEIR       QPR    10*KS     SECNO      SSTA     ENDST

     1.000   25.00    1660.91      0.41      0.00      1.41      0.00      0.00      0.00   102.58      1.00   1237.11   1292.12
     1.000   50.00    1661.09      0.59      0.00      1.75      0.00      0.00      0.00   102.91      1.00   1232.27   1293.10
```

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 75.00 | 1661.24 | 0.74 | 0.00 | 1.97 | 0.00 | 0.00 | 0.00 | 103.89 | 1.00 | 1228.43 | 1293.88 |
| 1.000 | 100.00 | 1661.38 | 0.88 | 0.00 | 2.13 | 0.00 | 0.00 | 0.00 | 103.37 | 1.00 | 1225.04 | 1294.57 |
| 1.000 | 200.00 | 1661.79 | 1.29 | 0.00 | 2.56 | 0.00 | 0.00 | 0.00 | 103.30 | 1.00 | 1214.44 | 1296.72 |
| 1.000 | 400.00 | 1662.15 | 1.65 | 0.44 | 3.66 | 0.00 | 0.00 | 0.00 | 102.74 | 1.00 | 1200.83 | 1298.58 |
| 1.000 | 600.00 | 1662.51 | 2.01 | 1.01 | 4.17 | 0.00 | 0.00 | 0.00 | 103.57 | 1.00 | 1180.41 | 1300.48 |
| 1.000 | 800.00 | 1662.81 | 2.31 | 1.39 | 4.56 | 0.02 | 0.00 | 0.00 | 103.20 | 1.00 | 1164.00 | 1302.83 |
| 1.000 | 1000.00 | 1663.06 | 2.56 | 1.89 | 4.89 | 0.55 | 0.00 | 0.00 | 103.42 | 1.00 | 1164.00 | 1323.77 |
| 1.000 | 1500.00 | 1663.56 | 3.06 | 2.75 | 5.54 | 1.28 | 0.00 | 0.00 | 103.89 | 1.00 | 1164.00 | 1355.14 |
| 1.000 | 5000.00 | 1665.73 | 5.23 | 5.40 | 8.03 | 3.75 | 0.00 | 0.00 | 103.91 | 1.00 | 1163.99 | 1384.79 |
| 1.000 | 10000.00 | 1667.77 | 7.27 | 7.18 | 10.02 | 5.37 | 0.00 | 0.00 | 102.82 | 1.00 | 1163.98 | 1398.00 |
| 1.000 | 15000.00 | 1669.35 | 8.85 | 8.40 | 11.53 | 6.65 | 0.00 | 0.00 | 104.07 | 1.00 | 1163.98 | 1398.00 |

1

31MAR92 15:49:58



Split At CP 116 For Righ

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10*KS | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.50 | 25.00 | 1660.91 | 1660.76 | 1660.94 | 102.58 | 1.41 | 17.70 | 2.47 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.50 | 50.00 | 1661.09 | 1660.88 | 1661.14 | 102.91 | 1.75 | 28.60 | 4.93 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.50 | 75.00 | 1661.24 | 1660.97 | 1661.30 | 103.89 | 1.97 | 38.04 | 7.36 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.50 | 100.00 | 1661.38 | 1661.06 | 1661.45 | 103.37 | 2.13 | 46.92 | 9.84 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.50 | 200.00 | 1661.79 | 1661.33 | 1661.89 | 103.30 | 2.56 | 78.21 | 19.68 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.50 | 400.00 | 1662.15 | 1661.73 | 1662.35 | 102.74 | 3.66 | 109.87 | 39.46 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.50 | 600.00 | 1662.51 | 1662.03 | 1662.78 | 103.57 | 4.17 | 149.41 | 58.96 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.50 | 800.00 | 1662.81 | 1662.30 | 1663.12 | 103.20 | 4.56 | 188.41 | 78.75 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.50 | 1000.00 | 1663.06 | 1662.54 | 1663.41 | 103.42 | 4.89 | 225.19 | 98.33 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.50 | 1500.00 | 1663.56 | 1663.06 | 1663.99 | 103.89 | 5.54 | 315.04 | 147.16 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.50 | 5000.00 | 1665.73 | 1664.91 | 1666.54 | 103.91 | 8.03 | 762.84 | 490.51 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.50 | 10000.00 | 1667.77 | 1666.60 | 1668.98 | 102.82 | 10.02 | 1233.59 | 986.20 |
| 1.000 | 0.00 | 0.00 | 0.00 | 1660.50 | 15000.00 | 1669.35 | 1667.87 | 1670.93 | 104.07 | 11.53 | 1602.39 | 1470.37 |

1

31MAR92 15:49:58



Split At CP 116 For Righ

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 1.000 | 25.00 | 1660.91 | 0.00 | 0.00 | -1.09 | 55.01 | 0.00 |
| 1.000 | 50.00 | 1661.09 | 0.19 | 0.00 | -0.91 | 60.83 | 0.00 |
| 1.000 | 75.00 | 1661.24 | 0.15 | 0.00 | -0.76 | 65.46 | 0.00 |
| 1.000 | 100.00 | 1661.38 | 0.13 | 0.00 | -0.62 | 69.53 | 0.00 |
| 1.000 | 200.00 | 1661.79 | 0.41 | 0.00 | -0.21 | 82.28 | 0.00 |
| 1.000 | 400.00 | 1662.15 | 0.36 | 0.00 | 0.15 | 97.75 | 0.00 |
| 1.000 | 600.00 | 1662.51 | 0.36 | 0.00 | 0.51 | 120.07 | 0.00 |
| 1.000 | 800.00 | 1662.81 | 0.30 | 0.00 | 0.81 | 138.83 | 0.00 |
| 1.000 | 1000.00 | 1663.06 | 0.25 | 0.00 | 1.06 | 159.77 | 0.00 |
| 1.000 | 1500.00 | 1663.56 | 0.50 | 0.00 | 1.56 | 191.15 | 0.00 |
| 1.000 | 5000.00 | 1665.73 | 2.17 | 0.00 | 3.73 | 220.80 | 0.00 |
| 1.000 | 10000.00 | 1667.77 | 2.04 | 0.00 | 5.77 | 234.02 | 0.00 |
| 1.000 | 15000.00 | 1669.35 | 1.58 | 0.00 | 7.35 | 234.02 | 0.00 |

1

31MAR92 15:49:58



SUMMARY OF ERRORS AND SPECIAL NOTES

## C132 Flow Split

| Stage | Discharge (cfs) | | | | | |
|---|---|---|---|---|---|---|
| | Weir | Sand Tank Wash (C132 at I-8) | | | | Total |
| | West | West (A) | Middle (B) | East (C) | Total | Flow |
| 760.4 | 0 | 0 | 0 | 0 | 0 | 0 |
| 761 | 0 | 50 | 0 | 0 | 50 | 50 |
| 762 | 0 | 100 | 0 | 0 | 100 | 100 |
| 763 | 0 | 400 | 25 | 0 | 425 | 425 |
| 764 | 0 | 800 | 300 | 0 | 1100 | 1100 |
| 765 | 0 | 1250 | 850 | 0 | 2100 | 2100 |
| 766 | 0 | 1700 | 1700 | 150 | 3550 | 3550 |
| 767 | 300 | 2250 | 2900 | 400 | 5550 | 5850 |
| 768 | 1000 | 2800 | 4250 | 700 | 7750 | 8750 |
| 769 | 2500 | 3400 | 5900 | 1050 | 10350 | 12850 |
| 770 | 5400 | 3850 | 7800 | 1400 | 13050 | 18450 |
| 770.8 | 8700 | 4200 | 9470 | 1630 | 15300 | 24000 |
| 771 | 9600 | 4300 | 9800 | 1700 | 15800 | 25400 |
| 772 | 15000 | 4700 | 11800 | 2100 | 18600 | 33600 |

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2:  May 1991            *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE    01APR92    TIME   13:30:04    *
 *****************************************

                                        X     X  XXXXXXX   XXXXX              XXXXX
                                        X     X  X        X     X            X     X
                                        X     X  X        X                  X
                                        XXXXXXX  XXXX     X           XXXXX   XXXXX
                                        X     X  X        X                 X
                                        X     X  X        X     X           X
                                        X     X  XXXXXXX   XXXXX            XXXXXXX
1
   01APR92      13:30:04                                                                                    PAGE    1
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*****************************************
 *  U.S. ARMY CORPS OF ENGINEERS          *
 *  HYDROLOGIC ENGINEERING CENTER         *
 *  609 SECOND STREET, SUITE D            *
 *  DAVIS, CALIFORNIA 95616-4687          *
 *          (916) 756-1104                *
*****************************************
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                                                                                THIS RUN EXECUTED 01APR92    13:30:04
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2:  May 1991
*************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
 T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
 T3      SAND TANK WASH STRUCTURE A                J. MISCHLER - (602) 244-8100

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                                                                   763.9

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                 -1


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        42         1        43        26        51         4         8        53        54
      13        15        40

        SECTION 4822 IS FROM THE SAND TANK MODEL


 NC    0.035     0.035     0.03      0.3       0.5
 QT        4      1000      2000      4200      8000
 X1     4822        13    9525.1    9780.4       600       900       972
 GR    764.5    9125.7     764.3    9279.6     764.3    9393.4     763.2    9525.1     761.5    9594.1
 GR    758.6    9615.1     755.4    9630.5     754.8    9656.7     755.4    9682.8     761.1    9712.5
 GR    762.9    9780.4     763.3    9851.5     763.3    9901.9

        INTERSTATE 8 CULVERT WEST OF SAND TANK WASH.  THIS MODEL IS USED TO
        GENERATE A RATING CURVE FOR USE IN COMPUTING AN ELEVATION UPSTREAM
        OF INTERSTATE 8.

        REPEAT GR DATA FROM 4822 SO THAT THE CHANNEL BOTTOM MAY BE ADJUSTED TO
        MATCH THE CULVERT.

        THESE RESULTS ARE COMBINED WITH OTHER MODELS TO DETERMINE
        THE PROPER FLOW SPLIT.

1
   01APR92      13:30:04                                                                                    PAGE    2


 NC                                          0.3       0.5
 X1     4857        13    9525.1    9780.4       130       120       110
 X3       10                                                                  790       790
 GR    764.5    9125.7     764.3    9279.6     764.3    9393.4     763.2    9525.1     761.5    9594.1
 GR    760.1    9615.1     760.1    9630.5     760.1    9656.7     760.1    9682.8     761.1    9712.5
 GR    762.9    9780.4     763.3    9851.5     763.3    9901.9

        WIER FLOW IS NOT ANTICIPATED, THEREFORE USE DUMMY RDLEN = 100 FT
        USE PSXECE=0.3 FT


 SC    5.014      0.4         3         0         8        10       176       8.1     760.4     760.1
 X1     4898                                    176       176       176                 0.3
 X2                           2                 790
 X3       10                                                                  790       790

        REPEAT SECTION 200 FT UPSTREAM FOR CONTRACTION LOSSES. USE PSXECE =
        0.7


 X1     4936                                    200       200       200                 0.7
1
   01APR92      13:30:04                                                                                    PAGE    3


     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *PROF 1
0

 CCHV=    0.300 CEHV=    0.500
```

```
*SECNO 4822.000
3280 CROSS SECTION   4822.00 EXTENDED      0.60 FEET

  4822.000      9.10    763.90      0.00    763.90    763.91      0.01      0.00      0.00    763.20
    1000.0       4.5     973.7      21.8      29.3    1051.1      87.1       0.0       0.0    762.90
      0.00      0.15      0.93      0.25     0.035     0.030     0.035     0.000    754.80   9441.29
  0.000053      600.      972.      900.         0         0         0      0.00    460.61   9901.90

CCHV=    0.300 CEHV=    0.500
*SECNO 4857.000
3280 CROSS SECTION   4857.00 EXTENDED      0.61 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.45

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

  4857.000      3.80    763.90      0.00      0.00    763.94      0.04      0.01      0.01    763.20
    1000.0       0.0    1000.0       0.0       0.0     658.0       0.0       2.3       0.9    762.90
      0.02      0.00      1.52      0.00     0.000     0.030     0.000     0.000    760.10   9525.10
  0.000267      130.      110.      120.         0         0         0      0.00    255.30   9780.40


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     5        0.014     0.40      3.00      0.00      8.00      10.00     176.00    8         1         760.40    760.10

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 4898.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    764.051  EGOC =    764.685  PCWSE=    763.900  ELTRD=    790.000

3280 CROSS SECTION   4898.00 EXTENDED      1.06 FEET
```



```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

SPECIAL CULVERT

EGIC      EGOC      H4        QWEIR     QCULV     VCH       ACULV     ELTRD     WEIRLN
764.05    764.69    0.75      0.        1000.     1.293     400.0     790.00    0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

  4898.000      4.26    764.66      0.00      0.00    764.69      0.03      0.75      0.00    763.50
    1000.0       0.0    1000.0       0.0       0.0     773.6       0.0       5.2       2.0    763.20
      0.06      0.00      1.29      0.00     0.000     0.030     0.000     0.000    760.40   9525.10
  0.000155      176.      176.      176.         2         0         0      0.00    255.30   9780.40

*SECNO 4936.000
3280 CROSS SECTION   4936.00 EXTENDED      0.40 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.69

  4936.000      3.60    764.70      0.00      0.00    764.73      0.04      0.04      0.01    764.20
    1000.0       4.6     963.6      31.8      15.1     605.6      63.0       8.6       3.6    763.90
      0.09      0.30      1.59      0.50     0.035     0.030     0.035     0.000    761.10   9465.07
  0.000326      200.      200.      200.         0         0         0      0.00    436.83   9901.90
```



```
T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SAND TANK & BENDER WASH                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                3                                                                   763.9
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     2                  -1
```



```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2
0

CCHV=    0.300 CEHV=    0.500
*SECNO 4822.000
3280 CROSS SECTION   4822.00 EXTENDED      0.60 FEET

  4822.000      9.10    763.90      0.00    763.90    763.95      0.05      0.00      0.00    763.20
    2000.0       9.0    1947.3      43.6      29.3    1051.1      87.1       0.0       0.0    762.90
      0.00      0.31      1.85      0.50     0.035     0.030     0.035     0.000    754.80   9441.29
```

```
  0.000213      600.      972.      900.        0        0        0     0.00   460.61   9901.90

CCHV=    0.300 CEHV=    0.500
*SECNO 4857.000
3280 CROSS SECTION   4857.00 EXTENDED      0.60 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.45

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

  4857.000      3.80    763.90      0.00      0.00    764.04      0.14      0.04      0.05    763.20
    2000.0       0.0    2000.0       0.0       0.0     656.1       0.0       2.3       0.9    762.90
      0.01      0.00      3.05      0.00     0.000     0.030     0.000     0.000    760.10   9525.10
  0.001077      130.      110.      120.         2         0         0      0.00    255.30   9780.40


SPECIAL CULVERT

SC  CUNO      CUNV     ENTLC     COFQ     RDLEN     RISE     SPAN    CULVLN    CHRT      SCL     ELCHU    ELCHD
     5        0.014     0.40     3.00      0.00     8.00    10.00    176.00     8         1    760.40   760.10

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 4898.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    766.276  EGOC =    766.600  PCWSE=    763.899  ELTRD=    790.000

3280 CROSS SECTION   4898.00 EXTENDED      2.96 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.96
1
   01APR92      13:30:04                                                                          PAGE    7

    SECNO      DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL     OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB       ACH       AROB      VOL    TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN    ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR  TOPWID    ENDST

SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
   766.28    766.60      2.56        0.     2000.     1.589     400.0    790.00        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

  4898.000      6.16    766.56      0.00      0.00    766.60      0.04      2.56      0.00    763.50
    2000.0       0.0    2000.0       0.0       0.0    1259.0       0.0       6.2       2.0    763.20
      0.04      0.00      1.59      0.00     0.000     0.030     0.000     0.000    760.40   9525.10
  0.000123      176.      176.      176.         2         0         0      0.00    255.30   9780.40

*SECNO 4936.000
3280 CROSS SECTION   4936.00 EXTENDED      2.31 FEET

  4936.000      5.51    766.61      0.00      0.00    766.63      0.02      0.02      0.01    764.20
    2000.0     326.1    1447.2     226.7     578.7    1091.9     294.4      13.6       4.3    763.90
      0.09      0.56      1.33      0.77     0.035     0.030     0.035     0.000    761.10   9125.70
  0.000103      200.      200.      200.         2         0         0      0.00    776.20   9901.90

1
   01APR92      13:30:04                                                                          PAGE    8

T1       FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2       GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3       SAND TANK & BENDER WASH                    J. MISCHLER - (602) 244-8100

J1  ICHECK     INQ      NINV     IDIR     STRT     METRIC    HVINS     Q        WSEL     FQ

                 4                                                              763.9

J2  NPROF     IPLOT     PRFVS    XSECV    XSECH     FN       ALLDC     IBW      CHNIM    ITRACE

     3                   -1

1
   01APR92      13:30:04                                                                          PAGE    9

    SECNO      DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL     OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB       ACH       AROB      VOL    TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN    ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR  TOPWID    ENDST

*PROF 3
0
CCHV=    0.300 CEHV=    0.500
*SECNO 4822.000
3280 CROSS SECTION   4822.00 EXTENDED      0.60 FEET

  4822.000      9.10    763.90      0.00    763.90    764.13      0.23      0.00      0.00    763.20
    4200.0      19.0    4089.4      91.6      29.3    1051.1      87.1       0.0       0.0    762.90
      0.00      0.65      3.89      1.05     0.035     0.030     0.035     0.000    754.80   9441.29
  0.000940      600.      972.      900.         0         0         0      0.00    460.61   9901.90

CCHV=    0.300 CEHV=    0.500
*SECNO 4857.000
3280 CROSS SECTION   4857.00 EXTENDED      0.60 FEET
```

```
3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.44

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

  4857.000      3.79    763.89      0.00      0.00    764.53      0.64      0.20      0.20    763.20
    4200.0       0.0    4200.0       0.0       0.0     655.1       0.0       2.3       0.9    762.90
      0.00      0.00      6.41      0.00     0.000     0.030     0.000     0.000    760.10   9525.10
  0.004771      130.      110.      120.         2         0         0      0.00    255.30   9780.40


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      ROLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     5        0.014     0.40      3.00      0.00      8.00      10.00     176.00    8         1         760.40    760.10

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

5140, NORMAL DEPTH EXCEEDS CULVERT HEIGHT
*SECNO 4898.000

SPECIAL CULVERT INLET CONTROL
EGIC =    770.859  EGOC =    770.561  PCWSE=    763.894  ELTRD=    790.000

3280 CROSS SECTION   4898.00 EXTENDED      7.21 FEET

1
   01APR92      13:30:04                                                                                    PAGE   10

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  8.37

SPECIAL CULVERT

    EGIC      EGOC      H4        QWEIR     QCULV     VCH       ACULV     ELTRD     WEIRLN
   770.86    770.56     6.33        0.      4200.     1.792     400.0     790.00      0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

  4898.000     10.41    770.81      0.00      0.00    770.86      0.05      6.33      0.00    763.50
    4200.0       0.0    4200.0       0.0       0.0    2343.8       0.0       8.4       2.0    763.20
      0.03      0.00      1.79      0.00     0.000     0.030     0.000     0.000    760.40   9525.10
  0.000068      176.      176.      176.         2         0         0      0.00    255.30   9780.40

*SECNO 4936.000
3280 CROSS SECTION   4936.00 EXTENDED      6.57 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.72

  4936.000      9.77    770.87      0.00      0.00    770.88      0.01      0.01      0.01    764.20
    4200.0    1472.0    2160.2     567.7    2280.6    2179.8     812.1      25.9       4.3    763.90
      0.10      0.65      0.99      0.70     0.035     0.030     0.035     0.000    761.10   9125.70
  0.000023      200.      200.      200.         2         0         0      0.00    776.20   9901.90

1
   01APR92      13:30:04                                                                                    PAGE   11

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SAND TANK & BENDER WASH                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 5                                                                   763.9

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15                  -1

1
   01APR92      13:30:04                                                                                    PAGE   12

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4
0

CCHV=    0.300 CEHV=    0.500
*SECNO 4822.000
3280 CROSS SECTION   4822.00 EXTENDED      0.60 FEET

  4822.000      9.10    763.90      0.00    763.90    764.73      0.83      0.00      0.00    763.20
    8000.0      36.1    7789.4     174.5      29.3    1051.1      87.1       0.0       0.0    762.90
      0.00      1.23      7.41      2.00     0.035     0.030     0.035     0.000    754.80   9441.29
  0.003412      600.      972.      900.         0         0         0      0.00    460.61   9901.90

CCHV=    0.300 CEHV=    0.500
*SECNO 4857.000
3280 CROSS SECTION   4857.00 EXTENDED      1.13 FEET
```

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 790.00 ELREA= 790.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4857.000 | 4.33 | 764.43 | 764.43 | 0.00 | 766.02 | 1.58 | 0.58 | 0.38 | 763.20 |
| 8000.0 | 0.0 | 8000.0 | 0.0 | 0.0 | 792.1 | 0.0 | 2.5 | 0.9 | 762.90 |
| 0.00 | 0.00 | 10.10 | 0.00 | 0.000 | 0.030 | 0.000 | 0.000 | 760.10 | 9525.10 |
| 0.009191 | 130. | 110. | 120. | 3 | 14 | 0 | 0.00 | 255.30 | 9780.40 |

SPECIAL CULVERT

| SC | CUNO | CUNV | ENTLC | COFQ | RDLEN | RISE | SPAN | CULVLN | CHRT | SCL | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 0.014 | 0.40 | 3.00 | 0.00 | 8.00 | 10.00 | 176.00 | 8 | 1 | 760.40 | 760.10 |

CHART 8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE 1 - WINGWALLS FLARED 30 TO 75 DEGREES

5140, NORMAL DEPTH EXCEEDS CULVERT HEIGHT
5130, EGIC= 782.27..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 777.10 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 4898.000

1
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL CULVERT INLET CONTROL
EGIC = 782.273 EGOC = 777.096 PCWSE= 764.432 ELTRD= 790.000

3280 CROSS SECTION 4898.00 EXTENDED 18.64 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 23.47

SPECIAL CULVERT

| EGIC | EGOC | H4 | QWEIR | QCULV | VCH | ACULV | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|
| 782.27 | 777.10 | 16.26 | 0. | 8000. | 1.521 | 400.0 | 790.00 | 0. |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 790.00 ELREA= 790.00

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4898.000 | 21.84 | 782.24 | 0.00 | 0.00 | 782.27 | 0.04 | 16.26 | 0.00 | 763.50 |
| 8000.0 | 0.0 | 8000.0 | 0.0 | 0.0 | 5261.3 | 0.0 | 14.7 | 2.0 | 763.20 |
| 0.04 | 0.00 | 1.52 | 0.00 | 0.000 | 0.030 | 0.000 | 0.000 | 760.40 | 9525.10 |
| 0.000017 | 176. | 176. | 176. | 2 | 0 | 0 | 0.00 | 255.30 | 9780.40 |

*SECNO 4936.000
3280 CROSS SECTION 4936.00 EXTENDED 17.98 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.21

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4936.000 | 21.18 | 782.28 | 0.00 | 0.00 | 782.28 | 0.01 | 0.00 | 0.01 | 764.20 |
| 8000.0 | 3474.1 | 3427.1 | 1098.8 | 6838.2 | 5093.0 | 2198.6 | 59.2 | 4.3 | 763.90 |
| 0.13 | 0.51 | 0.67 | 0.50 | 0.035 | 0.030 | 0.035 | 0.000 | 761.10 | 9125.70 |
| 0.000003 | 200. | 200. | 200. | 2 | 0 | 0 | 0.00 | 776.20 | 9901.90 |

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THIS RUN EXECUTED 01APR92 13:30:07

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2: May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SAND TANK WASH STRUCTURE

SUMMARY PRINTOUT

| | SECNO | ELMIN | CWSEL | Q | VCH | DIFWSX | TOPWID | DEPTH | SSTA | ENDST | QLOB | QROB | ELTRD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4822.000 | 754.80 | 763.90 | 1000.00 | 0.93 | 0.00 | 460.61 | 9.10 | 9441.29 | 9901.90 | 4.52 | 21.81 | 0.00 |
| | 4822.000 | 754.80 | 763.90 | 2000.00 | 1.85 | 0.00 | 460.61 | 9.10 | 9441.29 | 9901.90 | 9.03 | 43.62 | 0.00 |
| | 4822.000 | 754.80 | 763.90 | 4200.00 | 3.89 | 0.00 | 460.61 | 9.10 | 9441.29 | 9901.90 | 18.97 | 91.61 | 0.00 |
| | 4822.000 | 754.80 | 763.90 | 8000.00 | 7.41 | 0.00 | 460.61 | 9.10 | 9441.29 | 9901.90 | 36.13 | 174.49 | 0.00 |
| * | 4857.000 | 760.10 | 763.90 | 1000.00 | 1.52 | 0.00 | 255.30 | 3.80 | 9525.10 | 9780.40 | 0.00 | 0.00 | 0.00 |
| * | 4857.000 | 760.10 | 763.90 | 2000.00 | 3.05 | 0.00 | 255.30 | 3.80 | 9525.10 | 9780.40 | 0.00 | 0.00 | 0.00 |
| * | 4857.000 | 760.10 | 763.89 | 4200.00 | 6.41 | -0.01 | 255.30 | 3.79 | 9525.10 | 9780.40 | 0.00 | 0.00 | 0.00 |
| * | 4857.000 | 760.10 | 764.43 | 8000.00 | 10.10 | 0.53 | 255.30 | 4.33 | 9525.10 | 9780.40 | 0.00 | 0.00 | 0.0[illegible] |
| | 4898.000 | 760.40 | 764.66 | 1000.00 | 1.29 | 0.76 | 255.30 | 4.26 | 9525.10 | 9780.40 | 0.00 | 0.00 | 790.[illegible] |
| * | 4898.000 | 760.40 | 766.56 | 2000.00 | 1.59 | 2.66 | 255.30 | 6.16 | 9525.10 | 9780.40 | 0.00 | 0.00 | 790.[illegible] |
| * | 4898.000 | 760.40 | 770.81 | 4200.00 | 1.79 | 6.92 | 255.30 | 10.41 | 9525.10 | 9780.40 | 0.00 | 0.00 | 790.[illegible] |
| * | 4898.000 | 760.40 | 782.24 | 8000.00 | 1.52 | 17.81 | 255.30 | 21.84 | 9525.10 | 9780.40 | 0.00 | 0.00 | 790.00 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 4936.000 | 761.10 | 764.70 | 1000.00 | 1.59 | 0.04 | 436.83 | 3.60 | 9465.07 | 9901.90 | 4.59 | 31.76 | 0.00 |
| | 4936.000 | 761.10 | 766.61 | 2000.00 | 1.33 | 0.05 | 776.20 | 5.51 | 9125.70 | 9901.90 | 326.08 | 226.71 | 0.00 |
| * | 4936.000 | 761.10 | 770.87 | 4200.00 | 0.99 | 0.06 | 776.20 | 9.77 | 9125.70 | 9901.90 | 1472.03 | 567.73 | 0.00 |
| * | 4936.000 | 761.10 | 782.28 | 8000.00 | 0.67 | 0.04 | 776.20 | 21.18 | 9125.70 | 9901.90 | 3474.07 | 1098.83 | 0.00 |

1



SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=   4857.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   4857.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   4857.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   4857.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   4857.000  PROFILE=  4  MINIMUM SPECIFIC ENERGY

WARNING SECNO=   4898.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   4898.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   4898.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   4936.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   4936.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   4936.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2;  May 1991            *
 *  386 Extended Memory version, August 1991 *
 *  Dodson & Associates, Inc 1-800-235-8069  *
 *  RUN DATE    01APR92    TIME   13:30:26  *
 *****************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X           X     X
X     X  X         X                       X
XXXXXXX  XXXX      X          XXXXX   XXXXX
X     X  X         X
X     X  X         X     X           X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

1

01APR92  13:30:26  PAGE 1

```
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
```

THIS RUN EXECUTED 01APR92  13:30:26

```
T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SAND TANK WASH STRUCTURE 8                J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
              2                                                                764.63
J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     1                 -1

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38       42       1        43       26       51       4        8        53       54
     13       15       40

        SECTIONS ARE LABELED AS  RIVER MILES * 1000, i.e., SECTION 676 IS AT
        A POINT ON SAND TANK WASH 0.676 UPSTREAM OF THE CONFLUENCE WITH THE
        GILA RIVER.

NC                                0.3      0.5
QT       5     1000     5000     10000    17500    25000
NH       4     0.035    9525.1   0.03     10150.9  0.035    10941.7  0.03     11366.2
X1    4822        43    9525.1   10150.9  600      900      972
GR    764.6    9125.7   764.3    9279.6   764.3    9393.4   763.2    9525.1   761.5    9594.1
GR    758.6    9615.1   755.4    9630.5   754.8    9656.7   755.4    9682.8   761.1    9712.5
GR    762.9    9780.4   763.3    9851.5   763.3    9901.9   760.2    9951.6   760.3    9994.9
GR    760.7    10000.0  762.3    10082.1  764.2    10150.9  763.4    10193.6  762.7    10223.3
GR    763.9    10252.4  764.2    10290.9  764.2    10369.2  763.9    10456.6  763.9    10565.9
GR    761.9    10619.4  763.0    10643.7  761.4    10700.5  763.6    10755.7  763.4    10807.6
GR    762.6    10844.4  764.5    10880.9  764.8    10941.7  763.3    11011.4  764.0    11081.0
GR    762.7    11157.0  762.6    11184.0  760.9    11193.5  762.7    11205.3  763.1    11223.2

        INTERSTATE 8 TWIN BRIDGES MODELED USING SEPARATE SPECIAL BRIDGE MODELS.
        INCREASE EXPANSION/CONTRACTION COEFFICIENTS FOR BRIDGES

        THE MODEL IS NOW JUST FOR SAND TANK WASH.

        WESTBOUND I-8   (SECTION IS TAKEN AT STRUCTURE CENTERLINE, USE
        PSXECE = -0.2)
```

1

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```
NC    0.035    0.035    0.03     0.3      0.5
X1     4857        7    9929     10070    100      270      185                       -0.2
X3       10                                                                   770       770
GR    772.6    9929     763.6    9929.1   763.0    9952     761.1    9958     761.7    10010
GR    763.6    10069.9  773.1    10070

        WIER FLOW IS NOT ANTICIPATED, THEREFORE USE DUMMY RDLEN = 100 FT
        ELTRD = 772.8 + 0.5 HV = 773.3

SB    1.05     1.6      3        100      140.7    7        1186     0        762.4    761.9
X1    4868                                 60       60       60                 0.5
X2                     1        771.3    773.3
X3       10                                                                   772.8     772.8

        EASTBOUND I-8   (SECTION IS TAKEN AT THE STRUCTURE CENTERLINE,
        PSXECE =-0.2)

X1    4887        7    9929     10070    100      100      100                       -0.2
X3       10                                                                   772       772
GR    772.9    9929     765.0    9929.1   763.0    9989     763.0    10030    764.0    10051
GR    764.2    10069.9  773.3    10070

        WIER FLOW IS NOT ANTICIPATED, THEREFORE USE DUMMY RDLEN = 100 FT
        ELTRD = 773.1 + 0.5 HV = 773.6

SB    1.05     1.6      3        100      140.7    7        996      0        764.1    763.6
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X1     4898                                    60          60          60                      0.5
X2                          1      771.5      773.6
X3       10                                                                   773.1       773.1

        REPEAT SECTION 200 FT UPSTREAM FOR CONTRACTION LOSSES. USE PSXECE =
        1.3 FT.  ADJUST OVERBANKS PER TOPO MAPPING.

X1     4936          8      9929     10070       200         200         200                     1.3
GR    766.7       9850     765.0      9929     763.0        9989       763.0       10030       764.0       10051
GR    764.2      10070     766.7     10080     770.7       10140
1
   01APR92      13:30:26                                                                                    PAGE    3

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 1
0

 CCHV=    0.300 CEHV=    0.500
 1490 NH CARD USED
 *SECNO 4822.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION   4822.00 EXTENDED      0.13 FEET

   4822.000      9.83    764.63      0.00    764.63    764.63      0.00      0.00      0.00    763.20
     1000.0      18.6     752.7     228.7     188.9    2119.1    1240.4       0.0       0.0    764.20
       0.00      0.10      0.36      0.18     0.035     0.030     0.033     0.000    754.80   9125.70
   0.000010      600.      972.      900.         0         0         0      0.00   2083.22  11251.27

 CCHV=    0.300 CEHV=    0.500
 *SECNO 4857.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.10

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      770.00 ELREA=      770.00

   4857.000      3.67    764.57      0.00      0.00    764.70      0.12      0.01      0.06    772.40
     1000.0       0.0    1000.0       0.0       0.0     352.9       0.0       9.3       5.4    772.90
       0.02      0.00      2.83      0.00     0.000     0.030     0.000     0.000    760.90   9929.09
   0.000985      100.      185.      270.         2         0         0      0.00    140.83  10069.91


 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      1.05      1.60      3.00     100.00    140.70     7.00    1186.00     0.00    762.40    761.90

 *SECNO 4868.000
 CLASS A LOW FLOW

 3420 BRIDGE W.S.=     764.81 BRIDGE VELOCITY=      2.81     CALCULATED CHANNEL AREA=      322.
1
   01APR92      13:30:26                                                                                    PAGE    4

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


  EGPRS      EGLWC      H3       QWEIR      QLOW      BAREA    TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                                  AREA
      0.00     764.78     0.01        0.     1000.     1186.      1190.     771.30     773.30         0.


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      772.80 ELREA=      772.80

   4868.000      3.19    764.59      0.00      0.00    764.78      0.19      0.08      0.00    772.90
     1000.0       0.0    1000.0       0.0       0.0     284.2       0.0       9.7       5.6    773.40
       0.02      0.00      3.52      0.00     0.000     0.030     0.000     0.000    761.40   9929.09
   0.002010       60.       60.       60.         0         0         0      0.00    140.82  10069.91

 *SECNO 4887.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.53

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      772.00 ELREA=      772.00

   4887.000      2.02    764.82      0.00      0.00    765.23      0.42      0.34      0.11    772.70
     1000.0       0.0    1000.0       0.0       0.0     193.4       0.0      10.3       5.9    773.10
       0.03      0.00      5.17      0.00     0.000     0.030     0.000     0.000    762.80   9929.10
   0.007195      100.      100.      100.         2         0         0      0.00    140.81  10069.91


 SPECIAL BRIDGE

 5227 DOWNSTREAM ELEV IS     764.58 , NOT     764.82 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      1.05      1.60      3.00     100.00    140.70     7.00     996.00     0.00    764.10    763.60

 *SECNO 4898.000
 CLASS B LOW FLOW

 3420 BRIDGE W.S.=     765.05 BRIDGE VELOCITY=      6.21     CALCULATED CHANNEL AREA=      128.
1
   01APR92      13:30:26                                                                                    PAGE    5
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 EGPRS      EGLWC      H3         QWEIR      QLOW       BAREA      TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                      AREA
     0.00     765.88       0.00         0.     1000.       996.       989.     771.50     773.60         0.


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       773.10 ELREA=       773.10

  4898.000       2.30     765.60       0.00       0.00     765.88       0.29       0.65       0.00     773.20
    1000.0        0.0     1000.0        0.0        0.0      232.1        0.0       10.6        6.1     773.60
      0.03       0.00       4.31       0.00      0.000      0.030      0.000      0.000     763.30    9929.10
  0.003939        60.        60.        60.          0          0          0       0.00     140.82   10069.91


 *SECNO 4936.000
  4936.000       2.16     766.46       0.00       0.00     766.80       0.34       0.89       0.02     766.30
    1000.0        0.4      996.3        3.4        0.6      213.7        1.9       11.6        6.7     765.50
      0.04       0.57       4.66       1.82      0.035      0.030      0.035      0.000     764.30    9921.38
  0.005090       200.       200.       200.          3          0          0       0.00     152.47   10073.86


1
   01APR92      13:30:26                                                                                    PAGE    6


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
 T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
 T3      SAND TANK WASH                                J. MISCHLER - (602) 244-8100

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                  3                                                                          764.63

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

       2                    -1

1
   01APR92      13:30:26                                                                                    PAGE    7

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 *PROF 2
0

 CCHV=    0.300 CEHV=    0.500
 1490 NH CARD USED
 *SECNO 4822.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION   4822.00 EXTENDED      0.13 FEET

  4822.000       9.83     764.63       0.00     764.63     764.67       0.04       0.00       0.00     763.20
    5000.0       93.0     3763.5     1143.4      188.9     2119.1     1240.4        0.0        0.0     764.20
      0.00       0.49       1.78       0.92      0.035      0.030      0.033      0.000     754.80    9125.70
  0.000253       600.       972.       900.          0          0          0       0.00    2083.22   11251.27


 CCHV=    0.300 CEHV=    0.500
 *SECNO 4857.000

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       770.00 ELREA=       770.00

  4857.000       4.54     765.44     765.44       0.00     767.16       1.72       0.14       0.84     772.40
    5000.0        0.0     5000.0        0.0        0.0      474.9        0.0        9.6        5.4     772.90
      0.01       0.00      10.53       0.00      0.000      0.030      0.000      0.000     760.90    9929.08
  0.009304       100.       185.       270.         20         14          0       0.00     140.84   10069.92


 SPECIAL BRIDGE

 5227 DOWNSTREAM ELEV IS      764.75 , NOT      765.44 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

 SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      1.05       1.60       3.00     100.00     140.70       7.00    1186.00       0.00     762.40     761.90

 *SECNO 4868.000
1
   01APR92      13:30:26                                                                                    PAGE    8

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 3301 HV CHANGED MORE THAN HVINS

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.43
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CLASS B LOW FLOW

3420 BRIDGE W.S.=     765.67 BRIDGE VELOCITY=      10.64     CALCULATED CHANNEL AREA=       437.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD      WEIRLN
                                                              AREA
     0.00    767.88     0.00        0.     5000.      1186.    1190.      771.30     773.30          0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      772.80 ELREA=      772.80

  4868.000      5.37    766.77      0.00      0.00    767.88      1.11      0.72      0.00    772.90
    5000.0       0.0    5000.0       0.0       0.0    592.3       0.0      10.3       5.6    773.40
      0.01      0.00      8.44      0.00     0.000    0.030     0.000     0.000    761.40   9929.07
  0.004526       60.       60.       60.         0        0         0      0.00    140.86  10069.93

*SECNO 4887.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      772.00 ELREA=      772.00

  4887.000      4.37    767.17      0.00      0.00    768.58      1.41      0.55      0.15    772.70
    5000.0       0.0    5000.0       0.0       0.0    524.7       0.0      11.6       5.9    773.10
      0.01      0.00      9.53      0.00     0.000    0.030     0.000     0.000    762.80   9929.07
  0.006746      100.      100.      100.         2        0         0      0.00    140.87  10069.94


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS     766.45 , NOT     767.17 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05     1.60      3.00     100.00    140.70     7.00     996.00     0.00     764.10    763.60

*SECNO 4898.000
1
   01APR92      13:30:26                                                                                    PAGE    9

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CLASS B LOW FLOW

3420 BRIDGE W.S.=     767.36 BRIDGE VELOCITY=      10.64     CALCULATED CHANNEL AREA=       436.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD      WEIRLN
                                                              AREA
     0.00    769.43     0.00        0.     5000.       996.     989.      771.50     773.60          0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      773.10 ELREA=      773.10

  4898.000      5.17    768.47      0.00      0.00    769.43      0.96      0.85      0.00    773.20
    5000.0       0.0    5000.0       0.0       0.0    637.5       0.0      12.4       6.1    773.60
      0.01      0.00      7.84      0.00     0.000    0.030     0.000     0.000    763.30   9929.06
  0.003577       60.       60.       60.         0        0         0      0.00    140.88  10069.94

*SECNO 4936.000
3280 CROSS SECTION   4936.00 EXTENDED      1.51 FEET

  4936.000      5.22    769.52      0.00      0.00    770.11      0.58      0.57      0.11    766.30
    5000.0     664.5    4198.2     137.3     186.7    643.7      44.8      15.9       7.0    765.50
      0.02      3.56      6.52      3.06     0.035    0.030     0.035     0.000    764.30   9850.00
  0.002290      200.      200.      200.         1        0         0      0.00    252.70  10102.70

1
   01APR92      13:30:26                                                                                    PAGE   10

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SAND TANK WASH                                J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 4                                                                   764.63

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      3                  -1

1
   01APR92      13:30:26                                                                                    PAGE   11

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3
0

CCHV=    0.300 CEHV=    0.500
1490 NH CARD USED
*SECNO 4822.000

3265 DIVIDED FLOW

3280 CROSS SECTION   4822.00 EXTENDED      0.13 FEET

  4822.000      9.83    764.63      0.00    764.63    764.79      0.16      0.00      0.00    763.20
   10000.0     186.1    7527.1    2286.8     188.9    2119.1    1240.4       0.0       0.0    764.20
      0.00      0.99      3.55      1.84     0.035     0.030     0.033     0.000    754.80   9125.70
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 0.001014      600.      972.      900.        0        0        0     0.00   2083.22  11251.27

CCHV=    0.300 CEHV=    0.500
*SECNO 4857.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       770.00 ELREA=       770.00

 4857.000      6.54    767.44    767.44      0.00    770.15      2.72      0.43      1.28    772.40
  10000.0       0.0   10000.0       0.0       0.0    756.2       0.0      10.2       5.4    772.90
     0.00      0.00     13.22      0.00     0.000    0.030     0.000     0.000    760.90   9929.05
 0.008186      100.      185.      270.        20       14         0      0.00    140.89  10069.94


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS      766.43 , NOT      767.44 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR       COFQ      RDLEN       BWC       BWP      BAREA        SS     ELCHU     ELCHD
     1.05      1.60       3.00     100.00    140.70      7.00   1186.00      0.00    762.40    761.90

*SECNO 4868.000
1
   01APR92       13:30:26                                                                              PAGE   12

    SECNO      DEPTH      CWSEL      CRIWS      WSELK       EG        HV       HL     OLOSS    L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB      ACH      AROB      VOL       TWA    R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL       XNCH     XNR       WTN       ELMIN    SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL    IDC      ICONT     CORAR     TOPWID   ENDST


3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.46

CLASS B LOW FLOW

3420 BRIDGE W.S.=      767.73 BRIDGE VELOCITY=       13.40     CALCULATED CHANNEL AREA=       713.

 EGPRS       EGLWC        H3       QWEIR       QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                                      AREA
     0.00    771.05      0.00        0.    10000.       1186.     1190.    771.30    773.30         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       772.80 ELREA=       772.80

 4868.000      7.94    769.34      0.00      0.00    771.05      1.71      0.90      0.00    772.90
  10000.0       0.0   10000.0       0.0       0.0    954.3       0.0      11.3       5.6    773.40
     0.01      0.00     10.48      0.00     0.000    0.030     0.000     0.000    761.40   9929.04
 0.003865       60.       60.       60.         0        0         0      0.00    140.92  10069.96

*SECNO 4887.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       772.00 ELREA=       772.00

 4887.000      6.82    769.62      0.00      0.00    771.67      2.05      0.46      0.17    772.70
  10000.0       0.0   10000.0       0.0       0.0    869.4       0.0      13.4       5.9    773.10
     0.01      0.00     11.50      0.00     0.000    0.030     0.000     0.000    762.80   9929.04
 0.005238      100.      100.      100.         2        0         0      0.00    140.92  10069.96


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS      768.13 , NOT      769.62 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR       COFQ      RDLEN       BWC       BWP      BAREA        SS     ELCHU     ELCHD
     1.05      1.60       3.00     100.00    140.70      7.00    996.00      0.00    764.10    763.60

*SECNO 4898.000
1
   01APR92       13:30:26                                                                              PAGE   13

    SECNO      DEPTH      CWSEL      CRIWS      WSELK       EG        HV       HL     OLOSS    L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB      ACH      AROB      VOL       TWA    R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL       XNCH     XNR       WTN       ELMIN    SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL    IDC      ICONT     CORAR     TOPWID   ENDST


3301 HV CHANGED MORE THAN HVINS

CLASS B LOW FLOW

3420 BRIDGE W.S.=      769.43 BRIDGE VELOCITY=       13.41     CALCULATED CHANNEL AREA=       713.

 EGPRS       EGLWC        H3       QWEIR       QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                                      AREA
    772.12   772.60      0.00        0.    10000.        996.      989.    771.50    773.60         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       773.10 ELREA=       773.10

 4898.000      7.74    771.04      0.00      0.00    772.60      1.55      0.93      0.00    773.20
  10000.0       0.0   10000.0       0.0       0.0    999.6       0.0      14.7       6.1    773.60
     0.01      0.00     10.00      0.00     0.000    0.030     0.000     0.000    763.30   9929.03
 0.003344       60.       60.       60.         0        0         0      0.00    140.94  10069.97

*SECNO 4936.000
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3280 CROSS SECTION   4936.00 EXTENDED      4.68 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66

  4936.000      8.38    772.68      0.00      0.00    773.26      0.59      0.38      0.29    766.30
   10000.0    1937.4    7329.1     733.4     436.7    1089.9     219.9      21.0       7.1    765.50
      0.02      4.44      6.72      3.33     0.035     0.030     0.035     0.000    764.30   9850.00
  0.001207      200.      200.      200.         3         0         0      0.00    290.00  10140.00

1
   01APR92      13:30:26                                                                                    PAGE   14

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SAND TANK WASH                          J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                5                                                                   764.63

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      4                  -1

1
   01APR92      13:30:26                                                                                    PAGE   15

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 4
0

 CCHV=    0.300 CEHV=    0.500
 1490 NH CARD USED
 *SECNO 4822.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION   4822.00 EXTENDED      0.13 FEET

  4822.000      9.83    764.63      0.00    764.63    765.12      0.49      0.00      0.00    763.20
   17500.0     325.7   13172.4    4002.0     188.9    2119.1    1240.4       0.0       0.0    764.20
      0.00      1.72      6.22      3.23     0.035     0.030     0.033     0.000    754.80   9125.70
  0.003105      600.      972.      900.         0         0         0      0.00   2083.22  11251.27

 CCHV=    0.300 CEHV=    0.500
 *SECNO 4857.000

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      770.00 ELREA=      770.00

  4857.000      8.96    769.86    769.86      0.00    773.81      3.95      0.89      1.73    772.40
   17500.0       0.0   17500.0       0.0       0.0    1097.1       0.0      10.9       5.4    772.90
      0.00      0.00     15.95      0.00     0.000     0.030     0.000     0.000    760.90   9929.03
  0.007567      100.      185.      270.        20        11         0      0.00    140.94  10069.97


 SPECIAL BRIDGE

 5227 DOWNSTREAM ELEV IS     768.47 , NOT     769.86 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      1.05      1.60      3.00     100.00    140.70      7.00   1186.00      0.00    762.40    761.90

 *SECNO 4868.000
1
   01APR92      13:30:26                                                                                    PAGE   16

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 3301 HV CHANGED MORE THAN HVINS

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.46

 PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

  EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     TRAPEZOID AREA    ELLC      ELTRD     WEIRLN
   775.27    774.92      0.00      606.    16893.     1186.      1190.    771.30    773.30      100.


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      772.80 ELREA=      772.80

  4868.000     11.04    772.44      0.00      0.00    774.90      2.46      1.09      0.00    772.90
   17500.0       0.0   17500.0       0.0       0.0    1390.6       0.0      12.6       5.6    773.40
      0.00      0.00     12.58      0.00     0.000     0.030     0.000     0.000    761.40   9929.00
  0.003558       60.       60.       60.         4         0         2      0.00    140.99  10069.99
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*SECNO 4887.000
  4887.000      9.85    772.65      0.00      0.00    775.48      2.83      0.40      0.18    772.70
   17500.0       0.0   17500.0       0.0       0.0    1297.2       0.0      15.7       5.9    773.10
      0.01      0.00     13.49      0.00     0.000     0.030     0.000     0.000    762.80   9929.00
  0.004455      100.      100.      100.         2         0         0      0.00    140.99  10070.00


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS      770.17 , NOT     772.65 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR       COFQ      RDLEN      BWC       BWP      BAREA       SS      ELCHU      ELCHD
     1.05      1.60       3.00     100.00    140.70      7.00    996.00     0.00     764.10     763.60

*SECNO 4898.000
3280 CROSS SECTION    4898.00 EXTENDED       3.34 FEET


3301 HV CHANGED MORE THAN HVINS

1
   01APR92       13:30:26                                                                              PAGE   17

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.64

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC       H3       QWEIR       QPR      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
   780.32    777.01     0.00      2817.     14682.      996.      989.     771.50     773.60       100.


  4898.000     13.24   776.54      0.00      0.00    778.05      1.51      2.57      0.00    773.20
   17500.0       0.0  17500.0       0.0       0.0    1774.7       0.0      17.8       6.1    773.60
      0.01      0.00     9.86      0.00     0.000     0.030     0.000     0.000    763.30   9929.00
  0.001657       60.      60.       60.         3         0         2      0.00    141.00  10070.00


*SECNO 4936.000
3280 CROSS SECTION    4936.00 EXTENDED      10.05 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.80

  4936.000     13.74   778.04      0.00      0.00    778.53      0.49      0.17      0.31    766.30
   17500.0    3745.7  11478.3    2276.0     860.9    1847.0     595.8      29.5       7.1    765.50
      0.02      4.35     6.21      3.82     0.035     0.030     0.035     0.000    764.30   9850.00
  0.000510      200.      200.      200.         2         0         0      0.00    290.00  10140.00

1
   01APR92       13:30:26                                                                              PAGE   18

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SAND TANK WASH                                J. MISCHLER - (602) 244-8100

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 6                                                                   764.63

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15                    -1

1
   01APR92       13:30:26                                                                              PAGE   19

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 5
0

CCHV=    0.300 CEHV=    0.500
1490 NH CARD USED
*SECNO 4822.000

3265 DIVIDED FLOW

3280 CROSS SECTION    4822.00 EXTENDED       0.14 FEET

3720 CRITICAL DEPTH ASSUMED
  4822.000      9.84   764.64    764.64    764.63    765.63      0.99      0.00      0.00    763.20
   25000.0     476.6  18775.4    5748.0     193.4    2126.3    1252.5       0.0       0.0    764.20
      0.00      2.46     8.83      4.59     0.035     0.030     0.033     0.000    754.80   9125.70
  0.006238       600.      972.      900.         0         4         0      0.00   2086.94  11252.14


CCHV=    0.300 CEHV=    0.500
*SECNO 4857.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
```

3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4857.000 | 11.08 | 771.98 | 771.98 | 0.00 | 776.96 | 4.98 | 1.30 | 2.00 | 772.40 |
| 25000.0 | 0.0 | 25000.0 | 0.0 | 0.0 | 1395.8 | 0.0 | 11.6 | 5.4 | 772.90 |
| 0.00 | 0.00 | 17.91 | 0.00 | 0.000 | 0.030 | 0.000 | 0.000 | 760.90 | 9929.00 |
| 0.007175 | 100. | 185. | 270. | 20 | 8 | 0 | 0.00 | 140.99 | 10069.99 |

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 770.24 , NOT 771.98 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.05 | 1.60 | 3.00 | 100.00 | 140.70 | 7.00 | 1186.00 | 0.00 | 762.40 | 761.90 |

*SECNO 4868.000
3280 CROSS SECTION 4868.00 EXTENDED 4.17 FEET

1
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.82

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| 783.02 | 780.17 | 0.00 | 4510. | 20489. | 1186. | 1190. | 771.30 | 773.30 | 100. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4868.000 | 15.67 | 777.07 | 0.00 | 0.00 | 779.39 | 2.32 | 2.43 | 0.00 | 772.90 |
| 25000.0 | 0.0 | 25000.0 | 0.0 | 0.0 | 2043.8 | 0.0 | 14.0 | 5.6 | 773.40 |
| 0.00 | 0.00 | 12.23 | 0.00 | 0.000 | 0.030 | 0.000 | 0.000 | 761.40 | 9929.00 |
| 0.002170 | 60. | 60. | 60. | 3 | 0 | 2 | 0.00 | 141.00 | 10070.00 |

*SECNO 4887.000
3280 CROSS SECTION 4887.00 EXTENDED 4.47 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4887.000 | 14.37 | 777.17 | 0.00 | 0.00 | 779.76 | 2.60 | 0.24 | 0.14 | 772.70 |
| 25000.0 | 0.0 | 25000.0 | 0.0 | 0.0 | 1933.8 | 0.0 | 18.5 | 5.9 | 773.10 |
| 0.01 | 0.00 | 12.93 | 0.00 | 0.000 | 0.030 | 0.000 | 0.000 | 762.80 | 9929.00 |
| 0.002587 | 100. | 100. | 100. | 2 | 0 | 0 | 0.00 | 141.00 | 10070.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1.05 | 1.60 | 3.00 | 100.00 | 140.70 | 7.00 | 996.00 | 0.00 | 764.10 | 763.60 |

*SECNO 4898.000
3280 CROSS SECTION 4898.00 EXTENDED 8.68 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.51

1
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|---|
| 792.82 | 780.41 | 0.64 | 9206. | 15776. | 996. | 989. | 771.50 | 773.60 | 100. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4898.000 | 18.58 | 781.88 | 0.00 | 0.00 | 783.40 | 1.52 | 3.64 | 0.00 | 773.20 |
| 25000.0 | 0.0 | 25000.0 | 0.0 | 0.0 | 2527.9 | 0.0 | 21.6 | 6.1 | 773.60 |
| 0.01 | 0.00 | 9.89 | 0.00 | 0.000 | 0.030 | 0.000 | 0.000 | 763.30 | 9929.00 |
| 0.001131 | 60. | 60. | 60. | 3 | 0 | 2 | 0.00 | 141.00 | 10070.00 |

*SECNO 4936.000
3280 CROSS SECTION 4936.00 EXTENDED 15.37 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.91

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4936.000 | 19.07 | 783.37 | 0.00 | 0.00 | 783.83 | 0.46 | 0.11 | 0.32 | 766.30 |
| 25000.0 | 5441.1 | 15767.5 | 3791.4 | 1281.6 | 2597.9 | 968.6 | 38.5 | 7.1 | 765.50 |
| 0.02 | 4.25 | 6.07 | 3.91 | 0.035 | 0.030 | 0.035 | 0.000 | 764.30 | 9850.00 |
| 0.000309 | 200. | 200. | 200. | 2 | 0 | 0 | 0.00 | 290.00 | 10140.00 |

1
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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************
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THIS RUN EXECUTED 01APR92 13:30:33

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SAND TANK WASH STRUCTURE

SUMMARY PRINTOUT

| | SECNO | ELMIN | CWSEL | Q | VCH | DIFWSX | TOPWID | DEPTH | SSTA | ENDST | QLOB | QROB | ELTRD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4822.000 | 754.80 | 764.63 | 1000.00 | 0.36 | 0.00 | 2083.22 | 9.83 | 9125.70 | 11251.27 | 18.61 | 228.68 | 0.00 |
| | 4822.000 | 754.80 | 764.63 | 5000.00 | 1.78 | 0.00 | 2083.22 | 9.83 | 9125.70 | 11251.27 | 93.04 | 1143.42 | 0.00 |
| | 4822.000 | 754.80 | 764.63 | 10000.00 | 3.55 | 0.00 | 2083.22 | 9.83 | 9125.70 | 11251.27 | 186.09 | 2286.84 | 0.00 |
| | 4822.000 | 754.80 | 764.63 | 17500.00 | 6.22 | 0.00 | 2083.22 | 9.83 | 9125.70 | 11251.27 | 325.65 | 4001.97 | 0.00 |
| * | 4822.000 | 754.80 | 764.64 | 25000.00 | 8.83 | 0.00 | 2086.94 | 9.84 | 9125.70 | 11252.14 | 476.64 | 5748.00 | 0.00 |
| * | 4857.000 | 760.90 | 764.57 | 1000.00 | 2.83 | -0.06 | 140.83 | 3.67 | 9929.09 | 10069.91 | 0.00 | 0.00 | 0.00 |
| * | 4857.000 | 760.90 | 765.44 | 5000.00 | 10.53 | 0.81 | 140.84 | 4.54 | 9929.08 | 10069.92 | 0.00 | 0.00 | 0.00 |
| * | 4857.000 | 760.90 | 767.44 | 10000.00 | 13.22 | 2.81 | 140.89 | 6.54 | 9929.05 | 10069.94 | 0.00 | 0.00 | 0.00 |
| * | 4857.000 | 760.90 | 769.86 | 17500.00 | 15.95 | 5.23 | 140.94 | 8.96 | 9929.03 | 10069.97 | 0.00 | 0.00 | 0.00 |
| * | 4857.000 | 760.90 | 771.98 | 25000.00 | 17.91 | 7.33 | 140.99 | 11.08 | 9929.00 | 10069.99 | 0.00 | 0.00 | 0.00 |
| | 4868.000 | 761.40 | 764.59 | 1000.00 | 3.52 | 0.01 | 140.82 | 3.19 | 9929.09 | 10069.91 | 0.00 | 0.00 | 773.30 |
| * | 4868.000 | 761.40 | 766.77 | 5000.00 | 8.44 | 1.33 | 140.86 | 5.37 | 9929.07 | 10069.93 | 0.00 | 0.00 | 773.30 |
| * | 4868.000 | 761.40 | 769.34 | 10000.00 | 10.48 | 1.91 | 140.92 | 7.94 | 9929.04 | 10069.96 | 0.00 | 0.00 | 773.30 |
| * | 4868.000 | 761.40 | 772.44 | 17500.00 | 12.58 | 2.58 | 140.99 | 11.04 | 9929.00 | 10069.99 | 0.00 | 0.00 | 773.30 |
| * | 4868.000 | 761.40 | 777.07 | 25000.00 | 12.23 | 5.09 | 141.00 | 15.67 | 9929.00 | 10070.00 | 0.00 | 0.00 | 773.30 |
| * | 4887.000 | 762.80 | 764.82 | 1000.00 | 5.17 | 0.23 | 140.81 | 2.02 | 9929.10 | 10069.91 | 0.00 | 0.00 | 0.00 |
| | 4887.000 | 762.80 | 767.17 | 5000.00 | 9.53 | 0.40 | 140.87 | 4.37 | 9929.07 | 10069.94 | 0.00 | 0.00 | 0.00 |
| | 4887.000 | 762.80 | 769.62 | 10000.00 | 11.50 | 0.27 | 140.92 | 6.82 | 9929.04 | 10069.96 | 0.00 | 0.00 | 0.00 |
| | 4887.000 | 762.80 | 772.65 | 17500.00 | 13.49 | 0.21 | 140.99 | 9.85 | 9929.00 | 10070.00 | 0.00 | 0.00 | 0.00 |
| | 4887.000 | 762.80 | 777.17 | 25000.00 | 12.93 | 0.10 | 141.00 | 14.37 | 9929.00 | 10070.00 | 0.00 | 0.00 | 0.00 |
| * | 4898.000 | 763.30 | 765.60 | 1000.00 | 4.31 | 0.78 | 140.82 | 2.30 | 9929.10 | 10069.91 | 0.00 | 0.00 | 773.60 |
| * | 4898.000 | 763.30 | 768.47 | 5000.00 | 7.84 | 1.30 | 140.88 | 5.17 | 9929.06 | 10069.94 | 0.00 | 0.00 | 773.60 |
| * | 4898.000 | 763.30 | 771.04 | 10000.00 | 10.00 | 1.43 | 140.94 | 7.74 | 9929.03 | 10069.97 | 0.00 | 0.00 | 773.60 |
| * | 4898.000 | 763.30 | 776.54 | 17500.00 | 9.86 | 3.89 | 141.00 | 13.24 | 9929.00 | 10070.00 | 0.00 | 0.00 | 773.60 |
| * | 4898.000 | 763.30 | 781.88 | 25000.00 | 9.89 | 4.71 | 141.00 | 18.58 | 9929.00 | 10070.00 | 0.00 | 0.00 | 773.60 |

1

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| | SECNO | ELMIN | CWSEL | Q | VCH | DIFWSX | TOPWID | DEPTH | SSTA | ENDST | QLOB | QROB | ELTRD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4936.000 | 764.30 | 766.46 | 1000.00 | 4.66 | 0.87 | 152.47 | 2.16 | 9921.38 | 10073.86 | 0.36 | 3.39 | 0.00 |
| | 4936.000 | 764.30 | 769.52 | 5000.00 | 6.52 | 1.05 | 252.70 | 5.22 | 9850.00 | 10102.70 | 664.54 | 137.29 | 0.[illegible] |
| * | 4936.000 | 764.30 | 772.68 | 10000.00 | 6.72 | 1.63 | 290.00 | 8.38 | 9850.00 | 10140.00 | 1937.45 | 733.45 | 0[illegible] |
| * | 4936.000 | 764.30 | 778.04 | 17500.00 | 6.21 | 1.50 | 290.00 | 13.74 | 9850.00 | 10140.00 | 3745.66 | 2276.04 | 0[illegible] |
| * | 4936.000 | 764.30 | 783.37 | 25000.00 | 6.07 | 1.49 | 290.00 | 19.07 | 9850.00 | 10140.00 | 5441.07 | 3791.43 | 0[illegible] |

1

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SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=   4822.000   PROFILE=  5  CRITICAL DEPTH ASSUMED

WARNING SECNO=   4857.000   PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   4857.000   PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   4857.000   PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   4857.000   PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   4857.000   PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   4857.000   PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   4857.000   PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   4857.000   PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   4857.000   PROFILE=  4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   4857.000   PROFILE=  4  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   4857.000   PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   4857.000   PROFILE=  5  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   4857.000   PROFILE=  5  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   4868.000   PROFILE=  2  HYDRAULIC JUMP D.S.
WARNING SECNO=   4868.000   PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   4868.000   PROFILE=  3  HYDRAULIC JUMP D.S.
WARNING SECNO=   4868.000   PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   4868.000   PROFILE=  4  HYDRAULIC JUMP D.S.
WARNING SECNO=   4868.000   PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   4868.000   PROFILE=  5  HYDRAULIC JUMP D.S.
WARNING SECNO=   4868.000   PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   4887.000   PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   4898.000   PROFILE=  1  HYDRAULIC JUMP D.S.
CAUTION SECNO=   4898.000   PROFILE=  2  HYDRAULIC JUMP D.S.
CAUTION SECNO=   4898.000   PROFILE=  3  HYDRAULIC JUMP D.S.
CAUTION SECNO=   4898.000   PROFILE=  4  HYDRAULIC JUMP D.S.
WARNING SECNO=   4898.000   PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   4898.000   PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   4936.000   PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   4936.000   PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   4936.000   PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2;  May 1991            *
 *  386 Extended Memory version, August 1991 *
 *  Dodson & Associates, Inc 1-800-235-8069  *
 *  RUN DATE    01APR92    TIME   13:30:53   *
 *****************************************

*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************

X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X           X     X
X     X  X         X                       X
XXXXXXX  XXXX      X           XXXXX   XXXXX
X     X  X         X                 X
X     X  X         X     X           X
X     X  XXXXXXX   XXXXX              XXXXXXX

1
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                                                                THIS RUN EXECUTED 01APR92     13:30:53
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
 T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
 T3      SAND TANK WASH STRUCTURE C          J. MISCHLER - (602) 244-8100

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                           -1

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1                  -1

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        42         1        43        26        51         4         8        53        54
      13        15        40


 NC    0.035     0.035     0.03       0.3       0.5
 QT        3      1000      1630      3000
 X1     4822         5     430.0     480.0
 GR    765.5     200.0     764.0     430.0     763.5     460.0     764.0     480.0     768.0     730.0

        INTERSTATE 8 CULVERT EAST OF SAND TANK WASH.  THIS MODEL IS USED TO
        GENERATE A RATING CURVE FOR USE IN COMPUTING AN ELEVATION UPSTREAM
        OF INTERSTATE 8.


 NC    0.035     0.035     0.03       0.3       0.5
 X1     4857         6     445.0     480.0       130       120       110
 X3       10                                                           790       790
 GR    772.0     400.0     768.0     445.0     764.0     450.0     764.0     470.0     768.0     480.0
 GR    772.0     650.0

        WIER FLOW IS NOT ANTICIPATED, THEREFORE USE DUMMY RDLEN = 100 FT
        REPEAT SECTION 4857 AT UPSTREAM FACE OF CULVERT.

1
   01APR92      13:30:53                                                                    PAGE    2


 SC    3.014       0.4         3     100.0         8        10       176       8.1       764       764
 X1     4898                                      176       176       176
 X2                            2                  790
 X3       10                                                           790       790

        REPEAT SECTION 200 FT UPSTREAM FOR CONTRACTION LOSSES. USE PSXECE =
             0.1

 X1     4936                                      200       200       200                 0.1
1
   01APR92      13:30:53                                                                    PAGE    3

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1
0

 CCHV=    0.300 CEHV=    0.500
 *SECNO 4822.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED
   4822.000      1.75    765.25    765.25      0.00    765.63      0.39      0.00      0.00    764.00
     1000.0     367.8     482.3     149.9     119.5      74.9      48.7       0.0       0.0    764.00
       0.00      3.08      6.44      3.08     0.035     0.030     0.035     0.000    763.50    238.56
   0.009849        0.        0.        0.         0        16         0      0.00    319.48    558.03
```

```
CCHV=    0.300 CEHV=    0.500
*SECNO 4857.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      790.00 ELREA=      790.00

  4857.000      3.76    767.76    767.76      0.00    769.26      1.51      1.13      0.56    768.00
    1000.0       0.0    1000.0       0.0       0.0     101.6       0.0       0.5       0.5    768.00
      0.00      0.00      9.85      0.00     0.000     0.030     0.000     0.000    764.00    445.31
  0.009957      130.      110.      120.        20        17         0      0.00     34.08    479.39


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     3        0.014     0.40      3.00      100.00    8.00      10.00     176.00    8         1         764.00    764.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 4898.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    769.190  EGOC =    769.669  PCWSE=    767.756  ELTRD=    790.000

3301 HV CHANGED MORE THAN HVINS

1
   01APR92      13:30:53                                                                                          PAGE    4

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.70

SPECIAL CULVERT

     EGIC      EGOC       H4      QWEIR     QCULV      VCH      ACULV     ELTRD     WEIRLN
    769.19    769.67     0.41       0.      1000.    7.079     240.0    790.00       0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      790.00 ELREA=      790.00

  4898.000      4.89    768.89      0.00      0.00    769.67      0.78      0.41      0.00    768.00
    1000.0       0.0    1000.0       0.0       0.0     141.3       0.0       1.0       0.6    768.00
      0.01      0.00      7.08      0.00     0.000     0.030     0.000     0.000    764.00    445.00
  0.003444      176.      176.      176.         3         0         0      0.00     35.00    480.00

*SECNO 4936.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.57

  4936.000      5.75    769.85      0.00      0.00    770.21      0.36      0.42      0.12    768.10
    1000.0      25.1     880.0      94.9      17.3     171.3      65.2       1.9       1.0    768.10
      0.02      1.46      5.14      1.46     0.035     0.030     0.035     0.000    764.10    425.29
  0.001402      200.      200.      200.         2         0         0      0.00    129.18    554.47

1
   01APR92      13:30:53                                                                                          PAGE    5

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SAND TANK & BENDER WASH                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                             -1

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2                  -1

1
   01APR92      13:30:53                                                                                          PAGE    6

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 2
0
CCHV=    0.300 CEHV=    0.500
*SECNO 4822.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3280 CROSS SECTION   4822.00 EXTENDED      0.09 FEET

3720 CRITICAL DEPTH ASSUMED
  4822.000      2.09    765.59    765.59      0.00    766.03      0.44      0.00      0.00    764.00
    1630.0     697.6     657.0     275.4     192.2      91.8      78.6       0.0       0.0    764.00
      0.00      3.63      7.16      3.51     0.035     0.030     0.035     0.000    763.50    200.00
  0.009295        0.        0.        0.         0        19         0      0.00    379.09    579.09


CCHV=    0.300 CEHV=    0.500
```

```
*SECNO 4857.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      790.00 ELREA=      790.00

  4857.000      4.91    768.91    768.91      0.00    770.96      2.05      1.06      0.81    768.00
    1630.0       0.0    1630.0       0.0       0.0     141.7       0.0       0.7       0.6    768.00
      0.00      0.00     11.50      0.00     0.000     0.030     0.000     0.000    764.00    445.00
  0.009058      130.      110.      120.        20        17         0      0.00     35.00    480.00


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     3        0.014     0.40      3.00     100.00     8.00     10.00     176.00     8         1        764.00    764.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 4898.000
1
   01APR92      13:30:53                                                                                          PAGE    7

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


SPECIAL CULVERT OUTLET CONTROL
EGIC =    771.263  EGOC =    771.755  PCWSE=    768.906  ELTRD=    790.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.90

SPECIAL CULVERT

     EGIC      EGOC       H4      QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
   771.26    771.75     0.79        0.     1630.     7.831     240.0    790.00        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      790.00 ELREA=      790.00

  4898.000      6.80    770.80      0.00      0.00    771.75      0.95      0.79      0.00    768.00
    1630.0       0.0    1630.0       0.0       0.0     208.1       0.0       1.4       0.7    768.00
      0.01      0.00      7.83      0.00     0.000     0.030     0.000     0.000    764.00    445.00
  0.002513      176.      176.      176.         3         0         0      0.00     35.00    480.00

*SECNO 4936.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.18

  4936.000      7.92    772.02      0.00      0.00    772.19      0.17      0.20      0.23    768.10
    1630.0     132.1     997.7     500.2      86.4     247.2     326.6       3.4       1.4    768.10
      0.03      1.53      4.04      1.53     0.036     0.030     0.035     0.000    764.10    400.90
  0.000531      200.      200.      200.         2         0         0      0.00    245.72    646.61

1
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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SAND TANK & BENDER WASH                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 4                           -1

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15                  -1

1
   01APR92      13:30:53                                                                                          PAGE    9

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3
0

CCHV=     0.300 CEHV=     0.500
*SECNO 4822.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3280 CROSS SECTION   4822.00 EXTENDED       0.53 FEET

3720 CRITICAL DEPTH ASSUMED
  4822.000      2.53    766.03    766.03      0.00    766.64      0.62      0.00      0.00    764.00
    3000.0    1469.9     978.5     551.6     293.9     113.9     128.5       0.0       0.0    764.00
      0.00      5.00      8.59      4.29     0.035     0.030     0.035     0.000    763.50    200.00
  0.010042        0.        0.        0.         0        19         0      0.00    406.73    606.73
```

```
CCHV=    0.300 CEHV=    0.500
*SECNO 4857.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

  4857.000      6.94    770.94    770.94      0.00    774.02      3.08      1.03      1.23    768.00
    3000.0       0.0    3000.0       0.0       0.0     212.9       0.0       1.0       0.6    768.00
      0.00      0.00     14.09      0.00     0.000     0.030     0.000     0.000    764.00    445.00
  0.007903      130.      110.      120.        20        20         0      0.00     35.00    480.00


SPECIAL CULVERT

SC  CUNO      CUNV     ENTLC     COFQ     RDLEN     RISE     SPAN    CULVLN    CHRT     SCL     ELCHU    ELCHD
     3         0.014    0.40      3.00    100.00     8.00    10.00   176.00     8        1      764.00   764.00

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 4898.000
1
   01APR92       13:30:53                                                                          PAGE   10

    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


SPECIAL CULVERT INLET CONTROL
EGIC =    776.496  EGOC =    773.470  PCWSE=    770.939  ELTRD=    790.000

3280 CROSS SECTION   4898.00 EXTENDED      3.49 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.54

SPECIAL CULVERT

    EGIC      EGOC       H4     QWEIR     QCULV      VCH     ACULV     ELTRD    WEIRLN
   776.50    773.47     2.47       0.     3000.    8.064     240.0    790.00        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       790.00 ELREA=       790.00

  4898.000     11.49    775.49      0.00      0.00    776.50      1.01      2.47      0.00    768.00
    3000.0       0.0    3000.0       0.0       0.0     372.0       0.0       2.2       0.8    768.00
      0.01      0.00      8.06      0.00     0.000     0.030     0.000     0.000    764.00    445.00
  0.001229      176.      176.      176.         3         0         0      0.00     35.00    480.00

*SECNO 4936.000
3280 CROSS SECTION   4936.00 EXTENDED      4.68 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.65

  4936.000     12.68    776.78      0.00      0.00    776.83      0.05      0.05      0.29    768.10
    3000.0      406.0     981.4    1612.6     300.6     413.8    1135.6       7.3       1.4    768.10
      0.04      1.35      2.37      1.42     0.035     0.030     0.035     0.000    764.10    400.00
  0.000092      200.      200.      200.         2         0         0      0.00    250.00    650.00

1
   01APR92       13:30:53                                                                          PAGE   11


**************************************                                THIS RUN EXECUTED 01APR92     13:30:56
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2:  May 1991
**************************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SAND TANK WASH STRUCTURE

SUMMARY PRINTOUT

      SECNO     ELMIN     CWSEL       Q       VCH    DIFWSX    TOPWID    DEPTH     SSTA     ENDST     QLOB      QROB     ELTRD
*   4822.000    763.50    765.25   1000.00     6.44      0.00    319.48     1.75    238.56    558.03    367.81    149.91      0.00
*   4822.000    763.50    765.59   1630.00     7.16      0.00    379.09     2.09    200.00    579.09    697.61    275.42      0.00
*   4822.000    763.50    766.03   3000.00     8.59      0.00    406.73     2.53    200.00    606.73   1469.89    551.63      0.00

*   4857.000    764.00    767.76   1000.00     9.85      2.51     34.08     3.76    445.31    479.39      0.00      0.00      0.00
*   4857.000    764.00    768.91   1630.00    11.50      3.32     35.00     4.91    445.00    480.00      0.00      0.00      0.[illegible]
*   4857.000    764.00    770.94   3000.00    14.09      4.91     35.00     6.94    445.00    480.00      0.00      0.00      0.[illegible]

*   4898.000    764.00    768.89   1000.00     7.08      1.13     35.00     4.89    445.00    480.00      0.00      0.00    790.[illegible]
*   4898.000    764.00    770.80   1630.00     7.83      1.90     35.00     6.80    445.00    480.00      0.00      0.00    790.[illegible]
*   4898.000    764.00    775.49   3000.00     8.06      4.55     35.00    11.49    445.00    480.00      0.00      0.00    790.00
```

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 4936.000 | 764.10 | 769.85 | 1000.00 | 5.14 | 0.96 | 129.18 | 5.75 | 425.29 | 554.47 | 25.07 | 94.94 | 0.00 |
| * | 4936.000 | 764.10 | 772.02 | 1630.00 | 4.04 | 1.22 | 245.72 | 7.92 | 400.90 | 646.61 | 132.09 | 500.24 | 0.00 |
| * | 4936.000 | 764.10 | 776.78 | 3000.00 | 2.37 | 1.29 | 250.00 | 12.68 | 400.00 | 650.00 | 406.02 | 1612.61 | 0.00 |

1

01APR92 13:30:53 PAGE 12

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=  4822.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  4822.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  4822.000  PROFILE=  3  CRITICAL DEPTH ASSUMED

CAUTION SECNO=  4857.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  4857.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  4857.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=  4857.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  4857.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  4857.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=  4857.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  4857.000  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  4857.000  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=  4898.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  4898.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  4898.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  4936.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  4936.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  4936.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version   4.6.2;  May 1991            *
 *  386 Extended Memory version, August 1991 *
 *  Dodson & Associates, Inc 1-800-235-8069  *
 *  RUN DATE    01APR92    TIME   13:31:22   *
 *****************************************

*************************************
 *  U.S. ARMY CORPS OF ENGINEERS     *
 *  HYDROLOGIC ENGINEERING CENTER    *
 *  609 SECOND STREET, SUITE D       *
 *  DAVIS, CALIFORNIA 95616-4687     *
 *        (916) 756-1104             *
*************************************

                                   X     X  XXXXXXX   XXXXX              XXXXX
                                   X     X  X        X     X           X     X
                                   X     X  X        X                       X
                                   XXXXXXX  XXXX     X          XXXXX    XXXXX
                                   X     X  X        X                  X
                                   X     X  X        X     X            X
                                   X     X  XXXXXXX   XXXXX             XXXXXXX
1
   01APR92      13:31:22                                                                                    PAGE    1


                                                                                THIS RUN EXECUTED 01APR92    13:31:22
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
 T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
 T3      C132 WEIR FLOW TO WEST                  J. MISCHLER - (602) 244-8100

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                         0.0037

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                  -1

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        42         1        43        26        51         4         8        53        54
      13        15        40

         THIS RUN MODELS THE SPLIT BETWEEN SAND TANK WASH AND SCOTT
         AVENUE WASH UPSTREAM OF INTERSTATE 8.  THE MODEL REPRESENTS
         A BROAD CRESTED WEIR ON THE RIDGE BETWEEN THE WASHES.  BT DATA
         IS ACCURATE FROM THE TOPO MAPPING, BUT GR DATA IS PHONY TO
         ALLOW SPECIAL BRIDGE COMPUTE WEIR FLOW.

         J1.5 STRT = (764-760)/1070 FT = 0.0037 FT/FT

         THESE RESULTS ARE COMBINED WITH OTHER RUNS TO DETERMINE THE SPLIT
         AT INTERSTATE 8.

 NC    0.035     0.035     0.035       0.1       0.3
 QT        4      3000      6000      8700     12000
 X1        1         4      1000      2130
 X3       10                                                                   766       766
 GR      772      1000       764      1800       762      2100     771.2      2130

 SB      0.9      1.25       2.6         0       0.1         0      0.01         0       764       764
 X1        2         4      1000      2130       100       100       100
 X2                            1       765       766
 X3       10                                                                   766       766
 BT       -4      1000       772                 1800       768                2100       766
 BT               2130     771.2
 GR      772      1000       764      1800       762      2100     771.2      2130
1
   01APR92      13:31:22                                                                                    PAGE    2

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CCHV=    0.100 CEHV=    0.300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      766.00 ELREA=      766.00

      1.000      3.29    765.29      0.00      0.00    765.51      0.23      0.00      0.00    772.00
     3000.0       0.0    3000.0       0.0       0.0     787.5       0.0       0.0       0.0    771.20
       0.00      0.00      3.81      0.00     0.000     0.035     0.000     0.000    762.00   1671.09
   0.003707        0.        0.        0.         0         0         5      0.00    439.64   2110.73


 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.90      1.25      2.60      0.00      0.10      0.00      0.01      0.00    764.00    764.00

 *SECNO 2.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  7.10

 PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape
```

```
 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
**********  767.51     0.00     3008.       0.         0.       0.       765.00    766.00      565.

    2.000     7.22   769.22      0.00      0.00    769.23     0.01       3.72      0.00    772.00
   3000.0      0.0   3000.0       0.0       0.0    3317.4      0.0        4.7       1.5    771.20
     0.03     0.00     0.90      0.00     0.000     0.035    0.000      0.000    762.00   1277.53
 0.000073     100.     100.      100.         1         0       10       0.00    846.03   2123.56

1
  01APR92      13:31:22                                                                          PAGE    3

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      FLOW SPLIT AT I-8                          J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                           0.0037

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2                  -1

1
  01APR92      13:31:22                                                                          PAGE    4

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
    1.000     4.33   766.33      0.00      0.00    766.66     0.33       0.00      0.00    772.00
   6000.0      0.0   6000.0       0.0       0.0    1303.7      0.0        0.0       0.0    771.20
     0.00     0.00     4.60      0.00     0.000     0.035    0.000      0.000    762.00   1566.51
 0.003702       0.       0.        0.         0         0        5       0.00    547.63   2114.14

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    0.90      1.25      2.60      0.00      0.10      0.00      0.01      0.00     764.00    764.00

*SECNO 2.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.84

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
**********  768.66     0.00     6032.       0.         0.       0.       765.00    766.00      767.

    2.000     8.18   770.18      0.00      0.00    770.21     0.03       3.55      0.00    772.00
   6000.0      0.0   6000.0       0.0       0.0    4175.3      0.0        6.3       1.7    771.20
     0.02     0.00     1.44      0.00     0.000     0.035    0.000      0.000    762.00   1181.73
 0.000158     100.     100.      100.         2         0        9       0.00    944.96   2126.68

1
  01APR92      13:31:22                                                                          PAGE    5

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      FLOW SPLIT AT I-8                          J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                4                           0.0037

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3                  -1

1
  01APR92      13:31:22                                                                          PAGE    6

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
    1.000     5.02   767.02      0.00      0.00    767.42     0.41       0.00      0.00    772.00
   8700.0      0.0   8700.0       0.0       0.0    1701.9      0.0        0.0       0.0    771.20
     0.00     0.00     5.11      0.00     0.000     0.035    0.000      0.000    762.00   1498.19
 0.003763       0.       0.        0.         0         0        4       0.00    618.17   2116.36

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    0.90      1.25      2.60      0.00      0.10      0.00      0.01      0.00     764.00    764.00
```

```
*SECNO 2.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.04

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
**********   769.42    0.00     8710.       0.         0.       0.       765.00    766.00      899.

    2.000     8.80   770.80      0.00      0.00    770.85     0.05       3.43      0.00    772.00
   8700.0      0.0   8700.0       0.0       0.0    4781.6      0.0        7.4       1.9    771.20
     0.02     0.00     1.82      0.00     0.000     0.035    0.000      0.000    762.00   1119.67
 0.000231     100.     100.      100.         2         0        9       0.00   1009.04   2128.71

1
   01APR92      13:31:22                                                                          PAGE    7

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      FLOW SPLIT AT I-8                          J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                5                         0.0037

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15                  -1

1
   01APR92      13:31:22                                                                          PAGE    8

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
    1.000      5.72   767.72      0.00      0.00    768.20     0.48       0.00      0.00    772.00
  12000.0       0.0  12000.0       0.0       0.0    2161.1      0.0        0.0       0.0    771.20
     0.00      0.00     5.55      0.00     0.000     0.035    0.000      0.000    762.00   1428.03
 0.003743        0.       0.        0.         0         0        4       0.00    690.62   2118.65


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.90      1.25      2.60      0.00      0.10      0.00      0.01      0.00    764.00    764.00

*SECNO 2.000
3280 CROSS SECTION       2.00 EXTENDED       0.22 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.45

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
**********   770.20    0.00     12003.      0.         0.       0.       765.00    766.00     1029.

    2.000     9.42   771.42      0.00      0.00    771.49     0.08       3.29      0.00    772.00
  12000.0       0.0  12000.0       0.0       0.0    5419.7      0.0        8.7       2.0    771.20
     0.01      0.00     2.21      0.00     0.000     0.035    0.000      0.000    762.00   1058.34
 0.000314     100.     100.      100.         2         0        9       0.00   1071.66   2130.00

1
   01APR92      13:31:22                                                                          PAGE    9


**************************************                                THIS RUN EXECUTED 01APR92    13:31:24
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
**************************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

C132 WEIR FLOW TO WEST

SUMMARY PRINTOUT

      SECNO     ELMIN     CWSEL      Q         VCH       DIFWSX    TOPWID    DEPTH     SSTA      ENDST     QLOB      QROB      ELTRD

      1.000    762.00    765.29   3000.00     3.81       0.00     439.64     3.29   1671.09   2110.73     0.00      0.00      0.00
      1.000    762.00    766.33   6000.00     4.60       0.00     547.63     4.33   1566.51   2114.14     0.00      0.00      0.00
      1.000    762.00    767.02   8700.00     5.11       0.00     618.17     5.02   1498.19   2116.36     0.00      0.00      0.00
      1.000    762.00    767.72  12000.00     5.55       0.00     690.62     5.72   1428.03   2118.65     0.00      0.00      0.0
*     2.000    762.00    769.22   3000.00     0.90       3.93     846.03     7.22   1277.53   2123.56     0.00      0.00    766
*     2.000    762.00    770.18   6000.00     1.44       3.85     944.96     8.18   1181.73   2126.68     0.00      0.00    76
*     2.000    762.00    770.80   8700.00     1.82       3.79    1009.04     8.80   1119.67   2128.71     0.00      0.00    76
*     2.000    762.00    771.42  12000.00     2.21       3.70    1071.66     9.42   1058.34   2130.00     0.00      0.00    76
```

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=      2.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      2.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      2.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      2.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

## C133 Summary Data

| Flow Split Downstream of Gila Bend Canal | | | |
|---|---|---|---|
| | Discharge (cfs) | | |
| Stage | Sand Tank Wash | Bender Wash | Total Flow |
| 723.2 | 0 | 0 | 0 |
| 724.0 | 100 | 0 | 100 |
| 725.0 | 350 | 0 | 350 |
| 726.0 | 900 | 0 | 900 |
| 727.0 | 1500 | 0 | 1500 |
| 727.4 | 1800 | 0 | 1800 |
| 728.0 | 2300 | 50 | 2350 |
| 729.0 | 3200 | 350 | 3550 |
| 730.0 | 4300 | 750 | 5050 |
| 731.0 | 5350 | 1250 | 6600 |
| 732.0 | 6700 | 1900 | 8600 |
| 733.0 | 9000 | 2500 | 11500 |
| 734.0 | 16000 | 3200 | 19200 |
| 734.1 | 20800 | 3300 | 24100 |
| 734.5 | 24000 | 3600 | 27600 |

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1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version   4.6.2;  May 1991                *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE    02APR92    TIME    11:33:08   *
 *********************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*     (916) 756-1104                *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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1
   02APR92      11:33:08                                                                                    PAGE    1


                                                                                THIS RUN EXECUTED 02APR92    11:33:08
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************


 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
 T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
 T3      SAND TANK WASH DOWNSTREAM OF C133          J. MISCHLER - (602) 244-8100

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                         0.0031

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1                 -1


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        42         1        43        26        51         4         8        53        54
      13        15        40

         SECTIONS ARE LABELED AS  RIVER MILES * 1000, i.e., SECTION 676 IS AT
         A POINT ON SAND TANK WASH 0.676 UPSTREAM OF THE CONFLUENCE WITH THE
         GILA RIVER.


 NC     0.06      0.06     0.035       0.1       0.3
 QT        5      6000     12000     16000     20000     24000

         BENDER WASH ENTERS SAND TANK WASH AT RM 3.184.  THE 100-YEAR PEAK
         DISCHARGE EXCEEDS THE CAPACITY OF SAND TANK WASH ALONE.  FLOW OCCURS
         ACROSS BOTH SAND TANK AND BENDER WASHES.  THE OVERBANK AREA BETWEEN
         THE WASHES IN SOME AREAS IS LOW ENOUGH TO ALLOW FLOW TO PASS BETWEEN
         - A SPLIT FLOW SITUATION.   CROSS SECTIONS WERE INITIALLY TAKEN AS IF
         EACH WASH WERE SEPARATE, BUT WHEN INITIAL HEC-2 RUNS SHOWED THAT SAND
         TANK AND BENDER WASHES OPERATED AS A SINGLE STREAM FOR THE 100-YEAR
         FLOOD, CROSS SECTIONS WERE RETAKEN BY THE AERIAL MAPPING FIRM TO COVER
         BOTH WASHES AS ONE.  BANK STATIONS ARE SELECTED FOR SAND TANK WASH.

         SUBSEQUENT RUNS WITH THE NEW SECTIONS SHOWED THAT THE WASHES ARE SPLIT
         BELOW PIMA STREET AND THIS MODEL WAS CREATED TO ESTIMATE THE Q IN EACH
         WASH.

 NH        5      0.04    9959.3      0.06    9977.3      0.03   10030.9      0.06   10047.2      0.04
 NH    10284
1
   02APR92      11:33:08                                                                                    PAGE    2

 X1     3180        99    9959.3   10047.2       570       680       744
 GR    724.3    7181.6     723.6    7242.4     723.2    7274.0     721.7    7393.1     720.6    7488.7
 GR    720.1    7552.7     719.5    7588.1     718.7    7574.9     718.2    7609.8     717.5    7764.1
 GR    717.7    7796.4     718.4    7844.6     718.9    7874.2     719.2    7889.7     718.6    7930.2
 GR    717.6    7940.1     715.9    7944.4     717.9    8018.8     717.6    8024.9     718.6    8122.4
 GR    718.3    8253.7     718.5    8276.2     719.0    8313.7     718.4    8344.9     718.3    8365.6
 GR    717.9    8372.0     718.6    8393.6     718.3    8430.4     718.6    8443.9     718.2    8458.3
 GR    718.1    8482.3     717.4    8494.7     718.3    8662.6     717.9    8681.3     718.9    8692.3
 GR    718.7    8713.6     718.2    8729.6     718.7    8735.6     719.0    8750.5     718.9    8768.1
 GR    718.0    8777.2     717.9    8787.7     717.2    8792.9     717.9    8808.2     718.0    8819.2
 GR    718.6    8831.9     718.7    8855.7     719.1    8862.2     717.9    8946.9     719.5    8977.8
 GR    720.1    9013.6     720.8    9054.2     721.3    9086.4     720.4    9114.1     720.2    9152.3
 GR    720.5    9241.3     721.2    9276.4     721.8    9308.0     721.0    9334.1     721.1    9410.3
 GR    720.6    9470.3     720.8    9503.9     720.2    9541.6     719.3    9572.1     719.4    9581.6
 GR    720.3    9598.9     719.3    9610.8     718.0    9626.9     716.5    9635.9     717.9    9645.4
 GR    717.2    9652.4     717.4    9665.9     717.7    9695.8     718.1    9723.5     718.2    9750.1
 GR    718.3    9771.1     718.9    9791.4     718.3    9813.3     718.4    9858.0     718.2    9891.4
 GR    718.1    9935.1     718.1    9959.3     714.1    9977.3     712.3    9987.0     710.6    9994.2
 GR    710.9   10000.0     710.2   10015.0     710.3   10017.7     713.9   10030.9     719.5   10047.2
 GR    720.5   10078.1     721.6   10132.6     722.4   10166.8     721.9   10181.1     720.9   10198.6
 GR    721.5   10209.8     722.3   10226.7     724.2   10255.6     725.9   10284.0

 NH        7      0.04    9952.5      0.06    9985.0      0.03   10035.8      0.06   10063.6      0.04
 NH    10369      0.03   10388.0      0.04   10589.6
 X1     3277        94    9952.5   10063.6       310       520       512
 X3       10
 GR    726.0    7201.5     725.7    7215.4     724.1    7632.1     720.6    7752.8     719.0    7951.6
 GR    718.9    8021.4     718.8    8036.2     718.9    8063.5     718.3    8086.9     719.4    8343.5
 GR    719.9    8374.0     719.8    8389.8     719.2    8412.7     719.1    8434.2     720.0    8475.7
 GR    720.7    8521.1     720.9    8562.8     720.5    8615.0     720.2    8639.4     719.9    8646.3
 GR    719.0    8654.0     721.1    8695.1     720.9    8721.7     721.2    8770.1     721.3    8784.2
 GR    720.0    8798.8     720.8    8812.3     721.5    8837.7     721.3    8863.5     720.4    8892.6
 GR    719.9    8912.7     718.8    8926.7     719.5    8939.0     718.7    8947.8     719.2    8977.9
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 719.6 | 9012.3 | 717.6 | 9123.8 | 720.1 | 9195.0 | 719.8 | 9263.0 | 721.2 | 9293.9 |
| GR | 722.0 | 9342.8 | 722.0 | 9385.9 | 722.8 | 9441.7 | 724.6 | 9488.9 | 724.7 | 9512.4 |
| GR | 723.9 | 9581.3 | 722.8 | 9608.7 | 722.0 | 9611.4 | 722.8 | 9621.9 | 722.8 | 9657.8 |
| GR | 722.4 | 9720.1 | 722.4 | 9750.7 | 720.0 | 9780.8 | 719.0 | 9797.4 | 718.9 | 9804.7 |
| GR | 718.9 | 9810.9 | 720.0 | 9819.5 | 720.1 | 9829.1 | 719.6 | 9839.7 | 719.7 | 9846.5 |
| GR | 720.5 | 9858.0 | 720.5 | 9871.4 | 720.8 | 9876.2 | 720.8 | 9892.0 | 719.9 | 9903.4 |
| GR | 718.5 | 9911.5 | 718.6 | 9916.2 | 719.8 | 9923.8 | 719.6 | 9930.3 | 720.5 | 9940.2 |
| GR | 720.9 | 9952.5 | 719.7 | 9966.0 | 719.2 | 9973.9 | 713.4 | 9985.0 | 713.3 | 10000.0 |
| GR | 713.8 | 10019.0 | 713.8 | 10035.8 | 722.4 | 10055.0 | 723.7 | 10063.6 | 723.3 | 10082.6 |
| GR | 722.6 | 10106.5 | 722.0 | 10138.8 | 721.1 | 10338.2 | 719.5 | 10353.5 | 716.3 | 10363.5 |
| GR | 713.9 | 10369.0 | 713.9 | 10388.0 | 718.9 | 10396.0 | 719.9 | 10408.6 | 719.5 | 10424.5 |
| GR | 719.6 | 10431.4 | 715.3 | 10439.9 | 717.2 | 10457.9 | 726.3 | 10589.8 | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NH | 5 | 0.04 | 9957.0 | 0.06 | 9969.3 | 0.03 | 10034.0 | 0.06 | 10100.9 | 0.04 |
| NH | 10357 | | | | | | | | | |
| X1 | 3372 | 56 | 9957 | 10100.9 | 330 | 520 | 502 | | | |
| GR | 727.5 | 7503.3 | 721.3 | 8065.5 | 720.2 | 8237.6 | 720.3 | 8274.8 | 720.5 | 8316.9 |
| GR | 721.7 | 8443.4 | 719.9 | 8452.0 | 721.0 | 8464.1 | 721.3 | 8480.7 | 721.1 | 8491.7 |
| GR | 719.8 | 8516.6 | 722.1 | 8523.7 | 720.9 | 8788.5 | 720.7 | 8806.7 | 722.4 | 8878.5 |
| GR | 722.7 | 8919.7 | 722.7 | 8968.3 | 721.0 | 9049.9 | 724.1 | 9099.5 | 723.8 | 9131.1 |
| GR | 723.6 | 9191.0 | 723.1 | 9254.4 | 722.9 | 9296.8 | 722.1 | 9329.1 | 722.2 | 9360.9 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 721.4 | 9395.0 | 722.0 | 9637.6 | 722.5 | 9686.9 | 720.0 | 9750.5 | 720.5 | 9762.2 |
| GR | 721.5 | 9770.5 | 722.7 | 9785.3 | 726.1 | 9794.3 | 726.4 | 9822.7 | 727.0 | 9847.0 |
| GR | 726.2 | 9891.5 | 725.4 | 9923.4 | 723.9 | 9957.0 | 719.3 | 9964.4 | 716.3 | 9969.3 |
| GR | 716.4 | 9998.3 | 716.2 | 10000.0 | 715.8 | 10024.7 | 715.9 | 10034.0 | 718.7 | 10045.5 |
| GR | 718.8 | 10058.8 | 722.7 | 10068.4 | 722.8 | 10084.4 | 723.8 | 10100.9 | 724.6 | 10159.0 |
| GR | 724.3 | 10184.1 | 724.4 | 10200.8 | 725.5 | 10239.9 | 725.7 | 10270.7 | 726.5 | 10303.1 |
| GR | 726.7 | 10357.0 | | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|
| NH | 5 | 0.04 | 9906.9 | 0.06 | 9960.5 | 0.03 | 10028.1 | 0.06 | 10039.0 | 0.04 |
| NH | 10448 | | | | | | | | | |
| X1 | 3470 | 83 | 9906.9 | 10039 | 420 | 240 | 517 | | | |
| GR | 728.4 | 7849.4 | 726.8 | 7914.7 | 726.2 | 8054.6 | 724.5 | 8167.5 | 723.0 | 8228.5 |
| GR | 723.0 | 8282.5 | 722.4 | 8303.7 | 722.0 | 8325.9 | 723.0 | 8334.2 | 724.2 | 8343.6 |
| GR | 723.7 | 8364.1 | 722.8 | 8389.5 | 723.1 | 8419.5 | 723.1 | 8476.7 | 723.8 | 8512.6 |
| GR | 725.5 | 8560.0 | 723.8 | 8577.3 | 721.7 | 8688.8 | 724.1 | 8695.9 | 724.0 | 8714.7 |
| GR | 724.0 | 8742.6 | 725.5 | 8771.3 | 725.8 | 8803.8 | 724.4 | 8830.7 | 724.3 | 8853.4 |
| GR | 724.6 | 8898.3 | 725.2 | 8945.7 | 725.5 | 8974.2 | 725.3 | 8998.6 | 724.8 | 9007.5 |
| GR | 722.9 | 9050.7 | 723.8 | 9119.2 | 724.2 | 9141.4 | 724.7 | 9189.2 | 723.6 | 9331.0 |
| GR | 724.4 | 9354.2 | 725.4 | 9385.3 | 724.9 | 9398.9 | 723.1 | 9409.2 | 722.5 | 9419.9 |
| GR | 722.6 | 9429.6 | 723.9 | 9444.0 | 724.9 | 9467.2 | 725.3 | 9508.6 | 724.9 | 9548.9 |
| GR | 725.2 | 9603.7 | 725.6 | 9634.8 | 725.0 | 9644.7 | 724.4 | 9652.0 | 725.0 | 9683.2 |
| GR | 724.0 | 9699.1 | 722.7 | 9717.9 | 722.3 | 9729.8 | 723.7 | 9739.6 | 724.0 | 9781.8 |
| GR | 724.2 | 9818.4 | 725.0 | 9850.0 | 724.6 | 9882.5 | 724.8 | 9906.9 | 723.9 | 9915.8 |
| GR | 723.7 | 9928.3 | 723.1 | 9942.3 | 722.4 | 9948.0 | 719.1 | 9960.5 | 719.6 | 9990.5 |
| GR | 719.4 | 10000.0 | 719.2 | 10028.1 | 724.2 | 10039.0 | 725.2 | 10045.5 | 725.0 | 10073.9 |
| GR | 723.7 | 10085.1 | 723.9 | 10100.4 | 724.2 | 10115.7 | 725.0 | 10134.6 | 725.9 | 10156.3 |
| GR | 725.8 | 10180.0 | 725.0 | 10210.1 | 723.9 | 10240.4 | 721.8 | 10282.8 | 723.3 | 10298.7 |
| GR | 726.5 | 10337.7 | 727.5 | 10381.3 | 728.3 | 10448.0 | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|
| NH | 5 | 0.04 | 9942.6 | 0.06 | 9963.2 | 0.03 | 10089.4 | 0.06 | 10098.8 | 0.04 |
| NH | 10578 | | | | | | | | | |
| X1 | 3563 | 80 | 9942.6 | 10098.8 | 480 | 500 | 491 | | | |
| GR | 729.3 | 8872.8 | 728.6 | 8903.5 | 728.6 | 8956.6 | 728.5 | 9007.3 | 728.3 | 9041.1 |
| GR | 727.4 | 9067.3 | 727.0 | 9102.3 | 727.6 | 9104.3 | 725.7 | 9162.3 | 726.3 | 9171.9 |
| GR | 726.6 | 9185.4 | 726.1 | 9211.6 | 726.0 | 9230.9 | 726.1 | 9247.2 | 727.1 | 9271.7 |
| GR | 727.3 | 9291.5 | 726.9 | 9316.8 | 726.5 | 9317.1 | 726.9 | 9357.6 | 726.7 | 9391.4 |
| GR | 726.9 | 9420.5 | 727.3 | 9439.8 | 726.6 | 9446.7 | 726.2 | 9459.2 | 726.2 | 9488.0 |
| GR | 726.4 | 9525.3 | 726.4 | 9549.6 | 725.5 | 9559.5 | 724.9 | 9570.4 | 726.4 | 9582.8 |
| GR | 726.9 | 9596.6 | 727.0 | 9617.4 | 727.9 | 9639.4 | 727.3 | 9661.9 | 727.0 | 9687.0 |
| GR | 726.6 | 9717.9 | 725.9 | 9730.0 | 726.1 | 9762.0 | 727.4 | 9797.1 | 727.5 | 9804.6 |
| GR | 726.5 | 9813.1 | 727.8 | 9842.1 | 726.9 | 9848.7 | 729.2 | 9888.0 | 726.9 | 9891.3 |
| GR | 729.4 | 9897.3 | 725.4 | 9913.6 | 725.4 | 9934.2 | 727.5 | 9942.6 | 724.4 | 9956.9 |
| GR | 721.8 | 9963.2 | 722.7 | 9979.5 | 722.3 | 9991.6 | 722.5 | 10011.1 | 722.2 | 10026.0 |
| GR | 722.6 | 10041.6 | 723.0 | 10051.3 | 722.3 | 10065.3 | 721.8 | 10089.4 | 726.3 | 10098.8 |
| GR | 726.8 | 10115.7 | 725.8 | 10136.2 | 725.6 | 10147.8 | 727.3 | 10166.3 | 728.0 | 10194.1 |
| GR | 728.2 | 10234.4 | 728.1 | 10278.5 | 727.5 | 10306.4 | 727.1 | 10323.7 | 726.9 | 10331.1 |
| GR | 726.2 | 10339.8 | 725.9 | 10354.4 | 725.3 | 10363.1 | 725.2 | 10370.8 | 726.0 | 10381.5 |
| GR | 727.1 | 10400.5 | 728.2 | 10460.8 | 728.9 | 10494.2 | 729.0 | 10528.7 | 729.2 | 10578.0 |

PAPAGO STREET IS AT RM 3.598 (LOW CROSSING, NO STRUCTURE)

1

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NH | 5 | 0.04 | 9920.6 | 0.06 | 9937.9 | 0.03 | 10032.2 | 0.06 | 10045.2 | 0.04 |
| NH | 10657 | | | | | | | | | |
| X1 | 3657 | 78 | 9920.6 | 10045.2 | 490 | 530 | 496 | | | |
| GR | 735.3 | 8729.9 | 733.0 | 8733.5 | 733.1 | 8753.1 | 733.2 | 8814.3 | 733.8 | 8848.2 |
| GR | 733.7 | 8883.6 | 732.9 | 8914.4 | 732.5 | 8959.7 | 732.0 | 8991.6 | 731.3 | 9004.3 |
| GR | 731.6 | 9016.5 | 730.9 | 9031.7 | 732.0 | 9055.8 | 732.9 | 9074.5 | 733.0 | 9104.8 |
| GR | 732.8 | 9145.9 | 733.1 | 9172.2 | 732.7 | 9187.0 | 732.6 | 9193.6 | 732.5 | 9197.6 |
| GR | 731.9 | 9201.1 | 728.8 | 9211.3 | 728.5 | 9219.3 | 728.5 | 9236.4 | 730.2 | 9240.9 |
| GR | 730.2 | 9262.9 | 730.4 | 9297.5 | 731.1 | 9346.8 | 731.6 | 9396.1 | 731.1 | 9405.9 |
| GR | 731.0 | 9430.5 | 731.4 | 9445.2 | 732.1 | 9489.6 | 732.8 | 9545.4 | 732.8 | 9587.2 |
| GR | 733.3 | 9655.0 | 733.0 | 9698.8 | 733.0 | 9762.9 | 732.2 | 9789.7 | 731.8 | 9828.3 |
| GR | 731.5 | 9861.8 | 731.4 | 9899.2 | 731.5 | 9920.6 | 724.1 | 9937.9 | 724.6 | 9961.3 |
| GR | 724.9 | 9976.2 | 724.5 | 9993.8 | 724.5 | 10000.0 | 724.4 | 10032.2 | 731.4 | 10045.2 |
| GR | 730.7 | 10054.8 | 730.6 | 10074.1 | 731.1 | 10085.7 | 732.3 | 10093.6 | 729.2 | 10105.6 |
| GR | 729.5 | 10125.3 | 729.5 | 10149.6 | 731.9 | 10160.2 | 732.5 | 10165.9 | 729.5 | 10178.0 |
| GR | 731.0 | 10219.0 | 730.5 | 10230.8 | 730.5 | 10273.3 | 731.3 | 10284.2 | 731.2 | 10330.9 |
| GR | 730.7 | 10345.3 | 730.3 | 10374.0 | 730.0 | 10460.6 | 730.5 | 10539.9 | 730.1 | 10564.4 |
| GR | 730.0 | 10588.9 | 730.0 | 10594.5 | 730.3 | 10600.3 | 731.8 | 10606.2 | 732.7 | 10609.9 |
| GR | 732.7 | 10615.4 | 732.8 | 10638.6 | 733.1 | 10657.0 | | | | |

PIMA STREET (US ROUTE 80) SPECIAL CULVERT MODEL (CENTERLINE STRUCTURE IS AT RM 3.684)

THE SAND TANK WASH CULVERT WAS FIRST BUILT AS A 6-BARREL BOX (8'H*16.8W) AT A LATER DATE, TWIN 8'H*12'W BARRELS WERE ADDED WITH 25' OF EMBANKMENT BETWEEN THE NEW AND OLD STRUCTURES.

| | SAND L | SAND R | MODEL |
|---|---|---|---|
| ELCHU | 723.1 | 723.2 | 723.2 |
| ELCHD | 723.1 | 723.1 | 723.1 |
| RISE | 8 | 8 | 8 |

```
NO. BOXES      2          6          8
WIDTH         12       16.8       15.6

INCREASE EXPANSION/CONTRACTION COEFFICIENTS, KEEP HIGH UNTIL
A POINT UPSTREAM OF THE GILA BEND CANAL.

REPEAT SECTION 3657 AT THE DOWNSTREAM FACE OF THE CULVERTS.  USE
PSXECE = 100 FT * 0.0048 FT/FT

REPEAT GR CARDS SO THAT THE CHANNEL BOTTOMS CAN BE MADE TO
CONFORM TO INVERTS OF THE CULVERT OPENINGS.

NC                                  0.3       0.5
NH       5      0.04     9920.6     0.06    9937.9      0.03   10032.2      0.06   10045.2      0.04
NH   10657
1
   02APR92      11:33:08                                                                          PAGE    5

X1    3676        75     9920.6   10045.2       100       100       100                  0.5
X3      10
GR   735.3    8729.9      733.0    8733.5     733.1    8753.1     733.2    8814.3     733.8    8848.2
GR   733.7    8883.6      732.9    8914.4     732.5    8959.7     732.0    8991.6     731.3    9004.3
GR   731.6    9016.5      730.9    9031.7     732.0    9055.8     732.9    9074.5     733.0    9104.8
GR   732.8    9145.9      733.1    9172.2     732.7    9187.0     732.6    9193.6     732.5    9197.6
GR   731.9    9201.1      728.8    9211.3     728.5    9219.3     728.5    9236.4     730.2    9240.9
GR   730.2    9262.9      730.4    9297.5     731.1    9346.8     731.6    9396.1     731.1    9405.9
GR   731.0    9430.5      731.4    9445.2     732.1    9489.6     732.8    9545.4     732.8    9587.2
GR   733.3    9655.0      733.0    9698.8     733.0    9762.9     732.2    9789.7     731.8    9828.3
GR   731.5    9861.8      731.4    9899.2     731.5    9920.6     722.6    9937.9     722.6   10000.0
GR   722.6   10032.2      731.4   10045.2     730.7   10054.8     730.6   10074.1     731.1   10085.7
GR   732.3   10093.6      729.2   10105.6     729.5   10125.3     729.5   10149.6     731.9   10160.2
GR   732.5   10165.9      729.5   10178.0     731.0   10219.0     730.5   10230.8     730.5   10273.3
GR   731.3   10284.2      731.2   10330.9     730.7   10345.3     730.3   10374.0     730.0   10460.6
GR   730.5   10539.9      730.1   10564.4     730.0   10588.9     730.0   10594.5     730.3   10600.3
GR   731.8   10606.2      732.7   10609.9     732.7   10615.4     732.8   10638.6     733.1   10657.0

      USE PSXECE = 723.2 - 723.1 + 0.5 = 0.6 FT

NH       9      0.04     9920.6     0.06    9937.9      0.03   10032.2      0.06   10045.2      0.04
NH   10701      0.06    10716.2    0.035   10770.6      0.06   10785.4      0.04   11234.0
SC   8.014       0.4          3        0         8      15.6        80       8.1    723.2     723.1
X1    3693        75     9920.6   10045.2        90        90        90                  0.6

      ELTRD = 732.2 + 0.6 HV =   732.8

X2                            2     732.8
X3      10
BT     -10    8729.9      734.3    9016.5     732.9                 732.2    9236.4     733.9
BT            9430.5      732.2    9655.0     732.5                 732.3    9828.3     732.2
BT            9920.6      733.9   10000.0     733.9                 733.6   10460.6     733.6
BT           10657.1      735.4                                     734.7

      REPEAT GR CARDS SO THAT THE CHANNEL BOTTOMS CAN BE MADE TO
      CONFORM TO INVERTS OF THE CULVERT OPENINGS.

GR   735.3    8729.9      733.0    8733.5     733.1    8753.1     733.2    8814.3     733.8    8848.2
GR   733.7    8883.6      732.9    8914.4     732.5    8959.7     732.0    8991.6     731.3    9004.3
GR   731.6    9016.5      730.9    9031.7     732.0    9055.8     732.9    9074.5     733.0    9104.8
GR   732.8    9145.9      733.1    9172.2     732.7    9187.0     732.6    9193.6     732.5    9197.6
GR   731.9    9201.1      728.8    9211.3     728.5    9219.3     728.5    9236.4     730.2    9240.9
GR   730.2    9262.9      730.4    9297.5     731.1    9346.8     731.6    9396.1     731.1    9405.9
GR   731.0    9430.5      731.4    9445.2     732.1    9489.6     732.8    9545.4     732.8    9587.2
GR   733.3    9655.0      733.0    9698.8     733.0    9762.9     732.2    9789.7     731.8    9828.3
GR   731.5    9861.8      731.4    9899.2     731.5    9920.6     722.6    9937.9     722.6   10000.0
GR   722.6   10032.2      731.4   10045.2     730.7   10054.8     730.6   10074.1     731.1   10085.7
GR   732.3   10093.6      729.2   10105.6     729.5   10125.3     729.5   10149.6     731.9   10160.2
GR   732.5   10165.9      729.5   10178.0     731.0   10219.0     730.5   10230.8     730.5   10273.3
GR   731.3   10284.2      731.2   10330.9     730.7   10345.3     730.3   10374.0     730.0   10460.6
GR   730.5   10539.9      730.1   10564.4     730.0   10588.9     730.0   10594.5     730.3   10600.3
GR   731.8   10606.2      732.7   10609.9     732.7   10615.4     732.8   10638.6     733.1   10657.1
1
   02APR92      11:33:08                                                                          PAGE    6

NH       8      0.06     9917.9    0.025   10045.2      0.06   10116.8     0.035   10819.5      0.05
NH   10880      0.03    10902.6     0.05   10917.6     0.035   11371.5
X1    3747        94     9917.9   10116.8       285       285       285
X3      10
GR   737.9    8808.5      737.7    8928.3     737.6    8978.8     737.5    9001.6     737.4    9033.4
GR   737.6    9070.4      737.3    9100.9     737.5    9135.6     737.4    9166.7     737.1    9202.9
GR   736.8    9219.5      736.5    9250.3     735.8    9290.0     735.2    9323.6     734.8    9350.1
GR   735.2    9379.6      735.6    9398.3     736.5    9424.5     736.5    9458.3     736.7    9495.3
GR   735.9    9522.0      735.2    9538.5     734.2    9565.2     732.4    9585.3     732.0    9601.8
GR   730.9    9621.1      730.6    9645.5     729.9    9661.1     730.2    9665.9     730.7    9694.2
GR   730.8    9743.3      730.9    9792.3     731.4    9808.9     731.9    9828.0     731.9    9849.1
GR   731.9    9872.3      731.4    9888.4     731.8    9896.3     735.0    9909.6     736.7    9917.9
GR   736.3    9923.0      730.2    9932.6     727.3    9943.4     727.0    9946.4     727.5    9985.5
GR   727.6   10000.0      727.3   10045.2     735.3   10098.9     735.8   10116.8     732.2   10127.2
GR   732.5   10151.6      732.5   10188.2     732.5   10205.4     733.1   10237.8     732.8   10303.2
GR   732.8   10351.8      732.1   10381.3     732.3   10407.4     732.2   10428.8     733.5   10453.1
GR   733.8   10486.4      734.3   10530.1     733.7   10544.0     732.3   10550.0     732.4   10575.4
GR   732.1   10603.1      731.3   10615.3     731.5   10641.0     732.0   10671.4     731.2   10687.4
GR   730.4   10706.3      731.5   10717.8     731.4   10727.8     731.2   10746.5     730.6   10819.5
GR   729.8   10874.5      728.6   10880.0     728.0   10897.2     728.0   10902.6     734.5   10917.6
GR   734.5   10972.1      735.8   11005.5     735.6   11043.3     735.4   11095.5     735.8   11134.5
GR   736.5   11172.3      736.8   11214.4     735.9   11227.4     736.4   11242.8     736.6   11282.5
GR   737.1   11317.7      737.1   11339.8     738.0   11359.2     738.4   11371.5
1
   02APR92      11:33:08                                                                          PAGE    7

   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 1

CCHV=    0.100 CEHV=    0.300
```

```
1490 NH CARD USED
*SECNO 3180.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

  3180.000      8.79    718.99      0.00      0.00    719.30      0.31      0.00      0.00    718.10
    6000.0    3063.0    2937.0       0.0    1442.6     489.0       0.0       0.0       0.0    719.50
      0.00      2.12      6.01      0.00     0.040     0.043     0.000     0.000    710.20   7568.83
  0.003066      570.      744.      680.         0         0         5      0.00   1791.47  10045.71

1490 NH CARD USED
*SECNO 3277.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE. ELLEA=       720.90 ELREA=       723.70

  3277.000      7.62    720.92    720.92      0.00    721.02      0.09      0.76      0.02    720.90
    6000.0    4290.0    1710.0       0.0    2200.5     501.4       0.0      18.8      12.8    723.70
      0.05      1.95      3.41      0.00     0.040     0.046     0.000     0.000    713.30   7741.63
  0.001357      310.      512.      520.         3        24         0      0.00   1680.11  10051.71

1490 NH CARD USED
*SECNO 3372.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  3372.000      6.09    721.89    721.89      0.00    722.46      0.56      1.01      0.14    723.90
    6000.0    2297.9    3702.1       0.0     838.8     503.9       0.0      36.1      24.3    723.80
      0.07      2.74      7.35      0.00     0.040     0.043     0.000     0.000    715.80   8011.68
  0.005958      330.      502.      520.        20        13         0      0.00   1256.18  10066.42

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   02APR92      11:33:08                                                                          PAGE    8

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

1490 NH CARD USED
*SECNO 3470.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

  3470.000      5.46    724.56      0.00      0.00    724.79      0.23      2.30      0.03    724.80
    6000.0    3247.1    2313.5     439.4    1124.2     469.5     145.1      51.7      37.2    724.20
      0.10      2.89      4.93      3.03     0.040     0.046     0.040     0.000    719.10   8163.34
  0.004223      420.      517.      240.         3         0         0      0.00   1417.55  10314.09

1490 NH CARD USED
*SECNO 3563.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  3563.000      5.14    726.94    726.94      0.00    727.72      0.78      2.33      0.17    727.50
    6000.0     760.5    4951.8     287.6     321.5     641.6     106.4      67.4      49.7    726.30
      0.12      2.37      7.72      2.70     0.040     0.037     0.040     0.000    721.80   9124.58
  0.005438      480.      491.      500.         2         8         0      0.00    834.33  10397.66

1490 NH CARD USED
*SECNO 3657.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

  3657.000      5.64    729.74    729.56      0.00    731.42      1.69      3.43      0.27    731.50
    6000.0     126.7    5849.7      23.7      33.3     555.2      14.9      76.9      55.6    731.40
      0.13      3.81     10.54      1.59     0.040     0.037     0.040     0.000    724.10   9208.22
  0.009095      490.      496.      530.         4         8         0      0.00    203.35  10184.45

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=     0.300 CEHV=     0.500
1490 NH CARD USED
*SECNO 3676.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
```

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.03

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 732.00 ELREA= 731.90

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3676.000 | 8.34 | 731.44 | 0.00 | 0.00 | 732.12 | 0.68 | 0.40 | 0.30 | 732.00 |
| 6000.0 | 0.0 | 6000.0 | 0.0 | 0.0 | 904.8 | 0.0 | 78.7 | 56.0 | 731.90 |
| 0.14 | 0.00 | 6.63 | 0.00 | 0.000 | 0.039 | 0.000 | 0.000 | 723.10 | 9921.70 |
| 0.002204 | 100. | 100. | 100. | 3 | 0 | 0 | 0.00 | 122.81 | 10044.51 |

1490 NH CARD USED

SPECIAL CULVERT

| SC | CUNO | CUNV | ENTLC | COFQ | RDLEN | RISE | SPAN | CULVLN | CHRT | SCL | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8 | 0.014 | 0.40 | 3.00 | 0.00 | 8.00 | 15.60 | 80.00 | 8 | 1 | 723.20 | 723.10 |

CHART 8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE 1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 3693.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

SPECIAL CULVERT OUTLET CONTROL
EGIC = 729.871 EGOC = 732.290 PCWSE= 731.435 ELTRD= 732.800

SPECIAL CULVERT

| EGIC | EGOC | H4 | QWEIR | QCULV | VCH | ACULV | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|
| 729.87 | 732.29 | 0.17 | 0. | 6000. | 6.550 | 998.4 | 732.80 | 0. |

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 732.20 ELREA= 733.90

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3693.000 | 8.42 | 731.62 | 0.00 | 0.00 | 732.29 | 0.67 | 0.17 | 0.00 | 732.10 |
| 6000.0 | 0.0 | 6000.0 | 0.0 | 0.0 | 916.0 | 0.0 | 80.6 | 56.2 | 732.00 |
| 0.14 | 0.00 | 6.55 | 0.00 | 0.000 | 0.039 | 0.000 | 0.000 | 723.20 | 9921.52 |
| 0.002130 | 90. | 90. | 90. | 4 | 0 | 0 | 0.00 | 123.13 | 10044.65 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

1490 NH CARD USED
*SECNO 3747.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.65

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 736.70 ELREA= 735.80

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3747.000 | 5.04 | 732.04 | 0.00 | 0.00 | 733.65 | 1.61 | 0.89 | 0.47 | 736.70 |
| 6000.0 | 0.0 | 6000.0 | 0.0 | 0.0 | 588.7 | 0.0 | 85.5 | 57.1 | 735.80 |
| 0.15 | 0.00 | 10.19 | 0.00 | 0.000 | 0.026 | 0.000 | 0.000 | 727.00 | 9929.14 |
| 0.004972 | 285. | 285. | 285. | 2 | 0 | 0 | 0.00 | 147.88 | 10077.02 |

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T1 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2 GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3 SAND TANK WASH @ PIMA ST J. MISCHLER - (602) 244-8100

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 3 | | | 0.0031 | | | | | |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2 | | -1 | | | | | | | |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 2

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 3180.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3180.000 | 9.58 | 719.78 | 0.00 | 0.00 | 720.07 | 0.29 | 0.00 | 0.00 | 718.10 |
| 12000.0 | 8391.2 | 3608.2 | 0.7 | 2841.9 | 558.0 | 1.2 | 0.0 | 0.0 | 719.80 |
| 0.00 | 2.95 | 6.47 | 0.55 | 0.040 | 0.043 | 0.040 | 0.000 | 710.20 | 7555.60 |
| 0.003098 | 570. | 744. | 580. | 0 | 0 | 6 | 0.00 | 1922.43 | 10055.79 |

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1490 NH CARD USED
*SECNO 3277.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      720.90 ELREA=      723.70

  3277.000      7.79    721.09      0.00      0.00    721.39      0.30      1.32      0.00    720.90
   12000.0    8837.5    3162.5       0.0    2462.8     517.6       0.0      25.2      13.5    723.70
      0.02      3.59      6.11      0.00     0.040     0.046     0.000     0.000    713.30   7736.04
  0.004208      310.      512.      520.         2         0         0      0.00   1755.49  10052.07

1490 NH CARD USED
*SECNO 3372.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

  3372.000      7.04    722.84      0.00      0.00    723.20      0.36      1.80      0.02    723.90
   12000.0    8008.7    3991.3       0.0    2196.6     607.8       0.0      49.3      27.3    723.80
      0.05      3.65      6.57      0.00     0.040     0.046     0.000     0.000    715.80   7925.76
  0.005304      330.      502.      520.         3         0         0      0.00   1766.47  10085.08

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA   R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL        XNCH     XNR       WTN       ELMIN   SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT     CORAR     TOPWID  ENDST

1490 NH CARD USED
*SECNO 3470.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

  3470.000      6.12    725.22      0.00      0.00    725.53      0.32      2.33      0.00    724.80
   12000.0    7667.5    3345.0     987.5    2024.0     555.4     257.3      77.3      45.1    724.20
      0.07      3.79      6.02      3.84     0.040     0.046     0.040     0.000    719.10   8120.03
  0.005226      420.      517.      240.         3         0         0      0.00   1962.14  10322.04

1490 NH CARD USED
*SECNO 3563.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  3563.000      6.12    727.92    727.92      0.00    728.74      0.82      2.66      0.15    727.50
   12000.0    3790.8    7109.4    1099.8    1061.9     795.1     288.7     105.0      63.1    726.30
      0.09      3.57      8.94      3.81     0.040     0.037     0.040     0.000    721.80   9052.06
  0.005747      480.      491.      500.         1         5         0      0.00   1264.74  10445.64

1490 NH CARD USED
*SECNO 3657.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  3657.000      7.79    731.89    731.89      0.00    732.84      0.95      2.71      0.04    731.50
   12000.0    1343.7    7672.8    2983.6     394.7     817.8     818.7     129.2      76.8    731.40
      0.11      3.40      9.38      3.64     0.040     0.039     0.040     0.000    724.10   8993.53
  0.005097      490.      496.      530.         2        12         0      0.00   1110.24  10606.58

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   02APR92      11:33:08                                                                          PAGE   14

    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA   R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL        XNCH     XNR       WTN       ELMIN   SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT     CORAR     TOPWID  ENDST

CCHV=    0.300 CEHV=    0.500
1490 NH CARD USED
*SECNO 3676.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

  3676.000      9.48    732.58      0.00      0.00    733.27      0.69      0.36      0.08    732.00
   12000.0    1208.6    8210.6    2580.8     479.4    1046.9     921.0     134.3      79.4    731.90
      0.12      2.52      7.84      2.80     0.040     0.039     0.040     0.000    723.10   8986.54
  0.002643      100.      100.      100.         3         0         0      0.00   1157.12  10607.35

1490 NH CARD USED

SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     8        0.014     0.40      3.00      0.00      8.00      15.60     80.00     8         1         723.20    723.10

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 3693.000
```

1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG = 733.94

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

SPECIAL CULVERT

| EGIC | EGOC | H4 | QWEIR | QCULV | VCH | ACULV | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|
| 735.24 | 736.00 | 0.66 | 4443. | 7543. | 10.398 | 998.4 | 732.80 | 1216. |

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 732.20 ELREA= 733.90

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3693.000 | 9.31 | 732.51 | 732.51 | 0.00 | 734.02 | 1.51 | 0.31 | -0.31 | 732.10 |
| 12000.0 | 1330.3 | 10669.7 | 0.0 | 402.9 | 1026.2 | 0.0 | 138.3 | 81.2 | 732.00 |
| 0.12 | 3.30 | 10.40 | 0.00 | 0.040 | 0.039 | 0.000 | 0.000 | 723.20 | 8993.19 |
| 0.004772 | 90. | 90. | 90. | 20 | 6 | 0 | 0.00 | 565.13 | 10048.20 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

1490 NH CARD USED
*SECNO 3747.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 736.70 ELREA= 735.80

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3747.000 | 8.89 | 735.89 | 735.89 | 0.00 | 736.04 | 0.15 | 0.30 | 0.41 | 736.70 |
| 12000.0 | 0.0 | 5055.8 | 6944.2 | 0.0 | 1226.5 | 3208.2 | 167.5 | 87.0 | 735.80 |
| 0.16 | 0.00 | 4.12 | 2.16 | 0.000 | 0.026 | 0.036 | 0.000 | 727.00 | 9920.86 |
| 0.000441 | 285. | 285. | 285. | 3 | 13 | 0 | 0.00 | 1218.38 | 11139.24 |

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T1 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2 GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3 SAND TANK WASH @ PIMA ST J. MISCHLER - (602) 244-8100

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 4 | | | 0.0031 | | | | | |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3 | | -1 | | | | | | | |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 3

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 3180.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3180.000 | 9.98 | 720.18 | 0.00 | 0.00 | 720.49 | 0.30 | 0.00 | 0.00 | 718.10 |
| 16000.0 | 12008.1 | 3984.6 | 7.2 | 3590.2 | 593.5 | 7.2 | 0.0 | 0.0 | 719.50 |
| 0.00 | 3.34 | 6.71 | 1.00 | 0.040 | 0.043 | 0.040 | 0.000 | 710.20 | 7542.25 |
| 0.003077 | 570. | 744. | 680. | 0 | 0 | 6 | 0.00 | 1998.43 | 10068.26 |

1490 NH CARD USED
*SECNO 3277.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 720.90 ELREA= 723.70

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3277.000 | 8.16 | 721.46 | 0.00 | 0.00 | 721.80 | 0.34 | 1.30 | 0.01 | 720.90 |
| 16000.0 | 12423.4 | 3576.6 | 0.0 | 3098.4 | 554.6 | 0.0 | 30.6 | 14.3 | 723.70 |
| 0.02 | 4.01 | 6.45 | 0.00 | 0.040 | 0.047 | 0.000 | 0.000 | 713.30 | 7723.26 |
| 0.004348 | 310. | 512. | 520. | 2 | 0 | 0 | 0.00 | 1869.52 | 10052.89 |

1490 NH CARD USED
*SECNO 3372.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

```
3265 DIVIDED FLOW

  3372.000      7.42    723.22      0.00      0.00    723.60      0.38      1.79      0.01    723.90
   16000.0   11662.8    4337.2       0.0    2834.6     656.8       0.0      60.0      28.9    723.80
      0.04      4.11      6.60      0.00     0.040     0.047     0.000     0.000    715.80   7891.52
  0.005356      330.      502.      520.         1         0         0      0.00   1874.40  10091.31

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   02APR92      11:33:08                                                                          PAGE   18

    SECNO      DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA   R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL        XNCH     XNR        WTN       ELMIN   SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT      CORAR     TOPWID  ENDST

1490 NH CARD USED
*SECNO 3470.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

  3470.000      6.47    725.57      0.00      0.00    725.92      0.35      2.31      0.00    724.80
   16000.0   10784.6    3829.3    1386.1    2623.0     601.8     339.5      94.8      48.1    724.20
      0.07      4.11      6.36      4.08     0.040     0.046     0.040     0.000    719.10   8096.68
  0.005240      420.      517.      240.         3         0         0      0.00   2156.13  10326.32

1490 NH CARD USED
*SECNO 3563.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  3563.000      6.54    728.34    728.34      0.00    729.21      0.87      2.72      0.16    727.50
   16000.0    5999.3    8269.3    1731.4    1421.7     859.8     419.1     129.6      67.9    726.30
      0.09      4.22      9.62      4.13     0.040     0.037     0.040     0.000    721.80   9034.73
  0.005990      480.      491.      500.         1         5         0      0.00   1409.79  10467.37

1490 NH CARD USED
*SECNO 3657.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  3657.000      8.29    732.39    732.39      0.00    733.37      0.97      2.81      0.03    731.50
   16000.0    2420.7    8797.7    4781.6     641.4     880.1    1096.3     160.4      83.3    731.40
      0.11      3.77     10.00      4.36     0.040     0.039     0.040     0.000    724.10   8966.52
  0.005248      490.      496.      530.         3        12         0      0.00   1236.16  10608.64

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   02APR92      11:33:08                                                                          PAGE   19

    SECNO      DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA   R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL        XNCH     XNR        WTN       ELMIN   SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT      CORAR     TOPWID  ENDST

CCHV=    0.300 CEHV=    0.500
1490 NH CARD USED
*SECNO 3676.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

  3676.000      9.82    732.92      0.00      0.00    733.81      0.89      0.42      0.02    732.00
   16000.0    2016.0   10026.2    3957.8     655.1    1089.1    1110.2     166.6      86.1    731.90
      0.11      3.08      9.21      3.56     0.040     0.039     0.040     0.000    723.10   8964.94
  0.003455      100.      100.      100.         0         0         0      0.00   1241.64  10608.74

1490 NH CARD USED

SPECIAL CULVERT

SC  CUNO      CUNV     ENTLC     COFQ     RDLEN     RISE     SPAN    CULVLN    CHRT     SCL     ELCHU     ELCHD
     8        0.014     0.40     3.00      0.00     8.00    15.60     80.00     8        1      723.20    723.10

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 3693.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =    734.07

3265 DIVIDED FLOW

3280 CROSS SECTION   3693.00 EXTENDED      0.31 FEET

SPECIAL CULVERT

    EGIC      EGOC       H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
  739.56    739.00     0.26     5172.    10782.     6.378     998.4    732.80     1320.

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF
  3693.000     10.81    734.01      0.00      0.00    734.37      0.36      0.00      0.00    732.10
   16000.0    3308.2    7735.4    4956.4    1469.0    1212.8    1698.3     174.1      89.3    732.00
      0.12      2.25      6.38      2.92     0.040     0.039     0.040     0.000    723.20   8732.86
```

```
  0.001437      90.      90.      90.       20        0        0     0.00  1855.69  10657.10

1490 NH CARD USED
*SECNO 3747.000
1
   02APR92      11:33:08                                                                          PAGE   20

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       736.70 ELREA=       735.80

  3747.000      9.06    736.06    736.06      0.00    736.31      0.24      0.28      0.04    736.70
   16000.0       0.0    6588.8    9411.2       0.0    1261.2    3390.7     203.7      99.4    735.80
      0.14      0.00      5.22      2.78     0.000     0.026     0.036     0.000    727.00   9920.21
  0.000696      285.      285.      285.        20        12         0      0.00   1236.05  11232.48

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   02APR92      11:33:08                                                                          PAGE   21

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SAND TANK WASH @ PIMA ST                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 5                         0.0031

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4                   -1

1
   02APR92      11:33:08                                                                          PAGE   22

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 3180.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

  3180.000     10.32    720.52      0.00      0.00    720.85      0.33      0.00      0.00    718.10
   20000.0   15635.2    4343.3      21.6    4271.0     623.3      16.1       0.0       0.0    719.50
      0.00      3.66      6.97      1.34     0.040     0.043     0.040     0.000    710.20   7498.79
  0.003104      570.      744.      680.         0         0         7      0.00   2228.96  10079.15

1490 NH CARD USED
*SECNO 3277.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       720.90 ELREA=       723.70

  3277.000      8.48    721.78      0.00      0.00    722.16      0.38      1.29      0.01    720.90
   20000.0   16062.6    3937.4       0.0    3678.8     587.2       0.0      35.5      15.3    723.70
      0.02      4.37      6.71      0.00     0.040     0.047     0.000     0.000    713.30   7712.10
  0.004421      310.      512.      520.         2         0         0      0.00   1912.42  10053.62

1490 NH CARD USED
*SECNO 3372.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

  3372.000      7.75    723.55      0.00      0.00    723.95      0.40      1.79      0.01    723.90
   20000.0   15344.2    4655.8       0.0    3407.8     700.7       0.0      69.8      30.4    723.80
      0.04      4.50      6.64      0.00     0.040     0.048     0.000     0.000    715.80   7862.31
  0.006397      330.      502.      520.         1         0         0      0.00   1956.30  10096.62

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   02APR92      11:33:08                                                                          PAGE   23

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 3470.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW
```

```
3470.000      6.77    725.87      0.00      0.00    726.25      0.38      2.30      0.00    724.80
 20000.0   13955.6    4247.2    1797.2    3171.9     641.9     418.3     110.6      50.4    724.20
    0.07      4.40      6.62      4.30     0.040     0.046     0.040     0.000    719.10   8076.53
0.005199      420.      517.      240.         3         0         0      0.00   2245.60  10330.02

1490 NH CARD USED
*SECNO 3563.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
3563.000      6.88    728.68    728.68      0.00    729.61      0.93      2.75      0.17    727.50
 20000.0    8238.0    9303.1    2458.9    1743.0     913.1     547.5     152.0      71.6    726.30
    0.08      4.73     10.19      4.49     0.040     0.037     0.040     0.000    721.80   8900.04
0.006205      480.      491.      500.         1         5         0      0.00   1569.27  10483.64

1490 NH CARD USED
*SECNO 3657.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
3657.000      8.63    732.73    732.73      0.00    733.81      1.08      3.00      0.04    731.50
 20000.0    3561.6    9965.6    6472.9     842.0     922.3    1287.9     188.1      88.4    731.40
    0.10      4.23     10.80      5.03     0.040     0.039     0.040     0.000    724.10   8933.39
0.005759      490.      496.      530.         3        11         0      0.00   1342.84  10622.89

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  02APR92      11:33:08                                                                          PAGE   24

   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CCHV=    0.300 CEHV=    0.500
1490 NH CARD USED
*SECNO 3676.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3676.000     10.33    733.43      0.00      0.00    734.31      0.88      0.44      0.06    732.00
 20000.0    3290.6   11004.4    5705.0     976.8    1152.0    1400.7     195.7      91.7    731.90
    0.11      3.37      9.55      4.07     0.040     0.039     0.040     0.000    723.10   8913.53
0.003452      100.      100.      100.         3         0         0      0.00   1509.40  10646.12

1490 NH CARD USED

SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     8        0.014     0.40      3.00      0.00      8.00      15.60     80.00     8         1         723.20    723.10

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

5130, EGIC=  745.12..MAY BE TOO LARGE IF INLET CONTROLS.
*SECNO 3693.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =    734.58

3265 DIVIDED FLOW

3280 CROSS SECTION   3693.00 EXTENDED      0.33 FEET

SPECIAL CULVERT

   EGIC       EGOC       H4         QWEIR      QCULV      VCH        ACULV      ELTRD      WEIRLN
  745.12     742.93      0.27       8720.      11274.     7.903      998.4      732.80      1664.

3693.000     10.83    734.03      0.00      0.00    734.58      0.55      0.27      0.00    732.10
 20000.0    4178.6    9608.2    6213.2    1495.4    1215.7    1712.7     203.9      95.2    732.00
    0.11      2.79      7.90      3.63     0.040     0.039     0.040     0.000    723.20   8732.82
0.002199       90.       90.       90.         3         0         0      0.00   1857.97  10657.10

1490 NH CARD USED
*SECNO 3747.000

3265 DIVIDED FLOW

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  02APR92      11:33:08                                                                          PAGE   25

   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      736.70 ELREA=      735.80

3747.000      9.08    736.08    736.08      0.00    736.46      0.38      0.42      0.05    736.70
```

```
   20000.0       0.0    8219.1   11780.9       0.0    1264.4    3407.6     233.7     105.3    735.80
      0.13      0.00      6.50      3.46     0.000     0.026     0.036     0.000    727.00   9920.15
  0.001076      285.      285.      285.        20        12         0      0.00   1237.72  11232.98

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   02APR92      11:33:08                                                                          PAGE   26

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SAND TANK WASH @ PIMA ST                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS     Q        WSEL     FQ

                6                       0.0031

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH     FN       ALLDC    IBW      CHNIM    ITRACE

     15              -1

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 3180.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

  3180.000     10.62    720.82      0.00      0.00    721.17      0.35      0.00      0.00    718.10
   24000.0   19287.8    4664.1      48.1    4932.9     650.0      28.1       0.0       0.0    719.50
      0.00      3.91      7.18      1.71     0.040     0.043     0.040     0.000    710.20   7469.15
  0.003112      570.      744.      680.         0         0         7      0.00   2394.10  10094.20

1490 NH CARD USED
*SECNO 3277.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       720.90 ELREA=       723.70

  3277.000      8.77    722.07      0.00      0.00    722.48      0.41      1.29      0.02    720.90
   24000.0   19725.5    4274.5       0.0    4206.0     616.3       0.0      40.1      16.1    723.70
      0.02      4.69      6.94      0.00     0.040     0.047     0.000     0.000    713.30   7702.20
  0.004493      310.      512.      520.         2         0         0      0.00   1988.88  10054.26

1490 NH CARD USED
*SECNO 3372.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

  3372.000      8.04    723.84      0.00      0.00    724.27      0.43      1.78      0.00    723.90
   24000.0   19039.5    4960.5       0.0    3948.4     741.7       0.0      78.8      32.0    723.80
      0.04      4.82      6.69      0.03     0.040     0.048     0.040     0.000    715.80   7836.06
  0.005396      330.      502.      520.         1         0         0      0.00   2065.51  10103.10

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

1490 NH CARD USED
*SECNO 3470.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
  3470.000      7.04    726.14      0.00      0.00    726.55      0.41      2.28      0.00    724.80
   24000.0   17136.3    4634.5    2230.2    3664.8     677.3     496.6     125.3      52.6    724.20
      0.06      4.68      6.84      4.49     0.040     0.046     0.040     0.000    719.10   8058.73
  0.005177      420.      517.      240.         3         0         0      0.00   2274.56  10333.29

1490 NH CARD USED
*SECNO 3563.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  3563.000      7.16    728.96    728.96      0.00    729.96      1.00      2.81      0.18    727.50
   24000.0   10500.6   10285.9    3213.5    2034.8     957.0     658.2     172.6      74.3    726.30
      0.08      5.16     10.75      4.88     0.040     0.037     0.040     0.000    721.80   8887.71
  0.006485      480.      491.      500.         1         5         0      0.00   1619.88  10514.88

1490 NH CARD USED
*SECNO 3657.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
```

3265 DIVIDED FLOW

3280 CROSS SECTION 3657.00 EXTENDED 0.02 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3657.000 | 9.02 | 733.12 | 733.12 | 0.00 | 734.18 | 1.07 | 3.03 | 0.02 | 731.50 |
| 24000.0 | 5023.0 | 10725.0 | 8252.0 | 1151.1 | 970.2 | 1518.6 | 214.7 | 93.6 | 731.40 |
| 0.10 | 4.36 | 11.05 | 5.43 | 0.040 | 0.039 | 0.040 | 0.000 | 724.10 | 8733.32 |
| 0.005634 | 490. | 496. | 530. | 3 | 11 | 0 | 0.00 | 1729.45 | 10657.00 |

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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

CCHV= 0.300 CEHV= 0.500
1490 NH CARD USED
*SECNO 3676.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3676.000 | 10.50 | 733.60 | 733.50 | 0.00 | 734.68 | 1.09 | 0.49 | 0.01 | 732.00 |
| 24000.0 | 4290.6 | 12618.9 | 7090.5 | 1131.4 | 1173.7 | 1506.3 | 223.3 | 97.5 | 731.90 |
| 0.10 | 3.79 | 10.75 | 4.71 | 0.040 | 0.039 | 0.040 | 0.000 | 723.10 | 8733.35 |
| 0.004265 | 100. | 100. | 100. | 14 | 11 | 0 | 0.00 | 1711.50 | 10656.81 |

1490 NH CARD USED

SPECIAL CULVERT

| SC | CUNO | CUNV | ENTLC | COFQ | RDLEN | RISE | SPAN | CULVLN | CHRT | SCL | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8 | 0.014 | 0.40 | 3.00 | 0.00 | 8.00 | 15.60 | 80.00 | 8 | 1 | 723.20 | 723.10 |

CHART 8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE 1 - WINGWALLS FLARED 30 TO 75 DEGREES

5130, EGIC= 751.92..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 747.28 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 3693.000
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG = 734.99
3280 CROSS SECTION 3693.00 EXTENDED 0.73 FEET

3301 HV CHANGED MORE THAN HVINS

SPECIAL CULVERT

| EGIC | EGOC | H4 | QWEIR | QCULV | VCH | ACULV | ELTRD | WEIRLN |
|---|---|---|---|---|---|---|---|---|
| 751.92 | 747.28 | 0.31 | 12424. | 11735. | 8.197 | 998.4 | 732.80 | 1813. |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3693.000 | 11.23 | 734.43 | 0.00 | 0.00 | 734.99 | 0.56 | 0.31 | 0.00 | 732.10 |
| 24000.0 | 5881.8 | 10373.5 | 7744.7 | 1953.5 | 1265.5 | 1957.1 | 232.5 | 101.3 | 732.00 |
| 0.11 | 3.01 | 8.20 | 3.96 | 0.040 | 0.039 | 0.040 | 0.000 | 723.20 | 8732.20 |
| 0.002242 | 90. | 90. | 90. | 3 | 0 | 0 | 0.00 | 1924.90 | 10657.10 |

1490 NH CARD USED
*SECNO 3747.000
1
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| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | L-BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | R-BANK ELEV |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 736.70 ELREA= 735.80

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3747.000 | 9.00 | 736.00 | 736.00 | 0.00 | 736.58 | 0.57 | 0.54 | 0.00 | 736.70 |
| 24000.0 | 0.0 | 9959.7 | 14040.3 | 0.0 | 1249.4 | 3328.3 | 264.5 | 111.6 | 735.80 |
| 0.12 | 0.00 | 7.97 | 4.22 | 0.000 | 0.026 | 0.036 | 0.000 | 727.00 | 9920.43 |
| 0.001631 | 285. | 285. | 285. | 20 | 15 | 0 | 0.00 | 1229.85 | 11230.62 |

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**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
**********

THIS RUN EXECUTED 02APR92 11:33:43

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SAND TANK WASH DOWNSTREA

SUMMARY PRINTOUT

| | SECNO | ELMIN | CWSEL | Q | VCH | DIFWSX | TOPWID | DEPTH | SSTA | ENDST | QLOB | QROB | ELTRD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3180.000 | 710.20 | 718.99 | 6000.00 | 6.01 | 0.00 | 1791.47 | 8.79 | 7568.83 | 10045.71 | 3062.96 | 0.00 | 0.00 |
| | 3180.000 | 710.20 | 719.78 | 12000.00 | 6.47 | 0.00 | 1922.43 | 9.58 | 7555.60 | 10085.79 | 8391.18 | 0.66 | 0.00 |
| | 3180.000 | 710.20 | 720.18 | 16000.00 | 6.71 | 0.00 | 1998.43 | 9.98 | 7542.25 | 10068.26 | 12008.14 | 7.21 | 0.00 |
| | 3180.000 | 710.20 | 720.52 | 20000.00 | 6.97 | 0.00 | 2228.96 | 10.32 | 7498.79 | 10079.15 | 15638.15 | 21.58 | 0.00 |
| | 3180.000 | 710.20 | 720.82 | 24000.00 | 7.18 | 0.00 | 2394.10 | 10.62 | 7469.15 | 10094.20 | 19287.80 | 48.06 | 0.00 |
| * | 3277.000 | 713.30 | 720.92 | 6000.00 | 3.41 | 1.94 | 1680.11 | 7.62 | 7741.63 | 10051.71 | 4289.99 | 0.00 | 0.00 |
| | 3277.000 | 713.30 | 721.09 | 12000.00 | 6.11 | 1.31 | 1755.49 | 7.79 | 7736.04 | 10052.07 | 8837.46 | 0.00 | 0.00 |
| | 3277.000 | 713.30 | 721.46 | 16000.00 | 6.45 | 1.28 | 1869.52 | 8.16 | 7723.26 | 10052.89 | 12423.41 | 0.00 | 0.00 |
| | 3277.000 | 713.30 | 721.78 | 20000.00 | 6.71 | 1.26 | 1912.42 | 8.48 | 7712.10 | 10053.62 | 16062.58 | 0.00 | 0.00 |
| | 3277.000 | 713.30 | 722.07 | 24000.00 | 6.94 | 1.24 | 1988.88 | 8.77 | 7702.20 | 10054.26 | 19726.46 | 0.00 | 0.00 |
| * | 3372.000 | 715.80 | 721.89 | 6000.00 | 7.35 | 0.97 | 1256.18 | 6.09 | 8011.68 | 10066.42 | 2297.92 | 0.00 | 0.00 |
| | 3372.000 | 715.80 | 722.84 | 12000.00 | 6.57 | 1.75 | 1766.47 | 7.04 | 7926.76 | 10086.08 | 8008.75 | 0.00 | 0.00 |
| | 3372.000 | 715.80 | 723.22 | 16000.00 | 6.60 | 1.77 | 1874.40 | 7.42 | 7891.52 | 10091.31 | 11662.77 | 0.00 | 0.00 |
| | 3372.000 | 715.80 | 723.55 | 20000.00 | 6.64 | 1.77 | 1956.30 | 7.75 | 7862.31 | 10096.62 | 15344.20 | 0.00 | 0.00 |
| | 3372.000 | 715.80 | 723.84 | 24000.00 | 6.69 | 1.77 | 2065.51 | 8.04 | 7836.06 | 10103.10 | 19039.50 | 0.00 | 0.00 |
| | 3470.000 | 719.10 | 724.56 | 6000.00 | 4.93 | 2.67 | 1417.55 | 5.46 | 8163.34 | 10314.09 | 3247.14 | 439.37 | 0.00 |
| | 3470.000 | 719.10 | 725.22 | 12000.00 | 6.02 | 2.37 | 1962.14 | 6.12 | 8120.03 | 10322.04 | 7667.48 | 987.64 | 0.00 |
| | 3470.000 | 719.10 | 725.57 | 16000.00 | 6.36 | 2.34 | 2156.13 | 6.47 | 8096.68 | 10326.32 | 10764.59 | 1386.10 | 0.00 |
| | 3470.000 | 719.10 | 725.87 | 20000.00 | 6.62 | 2.32 | 2245.60 | 6.77 | 8076.53 | 10330.02 | 13955.62 | 1797.17 | 0.00 |
| | 3470.000 | 719.10 | 726.14 | 24000.00 | 6.84 | 2.30 | 2274.56 | 7.04 | 8058.73 | 10333.29 | 17135.32 | 2230.15 | 0.00 |
| * | 3563.000 | 721.80 | 726.94 | 6000.00 | 7.72 | 2.37 | 834.33 | 5.14 | 9124.58 | 10397.66 | 760.52 | 287.63 | 0.00 |
| * | 3563.000 | 721.80 | 727.92 | 12000.00 | 8.94 | 2.71 | 1264.74 | 6.12 | 9052.06 | 10445.64 | 3790.76 | 1099.79 | 0.00 |
| * | 3563.000 | 721.80 | 728.34 | 16000.00 | 9.62 | 2.77 | 1409.79 | 6.54 | 9034.73 | 10467.37 | 5999.31 | 1731.39 | 0.00 |
| * | 3563.000 | 721.80 | 728.68 | 20000.00 | 10.19 | 2.81 | 1569.27 | 6.88 | 8900.04 | 10483.64 | 8238.02 | 2458.91 | 0.00 |
| * | 3563.000 | 721.80 | 728.96 | 24000.00 | 10.75 | 2.82 | 1619.88 | 7.16 | 8887.71 | 10514.88 | 10500.60 | 3213.53 | 0.00 |

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| | SECNO | ELMIN | CWSEL | Q | VCH | DIFWSX | TOPWID | DEPTH | SSTA | ENDST | QLOB | QROB | ELTRD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3657.000 | 724.10 | 729.74 | 6000.00 | 10.54 | 2.80 | 203.35 | 5.64 | 9208.22 | 10184.45 | 126.68 | 23.67 | 0.00 |
| * | 3657.000 | 724.10 | 731.89 | 12000.00 | 9.38 | 3.97 | 1110.24 | 7.79 | 8993.53 | 10606.58 | 1343.57 | 2983.57 | 0.00 |
| * | 3657.000 | 724.10 | 732.39 | 16000.00 | 10.00 | 4.06 | 1236.16 | 8.29 | 8966.52 | 10608.64 | 2420.73 | 4781.59 | 0.00 |
| * | 3657.000 | 724.10 | 732.73 | 20000.00 | 10.80 | 4.05 | 1342.84 | 8.63 | 8933.39 | 10622.89 | 3561.58 | 6472.85 | 0.00 |
| * | 3657.000 | 724.10 | 733.12 | 24000.00 | 11.05 | 4.16 | 1729.45 | 9.02 | 8733.32 | 10657.00 | 5022.98 | 8252.01 | 0.00 |
| * | 3676.000 | 723.10 | 731.44 | 6000.00 | 6.63 | 1.70 | 122.81 | 8.34 | 9921.70 | 10044.51 | 0.00 | 0.00 | 0.00 |
| | 3676.000 | 723.10 | 732.58 | 12000.00 | 7.84 | 0.69 | 1157.12 | 9.48 | 8986.54 | 10607.35 | 1208.61 | 2580.84 | 0.00 |
| | 3676.000 | 723.10 | 732.92 | 16000.00 | 9.21 | 0.53 | 1241.64 | 9.82 | 8964.94 | 10608.74 | 2016.05 | 3967.78 | 0.00 |
| | 3676.000 | 723.10 | 733.43 | 20000.00 | 9.55 | 0.70 | 1509.40 | 10.33 | 8913.53 | 10646.12 | 3290.60 | 5704.96 | 0.00 |
| | 3676.000 | 723.10 | 733.60 | 24000.00 | 10.75 | 0.48 | 1711.50 | 10.50 | 8733.35 | 10656.81 | 4290.56 | 7090.53 | 0.00 |
| | 3693.000 | 723.20 | 731.62 | 6000.00 | 6.55 | 0.19 | 123.13 | 8.42 | 9921.52 | 10044.65 | 0.00 | 0.00 | 732.80 |
| * | 3693.000 | 723.20 | 732.51 | 12000.00 | 10.40 | -0.07 | 565.13 | 9.31 | 8993.19 | 10045.20 | 1330.26 | 0.00 | 732.80 |
| * | 3693.000 | 723.20 | 734.01 | 16000.00 | 6.38 | 1.09 | 1855.69 | 10.81 | 8732.86 | 10657.10 | 3308.22 | 4956.37 | 732.80 |
| | 3693.000 | 723.20 | 734.03 | 20000.00 | 7.90 | 0.60 | 1857.97 | 10.83 | 8732.82 | 10657.10 | 4178.61 | 6213.22 | 732.80 |
| | 3693.000 | 723.20 | 734.43 | 24000.00 | 8.20 | 0.83 | 1924.90 | 11.23 | 8732.20 | 10657.10 | 5881.78 | 7744.73 | 732.80 |
| * | 3747.000 | 727.00 | 732.04 | 6000.00 | 10.19 | 0.41 | 147.88 | 5.04 | 9929.14 | 10077.02 | 0.00 | 0.00 | 0.00 |
| * | 3747.000 | 727.00 | 735.89 | 12000.00 | 4.12 | 3.38 | 1218.38 | 8.89 | 9920.86 | 11139.24 | 0.00 | 6944.23 | 0.00 |
| * | 3747.000 | 727.00 | 736.06 | 16000.00 | 5.22 | 2.05 | 1236.05 | 9.06 | 9920.21 | 11232.48 | 0.00 | 9411.15 | 0.00 |
| * | 3747.000 | 727.00 | 736.08 | 20000.00 | 6.50 | 2.05 | 1237.72 | 9.08 | 9920.15 | 11232.98 | 0.00 | 11780.94 | 0.00 |
| * | 3747.000 | 727.00 | 736.00 | 24000.00 | 7.97 | 1.58 | 1229.85 | 9.00 | 9920.43 | 11230.62 | 0.00 | 14040.30 | 0.00 |

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SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=  3277.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  3277.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=  3372.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  3372.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  3372.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  3563.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  3563.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  3563.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  3563.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  3563.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  3563.000  PROFILE=  3  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  3563.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  3563.000  PROFILE=  4  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  3563.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  3563.000  PROFILE=  5  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=  3657.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  3657.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  3657.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  3657.000  PROFILE=  3  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  3657.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  3657.000  PROFILE=  4  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  3657.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  3657.000  PROFILE=  5  MINIMUM SPECIFIC ENERGY

WARNING SECNO=  3676.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=  3693.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  3693.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  3693.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=  3693.000  PROFILE=  3  WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=  3693.000  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=  3747.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=  3747.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  3747.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  3747.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  3747.000  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
```

```
CAUTION SECNO=   3747.000  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   3747.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   3747.000  PROFILE=  4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   3747.000  PROFILE=  4  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   3747.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   3747.000  PROFILE=  5  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   3747.000  PROFILE=  5  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *  Version    4.6.2;  May 1991           *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-236-8069   *
 *  RUN DATE    02APR92    TIME   11:34:33    *
 *****************************************
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*************************************
 *  U.S. ARMY CORPS OF ENGINEERS     *
 *  HYDROLOGIC ENGINEERING CENTER    *
 *  609 SECOND STREET, SUITE D       *
 *  DAVIS, CALIFORNIA 95616-4687     *
 *          (916) 756-1104           *
*************************************
```

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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X       X     X            X     X
X     X  X       X                  X     X
XXXXXXX  XXXX    X           XXXXX   XXXXX
X     X  X       X
X     X  X       X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

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1
   02APR92      11:34:33                                                                                    PAGE    1
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                                                                                THIS RUN EXECUTED 02APR92    11:34:33
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      BENDER WASH DOWNSTREAM OF C133          J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                         0.0031                                    747

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                  -1

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        42         1        43        26        51         4         8        53        54
     13        15        40
```

SECTIONS ARE LABELED AS RIVER MILES * 1000, i.e., SECTION 037 IS AT A POINT 0.037 MILES UPSTREAM OF THE CONFLUENCE WITH SAND TANK WASH.

J1.5 STRT = (710CONTOUR - 708.5SPOT EL)/490 FT = 0.0031 FT/FT

THE MODEL STARTS WITH SAND TANK WASH SECTIONS 3087 AND 3180 IN ORDER TO OBTAIN A STARTING BACKWATER BY THE TIME THE MODEL ENTERS BENDER WASH. THE CONFLUENCE OCCURS AT SAND TANK WASH RM 3.184 (BENDER WASH RM 0.000).

SAND TANK WASH:

```
QT        4      1000      2000      3000      4000
NC                                    0.1       0.3
NH        5      0.04    9956.5      0.06    9966.0      0.03   10041.3      0.06   10051.8      0.04
NH    10158
X1     3087        29    9966.0   10041.3     255.0     225.0     253.0
GR    719.5    9709.9     719.2    9748.7     718.6    9759.5     718.1    9808.6     718.3    9825.9
GR    717.5    9853.8     716.1    9883.6     715.5    9889.2     714.4    9897.4     715.2    9910.4
GR    715.6    9920.5     714.3    9927.8     715.3    9940.5     716.0    9956.5     716.0    9966.0
GR    711.7    9975.5     709.6    9984.3     709.0   10000.0     709.9   10015.7     710.3   10028.3
GR    713.6   10041.3     713.8   10051.8     712.8   10063.3     714.1   10083.7     715.5   10105.1
GR    715.6   10112.2     718.3   10126.1     718.8   10140.8     719.1     10158
```

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1
   02APR92      11:34:33                                                                                    PAGE    2
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```
NH        4      0.04    9907.2      0.06    9956.8      0.03   10030.0      0.06   10064.3
X1     3180        25    9956.8   10030.0     435.0     505.0     491.0
GR    720.4    9593.6     719.3    9612.2     717.4    9629.2     717.4    9641.2     717.4    9651.1
GR    717.6    9674.7     717.9    9695.8     718.1    9718.9     718.7    9747.1     718.2    9765.6
GR    718.8    9795.2     718.6    9806.3     718.7    9841.0     718.2    9875.6     718.8    9907.2
GR    718.6    9938.3     717.8    9956.8     713.4    9973.5     712.2    9987.4     711.2   10000.0
GR    711.0   10010.7     712.6   10019.1     716.8   10030.0     719.7   10043.5     720.5   10064.3
```

BENDER WASH ENTERS SAND TANK WASH AT RM 3.184

```
NC    0.035    0.035      0.03       0.1       0.3
X1      037       16    9970.4   10021.1     228.0     220.0     220.0
GR    720.6    9911.0     719.8    9929.8     719.7    9945.9     718.5    9956.9     718.6    9970.4
GR    716.9    9978.3     713.3    9992.0     712.6    9996.2     712.5   10000.0     712.9   10007.3
GR    714.4   10011.8     719.3   10021.1     720.3   10037.9     721.3   10053.7     722.3   10067.1
GR    722.8   10074.8

X1      129       13    9971.4   10023.9     445.0     510.0     486.0
GR    723.9    9950.3     722.6    9971.4     717.4    9985.4     716.7    9989.6     715.7    9994.2
GR    715.2   10000.0     715.8   10007.0     718.6   10014.7     721.4   10023.9     721.4   10042.6
GR    720.6   10062.3     721.8   10078.5     722.7   10098.1

X1      224       20    9971.9   10018.9     500.0     490.0     502.0
GR    727.5    9845.5     727.2    9873.9     725.2    9893.6     723.8    9905.7     722.9    9914.4
GR    723.6    9926.2     723.5    9963.6     722.9    9971.9     721.1    9981.8     718.8    9990.5
GR    717.5    9995.2     717.1   10000.0     718.6   10007.9     721.6   10018.9     722.2   10029.9
GR    721.8   10041.8     723.4   10053.6     725.7   10064.4     726.9   10074.8     727.1   10078.2

X1      320       19    9933.4   10032.9     530.0     503.0     507.0
GR    728.9    9837.5     728.7    9860.0     728.4    9877.0     726.9    9889.1     726.5    9903.5
GR    727.6    9920.2     727.2    9933.4     725.5    9942.8     723.4    9954.7     722.4    9970.6
```

```
GR    722.3     9976.2      722.6     9985.4      720.7     9992.6      720.6    10000.0      721.0    10009.5
GR    723.4    10019.1      727.5    10032.9      730.2    10047.7      730.4    10048.8
```

BENDER WASH CROSSES PAPAGO ST AT RM 0.360 (LOW CROSSING - NO STRUCTURE)

```
NH        4      0.035     9931.7      0.06     9960.1      0.035    10045.6      0.06    10109.2
X1      415         20     9960.1   10045.6      505.0      500.0      502.0
GR    733.6     9906.5      732.8     9919.9      730.9     9931.7      730.4     9948.4      730.3     9960.1
GR    727.7     9968.3      724.1     9979.0      723.1     9986.3      722.8     9994.6      723.4    10000.0
GR    723.9    10009.7      724.8    10015.8      725.6    10029.1      727.8    10037.6      730.3    10045.6
GR    730.3    10058.1      730.1    10073.5      729.9    10089.5      730.5    10097.6      732.6    10109.2
```

BENDER WASH IS CONVEYED BENEATH PIMA STREET (U.S. ROUTE 80) THROUGH A BOX CULVERT THAT HAS BEEN WIDENED IN THE PAST. THE NEWER PORTION TO THE NORTH (DOWNSTREAM) WAS CONSTRUCTED WITH A MATCHING CROWN BUT A LOWER INVERT, APPARENTLY IN RESPONSE TO SCOUR EXPERIENCED DOWNSTREAM OF THE ORIGINAL CULVERT. A MINOR SCOUR HOLE IS NOTED DOWNSTREAM OF THE NEWER, LOWER INVERT.

SPECIAL CULVERT IS USED TO MODEL THE CULVERT. THE DOWNSTREAM CHANNEL



SECTION IS BASED ON ACTUAL ELEVATIONS AT THE OUTLET, BUT ELCHD ON SC.10 IS BASED ON THE HIGHER INVERT INSIDE THE CULVERT SO AS TO NOT CAUSE THE MODEL TO USE A CULVERT SLOPE THAT IS TOO HIGH. THIS RESULTS IN WHAT APPEARS TO BE A STEP AT THE DOWNSTREAM END, ALTHOUGH THE STEP ACTUALLY OCCURS WITHIN THE CULVERT.

INCREASE EXPANSION/CONTRACTION COEFFICIENTS FOR THE STRUCTURE.

SECTION 441 IS BASED ON SURVEY DATA (CHANNEL) AND TOPO MAP DATA (OVERBANKS).

```
NC      0.06      0.06     0.035       0.3       0.5
X1       441         7      9967     10033       135       145       137
X3        10                                                          750       750
GR     734.1      9650       734      9950     725.4      9967       724     10000     725.4     10033
GR       734     10050     734.8     10350
```

FOR RATING CURVE AT CULVERT, SET WEIR VERY HIGH.

```
SC     6.014       0.4         3       100         6        10      77.4       8.1     727.4     727.4
X1       457         8      9967     10033        87        87        87
X2                                                 2       750
X3        10                                                          750       750
GR     733.2      9600       732      9960     727.4      9967     727.4     10033       734     10040
GR     734.5     10220     734.9     10350       735     10450
```

KEEP EXPANSION/CONTRACTION COEFFICIENTS HIGH THROUGH AREA OF FREQUENT STRUCTURES.

```
NH        5      0.06    9911.8     0.035    9947.0      0.06    9981.0     0.035   10021.7      0.06
NH    10052
X1      508        14    9981.0   10021.7      285       235       269
GR    732.7    9871.0     732.3    9890.2    731.0    9911.8     730.5    9930.1     730.8    9947.0
GR    730.3    9963.5     729.9    9981.0    728.1    9989.2     727.4    9996.4     727.2   10000.0
GR    728.8   10011.7     730.5   10021.7    733.1   10032.0     734.3     10052
```



```
SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 1

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 3087.000

3265 DIVIDED FLOW

 3087.000      3.96    712.96       0.00     747.00    713.41       0.46       0.00       0.00     716.00
   1000.0       0.0     999.9        0.1        0.0     184.6        0.3        0.0        0.0     713.60
     0.00      0.00      5.42       0.38      0.000     0.030      0.040      0.000     709.00    9972.72
 0.003094      255.      253.       225.          0         0         11       0.00      70.39   10065.80

1490 NH CARD USED
*SECNO 3180.000
 3180.000      3.81    714.81       0.00       0.00    715.57       0.77       2.07       0.09     717.80
   1000.0       0.0    1000.0        0.0        0.0     142.0        0.0        1.8        0.7     716.80
     0.02      0.00      7.04       0.00      0.000     0.030      0.000      0.000     711.00    9968.16
 0.006050      435.      491.       505.          2         0          0       0.00      56.67   10024.83

CCHV=    0.100 CEHV=    0.300
*SECNO 37.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   37.000      4.30    716.80     716.80       0.00    718.20       1.41       1.67       0.19     718.60
   1000.0       0.0    1000.0        0.0        0.0     105.1        0.0        2.5        1.0     719.30
     0.03      0.00      9.52       0.00      0.000     0.030      0.000      0.000     712.50    9978.69
 0.009851      228.      220.       220.         20         8          0       0.00      37.66   10016.35

*SECNO 129.000

3301 HV CHANGED MORE THAN HVINS
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```
3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.52

1
   02APR92      11:34:33                                                                                                PAGE    5

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

   129.000       5.33     720.53       0.00       0.00     721.28       0.75       3.01       0.07     722.60
    1000.0        0.0     1000.0       0.0        0.0      144.0        0.0        3.9        1.4      721.40
      0.05       0.00       6.94      0.00      0.000      0.030      0.000      0.000     715.20    9976.98
  0.004242       445.       486.      510.          3          0          0       0.00      44.05   10021.03

*SECNO 224.000
   224.000       5.59     722.69       0.00       0.00     723.35       0.66       2.07       0.01     722.90
    1000.0        0.0      958.5      41.5        0.0      144.6       19.8        5.6        2.1      721.60
      0.07       0.00       6.63      2.10      0.000      0.030      0.035      0.000     717.10    9973.07
  0.004002       500.       502.      490.          2          0          0       0.00      75.28   10048.35

*SECNO 320.000
   320.000       4.21     724.81       0.00       0.00     725.23       0.42       1.85       0.02     727.20
    1000.0        0.0     1000.0       0.0        0.0      191.5        0.0        7.7        3.0      727.50
      0.09       0.00       5.22      0.00      0.000      0.030      0.000      0.000     720.60    9946.71
  0.003356       530.       507.      503.          0          0          0       0.00      77.14   10023.85

1490 NH CARD USED
*SECNO 415.000
   415.000       4.11     726.91       0.00       0.00     727.50       0.59       2.22       0.05     730.30
    1000.0        0.0     1000.0       0.0        0.0      162.7        0.0        9.7        3.8      730.30
      0.12       0.00       6.15      0.00      0.000      0.035      0.000      0.000     722.80    9970.65
  0.006089       505.       502.      500.          2          0          0       0.00      63.52   10034.16

CCHV=    0.300 CEHV=    0.500
*SECNO 441.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.41

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       750.00 ELREA=       750.00

   441.000       3.75     727.75       0.00       0.00     728.14       0.38       0.58       0.06     725.40
    1000.0        0.0     1000.0       0.0        0.0      201.6        0.0       10.3        4.0      725.40
      0.12       0.00       4.96      0.00      0.000      0.035      0.000      0.000     724.00    9967.00
  0.003083       135.       137.      146.          2          0          0       0.00      66.00   10033.00

1
   02APR92      11:34:33                                                                                                PAGE    6

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC      COFQ      RDLEN      RISE      SPAN      CULVLN      CHRT      SCL      ELCHU      ELCHD
     6        0.014      0.40      3.00     100.00      6.00     10.00      77.40       8         1      727.40     727.40

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 457.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    730.653  EGOC =    730.898  PCWSE=    727.754  ELTRD=    750.000

SPECIAL CULVERT

     EGIC       EGOC       H4       QWEIR      QCULV      VCH       ACULV      ELTRD      WEIRLN
   730.65     730.90      2.76        0.       1000.      4.819      360.0     750.00        0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       750.00 ELREA=       750.00

   457.000       3.14     730.54       0.00       0.00     730.90       0.36       2.76       0.00     727.40
    1000.0        0.0     1000.0       0.0        0.0      207.5        0.0       10.7        4.1      727.40
      0.13       0.00       4.82      0.00      0.000      0.035      0.000      0.000     727.40    9967.00
  0.002797        87.        87.       87.          2          0          0       0.00      66.00   10033.00

1490 NH CARD USED
*SECNO 508.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.68

   508.000       4.29     731.49       0.00       0.00     732.10       0.62       1.08       0.13     729.90
    1000.0      167.1      830.6       2.3       69.4      121.6        1.9       12.0        4.7      730.50
      0.14       2.41       6.83      1.19      0.048      0.035      0.060      0.000     727.20    9903.69
  0.006115       285.       269.      235.          2          0          0       0.00     121.92   10025.61

1
   02APR92      11:34:33                                                                                                PAGE    7

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      BENDER WASH                                  J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
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                3                          0.0031                                                  747
 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      2                  -1
1
   02APR92      11:34:33                                                                                          PAGE    8

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 2

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 3087.000

 3265 DIVIDED FLOW

   3087.000      5.38    714.38      0.00    747.00    715.07      0.69      0.00      0.00    716.00
     2000.0       0.0    1927.8      72.2       0.1     283.4      39.1       0.0       0.0    713.60
       0.00      0.02      6.80      1.84     0.040     0.030     0.042     0.000    709.00   9927.35
   0.003089      255.      253.      225.         0         0        10      0.00    119.87  10087.98

 1490 NH CARD USED
 *SECNO 3180.000

 3301 HV CHANGED MORE THAN HVINS

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.69

   3180.000      5.12    716.12      0.00      0.00    717.38      1.26      2.14      0.17    717.80
     2000.0       0.0    2000.0       0.0       0.0     222.4       0.0       3.1       1.0    716.80
       0.02      0.00      8.99      0.00     0.000     0.030     0.000     0.000    711.00   9963.15
   0.006569      435.      491.      505.         2         0         0      0.00     65.10  10028.25

 CCHV=    0.100 CEHV=    0.300
 *SECNO 37.000

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
     37.000      6.16    718.66    718.66      0.00    720.44      1.78      1.63      0.16    718.60
     2000.0       1.5    1998.5       0.0       1.7     186.7       0.0       4.1       1.4    719.30
       0.02      0.90     10.71      0.00     0.035     0.030     0.000     0.000    712.50   9955.39
   0.008393      228.      220.      220.        20        11         0      0.00     64.50  10019.89

1
   02APR92      11:34:33                                                                                          PAGE    9

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *SECNO 129.000

 3301 HV CHANGED MORE THAN HVINS

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.48

    129.000      7.05    722.25      0.00      0.00    723.19      0.94      2.66      0.08    722.60
     2000.0       0.0    1837.7     162.3       0.0     227.9      60.0       6.8       2.4    721.40
       0.04      0.00      8.07      2.70     0.000     0.030     0.035     0.000    715.20   9972.33
   0.003846      445.      486.      510.         2         0         0      0.00    116.07  10088.40

 *SECNO 224.000
    224.000      7.10    724.20      0.00      0.00    724.94      0.74      1.73      0.02    722.90
     2000.0     105.6    1621.4     273.0      52.2     215.7      72.0      10.4       3.9    721.60
       0.06      2.02      7.52      3.79     0.035     0.030     0.035     0.000    717.10   9902.21
   0.003120      500.      502.      490.         2         0         0      0.00    155.16  10057.37

 *SECNO 320.000
    320.000      5.39    726.99      0.00      0.00    726.74      0.74      1.80      0.00    727.20
     2000.0       0.0    2000.0       0.0       0.0     288.8       0.0      14.1       5.4    727.50
       0.08      0.00      6.92      0.00     0.000     0.030     0.000     0.000    720.60   9940.09
   0.004062      530.      507.      503.         1         0         0      0.00     87.73  10027.82

 1490 NH CARD USED
 *SECNO 415.000
    415.000      5.55    728.35      0.00      0.00    729.26      0.91      2.47      0.05    730.30
     2000.0       0.0    2000.0       0.0       0.0     261.2       0.0      17.2       6.3    730.30
       0.10      0.00      7.66      0.00     0.000     0.035     0.000     0.000    722.80   9966.25
   0.006095      505.      502.      500.         2         0         0      0.00     73.11  10039.36

 CCHV=    0.300 CEHV=    0.500
 *SECNO 441.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      750.00 ELREA=      750.00

    441.000      5.23    729.23      0.00      0.00    729.93      0.69      0.60      0.07    725.40
     2000.0       0.0    2000.0       0.0       0.0     299.3       0.0      18.1       6.5    725.40
       0.10      0.00      6.68      0.00     0.000     0.035     0.000     0.000    724.00   9967.00
   0.003304      135.      137.      145.         2         0         0      0.00     66.00  10033.00
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     6        0.014     0.40      3.00     100.00     6.00     10.00     77.40      8         1       727.40    727.40

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 457.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    732.637  EGOC =    732.911  PCWSE=    729.233  ELTRD=    750.000

SPECIAL CULVERT

     EGIC      EGOC       H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
   732.64    732.91     2.98        0.     2000.     6.156     360.0    750.00        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       750.00 ELREA=       750.00

   457.000      4.92    732.32      0.00      0.00    732.91      0.59      2.98      0.00    727.40
    2000.0       0.0    2000.0       0.0       0.0     324.9       0.0      18.7       6.7    727.40
      0.11      0.00      6.16      0.00     0.000     0.035     0.000     0.000    727.40   9967.00
  0.002610       87.       87.       87.         3         0         0      0.00     66.00  10033.00


1490 NH CARD USED
*SECNO 508.000
3280 CROSS SECTION    508.00 EXTENDED      0.53 FEET

   508.000      6.03    733.23      0.00      0.00    733.69      0.46      0.74      0.04    729.90
    2000.0     732.6    1242.6      24.8     236.6     192.7      14.9      21.1       7.4    730.50
      0.12      3.10      6.45      1.66     0.047     0.035     0.060     0.000    727.20   9871.00
  0.002960      285.      269.      235.         2         0         0      0.00    163.24  10034.24
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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      BENDER WASH                                J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                4                         0.0031                                    747

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      3                 -1
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 3

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 3087.000

3265 DIVIDED FLOW

  3087.000      6.36    715.36      0.00    747.00    716.20      0.84      0.00      0.00    716.00
    3000.0      27.4    2720.4     252.1      20.5     354.6      92.0       0.0       0.0    713.60
      0.00      1.34      7.67      2.74     0.040     0.030     0.043     0.000    709.00   9891.79
  0.003043      255.      253.      225.         0         0         9      0.00    178.02  10102.92


1490 NH CARD USED
*SECNO 3180.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.62

  3180.000      5.94    716.94      0.00      0.00    718.75      1.81      2.27      0.29    717.80
    3000.0       0.0    3000.0       0.0       0.0     277.5       0.0       4.2       1.4    716.80
      0.01      0.00     10.81      0.02     0.000     0.030     0.060     0.000    711.00   9960.06
  0.007796      435.      491.      505.         2         0         0      0.00     70.60  10030.66


CCHV=    0.100 CEHV=    0.300
*SECNO 37.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    37.000      7.68    720.18    720.18      0.00    721.90      1.72      1.44      0.01    718.60
    3000.0     150.2    2837.9      11.9      42.4     263.0       6.5       5.7       1.9    719.30
      0.02      3.54     10.79      1.83     0.035     0.030     0.035     0.000    712.50   9920.90
  0.005586      228.      220.      220.        20        11         0      0.00    114.96  10035.86
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*SECNO 129.000
3280 CROSS SECTION     129.00 EXTENDED       0.41 FEET

1
   02APR92       11:34:33                                                                                    PAGE   13

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS

   129.000       7.91     723.11       0.00       0.00     724.26       1.15       2.30       0.06     722.60
    3000.0        2.4     2517.7      479.9        2.2      272.9      121.7        9.7        3.2     721.40
      0.03       1.09       9.23       3.94      0.035      0.030      0.035      0.000     715.20    9963.04
  0.004057       445.       486.       510.          2          0          0       0.00     135.06   10098.10

*SECNO 224.000
   224.000       8.08     725.18       0.00       0.00     725.96       0.78       1.66       0.04     722.90
    3000.0      392.2     2105.3      502.5      124.3      261.6      111.8       14.8        5.0     721.60
      0.06       3.16       8.05       4.50      0.035      0.030      0.035      0.000     717.10    9893.78
  0.002767       500.       502.       490.          2          0          0       0.00     168.18   10061.96

*SECNO 320.000

3265 DIVIDED FLOW

   320.000       6.19     726.79       0.00       0.00     727.86       1.07       1.81       0.09     727.20
    3000.0        1.8     2998.2        0.0        2.2      361.9        0.0       19.8        6.6     727.50
      0.07       0.81       8.28       0.00      0.035      0.030      0.000      0.000     720.60    9893.03
  0.004782       530.       507.       503.          2          0          0       0.00     109.73   10030.51

1490 NH CARD USED
*SECNO 415.000
   415.000       6.63     729.43       0.00       0.00     730.61       1.18       2.72       0.03     730.30
    3000.0        0.0     3000.0        0.0        0.0      344.0        0.0       23.9        7.7     730.30
      0.09       0.00       8.72       0.00      0.000      0.035      0.000      0.000     722.80    9962.83
  0.006192       505.       502.       500.          2          0          0       0.00      79.99   10042.83

CCHV=    0.300 CEHV=    0.500
*SECNO 441.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       750.00 ELREA=       750.00

   441.000       6.27     730.27       0.00       0.00     731.30       1.03       0.65       0.04     725.40
    3000.0        0.0     3000.0        0.0        0.0      367.7        0.0       25.0        7.9     725.40
      0.09       0.00       8.16       0.00      0.000      0.035      0.000      0.000     724.00    9967.00
  0.003744       135.       137.       145.          2          0          0       0.00      66.00   10033.00

1
   02APR92       11:34:33                                                                                    PAGE   14

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     6         0.014      0.40       3.00      100.00      6.00      10.00      77.40      8          1         727.40     727.40

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 457.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =     734.330  EGOC =     734.601  PCWSE=     730.270  ELTRD=     750.000

3280 CROSS SECTION     457.00 EXTENDED       0.62 FEET

SPECIAL CULVERT

     EGIC       EGOC        H4      QWEIR      QCULV       VCH      ACULV      ELTRD     WEIRLN
   734.33     734.60      3.30         0.     3000.     7.075      360.0     750.00         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       750.00 ELREA=       750.00

   457.000       6.42     733.82       0.00       0.00     734.60       0.78       3.30       0.00     727.40
    3000.0        0.0     3000.0        0.0        0.0      424.0        0.0       25.8        8.1     727.40
      0.10       0.00       7.08       0.00      0.000      0.035      0.000      0.000     727.40    9967.00
  0.002325        87.        87.        87.          3          0          0       0.00      66.00   10033.00

1490 NH CARD USED
*SECNO 508.000
3280 CROSS SECTION     508.00 EXTENDED       2.20 FEET

   508.000       7.70     734.90       0.00       0.00     735.26       0.36       0.54       0.12     729.90
    3000.0     1347.4     1557.5      95.1      420.3      260.6       56.1       29.5        8.8     730.50
      0.11       3.21       5.98       1.70      0.048      0.035      0.060      0.000     727.20    9871.00
  0.001693       285.       269.       235.          2          0          0       0.00     181.00   10052.00

1
   02APR92       11:34:33                                                                                    PAGE   15

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
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T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      BENDER WASH                                J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                5                           0.0031                                  747

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15                  -1

1
   02APR92      11:34:33                                                                                          PAGE   16

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=    0.100 CEHV=    0.300
1490 NH CARD USED
*SECNO 3087.000
  3087.000      7.06    716.06      0.00    747.00    717.01      0.95      0.00      0.00    716.00
    4000.0     129.7    3402.9     467.4      62.8     407.1     140.9       0.0       0.0    713.60
      0.00      2.07      8.36      3.32     0.040     0.030     0.043     0.000    709.00   9884.34
  0.003088      255.      253.      225.         0         0         9      0.00    230.23  10114.57

1490 NH CARD USED
*SECNO 3180.000

3266 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7165 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  3180.000      7.20    718.20    718.20      0.00    719.89      1.69      1.97      0.22    717.80
    4000.0     101.8    3891.7       6.5      53.0     368.2       4.6       5.8       2.3    716.80
      0.01      1.92     10.57      1.42     0.040     0.030     0.060     0.000    711.00   9622.05
  0.005437      435.      491.      505.         2         5         0      0.00    190.45  10036.51

CCHV=    0.100 CEHV=    0.300
*SECNO 37.000
3280 CROSS SECTION     37.00 EXTENDED      0.54 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    37.000      8.64    721.14    721.14      0.00    722.86      1.72      1.12      0.01    718.60
    4000.0     429.2    3481.5      89.3      97.4     311.8      28.1       8.0       3.1    719.30
      0.02      4.40     11.17      3.18     0.035     0.030     0.035     0.000    712.50   9911.00
  0.004771      228.      220.      220.        20         8         0      0.00    140.17  10051.17

*SECNO 129.000
3280 CROSS SECTION    129.00 EXTENDED      1.03 FEET

1
   02APR92      11:34:33                                                                                          PAGE   17

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

   129.000      8.53    723.73      0.00      0.00    725.12      1.39      2.22      0.03    722.60
    4000.0      19.9    3153.3     826.7      10.4     305.2     167.5      13.1       4.7    721.40
      0.03      1.92     10.33      4.94     0.035     0.030     0.035     0.000    715.20   9953.04
  0.004380      445.      486.      510.         3         0         0      0.00    145.06  10098.10

*SECNO 224.000

3301 HV CHANGED MORE THAN HVINS

   224.000      8.90    726.00      0.00      0.00    726.80      0.81      1.63      0.06    722.90
    4000.0     736.9    2526.9     736.2     191.7     300.2     148.9      19.5       6.6    721.60
      0.05      3.84     8.42      4.94     0.035     0.030     0.035     0.000    717.10   9885.71
  0.002519      500.      502.      490.         1         0         0      0.00    181.29  10067.01

*SECNO 320.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.69

   320.000      6.81    727.41      0.00      0.00    728.76      1.35      1.79      0.16    727.20
    4000.0      38.9    3961.1       0.0      18.5     422.7       0.0      25.9       8.4    727.50
      0.07      2.10     9.37      0.00     0.035     0.030     0.000     0.000    720.60   9884.94
  0.005285      530.      507.      503.         2         0         0      0.00    138.77  10032.62

1490 NH CARD USED
*SECNO 415.000

3265 DIVIDED FLOW

   415.000      7.47    730.27      0.00      0.00    731.71      1.44      2.93      0.03    730.30
    4000.0       0.0    3995.0       5.0       0.0     414.2       6.8      30.9       9.9    730.30
      0.08      0.00     9.64      0.74     0.000     0.035     0.060     0.000    722.80   9960.16
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0.006466      505.      502.      500.        2        0        0     0.00    120.55  10094.66

1
  02APR92      11:34:33                                                                          PAGE   18

    SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG       HV       HL     OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB     VOL    TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL        XNCH     XNR      WTN    ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT    CORAR  TOPWID    ENDST

CCHV=    0.300 CEHV=    0.500
*SECNO 441.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       750.00 ELREA=       750.00

  441.000      7.01    731.01      0.00      0.00    732.44      1.43      0.72      0.00    725.40
   4000.0       0.0    4000.0       0.0       0.0     416.4       0.0      32.2      10.2    725.40
     0.09      0.00      9.61      0.00     0.000     0.035     0.000     0.000    724.00   9967.00
 0.004397      135.      137.      145.         2         0         0      0.00     66.00  10033.00


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     6        0.014     0.40      3.00     100.00     6.00      10.00     77.40     8         1         727.40    727.40

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 457.000

SPECIAL CULVERT INLET CONTROL
EGIC =    737.013  EGOC =    734.304  PCWSE=    731.008  ELTRD=    750.000

3280 CROSS SECTION    457.00 EXTENDED      3.10 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78

SPECIAL CULVERT

    EGIC      EGOC       H4      QWEIR     QCULV      VCH     ACULV     ELTRD    WEIRLN
  737.01    734.30     4.57         0.     4000.    6.810     360.0    750.00        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       750.00 ELREA=       750.00

  457.000      8.89    736.29      0.00      0.00    737.01      0.72      4.57      0.00    727.40
   4000.0       0.0    4000.0       0.0       0.0     587.4       0.0      33.2      10.4    727.40
     0.09      0.00      6.81      0.00     0.000     0.035     0.000     0.000    727.40   9967.00
 0.001395       87.       87.       87.         2         0         0      0.00     66.00  10033.00

1
  02APR92      11:34:33                                                                          PAGE   19

    SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG       HV       HL     OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB       ACH      AROB     VOL    TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL        XNCH     XNR      WTN    ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT    CORAR  TOPWID    ENDST

1490 NH CARD USED
*SECNO 508.000
3280 CROSS SECTION    508.00 EXTENDED      4.49 FEET

  508.000      9.99    737.19      0.00      0.00    737.44      0.25      0.28      0.14    729.90
   4000.0    1980.1    1798.0     221.9     671.6     353.6     125.3      38.6      11.1    730.50
     0.11      2.95      5.08      1.77     0.048     0.035     0.060     0.000    727.20   9871.00
 0.000816      285.      269.      235.         2         0         0      0.00    181.00  10052.00

1
  02APR92      11:34:33                                                                          PAGE   20


**************************************                                THIS RUN EXECUTED 02APR92    11:34:43
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2:  May 1991
**************************************


NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BENDER WASH DOWNSTREAM O

SUMMARY PRINTOUT

      SECNO     ELMIN     CWSEL      Q        VCH      DIFWSX    TOPWID    DEPTH     SSTA      ENDST     QLOB      QROB      ELTRD

   3087.000    709.00    712.96   1000.00     5.42      0.00     70.39     3.96   9972.72   10065.80     0.00      0.13      0.00
   3087.000    709.00    714.38   2000.00     6.80      0.00    119.87     5.38   9927.35   10087.98     0.00     72.15      0.00
   3087.000    709.00    715.36   3000.00     7.67      0.00    178.02     6.36   9891.79   10102.92    27.45    252.13      0.00
   3087.000    709.00    716.06   4000.00     8.36      0.00    230.23     7.06   9884.34   10114.57   129.73    467.39      0.00

   3180.000    711.00    714.81   1000.00     7.04      1.85     56.67     3.81   9968.16   10024.83     0.00      0.00      0.00
*  3180.000    711.00    716.12   2000.00     8.99      1.74     65.10     5.12   9963.15   10028.25     0.00      0.00      0.00
*  3180.000    711.00    716.94   3000.00    10.81      1.58     70.60     5.94   9960.06   10030.66     0.00      0.00      0.00
*  3180.000    711.00    718.20   4000.00    10.57      2.14    190.45     7.20   9622.05   10036.51   101.84      6.46      0.00
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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 37.000 | 712.50 | 716.80 | 1000.00 | 9.52 | 1.99 | 37.66 | 4.30 | 9976.69 | 10016.35 | 0.00 | 0.00 | 0.00 |
| * | 37.000 | 712.50 | 718.66 | 2000.00 | 10.71 | 2.64 | 64.50 | 6.16 | 9955.39 | 10019.89 | 1.51 | 0.00 | 0.00 |
| * | 37.000 | 712.50 | 720.18 | 3000.00 | 10.79 | 3.24 | 114.96 | 7.68 | 9920.90 | 10035.86 | 150.20 | 11.87 | 0.00 |
| * | 37.000 | 712.50 | 721.14 | 4000.00 | 11.17 | 2.94 | 140.17 | 8.64 | 9911.00 | 10051.17 | 429.19 | 89.26 | 0.00 |
| * | 129.000 | 715.20 | 720.53 | 1000.00 | 6.94 | 3.73 | 44.05 | 5.33 | 9976.98 | 10021.03 | 0.00 | 0.00 | 0.00 |
| * | 129.000 | 715.20 | 722.25 | 2000.00 | 8.07 | 3.59 | 116.07 | 7.05 | 9972.33 | 10088.40 | 0.00 | 162.31 | 0.00 |
| | 129.000 | 715.20 | 723.11 | 3000.00 | 9.23 | 2.93 | 135.06 | 7.91 | 9963.04 | 10098.10 | 2.35 | 479.94 | 0.00 |
| | 129.000 | 715.20 | 723.73 | 4000.00 | 10.33 | 2.59 | 145.06 | 8.53 | 9953.04 | 10098.10 | 19.94 | 826.73 | 0.00 |
| | 224.000 | 717.10 | 722.69 | 1000.00 | 6.63 | 2.17 | 75.28 | 5.59 | 9973.07 | 10048.35 | 0.00 | 41.45 | 0.00 |
| | 224.000 | 717.10 | 724.20 | 2000.00 | 7.52 | 1.94 | 155.16 | 7.10 | 9902.21 | 10057.37 | 105.60 | 273.01 | 0.00 |
| | 224.000 | 717.10 | 725.18 | 3000.00 | 8.05 | 2.07 | 168.18 | 8.08 | 9893.78 | 10061.96 | 392.18 | 502.50 | 0.00 |
| | 224.000 | 717.10 | 726.00 | 4000.00 | 8.42 | 2.26 | 181.29 | 8.90 | 9886.71 | 10067.01 | 736.91 | 736.23 | 0.00 |
| | 320.000 | 720.60 | 724.81 | 1000.00 | 5.22 | 2.11 | 77.14 | 4.21 | 9946.71 | 10023.86 | 0.00 | 0.00 | 0.00 |
| | 320.000 | 720.60 | 725.99 | 2000.00 | 6.92 | 1.80 | 87.73 | 5.39 | 9940.09 | 10027.82 | 0.00 | 0.00 | 0.00 |
| | 320.000 | 720.60 | 726.79 | 3000.00 | 8.28 | 1.61 | 109.73 | 6.19 | 9893.03 | 10030.51 | 1.76 | 0.00 | 0.00 |
| * | 320.000 | 720.60 | 727.41 | 4000.00 | 9.37 | 1.41 | 138.77 | 6.81 | 9884.94 | 10032.62 | 38.91 | 0.00 | 0.00 |
| | 416.000 | 722.80 | 726.91 | 1000.00 | 6.15 | 2.11 | 63.52 | 4.11 | 9970.65 | 10034.16 | 0.00 | 0.00 | 0.00 |
| | 416.000 | 722.80 | 728.35 | 2000.00 | 7.66 | 2.36 | 73.11 | 5.55 | 9966.25 | 10039.36 | 0.00 | 0.00 | 0.00 |
| | 416.000 | 722.80 | 729.43 | 3000.00 | 8.72 | 2.64 | 79.99 | 6.63 | 9962.83 | 10042.83 | 0.00 | 0.00 | 0.00 |
| | 416.000 | 722.80 | 730.27 | 4000.00 | 9.64 | 2.86 | 120.85 | 7.47 | 9960.16 | 10094.66 | 0.00 | 5.02 | 0.00 |

1

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| | SECNO | ELMIN | CWSEL | Q | VCH | DIFWSX | TOPWID | DEPTH | SSTA | ENDST | QLOB | QROB | ELTRD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 441.000 | 724.00 | 727.75 | 1000.00 | 4.96 | 0.84 | 66.00 | 3.75 | 9967.00 | 10033.00 | 0.00 | 0.00 | 0.00 |
| | 441.000 | 724.00 | 729.23 | 2000.00 | 6.68 | 0.88 | 66.00 | 5.23 | 9967.00 | 10033.00 | 0.00 | 0.00 | 0.00 |
| | 441.000 | 724.00 | 730.27 | 3000.00 | 8.16 | 0.84 | 66.00 | 6.27 | 9967.00 | 10033.00 | 0.00 | 0.00 | 0.00 |
| | 441.000 | 724.00 | 731.01 | 4000.00 | 9.61 | 0.74 | 66.00 | 7.01 | 9967.00 | 10033.00 | 0.00 | 0.00 | 0.00 |
| | 457.000 | 727.40 | 730.54 | 1000.00 | 4.82 | 2.78 | 66.00 | 3.14 | 9967.00 | 10033.00 | 0.00 | 0.00 | 750.00 |
| | 457.000 | 727.40 | 732.32 | 2000.00 | 6.16 | 3.09 | 66.00 | 4.92 | 9967.00 | 10033.00 | 0.00 | 0.00 | 750.00 |
| | 457.000 | 727.40 | 733.82 | 3000.00 | 7.08 | 3.55 | 66.00 | 6.42 | 9967.00 | 10033.00 | 0.00 | 0.00 | 750.00 |
| * | 457.000 | 727.40 | 736.29 | 4000.00 | 6.81 | 5.28 | 66.00 | 8.89 | 9967.00 | 10033.00 | 0.00 | 0.00 | 750.00 |
| * | 508.000 | 727.20 | 731.49 | 1000.00 | 6.83 | 0.95 | 121.92 | 4.29 | 9903.69 | 10025.61 | 167.09 | 2.29 | 0.00 |
| | 508.000 | 727.20 | 733.23 | 2000.00 | 6.45 | 0.91 | 163.24 | 6.03 | 9871.00 | 10034.24 | 732.59 | 24.79 | 0.00 |
| | 508.000 | 727.20 | 734.90 | 3000.00 | 5.98 | 1.08 | 181.00 | 7.70 | 9871.00 | 10052.00 | 1347.39 | 95.11 | 0.00 |
| | 508.000 | 727.20 | 737.19 | 4000.00 | 5.08 | 0.90 | 181.00 | 9.99 | 9871.00 | 10052.00 | 1980.14 | 221.91 | 0.00 |

1

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SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=   3180.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   3180.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   3180.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   3180.000  PROFILE=  4  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     37.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     37.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     37.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     37.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     37.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     37.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     37.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     37.000  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     37.000  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     37.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     37.000  PROFILE=  4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     37.000  PROFILE=  4  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=    129.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    129.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    320.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    441.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    457.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    508.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

## C150 Flow Split

| Stage | Discharge (cfs) | | | | |
|---|---|---|---|---|---|
| | Weir West | Scott Avenue Wash | | | Total Flow |
| | | Culvert | Road | Total | |
| 751.6 | 0 | 0 | 0 | 0 | 0 |
| 752.0 | 0 | 100 | 0 | 100 | 100 |
| 753.0 | 0 | 200 | 0 | 200 | 200 |
| 754.0 | 0 | 300 | 0 | 300 | 300 |
| 755.0 | 0 | 500 | 0 | 500 | 500 |
| 756.0 | 0 | 650 | 500 | 1150 | 1150 |
| 757.0 | 0 | 900 | 950 | 1850 | 1850 |
| 758.0 | 0 | 1100 | 1450 | 2550 | 2550 |
| 758.5 | 0 | 1200 | 1650 | 2850 | 2850 |
| 759.0 | 1600 | 1300 | 1900 | 3200 | 4800 |
| 759.5 | 4000 | 1350 | 2100 | 3450 | 7450 |
| 760.0 | 8000 | 1400 | 2400 | 3800 | 11800 |
| 760.5 | 14500 | 1475 | 2650 | 4125 | 18625 |
| 761.0 | 22000 | 1550 | 2950 | 4500 | 26500 |

```
1*******************************************
 *  HEC-2 WATER SURFACE PROFILES            *
 *  Version   4.6.2;  May 1991              *
 *  386 Extended Memory version, August 1991 *
 *  Dodson & Associates, Inc 1-800-235-8069 *
 *  RUN DATE    01APR92    TIME   10:16:28  *
 *******************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X           XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

1

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THIS RUN EXECUTED 01APR92  10:16:28

```
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
```

```
T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SCOTT AVENUE WASH                          J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

              2                         0.0037                                747

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     1                 -1

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38       42        1       43       26       51        4        8       53       54
     13       15       40
```

SECTIONS ARE LABELED AS RIVER MILES * 1000, i.e., SECTION 1884 IS AT RIVER MILE 1.884 UPSTREAM OF THE CONFLUENCE WITH THE GILA RIVER.

J1.5 STRT WAS OBTAINED BY (665.5SPOT ELEV-664CONTOUR)/410 FT = 0.0037

THIS MODEL BEGINS AT RM 1.884. THE DETAILED STUDY BEGINS AT RM 2.261.

```
NC     0.06     0.03     0.03      0.1      0.3
QT        5      300      610     1220     2440     6100
NC    0.035    0.035    0.035
QT        5      300      610     1220     2440     6100
X1     5137       14   9941.7  10034.8   1110.0   1140.0   1193.0
GR    755.3   9755.1    752.5   9835.8    751.6   9891.8    750.8  9941.7    749.4   9968.5
GR    749.7   9979.6    749.2   9985.7    747.6   9991.3    746.6 10000.0    748.5  10010.5
GR    751.6  10034.8    752.8  10082.9    753.8  10135.8    754.3 10179.4
```

SCOTT AVENUE WASH IS CONVEYED BENEATH INTERSTATE 8 BY A BOX CULVERT. SPECIAL CULVERT IS USED TO MODEL THE STRUCTURE.

SECTION 5200 IS BASED ON FIELD SURVEY DATA (CHANNEL) AND TOPO MAP DATA (OVERBANKS).

INCREASE EXPANSION/CONTRACTION COEFFICIENTS FOR THE BRIDGE.

1

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```
NC                                 0.3      0.5
X1     5200        5     9989    10011      200      400      333
X3       10                                                   770.3    770.3
GR    755.3     9600      752     9970    750.5     9989    750.5    10011      756    10220
```

WIER FLOW IS NOT ANTICIPATED.  USE ELTRD = 771.3 + 0.5 HV = 771.8
AND SC.5 RDLEN = 500 FT.
USE PSXECE = 0.7 WHEN THE SECTION IS REPEATED AT THE UPSTREAM FACE.

```
SC    2.014      0.4        3      500      6.8       10      294      8.1    751.2    750.5
X1     5258                                 304      304                       0.7
X2                           2                771.8
X3       10                                                   771.3    771.3
```

DEVELOP A SECTION UPSTREAM OF THE CULVERT TO COMPUTE CONTRACTION LOSSES.
USE TOPO MAP DATA TO GENERATE GR POINTS.

```
X1     5308        5     9900    10080      320      180      264
GR      760     9850      756     9900      752    10000      756    10080      760    10150
```

1

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```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
```

```
*PROF 1

CCHV=    0.100 CEHV=    0.300
*SECNO 5137.000
  5137.000      3.62    750.22      0.00    747.00    750.37      0.15      0.00      0.00    750.80
     300.0       0.0     300.0       0.0       0.0      95.6       0.0       0.0       0.0    751.60
      0.00      0.00      3.14      0.00     0.000     0.035     0.000     0.000    746.60   9952.80
  0.003735     1110.     1193.     1140.         0         0        10      0.00     71.19  10023.98


CCHV=    0.300 CEHV=    0.500
*SECNO 5200.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      770.30 ELREA=      770.30

  5200.000      1.78    752.28    752.28      0.00    753.19      0.91      2.21      0.38    750.50
     300.0       0.0     300.0       0.0       0.0      39.2       0.0       0.5       0.4    750.50
      0.01      0.00      7.64      0.00     0.000     0.035     0.000     0.000    750.50   9989.00
  0.014988      200.      333.      400.         4         8         0      0.00     22.00  10011.00


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     2        0.014     0.40      3.00      500.00    6.80      10.00     294.00    8         1         751.20    750.50

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 5258.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    754.209  EGOC =    754.410  PCWSE=    752.284  ELTRD=    771.800


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.20

1
   01APR92      10:16:28                                                                                    PAGE    4

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

SPECIAL CULVERT

     EGIC       EGOC        H4       QWEIR      QCULV       VCH      ACULV      ELTRD     WEIRLN
    754.21     754.41      1.22        0.        300.     4.760      136.0     771.80        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      771.30 ELREA=      771.30

  5258.000      2.86    754.06      0.00      0.00    754.41      0.35      1.22      0.00    751.20
     300.0       0.0     300.0       0.0       0.0      63.0       0.0       0.9       0.5    751.20
      0.03      0.00      4.76      0.00     0.000     0.035     0.000     0.000    751.20   9989.00
  0.003088      304.      304.      304.         2         0         0      0.00     22.00  10011.00

*SECNO 5308.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.84

  5308.000      2.86    754.86      0.00      0.00    754.91      0.04      0.40      0.09    756.00
     300.0       0.0     300.0       0.0       0.0     184.7       0.0       1.6       1.0    756.00
      0.07      0.00      1.62      0.00     0.000     0.035     0.000     0.000    752.00   9928.37
  0.000907      320.      264.      180.         4         0         0      0.00    128.93  10057.30

1
   01APR92      10:16:28                                                                                    PAGE    5

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SCOTT AVENUE WASH                          J. MISCHLER - (602) 244-8100

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                3                                 0.0037                                     747

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     2                    -1

1
   01APR92      10:16:28                                                                                    PAGE    6

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 2

CCHV=    0.100 CEHV=    0.300
*SECNO 5137.000
  5137.000      4.40    751.00      0.00    747.00    751.23      0.23      0.00      0.00    750.80
     610.0       0.7     609.3       0.0       1.3     159.3       0.0       0.0       0.0    751.60
      0.00      0.57      3.82      0.00     0.035     0.035     0.000     0.000    746.60   9928.92
```

```
  0.003739     1110.     1193.     1140.        0        0       11     0.00    101.21  10030.13

CCHV=    0.300 CEHV=    0.500
*SECNO 5200.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       770.30 ELREA=       770.30

  5200.000      2.87    753.37    753.37      0.00    754.82      1.45      2.09      0.61    750.50
     610.0       0.0     610.0       0.0       0.0      63.1       0.0       0.9       0.5    750.50
      0.01      0.00      9.66      0.00     0.000     0.035     0.000     0.000    750.50   9989.00
  0.012708      200.      333.      400.         5        14         0      0.00     22.00  10011.00


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     2        0.014     0.40      3.00      500.00    6.80      10.00     294.00    8         1         751.20    750.50

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS: NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 5258.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    756.099  EGOC =    756.354  PCWSE=    753.369  ELTRD=    771.800

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.19
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
   756.10    756.35      1.54        0.      610.     6.044     136.0    771.80        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       771.30 ELREA=       771.30

  5258.000      4.59    755.79      0.00      0.00    756.35      0.57      1.54      0.00    751.20
     610.0       0.0     610.0       0.0       0.0     100.9       0.0       1.4       0.6    751.20
      0.02      0.00      6.04      0.00     0.000     0.035     0.000     0.000    751.20   9989.00
  0.002658      304.      304.      304.         3         0         0      0.00     22.00  10011.00

*SECNO 5308.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.28

  5308.000      4.65    756.65      0.00      0.00    756.67      0.03      0.15      0.16    756.00
     610.0       0.8     608.0       1.1       2.6     476.3       3.7       3.2       1.3    756.00
      0.08      0.31      1.28      0.31     0.035     0.035     0.035     0.000    752.00   9891.93
  0.000247      320.      264.      180.         3         0         0      0.00    199.38  10091.30
```



```
T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SCOTT AVENUE WASH                          J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 4                         0.0037                                    747

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3                  -1
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CCHV=    0.100 CEHV=    0.300
*SECNO 5137.000
  5137.000      5.27    751.87      0.00    747.00    752.22      0.34      0.00      0.00    750.80
    1220.0      68.3    1150.7       1.0      35.9     238.7       1.5       0.0       0.0    751.60
      0.00      1.90      4.82      0.69     0.035     0.035     0.035     0.000    746.60   9874.82
  0.003709     1110.     1193.     1140.         0         0        14      0.00    170.92  10045.74

CCHV=    0.300 CEHV=    0.500
```

```
*SECNO 5200.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      770.30 ELREA=      770.30

  5200.000      4.56    755.06    755.06      0.00    757.36      2.30      1.95      0.98    750.50
    1220.0       0.0    1220.0       0.0       0.0     100.3       0.0       1.4       0.6    750.50
      0.01      0.00     12.16      0.00     0.000     0.035     0.000     0.000    750.50   9989.00
  0.010851      200.      333.      400.        20        11         0      0.00     22.00  10011.00


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     2        0.014     0.40      3.00      500.00    6.80      10.00     294.00    8         1         751.20    750.50

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 5258.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    759.106  EGOC =    759.395  PCWSE=    755.060  ELTRD=    771.800

3280 CROSS SECTION   5258.00 EXTENDED      2.50 FEET


3301 HV CHANGED MORE THAN HVINS

1
   01APR92      10:16:28                                                                                    PAGE   10

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.19

SPECIAL CULVERT

     EGIC       EGOC        H4       QWEIR      QCULV       VCH      ACULV      ELTRD     WEIRLN
    759.11     759.40      2.04        0.       1220.      7.597     136.0     771.80       0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      771.30 ELREA=      771.30

  5258.000      7.30    758.50      0.00      0.00    759.40      0.90      2.04      0.00    751.20
    1220.0       0.0    1220.0       0.0       0.0     160.6       0.0       2.3       0.8    751.20
      0.02      0.00      7.60      0.00     0.000     0.035     0.000     0.000    751.20   9989.00
  0.002261      304.      304.      304.         3         0         0      0.00     22.00  10011.00

*SECNO 5308.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.91

  5308.000      7.69    759.69      0.00      0.00    759.71      0.02      0.05      0.26    756.00
    1220.0      43.7    1115.1      61.2      85.1    1024.4     119.2       6.4       1.7    756.00
      0.09      0.51      1.09      0.51     0.035     0.035     0.035     0.000    752.00   9853.86
  0.000065      320.      264.      180.         2         0         0      0.00    290.73  10144.59

1
   01APR92      10:16:28                                                                                    PAGE   11

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SCOTT AVENUE WASH                          J. MISCHLER - (602) 244-8100

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

                5                                 0.0037                                     747

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     4                    -1

1
   01APR92      10:16:28                                                                                    PAGE   12

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 4

CCHV=    0.100 CEHV=    0.300
*SECNO 5137.000
  5137.000      6.26    752.86      0.00    747.00    753.33      0.48      0.00      0.00    750.80
    2440.0     402.0    1976.3      61.7     129.7     330.4      31.7       0.0       0.0    751.60
      0.00      3.10      5.98      1.95     0.035     0.035     0.035     0.000    746.60   9825.51
  0.003705     1110.     1193.     1140.         0         0        16      0.00    260.41  10085.92

CCHV=    0.300 CEHV=    0.500
*SECNO 5200.000
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3280 CROSS SECTION   5200.00 EXTENDED      2.45 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       770.30 ELREA=       770.30

  5200.000      7.25    757.75    757.75      0.00    761.38      3.63      1.79      1.58    750.50
    2440.0       0.0    2440.0       0.0       0.0     159.6       0.0       2.3       0.9    750.50
      0.01      0.00     15.29      0.00     0.000     0.035     0.000     0.000    750.50   9989.00
  0.009243      200.      333.      400.        20         8         0      0.00     22.00  10011.00


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     2        0.014     0.40      3.00      500.00    6.80      10.00     294.00    8         1         751.20    750.50

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

5130, EGIC=  769.09..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC=  768.03 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 5258.000

SPECIAL CULVERT INLET CONTROL
EGIC =    769.093  EGOC =    768.031  PCWSE=    757.752  ELTRD=    771.800

3280 CROSS SECTION   5258.00 EXTENDED     12.45 FEET
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.24

SPECIAL CULVERT

    EGIC      EGOC       H4      QWEIR     QCULV      VCH     ACULV     ELTRD    WEIRLN
   769.09    768.03     7.71       0.      2440.    6.429     136.0    771.80        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       771.30 ELREA=       771.30

  5258.000     17.25    768.45      0.00      0.00    769.09      0.64      7.71      0.00    751.20
    2440.0       0.0    2440.0       0.0       0.0     379.5       0.0       4.2       1.1    751.20
      0.02      0.00      6.43      0.00     0.000     0.035     0.000     0.000    751.20   9989.00
  0.000514      304.      304.      304.         2         0         0      0.00     22.00  10011.00

*SECNO 5308.000
3280 CROSS SECTION   5308.00 EXTENDED     9.28 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  9.12

  5308.000     17.28    769.28      0.00      0.00    769.29      0.01      0.01      0.19    756.00
    2440.0     267.0    1787.4     385.7     564.1    2750.9     789.8      17.4       2.0    756.00
      0.14      0.47      0.65      0.49     0.035     0.035     0.035     0.000    752.00   9850.00
  0.000006      320.      264.      180.         2         0         0      0.00    300.00  10150.00
```



```
T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      SCOTT AVENUE WASH                          J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                6                           0.0037                                    747

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15                  -1
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CCHV=    0.100 CEHV=    0.300
*SECNO 5137.000
3840 SECTION NOT HIGH ENOUGH   859.382   804.300   746.600   805.300   749.000        14
3840 SECTION NOT HIGH ENOUGH   859.382   854.300   746.600   855.300   749.000        14
  5137.000      7.88    754.48    753.80    747.00    755.16      0.68      0.00      0.00    750.80
```

```
    6100.0     1710.7     3691.7     697.6     356.6     481.7     191.2      0.0       0.0     751.60
      0.00       4.80       7.66      3.65     0.035     0.035     0.035    0.000    746.60    9778.67
  0.003679      1110.      1193.      1140.         0        47        10     0.00    400.73   10179.40

CCHV=    0.300 CEHV=    0.500
*SECNO 5200.000
3280 CROSS SECTION    5200.00 EXTENDED      8.52 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       770.30 ELREA=       770.30

  5200.000      13.32     763.82     763.82      0.00    770.55      6.73      1.63      3.03     750.50
    6100.0        0.0     6100.0        0.0       0.0     293.0       0.0       4.7       1.5     750.50
      0.00       0.00      20.82       0.00     0.000     0.035     0.000     0.000    750.50    9989.00
  0.007616       200.       333.       400.        20        14         0      0.00     22.00   10011.00


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     2          0.014      0.40       3.00      500.00      6.80      10.00      294.00      8          1         751.20     750.50

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

5130, EGIC=  834.15..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC=  828.06 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 5258.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =     773.47
3280 CROSS SECTION    5258.00 EXTENDED      17.47 FEET

3301 HV CHANGED MORE THAN HVINS

1
   01APR92       10:16:28                                                                                          PAGE    16

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO = 51.13

SPECIAL CULVERT

     EGIC       EGOC        H4       QWEIR      QCULV       VCH      ACULV      ELTRD     WEIRLN
    834.15     828.06      2.92      3236.      2838.     0.574      136.0     771.80      500.


  5258.000      22.27     773.47       0.00       0.00    773.47       0.00       2.92       0.00     751.20
    6100.0     3783.5      281.1     2035.5     7483.1     489.9     4079.6       47.7        3.7     751.20
      0.17       0.51       0.57       0.50      0.035     0.035      0.035      0.000     751.20    9600.00
  0.000003       304.       304.       304.          0         0          0       0.00     620.00   10220.00

*SECNO 5308.000
3280 CROSS SECTION    5308.00 EXTENDED      13.46 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.42

  5308.000      21.46     773.46       0.00       0.00    773.48       0.02       0.00       0.01     756.00
    6100.0      704.4     4366.7     1028.9      772.9    3502.5     1082.1      100.8        6.5     756.00
      0.23       0.91       1.25       0.95      0.035     0.035      0.035      0.000     752.00    9850.00
  0.000016       320.       264.       180.          2         0          0       0.00     300.00   10150.00

1
   01APR92       10:16:28                                                                                          PAGE    17


                                                                                THIS RUN EXECUTED 01APR92     10:16:33
************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2:  May 1991
************************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SCOTT AVENUE WASH

SUMMARY PRINTOUT

      SECNO      ELMIN      CWSEL      Q          VCH        DIFWSX     TOPWID     DEPTH      SSTA       ENDST      QLOB       QROB       ELTRD

    5137.000     746.60     750.22     300.00     3.14       0.00       71.19      3.62       9952.80    10023.98   0.00       0.00       0.00
    5137.000     746.60     751.00     610.00     3.82       0.00      101.21      4.40       9928.92    10030.13   0.74       0.00       0.00
    5137.000     746.60     751.87    1220.00     4.82       0.00      170.92      5.27       9874.82    10045.74  68.26       1.02       0.00
    5137.000     746.60     752.86    2440.00     5.98       0.00      260.41      6.26       9825.51    10085.92 401.95      61.72       0.00
    5137.000     746.60     754.48    6100.00     7.66       0.00      400.73      7.88       9778.67    10179.40 1710.66    697.64       0.00

*   5200.000     750.50     752.28     300.00     7.64       2.06       22.00      1.78       9989.00    10011.00   0.00       0.00       0.00
*   5200.000     750.50     753.37     610.00     9.66       2.36       22.00      2.87       9989.00    10011.00   0.00       0.00       0.00
*   5200.000     750.50     755.06    1220.00    12.16       3.19       22.00      4.56       9989.00    10011.00   0.00       0.00       0.00
*   5200.000     750.50     757.75    2440.00    15.29       4.89       22.00      7.25       9989.00    10011.00   0.00       0.00       0.00
```

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 5200.000 | 750.50 | 763.82 | 6100.00 | 20.82 | 9.34 | 22.00 | 13.32 | 9989.00 | 10011.00 | 0.00 | 0.00 | 0.00 |
| * | 5258.000 | 751.20 | 754.06 | 300.00 | 4.76 | 1.77 | 22.00 | 2.86 | 9989.00 | 10011.00 | 0.00 | 0.00 | 771.80 |
| * | 5258.000 | 751.20 | 755.79 | 610.00 | 6.04 | 2.42 | 22.00 | 4.59 | 9989.00 | 10011.00 | 0.00 | 0.00 | 771.80 |
| * | 5258.000 | 751.20 | 758.50 | 1220.00 | 7.60 | 3.44 | 22.00 | 7.30 | 9989.00 | 10011.00 | 0.00 | 0.00 | 771.80 |
| * | 5258.000 | 751.20 | 768.45 | 2440.00 | 6.43 | 10.70 | 22.00 | 17.25 | 9989.00 | 10011.00 | 0.00 | 0.00 | 771.80 |
| * | 5258.000 | 751.20 | 773.47 | 6100.00 | 0.57 | 9.65 | 620.00 | 22.27 | 9600.00 | 10220.00 | 3783.48 | 2035.47 | 771.80 |
| * | 5308.000 | 752.00 | 754.86 | 300.00 | 1.62 | 0.81 | 128.93 | 2.86 | 9928.37 | 10057.30 | 0.00 | 0.00 | |
| * | 5308.000 | 752.00 | 756.65 | 610.00 | 1.28 | 0.86 | 199.38 | 4.65 | 9891.93 | 10091.30 | 0.82 | 1.15 | |
| * | 5308.000 | 752.00 | 759.69 | 1220.00 | 1.09 | 1.19 | 290.73 | 7.69 | 9853.86 | 10144.59 | 43.68 | 61.22 | |
| * | 5308.000 | 752.00 | 769.28 | 2440.00 | 0.65 | 0.83 | 300.00 | 17.28 | 9850.00 | 10150.00 | 266.97 | 385.66 | [illegible] |
| * | 5308.000 | 752.00 | 773.46 | 6100.00 | 1.25 | -0.01 | 300.00 | 21.46 | 9850.00 | 10150.00 | 704.40 | 1028.92 | 0.00 |

1

01APR92 10:16:28 PAGE 18

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=  5200.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  5200.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  5200.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  5200.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  5200.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  5200.000  PROFILE=  3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  5200.000  PROFILE=  3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=  5200.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  5200.000  PROFILE=  4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  5200.000  PROFILE=  4  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=  5200.000  PROFILE=  5  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  5200.000  PROFILE=  5  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  5200.000  PROFILE=  5  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=  5258.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  5258.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  5258.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  5258.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  5258.000  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  5308.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  5308.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  5308.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  5308.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  5308.000  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

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1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version   4.6.2;  May 1991                *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE    27MAR92    TIME   15:48:35    *
 *********************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (916) 756-1104             *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                  X     X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                 X
X     X  X        X     X           X
X     X  XXXXXXX   XXXXX             XXXXXXX
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1
   27MAR92      15:48:35                                                                                    PAGE    1
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                                                                                THIS RUN EXECUTED 27MAR92     15:48:35
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************

 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
 T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
 T3      FLOW SPLIT UP GRAVEL RD                  J. MISCHLER - (602) 244-8100

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 2                         0.0053

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1                  -1

 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        42         1        43        26        51         4         8        53        54
      13        15        40

         THIS RUN MODELS FLOW TO THE NORTH ALONG A GRAVEL ROAD
         WEST OF SCOTT AVENUE WASH BENEATH I-8.

         J1.5 STRT = (757.4 - 754.8)/590 = 0.0044 FT/FT

 NC    0.035     0.035     0.035       0.1       0.3
 QT        5      5000     10000     15000     20000     25000
 X1        1         6      1000      1100
 GR      772      1000       755      1030       756      1040       756      1060       755      1070
 GR      772      1100
1
   27MAR92      15:48:35                                                                                    PAGE    2

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 1

 CCHV=    0.100 CEHV=    0.300
 *SECNO 1.000
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
      1.000      9.03    764.03      0.00      0.00    765.75      1.72      0.00      0.00    772.00
    5000.0       0.0    5000.0       0.0       0.0     475.3       0.0       0.0       0.0    772.00
      0.00      0.00     10.52      0.00     0.000     0.035     0.000     0.000    755.00   1014.06
  0.005397        0.        0.        0.         0         0         3      0.00     71.88   1085.94

1
   27MAR92      15:48:35                                                                                    PAGE    3

 T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
 T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
 T3      FLOW SPLIT WEST OF SCOTT                 J. MISCHLER - (602) 244-8100

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 3                         0.0044

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      2                  -1

1
   27MAR92      15:48:35                                                                                    PAGE    4

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 2

 CCHV=    0.100 CEHV=    0.300
```

```
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      13.53     768.53      0.00      0.00    770.76      2.23      0.00      0.00    772.00
   10000.0        0.0   10000.0        0.0       0.0     833.9       0.0       0.0       0.0    772.00
      0.00       0.00     11.99      0.00     0.000     0.035     0.000     0.000    755.00   1006.13
  0.004404         0.        0.        0.         0         0         5      0.00     87.74   1093.87
```

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1
   27MAR92      15:48:35                                                                          PAGE    5

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      FLOW SPLIT WEST OF SCOTT                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                4                           0.0044

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3                  -1

1
   27MAR92      15:48:35                                                                          PAGE    6

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 3

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
     1.000      16.57     771.57      0.00      0.00    774.37      2.80      0.00      0.00    772.00
   15000.0        0.0   15000.0        0.0       0.0    1117.3       0.0       0.0       0.0    772.00
      0.00       0.00     13.43      0.00     0.000     0.035     0.000     0.000    755.00   1000.76
  0.004398         0.        0.        0.         0         0         6      0.00     98.48   1099.24
```

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1
   27MAR92      15:48:35                                                                          PAGE    7

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      FLOW SPLIT WEST OF SCOTT                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                5                           0.0044

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4                  -1

1
   27MAR92      15:48:35                                                                          PAGE    8

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3280 CROSS SECTION      1.00 EXTENDED      1.96 FEET

     1.000      18.96     773.96      0.00      0.00    777.34      3.38      0.00      0.00    772.00
   20000.0        0.0   20000.0        0.0       0.0    1355.7       0.0       0.0       0.0    772.00
      0.00       0.00     14.75      0.00     0.000     0.035     0.000     0.000    755.00   1000.00
  0.004394         0.        0.        0.         0         0         6      0.00    100.00   1100.00
```

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1
   27MAR92      15:48:35                                                                          PAGE    9

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      FLOW SPLIT WEST OF SCOTT                    J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                6                           0.0044

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    15                  -1

1
   27MAR92      15:48:35                                                                          PAGE   10

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
```

2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3280 CROSS SECTION 1.00 EXTENDED 3.89 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 20.89 | 775.89 | 0.00 | 0.00 | 779.93 | 4.04 | 0.00 | 0.00 | 772.00 |
| 25000.0 | 0.0 | 25000.0 | 0.0 | 0.0 | 1549.0 | 0.0 | 0.0 | 0.0 | 772.00 |
| 0.00 | 0.00 | 16.14 | 0.00 | 0.000 | 0.035 | 0.000 | 0.000 | 755.00 | 1000.00 |
| 0.004401 | 0. | 0. | 0. | 0 | 0 | 6 | 0.00 | 100.00 | 1100.00 |

1
27MAR92 15:48:35 PAGE 11

THIS RUN EXECUTED 27MAR92 15:48:37

**********
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
**********

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FLOW SPLIT UP GRAVEL RD

SUMMARY PRINTOUT

| SECNO | ELMIN | CWSEL | Q | VCH | DIFWSX | TOPWID | DEPTH | SSTA | ENDST | QLOB | QROB | ELTRD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.000 | 755.00 | 764.03 | 5000.00 | 10.52 | 0.00 | 71.88 | 9.03 | 1014.06 | 1085.94 | 0.00 | 0.00 | 0.00 |
| 1.000 | 755.00 | 768.53 | 10000.00 | 11.99 | 0.00 | 87.74 | 13.53 | 1006.13 | 1093.87 | 0.00 | 0.00 | 0.00 |
| 1.000 | 755.00 | 771.57 | 15000.00 | 13.43 | 0.00 | 98.48 | 16.57 | 1000.76 | 1099.24 | 0.00 | 0.00 | 0.00 |
| 1.000 | 755.00 | 773.96 | 20000.00 | 14.75 | 0.00 | 100.00 | 18.96 | 1000.00 | 1100.00 | 0.00 | 0.00 | 0.00 |
| 1.000 | 755.00 | 775.89 | 25000.00 | 16.14 | 0.00 | 100.00 | 20.89 | 1000.00 | 1100.00 | 0.00 | 0.00 | 0.00 |

1
27MAR92 15:48:35 PAGE 12

SUMMARY OF ERRORS AND SPECIAL NOTES

```
1*********************************************
 *  HEC-2 WATER SURFACE PROFILES              *
 *  Version   4.6.2;  May 1991                *
 *  386 Extended Memory version, August 1991  *
 *  Dodson & Associates, Inc 1-800-235-8069   *
 *  RUN DATE    27MAR92     TIME   15:48:14   *
 *********************************************
```

```
*************************************
 *  U.S. ARMY CORPS OF ENGINEERS     *
 *  HYDROLOGIC ENGINEERING CENTER    *
 *  609 SECOND STREET, SUITE D       *
 *  DAVIS, CALIFORNIA 95616-4687     *
 *          (916) 756-1104           *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X           X     X
X     X  X         X                 X     X
XXXXXXX  XXXX      X          XXXXX   XXXXX
X     X  X         X                 X
X     X  X         X     X           X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

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1
   27MAR92       15:48:14                                                                    PAGE    1
```

```
                                                                THIS RUN EXECUTED 27MAR92     15:48:14
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
```

```
T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      FLOW SPLIT AT PIT                          J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

              2                             0.0133

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                  -1

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        42         1        43        26        51         4         8        53        54
     13        15        40

        THIS RUN MODELS THE SPLIT OF FLOW UPSTREAM OF I-8 TO THE GRAVEL
        PIT UPSTREAM OF INTERSTATE 8.  THE MODEL REPRESENTS
        A BROAD CRESTED WEIR ON THE RIDGE.  BT DATA
        IS ACCURATE FROM THE TOPO MAPPING, BUT GR DATA IS PHONY TO
        ALLOW SPECIAL BRIDGE COMPUTE WEIR FLOW.

        J1.5 STRT = (756-752)/300 FT = 0.0133 FT/FT

        THESE RESULTS ARE COMBINED WITH OTHER RUNS TO DETERMINE THE SPLIT
        AT INTERSTATE 8.

NC    0.035     0.035     0.035       0.1       0.3
QT        5      5000     10000     15000     20000     25000
X1        1         7      1000      4170
X3       10                                                          780       780
GR      764      1000       758      1510     756.2      1780       757      2750     756.5      3480
GR      758      4110     778.5      4170

SB      0.9      1.25       2.6         0       0.1         0      0.01         0     756.2     756.2
X1        2         7      1000      4170       100       100       100
X2                          1     756.5       780
X3       10                                                          780       780
BT       -7      1000       764                 1510       760                 1780     758.2
BT               2750       759                 3480     758.5                 4110       760
BT               4170     778.5
GR      764      1000       758      1510     756.2      1780       757      2750     756.5      3480
1
   27MAR92       15:48:14                                                                    PAGE    2

GR      758      4110     778.5      4170
1
   27MAR92       15:48:14                                                                    PAGE    3

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3498 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       780.00 ELREA=       780.00

    1.000      1.14    757.34      0.00      0.00    757.54      0.20      0.00      0.00    764.00
   5000.0       0.0    5000.0       0.0       0.0    1396.0       0.0       0.0       0.0    778.50
     0.00      0.00      3.58      0.00     0.000     0.035     0.000     0.000    756.20   1608.88
 0.013245        0.        0.        0.         0         0         6      0.00   2224.27   3833.14


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.90      1.25      2.60      0.00      0.10      0.00      0.01      0.00    756.20    756.20
```

```
*SECNO 2.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO = 13.78

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
**********   757.54    0.00     5015.       0.         0.       0.        756.50    780.00      2386.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       780.00 ELREA=       780.00

     2.000      3.42    759.62      0.00       0.00    759.62      0.01      2.08      0.00    764.00
    5000.0       0.0    5000.0       0.0        0.0    7324.2       0.0      10.0       5.7    778.50
      0.04      0.00      0.68      0.00      0.000     0.035     0.000     0.000    756.20   1371.96
  0.000070      100.      100.      100.          0         0        10      0.00   2742.79   4114.75


1
   27MAR92      15:48:14                                                                          PAGE    4

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      FLOW SPLIT WEST OF SCOTT                    J. MISCHLER - (602) 244-8100

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 3                         0.0133

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2                    -1

1
   27MAR92      15:48:14                                                                          PAGE    5

    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 2

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       780.00 ELREA=       780.00

     1.000      1.48    757.68      0.00       0.00    758.01      0.32      0.00      0.00    764.00
   10000.0       0.0   10000.0       0.0        0.0    2189.8       0.0       0.0       0.0    778.50
      0.00      0.00      4.57      0.00      0.000     0.035     0.000     0.000    756.20   1557.59
  0.013212        0.        0.        0.          0         0         5      0.00   2419.16   3976.75


SPECIAL BRIDGE

SB  XK         XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.90      1.25      2.60      0.00      0.10      0.00      0.01      0.00     756.20    756.20

*SECNO 2.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  9.07

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
**********   758.01    0.00    10066.       0.         0.       0.        756.50    780.00      2618.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       780.00 ELREA=       780.00

     2.000      3.92    760.12      0.00       0.00    760.14      0.02      2.13      0.00    764.00
   10000.0       0.0   10000.0       0.0        0.0    8698.0       0.0      12.5       6.0    778.50
      0.02      0.00      1.15      0.00      0.000     0.035     0.000     0.000    756.20   1329.73
  0.000161      100.      100.      100.          2         0         9      0.00   2786.48   4116.21


1
   27MAR92      15:48:14                                                                          PAGE    6

T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      FLOW SPLIT WEST OF SCOTT                    J. MISCHLER - (602) 244-8100

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                 4                         0.0133

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3                    -1

1
   27MAR92      15:48:14                                                                          PAGE    7

    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
```

```
*PROF 3

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       780.00 ELREA=       780.00

     1.000      1.76    757.96      0.00      0.00    758.38      0.42      0.00      0.00    764.00
   15000.0       0.0   15000.0       0.0       0.0    2873.1       0.0       0.0       0.0    778.50
      0.00      0.00      5.22      0.00     0.000     0.035     0.000     0.000    756.20   1516.55
  0.013067        0.        0.        0.         0         0         4      0.00   2575.13   4091.67


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.90      1.25      2.60      0.00      0.10      0.00      0.01      0.00     756.20    756.20

*SECNO 2.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  7.25

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA     TRAPEZOID AREA     ELLC      ELTRD     WEIRLN
**********   758.38     0.00      15028.    0.        0.        0.                 756.50    780.00    2671.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       780.00 ELREA=       780.00

     2.000      4.31    760.51      0.00      0.00    760.54      0.04      2.16      0.00    764.00
   15000.0       0.0   15000.0       0.0       0.0    9776.8       0.0      14.5       6.2    778.50
      0.02      0.00      1.53      0.00     0.000     0.035     0.000     0.000    756.20   1297.02
  0.000249      100.      100.      100.         2         0         9      0.00   2820.32   4117.33
```



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T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
T3      FLOW SPLIT WEST OF SCOTT                  J. MISCHLER - (602) 244-8100

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                5                           0.0133

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     4                  -1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 4

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       780.00 ELREA=       780.00

     1.000      1.97    758.17      0.00      0.00    758.70      0.53      0.00      0.00    764.00
   20000.0       0.0   20000.0       0.0       0.0    3417.9       0.0       0.0       0.0    778.50
      0.00      0.00      5.85      0.00     0.000     0.035     0.000     0.000    756.20   1495.92
  0.013289        0.        0.        0.         0         0         4      0.00   2614.56   4110.48


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.90      1.25      2.60      0.00      0.10      0.00      0.01      0.00     756.20    756.20

*SECNO 2.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.36

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA     TRAPEZOID AREA     ELLC      ELTRD     WEIRLN
**********   758.70     0.00      20013.    0.        0.        0.                 756.50    780.00    2717.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       780.00 ELREA=       780.00

     2.000      4.64    760.84      0.00      0.00    760.90      0.05      2.20      0.00    764.00
   20000.0       0.0   20000.0       0.0       0.0   10736.8       0.0      16.2       6.3    778.50
      0.01      0.00      1.86      0.00     0.000     0.035     0.000     0.000    756.20   1268.23
  0.000328      100.      100.      100.         2         0         9      0.00   2850.09   4118.32
```



```
T1      FLOOD CONTROL DISTRICT OF MARICOPA COUNTY - CONTRACT FCD 90-67
T2      GILA BEND AREA FLOODPLAIN DELINEATION STUDY BY BURGESS & NIPLE
```

```
T3      FLOW SPLIT WEST OF SCOTT                    J. MISCHLER - (602) 244-8100
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
                 6                         0.0133
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     15                  -1
1
   27MAR92      15:48:14                                                                                    PAGE   11

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 5

CCHV=    0.100 CEHV=    0.300
*SECNO 1.000
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       780.00 ELREA=       780.00

    1.000      2.16    758.36      0.00      0.00    758.99      0.63      0.00      0.00    764.00
  25000.0       0.0   25000.0       0.0       0.0    3928.5       0.0       0.0       0.0    778.50
     0.00      0.00      6.36      0.00     0.000     0.035     0.000     0.000    756.20   1479.38
 0.013169        0.        0.        0.         0         0         4      0.00   2631.68   4111.05


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.90      1.25      2.60      0.00      0.10      0.00      0.01      0.00    756.20    756.20

*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.74

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                             AREA
**********  758.99     0.00     25006.      0.         0.       0.       756.50    780.00     2760.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       780.00 ELREA=       780.00

    2.000      4.95    761.15      0.00      0.00    761.22      0.07      2.23      0.00    764.00
  25000.0       0.0   25000.0       0.0       0.0   11615.8       0.0      17.8       6.3    778.50
    0.01      0.00      2.15      0.00     0.000     0.035     0.000     0.000    756.20   1242.14
 0.000400      100.      100.      100.         2         0         9      0.00   2877.08   4119.22

1
   27MAR92      15:48:14                                                                                    PAGE   12


**************************************                                THIS RUN EXECUTED 27MAR92     15:48:16
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
**************************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FLOW SPLIT AT PIT

SUMMARY PRINTOUT

      SECNO     ELMIN     CWSEL      Q        VCH      DIFWSX    TOPWID    DEPTH     SSTA      ENDST     QLOB      QROB      ELTRD
      1.000    756.20    757.34   5000.00    3.58       0.00    2224.27     1.14   1608.88   3833.14     0.00      0.00      0.00
      1.000    756.20    757.68  10000.00    4.57       0.00    2419.16     1.48   1557.59   3976.75     0.00      0.00      0.00
      1.000    756.20    757.96  15000.00    5.22       0.00    2575.13     1.76   1516.55   4091.67     0.00      0.00      0.00
      1.000    756.20    758.17  20000.00    5.85       0.00    2614.56     1.97   1495.92   4110.48     0.00      0.00      0.00
      1.000    756.20    758.36  25000.00    6.36       0.00    2631.68     2.16   1479.38   4111.05     0.00      0.00      0.00

*     2.000    756.20    759.62   5000.00    0.68       2.28    2742.79     3.42   1371.96   4114.75     0.00      0.00    780.00
*     2.000    756.20    760.12  10000.00    1.15       2.44    2786.48     3.92   1329.73   4116.21     0.00      0.00    780.00
*     2.000    756.20    760.51  15000.00    1.53       2.55    2820.32     4.31   1297.02   4117.33     0.00      0.00    780.00
*     2.000    756.20    760.84  20000.00    1.86       2.68    2850.09     4.64   1268.23   4118.32     0.00      0.00    780.00
*     2.000    756.20    761.15  25000.00    2.15       2.79    2877.08     4.95   1242.14   4119.22     0.00      0.00    780.00
1
   27MAR92      15:48:14                                                                                    PAGE   13


 SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO=      2.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      2.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      2.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      2.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      2.000  PROFILE=  5  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

### 3.4.2 Ponding Against SR-85

There are six (6) concentration points defined along SR-85 from the GBC south to Black Gap. Refer to Exhibit "C", sheets 1 and 4. Drainage structures with contributing watersheds greater than five (5) square miles were assigned concentration points as a part of this study. The remaining structures were not evaluated. SR-85 is paralleled by the Tucson-Cornelia-Gila Bend Railroad through this reach. The railroad is located on the upstream side of SR-85 and is no longer in use. It was originally constructed by Phelps-Dodge Corporation to service the copper mine at Ajo, Arizona. There are drainage cross-structures at the railroad for all of the concentration points evaluated. These structures are directly upstream of roughly equivalent drainage cross structures for SR-85. Refer to Table 2 on sheet 1 of Exhibit "C". Levees were built upstream of the railroad along the north side (downslope) of each wash to force runoff through the structure. The levees appear structurally sound and show no signs of recent over-topping or serious scour problems.

The structures at concentration points C44, C45, C35, C33, and C10 were evaluated during the field reconnaissance to determine if significant flow splits could occur at these locations. The 100-year discharge will probably overtop all of the structures. The control diking and natural constraints will force this overflow to remain in the same downstream sub-basin as the flow passed through the cross drain structures. The available storage volume for ponding of runoff upstream of SR-85 and the railroad is insignificant compared to the total runoff volume. Therefore, hydrograph attenuation due to storage is considered negligible for these concentration points. No further special consideration was given to the effects of these structures in the HEC-1 models.

### 3.4.3 Ponding Against Gila Bend Canal

#### 3.4.3.1 Discussion of Problem

Ponding at concentration points C12, C133, and C135 was discussed under Section 3.4.1.3 because of hydraulic flow splits which also occur at these locations which are affected by Interstate 8. This discussion will therefore be

limited to concentration points C11, C36, C51, C52, C53, and C142. There were no special analysis problems with C136. Concentration points C51 and C52 were combined in the HEC-1 model and named PND1. Concentration points C53, C36, and C11 were combined in the HEC-1 model and named PND2. These locations will be discussed using their HEC-1 name.

Ponding against the Southern Pacific Railroad, Interstate 8, and Business Loop 8 downstream of the Gila Bend Canal was assumed to have negligible effects on peak discharges. This is a valid assumption because the area available for ponding is substantially less than what is available upstream of the canal. The attenuation caused by ponding upstream of the canal was proven to not be significant.

The basic problem encountered with PND1 and PND2 was commingling of flow between the GBC cross drain structures from Smurr on the west to the GBC crossing of SR-85 on the east. This reach of the GBC is approximately 6.3-miles in length. Runoff will form a continuous pond along the entire length. The flow pattern at lower stages (elevations up to 736) will be toward the cross drain structures at C51, C52, C53, C36, and C11, following the localized flow patterns indicated on Exhibit "C" with small arrows. Ponding stages above elevation 736 will start a trend of migration of runoff volumes from east to west which is the natural tendency. This migration will be strongly influenced locally by the two large concrete lined overchutes at C36 and C11. As a point of reference, the controlling elevations along the upstream side of the canal are as follows:

| Location | Structure Flow Line | Top of Canal South Levee | Toe of Canal South Levee |
|---|---|---|---|
| Smurr | --- | 742.4 | --- |
| 1200' West of C51 | --- | 739.5 | 734.2 (est.) |
| C51 | 727.5 | 740.0 | --- |
| 2500' East of C51 | --- | 740.2 | 736.4 (est.) |
| C52 | 731.0 | 740.4 | --- |
| 2600' East of C52 | --- | 740.8 | 736.0 (est.) |
| C53 | 727.7 | 741.1 | --- |
| 5000' East of C53 | --- | 741.9 | 736.1 |
| C36 | 727.9 | 741.0 | --- |
| 4900' East of C36 | --- | 741.9 | 736.7 |
| C11 | 733.4 | 742.5 | --- |
| 2300' East of C11 | --- | 742.7 | 736.0 (est.) |
| SR-85 | --- | 742.5 | --- |

The average peak ponding elevation is estimated to be elevation 741.0. Based upon this stage, runoff will only overtop the canal from approximately 3400' west of C51 to 1000' west of C53. Refer to Figure F-1 in Section 3.5.2. Between elevation 736 and 739.5, runoff will tend to migrate to the hydraulically closest structure, which will probably be either C36 or C11. At peak stage, the ponding water surface should be stable and ponded water will migrate toward the location where flow is overtopping the canal.

The 100-year peak flow at C142 on Scott Avenue Wash will overtop the GBC. The overflow will occur over approximately 0.7 miles of canal. Refer to Figure F-1 in Section 3.5. The modeling of a flow diversion was necessary because water which overtops the canal will spill into sub-basins 7B and 7D. The runoff hydrograph at C142 was split to simulate the effects of the overflow peak discharges at downstream locations in sub-basins 7B and 7D.

### 3.4.3.2 Approach Taken to Model the Problem

The approach taken to model this situation was based around the additional problem of limited topographic data. The only topographic mapping available for this reach of the GBC is 10-foot contour interval USGS quadrangle mapping at a scale of 1"=2000'. This is the same mapping on which Exhibit "B" and "C" are based. To supplement the available mapping, the top of the south GBC levee was profiled in the field. The resultant profile is plotted on Figure F-1. The District's goal was to develop a HEC-1 computer model for the watershed upstream of the canal which was detailed enough to use for future floodplain delineation studies. The ponding at the canal was to be modeled using approximate methods in HEC-1 to determine whether the canal will be overtopped during a 100-year storm event, and if so, the approximate limits of spread. A second goal was to determine if the storage volume upstream of the canal has a significant effect on peak flow rates downstream of the canal.

The modeling approach was based upon the following assumptions keeping in mind the data and goal constraints:

1. ***The hydraulic capacity of the Gila Bend Canal is not significant.*** The GBC was assumed to be flowing full at the time that a major storm would occur. The remaining freeboard capacity can be assumed to be negligible compared to the peak flow rates which will overtop the canal. This assumption is based on engineering judgement. The available canal capacity is estimated to be between 200 and 300 cfs.

2. ***The GBC will not fail structurally during the 100-year event.*** The reach of the GBC in the study area has proven to be structurally stable over time. The overtop flow depths will be shallow (less than 1-foot except at C142) and the duration of overflow will be very short. In the event the canal does fail, the peak flow rates estimated in this study would not be significantly different than in a dam failure scenario. This is because the

storage upstream of the canal does not have a significant attenuation effect.

3. ***Time-to-Peaks for PND1 and PND2 are coincident.*** The initial assumption made was that peak flows at PND1 and PND2 will peak at close to the same time. This assumption was born out in the final results as PND1 peaks at 19.45 hours and the major washes which combine at PND2 peak between 19.40 hours and 19.90 hours.

4. ***PND1 can be modeled separately from PND2.*** The second assumption was that PND1 could be modeled separately from PND2. PND1 and PND2 are physically separated by an average of approximately three (3) miles. The peaks can reasonably be expected to act separately. Water can be expected to pond fairly uniformly along the canal due to the coincidence in time-to-peaks. The very limited capacity of the structures at C51 and C52 (roughly 600 cfs at peak) will force backwater to occur rapidly. Migration north along the canal will be blocked by the rapid accumulation of volume from PND2. This will force the peak flow of 9000 cfs at PND1 to seek another outlet. Flow can therefore be expected to pond rapidly and overtop the GBC at the low area adjacent to C51.

5. ***C53 can be lumped with C36 and C11.*** The structure at C53 was lumped with C36 and C11 as PND2 in order to make a portion of the lower GBC levee available for weir flow over the canal. Assuming the canal does not fail completely during this event, ponded water from PND2 will force water to begin overtopping the canal west of C53. A head differential would therefore be expected between PND2 and PND1 to cause this to occur. The HEC-1 model forecasts a peak stage of 741.0 for PND2 and a peak stage of 740.4 for PND1. The model, based upon very limited data, provides a realistic estimate of what may occur during an event of 100-year magnitude.

6. ***Outflow hydrographs for C53, C36, and C11 can be separated using the diversion operation.*** The assumption was made that two diversion operations could be used to separate the PND2 hydrograph into three (3) separate hydrographs for routing downstream from C53, C36, and C11. The first diversion separates a hydrograph for C53 based upon the rating curves for the C53 structure and the weir flow over the GBC. The second diversion separates hydrographs for C36 and C11 using the rating curves for the two concrete lined overchutes. This assumption is reasonable because the hydraulic capacity of the C53 structure and weir is very small compared to the combined capacity of the C36 and C11 structures.

The above assumptions were used as a basis for the construction of the HEC-1 model. The following is a description of the logic used in the HEC-1 model for this reach of the GBC:

*Step 1:* The runoff hydrographs for C51 and C52 were combined as PND1. The combined hydrographs were reservoir routed through a ponding area limited on the west by Smurr and on the east by the sub-basin boundary between 6O and 6N.

*Step 2:* The reservoir routed hydrograph at PND1 was then separated into two hydrographs using the HEC-1 diversion operation. The rating curves for the structures at C51 and C52, including weir flow over the GBC, were used for the diversion. Refer to Figures R-1 and R-2. The weir flow between C51 and C52 was separated by assuming an imaginary vertical wall 1950' east of C51. The weir flow between C52 and C53 was separated by also assuming an imaginary vertical wall, located where the sub-basin boundary between sub-basins 6P and 6Q intercepts the GBC. Refer to sheet 1 of Exhibit "C". All flow overtopping the canal from PND1 is therefore forced to drain into sub-basin 6P. Refer to Figure F-1 in Section 3.5.2

*Step 3:* The runoff hydrographs for C53, C36, C11, and the flow diversion from C12 were combined as PND2. The combined hydrograph was then reservoir routed through a pond bounded on the west by the boundary between sub-basins 6O and 6N, and on the east by SR-85.

*Step 4:* The reservoir routed hydrograph at PND2 was then separated into three hydrographs using two successive HEC-1 diversion operations. The rating curves for the structures at C53, C36, and C11, including weir flow over the GBC, were used for these diversions. Refer to Figures R-3, R-4, and R-5. The hydrograph for outflow from C53 was created first. The weir flow between C53 and C36 was separated by assuming an imaginary vertical wall located where the boundary between sub-basins 6Q and 5C intercepts the GBC. The weir flow between C36 and C11 was separated by assuming an imaginary vertical wall located where the boundary between sub-basins 5C and 3M intercepts the GBC. This forces all weir flow associated with C53 to drain into sub-basin 6Q, all weir flow associated with C36 to drain into sub-basin 5C, and all weir flow associated with C11 to drain into sub-basin 3M. The final HEC-1 model for the 100-year 24-hour storm does not forecast any flow overtopping the GBC into sub-basins 5C and 3M.

*Step 5:* The reservoir routed hydrograph at C142 was separated into two hydrographs using the HEC-1 diversion operation. The weir flow overtopping the GBC at C142 was separated by creating an imaginary vertical wall located where the boundary between sub-basins 7B and 7D intercepts the GBC. Refer to Figure R-7 and the hydraulic calculations in Section 3.2.2.3.

### 3.4.6 HEC-1 Warnings and Errors

#### 3.4.6.1 General

The only warnings encountered in the HEC-1 output were concerning hydrograph routing and excess at ponding for sub-basin runoff calculations. Examples of these types of warnings are:

***WARNING*** *Modified Puls Routing May Be Numerically Unstable For Outflows Between 690 to 903.*

***WARNING*** *Modified Puls Routing May Be Numerically Unstable For Outflows Between 47940 to 68620.*

***WARNING*** *Excess At Ponding Less Than Zero For Period. Excess Set to Zero.*

There is an error reported by HEC-1 when the S&Qxx.H1 models are run. The error is:

***HEC1 ERROR 6*** *Tried To Combine More Hydrographs Than Available In Stream System.*

This error occurs when the "*DIAGRAM" option is used in conjunction with the JD record and DSS options. Apparently, the hydrograph stack counter is not correctly updated for the diagram generation when a hydrograph recalled from a DSS file is placed in the stack. The hydrograph at C151 in the Bender Wash and Sand Tank Wash model is written to a DSS file. This hydrograph is then read from the DSS file into the Sauceda Wash and Quilotosa Wash model and combined with the runoff hydrograph from sub-basin 3k. The error appears in the diagram printout for this combination operation. The error does not occur in the calculation stream, and the hydrograph combination appears to be done correctly. The error has been reported to Dodson & Associates and does not affect the results of this study.

#### 3.4.6.2 Reach Route Warnings

The first two warnings listed above for reach routes specify a range of peak flows for which the hydrograph may be unstable. Note that the range for the first warning is small, with peak discharges of low magnitude. The second warning contains a range with very high magnitudes of flow rate. The two warnings are for reaches R62-64 and R72-73, respectively, in the Bender Wash and Sand Tank Wash 24-hour model. The routed peak discharges are 4024 cfs and 1616 cfs, respectively. Both warnings are present in the final output file for the Bender Wash and Sand Tank Wash model. Note that the computed peak discharge values are outside the range listed in the warning. During the initial construction of the HEC-1 models, several washes had peak discharges which fell within the range listed in the warning message.

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

1. The number of minutes in the hydrograph tabulation interval (NMIN) was reduced until the warning was either eliminated or the resultant routed peak discharge was outside the limits of the range listed in the warning message.

2. The outflow peak from the reach was checked against the inflow peak to ensure that the routed peak flow did not increase in magnitude.

3. Outflow hydrographs for critical routing reaches were plotted and examined for oscillations.

The final NMIN value used was 3-minutes for Bender Wash and Sand Tank Wash models, and the Sauceda Wash and Quilotosa Wash models. A value of 1-minute was used for the Un-named Wash #1 and Un-Named Wash #2 model. No oscillations were noted in plotted hydrographs, and no routed peak discharges were found to increase.

### 3.4.6.3 Sub-Basin Runoff Calculation Warnings

The third warning listed in Section 3.4.6.1 regarding excess at ponding results from a check done when applying the Green-Ampt rainfall excess relationship. A check is performed by HEC-1 for each time interval to answer the following questions:

1. Does ponding occur throughout the interval?
2. Does ponding occur at all during the interval?
3. Does ponding begin during the interval?

The warning occurs when the second and third checks are true. However, since the rainfall excess calculation is done using average values over the time interval, the average rainfall excess may be less than zero for the period. HEC-1 then sets the excess to zero for that period, and ponding will begin in the next calculation interval. This has been done to simplify the calculation process. This warning occurs for sub-basins 1D, 1K, 1M, 2C, 2D, 2F,

2I-2L, 2O, 2T, and 2EE in the Bender Wash and Sand Tank Wash model. These sub-basins all lie in mountainous portions of the watershed and contain soils types with relatively small values of DTHETA. DTHETA is a measure of how much water the soil can absorb before saturation occurs. These soils are also characterized by very low values of the XKSAT parameter which is a measure of the infiltration ability of the soil. The warning tends to occur for sub-basins with these characteristics because ponding will begin early in the storm from small amounts of total precipitation. During this period, the incremental changes in precipitation are very small so the infiltration capacity of the soil may not be overcome during the interval. The more pervious soils do not begin to pond until the incremental changes in precipitation are large. The infiltration capacity of the soil can therefore be overcome easily in a single interval. This warning is not an indication of instability in the model, and can be disregarded.

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

Section 3.5

## 3.5 Final Results

### 3.5.1 General

The results of this study are summarized in Tables F-1 through F-4. Evaluation of the results indicate that peak flow rates for the major concentration points on Bender Wash, Sand Tank Wash, Quilotosa Wash, and Sauceda Wash result from the 100-year 24-hour duration storm. The 6-hour duration storm typically produced higher peaks on the smaller portions of the watershed. Therefore, care must be taken in selecting a peak discharge at any particular point of interest. The 6-hour model for Un-named Wash #1 and Un-named Wash #2 produced the highest peak flow rates, except at the Gila Bend Canal where the 24-hour peak discharge controlled. The watershed was broken into three separate HEC-1 models for convenience, as follows:

| Model Number | Washes Modeled | Drainage Basins |
|---|---|---|
| 1 | Bender Wash, Sand Tank Wash, Scott Avenue Wash | 1, 2, and 7 |
| 2 | Quilotosa Wash and Sauceda Wash | 3, 4, 5, and 6 |
| 3 | Un-named Wash #1 and Un-named Wash #2 | Sub-basin 2VV |

The HEC-1 output files for both the 6-hour and 24-hour storms are included as a part of this report. All of the HEC-1 models include channel transmission losses.

### 3.5.2 Discussion of Results

#### 3.5.2.1 General

A brief history of the Gila Bend Canal is helpful for understanding and interpreting the results of the hydrologic modeling effort. The Gila Bend Canal was constructed to convey water from the Gila River for agricultural purposes in the Gila Bend area. A dam was constructed in the 1890's in the vicinity of the site of the existing Gillespie Dam for the purpose of supplying

water to the canal. The dam, constructed of wire mesh and brush, was washed out in the very early 1900's. Plans for construction of a permanent dam were prepared around 1910, but World War I caused construction to be delayed. The present Gillespie Dam was constructed in the 1920's and the Gila Bend Canal has been present since at least that time. The entire length of the canal was concrete lined by 1982.

The canal from Gillespie Dam south to Gila Bend is notorious for drainage related problems and periodic maintenance. However, the reach of the canal from Gila Bend west to Smurr has a history virtually free of recent drainage problems. The current engineer under contract with Paloma Ranch (the canal operator) was interviewed. The engineer did not know of any historic events which overtopped the canal or caused serious erosion or scour problems. Conversations with the Paloma Ranch owners and a previous superintendent yielded similar comments. The Public Works Director of the Town of Gila Bend, a lifetime resident, stated that the Sand Tank Wash box culverts under BL-8 were nearly overtopped in the early 1970's but the canal overchute at C133 functioned with no significant problems. The Arizona Department of Transportation added two more barrels to the BL-8 structure subsequent to the storm, and there have been no further significant problems.

With this history in mind, the results of the modeling effort for the 100-year storm in the Gila Bend vicinity can be summarized as follows:

- Bender Wash and Sand Tank Wash join at Interstate 8 due to insufficient hydraulic capacity of the highway structures to convey the 100-year peak flow. Runoff is diverted west along the interstate to Scott Avenue Wash, then west to SR-85 where this runoff overtops the Gila Bend Canal and SR-85. The runoff which overtops SR-85 combines with runoff from Quilotosa Wash and Sauceda Wash.

- The runoff from Bender Wash and Sand Tank Wash which crosses the interstate recombines at the Gila Bend Canal. Runoff ponds upstream of the canal from the canal crossing of the southern Pacific Railroad at the east side of Gila Bend to the north-south flood control levee on the west side of Sand Tank Wash. The canal is not overtopped but a

small quantity of runoff overtops the north-south levee and combines with Scott Avenue Wash upstream of the canal.

- Runoff from Bender Wash and Sand Tank Wash downstream of the canal redistributes between the Bender Wash channel and the Sand Tank Wash channel due to backwater from the Southern Pacific Railroad and BL-8 bridges.

- Scott Avenue Wash overtops the Gila Bend Canal. Flow is spread over approximately 3600-feet of canal from just east of Interstate 8, east to the north-south levee on the west side of Sand Tank Wash.

- Runoff from Quilotosa Wash and Sauceda Wash ponds against the entire reach of the Gila Bend Canal from SR-85 west to Smurr where the canal crosses Interstate 8. The canal is overtopped for a length of approximately 2.2-miles at the west end of this reach. Refer to Figure F-1.

- Attenuation caused by storage upstream of the canal is not significant. The results of the modeling effort closely match what was anticipated. Peak discharges also compare very closely with the available gage data. Refer to Section 3.3 The final results are summarized in Tables F-1 through F-4.

A key assumption has been made which warrants restatement here. The Gila Bend Canal will be overtopped at various locations in the reach addressed in this study. The Gila Bend Canal was assumed to not fail structurally during the 100-year storm event. This assumption was deemed appropriate for the following reasons:

- The reach of the Gila Bend Canal in the study area has proven to be stable over time.

- The overtop flow depths will generally be less than 1-foot and the overflow duration will be short.

- In the event the canal does fail at a given location, the peak flow rates estimated in this study would not be significantly different than in a dam failure scenario. This is because attenuation caused by storage upstream of the canal is not significant. Also, the upstream storage volume is negligible when compared to the total runoff volume.

### 3.5.2.2 Comparison of Results With Previous Studies

The existing drainage studies of record are not detailed or are no longer available for review. The results of the previous studies of record, compared with the results of this study, are as follows:

| 100-Year Peak Flows in cfs for Sand Tank and Bender Washes (Drainage Areas in sq. mi. are in parenthesis.) | | | | |
|---|---|---|---|---|
| **Location** | **FEMA 1991** | **J & G 1962** | **US Army Corps of Engineers 1968** | **B&N 1992** |
| At Interstate 8 | 64,000 (257) | ------ | 35,000 (N/A) | 23,700 (330) |
| At Gila Bend Canal | 33,500 (261) | 21,500* (362) | ------ | 18,400 (334) |

*Peak flow rate includes Quilotosa Wash.

The FEMA discharges were derived from Bibliography Reference Number 11. The actual date of the hydrology is unknown. The methodology used is referenced as SCS TR-20. The study referenced is a summary report of previous studies, of which the Gila Bend report is no longer available. The flood insurance maps of record are approximate only. A detailed study has not previously been done.

The J & G discharge was derived from Bibliography Reference Number 18. The methodology used was from the *Soil Conservation Service Engineering Handbook, Hydrology, Supplement A, Section 4*, the predecessor of Bibliography Reference Number 31.

The U.S. Army Corps of Engineers discharges were derived from Bibliography Reference Number 3. The peak listed was estimated using statistical methods with data from similar watersheds.

The results of the previous studies of record vary dramatically. It appears that none of the prior work was of a detailed nature, which makes comparisons inappropriate. Refer to Sections 3.2.5 and 3.3 for a discussion on confidence checks for the results contained in this study.

#### 3.5.2.3 Applicability of the Hydrologic Models for Other Uses

The HEC-1 models have been developed for the 100-year 6-hour and 24-hour storms. No other frequencies have been modeled. The specific purpose in preparing these models was for floodplain delineation and flood insurance. The key assumptions upon which this study is based were made with these purposes in mind. Therefore, if these models are used for other purposes, such as for design of drainage improvements or new developments, the following points should be considered:

1. The lag times and routing parameters may not be appropriate for other storm frequencies.

2. The distributary flow splits that were modeled as an existing condition may need to be re-evaluated, or different assumptions made as to the percentage of flow in the branches downstream of the split. This could particularly be true for a design situation.

3. The hydraulics of the ponding against the Gila Bend Canal for Quilotosa Wash and Sauceda Wash is specific to the recurrence interval studied. Different assumptions may be appropriate for other recurrence interval storms.

### 3.5.2.4 Summary of HEC-1 Nomenclature

The final results are summarized in Tables F-1 through F-4. Table F-1, for instance, contains a summary of peak discharges at key locations on the watershed. These peaks are arranged alphabetically by wash name, in an upstream to downstream secondary order. The HEC-1 identifier is the name used on the exhibit maps and the HEC-1 input files to pin point the type of HEC-1 operation and the location on the watershed. The following is a description of the nomenclature used throughout all tables in the report, and in the HEC-1 computer models:

**HEC-1 Computer Model Nomenclature**

| HEC-1 Identifier | Description |
|---|---|
| 6A | Hydrograph identifier for sub-basin 6A. Refers to Sub-basin A in major basin 6. |
| C32 | Hydrograph identifier for concentration point 32. More than one hydrograph has been combined at this location. Point 32 is a physical location on the watershed which is labeled on Exhibit "C". |
| C36I | Hydrograph identifier for concentration point 36. The "I" symbolizes this is an inflow hydrograph to a reservoir route operation. |
| C36O | Hydrograph identifier at concentration point 36. The "O" symbolizes this is an outflow hydrograph from a reservoir route. |
| C32L | Hydrograph identifier for concentration point 32. The "L" symbolizes this is an intermediate hydrograph for the left wash immediately upstream of C32. This hydrograph will be combined with one or more intermediate hydrographs to produce hydrograph C32. |
| R36-37 | Hydrograph resultant from a normal depth channel route from concentration point 36 downstream to concentration point 37. |
| DC12L<br>DC12R | The hydrograph at concentration point 12 was split using the HEC-1 diversion operation. This defines the hydrograph diverted to the left channel (L) or right channel (R). |
| BC40L | The outflow hydrograph for the operation at concentration point 40 has been recalled from disk using a HEC-1 BI operation. |

# FIGURE F-1: GILA BEND CANAL PROFILE
## Structure Locations and Ponding Stages

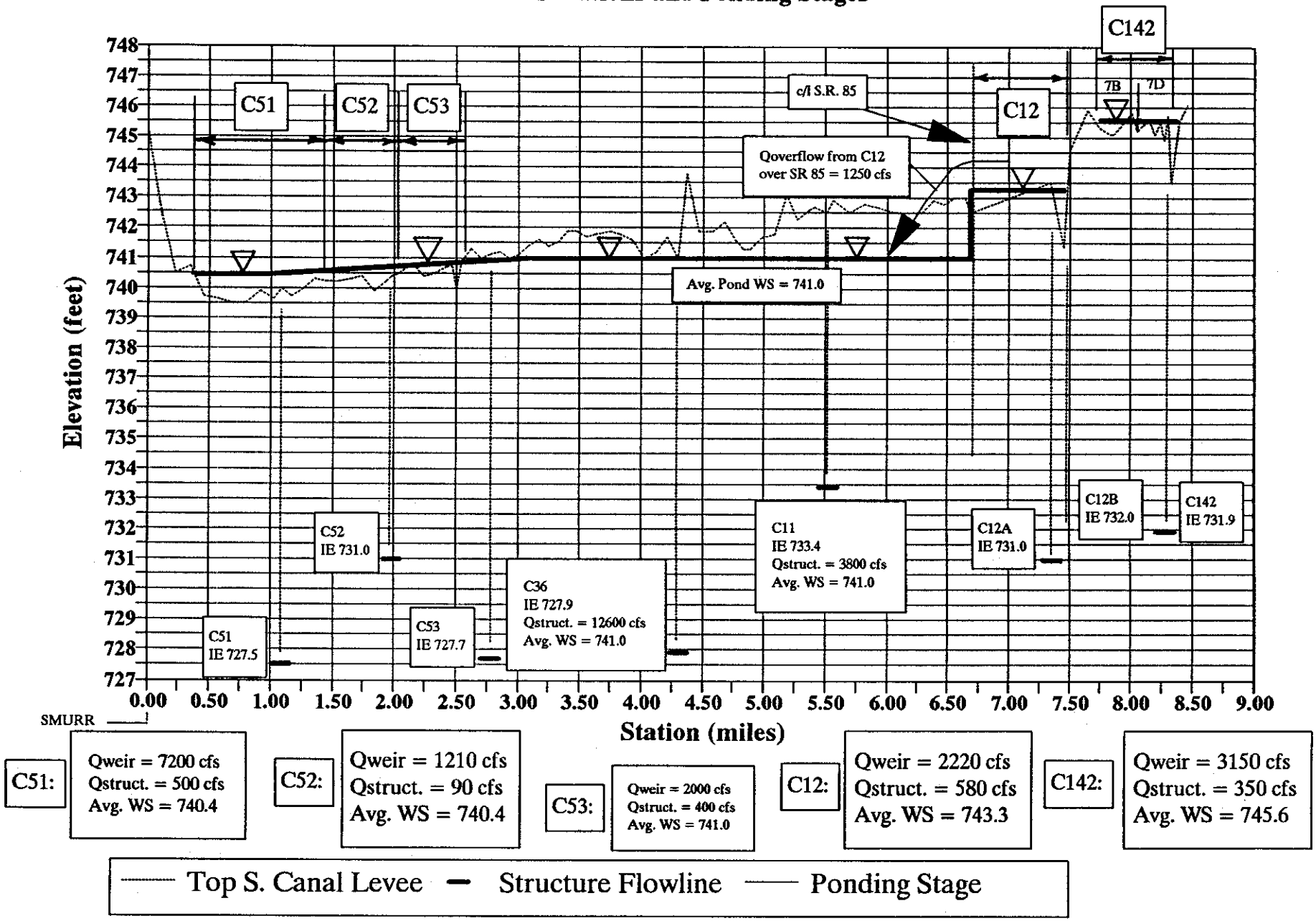

Table F-1

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

## TABLE F-1

### Summary of Peak Discharges at Key Locations on the Watershed

| HEC-1 Identifier | Description | Peak Discharge (cfs) 6-Hour | Peak Discharge (cfs) 24-Hour | Area (sm) |
|---|---|---|---|---|
| | **Bender Wash** | | | |
| 135141 | Sec. 0.00 U/S of confluence with Sand Tank Wash | 2000 | 3100 | 334.14 |
| D135O | D/S of Pima Street | 2000 | 3100 | 334.14 |
| PND3N | D/S of the Gila Bend Canal (includes Sand Tank Wash) | 9100 | 18300 | 334.14 |
| C135I | U/S of the Gila Bend Canal | 2800 | 4900 | 88.81 |
| DC82R | D/S of Interstate 8 | 2900 | 5000 | 85.07 |
| C82 | U/S of Interstate 8 | 2900 | 5500 | 85.07 |
| | **Sand Tank Wash** | | | |
| C137 | Sec. 0.926 at Indian Road | 8900 | 18100 | 342.13 |
| 141149 | 250' D/S of Sec. 1.980 | 9000 | 18200 | 334.14 |
| C141 | D/S of Sec. 3.180 (confluence with Bender Wash) | 9000 | 18200 | 334.14 |
| 133141 | U/S of Sec. 3.180 | 7100 | 15100 | 334.14 |
| D133O | D/S of Pima Street | 7100 | 15200 | 334.14 |
| PND3N | U/S of Pima Street (includes Bender Wash) | 9100 | 18300 | 334.14 |
| PND3N | D/S of Gila Bend Canal (includes Bender Wash) | 9100 | 18300 | 334.14 |
| C133I | U/S of Sec. 3.888 at the Gila Gila Bend Canal | 9100 | 18400 | 334.14 |
| DPND3 | Flow over levee to west (U/S of Gila Bend Canal) | 0 | 100 | 334.14 |
| 132133 | U/S of Sec. 3.888 at the Gila Bend Canal | 9000 | 14800 | 330.40 |
| | (U/S of the confluence with Bender Wash) | | | |
| DC132R | D/S of Interstate 8 | 9200 | 14900 | 330.40 |
| C132 | U/S of Interstate 8 (total flow) | 13000 | 23700 | 330.40 |
| DC132L | U/S of Interstate 8 (flow to the west over dike) | 1800 | 8100 | 330.40 |
| | **Scott Avenue Wash** | | | |
| C139 | Sec. 1.884 at Watermelon Road | 1600 | 2600 | 337.76 |
| DC142R | 450' U/S of Sec. 4.395 (D/S of Gila Bend Canal) | 1700 | 2700 | 336.59 |
| C142I | 450' U/S of Sec. 4.395 (U/S of Gila Bend Canal) | 1800 | 3500 | 336.59 |

**TABLE F-1**

**Summary of Peak Discharges at Key Locations on the Watershed**

| HEC-1 Identifier | Description | Peak Discharge (cfs) 6-Hour | Peak Discharge (cfs) 24-Hour | Area (sm) |
|---|---|---|---|---|
| | | | | |
| DC150R | D/S of Interstate 8 (includes local street 500' west) | 1800 | 3500 | 330.40 |
| BC132L | U/S of Interstate 8 (total flow) | 1800 | 8100 | 330.40 |
| DC150L | U/S of Interstate 8 (flow to west over local street) | 0 | 4600 | 330.40 |
| --- | D/S of Interstate 8 from local street | 920 | 2100 | 330.40 |
| --- | D/S of Interstate 8 from Scott Avenue Wash Culvert | 880 | 1400 | 330.40 |
| | **Un-Named Wash #1** | | | |
| C135I | U/S of confluence with Bender Wash at GBC | 840 | 900 | 2.91 |
| C145 | D/S of confluence with Un-Named Wash #2 | 820 | 870 | 2.79 |
| C145L | U/S of confluence with Un-Named Wash #2 | 640 | 430 | 0.73 |
| C148 | 100' D/S of Sec. 1.540 | 620 | 360 | 0.48 |
| C147 | Interstate 8 ramp, Sec. 2.641 | 220 | 120 | 0.12 |
| 2VV3 | Limit of detailed study, Sec. 3.260 | 50 | 30 | 0.02 |
| | **Un-Named Wash #2** | | | |
| C145R | U/S of confluence with Un-Named Wash #1 | 670 | 600 | 2.06 |
| C144 | U/S of Business Loop 8, 1000' U/S of Sec. 1.676 | 730 | 630 | 1.50 |
| 2VV1 | Limit of detailed study, Sec. 2.776 | 460 | 310 | 0.54 |
| | **USGS Flow Gage Stations** | | | |
| C33 | Sauceda Wash at State Route 85 | 6400 | 11300 | 125.67 |
| C77 | Bender Wash adjacent to Interstate 8 | 8700 | 13700 | 69.67 |

Table F-2

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

## TABLE F-2A

### 100-YEAR 6-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| **Bender Wash and Sand Tank Wash** | | | | |
| 1B | 1949 | 4.95 | 2.10 | 928 |
| R61-62 | 1755 | 5.25 | 2.10 | 836 |
| 1C | 2332 | 5.20 | 3.83 | 609 |
| 1A | 1372 | 5.20 | 2.10 | 653 |
| C62 | 3916 | 5.20 | 8.03 | 488 |
| R62-64 | 3733 | 5.60 | 8.03 | 465 |
| 1D | 565 | 4.30 | 0.34 | 1662 |
| R63-64 | 325 | 5.75 | 0.34 | 956 |
| C64 | 3937 | 5.65 | 8.37 | 470 |
| R64-65 | 3824 | 5.90 | 8.37 | 457 |
| 1E | 1915 | 5.35 | 3.91 | 490 |
| 1F | 1674 | 5.40 | 5.55 | 302 |
| C65 | 5323 | 5.75 | 17.83 | 299 |
| R65-67 | 5205 | 6.05 | 17.83 | 292 |
| 1J | 948 | 4.40 | 0.62 | 1529 |
| R66-67 | 190 | 5.95 | 0.62 | 306 |
| 1I | 1953 | 5.35 | 4.11 | 475 |
| C67 | 5849 | 5.90 | 22.56 | 259 |
| R67-71 | 5814 | 6.00 | 22.56 | 258 |
| 1G | 1353 | 5.20 | 3.78 | 358 |
| R70-71 | 1143 | 6.20 | 3.78 | 302 |
| 1H | 1702 | 5.45 | 6.77 | 251 |
| C71R | 1837 | 6.05 | 10.55 | 174 |
| 1K | 1309 | 4.70 | 1.08 | 1212 |
| R68-71 | 1053 | 5.60 | 1.08 | 975 |
| 1L | 2422 | 5.60 | 4.69 | 516 |
| C71L | 3237 | 5.65 | 5.77 | 561 |
| C71 | 8509 | 5.85 | 38.88 | 219 |
| R71-73 | 8375 | 6.25 | 38.88 | 215 |
| 1M | 2740 | 4.70 | 2.19 | 1251 |
| R72-73 | 2101 | 6.30 | 2.19 | 959 |
| 1N | 1473 | 5.15 | 2.75 | 536 |
| C73 | 9640 | 6.25 | 43.82 | 220 |
| R73-74 | 9297 | 7.00 | 43.82 | 212 |
| 1P | 1593 | 5.60 | 4.56 | 349 |

## TABLE F-2B

### 100-YEAR 6-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| **Bender Wash and Sand Tank Wash** | | | | |
| 1A | 1372 | 5.20 | 2.10 | 653 |
| 1B | 1949 | 4.95 | 2.10 | 928 |
| 1C | 2332 | 5.20 | 3.83 | 609 |
| 1D | 565 | 4.30 | 0.34 | 1662 |
| 1E | 1915 | 5.35 | 3.91 | 490 |
| 1F | 1674 | 5.40 | 5.55 | 302 |
| 1G | 1353 | 5.20 | 3.78 | 358 |
| 1H | 1702 | 5.45 | 6.77 | 251 |
| 1I | 1953 | 5.35 | 4.11 | 475 |
| 1J | 948 | 4.40 | 0.62 | 1529 |
| 1K | 1309 | 4.70 | 1.08 | 1212 |
| 1L | 2422 | 5.60 | 4.69 | 516 |
| 1M | 2740 | 4.70 | 2.19 | 1251 |
| 1N | 1473 | 5.15 | 2.75 | 536 |
| 1O | 1400 | 5.70 | 5.23 | 268 |
| 1P | 1593 | 5.60 | 4.56 | 349 |
| 1Q | 2602 | 5.90 | 5.30 | 491 |
| 1R | 1571 | 4.95 | 2.90 | 542 |
| 1S | 1328 | 5.45 | 4.77 | 278 |
| 1T | 1270 | 6.15 | 4.67 | 272 |
| 1U | 759 | 5.70 | 3.19 | 238 |
| 1V | 1691 | 5.05 | 2.16 | 783 |
| 1W | 453 | 4.70 | 0.53 | 855 |
| 1X | 1530 | 5.05 | 2.62 | 584 |
| 1Y | 1822 | 5.45 | 5.32 | 342 |
| 2A | 3078 | 5.45 | 4.33 | 711 |
| 2B | 2389 | 5.05 | 3.31 | 722 |
| 2C | 2513 | 4.85 | 2.32 | 1083 |
| 2D | 2184 | 4.75 | 1.75 | 1248 |
| 2E | 1692 | 4.45 | 1.00 | 1692 |
| 2F | 1037 | 4.55 | 0.75 | 1383 |
| 2G | 1679 | 4.60 | 1.13 | 1486 |
| 2H | 2199 | 4.60 | 1.59 | 1383 |
| 2I | 1421 | 4.40 | 0.87 | 1633 |
| 2J | 1337 | 4.80 | 1.16 | 1153 |

## TABLE F-2A

### 100-YEAR 6-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 1O | 1400 | 5.70 | 5.23 | 268 |
| C74 | 9345 | 6.95 | 53.61 | 174 |
| R74-77 | 8467 | 8.30 | 53.61 | 158 |
| 1U | 759 | 5.70 | 3.19 | 238 |
| C77R | 8456 | 8.30 | 56.80 | 149 |
| 1Q | 2602 | 5.90 | 5.30 | 491 |
| R75-76 | 2556 | 6.05 | 5.30 | 482 |
| 1R | 1571 | 4.95 | 2.90 | 542 |
| C76 | 3002 | 5.95 | 8.20 | 366 |
| R76-77 | 2493 | 7.60 | 8.20 | 304 |
| 1T | 1270 | 6.15 | 4.67 | 272 |
| C77L | 2727 | 7.50 | 12.87 | 212 |
| C77 | 9067 | 8.30 | 69.67 | 130 |
| R77-79 | 8868 | 8.70 | 69.67 | 127 |
| 1W | 453 | 4.70 | 0.53 | 855 |
| C79RUP | 8863 | 8.70 | 70.20 | 126 |
| 1S | 1328 | 5.45 | 4.77 | 278 |
| DC78L | 499 | 5.45 | 4.77 | 105 |
| DC78R | 829 | 5.45 | 4.77 | 174 |
| 78R-79 | 464 | 6.15 | 4.77 | 97 |
| 1V | 1691 | 5.05 | 2.16 | 783 |
| C79LUP | 928 | 5.05 | 6.93 | 134 |
| C79 | 8845 | 8.70 | 77.13 | 115 |
| DC79L | 4672 | 8.70 | 77.13 | 61 |
| DC79R | 3800 | 8.70 | 77.13 | 49 |
| 79R-81 | 3592 | 9.40 | 77.13 | 47 |
| BDC79L | 4672 | 8.70 | 77.13 | 61 |
| 79L-80 | 4609 | 8.95 | 77.13 | 60 |
| DC80L | 4565 | 8.95 | 77.13 | 59 |
| DC80R | 45 | 8.90 | 77.13 | 1 |
| 80R-81 | 39 | 10.80 | 77.13 | 1 |
| 1X | 1530 | 5.05 | 2.62 | 584 |
| C81 | 3590 | 9.40 | 79.75 | 45 |
| DC81L | 2858 | 9.40 | 79.75 | 36 |
| DC81R | 670 | 9.40 | 79.75 | 8 |
| 81R-82 | 530 | 11.25 | 79.75 | 7 |
| BDC81L | 2858 | 9.40 | 79.75 | 36 |

## TABLE F-2B

### 100-YEAR 6-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 2K | 2090 | 5.10 | 2.19 | 954 |
| 2L | 972 | 4.85 | 0.94 | 1034 |
| 2M | 2347 | 4.40 | 1.40 | 1676 |
| 2N | 2640 | 4.75 | 2.20 | 1200 |
| 2O | 3301 | 4.80 | 3.37 | 980 |
| 2P | 2465 | 4.80 | 3.51 | 702 |
| 2Q | 1822 | 5.00 | 2.93 | 622 |
| 2R | 1449 | 4.95 | 2.67 | 543 |
| 2S | 1879 | 4.65 | 1.82 | 1032 |
| 2T | 2458 | 5.60 | 4.90 | 502 |
| 2U | 1162 | 4.80 | 1.38 | 842 |
| 2V | 3204 | 5.55 | 7.57 | 423 |
| 2W | 4062 | 5.25 | 6.29 | 646 |
| 2X | 4655 | 5.90 | 10.31 | 452 |
| 2Y | 4143 | 6.15 | 13.40 | 309 |
| 2Z | 2867 | 5.40 | 5.10 | 562 |
| 2AA | 2611 | 5.15 | 3.73 | 700 |
| 2BB | 2748 | 4.60 | 2.40 | 1145 |
| 2CC | 1523 | 5.85 | 4.38 | 348 |
| 2DD | 482 | 4.70 | 0.54 | 893 |
| 2EE | 3284 | 5.00 | 4.13 | 795 |
| 2FF | 1628 | 6.75 | 5.51 | 295 |
| 2GG | 4163 | 5.60 | 6.69 | 622 |
| 2HH | 4096 | 5.20 | 6.76 | 606 |
| 2II | 1978 | 5.10 | 2.22 | 891 |
| 2JJ | 1096 | 4.70 | 0.89 | 1231 |
| 2KK | 1769 | 6.10 | 4.19 | 422 |
| 2LL | 1753 | 6.70 | 5.18 | 338 |
| 2MM | 741 | 4.75 | 0.91 | 814 |
| 2NN | 3178 | 6.45 | 9.61 | 331 |
| 2OO | 975 | 4.75 | 0.85 | 1147 |
| 2PP | 1905 | 4.90 | 1.78 | 1070 |
| 2QQ | 1294 | 4.90 | 1.67 | 775 |
| 2RR | 650 | 5.10 | 0.93 | 699 |
| 2SS | 1261 | 5.45 | 3.83 | 329 |
| 2TT | 2019 | 5.10 | 4.60 | 439 |
| 2UU | 1559 | 6.45 | 8.10 | 192 |

## TABLE F-2A

### 100-YEAR 6-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 81L-82 | 2592 | 11.15 | 79.75 | 33 |
| 1Y | 1822 | 5.45 | 5.32 | 342 |
| C82 | 2913 | 11.25 | 85.07 | 34 |
| DC82L | 0 | 0.05 | 85.07 | 0 |
| DC82R | 2913 | 11.25 | 85.07 | 34 |
| 82-135 | 2774 | 11.60 | 85.07 | 33 |
| 2VV | 1352 | 5.30 | 3.74 | 361 |
| C135I | 2773 | 11.60 | 88.81 | 31 |
| 2D | 2184 | 4.75 | 1.75 | 1248 |
| R87-89 | 1991 | 5.15 | 1.75 | 1138 |
| 2F | 1037 | 4.55 | 0.75 | 1383 |
| R88-89 | 991 | 4.70 | 0.75 | 1321 |
| C89 | 2533 | 5.05 | 2.50 | 1013 |
| R89-91 | 2457 | 5.30 | 2.50 | 983 |
| 2E | 1692 | 4.45 | 1.00 | 1692 |
| 2G | 1679 | 4.60 | 1.13 | 1486 |
| C91 | 3253 | 4.90 | 4.63 | 703 |
| R91-92 | 3207 | 5.10 | 4.63 | 693 |
| 2I | 1421 | 4.40 | 0.87 | 1633 |
| 2H | 2199 | 4.60 | 1.59 | 1383 |
| C92 | 4965 | 4.75 | 7.09 | 700 |
| R92-95 | 4866 | 4.95 | 7.09 | 686 |
| 2K | 2090 | 5.10 | 2.19 | 954 |
| R93-94 | 1997 | 5.30 | 2.19 | 912 |
| 2L | 972 | 4.85 | 0.94 | 1034 |
| C94 | 2413 | 5.20 | 3.13 | 771 |
| R94-95 | 2332 | 5.35 | 3.13 | 745 |
| 2M | 2347 | 4.40 | 1.40 | 1676 |
| 2J | 1337 | 4.80 | 1.16 | 1153 |
| C95 | 7590 | 4.95 | 12.78 | 594 |
| R95-96 | 7324 | 5.70 | 12.78 | 573 |
| 2A | 3078 | 5.45 | 4.33 | 711 |
| R83-84 | 2985 | 5.80 | 4.33 | 689 |
| DC84R | 146 | 5.80 | 4.33 | 34 |
| DC84L | 2839 | 5.80 | 4.33 | 656 |
| 84L-85 | 2710 | 6.30 | 4.33 | 626 |
| 2B | 2389 | 5.05 | 3.31 | 722 |

## TABLE F-2B

### 100-YEAR 6-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 2VV | 1352 | 5.30 | 3.74 | 361 |
| 2WW | 1256 | 6.05 | 5.82 | 216 |
| 2XX | 1665 | 5.10 | 2.17 | 767 |
| 2YY | 649 | 5.15 | 1.12 | 579 |
| 7A | 1052 | 5.35 | 2.45 | 429 |
| 7B | 1425 | 4.95 | 1.67 | 853 |
| 7C | 587 | 4.50 | 0.60 | 978 |
| 7D | 1093 | 4.80 | 1.17 | 934 |
| BDC78L | 499 | 5.45 | 4.77 | 105 |
| BDC79L | 4672 | 8.70 | 77.13 | 61 |
| BDC80L | 4565 | 8.95 | 77.13 | 59 |
| BDC81L | 2858 | 9.40 | 79.75 | 36 |
| BDC82L | 0 | 0.05 | 85.07 | 0 |
| BDC84 | 146 | 5.80 | 4.33 | 34 |
| BPND3 | 0 | 0.05 | 334.14 | 0 |
| BC116L | 1823 | 6.35 | 15.67 | 116 |
| BC132L | 1834 | 10.60 | 330.40 | 6 |
| BC142L | 158 | 10.85 | 336.59 | 0 |
| BD135O | 2003 | 12.05 | 334.14 | 6 |
| BD150L | 0 | 0.05 | 330.40 | 0 |
| C18 | 99 | 12.60 | 338.26 | 0 |
| C62 | 3916 | 5.20 | 8.03 | 488 |
| C64 | 3937 | 5.65 | 8.37 | 470 |
| C65 | 5323 | 5.75 | 17.83 | 299 |
| C67 | 5849 | 5.90 | 22.56 | 259 |
| C71 | 8509 | 5.85 | 38.88 | 219 |
| C71L | 3237 | 5.65 | 5.77 | 561 |
| C71R | 1837 | 6.05 | 10.55 | 174 |
| C73 | 9640 | 6.25 | 43.82 | 220 |
| C74 | 9345 | 6.95 | 53.61 | 174 |
| C76 | 3002 | 5.95 | 8.20 | 366 |
| C77 | 9067 | 8.30 | 69.67 | 130 |
| C77L | 2727 | 7.50 | 12.87 | 212 |
| C77R | 8456 | 8.30 | 56.80 | 149 |
| C79 | 8845 | 8.70 | 77.13 | 115 |
| C79LUP | 928 | 5.05 | 6.93 | 134 |
| C79RUP | 8863 | 8.70 | 70.20 | 126 |

## TABLE F-2A

### 100-YEAR 6-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| C85 | 2970 | 6.15 | 7.64 | 389 |
| R85-96 | 2826 | 6.90 | 7.64 | 370 |
| BDC84 | 146 | 5.80 | 4.33 | 34 |
| 84R-86 | 97 | 6.65 | 4.33 | 22 |
| 2N | 2640 | 4.75 | 2.20 | 1200 |
| C86 | 1760 | 4.75 | 6.53 | 270 |
| R86-96 | 1540 | 5.75 | 6.53 | 236 |
| 2C | 2513 | 4.85 | 2.32 | 1083 |
| 2O | 3301 | 4.80 | 3.37 | 980 |
| C96 | 11855 | 5.65 | 32.64 | 363 |
| R96-97 | 11134 | 6.40 | 32.64 | 341 |
| 2P | 2465 | 4.80 | 3.51 | 702 |
| C97 | 11407 | 6.40 | 36.15 | 316 |
| 97-100 | 11130 | 6.75 | 36.15 | 308 |
| 2Q | 1822 | 5.00 | 2.93 | 622 |
| R98-99 | 1475 | 5.35 | 2.93 | 503 |
| 2R | 1449 | 4.95 | 2.67 | 543 |
| C99 | 2145 | 5.20 | 5.60 | 383 |
| 99-100 | 1816 | 5.55 | 5.60 | 324 |
| 2S | 1879 | 4.65 | 1.82 | 1032 |
| C100 | 11172 | 6.70 | 43.57 | 256 |
| 100101 | 11025 | 6.95 | 43.57 | 253 |
| 2T | 2458 | 5.60 | 4.90 | 502 |
| C101 | 11818 | 6.90 | 48.47 | 244 |
| 101102 | 11519 | 7.25 | 48.47 | 238 |
| 2U | 1162 | 4.80 | 1.38 | 842 |
| C102 | 11515 | 7.25 | 49.85 | 231 |
| 102103 | 11325 | 7.50 | 49.85 | 227 |
| 2V | 3204 | 5.55 | 7.57 | 423 |
| C103 | 11619 | 7.50 | 57.42 | 202 |
| 103107 | 11040 | 8.75 | 57.42 | 192 |
| 2W | 4062 | 5.25 | 6.29 | 646 |
| 104105 | 3418 | 6.20 | 6.29 | 543 |
| 2X | 4655 | 5.90 | 10.31 | 452 |
| C105 | 7255 | 6.05 | 16.60 | 437 |
| 105107 | 6501 | 8.20 | 16.60 | 392 |
| 2Y | 4143 | 6.15 | 13.40 | 309 |

## TABLE F-2B

### 100-YEAR 6-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| C81 | 3590 | 9.40 | 79.75 | 45 |
| C82 | 2913 | 11.25 | 85.07 | 34 |
| C85 | 2970 | 6.15 | 7.64 | 389 |
| C86 | 1760 | 4.75 | 6.53 | 270 |
| C89 | 2533 | 5.05 | 2.50 | 1013 |
| C91 | 3253 | 4.90 | 4.63 | 703 |
| C92 | 4965 | 4.75 | 7.09 | 700 |
| C94 | 2413 | 5.20 | 3.13 | 771 |
| C95 | 7590 | 4.95 | 12.78 | 594 |
| C96 | 11855 | 5.65 | 32.64 | 363 |
| C97 | 11407 | 6.40 | 36.15 | 316 |
| C99 | 2145 | 5.20 | 5.60 | 383 |
| C100 | 11172 | 6.70 | 43.57 | 256 |
| C101 | 11818 | 6.90 | 48.47 | 244 |
| C102 | 11515 | 7.25 | 49.85 | 231 |
| C103 | 11619 | 7.50 | 57.42 | 202 |
| C105 | 7255 | 6.05 | 16.60 | 437 |
| C107 | 14447 | 8.75 | 87.42 | 165 |
| C111 | 3987 | 6.10 | 11.23 | 355 |
| C113 | 15437 | 8.75 | 103.03 | 150 |
| C115 | 4875 | 6.00 | 13.45 | 362 |
| C116 | 5315 | 6.35 | 15.67 | 339 |
| C119 | 4350 | 6.50 | 20.69 | 210 |
| C120 | 4438 | 8.40 | 30.06 | 148 |
| C120R | 4063 | 8.65 | 24.88 | 163 |
| C121 | 4341 | 8.85 | 30.97 | 140 |
| C123 | 4302 | 9.35 | 36.48 | 118 |
| C124 | 3178 | 6.45 | 10.46 | 304 |
| C125 | 2944 | 7.35 | 12.24 | 241 |
| C126 | 2664 | 8.30 | 13.91 | 192 |
| C127 | 15411 | 9.40 | 156.01 | 99 |
| C127L | 5777 | 9.85 | 52.44 | 110 |
| C127R | 15211 | 9.10 | 103.57 | 147 |
| C128 | 1009 | 5.45 | 8.60 | 117 |
| C129 | 1531 | 5.10 | 13.20 | 116 |
| C130 | 4219 | 9.65 | 85.56 | 49 |
| C131 | 15353 | 9.70 | 241.57 | 64 |

## TABLE F-2A

### 100-YEAR 6-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| C107 | 14447 | 8.75 | 87.42 | 165 |
| 2BB | 2748 | 4.60 | 2.40 | 1145 |
| 108111 | 2338 | 5.30 | 2.40 | 974 |
| 2Z | 2867 | 5.40 | 5.10 | 562 |
| 110111 | 2514 | 6.40 | 5.10 | 493 |
| 2AA | 2611 | 5.15 | 3.73 | 700 |
| C111 | 3987 | 6.10 | 11.23 | 355 |
| 111113 | 3629 | 7.60 | 11.23 | 323 |
| 2CC | 1523 | 5.85 | 4.38 | 348 |
| C113 | 15437 | 8.75 | 103.03 | 150 |
| 113127 | 15217 | 9.10 | 103.03 | 148 |
| 2DD | 482 | 4.70 | 0.54 | 893 |
| C127R | 15211 | 9.10 | 103.57 | 147 |
| 2GG | 4163 | 5.60 | 6.69 | 622 |
| 114115 | 3896 | 6.40 | 6.69 | 582 |
| 2HH | 4096 | 5.20 | 6.76 | 606 |
| C115 | 4875 | 6.00 | 13.45 | 362 |
| 115116 | 4797 | 6.50 | 13.45 | 357 |
| 2II | 1978 | 5.10 | 2.22 | 891 |
| C116 | 5315 | 6.35 | 15.67 | 339 |
| DC116L | 1823 | 6.35 | 15.67 | 116 |
| DC116R | 3493 | 6.35 | 15.67 | 223 |
| 116119 | 3399 | 7.00 | 15.67 | 217 |
| 2EE | 3284 | 5.00 | 4.13 | 795 |
| 118119 | 3190 | 5.25 | 4.13 | 772 |
| 2JJ | 1096 | 4.70 | 0.89 | 1231 |
| C119 | 4350 | 6.50 | 20.69 | 210 |
| 119120 | 4038 | 8.70 | 20.69 | 195 |
| 2KK | 1769 | 6.10 | 4.19 | 422 |
| C120R | 4063 | 8.65 | 24.88 | 163 |
| 2LL | 1753 | 6.70 | 5.18 | 338 |
| BC116L | 1823 | 6.35 | 15.67 | 116 |
| 116120 | 1242 | 10.15 | 15.67 | 79 |
| C120 | 4438 | 8.40 | 30.06 | 148 |
| 120121 | 4343 | 8.85 | 30.06 | 144 |
| 2MM | 741 | 4.75 | 0.91 | 814 |
| C121 | 4341 | 8.85 | 30.97 | 140 |

## TABLE F-2B

### 100-YEAR 6-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| C132 | 12973 | 10.20 | 330.40 | 39 |
| C133I | 9126 | 11.90 | 334.14 | 27 |
| C135I | 2773 | 11.60 | 88.81 | 31 |
| C136O | 502 | 7.30 | 5.82 | 86 |
| C137 | 8937 | 12.90 | 342.13 | 26 |
| C139 | 1567 | 11.85 | 337.76 | 5 |
| C140 | 5881 | 9.40 | 50.39 | 117 |
| C141 | 9044 | 12.35 | 334.14 | 27 |
| C142I | 1822 | 10.80 | 336.59 | 5 |
| C142O | 1810 | 10.85 | 336.59 | 5 |
| C149 | 8975 | 12.60 | 339.96 | 26 |
| C151 | 0 | 0.05 | 330.40 | 0 |
| DC78L | 499 | 5.45 | 4.77 | 105 |
| DC78R | 829 | 5.45 | 4.77 | 174 |
| DC79L | 4672 | 8.70 | 77.13 | 61 |
| DC79R | 3800 | 8.70 | 77.13 | 49 |
| DC80L | 4565 | 8.95 | 77.13 | 59 |
| DC80R | 45 | 8.90 | 77.13 | 1 |
| DC81L | 2858 | 9.40 | 79.75 | 36 |
| DC81R | 670 | 9.40 | 79.75 | 8 |
| DC82L | 0 | 0.05 | 85.07 | 0 |
| DC82R | 2913 | 11.25 | 85.07 | 34 |
| DC84L | 2839 | 5.80 | 4.33 | 656 |
| DC84R | 146 | 5.80 | 4.33 | 34 |
| DC116L | 1823 | 6.35 | 15.67 | 116 |
| DC116R | 3493 | 6.35 | 15.67 | 223 |
| DC132L | 1836 | 10.60 | 330.40 | 6 |
| DC132R | 9199 | 10.60 | 330.40 | 28 |
| D133O | 7101 | 12.00 | 334.14 | 21 |
| D135O | 2003 | 12.05 | 334.14 | 6 |
| DC142L | 159 | 10.85 | 336.59 | 0 |
| DC142R | 1650 | 10.85 | 336.59 | 5 |
| DC150L | 0 | 0.05 | 330.40 | 0 |
| DC150R | 1834 | 10.60 | 330.40 | 6 |
| DPND3 | 0 | 0.05 | 334.14 | 0 |
| PND3 | 9104 | 12.00 | 334.14 | 27 |
| PND3N | 9104 | 12.00 | 334.14 | 27 |

## TABLE F-2A

### 100-YEAR 6-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 121123 | 4245 | 9.40 | 30.97 | 137 |
| 2FF | 1628 | 6.75 | 5.51 | 295 |
| C123 | 4302 | 9.35 | 36.48 | 118 |
| 123140 | 4273 | 9.55 | 36.48 | 117 |
| 2NN | 3178 | 6.45 | 9.61 | 331 |
| 2OO | 975 | 4.75 | 0.85 | 1147 |
| C124 | 3178 | 6.45 | 10.46 | 304 |
| 124125 | 2946 | 7.35 | 10.46 | 282 |
| 2PP | 1905 | 4.90 | 1.78 | 1070 |
| C125 | 2944 | 7.35 | 12.24 | 241 |
| 125126 | 2668 | 8.30 | 12.24 | 218 |
| 2QQ | 1294 | 4.90 | 1.67 | 775 |
| C126 | 2664 | 8.30 | 13.91 | 192 |
| 126140 | 2503 | 9.10 | 13.91 | 180 |
| C140 | 5881 | 9.40 | 50.39 | 117 |
| 140127 | 5778 | 9.85 | 50.39 | 115 |
| 2RR | 650 | 5.10 | 0.93 | 699 |
| 2YY | 649 | 5.15 | 1.12 | 579 |
| C127L | 5777 | 9.85 | 52.44 | 110 |
| C127 | 15411 | 9.40 | 156.01 | 99 |
| 127131 | 15311 | 9.65 | 156.01 | 98 |
| BDC78L | 499 | 5.45 | 4.77 | 105 |
| 78L128 | 351 | 6.50 | 4.77 | 74 |
| 2SS | 1261 | 5.45 | 3.83 | 329 |
| C128 | 1009 | 5.45 | 8.60 | 117 |
| 128129 | 782 | 6.80 | 8.60 | 91 |
| 2TT | 2019 | 5.10 | 4.60 | 439 |
| C129 | 1531 | 5.10 | 13.20 | 116 |
| 129130 | 1332 | 5.60 | 13.20 | 101 |
| BDC80L | 4565 | 8.95 | 77.13 | 59 |
| 80L130 | 4380 | 9.60 | 77.13 | 57 |
| C130 | 4219 | 9.65 | 85.56 | 49 |
| 130131 | 3876 | 11.45 | 85.56 | 45 |
| C131 | 15353 | 9.70 | 241.57 | 64 |
| 131132 | 12752 | 10.45 | 241.57 | 53 |
| 2UU | 1559 | 6.45 | 8.10 | 192 |
| BDC82L | 0 | 0.05 | 85.07 | 0 |

## TABLE F-2B

### 100-YEAR 6-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| R61-62 | 1755 | 5.25 | 2.10 | 836 |
| R62-64 | 3733 | 5.60 | 8.03 | 465 |
| R63-64 | 325 | 5.75 | 0.34 | 956 |
| R64-65 | 3824 | 5.90 | 8.37 | 457 |
| R65-67 | 5205 | 6.05 | 17.83 | 292 |
| R66-67 | 190 | 5.95 | 0.62 | 306 |
| R67-71 | 5814 | 6.00 | 22.56 | 258 |
| R68-71 | 1053 | 5.60 | 1.08 | 975 |
| R70-71 | 1143 | 6.20 | 3.78 | 302 |
| R71-73 | 8375 | 6.25 | 38.88 | 215 |
| R72-73 | 2101 | 6.30 | 2.19 | 959 |
| R73-74 | 9297 | 7.00 | 43.82 | 212 |
| R74-77 | 8467 | 8.30 | 53.61 | 158 |
| R75-76 | 2556 | 6.05 | 5.30 | 482 |
| R76-77 | 2493 | 7.60 | 8.20 | 304 |
| R77-79 | 8868 | 8.70 | 69.67 | 127 |
| 78L128 | 351 | 6.50 | 4.77 | 74 |
| 78R-79 | 464 | 6.15 | 4.77 | 97 |
| 79L-80 | 4609 | 8.95 | 77.13 | 60 |
| 79R-81 | 3592 | 9.40 | 77.13 | 47 |
| 80L130 | 4380 | 9.60 | 77.13 | 57 |
| 80R-81 | 39 | 10.80 | 77.13 | 1 |
| 81L-82 | 2592 | 11.15 | 79.75 | 33 |
| 81R-82 | 530 | 11.25 | 79.75 | 7 |
| 82-135 | 2774 | 11.60 | 85.07 | 33 |
| R83-84 | 2985 | 5.80 | 4.33 | 689 |
| 84L-85 | 2710 | 6.30 | 4.33 | 626 |
| 84R-86 | 97 | 6.65 | 4.33 | 22 |
| R85-96 | 2826 | 6.90 | 7.64 | 370 |
| R86-96 | 1540 | 5.75 | 6.53 | 236 |
| R87-89 | 1991 | 5.15 | 1.75 | 1138 |
| R88-89 | 991 | 4.70 | 0.75 | 1321 |
| R89-91 | 2457 | 5.30 | 2.50 | 983 |
| R91-92 | 3207 | 5.10 | 4.63 | 693 |
| R92-95 | 4866 | 4.95 | 7.09 | 686 |
| R93-94 | 1997 | 5.30 | 2.19 | 912 |
| R94-95 | 2332 | 5.35 | 3.13 | 745 |

## TABLE F-2A

### 100-YEAR 6-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| C132 | 12973 | 10.20 | 330.40 | 39 |
| DC132L | 1836 | 10.60 | 330.40 | 6 |
| DC132R | 9199 | 10.60 | 330.40 | 28 |
| 132133 | 8988 | 10.95 | 330.40 | 27 |
| C133I | 9126 | 11.90 | 334.14 | 27 |
| PND3 | 9104 | 12.00 | 334.14 | 27 |
| DPND3 | 0 | 0.05 | 334.14 | 0 |
| PND3N | 9104 | 12.00 | 334.14 | 27 |
| D135O | 2003 | 12.05 | 334.14 | 6 |
| D133O | 7101 | 12.00 | 334.14 | 21 |
| 133141 | 7056 | 12.35 | 334.14 | 21 |
| BD135O | 2003 | 12.05 | 334.14 | 6 |
| 135141 | 1992 | 12.25 | 334.14 | 6 |
| C141 | 9044 | 12.35 | 334.14 | 27 |
| 141149 | 8975 | 12.60 | 334.14 | 27 |
| 2WW | 1256 | 6.05 | 5.82 | 216 |
| C136O | 502 | 7.30 | 5.82 | 86 |
| 136149 | 161 | 8.45 | 5.82 | 28 |
| C149 | 8975 | 12.60 | 339.96 | 26 |
| 149137 | 8937 | 12.90 | 339.96 | 26 |
| 2XX | 1665 | 5.10 | 2.17 | 767 |
| C137 | 8937 | 12.90 | 342.13 | 26 |
| BC132L | 1834 | 10.60 | 330.40 | 6 |
| DC150L | 0 | 0.05 | 330.40 | 0 |
| DC150R | 1834 | 10.60 | 330.40 | 6 |
| 150142 | 1822 | 10.80 | 330.40 | 6 |
| 7A | 1052 | 5.35 | 2.45 | 429 |
| BPND3 | 0 | 0.05 | 334.14 | 0 |
| C142I | 1822 | 10.80 | 336.59 | 5 |
| C142O | 1810 | 10.85 | 336.59 | 5 |
| DC142L | 159 | 10.85 | 336.59 | 0 |
| DC142R | 1650 | 10.85 | 336.59 | 5 |
| 142139 | 1568 | 11.85 | 336.59 | 5 |
| 7D | 1093 | 4.80 | 1.17 | 934 |
| C139 | 1567 | 11.85 | 337.76 | 5 |
| 7C | 587 | 4.50 | 0.60 | 978 |
| BC142L | 158 | 10.85 | 336.59 | 0 |

## TABLE F-2B

### 100-YEAR 6-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| R95-96 | 7324 | 5.70 | 12.78 | 573 |
| R96-97 | 11134 | 6.40 | 32.64 | 341 |
| 97-100 | 11130 | 6.75 | 36.15 | 308 |
| R98-99 | 1475 | 5.35 | 2.93 | 503 |
| 99-100 | 1816 | 5.55 | 5.60 | 324 |
| 100101 | 11025 | 6.95 | 43.57 | 253 |
| 101102 | 11519 | 7.25 | 48.47 | 238 |
| 102103 | 11325 | 7.50 | 49.85 | 227 |
| 103107 | 11040 | 8.75 | 57.42 | 192 |
| 104105 | 3418 | 6.20 | 6.29 | 543 |
| 105107 | 6501 | 8.20 | 16.60 | 392 |
| 108111 | 2338 | 5.30 | 2.40 | 974 |
| 110111 | 2514 | 6.40 | 5.10 | 493 |
| 111113 | 3629 | 7.60 | 11.23 | 323 |
| 113127 | 15217 | 9.10 | 103.03 | 148 |
| 114115 | 3896 | 6.40 | 6.69 | 582 |
| 115116 | 4797 | 6.50 | 13.45 | 357 |
| 116119 | 3399 | 7.00 | 15.67 | 217 |
| 116120 | 1242 | 10.15 | 15.67 | 79 |
| 118119 | 3190 | 5.25 | 4.13 | 772 |
| 119120 | 4038 | 8.70 | 20.69 | 195 |
| 120121 | 4343 | 8.85 | 30.06 | 144 |
| 121123 | 4245 | 9.40 | 30.97 | 137 |
| 123140 | 4273 | 9.55 | 36.48 | 117 |
| 124125 | 2946 | 7.35 | 10.46 | 282 |
| 125126 | 2668 | 8.30 | 12.24 | 218 |
| 126140 | 2503 | 9.10 | 13.91 | 180 |
| 127131 | 15311 | 9.65 | 156.01 | 98 |
| 128129 | 782 | 6.80 | 8.60 | 91 |
| 129130 | 1332 | 5.60 | 13.20 | 101 |
| 130131 | 3876 | 11.45 | 85.56 | 45 |
| 131132 | 12752 | 10.45 | 241.57 | 53 |
| 132133 | 8988 | 10.95 | 330.40 | 27 |
| 133141 | 7056 | 12.35 | 334.14 | 21 |
| 135141 | 1992 | 12.25 | 334.14 | 6 |
| 136149 | 161 | 8.45 | 5.82 | 28 |
| 140127 | 5778 | 9.85 | 50.39 | 115 |

## TABLE F-2A

### 100-YEAR 6-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 142-18 | 101 | 12.60 | 336.59 | 0 |
| 7B | 1425 | 4.95 | 1.67 | 853 |
| C18 | 99 | 12.60 | 338.26 | 0 |
| BD150L | 0 | 0.05 | 330.40 | 0 |
| C151 | 0 | 0.05 | 330.40 | 0 |

## TABLE F-2B

### 100-YEAR 6-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 141149 | 8975 | 12.60 | 334.14 | 27 |
| 142-18 | 101 | 12.60 | 336.59 | 0 |
| 142139 | 1568 | 11.85 | 336.59 | 5 |
| 149137 | 8937 | 12.90 | 339.96 | 26 |
| 150142 | 1822 | 10.80 | 330.40 | 6 |

## TABLE F-2A

### 100-YEAR 6-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| **Quilotosa Wash and Sauceda Wash** | | | | |
| 3K | 2432 | 5.75 | 8.94 | 272 |
| C151 | 0 | 0.05 | 8.94 | 0 |
| C12I | 2762 | 5.85 | 339.24 | 8 |
| C12O | 8 | 7.90 | 339.24 | 0 |
| DC12L | 0 | 0.05 | 339.24 | 0 |
| DC12R | 8 | 7.90 | 339.24 | 0 |
| R12-14 | 0 | 0.05 | 339.24 | 0 |
| R14-13 | 0 | 0.05 | 339.24 | 0 |
| 3F | 3233 | 5.70 | 12.14 | 266 |
| R1-3 | 2947 | 6.85 | 12.14 | 243 |
| 3E | 2595 | 5.55 | 8.24 | 315 |
| R2-3 | 2444 | 6.15 | 8.24 | 297 |
| 3G | 2208 | 5.10 | 5.12 | 431 |
| C3 | 4511 | 6.55 | 25.50 | 177 |
| R3-5 | 4406 | 7.00 | 25.50 | 173 |
| 3H | 1928 | 6.00 | 6.78 | 284 |
| C5 | 4968 | 6.90 | 32.28 | 154 |
| R5-7 | 4801 | 7.55 | 32.28 | 149 |
| 3C | 3264 | 5.70 | 11.27 | 290 |
| R4-7 | 2938 | 6.45 | 11.27 | 261 |
| 3D | 3010 | 5.65 | 6.51 | 462 |
| C7 | 7070 | 6.35 | 50.06 | 141 |
| R7-90 | 6868 | 6.80 | 50.06 | 137 |
| 3A | 2512 | 6.15 | 11.19 | 224 |
| R6-90 | 2034 | 8.35 | 11.19 | 182 |
| C90 | 6868 | 6.80 | 61.25 | 112 |
| R90-8 | 6277 | 7.10 | 61.25 | 102 |
| 3B | 3137 | 5.60 | 6.42 | 489 |
| C8 | 6557 | 6.95 | 67.67 | 97 |
| R8-9 | 6088 | 9.10 | 67.67 | 90 |
| 3I | 2086 | 6.10 | 5.10 | 409 |
| C9 | 6116 | 9.05 | 72.77 | 84 |
| R9-10 | 5253 | 11.60 | 72.77 | 72 |
| 3J | 2656 | 7.05 | 11.25 | 236 |
| C10 | 5483 | 11.45 | 84.02 | 65 |

## TABLE F-2B

### 100-YEAR 6-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| **Quilotosa Wash and Sauceda Wash** | | | | |
| 3A | 2512 | 6.15 | 11.19 | 224 |
| 3B | 3137 | 5.60 | 6.42 | 489 |
| 3C | 3264 | 5.70 | 11.27 | 290 |
| 3D | 3010 | 5.65 | 6.51 | 462 |
| 3E | 2595 | 5.55 | 8.24 | 315 |
| 3F | 3233 | 5.70 | 12.14 | 266 |
| 3G | 2208 | 5.10 | 5.12 | 431 |
| 3H | 1928 | 6.00 | 6.78 | 284 |
| 3I | 2086 | 6.10 | 5.10 | 409 |
| 3J | 2656 | 7.05 | 11.25 | 236 |
| 3K | 2432 | 5.75 | 8.94 | 272 |
| 3L | 1826 | 5.25 | 2.48 | 736 |
| 3M | 2643 | 5.05 | 3.89 | 679 |
| 4A | 2675 | 6.20 | 11.75 | 228 |
| 4B | 2798 | 5.45 | 6.14 | 456 |
| 4C | 3459 | 6.40 | 12.33 | 281 |
| 4D | 1367 | 5.85 | 4.57 | 299 |
| 4E | 1547 | 5.65 | 4.88 | 317 |
| 4F | 2438 | 5.15 | 6.16 | 396 |
| 4G | 2448 | 5.40 | 7.70 | 318 |
| 4H | 2926 | 5.45 | 6.11 | 479 |
| 4I | 4276 | 5.65 | 15.52 | 276 |
| 4J | 2624 | 5.90 | 6.09 | 431 |
| 4K | 2005 | 5.65 | 3.91 | 513 |
| 4L | 3161 | 6.30 | 9.49 | 333 |
| 4M | 2132 | 5.35 | 3.42 | 623 |
| 4N | 2489 | 6.70 | 7.61 | 327 |
| 4O | 2181 | 6.10 | 5.50 | 397 |
| 5A | 3027 | 6.65 | 9.29 | 326 |
| 5B | 2130 | 5.65 | 4.88 | 436 |
| 5C | 1822 | 5.10 | 2.41 | 756 |
| 6A | 4725 | 5.55 | 9.04 | 523 |
| 6B | 6102 | 5.30 | 10.95 | 557 |
| 6C | 3337 | 5.20 | 8.83 | 378 |
| 6D | 4949 | 6.10 | 9.98 | 496 |

## TABLE F-2A

### 100-YEAR 6-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| R10-11 | 4746 | 12.95 | 84.02 | 56 |
| 3L | 1826 | 5.25 | 2.48 | 736 |
| C11I | 4745 | 12.95 | 86.50 | 55 |
| 4A | 2675 | 6.20 | 11.75 | 228 |
| R26-27 | 2312 | 6.75 | 11.75 | 197 |
| 4B | 2798 | 5.45 | 6.14 | 456 |
| C27 | 2970 | 5.85 | 17.89 | 166 |
| R27-28 | 2770 | 8.15 | 17.89 | 155 |
| 4C | 3459 | 6.40 | 12.33 | 281 |
| C28 | 4240 | 6.40 | 30.22 | 140 |
| R28-29 | 4161 | 6.75 | 30.22 | 138 |
| 4E | 1547 | 5.65 | 4.88 | 317 |
| R20-21 | 1445 | 6.10 | 4.88 | 296 |
| 4F | 2438 | 5.15 | 6.16 | 396 |
| C21 | 2793 | 5.30 | 11.04 | 253 |
| R21-23 | 2688 | 5.85 | 11.04 | 243 |
| 4D | 1367 | 5.85 | 4.57 | 299 |
| R22-23 | 1275 | 6.55 | 4.57 | 279 |
| 4G | 2448 | 5.40 | 7.70 | 318 |
| C23 | 4596 | 5.55 | 23.31 | 197 |
| R23-29 | 4098 | 7.65 | 23.31 | 176 |
| 4J | 2624 | 5.90 | 6.09 | 431 |
| C29 | 7227 | 6.75 | 59.62 | 121 |
| R29-31 | 6954 | 7.35 | 59.62 | 117 |
| 4K | 2005 | 5.65 | 3.91 | 513 |
| C31 | 7082 | 7.20 | 63.53 | 111 |
| R31-32 | 6770 | 7.85 | 63.53 | 107 |
| 4H | 2926 | 5.45 | 6.11 | 479 |
| R24-25 | 2489 | 8.40 | 6.11 | 407 |
| 4I | 4276 | 5.65 | 15.52 | 276 |
| C25 | 3995 | 5.65 | 21.63 | 185 |
| R25-30 | 3671 | 7.45 | 21.63 | 170 |
| 6A | 4725 | 5.55 | 9.04 | 523 |
| R39-40 | 4562 | 6.05 | 9.04 | 505 |
| 6B | 6102 | 5.30 | 10.95 | 557 |
| C40 | 8792 | 5.45 | 19.99 | 440 |
| DC40L | 2858 | 5.45 | 19.99 | 143 |

## TABLE F-2B

### 100-YEAR 6-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 6E | 3465 | 6.00 | 7.12 | 487 |
| 6F | 1920 | 6.30 | 5.05 | 380 |
| 6G | 2276 | 6.50 | 6.37 | 357 |
| 6H | 1976 | 6.10 | 4.97 | 398 |
| 6I | 2976 | 5.65 | 6.97 | 427 |
| 6J | 2247 | 5.50 | 4.47 | 503 |
| 6K | 2616 | 5.95 | 5.95 | 440 |
| 6L | 2426 | 6.30 | 6.34 | 383 |
| 6M | 2277 | 5.35 | 3.86 | 590 |
| 6N | 3088 | 5.85 | 7.84 | 394 |
| 6O | 4237 | 5.35 | 8.13 | 521 |
| 6P | 2663 | 5.45 | 5.21 | 511 |
| 6Q | 1838 | 5.15 | 2.86 | 643 |
| B14-13 | 0 | 0.05 | 339.24 | 0 |
| BC11O | 578 | 13.00 | 239.68 | 2 |
| BC52O | 879 | 12.15 | 98.03 | 9 |
| BDC12L | 0 | 0.05 | 339.24 | 0 |
| BDC32L | 4098 | 8.05 | 118.06 | 35 |
| BDC40L | 2858 | 5.45 | 19.99 | 143 |
| BDC47L | 4536 | 8.80 | 67.38 | 67 |
| BDC48L | 2199 | 9.60 | 73.33 | 30 |
| BPND2 | 6110 | 13.05 | 239.68 | 25 |
| C3 | 4511 | 6.55 | 25.50 | 177 |
| C5 | 4968 | 6.90 | 32.28 | 154 |
| C7 | 7070 | 6.35 | 50.06 | 141 |
| C8 | 6557 | 6.95 | 67.67 | 97 |
| C9 | 6116 | 9.05 | 72.77 | 84 |
| C10 | 5483 | 11.45 | 84.02 | 65 |
| C11I | 4745 | 12.95 | 86.50 | 55 |
| C11O | 578 | 13.00 | 239.68 | 2 |
| C12I | 2762 | 5.85 | 339.24 | 8 |
| C12O | 8 | 7.90 | 339.24 | 0 |
| C13 | 522 | 13.20 | 239.68 | 2 |
| C151 | 0 | 0.05 | 8.94 | 0 |
| C16 | 673 | 5.05 | 243.57 | 3 |
| C21 | 2793 | 5.30 | 11.04 | 253 |
| C23 | 4596 | 5.55 | 23.31 | 197 |

## TABLE F-2A

### 100-YEAR 6-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| DC40R | 5934 | 5.45 | 19.99 | 297 |
| 40R-30 | 5532 | 7.15 | 19.99 | 277 |
| 4L | 3161 | 6.30 | 9.49 | 333 |
| C30 | 9157 | 7.15 | 51.11 | 179 |
| R30-32 | 8909 | 8.10 | 51.11 | 174 |
| 4M | 2132 | 5.35 | 3.42 | 623 |
| C32 | 11298 | 8.05 | 118.06 | 96 |
| DC32L | 4098 | 8.05 | 118.06 | 35 |
| DC32R | 7200 | 8.05 | 118.06 | 61 |
| R32-33 | 6580 | 10.35 | 118.06 | 56 |
| 4N | 2489 | 6.70 | 7.61 | 327 |
| C33 | 6498 | 10.35 | 125.67 | 52 |
| R33-34 | 6132 | 11.75 | 125.67 | 49 |
| 4O | 2181 | 6.10 | 5.50 | 397 |
| C34 | 6109 | 11.75 | 131.17 | 47 |
| BDC32L | 4098 | 8.05 | 118.06 | 35 |
| 32L-35 | 3770 | 10.55 | 118.06 | 32 |
| 5A | 3027 | 6.65 | 9.29 | 326 |
| C35 | 3738 | 10.55 | 127.35 | 29 |
| R35-36 | 3464 | 11.80 | 127.35 | 27 |
| 5B | 2130 | 5.65 | 4.88 | 436 |
| C36I | 9012 | 11.85 | 140.36 | 64 |
| 6N | 3088 | 5.85 | 7.84 | 394 |
| BDC12L | 0 | 0.05 | 339.24 | 0 |
| CPND2 | 9055 | 12.30 | 239.68 | 38 |
| PND2 | 6409 | 13.05 | 239.68 | 27 |
| PND2R | 6110 | 13.05 | 239.68 | 25 |
| C53O | 299 | 13.05 | 239.68 | 1 |
| R53-56 | 280 | 13.20 | 239.68 | 1 |
| R56-59 | 192 | 14.00 | 239.68 | 1 |
| 6Q | 1838 | 5.15 | 2.86 | 643 |
| C59 | 424 | 5.20 | 242.54 | 2 |
| BPND2 | 6110 | 13.05 | 239.68 | 25 |
| C11O | 578 | 13.00 | 239.68 | 2 |
| C36O | 5532 | 13.05 | 239.68 | 23 |
| R36-37 | 5492 | 13.10 | 239.68 | 23 |
| R37-38 | 5375 | 13.70 | 239.68 | 22 |

## TABLE F-2B

### 100-YEAR 6-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| C25 | 3995 | 5.65 | 21.63 | 185 |
| C27 | 2970 | 5.85 | 17.89 | 166 |
| C28 | 4240 | 6.40 | 30.22 | 140 |
| C29 | 7227 | 6.75 | 59.62 | 121 |
| C30 | 9157 | 7.15 | 51.11 | 179 |
| C31 | 7082 | 7.20 | 63.53 | 111 |
| C32 | 11298 | 8.05 | 118.06 | 96 |
| C33 | 6498 | 10.35 | 125.67 | 52 |
| C34 | 6109 | 11.75 | 131.17 | 47 |
| C35 | 3738 | 10.55 | 127.35 | 29 |
| C36I | 9012 | 11.85 | 140.36 | 64 |
| C36O | 5532 | 13.05 | 239.68 | 23 |
| C38 | 5374 | 13.70 | 242.09 | 22 |
| C40 | 8792 | 5.45 | 19.99 | 440 |
| C41 | 4178 | 5.90 | 28.82 | 145 |
| C43 | 9072 | 6.65 | 45.92 | 198 |
| C44 | 8964 | 8.10 | 50.97 | 176 |
| C46 | 4185 | 5.80 | 11.94 | 351 |
| C47 | 9194 | 8.80 | 67.38 | 136 |
| C48 | 4445 | 9.60 | 73.33 | 61 |
| C49 | 6175 | 10.60 | 77.19 | 80 |
| C50 | 2354 | 7.10 | 86.04 | 27 |
| C51I | 6043 | 11.70 | 85.32 | 71 |
| C51O | 5842 | 12.15 | 98.03 | 60 |
| C52O | 879 | 12.15 | 98.03 | 9 |
| C53O | 299 | 13.05 | 239.68 | 1 |
| C57 | 6626 | 12.50 | 98.03 | 68 |
| C58 | 6378 | 13.25 | 103.24 | 62 |
| C59 | 424 | 5.20 | 242.54 | 2 |
| C69 | 9267 | 8.45 | 62.91 | 147 |
| C90 | 6868 | 6.80 | 61.25 | 112 |
| CPND1 | 6975 | 11.80 | 98.03 | 71 |
| CPND2 | 9055 | 12.30 | 239.68 | 38 |
| DC12L | 0 | 0.05 | 339.24 | 0 |
| DC12R | 8 | 7.90 | 339.24 | 0 |
| DC32L | 4098 | 8.05 | 118.06 | 35 |
| DC32R | 7200 | 8.05 | 118.06 | 61 |

## TABLE F-2A

### 100-YEAR 6-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 5C | 1822 | 5.10 | 2.41 | 756 |
| C38 | 5374 | 13.70 | 242.09 | 22 |
| BC11O | 578 | 13.00 | 239.68 | 2 |
| R11-17 | 536 | 13.10 | 239.68 | 2 |
| R17-13 | 522 | 13.20 | 239.68 | 2 |
| B14-13 | 0 | 0.05 | 339.24 | 0 |
| C13 | 522 | 13.20 | 239.68 | 2 |
| R13-16 | 383 | 13.85 | 239.68 | 2 |
| 3M | 2643 | 5.05 | 3.89 | 679 |
| C16 | 673 | 5.05 | 243.57 | 3 |
| BDC40L | 2858 | 5.45 | 19.99 | 143 |
| 40L-41 | 2813 | 6.40 | 19.99 | 141 |
| 6C | 3337 | 5.20 | 8.83 | 378 |
| C41 | 4178 | 5.90 | 28.82 | 145 |
| R41-43 | 3955 | 7.50 | 28.82 | 137 |
| 6D | 4949 | 6.10 | 9.98 | 496 |
| 6E | 3465 | 6.00 | 7.12 | 487 |
| R42-43 | 3290 | 6.70 | 7.12 | 462 |
| C43 | 9072 | 6.65 | 45.92 | 198 |
| R43-44 | 8759 | 8.20 | 45.92 | 191 |
| 6F | 1920 | 6.30 | 5.05 | 380 |
| C44 | 8964 | 8.10 | 50.97 | 176 |
| R44-69 | 8856 | 8.60 | 50.97 | 174 |
| 6H | 1976 | 6.10 | 4.97 | 398 |
| 6I | 2976 | 5.65 | 6.97 | 427 |
| C46 | 4185 | 5.80 | 11.94 | 351 |
| R46-69 | 4030 | 6.50 | 11.94 | 338 |
| C69 | 9267 | 8.45 | 62.91 | 147 |
| R69-47 | 9195 | 8.80 | 62.91 | 146 |
| 6J | 2247 | 5.50 | 4.47 | 503 |
| C47 | 9194 | 8.80 | 67.38 | 136 |
| DC47L | 4536 | 8.80 | 67.38 | 67 |
| DC47R | 4536 | 8.80 | 67.38 | 67 |
| 47R-48 | 4445 | 9.60 | 67.38 | 66 |
| 6K | 2616 | 5.95 | 5.95 | 440 |
| C48 | 4445 | 9.60 | 73.33 | 61 |
| DC48L | 2199 | 9.60 | 73.33 | 30 |

## TABLE F-2B

### 100-YEAR 6-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| DC40L | 2858 | 5.45 | 19.99 | 143 |
| DC40R | 5934 | 5.45 | 19.99 | 297 |
| DC47L | 4536 | 8.80 | 67.38 | 67 |
| DC47R | 4536 | 8.80 | 67.38 | 67 |
| DC48L | 2199 | 9.60 | 73.33 | 30 |
| DC48R | 2199 | 9.60 | 73.33 | 30 |
| PND1 | 6721 | 12.15 | 98.03 | 69 |
| PND2 | 6409 | 13.05 | 239.68 | 27 |
| PND2R | 6110 | 13.05 | 239.68 | 25 |
| R1-3 | 2947 | 6.85 | 12.14 | 243 |
| R2-3 | 2444 | 6.15 | 8.24 | 297 |
| R3-5 | 4406 | 7.00 | 25.50 | 173 |
| R4-7 | 2938 | 6.45 | 11.27 | 261 |
| R6-90 | 2034 | 8.35 | 11.19 | 182 |
| R5-7 | 4801 | 7.55 | 32.28 | 149 |
| R7-90 | 6868 | 6.80 | 50.06 | 137 |
| R8-9 | 6088 | 9.10 | 67.67 | 90 |
| R9-10 | 5253 | 11.60 | 72.77 | 72 |
| R10-11 | 4746 | 12.95 | 84.02 | 56 |
| R11-17 | 536 | 13.10 | 239.68 | 2 |
| R12-14 | 0 | 0.05 | 339.24 | 0 |
| R13-16 | 383 | 13.85 | 239.68 | 2 |
| R14-13 | 0 | 0.05 | 339.24 | 0 |
| R17-13 | 522 | 13.20 | 239.68 | 2 |
| R20-21 | 1445 | 6.10 | 4.88 | 296 |
| R21-23 | 2688 | 5.85 | 11.04 | 243 |
| R22-23 | 1275 | 6.55 | 4.57 | 279 |
| R23-29 | 4098 | 7.65 | 23.31 | 176 |
| R24-25 | 2489 | 8.40 | 6.11 | 407 |
| R25-30 | 3671 | 7.45 | 21.63 | 170 |
| R26-27 | 2312 | 6.75 | 11.75 | 197 |
| R27-28 | 2770 | 8.15 | 17.89 | 155 |
| R28-29 | 4161 | 6.75 | 30.22 | 138 |
| R29-31 | 6954 | 7.35 | 59.62 | 117 |
| R30-32 | 8909 | 8.10 | 51.11 | 174 |
| R31-32 | 6770 | 7.85 | 63.53 | 107 |
| R32-33 | 6580 | 10.35 | 118.06 | 56 |

## TABLE F-2A

### 100-YEAR 6-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| DC48R | 2199 | 9.60 | 73.33 | 30 |
| 48R-50 | 2047 | 10.80 | 73.33 | 28 |
| 6G | 2276 | 6.50 | 6.37 | 357 |
| R45-50 | 1906 | 8.90 | 6.37 | 299 |
| 6L | 2426 | 6.30 | 6.34 | 383 |
| C50 | 2354 | 7.10 | 86.04 | 27 |
| R50-52 | 1566 | 8.40 | 86.04 | 18 |
| BDC47L | 4536 | 8.80 | 67.38 | 67 |
| 47L-49 | 4348 | 10.45 | 67.38 | 65 |
| BDC48L | 2199 | 9.60 | 73.33 | 30 |
| 48L-49 | 2047 | 10.80 | 73.33 | 28 |
| 6M | 2277 | 5.35 | 3.86 | 590 |
| C49 | 6175 | 10.60 | 77.19 | 80 |
| R49-51 | 6043 | 11.70 | 77.19 | 78 |
| 6O | 4237 | 5.35 | 8.13 | 521 |
| C51I | 6043 | 11.70 | 85.32 | 71 |
| CPND1 | 6975 | 11.80 | 98.03 | 71 |
| PND1 | 6721 | 12.15 | 98.03 | 69 |
| C52O | 879 | 12.15 | 98.03 | 9 |
| C51O | 5842 | 12.15 | 98.03 | 60 |
| R51-54 | 5831 | 12.25 | 98.03 | 59 |
| R54-57 | 5796 | 12.50 | 98.03 | 59 |
| BC52O | 879 | 12.15 | 98.03 | 9 |
| R52-55 | 865 | 12.25 | 98.03 | 9 |
| R55-57 | 830 | 12.50 | 98.03 | 8 |
| C57 | 6626 | 12.50 | 98.03 | 68 |
| R57-58 | 6398 | 13.25 | 98.03 | 65 |
| 6P | 2663 | 5.45 | 5.21 | 511 |
| C58 | 6378 | 13.25 | 103.24 | 62 |

## TABLE F-2B

### 100-YEAR 6-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 32L-35 | 3770 | 10.55 | 118.06 | 32 |
| R33-34 | 6132 | 11.75 | 125.67 | 49 |
| R35-36 | 3464 | 11.80 | 127.35 | 27 |
| R36-37 | 5492 | 13.10 | 239.68 | 23 |
| R37-38 | 5375 | 13.70 | 239.68 | 22 |
| R39-40 | 4562 | 6.05 | 9.04 | 505 |
| 40L-41 | 2813 | 6.40 | 19.99 | 141 |
| 40R-30 | 5532 | 7.15 | 19.99 | 277 |
| R41-43 | 3955 | 7.50 | 28.82 | 137 |
| R42-43 | 3290 | 6.70 | 7.12 | 462 |
| R43-44 | 8759 | 8.20 | 45.92 | 191 |
| R44-69 | 8856 | 8.60 | 50.97 | 174 |
| R45-50 | 1906 | 8.90 | 6.37 | 299 |
| R46-69 | 4030 | 6.50 | 11.94 | 338 |
| 47L-49 | 4348 | 10.45 | 67.38 | 65 |
| 47R-48 | 4445 | 9.60 | 67.38 | 66 |
| 48L-49 | 2047 | 10.80 | 73.33 | 28 |
| 48R-50 | 2047 | 10.80 | 73.33 | 28 |
| R49-51 | 6043 | 11.70 | 77.19 | 78 |
| R50-52 | 1566 | 8.40 | 86.04 | 18 |
| R51-54 | 5831 | 12.25 | 98.03 | 59 |
| R52-55 | 865 | 12.25 | 98.03 | 9 |
| R53-56 | 280 | 13.20 | 239.68 | 1 |
| R54-57 | 5796 | 12.50 | 98.03 | 59 |
| R55-57 | 830 | 12.50 | 98.03 | 8 |
| R56-59 | 192 | 14.00 | 239.68 | 1 |
| R57-58 | 6398 | 13.25 | 98.03 | 65 |
| R69-47 | 9195 | 8.80 | 62.91 | 146 |
| R90-8 | 6277 | 7.10 | 61.25 | 102 |

## TABLE F-2A

### 100-YEAR 6-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| **Un-Named Wash #1 and Un-Named Wash #2** | | | | |
| 2VV1 | 463 | 4.93 | 0.54 | 857 |
| 143144 | 427 | 5.48 | 0.54 | 791 |
| 2VV2 | 645 | 4.95 | 0.96 | 672 |
| C144 | 730 | 5.02 | 1.50 | 487 |
| 144145 | 680 | 5.93 | 1.50 | 453 |
| 2VV6 | 596 | 4.60 | 0.56 | 1064 |
| C145R | 673 | 5.93 | 2.06 | 327 |
| 2VV3 | 51 | 4.10 | 0.02 | 2550 |
| 146147 | 41 | 4.35 | 0.02 | 2050 |
| 2VV4 | 188 | 4.23 | 0.10 | 1880 |
| C147 | 217 | 4.28 | 0.12 | 1808 |
| 147148 | 192 | 4.60 | 0.12 | 1600 |
| 2VV8 | 502 | 4.42 | 0.36 | 1394 |
| C148 | 615 | 4.48 | 0.48 | 1281 |
| 148145 | 562 | 4.88 | 0.48 | 1171 |
| 2VV5 | 307 | 4.52 | 0.25 | 1228 |
| C145L | 636 | 4.83 | 0.73 | 871 |
| C145 | 822 | 4.82 | 2.79 | 295 |
| 145135 | 816 | 4.90 | 2.79 | 292 |
| 2VV7 | 154 | 4.48 | 0.12 | 1283 |
| C135I | 841 | 4.88 | 2.91 | 289 |

## TABLE F-2B

### 100-YEAR 6-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| **Un-Named Wash #1 and Un-Named Wash #2** | | | | |
| 2VV1 | 463 | 4.93 | 0.54 | 857 |
| 2VV2 | 645 | 4.95 | 0.96 | 672 |
| 2VV3 | 51 | 4.10 | 0.02 | 2550 |
| 2VV4 | 188 | 4.23 | 0.10 | 1880 |
| 2VV5 | 307 | 4.52 | 0.25 | 1228 |
| 2VV6 | 596 | 4.60 | 0.56 | 1064 |
| 2VV7 | 154 | 4.48 | 0.12 | 1283 |
| 2VV8 | 502 | 4.42 | 0.36 | 1394 |
| C135I | 841 | 4.88 | 2.91 | 289 |
| C144 | 730 | 5.02 | 1.50 | 487 |
| C145 | 822 | 4.82 | 2.79 | 295 |
| C145L | 636 | 4.83 | 0.73 | 871 |
| C145R | 673 | 5.93 | 2.06 | 327 |
| C147 | 217 | 4.28 | 0.12 | 1808 |
| C148 | 615 | 4.48 | 0.48 | 1281 |
| 143144 | 427 | 5.48 | 0.54 | 791 |
| 144145 | 680 | 5.93 | 1.50 | 453 |
| 145135 | 816 | 4.90 | 2.79 | 292 |
| 146147 | 41 | 4.35 | 0.02 | 2050 |
| 147148 | 192 | 4.60 | 0.12 | 1600 |
| 148145 | 562 | 4.88 | 0.48 | 1171 |

Table F-3

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

## TABLE F-3A

### 100-YEAR 24-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| **Bender Wash and Sand Tank Wash** | | | | |
| 1B | 1288 | 12.80 | 2.10 | 613 |
| R61-62 | 1249 | 13.05 | 2.10 | 595 |
| 1C | 2254 | 13.10 | 3.83 | 589 |
| 1A | 925 | 13.00 | 2.10 | 440 |
| C62 | 4265 | 13.05 | 8.03 | 531 |
| R62-64 | 4024 | 13.45 | 8.03 | 501 |
| 1D | 452 | 12.20 | 0.34 | 1329 |
| R63-64 | 307 | 13.65 | 0.34 | 903 |
| C64 | 4215 | 13.50 | 8.37 | 504 |
| R64-65 | 4081 | 13.75 | 8.37 | 488 |
| 1E | 1911 | 13.25 | 3.91 | 489 |
| 1F | 1892 | 13.20 | 5.55 | 341 |
| C65 | 6348 | 13.50 | 17.83 | 356 |
| R65-67 | 6207 | 13.85 | 17.83 | 348 |
| 1J | 731 | 12.30 | 0.62 | 1179 |
| R66-67 | 114 | 14.05 | 0.62 | 184 |
| 1I | 1980 | 13.25 | 4.11 | 482 |
| C67 | 7228 | 13.75 | 22.56 | 320 |
| R67-71 | 7178 | 13.85 | 22.56 | 318 |
| 1G | 1421 | 13.05 | 3.78 | 376 |
| R70-71 | 1210 | 14.05 | 3.78 | 320 |
| 1H | 2052 | 13.25 | 6.77 | 303 |
| C71R | 2304 | 13.95 | 10.55 | 218 |
| 1K | 998 | 12.60 | 1.08 | 924 |
| R68-71 | 860 | 13.55 | 1.08 | 796 |
| 1L | 2362 | 13.50 | 4.69 | 504 |
| C71L | 3177 | 13.50 | 5.77 | 551 |
| C71 | 11330 | 13.70 | 38.88 | 291 |
| R71-73 | 11118 | 14.05 | 38.88 | 286 |
| 1M | 2018 | 12.60 | 2.19 | 921 |
| R72-73 | 1616 | 14.25 | 2.19 | 738 |
| 1N | 1407 | 13.05 | 2.75 | 512 |
| C73 | 12652 | 14.10 | 43.82 | 289 |
| R73-74 | 12187 | 14.80 | 43.82 | 278 |
| 1P | 1747 | 13.50 | 4.56 | 383 |

## TABLE F-3B

### 100-YEAR 24-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| **Bender Wash and Sand Tank Wash** | | | | |
| 1A | 925 | 13.00 | 2.10 | 440 |
| 1B | 1288 | 12.80 | 2.10 | 613 |
| 1C | 2254 | 13.10 | 3.83 | 589 |
| 1D | 452 | 12.20 | 0.34 | 1329 |
| 1E | 1911 | 13.25 | 3.91 | 489 |
| 1F | 1892 | 13.20 | 5.55 | 341 |
| 1G | 1421 | 13.05 | 3.78 | 376 |
| 1H | 2052 | 13.25 | 6.77 | 303 |
| 1I | 1980 | 13.25 | 4.11 | 482 |
| 1J | 731 | 12.30 | 0.62 | 1179 |
| 1K | 998 | 12.60 | 1.08 | 924 |
| 1L | 2362 | 13.50 | 4.69 | 504 |
| 1M | 2018 | 12.60 | 2.19 | 921 |
| 1N | 1407 | 13.05 | 2.75 | 512 |
| 1O | 1567 | 13.55 | 5.23 | 300 |
| 1P | 1747 | 13.50 | 4.56 | 383 |
| 1Q | 2511 | 13.75 | 5.30 | 474 |
| 1R | 1499 | 12.80 | 2.90 | 517 |
| 1S | 1499 | 13.30 | 4.77 | 314 |
| 1T | 1412 | 14.00 | 4.67 | 302 |
| 1U | 878 | 13.60 | 3.19 | 275 |
| 1V | 1126 | 12.95 | 2.16 | 521 |
| 1W | 337 | 12.55 | 0.53 | 636 |
| 1X | 1364 | 12.90 | 2.62 | 521 |
| 1Y | 2100 | 13.35 | 5.32 | 395 |
| 2A | 2857 | 13.35 | 4.33 | 660 |
| 2B | 2263 | 12.95 | 3.31 | 684 |
| 2C | 1950 | 12.70 | 2.32 | 841 |
| 2D | 1600 | 12.60 | 1.75 | 914 |
| 2E | 1246 | 12.35 | 1.00 | 1246 |
| 2F | 798 | 12.40 | 0.75 | 1064 |
| 2G | 1248 | 12.50 | 1.13 | 1104 |
| 2H | 1551 | 12.50 | 1.59 | 975 |
| 2I | 1054 | 12.30 | 0.87 | 1211 |
| 2J | 1022 | 12.65 | 1.16 | 881 |

## TABLE F-3A

### 100-YEAR 24-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 1O | 1567 | 13.55 | 5.23 | 300 |
| C74 | 13013 | 14.75 | 53.61 | 243 |
| R74-77 | 11875 | 16.00 | 53.61 | 222 |
| 1U | 878 | 13.60 | 3.19 | 275 |
| C77R | 11875 | 16.00 | 56.80 | 209 |
| 1Q | 2511 | 13.75 | 5.30 | 474 |
| R75-76 | 2456 | 13.90 | 5.30 | 463 |
| 1R | 1499 | 12.80 | 2.90 | 517 |
| C76 | 2982 | 13.85 | 8.20 | 364 |
| R76-77 | 2430 | 15.55 | 8.20 | 296 |
| 1T | 1412 | 14.00 | 4.67 | 302 |
| C77L | 2860 | 15.40 | 12.87 | 222 |
| C77 | 13685 | 15.95 | 69.67 | 196 |
| R77-79 | 13443 | 16.30 | 69.67 | 193 |
| 1W | 337 | 12.55 | 0.53 | 636 |
| C79RUP | 13441 | 16.30 | 70.20 | 191 |
| 1S | 1499 | 13.30 | 4.77 | 314 |
| DC78L | 576 | 13.30 | 4.77 | 121 |
| DC78R | 923 | 13.30 | 4.77 | 194 |
| 78R-79 | 562 | 14.00 | 4.77 | 118 |
| 1V | 1126 | 12.95 | 2.16 | 521 |
| C79LUP | 1089 | 12.95 | 6.93 | 157 |
| C79 | 13438 | 16.30 | 77.13 | 174 |
| DC79L | 6761 | 16.30 | 77.13 | 88 |
| DC79R | 6578 | 16.30 | 77.13 | 85 |
| 79R-81 | 6309 | 16.95 | 77.13 | 82 |
| BDC79L | 6761 | 16.30 | 77.13 | 88 |
| 79L-80 | 6684 | 16.50 | 77.13 | 87 |
| DC80L | 6547 | 16.50 | 77.13 | 85 |
| DC80R | 138 | 16.50 | 77.13 | 2 |
| 80R-81 | 11 | 17.80 | 77.13 | 0 |
| 1X | 1364 | 12.90 | 2.62 | 521 |
| C81 | 6308 | 16.95 | 79.75 | 79 |
| DC81L | 4373 | 16.95 | 79.75 | 55 |
| DC81R | 1908 | 16.95 | 79.75 | 24 |
| 81R-82 | 1673 | 18.80 | 79.75 | 21 |
| BDC81L | 4373 | 16.95 | 79.75 | 55 |

## TABLE F-3B

### 100-YEAR 24-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 2K | 1596 | 12.95 | 2.19 | 729 |
| 2L | 762 | 12.70 | 0.94 | 811 |
| 2M | 1626 | 12.30 | 1.40 | 1161 |
| 2N | 1872 | 12.65 | 2.20 | 851 |
| 2O | 2985 | 12.65 | 3.37 | 886 |
| 2P | 2330 | 12.65 | 3.51 | 664 |
| 2Q | 1660 | 12.85 | 2.93 | 567 |
| 2R | 1343 | 12.80 | 2.67 | 503 |
| 2S | 1143 | 12.50 | 1.82 | 628 |
| 2T | 2329 | 13.50 | 4.90 | 475 |
| 2U | 727 | 12.65 | 1.38 | 527 |
| 2V | 3205 | 13.40 | 7.57 | 423 |
| 2W | 3882 | 13.10 | 6.29 | 617 |
| 2X | 4574 | 13.75 | 10.31 | 444 |
| 2Y | 4610 | 14.00 | 13.40 | 344 |
| 2Z | 2733 | 13.25 | 5.10 | 536 |
| 2AA | 2471 | 13.05 | 3.73 | 662 |
| 2BB | 2154 | 12.50 | 2.40 | 898 |
| 2CC | 1600 | 13.75 | 4.38 | 365 |
| 2DD | 384 | 12.60 | 0.54 | 711 |
| 2EE | 3050 | 12.85 | 4.13 | 738 |
| 2FF | 1641 | 14.60 | 5.51 | 298 |
| 2GG | 3979 | 13.50 | 6.69 | 595 |
| 2HH | 4129 | 13.10 | 6.76 | 611 |
| 2II | 1509 | 12.95 | 2.22 | 680 |
| 2JJ | 817 | 12.55 | 0.89 | 918 |
| 2KK | 1686 | 13.95 | 4.19 | 402 |
| 2LL | 1701 | 14.55 | 5.18 | 328 |
| 2MM | 495 | 12.60 | 0.91 | 544 |
| 2NN | 3248 | 14.35 | 9.61 | 338 |
| 2OO | 731 | 12.65 | 0.85 | 860 |
| 2PP | 1312 | 12.80 | 1.78 | 737 |
| 2QQ | 813 | 12.80 | 1.67 | 487 |
| 2RR | 483 | 12.95 | 0.93 | 519 |
| 2SS | 1402 | 13.35 | 3.83 | 366 |
| 2TT | 2248 | 13.00 | 4.60 | 489 |
| 2UU | 1967 | 14.30 | 8.10 | 243 |

## TABLE F-3A

### 100-YEAR 24-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 81L-82 | 3970 | 18.50 | 79.75 | 50 |
| 1Y | 2100 | 13.35 | 5.32 | 395 |
| C82 | 5530 | 18.65 | 85.07 | 65 |
| DC82L | 517 | 18.65 | 85.07 | 6 |
| DC82R | 5013 | 18.65 | 85.07 | 59 |
| 82-135 | 4900 | 18.95 | 85.07 | 58 |
| 2VV | 1493 | 13.20 | 3.74 | 399 |
| C135I | 4900 | 18.95 | 88.81 | 55 |
| 2D | 1600 | 12.60 | 1.75 | 914 |
| R87-89 | 1504 | 13.05 | 1.75 | 859 |
| 2F | 798 | 12.40 | 0.75 | 1064 |
| R88-89 | 779 | 12.60 | 0.75 | 1039 |
| C89 | 2071 | 12.95 | 2.50 | 828 |
| R89-91 | 2003 | 13.30 | 2.50 | 801 |
| 2E | 1246 | 12.35 | 1.00 | 1246 |
| 2G | 1248 | 12.50 | 1.13 | 1104 |
| C91 | 2919 | 12.55 | 4.63 | 630 |
| R91-92 | 2840 | 12.80 | 4.63 | 613 |
| 2I | 1054 | 12.30 | 0.87 | 1211 |
| 2H | 1551 | 12.50 | 1.59 | 975 |
| C92 | 4892 | 12.60 | 7.09 | 690 |
| R92-95 | 4767 | 12.80 | 7.09 | 672 |
| 2K | 1596 | 12.95 | 2.19 | 729 |
| R93-94 | 1555 | 13.20 | 2.19 | 710 |
| 2L | 762 | 12.70 | 0.94 | 811 |
| C94 | 2115 | 13.15 | 3.13 | 676 |
| R94-95 | 2062 | 13.30 | 3.13 | 659 |
| 2M | 1626 | 12.30 | 1.40 | 1161 |
| 2J | 1022 | 12.65 | 1.16 | 881 |
| C95 | 7459 | 12.80 | 12.78 | 584 |
| R95-96 | 7024 | 13.50 | 12.78 | 550 |
| 2A | 2857 | 13.35 | 4.33 | 660 |
| R83-84 | 2755 | 13.70 | 4.33 | 636 |
| DC84R | 129 | 13.70 | 4.33 | 30 |
| DC84L | 2625 | 13.70 | 4.33 | 606 |
| 84L-85 | 2481 | 14.20 | 4.33 | 573 |
| 2B | 2263 | 12.95 | 3.31 | 684 |

## TABLE F-3B

### 100-YEAR 24-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 2VV | 1493 | 13.20 | 3.74 | 399 |
| 2WW | 1574 | 13.90 | 5.82 | 270 |
| 2XX | 1131 | 12.95 | 2.17 | 521 |
| 2YY | 424 | 13.05 | 1.12 | 379 |
| 7A | 832 | 13.25 | 2.45 | 340 |
| 7B | 944 | 12.85 | 1.67 | 565 |
| 7C | 387 | 12.35 | 0.60 | 645 |
| 7D | 732 | 12.65 | 1.17 | 626 |
| BDC78L | 576 | 13.30 | 4.77 | 121 |
| BDC79L | 6761 | 16.30 | 77.13 | 88 |
| BDC80L | 6547 | 16.50 | 77.13 | 85 |
| BDC81L | 4373 | 16.95 | 79.75 | 55 |
| BDC82L | 517 | 18.65 | 85.07 | 6 |
| BDC84 | 129 | 13.70 | 4.33 | 30 |
| BPND3 | 131 | 19.00 | 334.14 | 0 |
| BC116L | 1656 | 13.75 | 15.67 | 106 |
| BC132L | 8086 | 17.50 | 330.40 | 24 |
| BC142L | 846 | 18.90 | 336.59 | 3 |
| BD135O | 3111 | 19.05 | 334.14 | 9 |
| BD150L | 4585 | 17.50 | 330.40 | 14 |
| C18 | 807 | 19.90 | 338.26 | 2 |
| C62 | 4265 | 13.05 | 8.03 | 531 |
| C64 | 4215 | 13.50 | 8.37 | 504 |
| C65 | 6348 | 13.50 | 17.83 | 356 |
| C67 | 7228 | 13.75 | 22.56 | 320 |
| C71 | 11330 | 13.70 | 38.88 | 291 |
| C71L | 3177 | 13.50 | 5.77 | 551 |
| C71R | 2304 | 13.95 | 10.55 | 218 |
| C73 | 12652 | 14.10 | 43.82 | 289 |
| C74 | 13013 | 14.75 | 53.61 | 243 |
| C76 | 2982 | 13.85 | 8.20 | 364 |
| C77 | 13685 | 15.95 | 69.67 | 196 |
| C77L | 2860 | 15.40 | 12.87 | 222 |
| C77R | 11875 | 16.00 | 56.80 | 209 |
| C79 | 13438 | 16.30 | 77.13 | 174 |
| C79LUP | 1089 | 12.95 | 6.93 | 157 |
| C79RUP | 13441 | 16.30 | 70.20 | 191 |

## TABLE F-3A

### 100-YEAR 24-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| C85 | 2720 | 14.15 | 7.64 | 356 |
| R85-96 | 2548 | 14.95 | 7.64 | 334 |
| BDC84 | 129 | 13.70 | 4.33 | 30 |
| 84R-86 | 81 | 14.60 | 4.33 | 19 |
| 2N | 1872 | 12.65 | 2.20 | 851 |
| C86 | 1830 | 12.65 | 6.53 | 280 |
| R86-96 | 1568 | 13.60 | 6.53 | 240 |
| 2C | 1950 | 12.70 | 2.32 | 841 |
| 2O | 2985 | 12.65 | 3.37 | 886 |
| C96 | 12315 | 13.50 | 32.64 | 377 |
| R96-97 | 11514 | 14.25 | 32.64 | 353 |
| 2P | 2330 | 12.65 | 3.51 | 664 |
| C97 | 11891 | 14.25 | 36.15 | 329 |
| 97-100 | 11570 | 14.60 | 36.15 | 320 |
| 2Q | 1660 | 12.85 | 2.93 | 567 |
| R98-99 | 1313 | 13.25 | 2.93 | 448 |
| 2R | 1343 | 12.80 | 2.67 | 503 |
| C99 | 2243 | 13.05 | 5.60 | 401 |
| 99-100 | 2039 | 13.40 | 5.60 | 364 |
| 2S | 1143 | 12.50 | 1.82 | 628 |
| C100 | 11974 | 14.55 | 43.57 | 275 |
| 100101 | 11801 | 14.75 | 43.57 | 271 |
| 2T | 2329 | 13.50 | 4.90 | 475 |
| C101 | 12686 | 14.75 | 48.47 | 262 |
| 101102 | 12367 | 15.10 | 48.47 | 255 |
| 2U | 727 | 12.65 | 1.38 | 527 |
| C102 | 12365 | 15.10 | 49.85 | 248 |
| 102103 | 12182 | 15.30 | 49.85 | 244 |
| 2V | 3205 | 13.40 | 7.57 | 423 |
| C103 | 12871 | 15.30 | 57.42 | 224 |
| 103107 | 12258 | 16.40 | 57.42 | 213 |
| 2W | 3882 | 13.10 | 6.29 | 617 |
| 104105 | 3173 | 14.10 | 6.29 | 504 |
| 2X | 4574 | 13.75 | 10.31 | 444 |
| C105 | 7037 | 13.95 | 16.60 | 424 |
| 105107 | 6071 | 16.15 | 16.60 | 366 |
| 2Y | 4610 | 14.00 | 13.40 | 344 |

## TABLE F-3B

### 100-YEAR 24-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| C81 | 6308 | 16.95 | 79.75 | 79 |
| C82 | 5530 | 18.65 | 85.07 | 65 |
| C85 | 2720 | 14.15 | 7.64 | 356 |
| C86 | 1830 | 12.65 | 6.53 | 280 |
| C89 | 2071 | 12.95 | 2.50 | 828 |
| C91 | 2919 | 12.55 | 4.63 | 630 |
| C92 | 4892 | 12.60 | 7.09 | 690 |
| C94 | 2115 | 13.15 | 3.13 | 676 |
| C95 | 7459 | 12.80 | 12.78 | 584 |
| C96 | 12315 | 13.50 | 32.64 | 377 |
| C97 | 11891 | 14.25 | 36.15 | 329 |
| C99 | 2243 | 13.05 | 5.60 | 401 |
| C100 | 11974 | 14.55 | 43.57 | 275 |
| C101 | 12686 | 14.75 | 48.47 | 262 |
| C102 | 12365 | 15.10 | 49.85 | 248 |
| C103 | 12871 | 15.30 | 57.42 | 224 |
| C105 | 7037 | 13.95 | 16.60 | 424 |
| C107 | 17469 | 16.35 | 87.42 | 200 |
| C111 | 3957 | 13.20 | 11.23 | 352 |
| C113 | 19580 | 16.30 | 103.03 | 190 |
| C115 | 4400 | 14.00 | 13.45 | 327 |
| C116 | 4850 | 13.75 | 15.67 | 310 |
| C119 | 4308 | 14.30 | 20.69 | 208 |
| C120 | 4526 | 16.35 | 30.06 | 151 |
| C120R | 4048 | 16.50 | 24.88 | 163 |
| C121 | 4416 | 16.80 | 30.97 | 143 |
| C123 | 4460 | 17.35 | 36.48 | 122 |
| C124 | 3248 | 14.30 | 10.46 | 311 |
| C125 | 2984 | 15.25 | 12.24 | 244 |
| C126 | 2711 | 16.20 | 13.91 | 195 |
| C127 | 22611 | 16.75 | 156.01 | 145 |
| C127L | 6405 | 17.60 | 52.44 | 122 |
| C127R | 19236 | 16.70 | 103.57 | 186 |
| C128 | 1328 | 13.35 | 8.60 | 154 |
| C129 | 2061 | 13.00 | 13.20 | 156 |
| C130 | 6599 | 17.10 | 85.56 | 77 |
| C131 | 23787 | 17.25 | 241.57 | 98 |

## TABLE F-3A

### 100-YEAR 24-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| C107 | 17469 | 16.35 | 87.42 | 200 |
| 2BB | 2154 | 12.50 | 2.40 | 898 |
| 108111 | 1920 | 13.25 | 2.40 | 800 |
| 2Z | 2733 | 13.25 | 5.10 | 536 |
| 110111 | 2297 | 14.30 | 5.10 | 450 |
| 2AA | 2471 | 13.05 | 3.73 | 662 |
| C111 | 3957 | 13.20 | 11.23 | 352 |
| 111113 | 3240 | 14.95 | 11.23 | 289 |
| 2CC | 1600 | 13.75 | 4.38 | 365 |
| C113 | 19580 | 16.30 | 103.03 | 190 |
| 113127 | 19236 | 16.70 | 103.03 | 187 |
| 2DD | 384 | 12.60 | 0.54 | 711 |
| C127R | 19236 | 16.70 | 103.57 | 186 |
| 2GG | 3979 | 13.50 | 6.69 | 595 |
| 114115 | 3585 | 14.35 | 6.69 | 536 |
| 2HH | 4129 | 13.10 | 6.76 | 611 |
| C115 | 4400 | 14.00 | 13.45 | 327 |
| 115116 | 4293 | 14.50 | 13.45 | 319 |
| 2II | 1509 | 12.95 | 2.22 | 680 |
| C116 | 4850 | 13.75 | 15.67 | 310 |
| DC116L | 1656 | 13.75 | 15.67 | 106 |
| DC116R | 3194 | 13.75 | 15.67 | 204 |
| 116119 | 3109 | 14.55 | 15.67 | 198 |
| 2EE | 3050 | 12.85 | 4.13 | 738 |
| 118119 | 2947 | 13.15 | 4.13 | 714 |
| 2JJ | 817 | 12.55 | 0.89 | 918 |
| C119 | 4308 | 14.30 | 20.69 | 208 |
| 119120 | 3950 | 16.55 | 20.69 | 191 |
| 2KK | 1686 | 13.95 | 4.19 | 402 |
| C120R | 4048 | 16.50 | 24.88 | 163 |
| 2LL | 1701 | 14.55 | 5.18 | 328 |
| BC116L | 1656 | 13.75 | 15.67 | 106 |
| 116120 | 1160 | 18.10 | 15.67 | 74 |
| C120 | 4526 | 16.35 | 30.06 | 151 |
| 120121 | 4416 | 16.80 | 30.06 | 147 |
| 2MM | 495 | 12.60 | 0.91 | 544 |
| C121 | 4416 | 16.80 | 30.97 | 143 |

## TABLE F-3B

### 100-YEAR 24-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| C132 | 23667 | 17.50 | 330.40 | 72 |
| C133I | 18404 | 18.95 | 334.14 | 55 |
| C135I | 4900 | 18.95 | 88.81 | 55 |
| C136O | 542 | 15.35 | 5.82 | 93 |
| C137 | 17990 | 19.90 | 342.13 | 53 |
| C139 | 2632 | 19.55 | 337.76 | 8 |
| C140 | 6497 | 17.20 | 50.39 | 129 |
| C141 | 18140 | 19.35 | 334.14 | 54 |
| C142I | 3522 | 18.90 | 336.59 | 10 |
| C142O | 3517 | 18.90 | 336.59 | 10 |
| C149 | 18053 | 19.65 | 339.96 | 53 |
| C151 | 4080 | 18.20 | 330.40 | 12 |
| DC78L | 576 | 13.30 | 4.77 | 121 |
| DC78R | 923 | 13.30 | 4.77 | 194 |
| DC79L | 6761 | 16.30 | 77.13 | 88 |
| DC79R | 6578 | 16.30 | 77.13 | 85 |
| DC80L | 6547 | 16.50 | 77.13 | 85 |
| DC80R | 138 | 16.50 | 77.13 | 2 |
| DC81L | 4373 | 16.95 | 79.75 | 55 |
| DC81R | 1908 | 16.95 | 79.75 | 24 |
| DC82L | 517 | 18.65 | 85.07 | 6 |
| DC82R | 5013 | 18.65 | 85.07 | 59 |
| DC84L | 2625 | 13.70 | 4.33 | 606 |
| DC84R | 129 | 13.70 | 4.33 | 30 |
| DC116L | 1656 | 13.75 | 15.67 | 106 |
| DC116R | 3194 | 13.75 | 15.67 | 204 |
| DC132L | 8086 | 17.50 | 330.40 | 24 |
| DC132R | 14872 | 17.50 | 330.40 | 45 |
| D133O | 15112 | 19.05 | 334.14 | 45 |
| D135O | 3111 | 19.05 | 334.14 | 9 |
| DC142L | 846 | 18.90 | 336.59 | 3 |
| DC142R | 2671 | 18.90 | 336.59 | 8 |
| DC150L | 4585 | 17.50 | 330.40 | 14 |
| DC150R | 3501 | 17.50 | 330.40 | 11 |
| DPND3 | 131 | 19.00 | 334.14 | 0 |
| PND3 | 18352 | 19.05 | 334.14 | 55 |
| PND3N | 18223 | 19.05 | 334.14 | 55 |

## TABLE F-3A

### 100-YEAR 24-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 121123 | 4322 | 17.35 | 30.97 | 140 |
| 2FF | 1641 | 14.60 | 5.51 | 298 |
| C123 | 4460 | 17.35 | 36.48 | 122 |
| 123140 | 4429 | 17.55 | 36.48 | 121 |
| 2NN | 3248 | 14.35 | 9.61 | 338 |
| 2OO | 731 | 12.65 | 0.85 | 860 |
| C124 | 3248 | 14.30 | 10.46 | 311 |
| 124125 | 2984 | 15.25 | 10.46 | 285 |
| 2PP | 1312 | 12.80 | 1.78 | 737 |
| C125 | 2984 | 15.25 | 12.24 | 244 |
| 125126 | 2711 | 16.20 | 12.24 | 221 |
| 2QQ | 813 | 12.80 | 1.67 | 487 |
| C126 | 2711 | 16.20 | 13.91 | 195 |
| 126140 | 2569 | 16.95 | 13.91 | 185 |
| C140 | 6497 | 17.20 | 50.39 | 129 |
| 140127 | 6405 | 17.60 | 50.39 | 127 |
| 2RR | 483 | 12.95 | 0.93 | 519 |
| 2YY | 424 | 13.05 | 1.12 | 379 |
| C127L | 6405 | 17.60 | 52.44 | 122 |
| C127 | 22611 | 16.75 | 156.01 | 145 |
| 127131 | 22489 | 17.05 | 156.01 | 144 |
| BDC78L | 576 | 13.30 | 4.77 | 121 |
| 78L128 | 414 | 14.35 | 4.77 | 87 |
| 2SS | 1402 | 13.35 | 3.83 | 366 |
| C128 | 1328 | 13.35 | 8.60 | 154 |
| 128129 | 1079 | 14.60 | 8.60 | 125 |
| 2TT | 2248 | 13.00 | 4.60 | 489 |
| C129 | 2061 | 13.00 | 13.20 | 156 |
| 129130 | 1868 | 13.65 | 13.20 | 142 |
| BDC80L | 6547 | 16.50 | 77.13 | 85 |
| 80L130 | 6343 | 17.15 | 77.13 | 82 |
| C130 | 6599 | 17.10 | 85.56 | 77 |
| 130131 | 6162 | 18.70 | 85.56 | 72 |
| C131 | 23787 | 17.25 | 241.57 | 98 |
| 131132 | 23668 | 17.55 | 241.57 | 98 |
| 2UU | 1967 | 14.30 | 8.10 | 243 |
| BDC82L | 517 | 18.65 | 85.07 | 6 |

## TABLE F-3B

### 100-YEAR 24-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| R61-62 | 1249 | 13.05 | 2.10 | 595 |
| R62-64 | 4024 | 13.45 | 8.03 | 501 |
| R63-64 | 307 | 13.65 | 0.34 | 903 |
| R64-65 | 4081 | 13.75 | 8.37 | 488 |
| R65-67 | 6207 | 13.85 | 17.83 | 348 |
| R66-67 | 114 | 14.05 | 0.62 | 184 |
| R67-71 | 7178 | 13.85 | 22.56 | 318 |
| R68-71 | 860 | 13.55 | 1.08 | 796 |
| R70-71 | 1210 | 14.05 | 3.78 | 320 |
| R71-73 | 11118 | 14.05 | 38.88 | 286 |
| R72-73 | 1616 | 14.25 | 2.19 | 738 |
| R73-74 | 12187 | 14.80 | 43.82 | 278 |
| R74-77 | 11875 | 16.00 | 53.61 | 222 |
| R75-76 | 2456 | 13.90 | 5.30 | 463 |
| R76-77 | 2430 | 15.55 | 8.20 | 296 |
| R77-79 | 13443 | 16.30 | 69.67 | 193 |
| 78L128 | 414 | 14.35 | 4.77 | 87 |
| 78R-79 | 562 | 14.00 | 4.77 | 118 |
| 79L-80 | 6684 | 16.50 | 77.13 | 87 |
| 79R-81 | 6309 | 16.95 | 77.13 | 82 |
| 80L130 | 6343 | 17.15 | 77.13 | 82 |
| 80R-81 | 11 | 17.80 | 77.13 | 0 |
| 81L-82 | 3970 | 18.50 | 79.75 | 50 |
| 81R-82 | 1673 | 18.80 | 79.75 | 21 |
| 82-135 | 4900 | 18.95 | 85.07 | 58 |
| R83-84 | 2755 | 13.70 | 4.33 | 636 |
| 84L-85 | 2481 | 14.20 | 4.33 | 573 |
| 84R-86 | 81 | 14.60 | 4.33 | 19 |
| R85-96 | 2548 | 14.95 | 7.64 | 334 |
| R86-96 | 1568 | 13.60 | 6.53 | 240 |
| R87-89 | 1504 | 13.05 | 1.75 | 859 |
| R88-89 | 779 | 12.60 | 0.75 | 1039 |
| R89-91 | 2003 | 13.30 | 2.50 | 801 |
| R91-92 | 2840 | 12.80 | 4.63 | 613 |
| R92-95 | 4767 | 12.80 | 7.09 | 672 |
| R93-94 | 1555 | 13.20 | 2.19 | 710 |
| R94-95 | 2062 | 13.30 | 3.13 | 659 |

## TABLE F-3A

### 100-YEAR 24-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| C132 | 23667 | 17.50 | 330.40 | 72 |
| DC132L | 8086 | 17.50 | 330.40 | 24 |
| DC132R | 14872 | 17.50 | 330.40 | 45 |
| 132133 | 14763 | 17.85 | 330.40 | 45 |
| C133I | 18404 | 18.95 | 334.14 | 55 |
| PND3 | 18352 | 19.05 | 334.14 | 55 |
| DPND3 | 131 | 19.00 | 334.14 | 0 |
| PND3N | 18223 | 19.05 | 334.14 | 55 |
| D135O | 3111 | 19.05 | 334.14 | 9 |
| D133O | 15112 | 19.05 | 334.14 | 45 |
| 133141 | 15038 | 19.35 | 334.14 | 45 |
| BD135O | 3111 | 19.05 | 334.14 | 9 |
| 135141 | 3104 | 19.25 | 334.14 | 9 |
| C141 | 18140 | 19.35 | 334.14 | 54 |
| 141149 | 18070 | 19.65 | 334.14 | 54 |
| 2WW | 1574 | 13.90 | 5.82 | 270 |
| C136O | 542 | 15.35 | 5.82 | 93 |
| 136149 | 291 | 16.35 | 5.82 | 50 |
| C149 | 18053 | 19.65 | 339.96 | 53 |
| 149137 | 17991 | 19.90 | 339.96 | 53 |
| 2XX | 1131 | 12.95 | 2.17 | 521 |
| C137 | 17990 | 19.90 | 342.13 | 53 |
| BC132L | 8086 | 17.50 | 330.40 | 24 |
| DC150L | 4585 | 17.50 | 330.40 | 14 |
| DC150R | 3501 | 17.50 | 330.40 | 11 |
| 150142 | 3490 | 17.70 | 330.40 | 11 |
| 7A | 832 | 13.25 | 2.45 | 340 |
| BPND3 | 131 | 19.00 | 334.14 | 0 |
| C142I | 3522 | 18.90 | 336.59 | 10 |
| C142O | 3517 | 18.90 | 336.59 | 10 |
| DC142L | 846 | 18.90 | 336.59 | 3 |
| DC142R | 2671 | 18.90 | 336.59 | 8 |
| 142139 | 2626 | 19.55 | 336.59 | 8 |
| 7D | 732 | 12.65 | 1.17 | 626 |
| C139 | 2632 | 19.55 | 337.76 | 8 |
| 7C | 387 | 12.35 | 0.60 | 645 |
| BC142L | 846 | 18.90 | 336.59 | 3 |

## TABLE F-3B

### 100-YEAR 24-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| R95-96 | 7024 | 13.50 | 12.78 | 550 |
| R96-97 | 11514 | 14.25 | 32.64 | 353 |
| 97-100 | 11570 | 14.60 | 36.15 | 320 |
| R98-99 | 1313 | 13.25 | 2.93 | 448 |
| 99-100 | 2039 | 13.40 | 5.60 | 364 |
| 100101 | 11801 | 14.75 | 43.57 | 271 |
| 101102 | 12367 | 15.10 | 48.47 | 255 |
| 102103 | 12182 | 15.30 | 49.85 | 244 |
| 103107 | 12258 | 16.40 | 57.42 | 213 |
| 104105 | 3173 | 14.10 | 6.29 | 504 |
| 105107 | 6071 | 16.15 | 16.60 | 366 |
| 108111 | 1920 | 13.25 | 2.40 | 800 |
| 110111 | 2297 | 14.30 | 5.10 | 450 |
| 111113 | 3240 | 14.95 | 11.23 | 289 |
| 113127 | 19236 | 16.70 | 103.03 | 187 |
| 114115 | 3585 | 14.35 | 6.69 | 536 |
| 115116 | 4293 | 14.50 | 13.45 | 319 |
| 116119 | 3109 | 14.55 | 15.67 | 198 |
| 116120 | 1160 | 18.10 | 15.67 | 74 |
| 118119 | 2947 | 13.15 | 4.13 | 714 |
| 119120 | 3950 | 16.55 | 20.69 | 191 |
| 120121 | 4416 | 16.80 | 30.06 | 147 |
| 121123 | 4322 | 17.35 | 30.97 | 140 |
| 123140 | 4429 | 17.55 | 36.48 | 121 |
| 124125 | 2984 | 15.25 | 10.46 | 285 |
| 125126 | 2711 | 16.20 | 12.24 | 221 |
| 126140 | 2569 | 16.95 | 13.91 | 185 |
| 127131 | 22489 | 17.05 | 156.01 | 144 |
| 128129 | 1079 | 14.60 | 8.60 | 125 |
| 129130 | 1868 | 13.65 | 13.20 | 142 |
| 130131 | 6162 | 18.70 | 85.56 | 72 |
| 131132 | 23668 | 17.55 | 241.57 | 98 |
| 132133 | 14763 | 17.85 | 330.40 | 45 |
| 133141 | 15038 | 19.35 | 334.14 | 45 |
| 135141 | 3104 | 19.25 | 334.14 | 9 |
| 136149 | 291 | 16.35 | 5.82 | 50 |
| 140127 | 6405 | 17.60 | 50.39 | 127 |

**TABLE F-3A**

**100-YEAR 24-HOUR RESULTS IN HEC-1 RUN ORDER**

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 142-18 | 804 | 19.90 | 336.59 | 2 |
| 7B | 944 | 12.85 | 1.67 | 565 |
| C18 | 807 | 19.90 | 338.26 | 2 |
| BD150L | 4585 | 17.50 | 330.40 | 14 |
| C151 | 4080 | 18.20 | 330.40 | 12 |

**TABLE F-3B**

**100-YEAR 24-HOUR RESULTS IN NUMERICAL ORDER BY TYPE**

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 141149 | 18070 | 19.65 | 334.14 | 54 |
| 142-18 | 804 | 19.90 | 336.59 | 2 |
| 142139 | 2626 | 19.55 | 336.59 | 8 |
| 149137 | 17991 | 19.90 | 339.96 | 53 |
| 150142 | 3490 | 17.70 | 330.40 | 11 |

## TABLE F-3A

### 100-YEAR 24-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| **Quilotosa Wash and Sauceda Wash** | | | | |
| 3K | 2990 | 13.65 | 8.94 | 334 |
| C151 | 4080 | 18.20 | 8.94 | 456 |
| C12I | 4085 | 18.20 | 339.24 | 12 |
| C12O | 4031 | 18.45 | 339.24 | 12 |
| DC12L | 1240 | 18.45 | 339.24 | 4 |
| DC12R | 2792 | 18.45 | 339.24 | 8 |
| R12-14 | 2724 | 18.85 | 339.24 | 8 |
| R14-13 | 2659 | 19.20 | 339.24 | 8 |
| 3F | 3798 | 13.55 | 12.14 | 313 |
| R1-3 | 3374 | 14.65 | 12.14 | 278 |
| 3E | 2834 | 13.40 | 8.24 | 344 |
| R2-3 | 2610 | 14.05 | 8.24 | 317 |
| 3G | 2297 | 12.95 | 5.12 | 449 |
| C3 | 5468 | 14.45 | 25.50 | 214 |
| R3-5 | 5370 | 14.85 | 25.50 | 211 |
| 3H | 2039 | 13.85 | 6.78 | 301 |
| C5 | 6235 | 14.70 | 32.28 | 193 |
| R5-7 | 6028 | 15.35 | 32.28 | 187 |
| 3C | 3632 | 13.55 | 11.27 | 322 |
| R4-7 | 3159 | 14.35 | 11.27 | 280 |
| 3D | 3044 | 13.50 | 6.51 | 468 |
| C7 | 9053 | 14.40 | 50.06 | 181 |
| R7-90 | 8758 | 14.80 | 50.06 | 175 |
| 3A | 2925 | 14.00 | 11.19 | 261 |
| R6-90 | 2319 | 16.10 | 11.19 | 207 |
| C90 | 8875 | 15.95 | 61.25 | 145 |
| R90-8 | 8790 | 16.25 | 61.25 | 144 |
| 3B | 3140 | 13.50 | 6.42 | 489 |
| C8 | 8915 | 14.95 | 67.67 | 132 |
| R8-9 | 8522 | 16.65 | 67.67 | 126 |
| 3I | 2046 | 13.95 | 5.10 | 401 |
| C9 | 8614 | 16.65 | 72.77 | 118 |
| R9-10 | 7974 | 18.90 | 72.77 | 110 |
| 3J | 2882 | 14.90 | 11.25 | 256 |
| C10 | 8079 | 18.90 | 84.02 | 96 |

## TABLE F-3B

### 100-YEAR 24-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| **Quilotosa Wash and Sauceda Wash** | | | | |
| 3A | 2925 | 14.00 | 11.19 | 261 |
| 3B | 3140 | 13.50 | 6.42 | 489 |
| 3C | 3632 | 13.55 | 11.27 | 322 |
| 3D | 3044 | 13.50 | 6.51 | 468 |
| 3E | 2834 | 13.40 | 8.24 | 344 |
| 3F | 3798 | 13.55 | 12.14 | 313 |
| 3G | 2297 | 12.95 | 5.12 | 449 |
| 3H | 2039 | 13.85 | 6.78 | 301 |
| 3I | 2046 | 13.95 | 5.10 | 401 |
| 3J | 2882 | 14.90 | 11.25 | 256 |
| 3K | 2990 | 13.65 | 8.94 | 334 |
| 3L | 1463 | 13.15 | 2.48 | 590 |
| 3M | 2519 | 12.90 | 3.89 | 648 |
| 4A | 3079 | 14.05 | 11.75 | 262 |
| 4B | 2913 | 13.35 | 6.14 | 474 |
| 4C | 3830 | 14.20 | 12.33 | 311 |
| 4D | 1400 | 13.75 | 4.57 | 306 |
| 4E | 1631 | 13.50 | 4.88 | 334 |
| 4F | 2626 | 13.00 | 6.16 | 426 |
| 4G | 2724 | 13.25 | 7.70 | 354 |
| 4H | 2851 | 13.30 | 6.11 | 467 |
| 4I | 5001 | 13.50 | 15.52 | 322 |
| 4J | 2619 | 13.75 | 6.09 | 430 |
| 4K | 1893 | 13.55 | 3.91 | 484 |
| 4L | 3312 | 14.15 | 9.49 | 349 |
| 4M | 1975 | 13.25 | 3.42 | 577 |
| 4N | 2459 | 14.60 | 7.61 | 323 |
| 4O | 2173 | 13.95 | 5.50 | 395 |
| 5A | 3034 | 14.50 | 9.29 | 327 |
| 5B | 2156 | 13.55 | 4.88 | 442 |
| 5C | 1381 | 12.95 | 2.41 | 573 |
| 6A | 4582 | 13.40 | 9.04 | 507 |
| 6B | 6008 | 13.15 | 10.95 | 549 |
| 6C | 3628 | 13.05 | 8.83 | 411 |
| 6D | 4768 | 13.95 | 9.98 | 478 |

## TABLE F-3A

### 100-YEAR 24-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| R10-11 | 7850 | 19.95 | 84.02 | 93 |
| 3L | 1463 | 13.15 | 2.48 | 590 |
| C11I | 7848 | 19.95 | 86.50 | 91 |
| 4A | 3079 | 14.05 | 11.75 | 262 |
| R26-27 | 2608 | 14.60 | 11.75 | 222 |
| 4B | 2913 | 13.35 | 6.14 | 474 |
| C27 | 3404 | 13.55 | 17.89 | 190 |
| R27-28 | 3144 | 16.00 | 17.89 | 176 |
| 4C | 3830 | 14.20 | 12.33 | 311 |
| C28 | 5031 | 14.30 | 30.22 | 166 |
| R28-29 | 4918 | 14.60 | 30.22 | 163 |
| 4E | 1631 | 13.50 | 4.88 | 334 |
| R20-21 | 1495 | 14.00 | 4.88 | 306 |
| 4F | 2626 | 13.00 | 6.16 | 426 |
| C21 | 3159 | 13.15 | 11.04 | 286 |
| R21-23 | 3000 | 13.75 | 11.04 | 272 |
| 4D | 1400 | 13.75 | 4.57 | 306 |
| R22-23 | 1269 | 14.45 | 4.57 | 278 |
| 4G | 2724 | 13.25 | 7.70 | 354 |
| C23 | 5670 | 13.50 | 23.31 | 243 |
| R23-29 | 4973 | 15.60 | 23.31 | 213 |
| 4J | 2619 | 13.75 | 6.09 | 430 |
| C29 | 9294 | 15.30 | 59.62 | 156 |
| R29-31 | 9013 | 15.90 | 59.62 | 151 |
| 4K | 1893 | 13.55 | 3.91 | 484 |
| C31 | 9099 | 15.75 | 63.53 | 143 |
| R31-32 | 8791 | 16.30 | 63.53 | 138 |
| 4H | 2851 | 13.30 | 6.11 | 467 |
| R24-25 | 2302 | 16.30 | 6.11 | 377 |
| 4I | 5001 | 13.50 | 15.52 | 322 |
| C25 | 4918 | 13.50 | 21.63 | 227 |
| R25-30 | 4252 | 15.20 | 21.63 | 197 |
| 6A | 4582 | 13.40 | 9.04 | 507 |
| R39-40 | 4337 | 13.95 | 9.04 | 480 |
| 6B | 6008 | 13.15 | 10.95 | 549 |
| C40 | 8551 | 13.25 | 19.99 | 428 |
| DC40L | 2827 | 13.25 | 19.99 | 141 |

## TABLE F-3B

### 100-YEAR 24-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 6E | 3344 | 13.85 | 7.12 | 470 |
| 6F | 1888 | 14.15 | 5.05 | 374 |
| 6G | 2222 | 14.40 | 6.37 | 349 |
| 6H | 1957 | 13.95 | 4.97 | 394 |
| 6I | 3085 | 13.55 | 6.97 | 443 |
| 6J | 2227 | 13.35 | 4.47 | 498 |
| 6K | 2579 | 13.75 | 5.95 | 433 |
| 6L | 2374 | 14.15 | 6.34 | 374 |
| 6M | 2160 | 13.25 | 3.86 | 560 |
| 6N | 3207 | 13.75 | 7.84 | 409 |
| 6O | 4355 | 13.25 | 8.13 | 536 |
| 6P | 2649 | 13.30 | 5.21 | 508 |
| 6Q | 1647 | 13.05 | 2.86 | 576 |
| B14-13 | 2659 | 19.20 | 339.24 | 8 |
| BC11O | 3697 | 20.90 | 239.68 | 15 |
| BC52O | 1217 | 19.55 | 98.03 | 12 |
| BDC12L | 1240 | 18.45 | 339.24 | 4 |
| BDC32L | 6251 | 16.00 | 118.06 | 53 |
| BDC40L | 2827 | 13.25 | 19.99 | 141 |
| BDC47L | 5052 | 16.65 | 67.38 | 75 |
| BDC48L | 2483 | 17.45 | 73.33 | 34 |
| BPND2 | 16162 | 20.90 | 239.68 | 67 |
| C3 | 5468 | 14.45 | 25.50 | 214 |
| C5 | 6235 | 14.70 | 32.28 | 193 |
| C7 | 9053 | 14.40 | 50.06 | 181 |
| C8 | 8915 | 14.95 | 67.67 | 132 |
| C9 | 8614 | 16.65 | 72.77 | 118 |
| C10 | 8079 | 18.90 | 84.02 | 96 |
| C11I | 7848 | 19.95 | 86.50 | 91 |
| C11O | 3697 | 20.90 | 239.68 | 15 |
| C12I | 4085 | 18.20 | 339.24 | 12 |
| C12O | 4031 | 18.45 | 339.24 | 12 |
| C13 | 5422 | 20.25 | 239.68 | 23 |
| C151 | 4080 | 18.20 | 8.94 | 456 |
| C16 | 4988 | 20.75 | 243.57 | 20 |
| C21 | 3159 | 13.15 | 11.04 | 286 |
| C23 | 5670 | 13.50 | 23.31 | 243 |

## TABLE F-3A

### 100-YEAR 24-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| DC40R | 5724 | 13.25 | 19.99 | 286 |
| 40R-30 | 5142 | 15.00 | 19.99 | 257 |
| 4L | 3312 | 14.15 | 9.49 | 349 |
| C30 | 10427 | 15.05 | 51.11 | 204 |
| R30-32 | 10062 | 16.00 | 51.11 | 197 |
| 4M | 1975 | 13.25 | 3.42 | 577 |
| C32 | 17735 | 16.00 | 118.06 | 150 |
| DC32L | 6251 | 16.00 | 118.06 | 53 |
| DC32R | 11484 | 16.00 | 118.06 | 97 |
| R32-33 | 10895 | 18.00 | 118.06 | 92 |
| 4N | 2459 | 14.60 | 7.61 | 323 |
| C33 | 11011 | 18.00 | 125.67 | 88 |
| R33-34 | 10712 | 19.25 | 125.67 | 85 |
| 4O | 2173 | 13.95 | 5.50 | 395 |
| C34 | 10712 | 19.25 | 131.17 | 82 |
| BDC32L | 6251 | 16.00 | 118.06 | 53 |
| 32L-35 | 5900 | 18.25 | 118.06 | 50 |
| 5A | 3034 | 14.50 | 9.29 | 327 |
| C35 | 6008 | 18.15 | 127.35 | 47 |
| R35-36 | 5697 | 19.55 | 127.35 | 45 |
| 5B | 2156 | 13.55 | 4.88 | 442 |
| C36I | 16171 | 19.40 | 140.36 | 115 |
| 6N | 3207 | 13.75 | 7.84 | 409 |
| BDC12L | 1240 | 18.45 | 339.24 | 4 |
| CPND2 | 21777 | 19.90 | 239.68 | 91 |
| PND2 | 18032 | 20.85 | 239.68 | 75 |
| PND2R | 16162 | 20.90 | 239.68 | 67 |
| C53O | 1872 | 20.85 | 239.68 | 8 |
| R53-56 | 1823 | 21.00 | 239.68 | 8 |
| R56-59 | 1631 | 21.70 | 239.68 | 7 |
| 6Q | 1647 | 13.05 | 2.86 | 576 |
| C59 | 1612 | 21.70 | 242.54 | 7 |
| BPND2 | 16162 | 20.90 | 239.68 | 67 |
| C11O | 3697 | 20.90 | 239.68 | 15 |
| C36O | 12465 | 20.90 | 239.68 | 52 |
| R36-37 | 12384 | 20.95 | 239.68 | 52 |
| R37-38 | 12213 | 21.45 | 239.68 | 51 |

## TABLE F-3B

### 100-YEAR 24-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| C25 | 4918 | 13.50 | 21.63 | 227 |
| C27 | 3404 | 13.55 | 17.89 | 190 |
| C28 | 5031 | 14.30 | 30.22 | 166 |
| C29 | 9294 | 15.30 | 59.62 | 156 |
| C30 | 10427 | 15.05 | 51.11 | 204 |
| C31 | 9099 | 15.75 | 63.53 | 143 |
| C32 | 17735 | 16.00 | 118.06 | 150 |
| C33 | 11011 | 18.00 | 125.67 | 88 |
| C34 | 10712 | 19.25 | 131.17 | 82 |
| C35 | 6008 | 18.15 | 127.35 | 47 |
| C36I | 16171 | 19.40 | 140.36 | 115 |
| C36O | 12465 | 20.90 | 239.68 | 52 |
| C38 | 12213 | 21.45 | 242.09 | 50 |
| C40 | 8551 | 13.25 | 19.99 | 428 |
| C41 | 4392 | 13.15 | 28.82 | 152 |
| C43 | 9550 | 14.60 | 45.92 | 208 |
| C44 | 9435 | 16.00 | 50.97 | 185 |
| C46 | 4442 | 13.75 | 11.94 | 372 |
| C47 | 10104 | 16.65 | 67.38 | 150 |
| C48 | 4966 | 17.45 | 73.33 | 68 |
| C49 | 7036 | 18.40 | 77.19 | 91 |
| C50 | 3136 | 17.20 | 86.04 | 36 |
| C51I | 6891 | 19.50 | 85.32 | 81 |
| C51O | 7414 | 19.55 | 98.03 | 76 |
| C52O | 1217 | 19.55 | 98.03 | 12 |
| C53O | 1872 | 20.85 | 239.68 | 8 |
| C57 | 8525 | 19.90 | 98.03 | 87 |
| C58 | 8406 | 20.55 | 103.24 | 81 |
| C59 | 1612 | 21.70 | 242.54 | 7 |
| C69 | 10194 | 16.30 | 62.91 | 162 |
| C90 | 8875 | 15.95 | 61.25 | 145 |
| CPND1 | 8696 | 19.40 | 98.03 | 89 |
| CPND2 | 21777 | 19.90 | 239.68 | 91 |
| DC12L | 1240 | 18.45 | 339.24 | 4 |
| DC12R | 2792 | 18.45 | 339.24 | 8 |
| DC32L | 6251 | 16.00 | 118.06 | 53 |
| DC32R | 11484 | 16.00 | 118.06 | 97 |

## TABLE F-3A

### 100-YEAR 24-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 5C | 1381 | 12.95 | 2.41 | 573 |
| C38 | 12213 | 21.45 | 242.09 | 50 |
| BC11O | 3697 | 20.90 | 239.68 | 15 |
| R11-17 | 3648 | 20.95 | 239.68 | 15 |
| R17-13 | 3624 | 21.00 | 239.68 | 15 |
| B14-13 | 2659 | 19.20 | 339.24 | 8 |
| C13 | 5422 | 20.25 | 239.68 | 23 |
| R13-16 | 4988 | 20.75 | 239.68 | 21 |
| 3M | 2519 | 12.90 | 3.89 | 648 |
| C16 | 4988 | 20.75 | 243.57 | 20 |
| BDC40L | 2827 | 13.25 | 19.99 | 141 |
| 40L-41 | 2760 | 14.20 | 19.99 | 138 |
| 6C | 3628 | 13.05 | 8.83 | 411 |
| C41 | 4392 | 13.15 | 28.82 | 152 |
| R41-43 | 4081 | 15.35 | 28.82 | 142 |
| 6D | 4768 | 13.95 | 9.98 | 478 |
| 6E | 3344 | 13.85 | 7.12 | 470 |
| R42-43 | 3076 | 14.60 | 7.12 | 432 |
| C43 | 9550 | 14.60 | 45.92 | 208 |
| R43-44 | 9125 | 16.10 | 45.92 | 199 |
| 6F | 1888 | 14.15 | 5.05 | 374 |
| C44 | 9435 | 16.00 | 50.97 | 185 |
| R44-69 | 9328 | 16.45 | 50.97 | 183 |
| 6H | 1957 | 13.95 | 4.97 | 394 |
| 6I | 3085 | 13.55 | 6.97 | 443 |
| C46 | 4442 | 13.75 | 11.94 | 372 |
| R46-69 | 4249 | 14.35 | 11.94 | 356 |
| C69 | 10194 | 16.30 | 62.91 | 162 |
| R69-47 | 10104 | 16.65 | 62.91 | 161 |
| 6J | 2227 | 13.35 | 4.47 | 498 |
| C47 | 10104 | 16.65 | 67.38 | 150 |
| DC47L | 5052 | 16.65 | 67.38 | 75 |
| DC47R | 5052 | 16.65 | 67.38 | 75 |
| 47R-48 | 4941 | 17.45 | 67.38 | 73 |
| 6K | 2579 | 13.75 | 5.95 | 433 |
| C48 | 4966 | 17.45 | 73.33 | 68 |
| DC48L | 2483 | 17.45 | 73.33 | 34 |

## TABLE F-3B

### 100-YEAR 24-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| DC40L | 2827 | 13.25 | 19.99 | 141 |
| DC40R | 5724 | 13.25 | 19.99 | 286 |
| DC47L | 5052 | 16.65 | 67.38 | 75 |
| DC47R | 5052 | 16.65 | 67.38 | 75 |
| DC48L | 2483 | 17.45 | 73.33 | 34 |
| DC48R | 2483 | 17.45 | 73.33 | 34 |
| PND1 | 8630 | 19.55 | 98.03 | 88 |
| PND2 | 18032 | 20.85 | 239.68 | 75 |
| PND2R | 16162 | 20.90 | 239.68 | 67 |
| R1-3 | 3374 | 14.65 | 12.14 | 278 |
| R2-3 | 2610 | 14.05 | 8.24 | 317 |
| R3-5 | 5370 | 14.85 | 25.50 | 211 |
| R4-7 | 3159 | 14.35 | 11.27 | 280 |
| R6-90 | 2319 | 16.10 | 11.19 | 207 |
| R5-7 | 6028 | 15.35 | 32.28 | 187 |
| R7-90 | 8758 | 14.80 | 50.06 | 175 |
| R8-9 | 8522 | 16.65 | 67.67 | 126 |
| R9-10 | 7974 | 18.90 | 72.77 | 110 |
| R10-11 | 7850 | 19.95 | 84.02 | 93 |
| R11-17 | 3648 | 20.95 | 239.68 | 15 |
| R12-14 | 2724 | 18.85 | 339.24 | 8 |
| R13-16 | 4988 | 20.75 | 239.68 | 21 |
| R14-13 | 2659 | 19.20 | 339.24 | 8 |
| R17-13 | 3624 | 21.00 | 239.68 | 15 |
| R20-21 | 1495 | 14.00 | 4.88 | 306 |
| R21-23 | 3000 | 13.75 | 11.04 | 272 |
| R22-23 | 1269 | 14.45 | 4.57 | 278 |
| R23-29 | 4973 | 15.60 | 23.31 | 213 |
| R24-25 | 2302 | 16.30 | 6.11 | 377 |
| R25-30 | 4252 | 15.20 | 21.63 | 197 |
| R26-27 | 2608 | 14.60 | 11.75 | 222 |
| R27-28 | 3144 | 16.00 | 17.89 | 176 |
| R28-29 | 4918 | 14.60 | 30.22 | 163 |
| R29-31 | 9013 | 15.90 | 59.62 | 151 |
| R30-32 | 10062 | 16.00 | 51.11 | 197 |
| R31-32 | 8791 | 16.30 | 63.53 | 138 |
| R32-33 | 10895 | 18.00 | 118.06 | 92 |

## TABLE F-3A

### 100-YEAR 24-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| DC48R | 2483 | 17.45 | 73.33 | 34 |
| 48R-50 | 2314 | 18.65 | 73.33 | 32 |
| 6G | 2222 | 14.40 | 6.37 | 349 |
| R45-50 | 1800 | 16.80 | 6.37 | 283 |
| 6L | 2374 | 14.15 | 6.34 | 374 |
| C50 | 3136 | 17.20 | 86.04 | 36 |
| R50-52 | 2359 | 18.35 | 86.04 | 27 |
| BDC47L | 5052 | 16.65 | 67.38 | 75 |
| 47L-49 | 4831 | 18.25 | 67.38 | 72 |
| BDC48L | 2483 | 17.45 | 73.33 | 34 |
| 48L-49 | 2314 | 18.65 | 73.33 | 32 |
| 6M | 2160 | 13.25 | 3.86 | 560 |
| C49 | 7036 | 18.40 | 77.19 | 91 |
| R49-51 | 6891 | 19.50 | 77.19 | 89 |
| 6O | 4355 | 13.25 | 8.13 | 536 |
| C51I | 6891 | 19.50 | 85.32 | 81 |
| CPND1 | 8696 | 19.40 | 98.03 | 89 |
| PND1 | 8630 | 19.55 | 98.03 | 88 |
| C52O | 1217 | 19.55 | 98.03 | 12 |
| C51O | 7414 | 19.55 | 98.03 | 76 |
| R51-54 | 7401 | 19.65 | 98.03 | 75 |
| R54-57 | 7346 | 19.90 | 98.03 | 75 |
| BC52O | 1217 | 19.55 | 98.03 | 12 |
| R52-55 | 1207 | 19.65 | 98.03 | 12 |
| R55-57 | 1181 | 19.80 | 98.03 | 12 |
| C57 | 8525 | 19.90 | 98.03 | 87 |
| R57-58 | 8406 | 20.55 | 98.03 | 86 |
| 6P | 2649 | 13.30 | 5.21 | 508 |
| C58 | 8406 | 20.55 | 103.24 | 81 |

## TABLE F-3B

### 100-YEAR 24-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| 32L-35 | 5900 | 18.25 | 118.06 | 50 |
| R33-34 | 10712 | 19.25 | 125.67 | 85 |
| R35-36 | 5697 | 19.55 | 127.35 | 45 |
| R36-37 | 12384 | 20.95 | 239.68 | 52 |
| R37-38 | 12213 | 21.45 | 239.68 | 51 |
| R39-40 | 4337 | 13.95 | 9.04 | 480 |
| 40L-41 | 2760 | 14.20 | 19.99 | 138 |
| 40R-30 | 5142 | 15.00 | 19.99 | 257 |
| R41-43 | 4081 | 15.35 | 28.82 | 142 |
| R42-43 | 3076 | 14.60 | 7.12 | 432 |
| R43-44 | 9125 | 16.10 | 45.92 | 199 |
| R44-69 | 9328 | 16.45 | 50.97 | 183 |
| R45-50 | 1800 | 16.80 | 6.37 | 283 |
| R46-69 | 4249 | 14.35 | 11.94 | 356 |
| 47L-49 | 4831 | 18.25 | 67.38 | 72 |
| 47R-48 | 4941 | 17.45 | 67.38 | 73 |
| 48L-49 | 2314 | 18.65 | 73.33 | 32 |
| 48R-50 | 2314 | 18.65 | 73.33 | 32 |
| R49-51 | 6891 | 19.50 | 77.19 | 89 |
| R50-52 | 2359 | 18.35 | 86.04 | 27 |
| R51-54 | 7401 | 19.65 | 98.03 | 75 |
| R52-55 | 1207 | 19.65 | 98.03 | 12 |
| R53-56 | 1823 | 21.00 | 239.68 | 8 |
| R54-57 | 7346 | 19.90 | 98.03 | 75 |
| R55-57 | 1181 | 19.80 | 98.03 | 12 |
| R56-59 | 1631 | 21.70 | 239.68 | 7 |
| R57-58 | 8406 | 20.55 | 98.03 | 86 |
| R69-47 | 10104 | 16.65 | 62.91 | 161 |
| R90-8 | 8790 | 16.25 | 61.25 | 144 |

## TABLE F-3A

### 100-YEAR 24-HOUR RESULTS IN HEC-1 RUN ORDER

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| **Un-Named Wash #1 and Un-Named Wash #2** | | | | |
| 2VV1 | 307 | 12.80 | 0.54 | 569 |
| 143144 | 292 | 13.37 | 0.54 | 541 |
| 2VV2 | 470 | 12.80 | 0.96 | 490 |
| C144 | 631 | 13.02 | 1.50 | 421 |
| 144145 | 584 | 13.85 | 1.50 | 389 |
| 2VV6 | 364 | 12.45 | 0.56 | 650 |
| C145R | 595 | 13.85 | 2.06 | 289 |
| 2VV3 | 24 | 11.95 | 0.02 | 1200 |
| 146147 | 18 | 12.25 | 0.02 | 900 |
| 2VV4 | 104 | 12.08 | 0.10 | 1040 |
| C147 | 115 | 12.13 | 0.12 | 958 |
| 147148 | 104 | 12.55 | 0.12 | 867 |
| 2VV8 | 291 | 12.25 | 0.36 | 808 |
| C148 | 355 | 12.40 | 0.48 | 740 |
| 148145 | 330 | 12.78 | 0.48 | 688 |
| 2VV5 | 181 | 12.35 | 0.25 | 724 |
| C145L | 425 | 12.60 | 0.73 | 582 |
| C145 | 871 | 12.68 | 2.79 | 312 |
| 145135 | 862 | 12.77 | 2.79 | 309 |
| 2VV7 | 91 | 12.32 | 0.12 | 758 |
| C135I | 901 | 12.75 | 2.91 | 310 |

## TABLE F-3B

### 100-YEAR 24-HOUR RESULTS IN NUMERICAL ORDER BY TYPE

| HEC-1 ID | Peak Discharge (cfs) | Time To Peak (hrs) | Drainage Area (sm) | Discharge (cfs/sm) |
|---|---|---|---|---|
| **Un-Named Wash #1 and Un-Named Wash #2** | | | | |
| 2VV1 | 307 | 12.80 | 0.54 | 569 |
| 2VV2 | 470 | 12.80 | 0.96 | 490 |
| 2VV3 | 24 | 11.95 | 0.02 | 1200 |
| 2VV4 | 104 | 12.08 | 0.10 | 1040 |
| 2VV5 | 181 | 12.35 | 0.25 | 724 |
| 2VV6 | 364 | 12.45 | 0.56 | 650 |
| 2VV7 | 91 | 12.32 | 0.12 | 758 |
| 2VV8 | 291 | 12.25 | 0.36 | 808 |
| C135I | 901 | 12.75 | 2.91 | 310 |
| C144 | 631 | 13.02 | 1.50 | 421 |
| C145 | 871 | 12.68 | 2.79 | 312 |
| C145L | 425 | 12.60 | 0.73 | 582 |
| C145R | 595 | 13.85 | 2.06 | 289 |
| C147 | 115 | 12.13 | 0.12 | 958 |
| C148 | 355 | 12.40 | 0.48 | 740 |
| 143144 | 292 | 13.37 | 0.54 | 541 |
| 144145 | 584 | 13.85 | 1.50 | 389 |
| 145135 | 862 | 12.77 | 2.79 | 309 |
| 146147 | 18 | 12.25 | 0.02 | 900 |
| 147148 | 104 | 12.55 | 0.12 | 867 |
| 148145 | 330 | 12.78 | 0.48 | 688 |

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

FCD 90-67

Table F-4

**TABLE F-4**
**Gila Bend Canal Structures Summary Table**

| HEC-1 I.D. | Structure Description | 100-Year 24-Hour Storm In Discharge (cfs) | In Volume (acre-feet) | Out Discharge (cfs) | Drainage Area (sm) | Elevation Top of Canal | Elevation Structure I.E. | Discharge (cfs) Weir (cfs) | Discharge (cfs) Structure (cfs) | Peak Stage (elev) |
|---|---|---|---|---|---|---|---|---|---|---|
| C11 | Concrete Overchute | 7,900 | 4,200 | 3,800 | 86.50 | 741.3 | 733.4 | 0 | 3,800 | 741.0 |
| C12A | 2-48" CMP's t/t 2-6'x 4' RCBC | 4,100 | 1,400 | 4,050 | 339.24 | 741.4 | 731.0 | 2,220 (N) | 415 | 743.3 |
| C12B | 1-48" CMP t/t 1-6'x 4' RCBC | | | | | 741.4 | 732.0 | 1,250 (W) | 165 | |
| C36 | Concrete Overchute | 16,700 | 7,100 | 12,600 | 140.36 | 741.0 | 727.9 | 0 | 12,600 | 741.0 |
| C51 | 3-4' CMP's t/t 3-6'x 3' RCBC | 7,000 | 3,800 | 7,700 | 85.32 | 739.5 | 727.5 | 7,200 | 500 | 740.4 |
| C52 | 1-36" CMP | 2,700 | 1,400 | 1,300 | 86.04 | 739.9 | 731.0 | 1,210 | 90 | 740.4 |
| C53 | 2-48" CMP's t/t 1-8'x 6' RCBC | 3,200 | 560 | 2,400 | 7.84 | 740.0 | 727.7 | 2,000 | 400 | 741.0 |
| C133 | Concrete Overchute | 18,400 | 9,600 | 18,300 | 334.14 | 745.5 | 731.3 | 180 (N)<br>130 (W) | 18,200 | 746.1 |
| C135 | 3-30" CMP's t/t 3-6'x 4' RCBC | 4,900 | 1,700 | 103 | 85.07 | 745.5 | 735.2 | —— | 100 | 746.1 |
| C136 | 1-60", 1-54" & 1-48" CMP | 1,600 | 290 | 550 | 1.45 | 745.5 | 731.0 | —— | 550 | 741.9 |
| C142 | 1-6'x 3' RCBC | 3,500 | 1,600 | 3,500 | 336.59 | 743.6 | 731.9 | 830 (7B)<br>2,650 (7D) | 350 | 745.6 |

NOTE 1. Weir flow is flow which overtops the Gila Bend Canal.
2. 't/t' stands for 'transition to'. Many of the structures transition from pipe culverts to concrete box culverts.

FLOOD CONTROL
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COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

**FCD 90-67**

Section 3.5.7

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             MAY   1991                *
*          VERSION 4.0.1E               *
*                                       *
*  RUN DATE  04/04/92  TIME  07:23:06   *
*                                       *
*****************************************
```

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

```
X     X  XXXXXXX   XXXXX            X
X     X  X        X     X          XX
X     X  X        X                 X
XXXXXXX  XXXX     X        XXXXX    X
X     X  X        X                 X
X     X  X        X     X           X
X     X  XXXXXXX   XXXXX           XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

```
1                                    HEC-1 INPUT                                                    PAGE  1

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

    1           ID   FCDMC GILA BEND FLOOD INSURANCE STUDY PROJECT NO. 11358
    2           ID   FCD 90-67
    3           ID
    4           ID   100-Year 6-Hour Duration Storm
    5           ID
    6           ID   04/06/92     Input Filename:  B&ST6.H1
    7           ID                                 Bender and Sand Tank Washes
    8           ID                                 (Major Basins # 1, 2, and 7)
    9           ID
   10           ID        Green & AMPT Loss Rate Method
   11           ID        S-Graph Unit Hydrograph
   12           ID        Normal Depth Routing
                *
                *
   13           IT       3 13MAR92    1200     360
   14           IO       5
   15           IN      15
                *
   16           JD   3.700    0.010
   17           PC   0.000    0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
   18           PC   0.087    0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
   19           PC   0.962    0.972   0.983   0.991   1.000
   20           JD   3.670    0.500
   21           JD   3.610    2.800
   22           PC   0.000    0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.067   0.076
   23           PC   0.087    0.100   0.120   0.163   0.252   0.451   0.694   0.837   0.900   0.938
   24           PC   0.950    0.963   0.975   0.988   1.000
   25           JD   3.410   15.800
   26           PC   0.000    0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
   27           PC   0.135    0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
   28           PC   0.946    0.960   0.973   0.987   1.000
   29           JD   3.180   50.000
   30           PC   0.000    0.018   0.027   0.040   0.059   0.074   0.089   0.106   0.123   0.138
   31           PC   0.155    0.175   0.201   0.249   0.332   0.485   0.664   0.785   0.856   0.901
   32           PC   0.937    0.953   0.969   0.985   1.000
   33           JD   3.050   80.000
   34           PC   0.000    0.020   0.033   0.048   0.068   0.084   0.101   0.120   0.138   0.154
   35           PC   0.173    0.194   0.224   0.273   0.356   0.496   0.660   0.776   0.845   0.891
   36           PC   0.930    0.947   0.965   0.983   1.000
   37           JD   3.000   90.000
   38           PC   0.000    0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
   39           PC   0.179    0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
   40           PC   0.927    0.945   0.964   0.982   1.000
   41           JD   2.660  200.000
   42           PC   0.000    0.022   0.037   0.053   0.073   0.090   0.109   0.129   0.148   0.167
   43           PC   0.188    0.211   0.242   0.292   0.376   0.504   0.650   0.763   0.834   0.882
   44           PC   0.922    0.941   0.961   0.981   1.000
   45           JD   2.440  300.000
   46           PC   0.000    0.023   0.039   0.055   0.075   0.093   0.112   0.133   0.153   0.173
   47           PC   0.196    0.220   0.252   0.301   0.387   0.508   0.642   0.754   0.827   0.876
   48           PC   0.917    0.937   0.959   0.979   1.000
   49           JD   2.350  350.000
   50           PC   0.000    0.023   0.040   0.056   0.075   0.094   0.114   0.135   0.155   0.176
   51           PC   0.200    0.225   0.257   0.306   0.392   0.510   0.638   0.749   0.824   0.873
   52           PC   0.914    0.935   0.958   0.979   1.000
1                                    HEC-1 INPUT                                                    PAGE  2

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

   53           JD   2.110  500.000
   54           PC   0.000    0.024   0.043   0.059   0.078   0.098   0.119   0.141   0.162   0.186
   55           PC   0.212    0.239   0.271   0.321   0.408   0.515   0.627   0.735   0.814   0.864
   56           PC   0.907    0.930   0.954   0.977   1.000
                *
                *
                *   ************************************
                *   *                START               *
                *   * START BENDER WASH (Major Basin 1)  *
                *   *                                    *
                *   ************************************
                *
   57           KK      1B
   58           KM        SUB-BASIN 1B At C61
   59           BA   2.10
   60           LG   0.33     0.35    4.29    0.47    2.00
   61           UI    106      106     106     106     106     314     364     405     482     512
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 62          UI     585     587     621     664     712     769     819     886    1016    1208
 63          UI    1302    1382    1222    1104    1014     944     884     836     783     720
 64          UI     665     626     579     533     502     457     403     303     277     187
 65          UI     187     182     173     173     160     106     106     106     106     101
 66          UI      32      32      32      32      32      32      32      32      32      32
 67          UI      32      32      32      32      32      32       0       0       0       0
 68          UI       0       0       0       0       0       0       0       0       0       0
             *

 69          KK  R61-62
 70          KM        Channel Route From C61 To C62
 71          KM        Representative Of X-SECT. 1E1
 72          RS       5    FLOW      -1
 73          RC   0.060   0.046   0.060    3600   0.006
 74          RX  3228.6  4300.0  4330.0  4347.0  4380.0  4393.0  4423.0  5423.0
 75          RY    99.6    94.6    94.1    90.0    90.6    94.0    94.6    99.6
 76          RL                    1.67    90.0
             *

 77          KK      1C
 78          KM        SUB-BASIN 1C
 79          BA    3.83
 80          LG    0.35    0.35    3.66    0.33    0.00
 81          UI     154     154     154     154     154     154     350     504     555     588
 82          UI     697     730     766     821     861     899     943     994    1054    1127
 83          UI    1180    1246    1365    1530    1791    1819    2071    1907    1726    1600
 84          UI    1497    1406    1333    1273    1214    1155    1077    1012     958     912
 85          UI     862     801     751     719     669     588     495     441     375     272
 86          UI     272     272     257     252     252     252     170     154     154     154
 87          UI     154     154     112      47      47      47      47      47      47      47
 88          UI      47      47      47      47      47      47      47      47      47      47
 89          UI      47      47      47       0       0       0       0       0       0       0
 90          UI       0       0       0       0       0       0       0       0       0       0
             *
1                                          HEC-1 INPUT                                        PAGE  3

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

 91          KK      1A
 92          KM        SUB-BASIN 1A
 93          BA    2.10
 94          LG    0.21    0.35    4.05    0.51   13.00
 95          UI      73      73      73      73      73      73      73     150     210     210
 96          UI     278     281     335     371     422     441     463     486     513     534
 97          UI     552     571     592     635     701     758     832     933     826     668
 98          UI     572     534     503     478     456     439     430     420     407     394
 99          UI     381     367     359     349     338     331     310     303     294     285
100          UI     279     260     250     239     227     223     193     193     189     178
101          UI     178     176     168     168     168     152     152     152     138     120
102          UI     120     120     120      95      93      93      93      93      92      80
103          UI      80      80      80      80      80      72      56      56      56      56
104          UI      56      56      56      56      56      43      36      36      36      36
105          UI      36      36      36      36      36      36      36      36      36      36
106          UI      27      14      14      14      14      14      14      14      14      14
107          UI      14      14      14      14      14      14      14      14      14      14
108          UI      14      14      14      14      14      14      14      14      14      14
109          UI      14      14      14      14      14      14      14      14      14       0
110          UI       0       0       0       0       0       0       0       0       0       0
111          UI       0       0       0       0       0       0       0       0       0       0
             *

112          KK     C62
113          KM        Combine R61-62 + 1C + 1A
114          HC       3
             *

115          KK  R62-64
116          KM        Channel Route From C62 To C64
117          KM        X-SECT. 1E1
118          RS       8    FLOW      -1
119          RC   0.060   0.046   0.060    4800   0.006
120          RX  3228.6  4300.0  4330.0  4347.0  4380.0  4393.0  4423.0  5423.0
121          RY    99.6    94.6    94.1    90.0    90.6    94.0    94.6    99.6
122          RL                    1.40    90.0
             *

123          KK      1D
124          KM        SUB-BASIN 1D At C63
125          BA    0.34
126          LG    0.25    0.20    9.40    0.02   10.00
127          UI      34      34      59     113     159     206     237     263     314     401
128          UI     295     229     203     188     171     158     142     131     113      98
129          UI      86      81      76      70      56      51      43      41      37      37
130          UI      26      26      26      21      16      16      16      16      14       6
131          UI       6       6       6       6       6       6       6       6       6       6
132          UI       6       6       0       0       0       0       0       0       0       0
133          UI       0       0       0       0       0       0       0       0       0       0
             *
1                                          HEC-1 INPUT                                        PAGE  4

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

134          KK  R63-64
135          KM        Channel Route From C63 To C64
136          KM        Representative Of X-SECT. 1L1
137          RS      27    FLOW      -1
138          RC   0.070   0.058   0.070   33400   0.019
139          RX  3914.5  4027.0  4038.0  4057.0  4070.0  4076.0  4103.0  5283.0
140          RY   102.5    97.5    94.6    91.1    91.0    93.3    96.6   102.5
141          RL                    4.29    91.0
             *

142          KK     C64
143          KM        Combine R62-64 + R63-64
144          HC       2
             *

145          KK  R64-65
146          KM        Channel Route From C64 To C65
147          KM        Representative Of X-SECT. 1E1
148          RS       5    FLOW      -1
149          RC   0.060   0.046   0.060    2800   0.006
150          RX  3228.6  4300.0  4330.0  4347.0  4380.0  4393.0  4423.0  5423.0
```

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 151          RY    99.6    94.6    94.1    90.0    90.6    94.0    94.6    99.6
 152          RL                    1.67    90.0
              *

 153          KK      1E
 154          KM        SUB-BASIN 1E
 155          BA    3.91
 156          LG    0.35    0.35    4.03    0.40    0.00
 157          UI     139     139     139     139     139     139     139     366     455     493
 158          UI     531     595     638     678     711     747     777     812     845     884
 159          UI     930     985    1039    1076    1136    1237    1370    1573    1602    1831
 160          UI    1822    1656    1538    1427    1351    1280    1215    1164    1119    1078
 161          UI    1021     960     910     867     831     797     730     700     676     637
 162          UI     589     531     457     398     394     245     245     245     245     229
 163          UI     228     228     228     185     139     139     139     139     139     139
 164          UI     120      42      42      42      42      42      42      42      42      42
 165          UI      42      42      42      42      42      42      42      42      42      42
 166          UI      42      42      42      42       0       0       0       0       0       0
 167          UI       0       0       0       0       0       0       0       0       0       0
              *

 168          KK      1F
 169          KM        SUB-BASIN 1F
 170          BA    5.55
 171          LG    0.26    0.35    3.44    0.80   14.00
 172          UI     170     170     170     170     170     170     170     170     350     488
 173          UI     488     592     651     708     781     899     984    1028    1070    1112
 174          UI    1162    1221    1260    1297    1337    1381    1468    1593    1687    1881
 175          UI    2004    2189    1875    1535    1339    1261    1197    1144    1085    1042
 176          UI    1018    1002     978     955     930     891     876     849     827     814
 177          UI     785     779     724     721     685     685     652     651     599     583
 178          UI     566     528     528     480     449     449     435     416     416     416
 179          UI     392     391     391     380     355     355     355     335     279     279
1                                             HEC-1 INPUT                                          PAGE  5

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

 180          UI     279     279     271     217     217     217     217     217     217     201
 181          UI     186     186     186     186     186     186     186     140     130     130
 182          UI     130     130     130     130     130     130     130     130      91      83
 183          UI      83      83      83      83      83      83      83      83      83      83
 184          UI      83      83      83      83      83      53      33      33      33      33
 185          UI      33      33      33      33      33      33      33      33      33      33
 186          UI      33      33      33      33      33      33      33      33      33      33
 187          UI      33      33      33      33      33      33      33      33      33      33
 188          UI      33      33      33      33      33      33      33      33      33       0
 189          UI       0       0       0       0       0       0       0       0       0       0
 190          UI       0       0       0       0       0       0       0       0       0       0
              *

 191          KK     C65
 192          KM       Combine R64-65 + 1E + 1F
 193          HC       3
              *

 194          KK  R65-67
 195          KM       Channel Route From C65 To C67
 196          KM       X-SECT. 1I1
 197          RS      6    FLOW      -1
 198          RC  0.060   0.038   0.060    6600   0.008
 199          RX 3800.0  4300.0  4351.0  4375.0  4458.0  4468.0  4618.0  5068.2
 200          RY   99.9    94.9    94.6    91.2    90.7    93.5    95.1    99.9
 201          RL                   1.96    90.7
              *

 202          KK      1J
 203          KM        SUB-BASIN 1J At C66
 204          BA    0.62
 205          LG    0.26    0.20    9.40    0.02    9.00
 206          UI      50      50      50     122     174     229     295     328     366     396
 207          UI     465     575     528     374     326     297     281     260     243     227
 208          UI     207     194     175     157     136     126     120     114     105      97
 209          UI      82      75      64      64      56      54      54      40      38      38
 210          UI      38      28      24      24      24      24      24      23      10      10
 211          UI      10      10      10      10      10      10      10      10      10      10
 212          UI      10      10      10      10       0       0       0       0       0       0
 213          UI       0       0       0       0       0       0       0       0       0       0
              *

 214          KK  R66-67
 215          KM       Channel Route From C66 To C67
 216          KM       X-SECT. 1I1
 217          RS     29    FLOW      -1
 218          RC  0.060   0.038   0.060   33600   0.016
 219          RX 3800.0  4300.0  4351.0  4375.0  4458.0  4468.0  4618.0  5068.2
 220          RY   99.9    94.9    94.6    91.2    90.7    93.5    95.1    99.9
 221          RL                   8.69    90.7
              *
1                                             HEC-1 INPUT                                          PAGE  6

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

 222          KK      1I
 223          KM        SUB-BASIN 1I
 224          BA    4.11
 225          LG    0.35    0.35    4.14    0.41    0.00
 226          UI     146     146     146     146     146     146     146     384     479     518
 227          UI     558     625     671     713     748     785     817     854     888     929
 228          UI     978    1035    1093    1131    1194    1301    1440    1654    1684    1925
 229          UI    1915    1740    1617    1500    1420    1345    1277    1224    1176    1133
 230          UI    1073    1009     956     911     873     838     767     736     711     670
 231          UI     619     558     480     419     414     258     258     258     258     241
 232          UI     239     239     239     195     146     146     146     146     146     146
 233          UI     126      45      45      45      45      45      45      45      45      45
 234          UI      45      45      45      45      45      45      45      45      45      45
 235          UI      45      45      45      45       0       0       0       0       0       0
 236          UI       0       0       0       0       0       0       0       0       0       0
              *

 237          KK     C67
 238          KM       Combine R66-67 + 1I
 239          HC       3
              *
```

```
240          KK  R67-71
241          KM        Channel Route From C67 To C71
242          KM        Representative Of X-SECT. 1I1
243          RS       2     FLOW       -1
244          RC   0.060    0.038    0.060     2200    0.006
245          RX  3800.0   4300.0   4351.0   4375.0   4458.0   4468.0   4618.0   5068.2
246          RY    99.9     94.9     94.6     91.2     90.7     93.5     95.1     99.9
247          RL                     1.84     90.7
             *

248          KK      1G
249          KM        SUB-BASIN 1G At C70
250          BA    3.78
251          LG    0.27     0.35     2.86     1.02    21.00
252          UI     131      131      131      131      131      131      131      270      377      377
253          UI     500      507      604      667      759      794      834      874      923      961
254          UI     993     1028     1066     1143     1261     1365     1498     1679     1487     1202
255          UI    1030      962      906      860      820      791      774      756      732      710
256          UI     686      661      646      629      609      595      559      546      529      514
257          UI     503      469      450      430      408      402      347      347      340      321
258          UI     321      316      302      302      302      274      274      274      248      216
259          UI     216      216      216      171      168      168      168      168      165      144
260          UI     144      144      144      144      144      130      101      101      101      101
261          UI     101      101      101      101      101       78       64       64       64       64
262          UI      64       64       64       64       64       64       64       64       64       64
263          UI      48       25       25       25       25       25       25       25       25       25
264          UI      25       25       25       25       25       25       25       25       25       25
265          UI      25       25       25       25       25       25       25       25       25       25
266          UI      25       25       25       25       25       25       25       25       25        0
267          UI       0        0        0        0        0        0        0        0        0        0
268          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

269          KK  R70-71
270          KM        Channel Route From C70 To C71
271          KM        X-SECT. 1H1
272          RS      18     FLOW       -1
273          RC   0.060    0.038    0.080    20400    0.013
274          RX  3919.1   4208.0   4286.0   4291.0   4321.0   4326.0   4336.0   4346.0
275          RY    96.6     91.6     92.0     90.8     90.6     92.0     95.0     98.0
276          RL                     1.72     90.6
             *

277          KK      1H
278          KM        SUB-BASIN 1H
279          BA    6.77
280          LG    0.29     0.35     3.51     0.87    13.00
281          UI     200      200      200      200      200      200      200      200      297      575
282          UI     575      617      766      766      911      929     1150     1181     1215     1277
283          UI    1331     1388     1446     1485     1533     1580     1630     1733     1876     1984
284          UI    2195     2346     2602     2246     1902     1603     1512     1437     1353     1299
285          UI    1255     1210     1182     1167     1150     1101     1080     1045     1017     1000
286          UI     963      956      920      909      852      847      807      807      769      765
287          UI     714      686      679      621      621      594      529      529      529      490
288          UI     489      489      477      460      460      460      434      418      418      418
289          UI     379      328      328      328      328      320      255      255      255      255
290          UI     255      255      245      219      219      219      219      219      219      219
291          UI     199      153      153      153      153      153      153      153      153      153
292          UI     153      153      103       98       98       98       98       98       98       98
293          UI      98       98       98       98       98       98       98       98       98       95
294          UI      38       38       38       38       38       38       38       38       38       38
295          UI      38       38       38       38       38       38       38       38       38       38
296          UI      38       38       38       38       38       38       38       38       38       38
297          UI      38       38       38       38       38       38       38       38       38       38
298          UI      38       38       38       38       38        0        0        0        0        0
299          UI       0        0        0        0        0        0        0        0        0        0
             *

300          KK    C71R
301          KM        Combine R70-71 + 1H
302          HC       2
             *

303          KK      1K
304          KM        SUB-BASIN 1K At C68
305          BA    1.08
306          LG    0.25     0.20     9.40     0.02    10.00
307          UI      58       58       58       58       76      166      193      231      277      338
308          UI     360      388      420      441      466      524      595      691      669      479
309          UI     424      384      358      343      331      313      298      285      273      261
310          UI     244      233      222      206      194      179      161      153      143      141
311          UI     134      133      123      121      108       95       95       83       74       74
312          UI      74       66       63       63       63       57       44       44       44       44
313          UI      44       43       28       28       28       28       28       28       28       28
314          UI      28       25       11       11       11       11       11       11       11       11
315          UI      11       11       11       11       11       11       11       11       11       11
316          UI      11       11       11       11       11       11       11        0        0        0
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

317          UI       0        0        0        0        0        0        0        0        0        0
             *

318          KK  R68-71
319          KM        Channel Route From C68 To C71
320          KM        X-SECT. 1L1
321          RS      17     FLOW       -1
322          RC   0.070    0.058    0.070    29400    0.017
323          RX  3914.5   4027.0   4038.0   4057.0   4070.0   4076.0   4103.0   5283.0
324          RY   102.5     97.5     94.6     91.1     91.0     93.3     96.6    102.5
325          RL                     3.19     91.0
             *

326          KK      1L
327          KM        SUB-BASIN 1L
328          BA    4.69
329          LG    0.33     0.39     5.67     0.20     2.00
330          UI     144      144      144      144      144      144      144      144      329      472
331          UI     472      550      550      638      660      701      718      768      793      812
332          UI     847      880      912      949     1001     1058     1092     1125     1188     1281
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 333        UI    1398    1499    1738    1729    1935    1865    1709    1604    1511    1425
 334        UI    1359    1301    1250    1204    1162    1125    1083    1027     971     926
 335        UI     893     864     825     777     749     702     689     660     608     550
 336        UI     512     413     413     358     254     254     254     254     243     236
 337        UI     236     236     236     195     144     144     144     144     144     144
 338        UI     144     142      44      44      44      44      44      44      44      44
 339        UI      44      44      44      44      44      44      44      44      44      44
 340        UI      44      44      44      44      44      44      44      44      44       0
 341        UI       0       0       0       0       0       0       0       0       0       0
 342        UI       0       0       0       0       0       0       0       0       0       0
            *

 343        KK    C71L
 344        KM        Combine R68-71 + 1L
 345        HC       2
            *

 346        KK     C71
 347        KM        Combine R67-71 + C71R(R70-71 + 1H) + C71L(R68-71 + 1L)
 348        HC       3
            *

 349        KK  R71-73
 350        KM        Channel Route From C71 To C73
 351        KM        Representative Of X-SECT. 1P1
 352        RS       8     FLOW      -1
 353        RC   0.060   0.050   0.060    7000   0.008
 354        RX  3668.7  4142.0  4202.0  4208.0  4253.0  4276.0  4405.0  5131.9
 355        RY    99.5    94.5    94.0    91.5    91.5    94.3    94.1    99.5
 356        RL                    1.15    91.5
            *
```



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

 357        KK      1M
 358        KM        SUB-BASIN 1M At C72
 359        BA    2.19
 360        LG    0.25    0.20    9.40    0.02   10.00
 361        UI     117     117     117     117     154     336     391     469     563     685
 362        UI     730     786     852     894     945    1062    1208    1402    1357     971
 363        UI     860     779     727     695     672     635     605     578     554     529
 364        UI     496     472     451     418     392     364     326     309     290     286
 365        UI     271     269     250     245     220     192     192     169     150     150
 366        UI     150     133     128     128     128     115      90      90      90      90
 367        UI      90      88      57      57      57      57      57      57      57      57
 368        UI      57      51      22      22      22      22      22      22      22      22
 369        UI      22      22      22      22      22      22      22      22      22      22
 370        UI      22      22      22      22      22      22      22       0       0       0
 371        UI       0       0       0       0       0       0       0       0       0       0
            *

 372        KK  R72-73
 373        KM        Channel Route From C72 To C73
 374        KM        X-SECT. 1N1
 375        RS      32     FLOW      -1
 376        RC   0.060   0.048   0.060   28600   0.017
 377        RX  3760.9  4093.0  4156.0  4162.0  4207.0  4237.0  4366.0  5786.0
 378        RY   101.5    96.5    93.4    91.7    92.3    94.4    94.4   101.5
 379        RL                    2.05    91.7
            *

 380        KK      1N
 381        KM        SUB-BASIN 1N
 382        BA    2.75
 383        LG    0.35    0.35    4.18    0.49    0.00
 384        UI     114     114     114     114     114     114     321     376     432     463
 385        UI     526     557     594     626     654     687     724     769     823     867
 386        UI     907    1001    1116    1316    1342    1539    1421    1286    1186    1109
 387        UI    1037     987     936     895     845     787     739     699     664     615
 388        UI     577     551     526     446     407     329     312     202     202     202
 389        UI     193     188     188     188     126     114     114     114     114     114
 390        UI      65      35      35      35      35      35      35      35      35      35
 391        UI      35      35      35      35      35      35      35      35      35      35
 392        UI       0       0       0       0       0       0       0       0       0       0
 393        UI       0       0       0       0       0       0       0       0       0       0
            *

 394        KK     C73
 395        KM        Combine R71-73 + RR72-73 + 1N
 396        HC       3
            *

 397        KK  R73-74
 398        KM        Channel Route From C73 To C74
 399        KM        X-SECT. 1P1
 400        RS      15     FLOW      -1
 401        RC   0.060   0.050   0.060   13400   0.007
 402        RX  3668.7  4142.0  4202.0  4208.0  4253.0  4276.0  4405.0  5131.9
```



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

 403        RY    99.5    94.5    94.0    91.5    91.5    94.3    94.1    99.5
 404        RL                    1.45    91.5
            *

 405        KK      1P
 406        KM        SUB-BASIN 1P
 407        BA    4.56
 408        LG    0.35    0.35    4.07    0.54    0.00
 409        UI     140     140     140     140     140     140     140     140     320     459
 410        UI     459     535     535     621     642     682     698     747     771     790
 411        UI     823     856     886     922     973    1028    1061    1094    1155    1245
 412        UI    1360    1457    1690    1681    1882    1813    1661    1559    1470    1385
 413        UI    1322    1265    1215    1170    1130    1094    1053     999     944     901
 414        UI     868     840     803     755     728     683     670     642     591     535
 415        UI     498     401     401     348     247     247     247     247     237     229
 416        UI     229     229     229     189     140     140     140     140     140     140
 417        UI     140     138      43      43      43      43      43      43      43      43
 418        UI      43      43      43      43      43      43      43      43      43      43
 419        UI      43      43      43      43      43      43      43      43      43       0
 420        UI       0       0       0       0       0       0       0       0       0       0
 421        UI       0       0       0       0       0       0       0       0       0       0
```

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                 *
422              KK      1O
423              KM        SUB-BASIN 1O
424              BA    5.23
425              LG    0.28     0.35     3.67     0.69    10.00
426              UI     132      132      132      132      132      132      132      132      132      132
427              UI     332      381      381      413      508      508      568      609      667      761
428              UI     786      801      842      862      896      941      964      983     1015     1039
429              UI    1065     1102     1173     1269     1321     1442     1532     1654     1652     1435
430              UI    1189     1057     1010      952      914      888      846      821      801      783
431              UI     778      761      748      725      708      692      675      662      648      634
432              UI     624      609      601      564      564      541      534      527      508      508
433              UI     476      455      455      427      412      412      390      350      350      350
434              UI     337      324      324      324      318      305      305      305      305      280
435              UI     277      277      277      276      218      218      218      218      218      218
436              UI     179      169      169      169      169      169      169      169      149      145
437              UI     145      145      145      145      145      145      145      123      102      102
438              UI     102      102      102      102      102      102      102      102      102      102
439              UI      94       65       65       65       65       65       65       65       65       65
440              UI      65       65       65       65       65       65       65       65       65       65
441              UI      65       50       25       25       25       25       25       25       25       25
442              UI      25       25       25       25       25       25       25       25       25       25
443              UI      25       25       25       25       25       25       25       25       25       25
444              UI      25       25       25       25       25       25       25       25       25       25
445              UI      25       25       25       25       25       25       25       25       25       25
446              UI      25       25       25       25        0        0        0        0        0        0
447              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

448              KK     C74
449              KM        Combine R73-74 + 1P + 1O
450              HC       3
                 *

451              KK  R74-77
452              KM        Channel Route From C74 To C77
453              KM        X-SECT. 1U1
454              RS      27     FLOW       -1
455              RC   0.050    0.039    0.050    29800    0.011
456              RX  3469.0   4354.0   4597.0   4609.0   4776.0   4785.0   4875.0   5931.0
457              RY    98.3     93.3     93.1     90.9     89.3     92.7     92.6     98.3
458              RL                      2.88     89.3
                 *

459              KK      1U
460              KM        SUB-BASIN 1U
461              BA    3.19
462              LG    0.35     0.35     3.21     0.93     0.00
463              UI      92       92       92       92       92       92       92       92       98      302
464              UI     302      317      352      352      419      423      449      457      491      503
465              UI     515      539      553      571      601      624      652      683      704      726
466              UI     770      827      899      953     1123     1084     1226     1211     1127     1045
467              UI     987      937      893      855      821      790      763      739      717      692
468              UI     659      621      597      577      556      533      516      480      463      449
469              UI     430      422      369      352      315      264      264      234      162      162
470              UI     162      162      160      151      151      151      151      151      106       92
471              UI      92       92       92       92       92       92       92       41       28       28
472              UI      28       28       28       28       28       28       28       28       28       28
473              UI      28       28       28       28       28       28       28       28       28       28
474              UI      28       28       28       28       28       28        0        0        0        0
475              UI       0        0        0        0        0        0        0        0        0        0
                 *

476              KK    C77R
477              KM        Combine R74-77 + 1U
478              HC       2
                 *

479              KK      1Q
480              KM        SUB-BASIN 1Q At C75
481              BA    5.30
482              LG    0.31     0.38     6.95     0.15     4.00
483              UI     142      142      142      142      142      142      142      142      142      252
484              UI     465      465      496      543      543      638      651      684      693      745
485              UI     758      794      806      835      864      885      931      965     1002     1051
486              UI    1083     1111     1161     1237     1333     1436     1604     1649     1742     1914
487              UI    1857     1734     1616     1532     1458     1393     1337     1286     1242     1202
488              UI    1163     1126     1097     1055     1012      958      922      897      857      833
489              UI     814      748      738      693      690      651      651      546      543      482
490              UI     407      407      393      251      251      251      251      251      239      233
491              UI     233      233      233      233      165      142      142      142      142      142
492              UI     142      142      142      133       43       43       43       43       43       43
493              UI      43       43       43       43       43       43       43       43       43       43
1                                                HEC-1 INPUT                                                PAGE 12
LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

494              UI      43       43       43       43       43       43       43       43       43       43
495              UI      43       43       43       43       43        0        0        0        0        0
496              UI       0        0        0        0        0        0        0        0        0        0
                 *

497              KK  R75-76
498              KM        Channel Route From C75 To C76
499              KM        Representative Of X-SECT. 1T1
500              RS       3     FLOW       -1
501              RC   0.060    0.052    0.060     3200    0.013
502              RX  3928.3   4099.0   4162.0   4170.0   4210.0   4234.0   4259.0   4564.4
503              RY    99.1     94.1     94.2     93.0     92.7     94.6     93.4     99.1
504              RL                      1.55     92.7
                 *

505              KK      1R
506              KM        SUB-BASIN 1R
507              BA    2.90
508              LG    0.25     0.35     4.18     0.47    13.00
509              UI     122      122      122      122      122      122      320      351      437      480
510              UI     561      674      729      768      815      870      911      948      989     1083
511              UI    1196     1349     1517     1399     1075      926      860      806      761      730
512              UI     712      690      661      637      610      589      572      553      520      499
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513        UI     486     468     436     419     385     379     329     323     309     299
514        UI     297     281     281     271     255     255     230     201     201     201
515        UI     168     156     156     156     156     135     134     134     134     134
516        UI     120      94      94      94      94      94      94      94      82      60
517        UI      60      60      60      60      60      60      60      60      60      60
518        UI      60      31      23      23      23      23      23      23      23      23
519        UI      23      23      23      23      23      23      23      23      23      23
520        UI      23      23      23      23      23      23      23      23      23      23
521        UI      23      23      23       0       0       0       0       0       0       0
522        UI       0       0       0       0       0       0       0       0       0       0
           *

523        KK     C76
524        KM        Combine R75-76 + 1R
525        HC       2
           *

526        KK  R76-77
527        KM        Channel Route From C76 To C77
528        KM        X-SECT. 1T1
529        RS      32    FLOW      -1
530        RC   0.060   0.052   0.060   34600   0.011
531        RX  3928.3  4099.0  4162.0  4170.0  4210.0  4234.0  4259.0  4564.4
532        RY    99.1    94.1    94.2    93.0    92.7    94.6    93.4    99.1
533        RL                    2.21    92.7
           *
```

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

534        KK      1T
535        KM        SUB-BASIN 1T
536        BA    4.67
537        LG    0.32    0.35    3.68    0.69    6.00
538        UI     111     111     111     111     111     111     111     111     111     111
539        UI     139     364     364     364     412     424     424     506     509     529
540        UI     542     560     592     602     621     634     653     672     688     720
541        UI     734     772     800     825     849     869     899     946    1019    1094
542        UI    1146    1344    1238    1393    1498    1463    1373    1296    1230    1173
543        UI    1123    1080    1042    1008     978     943     917     896     876     849
544        UI     814     790     749     727     707     677     669     637     629     579
545        UI     577     542     542     515     509     471     424     424     359     318
546        UI     318     318     217     196     196     196     196     196     186     182
547        UI     182     182     182     182     178     111     111     111     111     111
548        UI     111     111     111     111     111      98      34      34      34      34
549        UI      34      34      34      34      34      34      34      34      34      34
550        UI      34      34      34      34      34      34      34      34      34      34
551        UI      34      34      34      34      34      34      34      34      34      34
552        UI      34       0       0       0       0       0       0       0       0       0
553        UI       0       0       0       0       0       0       0       0       0       0
           *

554        KK    C77L
555        KM       Combine R76-77 + 1T
556        HC       2
           *

557        KK     C77
558        KM       Combine C77R(R74-77 + 1U) + C77L(R76-77 + 1T)
559        HC       2
           *

560        KK  R77-79
561        KM        Channel Route From C77 To C79
562        KM        X-SECT. 1W1
563        RS       6    FLOW      -1
564        RC   0.050   0.034   0.070    8400   0.008
565        RX  3116.0  4116.0  4199.0  4210.0  4307.0  4318.0  4372.0  4427.0
566        RY    96.6    91.6    91.0    88.9    88.3    91.1    93.9    98.9
567        RL                    2.13    88.3
           *

568        KK      1W
569        KM        SUB-BASIN 1W
570        BA    0.53
571        LG    0.29    0.35    3.44    0.81    7.00
572        UI      34      34      34      35     113     128     152     168     187     199
573        UI     216     237     260     286     338     407     454     396     348     315
574        UI     289     269     243     221     203     183     166     149     122      99
575        UI      64      61      58      56      51      34      34      34      29      11
576        UI      11      11      11      11      11      11      11      11      11      11
577        UI      11       0       0       0       0       0       0       0       0       0
578        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

579        KK  C79RUP
580        KM       Combine R77-79 + 1W
581        HC       2
           *

582        KK      1S
583        KM        SUB-BASIN 1S At C78
584        BA    4.77
585        LG    0.25    0.35    3.52    0.78    9.00
586        UI     138     138     138     138     138     138     138     138     166     398
587        UI     398     400     531     531     604     637     758     805     838     873
588        UI     903     939     995    1021    1048    1078    1111    1158    1248    1344
589        UI    1439    1562    1680    1750    1496    1195    1082    1024     976     936
590        UI     885     855     835     817     803     792     758     742     724     699
591        UI     692     663     660     637     627     590     586     559     559     533
592        UI     531     498     475     475     430     430     421     366     366     366
593        UI     345     339     339     336     318     318     318     310     289     289
594        UI     289     288     227     227     227     227     227     196     177     177
595        UI     177     177     177     177     160     152     152     152     152     152
596        UI     152     152     127     106     106     106     106     106     106     106
597        UI     106     106     106     106      70      68      68      68      68      68
598        UI      68      68      68      68      68      68      68      68      68      68
599        UI      68      68      36      27      27      27      27      27      27      27
600        UI      27      27      27      27      27      27      27      27      27      27
601        UI      27      27      27      27      27      27      27      27      27      27
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 602        UI      27      27      27      27      27      27      27      27      27      27
 603        UI      27      27      27      27      27      27      27      27       0       0
 604        UI       0       0       0       0       0       0       0       0       0       0
            *

 605        KK   DC78R
 606        KM         Main flow at C78 is in the right channel (DC78R)
 607        KM         Diverted flow (DQ record) goes into the left channel (DC78L)
 608        DT   DC78L
 609        DI     0.0    25.0   270.0  1115.0  3200.0  7100.0 11900.0 18200.0
 610        DQ     0.0     0.0    90.0   390.0  1400.0  3700.0  6900.0 11000.0
            *

 611        KK  78R-79
 612        KM        Channel Route From C78 To C79
 613        KM        Representative Of X-SECT. 1W1
 614        RS      13    FLOW      -1
 615        RC   0.050   0.034   0.070   18200   0.009
 616        RX  3116.0  4116.0  4199.0  4210.0  4307.0  4318.0  4372.0  4427.0
 617        RY    96.6    91.6    91.0    88.9    88.3    91.1    93.9    98.9
 618        RL                   8.95    88.3
            *

 619        KK      1V
 620        KM        SUB-BASIN S1V
 621        BA    2.16
 622        LG    0.29    0.35    3.73    0.67    6.00
 623        UI      98      98      98      98      98     172     323     355     386     452
 624        UI     478     513     543     570     601     638     686     737     769     845
1                                         HEC-1 INPUT                                          PAGE 15

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

 625        UI     953    1131    1177    1311    1183    1069     984     918     858     816
 626        UI     772     728     675     630     592     559     513     481     456     404
 627        UI     362     283     263     174     174     174     162     161     161     129
 628        UI      98      98      98      98      98      41      30      30      30      30
 629        UI      30      30      30      30      30      30      30      30      30      30
 630        UI      30      30      30       0       0       0       0       0       0       0
 631        UI       0       0       0       0       0       0       0       0       0       0
            *

 632        KK  C79LUP
 633        KM        Combine R78R-79 + 1V
 634        HC       2
            *

 635        KK     C79
 636        KM        Combine C79RUP(R77-79 + 1W) + C79LUP(R78R-79 + 1V)
 637        HC       2
            *

 638        KK   DC79R
 639        KM         Main flow at C79 is in the right channel (DC79R)
 640        KM         Diverted flow (DQ record) goes into the left channel (DC79L)
 641        DT   DC79L
 642        DI     0.0   110.0   400.0   500.0  1700.0  5000.0 10300.0 19700.0
 643        DQ     0.0   110.0   400.0   485.0  1300.0  3100.0  5500.0  9400.0
            *

 644        KK  79R-81
 645        KM        Channel Route From C79R To C81
 646        KM        X-SECT. 1X1
 647        RS      15    FLOW      -1
 648        RC   0.050   0.040   0.060   17000   0.010
 649        RX  3762.5  4075.0  4162.0  4172.0  4223.0  4239.0  4260.0  4480.8
 650        RY   100.6    95.6    94.8    91.9    92.0    93.9    92.7   100.6
 651        RL                   2.47    91.9
            *

 652        KK  8DC79L
 653        KM        Bring Back Flow Split Diverted Hydrograph DC79L
 654        DR   DC79L
            *

 655        KK  79L-80
 656        KM        Channel Route From C79L To C80
 657        KM        Representative Of X-SECT. 1X1
 658        RS       5    FLOW      -1
 659        RC   0.050   0.040   0.060    5200   0.009
 660        RX  3762.5  4075.0  4162.0  4172.0  4223.0  4239.0  4260.0  4480.8
 661        RY   100.6    95.6    94.8    91.9    92.0    93.9    92.7   100.6
 662        RL                   2.38    91.9
            *
1                                         HEC-1 INPUT                                          PAGE 16

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

 663        KK   DC80R
 664        KM         Main flow at C80 is in the right channel (C80R)
 665        KM         Diverted flow (DQ record) goes into the left channel (C80L)
 666        DT   DC80L
 667        DI     0.0   170.0  1300.0  2500.0  4950.0  5275.0 11240.0
 668        DQ     0.0   170.0  1300.0  2500.0  4900.0  5200.0 10900.0
            *

 669        KK  80R-81
 670        KM        Channel Route From C80R To C81
 671        KM        Representative Of X-SECT. 1X1
 672        RS      37    FLOW      -1
 673        RC   0.050   0.040   0.060   12600   0.009
 674        RX  3762.5  4075.0  4162.0  4172.0  4223.0  4239.0  4260.0  4480.8
 675        RY   100.6    95.6    94.8    91.9    92.0    93.9    92.7   100.6
            *

 676        KK      1X
 677        KM        Basin 1X
 678        KM    The Phoenix Valley S-Graph was used for this basin.
 679        BA    2.62
 680        LG    0.35    0.35    3.94    0.58    0.00
 681        UI     121     121     121     121     121     232     397     443     485     557
 682        UI     591     640     673     707     747     800     860     914     964    1069
 683        UI    1214    1407    1543    1573    1402    1276    1180    1096    1036     979
 684        UI     936     860     801     752     711     657     611     578     541     463
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 685          UI     382     347     246     214     214     205     199     199     184     121
 686          UI     121     121     121     121      71      37      37      37      37      37
 687          UI      37      37      37      37      37      37      37      37      37      37
 688          UI      37      37       0       0       0       0       0       0       0       0
 689          UI       0       0       0       0       0       0       0       0       0       0
              *

 690          KK     C81
 691          KM        Combine R79R-81 + R80R-81 + 1X
 692          KM        Area: 77.13sm, 1X=2.62sm
 693          HC       3   79.75
              *

 694          KK   DC81R
 695          KM         Main flow at C81 is in the right channel (C81R)
 696          KM         Diverted flow (DQ record) goes into the left channel (C81L)
 697          DT   DC81L
 698          DI     0.0    50.0   110.0   655.0  3060.0  9600.0 16600.0
 699          DQ     0.0    50.0    95.0   580.0  2600.0  6200.0  9600.0
              *

 700          KK  81R-82
 701          KM        Channel Route From C81R To C82
 702          KM        X-SECT. 1Y2
 703          RS      40    FLOW      -1
 704          RC   0.050   0.041   0.050   23400   0.008
 705          RX  3316.7  4150.0  4322.0  4328.0  4344.0  4349.0  4458.0  5043.8
 706          RY    99.8    94.8    94.7    92.2    92.0    93.8    93.0    99.8
1                                          HEC-1 INPUT                                                    PAGE 17

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

 707          RL                     1.43    92.0
              *

 708          KK  8DC81L
 709          KM        Bring Back Flow Split Diverted Hydrograph DC81L
 710          DR   DC81L
              *

 711          KK  81L-82
 712          KM        Channel Route From C81L To C82
 713          KM        X-SECT. 1Y1
 714          RS      34    FLOW      -1
 715          RC   0.050   0.036   0.060   24000   0.008
 716          RX  3804.0  4294.0  4315.0  4325.0  4362.0  4370.0  4412.0  5892.0
 717          RY   101.2    96.2    96.3    93.6    93.4    95.2    93.8   101.2
 718          RL                     1.09    93.4
              *

 719          KK      1Y
 720          KM        Basin 1Y
 721          KM    The Phoenix Valley S-Graph was used for this basin.
 722          BA    5.32
 723          LG    0.35    0.35    3.91    0.60    0.00
 724          UI     179     179     179     179     179     179     179     316     589     589
 725          UI     687     687     824     841     877     939     974    1005    1055    1094
 726          UI    1141    1196    1262    1335    1380    1438    1558    1710    1845    2152
 727          UI    2173    2423    2266    2096    1935    1826    1732    1637    1567    1504
 728          UI    1448    1397    1330    1255    1192    1138    1084    1039     983     934
 729          UI     877     852     824     714     687     549     515     489     317     317
 730          UI     317     317     299     294     294     294     279     179     179     179
 731          UI     179     179     179     179     121      55      55      55      55      55
 732          UI      55      55      55      55      55      55      55      55      55      55
 733          UI      55      55      55      55      55      55      55      55      55       0
 734          UI       0       0       0       0       0       0       0       0       0       0
 735          UI       0       0       0       0       0       0       0       0       0       0
              *

 736          KK     C82
 737          KM        Combine R81R-82 + R81L-82 + 1Y At Interstate 8
 738          KM        Area: 79.75sm, 1Y=5.32sm
 739          HC       3   85.07
              *

 740          KK   DC82R
 741          KM         Main flow at CP82 is in the right channel (C82R) and passes under I-8.
 742          KM         Diverted flow (DQ record) goes into the left channel (C82L) and runs
 743          KM         west along the south side of I-8 to C132 at Sand Tank Wash.
 744          DT   DC82L
 745          DI     0.0    4465    5508    6900
 746          DQ     0.0     0.0     500    1350
              *
1                                          HEC-1 INPUT                                                    PAGE 18

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

 747          KK  82-135
 748          KM        Channel Route From C82 To C135I
 749          KM        Bender Wash HEC-2 Section 1.172
 750          RS       8    FLOW      -1
 751          RC   0.030   0.035   0.030    7000   0.006
 752          RX  9361.4 10095.4 10469.3 10482.5 10645.3 10695.3 10747.9 10999.7
 753          RY   757.5   752.5   751.5   748.5   751.1   751.6   752.2   757.5
 754          RL                     4.06   748.5
              *

 755          KK     2VV
 756          KM        SUB-BASIN 2VV
 757          BA    3.74
 758          LG    0.34    0.34    3.49    0.79    4.00
 759          UI     138     138     138     138     138     138     146     455     455     523
 760          UI     539     637     659     686     740     770     800     834     874     922
 761          UI     978    1036    1074    1137    1242    1388    1622    1608    1853    1767
 762          UI    1615    1486    1396    1309    1245    1189    1134    1089    1039     974
 763          UI     919     873     834     796     733     699     673     637     574     530
 764          UI     429     398     346     245     245     245     238     227     227     227
 765          UI     214     138     138     138     138     138     138     122      42      42
 766          UI      42      42      42      42      42      42      42      42      42      42
 767          UI      42      42      42      42      42      42      42      42      42      42
 768          UI       0       0       0       0       0       0       0       0       0       0
 769          UI       0       0       0       0       0       0       0       0       0       0
              *
```

```
770          KK   C135I
771          KM        Combine R82-135 + 2VV At The Gila Bend Canal
772          KO                                   21
773          HC       2
             *
             *
             *     ******************************************************
             *     *                                                    *
             *     *                      END                           *
             *     * BENDER WASH (Major Basin 1) At The Gila Bend Canal *
             *     *                                                    *
             *     ******************************************************
             *
             *
             *     ***********************************
             *     *                                 *
             *     *              START              *
             *     * SAND TANK WASH (Major Basin 2)  *
             *     *                                 *
             *     ***********************************
             *
             *

774          KK      2D
775          KM        SUB-BASIN 2D At C87
776          BA    1.75
777          LG    0.25     0.20     9.40     0.02    10.00
778          UI      92       92       92       92      108      265      299      360      428      535
779          UI     569      609      661      698      735      805      917     1056     1130      841
1                                          HEC-1 INPUT                                                    PAGE 19

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

780          UI     691      636      585      552      536      512      486      464      444      426
781          UI     399      379      364      348      316      296      281      243      239      225
782          UI     222      212      209      192      192      161      151      151      125      118
783          UI     118      118      102      101      101      101       87       71       71       71
784          UI      71       71       69       45       45       45       45       45       45       45
785          UI      45       45       44       18       18       18       18       18       18       18
786          UI      18       18       18       18       18       18       18       18       18       18
787          UI      18       18       18       18       18       18       18       18        0        0
788          UI       0        0        0        0        0        0        0        0        0        0
             *

789          KK  R87-89
790          KM        Channel Route From C87 To C89
791          KM        Representative Of X-SECT. 2H1
792          RS       8    FLOW       -1
793          RC   0.050    0.047    0.050     7000    0.013
794          RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
795          RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
796          RL                     0.94     86.0
             *

797          KK      2F
798          KM        SUB-BASIN 2F At C88
799          BA    0.75
800          LG    0.25     0.20     9.40     0.02    10.00
801          UI      51       51       51       66      148      186      226      296      319      353
802          UI     381      409      473      561      605      424      359      324      302      288
803          UI     270      255      240      226      210      198      183      167      153      134
804          UI     126      122      116      111      106       91       83       77       65       65
805          UI      61       55       55       55       41       39       39       39       39       27
806          UI      25       25       25       25       25       25       25       10       10       10
807          UI      10       10       10       10       10       10       10       10       10       10
808          UI      10       10       10       10       10       10       10        0        0        0
809          UI       0        0        0        0        0        0        0        0        0        0
             *

810          KK  R88-89
811          KM        Channel Route From C88 To C89
812          KM        Representative Of X-SECT. 2H1
813          RS       3    FLOW       -1
814          RC   0.050    0.047    0.050     3200    0.033
815          RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
816          RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
817          RL                     1.27     86.0
             *

818          KK     C89
819          KM        Combine R87-89 + R88-89
820          HC       2
             *
1                                          HEC-1 INPUT                                                    PAGE 20

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

821          KK  R89-91
822          KM        Channel Route From C89 To C91
823          KM        X-SECT.
824          RS       6    FLOW       -1
825          RC   0.050    0.047    0.050     6000    0.018
826          RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
827          RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
828          RL                     0.91     86.0
             *

829          KK      2E
830          KM        SUB-BASIN 2E
831          BA    1.00
832          LG    0.32     0.36     7.32     0.12     3.00
833          UI      91       91      125      314      388      459      515      574      659      747
834          UI     965     1152     1043      881      775      694      604      533      460      398
835          UI     299      202      161      150      134       91       91       64       28       28
836          UI      28       28       28       28       28       28        0        0        0        0
837          UI       0        0        0        0        0        0        0        0        0        0
             *

838          KK      2G
839          KM        SUB-BASIN 2G
840          BA    1.13
841          LG    0.31     0.33     7.78     0.10     4.00
842          UI      81       81       81      154      279      333      386      431      466      511
843          UI     567      623      710      890     1021      988      846      751      685      632
844          UI     564      506      461      409      378      306      233      161      143      135
845          UI     133      103       81       81       81       27       25       25       25       25
```

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 846          UI      25      25      25      25      25      25       0       0       0       0
 847          UI       0       0       0       0       0       0       0       0       0       0
              *

 848          KK     C91
 849          KM        Combine R89-91 + 2E + 2G
 850          HC       3
              *

 851          KK  R91-92
 852          KM        Channel Route From C91 To C92
 853          KM        Representative Of X-SECT. 2H1
 854          RS       4    FLOW      -1
 855          RC   0.050   0.047   0.050    4400   0.014
 856          RX  3061.0  4061.0  4109.0  4116.0  4144.0  4147.0  4166.0  4187.0
 857          RY    92.2    87.2    87.8    86.5    86.0    87.5    96.5    97.5
 858          RL                    0.52    86.0
              *

 859          KK      2I
 860          KM        SUB-BASIN 2I
 861          BA    0.87
 862          LG    0.25    0.20    9.40    0.02   10.00
 863          UI      73      73      73     201     275     371     449     505     558     621
 864          UI     764     875     600     500     447     421     389     360     337     306
1                                          HEC-1 INPUT                                          PAGE 21
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 865          UI     286     256     229     195     182     173     165     153     129     120
 866          UI      97      94      87      80      80      64      56      56      56      43
 867          UI      36      36      36      36      36      27      14      14      14      14
 868          UI      14      14      14      14      14      14      14      14      14      14
 869          UI      14       0       0       0       0       0       0       0       0       0
 870          UI       0       0       0       0       0       0       0       0       0       0
              *

 871          KK      2H
 872          KM        SUB-BASIN 2H
 873          BA    1.59
 874          LG    0.33    0.40    6.60    0.18    2.00
 875          UI     114     114     114     217     393     468     543     606     656     718
 876          UI     798     877     999    1252    1437    1390    1190    1057     964     889
 877          UI     793     712     649     576     531     431     327     226     202     190
 878          UI     187     145     114     114     114      37      35      35      35      35
 879          UI      35      35      35      35      35      35       0       0       0       0
 880          UI       0       0       0       0       0       0       0       0       0       0
              *

 881          KK     C92
 882          KM        Combine R91-92 + 2I + 2H
 883          HC       3
              *

 884          KK  R92-95
 885          KM        Channel Route From C92 To C95
 886          KM        Representative Of X-SECT. 2H1
 887          RS       4    FLOW      -1
 888          RC   0.050   0.047   0.050    4200   0.011
 889          RX  3061.0  4061.0  4109.0  4116.0  4144.0  4147.0  4166.0  4187.0
 890          RY    92.2    87.2    87.8    86.5    86.0    87.5    96.5    97.5
 891          RL                    0.47    86.0
              *

 892          KK      2K
 893          KM        SUB-BASIN 2K
 894          BA    2.19
 895          LG    0.25    0.20    9.40    0.02   10.00
 896          UI      81      81      81      81      81      81      85     233     233     279
 897          UI     311     359     397     467     490     515     542     575     597     618
 898          UI     643     677     743     801     904     991     981     775     641     596
 899          UI     560     529     503     486     475     466     444     429     416     405
 900          UI     388     380     372     345     338     327     316     311     284     278
 901          UI     257     252     231     214     214     200     198     198     186     186
 902          UI     186     169     169     169     144     133     133     133     120     104
 903          UI     104     104     104     104      89      89      89      89      89      89
 904          UI      72      62      62      62      62      62      62      62      62      51
 905          UI      40      40      40      40      40      40      40      40      40      40
 906          UI      40      40      40      33      16      16      16      16      16      16
 907          UI      16      16      16      16      16      16      16      16      16      16
 908          UI      16      16      16      16      16      16      16      16      16      16
 909          UI      16      16      16      16      16      16      16      16      16      16
 910          UI       0       0       0       0       0       0       0       0       0       0
 911          UI       0       0       0       0       0       0       0       0       0       0
              *
1                                          HEC-1 INPUT                                          PAGE 22
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 912          KK  R93-94
 913          KM        Channel Route From C93 To C94
 914          KM        Representative Of X-SECT. 2H1
 915          RS       4    FLOW      -1
 916          RC   0.050   0.047   0.050    4800   0.023
 917          RX  3061.0  4061.0  4109.0  4116.0  4144.0  4147.0  4166.0  4187.0
 918          RY    92.2    87.2    87.8    86.5    86.0    87.5    96.5    97.5
 919          RL                    1.01    86.0
              *

 920          KK      2L
 921          KM        SUB-BASIN 2L
 922          BA    0.94
 923          LG    0.28    0.25    8.20    0.04    7.00
 924          UI      44      44      44      44      44      84     126     150     173     202
 925          UI     249     266     284     304     322     337     354     387     432     495
 926          UI     553     458     349     321     294     276     263     256     247     235
 927          UI     225     217     209     202     187     180     174     169     153     147
 928          UI     137     126     116     113     108     107     101     101      94      92
 929          UI      90      72      72      72      60      56      56      56      53      48
 930          UI      48      48      48      42      34      34      34      34      34      34
 931          UI      31      22      22      22      22      22      22      22      22      22
 932          UI      22      22       9       8       8       8       8       8       8       8
 933          UI       8       8       8       8       8       8       8       8       8       8
 934          UI       8       8       8       8       8       8       8       8       8       8
```

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935          UI       0       0       0       0       0       0       0       0       0       0
936          UI       0       0       0       0       0       0       0       0       0       0
             *

937          KK     C94
938          KM        Combine R93-94 + 2L
939          HC       2
             *

940          KK  R94-95
941          KM        Channel Route From C94 To C95
942          KM        X-SECT. 2M1
943          RS       3    FLOW      -1
944          RC   0.060   0.048   0.050    5800   0.020
945          RX  3030.0  4030.0  4067.0  4081.0  4127.0  4163.0  4308.0  5708.0
946          RY   100.7    95.7    93.6    89.6    89.6    92.1    93.7   100.7
947          RL                    4.47    89.6
             *

948          KK      2M
949          KM        SUB-BASIN 2M
950          BA    1.40
951          LG    0.34    0.38    5.05    0.26    1.00
952          UI     139     139     263     501     644     742     832     960    1097    1398
953          UI    1751    1586    1320    1187    1019     878     761     659     510     349
954          UI     248     230     204     139     139      75      43      43      43      43
955          UI      43      43      43       0       0       0       0       0       0       0
956          UI       0       0       0       0       0       0       0       0       0       0
             *
1                                          HEC-1 INPUT                                          PAGE 23

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

957          KK      2J
958          KM        SUB-BASIN 2J
959          BA    1.16
960          LG    0.25    0.20    9.40    0.02   10.00
961          UI      57      57      57      57      57     142     165     219     247     296
962          UI     340     361     389     418     436     461     504     568     653     715
963          UI     560     447     405     376     353     340     329     312     298     286
964          UI     275     264     247     236     228     220     197     188     179     157
965          UI     152     142     141     135     132     127     120     120      96      94
966          UI      94      78      73      73      73      66      63      63      63      63
967          UI      45      44      44      44      44      44      42      28      28      28
968          UI      28      28      28      28      28      28      28      20      11      11
969          UI      11      11      11      11      11      11      11      11      11      11
970          UI      11      11      11      11      11      11      11      11      11      11
971          UI      11      11      11      11       0       0       0       0       0       0
972          UI       0       0       0       0       0       0       0       0       0       0
             *

973          KK     C95
974          KM        Combine R92-95 + R94-95 + 2M + 2J
975          HC       4
             *

976          KK  R95-96
977          KM        Channel Route From C95 To C96
978          KM        Representative Of X-SECT. 2O1
979          RS      15    FLOW      -1
980          RC   0.070   0.043   0.060   11600   0.012
981          RX  3030.0  4030.0  4372.0  4385.0  4427.0  4437.0  4543.0  4563.0
982          RY    91.9    86.9    89.9    86.7    86.8    88.5    95.0   100.0
983          RL                    0.25    86.7
             *

984          KK      2A
985          KM        SUB-BASIN 2A At C83
986          BA    4.33
987          LG    0.30    0.30    8.05    0.08    5.00
988          UI     144     144     144     144     144     144     144     229     474     474
989          UI     545     553     651     672     706     747     778     810     842     873
990          UI     909     951    1006    1067    1103    1140    1222    1346    1469    1715
991          UI    1668    1923    1890    1721    1608    1499    1417    1348    1288    1234
992          UI    1183    1142    1101    1037     977     930     891     858     829     755
993          UI     729     706     666     634     553     519     415     415     326     255
994          UI     255     255     252     237     237     237     237     194     144     144
995          UI     144     144     144     144     144      72      44      44      44      44
996          UI      44      44      44      44      44      44      44      44      44      44
997          UI      44      44      44      44      44      44      44      44      44      44
998          UI       0       0       0       0       0       0       0       0       0       0
999          UI       0       0       0       0       0       0       0       0       0       0
             *
1                                          HEC-1 INPUT                                          PAGE 24

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

1000         KK  R83-84
1001         KM        Channel Route From C83 To C84
1002         KM        Representative Of X-SECT. 2H1
1003         RS       6    FLOW      -1
1004         RC   0.050   0.047   0.050    8200   0.033
1005         RX  3061.0  4061.0  4109.0  4116.0  4144.0  4147.0  4166.0  4187.0
1006         RY    92.2    87.2    87.8    86.5    86.0    87.5    96.5    97.5
1007         RL                    0.92    86.0
             *

1008         KK   DC84L
1009         KM        Main flow at C84 is in the left channel (DC84L)
1010         KM        Diverted flow (DQ record) goes into the right channel (DC84R)
1011         DT   DC84R
1012         DI     0.0   200.0  1000.0  1110.0  3590.0  7400.0 12900.0 18100.0
1013         DQ     0.0     0.0     0.0    10.0   190.0  1000.0  2900.0  4600.0
             *

1014         KK  84L-85
1015         KM        Channel Route From C84L To C85
1016         KM        X-SECT. 2B1
1017         RS      10    FLOW      -1
1018         RC   0.060   0.039   0.080    8800   0.020
1019         RX  3022.0  4022.0  4622.0  4629.0  4656.0  4661.0  4761.0  4779.0
1020         RY    98.9    93.9    94.4    93.4    93.2    94.1    93.7    99.5
1021         RL                    0.57    93.2
```

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                *
1022            KK      2B
1023            KM        SUB-BASIN 2B
1024            BA    3.31
1025            LG    0.33     0.40     6.29     0.20     2.00
1026            UI     153      153      153      153      153      293      502      560      613      703
1027            UI     747      808      850      893      943     1011     1087     1154     1217     1351
1028            UI    1534     1777     1949     1987     1771     1612     1490     1384     1309     1236
1029            UI    1182     1086     1012      950      898      830      771      730      683      585
1030            UI     482      439      311      270      270      259      251      251      232      153
1031            UI     153      153      153      153       90       47       47       47       47       47
1032            UI      47       47       47       47       47       47       47       47       47       47
1033            UI      47       47        0        0        0        0        0        0        0        0
1034            UI       0        0        0        0        0        0        0        0        0        0
                *

1035            KK     C85
1036            KM        Combine R84L-85 + 2B
1037            HC       2
                *

1038            KK  R85-96
1039            KM        Channel Route From C85 To C96
1040            KM        Representative Of X-SECT. 2P1
1041            RS      15     FLOW      -1
1042            RC   0.060    0.044    0.070    10800    0.015
1043            RX  3050.0   4050.0   4850.0   4859.0   5014.0   5026.0   5251.0   5271.0
1                                                HEC-1 INPUT                                                    PAGE 25
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
1044            RY    99.2     94.2     94.4     92.8     92.0     94.8     97.0    100.0
1045            RL                      0.74     92.0
                *

1046            KK  BDC84R
1047            KM        Bring Back Diverted Flow DC84R
1048            DR   DC84R
                *

1049            KK  84R-86
1050            KM        Channel Route From C84R To C86
1051            KM        Representative Of X-SECT. 201
1052            RS      17     FLOW      -1
1053            RC   0.070    0.043    0.060     7200    0.022
1054            RX  3030.0   4030.0   4372.0   4385.0   4427.0   4437.0   4543.0   4563.0
1055            RY    91.9     86.9     89.9     86.7     86.8     88.5     95.0    100.0
1056            RL                      2.41     86.7
                *

1057            KK      2N
1058            KM        SUB-BASIN 2N
1059            BA    2.20
1060            LG    0.33     0.40     6.29     0.20     2.00
1061            UI     135      135      135      135      376      479      558      639      697      753
1062            UI     810      873      965     1040     1158     1359     1626     1783     1554     1377
1063            UI    1248     1151     1073      990      890      824      752      681      633      543
1064            UI     434      361      238      238      225      221      202      135      135      135
1065            UI     134       41       41       41       41       41       41       41       41       41
1066            UI      41       41       41       41        0        0        0        0        0        0
1067            UI       0        0        0        0        0        0        0        0        0        0
                *

1068            KK     C86
1069            KM        Combine R84R-86 + 2N
1070            KM        Area: DC84R=4.33sm, 2N=2.20sm
1071            HC       2     6.53
                *

1072            KK  R86-96
1073            KM        Channel Route From C86 To C96
1074            KM        X-SECT. 201
1075            RS      20     FLOW      -1
1076            RC   0.070    0.043    0.060    12200    0.015
1077            RX  3030.0   4030.0   4372.0   4385.0   4427.0   4437.0   4543.0   4563.0
1078            RY    91.9     86.9     89.9     86.7     86.8     88.5     95.0    100.0
1079            RL                      0.44     86.7
                *

1080            KK      2C
1081            KM        SUB-BASIN 2C
1082            BA    2.32
1083            LG    0.25     0.20     9.40     0.02    10.00
1084            UI     107      107      107      107      107      188      308      354      410      492
1085            UI     588      641      680      732      779      811      853      915     1031     1161
1086            UI    1324     1213      903      798      739      690      648      630      612      583
1                                                HEC-1 INPUT                                                    PAGE 26
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
1087            UI     559      535      515      498      473      451      432      414      395      367
1088            UI     342      333      286      283      266      262      254      246      244      224
1089            UI     224      204      176      176      176      137      137      137      137      124
1090            UI     117      117      117      117       99       82       82       82       82       82
1091            UI      82       76       52       52       52       52       52       52       52       52
1092            UI      52       52       52       28       21       21       21       21       21       21
1093            UI      21       21       21       21       21       21       21       21       21       21
1094            UI      21       21       21       21       21       21       21       21       21       21
1095            UI      21       21        0        0        0        0        0        0        0        0
1096            UI       0        0        0        0        0        0        0        0        0        0
                *

1097            KK      2O
1098            KM        SUB-BASIN 2O
1099            BA    3.37
1100            LG    0.25     0.20     9.40     0.02    10.00
1101            UI     169      169      169      169      169      443      499      649      745      900
1102            UI    1011     1080     1168     1241     1305     1371     1542     1737     1978     2049
1103            UI    1509     1267     1169     1082     1018      989      951      904      863      828
1104            UI     796      759      716      683      653      613      579      526      496      448
1105            UI     433      414      406      390      386      354      354      305      278      278
1106            UI     246      216      216      216      201      185      185      185      185      140
1107            UI     130      130      130      130      130      124       83       83       83       83
1108            UI      83       83       83       83       83       83       52       32       32       32
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1109          UI      32      32      32      32      32      32      32      32      32      32
1110          UI      32      32      32      32      32      32      32      32      32      32
1111          UI      32      32      32       0       0       0       0       0       0       0
1112          UI       0       0       0       0       0       0       0       0       0       0
              *

1113          KK     C96
1114          KM        Combine R95-96 + R85-96 + R86-96 + 2C + 20
1115          HC       5
              *

1116          KK  R96-97
1117          KM        Channel Route From C96 To C97
1118          KM        X-SECT. 2P1
1119          RS      15    FLOW      -1
1120          RC   0.060   0.044   0.070   16600   0.014
1121          RX  3050.0  4050.0  4850.0  4859.0  5014.0  5026.0  5251.0  5271.0
1122          RY    99.2    94.2    94.4    92.8    92.0    94.8    97.0   100.0
1123          RL                    1.64    92.0
              *

1124          KK      2P
1125          KM        SUB-BASIN 2P
1126          BA    3.51
1127          LG    0.28    0.39    5.98    0.18    9.00
1128          UI     169     169     169     169     169     369     485     609     696     815
1129          UI     984    1043    1113    1195    1264    1320    1408    1579    1781    2036
1130          UI    1979    1465    1261    1166    1085    1018     990     957     911     871
1131          UI     836     806     777     723     693     669     647     583     559     525
1132          UI     473     446     425     413     402     388     385     353     353     313
1133          UI     277     277     261     216     216     216     214     185     185     185
1                                          HEC-1 INPUT                                          PAGE 27

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

1134          UI     185     176     129     129     129     129     129     129     122      83
1135          UI      83      83      83      83      83      83      83      83      83      73
1136          UI      32      32      32      32      32      32      32      32      32      32
1137          UI      32      32      32      32      32      32      32      32      32      32
1138          UI      32      32      32      32      32      32      32       0       0       0
1139          UI       0       0       0       0       0       0       0       0       0       0
              *

1140          KK     C97
1141          KM        Combine R96-97 + 2P
1142          HC       2
              *

1143          KK  97-100
1144          KM        Channel Route From C97 To C100
1145          KM        Interpolated X-SECT. Between 2U1 and 2P1
1146          RS       6    FLOW      -1
1147          RC   0.060   0.046   0.065    6200   0.012
1148          RX  3033.0  4033.0  4458.0  4471.0  4586.0  4610.0  4741.0  6001.0
1149          RY   101.0    96.0    95.4    91.4    90.9    93.7    94.7   101.0
1150          RL                    1.64    90.9
              *

1151          KK      2Q
1152          KM        SUB-BASIN 2Q At C98
1153          BA    2.93
1154          LG    0.22    0.35    3.71    0.30   10.00
1155          UI     117     117     117     117     117     117     241     338     374     450
1156          UI     508     573     680     713     752     799     850     881     916     954
1157          UI    1046    1150    1287    1429    1406    1091     917     850     792     749
1158          UI     711     693     677     651     626     604     586     563     546     527
1159          UI     500     479     469     450     425     403     378     365     333     310
1160          UI     307     287     287     278     270     270     252     246     246     212
1161          UI     193     193     193     162     150     150     150     150     135     129
1162          UI     129     129     129     129      98      90      90      90      90      90
1163          UI      90      90      77      57      57      57      57      57      57      57
1164          UI      57      57      57      57      57      49      23      23      23      23
1165          UI      23      23      23      23      23      23      23      23      23      23
1166          UI      23      23      23      23      23      23      23      23      23      23
1167          UI      23      23      23      23      23      23      23      23      23       0
1168          UI       0       0       0       0       0       0       0       0       0       0
1169          UI       0       0       0       0       0       0       0       0       0       0
              *

1170          KK  R98-99
1171          KM        Channel Route From C98 To C99
1172          KM        Interpolated X-SECT. Between 2U1 and 2P1
1173          RS       6    FLOW      -1
1174          RC   0.060   0.046   0.065   12400   0.015
1175          RX  3033.0  4033.0  4458.0  4471.0  4586.0  4610.0  4741.0  6001.0
1176          RY   101.0    96.0    95.4    91.4    90.9    93.7    94.7   101.0
1177          RL                    8.34    90.9
              *
1                                          HEC-1 INPUT                                          PAGE 28

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

1178          KK      2R
1179          KM        SUB-BASIN 2R
1180          BA    2.67
1181          LG    0.30    0.35    3.36    0.83    5.00
1182          UI     134     134     134     134     134     399     463     514     613     650
1183          UI     705     747     790     845     905     978    1041    1127    1292    1536
1184          UI    1655    1757    1554    1404    1289    1200    1124    1063     995     916
1185          UI     846     796     736     678     638     581     512     386     352     237
1186          UI     237     232     220     220     203     134     134     134     134     128
1187          UI      41      41      41      41      41      41      41      41      41      41
1188          UI      41      41      41      41      41      41       0       0       0       0
1189          UI       0       0       0       0       0       0       0       0       0       0
              *

1190          KK     C99
1191          KM        Combine R98-99 + 2R
1192          HC       2
              *

1193          KK  99-100
1194          KM        Channel Route From C99 To C100
1195          KM        Interpolated X-SECT. Between 2U1 and 2P1
```

```
1196    RS       6    FLOW      -1
1197    RC   0.060   0.046   0.065    9800   0.012
1198    RX  3033.0  4033.0  4458.0  4471.0  4586.0  4610.0  4741.0  6001.0
1199    RY   101.0    96.0    95.4    91.4    90.9    93.7    94.7   101.0
1200    RL                    9.55    90.9
        *

1201    KK      2S
1202    KM        SUB-BASIN 2S
1203    BA    1.82
1204    LG    0.32    0.35    3.35    0.85    4.00
1205    UI     128     128     128     221     433     513     604     665     729     788
1206    UI     870     967    1072    1290    1566    1644    1399    1232    1119    1027
1207    UI     937     838     760     685     615     542     428     335     226     224
1208    UI     210     210     136     128     128     108      39      39      39      39
1209    UI      39      39      39      39      39      39      39       0       0       0
1210    UI       0       0       0       0       0       0       0       0       0       0
        *

1211    KK    C100
1212    KM        Combine R97-100 + R99-100 + 2S
1213    HC       3
        *

1214    KK  100101
1215    KM        Channel Route From C100 To C101
1216    KM        Representative Of X-SECT. 2U1
1217    RS       4    FLOW      -1
1218    RC   0.060   0.047   0.060    4600   0.011
1219    RX  3015.0  4015.0  4066.0  4083.0  4158.0  4194.0  4230.0  6290.0
1220    RY   102.7    97.7    96.3    90.0    89.7    92.6    92.4   102.7
1221    RL                    1.37    89.7
        *
```



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

1222    KK      2T
1223    KM        SUB-BASIN 2T
1224    BA    4.90
1225    LG    0.27    0.33    7.78    0.09    9.00
1226    UI     128     128     128     128     128     128     128     128     128     154
1227    UI     368     368     368     450     490     499     588     588     727     744
1228    UI     774     799     819     865     896     925     949     976    1000    1026
1229    UI    1061    1132    1226    1278    1405    1488    1622    1555    1362    1088
1230    UI    1004     957     919     865     839     817     775     767     754     741
1231    UI     735     702     695     669     661     639     632     613     607     588
1232    UI     585     545     545     523     516     508     490     490     454     439
1233    UI     439     404     398     397     359     338     338     338     315     313
1234    UI     313     313     297     294     294     294     279     267     267     267
1235    UI     267     219     210     210     210     210     210     172     163     163
1236    UI     163     163     163     163     162     140     140     140     140     140
1237    UI     140     140     140     138      98      98      98      98      98      98
1238    UI      98      98      98      98      98      98      93      63      63      63
1239    UI      63      63      63      63      63      63      63      63      63      63
1240    UI      63      63      63      63      63      63      63      27      25      25
1241    UI      25      25      25      25      25      25      25      25      25      25
1242    UI      25      25      25      25      25      25      25      25      25      25
1243    UI      25      25      25      25      25      25      25      25      25      25
1244    UI      25      25      25      25      25      25      25      25      25      25
1245    UI      25      25      25      25      25      25      25      25       0       0
1246    UI       0       0       0       0       0       0       0       0       0       0
        *

1247    KK    C101
1248    KM        Combine R100-101 + 2T
1249    HC       2
        *

1250    KK  101102
1251    KM        X-SECT. 2U1
1252    RS       6    FLOW      -1
1253    RC   0.060   0.047   0.060    7600   0.011
1254    RX  3015.0  4015.0  4066.0  4083.0  4158.0  4194.0  4230.0  6290.0
1255    RY   102.7    97.7    96.3    90.0    89.7    92.6    92.4   102.7
1256    RL                    2.37    89.7
        *

1257    KK      2U
1258    KM        SUB-BASIN 2U
1259    BA    1.38
1260    LG    0.32    0.35    3.32    0.91    4.00
1261    UI      82      82      82      82     199     281     322     380     411     447
1262    UI     474     514     556     612     656     755     915    1017    1040     901
1263    UI     810     740     685     641     589     535     495     454     412     384
1264    UI     333     271     233     144     144     139     134     134      87      82
1265    UI      82      82      52      25      25      25      25      25      25      25
1266    UI      25      25      25      25      25      25       0       0       0       0
1267    UI       0       0       0       0       0       0       0       0       0       0
        *
```



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

1268    KK    C102
1269    KM        Combine R101-102 + 2U
1270    HC       2
        *

1271    KK  102103
1272    KM        Channel Route From C102 To C103
1273    KM        Representative Of X-SECT. 2U1
1274    RS       5    FLOW      -1
1275    RC   0.060   0.047   0.060    5400   0.010
1276    RX  3015.0  4015.0  4066.0  4083.0  4158.0  4194.0  4230.0  6290.0
1277    RY   102.7    97.7    96.3    90.0    89.7    92.6    92.4   102.7
1278    RL                    1.35    89.7
        *

1279    KK      2V
1280    KM        SUB-BASIN 2V
1281    BA    7.57
1282    LG    0.27    0.39    5.67    0.19    9.00
```

```
1283        UI     209     209     209     209     209     209     209     209     209     462
1284        UI     601     601     679     801     801     954     961    1182    1220    1264
1285        UI    1317    1357    1413    1493    1531    1568    1608    1657    1713    1822
1286        UI    1963    2069    2255    2421    2646    2829    2209    1719    1618    1538
1287        UI    1472    1413    1339    1301    1264    1234    1221    1201    1160    1143
1288        UI    1092    1081    1045    1029    1001     985     961     934     890     881
1289        UI     843     843     807     801     766     717     717     670     649     649
1290        UI     583     552     552     546     511     511     511     501     481     481
1291        UI     481     469     437     437     437     437     363     343     343     343
1292        UI     343     336     267     267     267     267     267     267     267     237
1293        UI     229     229     229     229     229     229     229     213     160     160
1294        UI     160     160     160     160     160     160     160     160     160     158
1295        UI     102     102     102     102     102     102     102     102     102     102
1296        UI     102     102     102     102     102     102     102     102     102      45
1297        UI      40      40      40      40      40      40      40      40      40      40
1298        UI      40      40      40      40      40      40      40      40      40      40
1299        UI      40      40      40      40      40      40      40      40      40      40
1300        UI      40      40      40      40      40      40      40      40      40      40
1301        UI      40      40      40      40      40      40      40       0       0       0
1302        UI       0       0       0       0       0       0       0       0       0       0
            *

1303        KK    C103
1304        KM        Combine R102-103 + 2V
1305        HC       2
            *

1306        KK  103107
1307        KM        Channel Route From C103 To C107
1308        KM        REVISED X-SECT. 2Y1
1309        RS       25    FLOW      -1
1310        RC    0.050   0.050   0.050   24200   0.009
1311        RX   3220.0  4219.0  4294.0  4322.0  4352.0  4362.0  4500.0  5320.0
1312        RY     97.7    92.7    93.7    91.2    91.6    93.6    93.6    97.7
1313        RL                    0.59    91.2
            *
```



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

1314        KK      2W
1315        KM        SUB-BASIN 2W At C104
1316        BA    6.29
1317        LG    0.28    0.25    8.40    0.05    7.00
1318        UI     210     210     210     210     210     210     210     311     603     603
1319        UI     716     804     891     965    1172    1238    1286    1341    1418    1496
1320        UI    1546    1595    1649    1709    1832    2015    2171    2373    2641    2483
1321        UI    2021    1674    1566    1478    1404    1340    1271    1246    1225    1204
1322        UI    1148    1116    1089    1048    1022    1005     965     944     893     871
1323        UI     846     823     804     759     720     701     652     652     575     554
1324        UI     554     519     513     513     492     482     482     468     438     438
1325        UI     438     380     344     344     344     344     275     268     268     268
1326        UI     268     268     235     230     230     230     230     230     230     176
1327        UI     161     161     161     161     161     161     161     161     161     121
1328        UI     103     103     103     103     103     103     103     103     103     103
1329        UI     103     103     103     103     103      49      40      40      40      40
1330        UI      40      40      40      40      40      40      40      40      40      40
1331        UI      40      40      40      40      40      40      40      40      40      40
1332        UI      40      40      40      40      40      40      40      40      40      40
1333        UI      40      40      40      40      40       0       0       0       0       0
1334        UI       0       0       0       0       0       0       0       0       0       0
            *

1335        KK  104105
1336        KM        Channel Route From C104 To C105
1337        KM        X-SECT. 2X1
1338        RS       18    FLOW      -1
1339        RC    0.060   0.034   0.060   30400   0.015
1340        RX   3933.3  4100.0  4156.0  4173.0  4331.0  4336.0  4389.0  4579.9
1341        RY     98.0    93.0    93.2    92.3    92.4    93.4    93.8    98.0
1342        RL                    2.34    92.3
            *

1343        KK      2X
1344        KM        SUB-BASIN 2X
1345        BA   10.31
1346        LG    0.29    0.25    8.60    0.06    6.00
1347        UI     235     235     235     235     235     235     235     235     235     235
1348        UI     235     522     674     674     674     833     899     899    1033    1079
1349        UI    1154    1349    1370    1420    1464    1499    1556    1587    1684    1708
1350        UI    1740    1791    1822    1860    1924    2012    2126    2259    2345    2564
1351        UI    2690    2839    3088    2650    2396    1927    1833    1771    1686    1620
1352        UI    1587    1499    1482    1420    1407    1383    1369    1349    1320    1284
1353        UI    1263    1226    1215    1173    1173    1127    1124    1099    1079    1071
1354        UI     999     999     976     946     946     917     899     899     837     805
1355        UI     805     778     729     729     729     652     620     620     620     601
1356        UI     574     574     574     574     547     539     539     539     539     498
1357        UI     490     490     490     490     447     385     385     385     385     385
1358        UI     385     342     300     300     300     300     300     300     300     300
1359        UI     273     257     257     257     257     257     257     257     257     257
1360        UI     236     180     180     180     180     180     180     180     180     180
1361        UI     180     180     180     180     180     149     115     115     115     115
1362        UI     115     115     115     115     115     115     115     115     115     115
1363        UI     115     115     115     115     115     115     115     115      95      45
```



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

1364        UI      45      45      45      45      45      45      45      45      45      45
1365        UI      45      45      45      45      45      45      45      45      45      45
1366        UI      45      45      45      45      45      45      45      45      45      45
1367        UI      45      45      45      45      45      45      45      45      45      45
1368        UI      45      45      45      45      45      45      45      45      45      45
1369        UI      45      45      45      45      45      45      45       0       0       0
1370        UI       0       0       0       0       0       0       0       0       0       0
            *

1371        KK    C105
1372        KM        Combine R104-105 + 2X
1373        HC       2
            *

1374        KK  105107
1375        KM        Channel Route From C105 To C107
```

```
1376        KM        X-SECT. 2Y2
1377        RS      43     FLOW      -1
1378        RC   0.050    0.051    0.050    36800    0.009
1379        RX  3063.0   4063.0   4156.0   4162.0   4177.0   4184.0   4229.0   4914.7
1380        RY    99.7     94.7     93.2     90.9     90.5     92.8     94.9     99.7
1381        RL                     0.61     90.5
            *

1382        KK      2Y
1383        KM        SUB-BASIN 2Y
1384        BA   13.40
1385        LG    0.33     0.35     4.03     0.36     2.00
1386        UI     318      318      318      318      318      318      318      318      318      318
1387        UI     400     1044     1044     1044     1183     1218     1218     1452     1462     1517
1388        UI    1555     1608     1699     1727     1782     1818     1874     1929     1975     2065
1389        UI    2105     2214     2297     2366     2436     2494     2579     2715     2923     3140
1390        UI    3288     3857     3553     3996     4299     4199     3939     3718     3529     3365
1391        UI    3223     3098     2989     2892     2806     2707     2632     2570     2514     2436
1392        UI    2337     2265     2149     2087     2030     1942     1921     1827     1805     1661
1393        UI    1656     1555     1555     1478     1462     1350     1218     1218     1030      913
1394        UI     913      913      622      562      562      562      562      562      535      522
1395        UI     522      522      522      522      512      318      318      318      318      318
1396        UI     318      318      318      318      318      282       97       97       97       97
1397        UI      97       97       97       97       97       97       97       97       97       97
1398        UI      97       97       97       97       97       97       97       97       97       97
1399        UI      97       97       97       97       97       97       97       97       97       97
1400        UI      97        0        0        0        0        0        0        0        0        0
1401        UI       0        0        0        0        0        0        0        0        0        0
            *

1402        KK    C107
1403        KM        Combine R103-107 + R105-107 + 2Y
1404        HC       3
            *
            * No Route Performed From C107 To C113.  Reach length is too short.
            *
```



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

1405        KK     28B
1406        KM        SUB-BASIN 28B At C108
1407        BA    2.40
1408        LG    0.29     0.25     8.60     0.07     6.00
1409        UI     144      144      144      144      335      444      563      690      848      909
1410        UI    1000     1072     1136     1252     1455     1712     1650     1147     1022      937
1411        UI     866      838      794      746      710      678      637      597      568      532
1412        UI     490      448      400      379      353      346      332      317      302      274
1413        UI     237      237      194      184      184      172      158      158      158      133
1414        UI     111      111      111      111      111       73       71       71       71       71
1415        UI      71       71       71       64       28       28       28       28       28       28
1416        UI      28       28       28       28       28       28       28       28       28       28
1417        UI      28       28       28       28       28       28        0        0        0        0
1418        UI       0        0        0        0        0        0        0        0        0        0
            *

1419        KK  108111
1420        KM        Channel Route From C108 To C111
1421        KM        X-SECT. 2AA1
1422        RS      13     FLOW      -1
1423        RC   0.050    0.065    0.050    12200    0.009
1424        RX  3711.2   4055.0   4145.0   4157.0   4183.0   4234.0   4309.0   4504.7
1425        RY    99.4     94.4     94.2     91.5     91.4     94.4     93.4     99.4
1426        RL                     2.11     91.4
            *

1427        KK      2Z
1428        KM        SUB-BASIN 2Z At 110
1429        BA    5.10
1430        LG    0.30     0.28     8.28     0.08     5.00
1431        UI     153      153      153      153      153      153      153      153      272      441
1432        UI     441      503      588      610      705      762      882      920      949      983
1433        UI    1037     1089     1123     1164     1189     1226     1278     1382     1490     1602
1434        UI    1737     1900     1889     1618     1259     1177     1112     1059     1014      977
1435        UI     928      913      900      882      853      835      801      785      767      742
1436        UI     735      706      700      653      650      619      619      589      588      544
1437        UI     526      516      477      477      444      405      405      399      375      375
1438        UI     375      360      353      353      353      322      321      321      321      262
1439        UI     252      252      252      252      217      196      196      196      196      196
1440        UI     196      171      168      168      168      168      168      168      165      118
1441        UI     118      118      118      118      118      118      118      118      118      118
1442        UI      81       75       75       75       75       75       75       75       75       75
1443        UI      75       75       75       75       75       75       75       60       29       29
1444        UI      29       29       29       29       29       29       29       29       29       29
1445        UI      29       29       29       29       29       29       29       29       29       29
1446        UI      29       29       29       29       29       29       29       29       29       29
1447        UI      29       29       29       29       29       29       29       29       29       29
1448        UI      29       29        0        0        0        0        0        0        0        0
1449        UI       0        0        0        0        0        0        0        0        0        0
            *
```



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

1450        KK  110111
1451        KM        Channel Route From C110 To C111
1452        KM        X-SECT. 2AA2
1453        RS      20     FLOW      -1
1454        RC   0.050    0.045    0.050    21000    0.011
1455        RX  3827.9   4081.0   4184.0   4193.0   4236.0   4246.0   4321.0   4648.5
1456        RY   100.0     95.0     94.9     93.9     93.8     94.9     94.1    100.0
1457        RL                     1.56     93.8
            *

1458        KK     2AA
1459        KM        SUB-BASIN 2AA
1460        BA    3.73
1461        LG    0.33     0.39     5.98     0.18     2.00
1462        UI     157      157      157      157      157      157      468      516      602      650
1463        UI     725      768      826      867      907      952     1006     1070     1146     1204
1464        UI    1276     1403     1587     1837     1949     2086     1886     1718     1592     1480
1465        UI    1401     1322     1264     1212     1119     1048      988      937      886      819
1466        UI     768      733      669      602      475      451      329      278      278      273
```

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1467          UI     258     258     258     207     157     157     157     157     157     116
1468          UI      48      48      48      48      48      48      48      48      48      48
1469          UI      48      48      48      48      48      48      48      48      48       0
1470          UI       0       0       0       0       0       0       0       0       0       0
1471          UI       0       0       0       0       0       0       0       0       0       0
              *

1472          KK    C111
1473          KM        Combine R108-111 + R110-111 + 2AA
1474          HC       3
              *

1475          KK  111113
1476          KM        Channel Route From C111 To C113
1477          KM        Representative Of X-SECT. 2CC2
1478          RS      30     FLOW      -1
1479          RC   0.050    0.046   0.050   33200   0.008
1480          RX  3896.5   4069.0  4210.0  4220.0  4248.0  4250.0  4300.0  4538.5
1481          RY    97.9     92.9    93.4    91.9    91.5    93.3    93.4    97.9
1482          RL                    1.06    91.5
              *

1483          KK     2CC
1484          KM        SUB-BASIN 2CC
1485          BA    4.38
1486          LG    0.35    0.35    4.30    0.45    0.00
1487          UI     117     117     117     117     117     117     117     117     117     208
1488          UI     385     385     410     449     449     528     538     565     573     616
1489          UI     626     657     666     690     714     731     769     798     828     868
1490          UI     895     918     959    1022    1102    1186    1326    1363    1440    1582
1491          UI    1535    1433    1336    1266    1205    1151    1105    1063    1026     993
1492          UI     961     931     906     872     836     792     762     741     708     688
1493          UI     673     619     610     573     570     538     538     452     449     398
1494          UI     336     336     325     207     207     207     207     207     198     192
1495          UI     192     192     192     192     136     117     117     117     117     117
1                                            HEC-1 INPUT                                          PAGE 35

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

1496          UI     117     117     117     110      36      36      36      36      36      36
1497          UI      36      36      36      36      36      36      36      36      36      36
1498          UI      36      36      36      36      36      36      36      36      36      36
1499          UI      36      36      36      36      36       0       0       0       0       0
1500          UI       0       0       0       0       0       0       0       0       0       0
              *

1501          KK    C113
1502          KM        Combine C107 + R111-113 + 2CC
1503          HC       3
              *

1504          KK  113127
1505          KM        Channel Route From C113 To C127
1506          KM        Representative Of X-SECT. 2UU1
1507          RS       8     FLOW      -1
1508          RC   0.050    0.038   0.050    8200   0.006
1509          RX  3516.0   4516.0  5083.0  5094.0  5148.0  5160.0  5298.0  5480.4
1510          RY    99.7     94.7    93.9    91.6    92.1    93.4    94.0    99.7
1511          RL                    0.89    91.6
              *

1512          KK     2DD
1513          KM     SUB-BASIN 2DD
1514          BA    0.54
1515          LG    0.35    0.35    4.18    0.50    0.00
1516          UI      34      34      34      34     108     126     148     165     184     197
1517          UI     212     232     256     277     322     388     446     416     362     326
1518          UI     298     277     255     229     211     192     173     161     137     107
1519          UI      86      61      61      56      56      44      34      34      34      22
1520          UI      11      11      11      11      11      11      11      11      11      11
1521          UI      11      11       0       0       0       0       0       0       0       0
1522          UI       0       0       0       0       0       0       0       0       0       0
              *

1523          KK   C127R
1524          KM        Combine R113-127 + 2DD
1525          KO                                  21
1526          HC       2
              *

1527          KK     2GG
1528          KM        SUB-BASIN 2GG At C114
1529          BA    6.69
1530          LG    0.31    0.30    8.05    0.09    4.00
1531          UI     207     207     207     207     207     207     207     207     511     679
1532          UI     690     792     792     938     957    1011    1048    1105    1150    1180
1533          UI    1219    1280    1327    1384    1451    1533    1584    1633    1741    1882
1534          UI    2070    2313    2390    2641    2794    2591    2418    2252    2125    2020
1535          UI    1927    1845    1773    1708    1650    1597    1517    1441    1376    1320
1536          UI    1253    1214    1174    1080    1043    1011     961     949     792     792
1537          UI     627     594     594     383     366     366     366     360     339     339
1538          UI     339     339     324     207     207     207     207     207     207     207
1539          UI     207      98      63      63      63      63      63      63      63      63
1540          UI      63      63      63      63      63      63      63      63      63      63
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1541          UI      63      63      63      63      63      63      63      63       0       0
1542          UI       0       0       0       0       0       0       0       0       0       0
              *

1543          KK  114115
1544          KM        Channel Route From C114 To C115
1545          KM        Representative Of X-SECT. 3B1
1546          RS      16     FLOW      -1
1547          RC   0.050    0.049   0.060   14000   0.013
1548          RX  3484.0   4129.0  4153.0  4159.0  4184.0  4193.0  4355.0  6275.0
1549          RY   101.0     96.0    94.7    91.0    90.8    93.8    91.4   101.0
1550          RL                    0.70    90.8
              *

1551          KK     2HH
1552          KM        SUB-BASIN 2HH
1553          BA    6.76
```

```
1554    LG    0.32    0.38    5.05    0.22    3.00
1555    UI     268     268     268     268     268     268     564     880     953    1026
1556    UI    1191    1262    1317    1432    1490    1554    1628    1714    1816    1938
1557    UI    2034    2121    2331    2585    2972    3131    3558    3442    3119    2865
1558    UI    2666    2510    2375    2253    2158    2072    1941    1814    1711    1622
1559    UI    1547    1431    1353    1295    1232    1072    1006     770     770     529
1560    UI     474     474     469     440     440     440     412     268     268     268
1561    UI     268     268     268     148      82      82      82      82      82      82
1562    UI      82      82      82      82      82      82      82      82      82      82
1563    UI      82      82      82      82       0       0       0       0       0       0
1564    UI       0       0       0       0       0       0       0       0       0       0
        *

1565    KK    C115
1566    KM        Combine R114-115 + 2HH
1567    HC       2
        *

1568    KK  115116
1569    KM        Channel Route From C115 To C116
1570    KM        Representative Of X-SECT. 3B1
1571    RS      10    FLOW      -1
1572    RC   0.050   0.049   0.060    9600   0.015
1573    RX  3484.0  4129.0  4153.0  4159.0  4184.0  4193.0  4355.0  6275.0
1574    RY   101.0    96.0    94.7    91.0    90.8    93.8    91.4   101.0
1575    RL                   0.46    90.8
        *

1576    KK     2II
1577    KM        SUB-BASIN 2II
1578    BA    2.22
1579    LG    0.28    0.25    8.40    0.05    7.00
1580    UI      83      83      83      83      83      83      99     239     239     294
1581    UI     318     376     420     483     504     531     561     596     618     640
1582    UI     666     706     776     850     941    1061     931     738     643     599
1583    UI     562     531     505     493     483     469     452     434     419     408
1584    UI     398     382     368     354     338     332     318     306     285     276
1585    UI     258     253     220     220     211     203     203     195     191     191
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1586    UI     179     174     174     159     136     136     136     130     106     106
1587    UI     106     106     106      94      91      91      91      91      91      77
1588    UI      64      64      64      64      64      64      64      64      52      41
1589    UI      41      41      41      41      41      41      41      41      41      41
1590    UI      41      41      31      16      16      16      16      16      16      16
1591    UI      16      16      16      16      16      16      16      16      16      16
1592    UI      16      16      16      16      16      16      16      16      16      16
1593    UI      16      16      16      16      16      16      16      16       0       0
1594    UI       0       0       0       0       0       0       0       0       0       0
        *

1595    KK    C116
1596    KM        Combine R115-116 + 2II
1597    HC       2
        *

1598    KK  DC116R
1599    KM        Main flow at C116 is in the right channel (DC116R)
1600    KM        Diverted flow (DQ record) goes into the left channel (DC116L)
1601    DT  DC116L
1602    DI     0.0    15.0    75.0   490.0  1450.0  3300.0  5950.0  8900.0 11400.0
1603    DQ     0.0    15.0    35.0   175.0   490.0  1100.0  2050.0  3200.0  4000.0
        *

1604    KK  116119
1605    KM        Channel Route From C116R To C119
1606    KM        Representative Of X-SECT. 2KK1
1607    RS      12    FLOW      -1
1608    RC   0.050   0.055   0.050   14200   0.014
1609    RX  3854.0  4219.0  4339.0  4352.0  4384.0  4402.0  4465.0  4966.8
1610    RY    97.7    92.7    95.0    91.0    92.1    94.0    94.7    97.7
1611    RL                   1.14    91.0
        *

1612    KK     2EE
1613    KM        SUB-BASIN 2EE At C118
1614    BA    4.13
1615    LG    0.28    0.25    8.20    0.04    7.00
1616    UI     170     170     170     170     170     170     396     488     573     650
1617    UI     765     881     997    1049    1109    1181    1242    1290    1349    1433
1618    UI    1584    1757    1959    2137    1773    1359    1256    1171    1100    1040
1619    UI    1008     984     949     911     879     848     814     792     765     722
1620    UI     692     676     650     610     582     540     527     469     448     436
1621    UI     415     415     395     390     388     355     355     351     279     279
1622    UI     279     265     217     217     217     217     207     186     186     186
1623    UI     186     186     154     130     130     130     130     130     130     130
1624    UI     113      83      83      83      83      83      83      83      83      83
1625    UI      83      83      83      57      33      33      33      33      33      33
1626    UI      33      33      33      33      33      33      33      33      33      33
1627    UI      33      33      33      33      33      33      33      33      33      33
1628    UI      33      33      33      33      33      33      33      33      33      33
1629    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

1630    KK  118119
1631    KM        Channel Route From C118 To C119
1632    KM        Representative Of X-SECT. 2KK1
1633    RS       5    FLOW      -1
1634    RC   0.050   0.055   0.050    5400   0.013
1635    RX  3854.0  4219.0  4339.0  4352.0  4384.0  4402.0  4465.0  4966.8
1636    RY    97.7    92.7    95.0    91.0    92.1    94.0    94.7    97.7
1637    RL                   1.14    91.0
        *

1638    KK     2JJ
1639    KM        SUB-BASIN 2JJ
1640    BA    0.89
1641    LG    0.35    0.35    3.50    0.28    0.00
1642    UI      59      59      59      71     193     222     265     294     322     346
```

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1643        UI     376     417     453     509     624     722     754     646     573     521
1644        UI     481     444     398     364     331     297     275     231     177     137
1645        UI     104     102      97      97      63      59      59      59      19      18
1646        UI      18      18      18      18      18      18      18      18      18      18
1647        UI       0       0       0       0       0       0       0       0       0       0
1648        UI       0       0       0       0       0       0       0       0       0       0
            *

1649        KK    C119
1650        KM        Combine R116R-119 + R118-119 + 2JJ
1651        HC       3
            *

1652        KK  119120
1653        KM        Channel Route From C119 To C120
1654        KM        X-SECT. 2KK1
1655        RS      44     FLOW      -1
1656        RC   0.050   0.055   0.050   43600   0.011
1657        RX  3854.0  4219.0  4339.0  4352.0  4384.0  4402.0  4465.0  4966.8
1658        RY    97.7    92.7    95.0    91.0    92.1    94.0    94.7    97.7
1659        RL                    1.02    91.0
            *

1660        KK     2KK
1661        KM        SUB-BASIN 2KK
1662        BA    4.19
1663        LG    0.35    0.35    3.55    0.29    0.00
1664        UI     101     101     101     101     101     101     101     101     101     101
1665        UI     162     331     331     331     386     386     402     464     464     489
1666        UI     493     524     539     557     565     587     594     624     634     662
1667        UI     685     704     748     762     778     799     849     898     960    1023
1668        UI    1125    1202    1193    1337    1389    1273    1199    1137    1083    1035
1669        UI     994     958     926     891     864     841     821     799     775     748
1670        UI     724     682     666     644     619     610     580     574     527     525
1671        UI     493     493     468     464     423     386     386     317     290     290
1672        UI     290     180     178     178     178     178     178     167     166     166
1673        UI     166     166     166     140     101     101     101     101     101     101
1674        UI     101     101     101     101      55      31      31      31      31      31
1675        UI      31      31      31      31      31      31      31      31      31      31
```



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

1676        UI      31      31      31      31      31      31      31      31      31      31
1677        UI      31      31      31      31      31      31      31      31      31       0
1678        UI       0       0       0       0       0       0       0       0       0       0
1679        UI       0       0       0       0       0       0       0       0       0       0
            *

1680        KK   C120R
1681        KM        Combine R119-120 + 2KK
1682        KM        Area: 2GG-2II=15.67, 2KK=4.19, 2JJ=0.89, 2EE=4.13
1683        HC       2
            *

1684        KK     2LL
1685        KM        SUB-BASIN 2LL
1686        BA    5.18
1687        LG    0.35    0.35    3.50    0.29    0.00
1688        UI      99      99      99      99      99      99      99      99      99      99
1689        UI      99      99      99     195     324     324     324     340     378     378
1690        UI     378     435     453     453     477     482     484     527     527     540
1691        UI     553     555     581     581     606     613     633     648     668     687
1692        UI     713     731     749     755     781     797     839     885     923     985
1693        UI    1023    1157    1171    1124    1273    1333    1320    1251    1193    1133
1694        UI    1089    1051    1017     985     947     925     905     872     855     839
1695        UI     812     802     781     767     755     719     708     671     667     634
1696        UI     630     604     596     581     567     559     515     515     497     482
1697        UI     482     459     453     453     390     378     378     350     283     283
1698        UI     283     283     221     174     174     174     174     174     174     174
1699        UI     163     162     162     162     162     162     162     162     121      99
1700        UI      99      99      99      99      99      99      99      99      99      99
1701        UI      99      93      30      30      30      30      30      30      30      30
1702        UI      30      30      30      30      30      30      30      30      30      30
1703        UI      30      30      30      30      30      30      30      30      30      30
1704        UI      30      30      30      30      30      30      30      30      30      30
1705        UI      30      30      30      30      30      30       0       0       0       0
1706        UI       0       0       0       0       0       0       0       0       0       0
            *

1707        KK  BC116L
1708        KM        Bring Back Flow Split Diverted Hydrograph DC116L
1709        DR  DC116L
            *

1710        KK  116120
1711        KM        Channel Route From C116L To C120
1712        KM        Interpolated X-SECT. Between 2LL1 and 2LL2
1713        RS      75     FLOW      -1
1714        RC   0.055   0.051   0.060   59400   0.011
1715        RX  3949.7  4059.0  4146.0  4167.0  4221.0  4231.0  4378.0  4533.2
1716        RY    99.6    94.6    94.4    93.0    92.9    95.0    94.0    99.6
1717        RL                    1.90    92.9
            *
```



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

1718        KK    C120
1719        KM        Combine C120R(R119-120 + 2KK) + 2LL + R116L-120
1720        HC       3   30.06
            *

1721        KK  120121
1722        KM        Channel Route From C120 To C121
1723        KM        Representative Of X-SECT. 2FF3
1724        RS       8     FLOW      -1
1725        RC   0.050   0.081   0.050    9000   0.008
1726        RX  3689.3  4225.0  4325.0  4337.0  4357.0  4367.0  4391.0  4830.6
1727        RY    98.1    93.1    94.2    91.9    91.8    94.4    92.8    98.1
1728        RL                    1.24    91.8
            *

1729        KK     2MM
```

```
1730        KM        SUB-BASIN 2MM
1731        BA    0.91
1732        LG    0.35     0.35     3.32     0.86     0.00
1733        UI      57       57       57       57      168      205      240      271      298      323
1734        UI     345      377      414      445      510      626      698      726      625      560
1735        UI     509      471      440      396      361      334      302      275      249      207
1736        UI     163      116      100       97       93       93       61       57       57       57
1737        UI      27       17       17       17       17       17       17       17       17       17
1738        UI      17       17       17        0        0        0        0        0        0        0
1739        UI       0        0        0        0        0        0        0        0        0        0
            *

1740        KK    C121
1741        KM        Combine R120-121 + 2MM
1742        HC       2
            *

1743        KK  121123
1744        KM        Channel Route From C121 To C123
1745        KM        Representative Of X-SECT. 2FF3
1746        RS      12     FLOW       -1
1747        RC   0.050    0.051    0.050    10000    0.007
1748        RX  3689.3   4225.0   4325.0   4337.0   4357.0   4367.0   4391.0   4830.6
1749        RY    98.1     93.1     94.2     91.9     91.8     94.4     92.8     98.1
1750        RL                     0.79     91.8
            *

1751        KK     2FF
1752        KM        SUB-BASIN 2FF
1753        BA    5.51
1754        LG    0.35     0.35     3.82     0.35     0.00
1755        UI     102      102      102      102      102      102      102      102      102      102
1756        UI     102      102      102      131      337      337      337      337      387      393
1757        UI     393      415      471      471      479      502      502      522      548      548
1758        UI     571      575      586      604      605      637      637      666      674      701
1759        UI     714      745      760      781      786      813      827      873      916      952
1760        UI    1025     1058     1164     1253     1129     1310     1383     1387     1317     1254
1761        UI    1199     1153     1113     1072     1031     1005      981      943      924      907
```



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

1762        UI     875      863      842      824      813      789      782      737      730      693
1763        UI     690      655      655      623      620      601      589      578      536      536
1764        UI     517      502      502      480      471      471      416      393      393      384
1765        UI     295      295      295      295      265      181      181      181      181      181
1766        UI     181      181      176      168      168      168      168      168      168      168
1767        UI     168      104      102      102      102      102      102      102      102      102
1768        UI     102      102      102      102       96       31       31       31       31       31
1769        UI      31       31       31       31       31       31       31       31       31       31
1770        UI      31       31       31       31       31       31       31       31       31       31
1771        UI      31       31       31       31       31       31       31       31       31       31
1772        UI      31       31       31       31       31       31       31       31       31       31
1773        UI       0        0        0        0        0        0        0        0        0        0
1774        UI       0        0        0        0        0        0        0        0        0        0
            *

1775        KK    C123
1776        KM        Combine R121-123 + 2FF
1777        HC       2
            *

1778        KK  123140
1779        KM        Channel Route From C123 To C140
1780        KM        Representative Of X-SECT. 2FF3
1781        RS       4     FLOW       -1
1782        RC   0.050    0.051    0.050     3800    0.006
1783        RX  3689.3   4225.0   4325.0   4337.0   4357.0   4367.0   4391.0   4830.6
1784        RY    98.1     93.1     94.2     91.9     91.8     94.4     92.8     98.1
1785        RL                     0.84     91.8
            *

1786        KK     2NN
1787        KM        SUB-BASIN 2NN At C124
1788        BA    9.61
1789        LG    0.35     0.35     3.50     0.29     0.00
1790        UI     199      199      199      199      199      199      199      199      199      199
1791        UI     199      199      427      652      652      652      728      761      761      828
1792        UI     913      913      955      971      987     1062     1062     1105     1114     1148
1793        UI    1171     1201     1234     1268     1304     1350     1384     1453     1478     1522
1794        UI    1546     1574     1678     1748     1837     1985     2059     2362     2303     2356
1795        UI    2615     2686     2585     2443     2323     2220     2131     2053     1985     1903
1796        UI    1850     1803     1756     1696     1664     1631     1578     1556     1522     1453
1797        UI    1427     1344     1332     1268     1256     1201     1194     1141     1141     1043
1798        UI    1038     1001      971      971      913      913      870      761      761      756
1799        UI     571      571      571      571      422      351      351      351      351      351
1800        UI     351      336      326      326      326      326      326      326      325      199
1801        UI     199      199      199      199      199      199      199      199      199      199
1802        UI     199      128       61       61       61       61       61       61       61       61
1803        UI      61       61       61       61       61       61       61       61       61       61
1804        UI      61       61       61       61       61       61       61       61       61       61
1805        UI      61       61       61       61       61       61       61       61       61       61
1806        UI      61       61        0        0        0        0        0        0        0        0
1807        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

1808        KK     200
1809        KM        SUB-BASIN 200 At C124
1810        BA    0.85
1811        LG    0.35     0.35     3.50     0.29     0.00
1812        UI      52       52       52       52      145      185      215      247      269      291
1813        UI     313      337      373      402      447      525      628      689      600      532
1814        UI     482      445      415      383      344      318      290      263      245      210
1815        UI     168      140       92       92       87       85       78       52       52       52
1816        UI      52       16       16       16       16       16       16       16       16       16
1817        UI      16       16       16       16        0        0        0        0        0        0
1818        UI       0        0        0        0        0        0        0        0        0        0
            *

1819        KK    C124
1820        KM        Combine 2NN + 200
```

```
1821          HC       2
              *

1822          KK  124125
1823          KM        Channel Route From C124 To C125
1824          KM        Representative Of X-SECT. 2KK1
1825          RS       17     FLOW       -1
1826          RC    0.050    0.055    0.050    14600    0.008
1827          RX   3854.0   4219.0   4339.0   4352.0   4384.0   4402.0   4465.0   4966.8
1828          RY     97.7     92.7     95.0     91.0     92.1     94.0     94.7     97.7
1829          RL                       1.07     91.0
              *

1830          KK     2PP
1831          KM        SUB-BASIN 2PP
1832          BA    1.78
1833          LG    0.35     0.35     3.61     0.31     0.00
1834          UI      92       92       92       92       96      303      328      368      427      455
1835          UI     497      528      556      594      645      695      739      831      969     1102
1836          UI    1229     1113      994      905      837      783      740      690      636      586
1837          UI     549      507      466      438      394      343      265      226      163      163
1838          UI     156      151      151      120       92       92       92       92       57       28
1839          UI      28       28       28       28       28       28       28       28       28       28
1840          UI      28       28       28       28        0        0        0        0        0        0
1841          UI       0        0        0        0        0        0        0        0        0        0
              *

1842          KK    C125
1843          KM        Combine R124-125 + 2PP
1844          HC       2
              *

1845          KK  125126
1846          KM        Channel Route From C125 To C126
1847          KM        Representative Of X-SECT. 2FF3
1848          RS       18     FLOW       -1
1849          RC    0.050    0.051    0.050    14800    0.007
1850          RX   3689.3   4225.0   4325.0   4337.0   4357.0   4367.0   4391.0   4830.6
1851          RY     98.1     93.1     94.2     91.9     91.8     94.4     92.8     98.1
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1852          RL                       1.28     91.8
              *

1853          KK     2QQ
1854          KM        SUB-BASIN 2QQ
1855          BA    1.67
1856          LG    0.35     0.35     3.48     0.80     0.00
1857          UI      87       87       87       87       90      284      308      345      401      427
1858          UI     466      492      522      557      605      652      693      779      909     1033
1859          UI    1153     1045      933      849      785      734      694      648      597      550
1860          UI     515      476      437      411      370      322      249      212      153      153
1861          UI     147      142      142      112       87       87       87       87       53       27
1862          UI      27       27       27       27       27       27       27       27       27       27
1863          UI      27       27       27       27        0        0        0        0        0        0
1864          UI       0        0        0        0        0        0        0        0        0        0
              *

1865          KK    C126
1866          KM        Combine R125-126 + 2QQ
1867          HC       2
              *

1868          KK  126140
1869          KM        Channel Route From C126 To C140
1870          KM        Representative Of X-SECT. 2UU1
1871          RS       16     FLOW       -1
1872          RC    0.050    0.038    0.050     9200    0.007
1873          RX   3516.0   4516.0   5083.0   5094.0   5148.0   5160.0   5298.0   5480.4
1874          RY     99.7     94.7     93.9     91.6     92.1     93.4     94.0     99.7
1875          RL                       1.00     91.6
              *

1876          KK    C140
1877          KM        Combine R123-140 + R126-140
1878          HC       2
              *

1879          KK  140127
1880          KM        Channel Route From C140 To C127
1881          KM        Representative Of X-SECT. 2UU1
1882          RS        8     FLOW       -1
1883          RC    0.050    0.038    0.050     6800    0.006
1884          RX   3516.0   4516.0   5083.0   5094.0   5148.0   5160.0   5298.0   5480.4
1885          RY     99.7     94.7     93.9     91.6     92.1     93.4     94.0     99.7
1886          RL                       1.04     91.6
              *

1887          KK     2RR
1888          KM        SUB-BASIN 2RR
1889          BA    0.93
1890          LG    0.35     0.35     4.15     0.54     0.00
1891          UI      41       41       41       41       41       58      135      144      158      186
1892          UI     197      210      224      235      247      262      279      299      316      336
1893          UI     372      421      484      535      535      479      437      404      377      357
1894          UI     337      322      302      280      262      247      234      215      202      192
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1895          UI     172      156      118      117       73       73       73       69       68       68
1896          UI      63       41       41       41       41       41       31       13       13       13
1897          UI      13       13       13       13       13       13       13       13       13       13
1898          UI      13       13       13       13       13        0        0        0        0        0
1899          UI       0        0        0        0        0        0        0        0        0        0
              *

1900          KK     2YY
1901          KM        SUB-BASIN 2YY
1902          BA    1.12
1903          LG    0.35     0.35     3.36     0.90     0.00
1904          UI      47       47       47       47       47       47      131      153      176      188
1905          UI     214      227      242      255      266      280      295      313      335      353
```

```
1906    UI     370     408     454     536     547     627     579     524     483     452
1907    UI     422     402     381     364     344     321     301     285     271     250
1908    UI     235     224     214     182     166     134     127      82      82      82
1909    UI      79      76      76      76      51      47      47      47      47      47
1910    UI      26      14      14      14      14      14      14      14      14      14
1911    UI      14      14      14      14      14      14      14      14      14      14
1912    UI       0       0       0       0       0       0       0       0       0       0
1913    UI       0       0       0       0       0       0       0       0       0       0
        *

1914    KK   C127L
1915    KM       Combine R140-127 + 2RR + 2YY
1916    HC       3
        *

1917    KK    C127
1918    KM       Combine C127L(R140-127 + 2RR + 2YY) + C127R(R113-127 + 2DD)
1919    HC       2
        *

1920    KK  127131
1921    KM       Channel Route From C127 To C131
1922    KM       Revised X-SECT. 2UU1
1923    KO                                  21
1924    RS       5    FLOW      -1
1925    RC   0.050   0.038   0.050    4800   0.004
1926    RX  3516.0  4516.0  5083.0  5094.0  5148.0  5160.0  5298.0  5480.4
1927    RY   101.7    94.7    93.9    91.6    92.1    93.4    94.0   101.7
1928    RL                    0.93    91.6
        *

1929    KK  BDC78L
1930    KM       Bring Back Flow Split Diverted Hydrograph DC78L
1931    DR   DC78L
        *

1932    KK  78L128
1933    KM       Channel Route From C78L To C128
1934    KM       Representative Of X-SECT. 2TT1
1935    RS      20    FLOW      -1
1936    RC   0.060   0.039   0.060   10000   0.009
1937    RX  3066.0  4066.0  4102.0  4112.0  4150.0  4158.0  4208.0  4253.0
```

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

1938    RY    93.8    88.8    91.3    89.0    89.6    90.9    89.4    94.8
1939    RL                    2.34    88.8
        *

1940    KK     2SS
1941    KM        SUB-BASIN 2SS
1942    BA    3.83
1943    LG    0.29    0.35    3.34    0.84    5.00
1944    UI     129     129     129     129     129     129     129     227     424     424
1945    UI     494     494     593     606     631     676     701     723     759     788
1946    UI     821     861     908     961     993    1035    1122    1231    1329    1549
1947    UI    1565    1745    1631    1509    1393    1315    1247    1179    1128    1083
1948    UI    1042    1006     958     903     858     820     781     748     708     673
1949    UI     631     613     593     514     494     395     371     352     228     228
1950    UI     228     228     215     212     212     212     201     129     129     129
1951    UI     129     129     129     129      87      40      40      40      40      40
1952    UI      40      40      40      40      40      40      40      40      40      40
1953    UI      40      40      40      40      40      40      40      40      40       0
1954    UI       0       0       0       0       0       0       0       0       0       0
1955    UI       0       0       0       0       0       0       0       0       0       0
        *

1956    KK    C128
1957    KM       Combine R78L-128 + 2SS
1958    KM       Area: BDC78L=4.77sm, 2SS=3.83sm
1959    HC       2    8.60
        *

1960    KK  128129
1961    KM       Channel Route From C128 To C129
1962    KM       X-SECT. 2TT1
1963    RS      27    FLOW      -1
1964    RC   0.060   0.039   0.060   14200   0.010
1965    RX  4066.0  5066.0  5102.0  5112.0  5150.0  5158.0  5208.0  5253.0
1966    RY    93.8    88.8    91.3    89.0    89.6    90.9    89.4    94.8
1967    RL                    1.76    88.8
        *

1968    KK     2TT
1969    KM        SUB-BASIN 2TT
1970    BA    4.60
1971    LG    0.30    0.35    3.57    0.72    6.00
1972    UI     201     201     201     201     201     246     661     694     771     888
1973    UI     953    1009    1085    1135    1193    1262    1343    1440    1523    1600
1974    UI    1770    1992    2334    2453    2679    2419    2195    2027    1888    1775
1975    UI    1682    1605    1516    1407    1317    1241    1176    1088    1016     965
1976    UI     920     771     675     578     480     356     356     353     330     330
1977    UI     330     264     201     201     201     201     201     116      62      62
1978    UI      62      62      62      62      62      62      62      62      62      62
1979    UI      62      62      62      62      62      62       0       0       0       0
1980    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

1981    KK    C129
1982    KM       Combine R128-129 + 2TT
1983    HC       2
        *

1984    KK  129130
1985    KM       Channel Route From C129 To C130
1986    KM       X-SECT. 2UU2
1987    RS      10    FLOW      -1
1988    RC   0.050   0.055   0.050    9600   0.009
1989    RX  4225.0  5225.0  5375.0  5409.0  5464.0  5494.0  5794.0  5990.4
1990    RY    98.9    93.9    94.2    90.9    90.0    93.9    95.7    98.9
```

```
1991          RL                    5.61    90.0
              *

1992          KK  BDC80L
1993          KM        Bring Back Flow Split Diverted Hydrograph DC80L
1994          DR   DC80L
              *

1995          KK  80L130
1996          KM        Channel Route From C80L To C130
1997          KM        X-SECT. 2UU2
1998          RS      12    FLOW     -1
1999          RC   0.050   0.055   0.050   12000   0.009
2000          RX  3662.5  4225.0  4375.0  4409.0  4464.0  4494.0  4794.0  4990.4
2001          RY    98.9    93.9    94.2    90.9    90.0    93.9    95.7    98.9
2002          RL                    2.29    90.0
              *

2003          KK    C130
2004          KM        Combine R80L-130 + 2SS + 2TT
2005          KM        Area: DC80L=77.13sm, 2SS + 2TT 8.43sm
2006          HC       2   85.56
              *

2007          KK  130131
2008          KM        Channel Route From C130 To C131
2009          KM        X-SECT. 2UU1
2010          KO                                  21
2011          RS      35    FLOW     -1
2012          RC   0.050   0.038   0.050   27400   0.007
2013          RX  4516.0  5516.0  6083.0  6094.0  6148.0  6160.0  6298.0  6480.4
2014          RY    99.7    94.7    93.9    91.6    92.1    93.4    94.0    99.7
2015          RL                    1.10    91.6
              *

2016          KK    C131
2017          KM        Combine R127-131 + R130-131
2018          HC       2
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2019          KK  131132
2020          KM        Channel Route From C131 To C132
2021          KM        Interpolated X-SECT. Between 6P1 and 2UU1
2022          RS      20    FLOW     -1
2023          RC   0.050   0.055   0.050    4400   0.004
2024          RX  3432.0  5432.0  5783.0  5849.0  5909.0  6027.0  6271.0  7648.0
2025          RY    98.3    92.3    91.9    90.4    90.8    92.4    93.4    98.3
2026          RL                    1.19    90.4
              *

2027          KK     2UU
2028          KM        SUB-BASIN 2UU
2029          BA    8.10
2030          LG    0.35    0.35    3.81    0.65    0.00
2031          UI     168     168     168     168     168     168     168     168     168     168
2032          UI     168     168     392     553     553     553     627     645     645     718
2033          UI     774     774     817     824     849     900     900     944     944     982
2034          UI     993    1029    1046    1087    1106    1159    1174    1249    1263    1291
2035          UI    1323    1350    1434    1513    1595    1691    1760    2117    1862    2091
2036          UI    2257    2278    2148    2038    1936    1851    1778    1714    1659    1609
2037          UI    1549    1507    1472    1434    1391    1367    1335    1301    1279    1210
2038          UI    1180    1139    1102    1076    1039    1019     989     968     930     880
2039          UI     877     824     824     798     774     774     669     645     645     552
2040          UI     484     484     484     436     298     298     298     298     298     298
2041          UI     293     277     277     277     277     277     277     277     203     168
2042          UI     168     168     168     168     168     168     168     168     168     168
2043          UI     138      52      52      52      52      52      52      52      52      52
2044          UI      52      52      52      52      52      52      52      52      52      52
2045          UI      52      52      52      52      52      52      52      52      52      52
2046          UI      52      52      52      52      52      52      52      52      52      52
2047          UI      52       0       0       0       0       0       0       0       0       0
2048          UI       0       0       0       0       0       0       0       0       0       0
              *

2049          KK  BDC82L
2050          KM        Recall Flow Split Diverted Hydrograph DC82L
2051          DR   DC82L
              *

2052          KK    C132
2053          KM        Combine R131-132 + 2UU + C82L at Interstate 8
2054          HC       3  330.40
              *

2055          KK  DC132R
2056          KM        Main flow at C132 is in the right channel (C132R) and passes
2057          KM        under I-8.  Diverted flow (DQ record) goes into the left channel
2058          KM        (C132L) west along the south side of I-8.
2059          DT  DC132L
2060          DI     0.0  3550.0  5850.0  8750.0 12850.0  18450.  24000.  25400.  33600.
2061          DQ     0.0     0.0   300.0  1000.0  2500.0  5400.0  8700.0  9600.0 15000.0
              *
```



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

2062          KK  132133
2063          KM        Channel Route From C132 To C133 At The Gila Bend Canal
2064          KM        Representative Of X-SECT. 6P1
2065          RS       8    FLOW     -1
2066          RC   0.050   0.072   0.050    5000   0.006
2067          RX  3969.8  5348.0  5483.0  5603.0  5669.0  5894.0  6244.0  7544.0
2068          RY    95.8    89.8    89.8    89.1    89.4    91.3    92.7    95.8
2069          RL                    2.28    89.1
              *

2070          KK   C133I
2071          KM        Combine R132-133 + C135I(R82-135 + 2VV)
2072          HC       2  334.14
              *
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2073    KK    PND3
2074    KM        Reservoir Route at POND3 (C133 + C135) At The Gila Bend Canal
2075    RS       1     ELEV    731.3
2076    SV     0.0     26.0     38.0     54.0     81.0    127.0    226.0
2077    SE   731.3      740      741      742      743      744      748
2078    SQ     0.0   2000.0   5035.0   8275.0  11092.0  14799.0  17002.0  18353.0  19926.0  20541.0
2079    SQ   21317  25570.0
2080    SE   731.3    735.2    738.2    740.4    742.3    744.5    745.5    746.0    746.3    746.4
2081    SE   746.5    746.9
2082    RL                     0.67    731.3
        *

2083    KK   PND3N
2084    KM        Main flow at C133 north in main channel.
2085    KM        Diverted flow (DQ record) goes over the levee to the west into
2086    KM        sub-basin 7A.
2087    DT  DPND3W
2088    DI     0.0  17502.0  18353.0  18824.0  19305.0  19926.0  20541.0  21317.0  25570.0
2089    DQ     0.0      0.0    100.0    200.0    300.0    400.0    495.0    640.0   1400.0
        *

2090    KK   D133O
2091    KM        Main flow at C133O is in the left channel (R133O-141)
2092    KM        Diverted flow (DQ record) goes into the right channel (R135O-141)
2093    KM           Split reservoir route hydrograph downstream of GBC To simulate
2094    KM           outflow from C133 and C135.  The diverted hydrograph is the
2095    KM           outflow from the 30" CMP culverts at C135 plus flow diverted from
2096    KM           Sand Tank Wash into Bender Wash downstream of the Gila Bend Canal
2097    KM           by the Southern Pacific Railroad.
2098    DT   D135O
2099    DI     0.0      100      350      900     1500     1800     2350     3550     5050     6600
2100    DI    8600    11500    19200    24100    27600
2101    DQ       0        0        0        0        0        0       50      350      750     1250
2102    DQ    1900     2500     3200     3300     3600
        *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2103    KK  133141
2104    KM        Channel Route From C133O To C141
2105    KM        Sand Tank Wash HEC-2 Section 3.470
2106    RS       6     FLOW      -1
2107    RC   0.050    0.030    0.050     3700    0.003
2108    RX  7646.2   9932.3   9948.6   9965.5  10027.8  10034.0  10046.7  11681.8
2109    RY   730.0    724.1    722.7    719.4    719.5    723.2    725.2    730.0
2110    RL                     0.94    719.4
        *

2111    KK  BD135O
2112    KM        Bring Back diverted hydrograph D135O
2113    DR   D135O
        *

2114    KK  135141
2115    KM        Channel Route From C135O To C141
2116    KM        Bender Wash HEC-2 Section 0.224
2117    RS       4     FLOW      -1
2118    RC   0.035    0.030    0.035     3400    0.004
2119    RX  8926.2   9926.2   9971.9   9995.2  10000.0  10018.9  10041.8  11401.8
2120    RY   728.6    723.6    722.9    717.5    717.1    721.6    721.8    728.6
2121    RL                     1.18    717.1
        *

2122    KK    C141
2123    KM        Combine C133I + 2VV
2124    KM        Area: 330.40 + 3.74 = 334.14 sm
2125    HC       2  334.14
        *

2126    KK  141149
2127    KM        Channel Route From C141 To C149
2128    KM        Sand Tank Wash HEC-2 Section 2.147
2129    RS       5     FLOW      -1
2130    RC   0.060    0.030    0.050     6500    0.006
2131    RX  8945.8   9945.8   9953.5   9980.0  10000.0  10078.2  10116.8  11396.8
2132    RY   699.3    694.3    692.2    686.5    686.2    692.9    692.9    699.3
2133    RL                     2.52    686.2
        *

2134    KK     2WW
2135    KM        SUB-BASIN 2WW at C136I
2136    BA    5.82
2137    LG    0.34     0.35     3.49     0.78     1.00
2138    UI     144      144      144      144      144      144      144      144      144      144
2139    UI     333      473      473      505      552      552      627      663      680      705
2140    UI     724      771      783      808      828      850      882      897      947      972
2141    UI    1004     1066     1088     1112     1143     1216     1290     1384     1471     1663
2142    UI    1669     1763     1937     1912     1790     1686     1597     1520     1453     1395
2143    UI    1343     1298     1257     1221     1184     1148     1121     1091     1036      990
2144    UI     963      921      893      872      835      825      753      751      705      705
2145    UI     666      663      591      552      552      424      414      414      366      255
2146    UI     255      255      255      255      247      237      237      237      237      237
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2147    UI     231      144      144      144      144      144      144      144      144      144
2148    UI     144       81       44       44       44       44       44       44       44       44
2149    UI      44       44       44       44       44       44       44       44       44       44
2150    UI      44       44       44       44       44       44       44       44       44       44
2151    UI      44       44       44       44       44        0        0        0        0        0
2152    UI       0        0        0        0        0        0        0        0        0        0
        *

2153    KK   C136O
2154    KM        Reservoir Route at C136 At The Gila Bend Canal
2155    RS       1     ELEV     731
2156    SV     0.0      0.0     0.24     0.81     1.72     2.95     8.30     23.7     48.5     82.9
2157    SV   130.0    196.0    280.0    380.0    480.0    580.0    680.0
2158    SE     731      732      733      734      735      736      737      738      739      740
2159    SE     741      742      743      744      745      746      747
2160    SQ     0.0     30.0     70.0    140.0    220.0    295.0    360.0    415.0    460.0    505.0
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2161          SQ   550.0   585.0   620.0   650.0   680.0   710.0   740.0
2162          RL                    0.56   731.0
              *

2163          KK  136149
2164          KM        Channel Route From C136 To C149
2165          KM        X-SECT. 2XX1 From 200-Scale Mapping
2166          RS      22     FLOW      -1
2167          RC   0.040   0.045   0.040    9500   0.005
2168          RX  8508.0  9330.0  9460.0  9620.0  9760.0  9920.0 10120.0 10905.7
2169          RY   717.0   712.0   713.5   712.0   709.7   710.7   712.0   717.0
2170          RL                   10.00   709.7
              *

2171          KK    C149
2172          KM        Combine R141-149 + R136O-149
2173          HC        2
              *

2174          KK  149137
2175          KM        Channel Route From C149 To C137
2176          KM        Sand Tank Wash HEC-2 Section 1.608
2177          RS       6     FLOW      -1
2178          RC   0.060   0.030   0.040    5400   0.005
2179          RX  8890.5  9890.5  9917.5  9993.1 10000.0 10018.7 10040.3 11220.3
2180          RY   680.2   675.2   671.4   670.0   670.0   672.0   674.3   680.2
2181          RL                    0.74   670.0
              *

2182          KK     2XX
2183          KM        SUB-BASIN 2XX
2184          BA    2.17
2185          LG    0.33    0.34    3.86    0.62    5.00
2186          UI      96      96      96      96      96     134     316     337     369     433
2187          UI     460     489     523     547     576     610     650     698     736     783
2188          UI     867     982    1129    1248    1247    1117    1020     942     880     832
2189          UI     787     751     705     654     610     577     546     502     470     447
2190          UI     400     364     276     274     170     170     170     161     158     158
2191          UI     147      96      96      96      96      96      72      29      29      29
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2192          UI      29      29      29      29      29      29      29      29      29      29
2193          UI      29      29      29      29      29       0       0       0       0       0
2194          UI       0       0       0       0       0       0       0       0       0       0
              *

2195          KK    C137
2196          KM        Combine R149-137 + 2XX
2197          HC        2
              *
              *    ****************************************************
              *    *                                                  *
              *    *                     END                          *
              *    * BENDER AND SAND TANK WASHES (Major Basins 1 & 2) *
              *    *                                                  *
              *    ****************************************************
              *
              *
              *    ************************************
              *    *                                  *
              *    *              START               *
              *    * SCOTT AVENUE WASH (Major Basin 7) *
              *    *                                  *
              *    ************************************
              *

2198          KK  BC132L
2199          KM        Recall Flow Split Diverted Hydrograph DC132L
2200          DR  DC132L
              *

2201          KK  DC150R
2202          KM        Main flow is through I-8 via culverts and Scott Ave. (C150R).
2203          KM        Diverted flow (DQ record) goes west along the south side of
2204          KM        I-8  (C150L)
2205          DT  DC150L
2206          DI       0    2850    4800    7450   11800   18625   26500
2207          DQ       0       0    1600    4000    8000   14500   22000
              *

2208          KK  150142
2209          KM        Channel Route flow through culverts and Scott Ave. (C150R)
2210          KM        from I-8 to CP142.
2211          KM        Representative of HEC-2 X-Sect. "Scott Ave Wash 4.911"
2212          RS       3     FLOW      -1
2213          RC   0.035   0.050   0.035  3680.0   0.004
2214          RX    9793  9952.7  9981.1 10000.0 10008.9 10013.1 10044.4 10201.9
2215          RY   749.0   748.9   744.7   742.3   742.7   745.5   745.0   749.9
2216          RL                    1.60   742.3
              *

2217          KK      7A
2218          KM        SUB-BASIN 7A
2219          BA    2.45
2220          LG    0.34    0.35    3.27    0.93    2.00
2221          UI      88      88      88      88      88      88      88     247     288     317
2222          UI     336     385     408     429     457     477     494     518     541     566
2223          UI     597     633     663     687     733     806     892    1037    1034    1180
1                                          HEC-1 INPUT                                          PAGE 52

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

2224          UI    1117    1025     944     890     835     794     758     727     699     671
2225          UI     629     594     561     535     514     486     458     429     415     404
2226          UI     337     327     252     252     194     155     155     155     149     144
2227          UI     144     144     136      88      88      88      88      88      88      88
2228          UI      31      27      27      27      27      27      27      27      27      27
2229          UI      27      27      27      27      27      27      27      27      27      27
2230          UI      27      27      27       0       0       0       0       0       0       0
2231          UI       0       0       0       0       0       0       0       0       0       0
              *

2232          KK  BPND3W
2233          KM        Recall Flow Split Diverted Hydrograph DPND3W
2234          DR  DPND3W
```

```
                *

2235            KK   C142I
2236            KM    Combine R150R-142 + 7A + DC133W
2237            HC       3  336.59
                *

2238            KK   C142O
2239            KM        Reservoir Route at C142O At The Gila Bend Canal
2240            RS       1     ELEV     732
2241            SV     0.0      0.0      0.0        1        2        4        8       14       24       34
2242            SV      44       54       59       64       69       74       79       84
2243            SE     732      733      734      735      736      737      738      739      740      741
2244            SE     742      743    743.5      744    744.5      745    745.5      746
2245            SQ       0       12       40       73      112      143      170      190      212      234
2246            SQ     256      278      289      345      569     1022     2502     7402
2247            RL                     0.84    732.0
                *

2248            KK  DC142R
2249            KM        Main flow is into Sub-basin 7D and reach 142139 (C142R)
2250            KM        Diverted flow (DQ record) flows over over the Gila Bend Canal west
2251            KM        of C142 into Sub-basin 7B and reach 142-18 (C150L)
2252            DT  DC142L
2253            DI     0.0   1146.0   1304.0   1545.0   1936.0   2502.0   3190.0   4072.0   5084.0   6243.0
2254            DI  7402.0
2255            DQ     0.0      0.0      7.0     57.0    206.0    422.0    707.0   1082.0   1531.0   2059.0
2256            DQ  2587.0
                *

2257            KK  142139
2258            KM        Channel Route From C142O To C139
2259            KM        Scott Avenue Wash HEC-2 Section 3.292
2260            RS      13     FLOW       -1
2261            RC   0.035    0.070    0.035    12600    0.006
2262            RX  8929.2   9929.2  10040.5  10055.8  10065.5  10084.8  10148.6  10407.5
2263            RY   710.5    705.5    704.1    702.7    701.3    703.9    707.1    710.5
2264            RL                     2.11    701.3
                *
1                                                HEC-1 INPUT                                                    PAGE 53
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2265            KK      7D
2266            KM        SUB-BASIN 7D
2267            BA    1.17
2268            LG    0.30     0.33     3.34     0.88    15.00
2269            UI      69       69       69       69      169      238      273      322      348      379
2270            UI     402      436      471      519      556      640      776      862      882      764
2271            UI     687      628      581      544      499      454      420      385      349      325
2272            UI     282      229      197      122      122      118      114      114       74       69
2273            UI      69       69       44       21       21       21       21       21       21       21
2274            UI      21       21       21       21       21       21        0        0        0        0
2275            UI       0        0        0        0        0        0        0        0        0        0
                *

2276            KK    C139
2277            KM       Combine R142O-139 + 7D
2278            HC       2
                *

2279            KK      7C
2280            KM        SUB-BASIN 7C at C138
2281            BA    0.60
2282            LG    0.35     0.35     2.99     1.01     1.00
2283            UI      53       53       64      180      222      262      296      328      373      420
2284            UI     511      657      654      542      473      425      376      328      290      254
2285            UI     211      152       94       92       87       67       53       53       28       16
2286            UI      16       16       16       16       16       16       16        0        0        0
2287            UI       0        0        0        0        0        0        0        0        0        0
                *

2288            KK  BC142L
2289            KM        Recall Flow Split Diverted Hydrograph DC142L
2290            DR  DC142L
                *

2291            KK  142-18
2292            KM        Channel Route From C142L To C18
2293            KM        Representative of Scott Avenue Wash HEC-2 Section 3.292
2294            RS      24     FLOW       -1
2295            RC   0.035    0.070    0.035    14800    0.006
2296            RX  8929.2   9929.2  10040.5  10055.8  10065.5  10084.8  10148.6  10407.5
2297            RY   710.5    705.5    704.1    702.7    701.3    703.9    707.1    710.5
2298            RL                     4.47    701.3
                *

2299            KK      7B
2300            KM        SUB-BASIN 7B at C18
2301            BA    1.67
2302            LG    0.35     0.27     3.53     0.75     7.00
2303            UI      83       83       83       83       83      231      281      317      370      398
2304            UI     429      457      481      511      551      594      631      677      768      900
2305            UI     985     1104      997      894      817      758      711      669      635      581
2306            UI     541      506      476      432      405      381      328      280      238      178
2307            UI     146      146      139      136      136      108       83       83       83       83
2308            UI      64       25       25       25       25       25       25       25       25       25
1                                                HEC-1 INPUT                                                    PAGE 54
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2309            UI      25       25       25       25       25       25       25        0        0        0
2310            UI       0        0        0        0        0        0        0        0        0        0
                *

2311            KK      C18
2312            KM       Combine R142-18 + 7B
2313            HC       2  338.26
                *
                * Move to C151 and route Sand Tank Wash overflow to Quilotosa Wash watershed
                * at C12
                *

2314            KK  BD150L
```

```
2315          KM        Recall Flow Split Diverted Hydrograph DC150L
2316          DR  DC150L
              *

2317          KK    C151
2318          KM        Reservoir Route at CP151 At The Gila Bend Canal
2319          ZW      A=BENDER   C=FLOW  F=C151-SPLIT
2320          RS        1     ELEV     742
2321          SV      0.0       2       3      12      24      45      83     124     172     230
2322          SV      241     282     296     321     333     365     380     408     446     485
2323          SE      742     743     744     745     746     747     748     749     750     751
2324          SE    751.2   751.4     752   752.4   752.6     753   753.2   753.5     754   754.5
2325          SQ      0.0     700    1300    1900    2500    3200    3800    4400    5100    5700
2326          SQ     5800    6100    6800    7500    8000    9100   10000   12000   17600   25000
2327          RL                    1.16   742.0
              *
              *
              *    ************************************
              *    *                                  *
              *    *              END                 *
              *    * SCOTT AVENUE WASH (Major Basin 7 *
              *    *                                  *
              *    ************************************
              *
              *
2328          ZZ
```

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            MAY   1991                 *
*          VERSION 4.0.1E               *
*                                       *
*  RUN DATE  04/04/92  TIME  07:23:06   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*   HYDROLOGIC ENGINEERING CENTER       *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
*****************************************
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```
FCDMC GILA BEND FLOOD INSURANCE STUDY PROJECT NO. 11358
FCD 90-67

100-Year 6-Hour Duration Storm

04/06/92     Input Filename:  B&ST6.H1
                              Bender and Sand Tank Washes
                              (Major Basins # 1, 2, and 7)

     Green & AMPT Loss Rate Method
     S-Graph Unit Hydrograph
     Normal Depth Routing

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

    IT        HYDROGRAPH TIME DATA
                    NMIN          3  MINUTES IN COMPUTATION INTERVAL
                   IDATE     13MAR92  STARTING DATE
                   ITIME        1200  STARTING TIME
                      NQ         360  NUMBER OF HYDROGRAPH ORDINATES
                  NDDATE     14MAR92  ENDING DATE
                  NDTIME        0557  ENDING TIME
                   ICENT          19  CENTURY MARK

              COMPUTATION INTERVAL    0.05 HOURS
                   TOTAL TIME BASE   17.95 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

 16 JD        INDEX STORM NO. 1
                   STRM        3.70  PRECIPITATION DEPTH
                   TRDA        2.35  TRANSPOSITION DRAINAGE AREA

 17 PI          PRECIPITATION PATTERN
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.02      0.02      0.02      0.02      0.02
                   0.03      0.03      0.03      0.03      0.03      0.09      0.09      0.09      0.09      0.09
                   0.02      0.02      0.02      0.02      0.02      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

 20 JD        INDEX STORM NO. 2
                   STRM        3.67  PRECIPITATION DEPTH
                   TRDA        2.11  TRANSPOSITION DRAINAGE AREA

  0 PI          PRECIPITATION PATTERN
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.02      0.02      0.02      0.02      0.02
                   0.03      0.03      0.03      0.03      0.03      0.09      0.09      0.09      0.09      0.09
                   0.02      0.02      0.02      0.02      0.02      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                   0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

 21 JD        INDEX STORM NO. 3
```

STRM 3.61 PRECIPITATION DEPTH
TRDA 2.80 TRANSPOSITION DRAINAGE AREA

22 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

25 JD INDEX STORM NO. 4
STRM 3.41 PRECIPITATION DEPTH
TRDA 15.80 TRANSPOSITION DRAINAGE AREA

26 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

29 JD INDEX STORM NO. 5
STRM 3.18 PRECIPITATION DEPTH
TRDA 50.00 TRANSPOSITION DRAINAGE AREA

30 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

33 JD INDEX STORM NO. 6
STRM 3.05 PRECIPITATION DEPTH
TRDA 80.00 TRANSPOSITION DRAINAGE AREA

34 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

37 JD INDEX STORM NO. 7
STRM 3.00 PRECIPITATION DEPTH
TRDA 90.00 TRANSPOSITION DRAINAGE AREA

38 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

41 JD INDEX STORM NO. 8
STRM 2.66 PRECIPITATION DEPTH
TRDA 200.00 TRANSPOSITION DRAINAGE AREA

42 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

45 JD INDEX STORM NO. 9
STRM 2.44 PRECIPITATION DEPTH
TRDA 300.00 TRANSPOSITION DRAINAGE AREA

46 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

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                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                0.02      0.02      0.02      0.02      0.02      0.03      0.03      0.03      0.03      0.03
                0.02      0.02      0.02      0.02      0.02      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

 49 JD        INDEX STORM NO.10
                   STRM        2.35  PRECIPITATION DEPTH
                   TRDA      350.00  TRANSPOSITION DRAINAGE AREA

 50 PI          PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.01      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                0.02      0.02      0.02      0.02      0.02      0.03      0.03      0.03      0.03      0.03
                0.02      0.02      0.02      0.02      0.02      0.01      0.01      0.02      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

 53 JD        INDEX STORM NO.11
                   STRM        2.11  PRECIPITATION DEPTH
                   TRDA      500.00  TRANSPOSITION DRAINAGE AREA

 54 PI          PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
                0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02      0.02
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

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

            **************
            *            *
 770 KK     *     C135I  *
            *            *
            **************

 772 KO        OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        360  LAST ORDINATE PUNCHED OR SAVED
               TIMINT      0.050  TIME INTERVAL IN HOURS

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

            **************
            *            *
1523 KK     *     C127R  *
            *            *
            **************

1525 KO        OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        360  LAST ORDINATE PUNCHED OR SAVED
               TIMINT      0.050  TIME INTERVAL IN HOURS

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

            **************
            *            *
1920 KK     *    127131  *
            *            *
            **************

1923 KO        OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        360  LAST ORDINATE PUNCHED OR SAVED
               TIMINT      0.050  TIME INTERVAL IN HOURS

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              **************
              *            *
2007 KK       *   130131   *
              *            *
              **************

2010 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          5  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                        IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        360  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT      0.050  TIME INTERVAL IN HOURS

   -----DSS---ZOPEN:  Existing File Opened,  File: B&ST6.DSS
                      Unit:  71:  DSS Version: 6-FT
 -----DSS---ZWRITE Unit  71; Vers.   10:  /BENDER/C151/FLOW/13MAR1992/3MIN/C151-SPLIT/
 -----DSS---ZWRITE Unit  71; Vers.   10:  /BENDER/C151/FLOW/14MAR1992/3MIN/C151-SPLIT/
1
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

| | OPERATION | STATION | PEAK FLOW | TIME OF PEAK | AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR | 24-HOUR | 72-HOUR | BASIN AREA | MAXIMUM STAGE | TIME OF MAX STAGE |
|---|---|---|---|---|---|---|---|---|---|---|
| + | HYDROGRAPH AT | 1B | 1949. | 4.95 | 372. | 125. | 125. | 2.10 | | |
| + | ROUTED TO | R61-62 | 1755. | 5.25 | 368. | 123. | 123. | 2.10 | | |
| + | HYDROGRAPH AT | 1C | 2332. | 5.20 | 615. | 206. | 206. | 3.83 | | |
| + | HYDROGRAPH AT | 1A | 1372. | 5.20 | 414. | 143. | 143. | 2.10 | | |
| + | 3 COMBINED AT | C62 | 3916. | 5.20 | 1072. | 363. | 363. | 8.03 | | |
| + | ROUTED TO | R62-64 | 3733. | 5.60 | 1062. | 359. | 359. | 8.03 | | |
| + | HYDROGRAPH AT | 1D | 565. | 4.30 | 89. | 30. | 30. | 0.34 | | |
| + | ROUTED TO | R63-64 | 325. | 5.75 | 54. | 18. | 18. | 0.34 | | |
| + | 2 COMBINED AT | C64 | 3937. | 5.65 | 1113. | 376. | 376. | 8.37 | | |
| + | ROUTED TO | R64-65 | 3824. | 5.90 | 1106. | 373. | 373. | 8.37 | | |
| + | HYDROGRAPH AT | 1E | 1915. | 5.35 | 550. | 184. | 184. | 3.91 | | |
| + | HYDROGRAPH AT | 1F | 1674. | 5.40 | 642. | 229. | 229. | 5.55 | | |
| + | 3 COMBINED AT | C65 | 5323. | 5.75 | 1879. | 646. | 646. | 17.83 | | |
| + | ROUTED TO | R65-67 | 5205. | 6.05 | 1850. | 631. | 631. | 17.83 | | |
| + | HYDROGRAPH AT | 1J | 948. | 4.40 | 173. | 58. | 58. | 0.62 | | |
| + | ROUTED TO | R66-67 | 190. | 5.95 | 18. | 6. | 6. | 0.62 | | |
| + | HYDROGRAPH AT | 1I | 1953. | 5.35 | 560. | 187. | 187. | 4.11 | | |
| + | 3 COMBINED AT | C67 | 5849. | 5.90 | 2162. | 736. | 736. | 22.56 | | |
| + | ROUTED TO | R67-71 | 5814. | 6.00 | 2152. | 731. | 731. | 22.56 | | |
| + | HYDROGRAPH AT | 1G | 1353. | 5.20 | 491. | 174. | 174. | 3.78 | | |
| + | ROUTED TO | R70-71 | 1143. | 6.20 | 441. | 152. | 152. | 3.78 | | |
| + | HYDROGRAPH AT | 1H | 1702. | 5.45 | 666. | 239. | 239. | 6.77 | | |
| + | 2 COMBINED AT | C71R | 1837. | 6.05 | 958. | 342. | 342. | 10.55 | | |
| + | HYDROGRAPH AT | 1K | 1309. | 4.70 | 319. | 107. | 107. | 1.08 | | |
| + | ROUTED TO | R68-71 | 1053. | 5.60 | 271. | 91. | 91. | 1.08 | | |
| + | HYDROGRAPH AT | 1L | 2422. | 5.60 | 808. | 271. | 271. | 4.69 | | |
| + | 2 COMBINED AT | C71L | 3237. | 5.65 | 1054. | 354. | 354. | 5.77 | | |
| + | 3 COMBINED AT | C71 | 8509. | 5.85 | 3378. | 1163. | 1163. | 38.88 | | |
| | ROUTED TO | | | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| + | R71-73 | 8375. | 6.25 | 3343. | 1148. | 1148. | 38.88 |
| + HYDROGRAPH AT | 1M | 2740. | 4.70 | 687. | 231. | 231. | 2.19 |
| + ROUTED TO | R72-73 | 2101. | 6.30 | 607. | 204. | 204. | 2.19 |
| + HYDROGRAPH AT | 1N | 1473. | 6.15 | 362. | 121. | 121. | 2.75 |
| + 3 COMBINED AT | C73 | 9640. | 6.25 | 3910. | 1340. | 1340. | 43.82 |
| + ROUTED TO | R73-74 | 9297. | 7.00 | 3813. | 1301. | 1301. | 43.82 |
| + HYDROGRAPH AT | 1P | 1593. | 5.60 | 506. | 169. | 169. | 4.56 |
| + HYDROGRAPH AT | 1O | 1400. | 5.70 | 590. | 214. | 214. | 5.23 |
| + 3 COMBINED AT | C74 | 9345. | 6.95 | 4135. | 1434. | 1434. | 53.61 |
| + ROUTED TO | R74-77 | 8467. | 8.30 | 3773. | 1293. | 1293. | 53.61 |
| + HYDROGRAPH AT | 1U | 759. | 5.70 | 246. | 82. | 82. | 3.19 |
| + 2 COMBINED AT | C77R | 8456. | 8.30 | 3787. | 1307. | 1307. | 56.80 |
| + HYDROGRAPH AT | 1Q | 2602. | 5.90 | 981. | 332. | 332. | 5.30 |
| + ROUTED TO | R75-76 | 2586. | 6.05 | 968. | 327. | 327. | 5.30 |
| + HYDROGRAPH AT | 1R | 1571. | 4.95 | 477. | 164. | 164. | 2.90 |
| + 2 COMBINED AT | C76 | 3002. | 5.95 | 1329. | 454. | 454. | 8.20 |
| + ROUTED TO | R76-77 | 2493. | 7.60 | 1093. | 369. | 369. | 8.20 |
| + HYDROGRAPH AT | 1T | 1270. | 6.15 | 509. | 174. | 174. | 4.67 |
| + 2 COMBINED AT | C77L | 2727. | 7.50 | 1323. | 483. | 483. | 12.87 |
| + 2 COMBINED AT | C77 | 9067. | 8.30 | 4200. | 1475. | 1475. | 69.67 |
| + ROUTED TO | R77-79 | 8868. | 8.70 | 4136. | 1443. | 1443. | 69.67 |
| + HYDROGRAPH AT | 1W | 453. | 4.70 | 70. | 24. | 24. | 0.53 |
| + 2 COMBINED AT | C79RUP | 8863. | 8.70 | 4134. | 1450. | 1450. | 70.20 |
| + HYDROGRAPH AT | 1S | 1328. | 5.45 | 510. | 181. | 181. | 4.77 |
| + DIVERSION TO | DC78L | 499. | 5.45 | 178. | 61. | 61. | 4.77 |
| + HYDROGRAPH AT | DC78R | 829. | 5.45 | 333. | 121. | 121. | 4.77 |
| + ROUTED TO | 78R-79 | 464. | 6.15 | 118. | 39. | 39. | 4.77 |
| + HYDROGRAPH AT | 1V | 1691. | 5.05 | 357. | 120. | 120. | 2.16 |
| + 2 COMBINED AT | C79LUP | 928. | 5.05 | 325. | 110. | 110. | 6.93 |
| + 2 COMBINED AT | C79 | 8845. | 8.70 | 4143. | 1486. | 1486. | 77.13 |
| + DIVERSION TO | DC79L | 4672. | 8.70 | 2433. | 905. | 905. | 77.13 |
| + HYDROGRAPH AT | DC79R | 3800. | 8.70 | 1520. | 511. | 511. | 77.13 |
| + ROUTED TO | 79R-81 | 3592. | 9.40 | 1422. | 477. | 477. | 77.13 |
| + HYDROGRAPH AT | BDC79L | 4672. | 8.70 | 2433. | 905. | 905. | 77.13 |
| + ROUTED TO | 79L-80 | 4609. | 8.95 | 2398. | 885. | 885. | 77.13 |
| + DIVERSION TO | DC80L | 4565. | 8.95 | 2386. | 881. | 881. | 77.13 |
| + HYDROGRAPH AT | DC80R | 45. | 8.90 | 12. | 4. | 4. | 77.13 |
| + ROUTED TO | 80R-81 | 39. | 10.80 | 12. | 4. | 4. | 77.13 |
| + HYDROGRAPH AT | 1X | 1530. | 5.05 | 334. | 112. | 112. | 2.62 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| + | 3 COMBINED AT | C81 | 3590. | 9.40 | 1431. | 513. | 513. | 79.75 |
| + | DIVERSION TO | DC81L | 2858. | 9.40 | 1184. | 425. | 425. | 79.75 |
| + | HYDROGRAPH AT | DC81R | 670. | 9.40 | 217. | 76. | 76. | 79.75 |
| + | ROUTED TO | 81R-82 | 530. | 11.25 | 182. | 62. | 62. | 79.75 |
| + | HYDROGRAPH AT | BDC81L | 2858. | 9.40 | 1184. | 425. | 425. | 79.75 |
| + | ROUTED TO | 81L-82 | 2592. | 11.15 | 1071. | 380. | 380. | 79.75 |
| + | HYDROGRAPH AT | 1Y | 1822. | 5.45 | 532. | 178. | 178. | 5.32 |
| + | 3 COMBINED AT | C82 | 2913. | 11.25 | 1174. | 469. | 469. | 85.07 |
| + | DIVERSION TO | DC82L | 0. | 0.05 | 0. | 0. | 0. | 85.07 |
| + | HYDROGRAPH AT | DC82R | 2913. | 11.25 | 1174. | 469. | 469. | 85.07 |
| + | ROUTED TO | 82-135 | 2774. | 11.60 | 1111. | 436. | 436. | 85.07 |
| + | HYDROGRAPH AT | 2VV | 1352. | 5.30 | 376. | 126. | 126. | 3.74 |
| + | 2 COMBINED AT | C135I | 2773. | 11.60 | 1111. | 469. | 469. | 88.81 |
| + | HYDROGRAPH AT | 2D | 2184. | 4.75 | 541. | 182. | 182. | 1.75 |
| + | ROUTED TO | R87-89 | 1991. | 5.15 | 530. | 178. | 178. | 1.75 |
| + | HYDROGRAPH AT | 2F | 1037. | 4.55 | 214. | 72. | 72. | 0.75 |
| + | ROUTED TO | R88-89 | 991. | 4.70 | 211. | 71. | 71. | 0.75 |
| + | 2 COMBINED AT | C89 | 2533. | 5.05 | 762. | 257. | 257. | 2.50 |
| + | ROUTED TO | R89-91 | 2457. | 5.30 | 752. | 253. | 253. | 2.50 |
| + | HYDROGRAPH AT | 2E | 1692. | 4.45 | 215. | 72. | 72. | 1.00 |
| + | HYDROGRAPH AT | 2G | 1679. | 4.60 | 258. | 86. | 86. | 1.13 |
| + | 3 COMBINED AT | C91 | 3253. | 4.90 | 1169. | 394. | 394. | 4.63 |
| + | ROUTED TO | R91-92 | 3207. | 5.10 | 1163. | 392. | 392. | 4.63 |
| + | HYDROGRAPH AT | 2I | 1421. | 4.40 | 252. | 85. | 85. | 0.87 |
| + | HYDROGRAPH AT | 2H | 2199. | 4.60 | 327. | 109. | 109. | 1.59 |
| + | 3 COMBINED AT | C92 | 4965. | 4.75 | 1636. | 553. | 553. | 7.09 |
| + | ROUTED TO | R92-95 | 4866. | 4.95 | 1629. | 550. | 550. | 7.09 |
| + | HYDROGRAPH AT | 2K | 2090. | 5.10 | 676. | 232. | 232. | 2.19 |
| + | ROUTED TO | R93-94 | 1997. | 5.30 | 668. | 228. | 228. | 2.19 |
| + | HYDROGRAPH AT | 2L | 972. | 4.85 | 249. | 84. | 84. | 0.94 |
| + | 2 COMBINED AT | C94 | 2413. | 5.20 | 909. | 310. | 310. | 3.13 |
| + | ROUTED TO | R94-95 | 2332. | 5.35 | 867. | 292. | 292. | 3.13 |
| + | HYDROGRAPH AT | 2M | 2347. | 4.40 | 271. | 90. | 90. | 1.40 |
| + | HYDROGRAPH AT | 2J | 1337. | 4.80 | 344. | 116. | 116. | 1.16 |
| + | 4 COMBINED AT | C95 | 7590. | 4.95 | 2861. | 969. | 969. | 12.78 |
| + | ROUTED TO | R95-96 | 7324. | 5.70 | 2824. | 959. | 959. | 12.78 |
| + | HYDROGRAPH AT | 2A | 3078. | 5.45 | 1009. | 339. | 339. | 4.33 |
| + | ROUTED TO | R83-84 | 2985. | 5.80 | 995. | 334. | 334. | 4.33 |
| | DIVERSION TO | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| + | | DC84R | 146. | 5.80 | 32. | 11. | 11. | 4.33 |
| + | HYDROGRAPH AT | DC84L | 2839. | 5.80 | 963. | 323. | 323. | 4.33 |
| + | ROUTED TO | 84L-85 | 2710. | 6.30 | 936. | 314. | 314. | 4.33 |
| + | HYDROGRAPH AT | 2B | 2389. | 5.05 | 573. | 192. | 192. | 3.31 |
| + | 2 COMBINED AT | C85 | 2970. | 6.15 | 1394. | 472. | 472. | 7.64 |
| + | ROUTED TO | R85-96 | 2826. | 6.90 | 1357. | 461. | 461. | 7.64 |
| + | HYDROGRAPH AT | BDC84R | 146. | 5.80 | 32. | 11. | 11. | 4.33 |
| + | ROUTED TO | 84R-86 | 97. | 6.65 | 18. | 6. | 6. | 4.33 |
| + | HYDROGRAPH AT | 2N | 2640. | 4.75 | 449. | 150. | 150. | 2.20 |
| + | 2 COMBINED AT | C86 | 1760. | 4.75 | 365. | 122. | 122. | 6.53 |
| + | ROUTED TO | R86-96 | 1540. | 5.75 | 348. | 116. | 116. | 6.53 |
| + | HYDROGRAPH AT | 2C | 2513. | 4.85 | 722. | 244. | 244. | 2.32 |
| + | HYDROGRAPH AT | 2O | 3301. | 4.80 | 1026. | 347. | 347. | 3.37 |
| + | 5 COMBINED AT | C96 | 11655. | 5.65 | 5328. | 1853. | 1853. | 32.64 |
| + | ROUTED TO | R96-97 | 11134. | 6.40 | 5104. | 1764. | 1764. | 32.64 |
| + | HYDROGRAPH AT | 2P | 2465. | 4.80 | 697. | 236. | 236. | 3.51 |
| + | 2 COMBINED AT | C97 | 11407. | 6.40 | 5496. | 1919. | 1919. | 36.15 |
| + | ROUTED TO | 97-100 | 11130. | 6.75 | 5448. | 1895. | 1895. | 36.15 |
| + | HYDROGRAPH AT | 2Q | 1822. | 5.00 | 576. | 197. | 197. | 2.93 |
| + | ROUTED TO | R98-99 | 1475. | 5.35 | 381. | 127. | 127. | 2.93 |
| + | HYDROGRAPH AT | 2R | 1449. | 4.95 | 309. | 104. | 104. | 2.67 |
| + | 2 COMBINED AT | C99 | 2145. | 5.20 | 586. | 197. | 197. | 5.60 |
| + | ROUTED TO | 99-100 | 1816. | 5.55 | 424. | 142. | 142. | 5.60 |
| + | HYDROGRAPH AT | 2S | 1879. | 4.65 | 269. | 90. | 90. | 1.82 |
| + | 3 COMBINED AT | C100 | 11172. | 6.70 | 5569. | 1942. | 1942. | 43.57 |
| + | ROUTED TO | 100101 | 11025. | 6.95 | 5536. | 1928. | 1928. | 43.57 |
| + | HYDROGRAPH AT | 2T | 2458. | 5.60 | 1063. | 381. | 381. | 4.90 |
| + | 2 COMBINED AT | C101 | 11818. | 6.90 | 6248. | 2197. | 2197. | 48.47 |
| + | ROUTED TO | 101102 | 11519. | 7.25 | 6149. | 2154. | 2154. | 48.47 |
| + | HYDROGRAPH AT | 2U | 1162. | 4.80 | 191. | 64. | 64. | 1.38 |
| + | 2 COMBINED AT | C102 | 11516. | 7.25 | 6169. | 2168. | 2168. | 49.85 |
| + | ROUTED TO | 102103 | 11325. | 7.50 | 6101. | 2141. | 2141. | 49.85 |
| + | HYDROGRAPH AT | 2V | 3204. | 5.55 | 1317. | 468. | 468. | 7.57 |
| + | 2 COMBINED AT | C103 | 11619. | 7.50 | 6746. | 2419. | 2419. | 57.42 |
| + | ROUTED TO | 103107 | 11040. | 8.75 | 6515. | 2361. | 2361. | 57.42 |
| + | HYDROGRAPH AT | 2W | 4062. | 5.25 | 1562. | 540. | 540. | 6.29 |
| + | ROUTED TO | 104105 | 3418. | 6.20 | 1225. | 410. | 410. | 6.29 |
| + | HYDROGRAPH AT | 2X | 4655. | 5.90 | 2226. | 820. | 820. | 10.31 |
| + | 2 COMBINED AT | C105 | 7255. | 6.05 | 3258. | 1169. | 1169. | 16.60 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| + | ROUTED TO | 105107 | 6501. | 8.20 | 3165. | 1137. | 1137. | 16.60 |
| + | HYDROGRAPH AT | 2Y | 4143. | 6.15 | 1670. | 569. | 569. | 13.40 |
| + | 3 COMBINED AT | C107 | 14447. | 8.75 | 8612. | 3319. | 3319. | 87.42 |
| + | HYDROGRAPH AT | 2BB | 2748. | 4.60 | 625. | 210. | 210. | 2.40 |
| + | ROUTED TO | 108111 | 2338. | 5.30 | 584. | 195. | 195. | 2.40 |
| + | HYDROGRAPH AT | 2Z | 2867. | 5.40 | 1139. | 397. | 397. | 5.10 |
| + | ROUTED TO | 110111 | 2514. | 6.40 | 1001. | 345. | 345. | 5.10 |
| + | HYDROGRAPH AT | 2AA | 2611. | 5.15 | 680. | 228. | 228. | 3.73 |
| + | 3 COMBINED AT | C111 | 3987. | 6.10 | 1959. | 690. | 690. | 11.23 |
| + | ROUTED TO | 111113 | 3629. | 7.60 | 1771. | 640. | 640. | 11.23 |
| + | HYDROGRAPH AT | 2CC | 1523. | 5.85 | 543. | 183. | 183. | 4.38 |
| + | 3 COMBINED AT | C113 | 15437. | 8.75 | 9364. | 3628. | 3628. | 103.03 |
| + | ROUTED TO | 113127 | 15217. | 9.10 | 9273. | 3587. | 3587. | 103.03 |
| + | HYDROGRAPH AT | 2DD | 482. | 4.70 | 73. | 24. | 24. | 0.54 |
| + | 2 COMBINED AT | C127R | 15211. | 9.10 | 9269. | 3592. | 3592. | 103.57 |
| + | HYDROGRAPH AT | 2GG | 4163. | 5.60 | 1451. | 488. | 488. | 6.69 |
| + | ROUTED TO | 114115 | 3896. | 6.40 | 1407. | 474. | 474. | 6.69 |
| + | HYDROGRAPH AT | 2HH | 4096. | 5.20 | 1131. | 379. | 379. | 6.76 |
| + | 2 COMBINED AT | C115 | 4875. | 6.00 | 2322. | 791. | 791. | 13.45 |
| + | ROUTED TO | 115116 | 4797. | 6.50 | 2289. | 782. | 782. | 13.45 |
| + | HYDROGRAPH AT | 2II | 1978. | 5.10 | 609. | 208. | 208. | 2.22 |
| + | 2 COMBINED AT | C116 | 5315. | 6.35 | 2734. | 948. | 948. | 15.67 |
| + | DIVERSION TO | DC116L | 1823. | 6.35 | 929. | 325. | 325. | 15.67 |
| + | HYDROGRAPH AT | DC116R | 3493. | 6.35 | 1805. | 623. | 623. | 15.67 |
| + | ROUTED TO | 116119 | 3399. | 7.00 | 1758. | 607. | 607. | 15.67 |
| + | HYDROGRAPH AT | 2EE | 3284. | 5.00 | 1111. | 378. | 378. | 4.13 |
| + | ROUTED TO | 118119 | 3190. | 5.25 | 1099. | 374. | 374. | 4.13 |
| + | HYDROGRAPH AT | 2JJ | 1096. | 4.70 | 171. | 57. | 57. | 0.89 |
| + | 3 COMBINED AT | C119 | 4350. | 6.50 | 2727. | 962. | 962. | 20.69 |
| + | ROUTED TO | 119120 | 4038. | 8.70 | 2506. | 898. | 898. | 20.69 |
| + | HYDROGRAPH AT | 2KK | 1769. | 6.10 | 702. | 238. | 238. | 4.19 |
| + | 2 COMBINED AT | C120R | 4063. | 8.65 | 2611. | 1058. | 1058. | 24.88 |
| + | HYDROGRAPH AT | 2LL | 1753. | 6.70 | 826. | 287. | 287. | 5.18 |
| + | HYDROGRAPH AT | BC116L | 1823. | 6.35 | 929. | 325. | 325. | 15.67 |
| + | ROUTED TO | 116120 | 1242. | 10.15 | 602. | 202. | 202. | 15.67 |
| + | 3 COMBINED AT | C120 | 4438. | 8.40 | 3379. | 1427. | 1427. | 30.06 |
| + | ROUTED TO | 120121 | 4343. | 8.85 | 3306. | 1392. | 1392. | 30.06 |
| + | HYDROGRAPH AT | 2MM | 741. | 4.75 | 112. | 37. | 37. | 0.91 |
| | 2 COMBINED AT | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| + | | C121 | 4341. | 8.85 | 3305. | 1401. | 1401. | 30.97 |
| + | ROUTED TO | 121123 | 4245. | 9.40 | 3235. | 1366. | 1366. | 30.97 |
| + | HYDROGRAPH AT | 2FF | 1628. | 6.75 | 770. | 269. | 269. | 5.51 |
| + | 2 COMBINED AT | C123 | 4302. | 9.35 | 3406. | 1516. | 1516. | 36.48 |
| + | ROUTED TO | 123140 | 4273. | 9.55 | 3382. | 1499. | 1499. | 36.48 |
| + | HYDROGRAPH AT | 2NN | 3178. | 6.45 | 1424. | 489. | 489. | 9.61 |
| + | HYDROGRAPH AT | 2OO | 975. | 4.75 | 161. | 54. | 54. | 0.85 |
| + | 2 COMBINED AT | C124 | 3178. | 6.45 | 1544. | 530. | 530. | 10.46 |
| + | ROUTED TO | 124125 | 2946. | 7.35 | 1480. | 510. | 510. | 10.46 |
| + | HYDROGRAPH AT | 2PP | 1905. | 4.90 | 360. | 120. | 120. | 1.78 |
| + | 2 COMBINED AT | C125 | 2944. | 7.35 | 1660. | 594. | 594. | 12.24 |
| + | ROUTED TO | 125126 | 2668. | 8.30 | 1522. | 549. | 549. | 12.24 |
| + | HYDROGRAPH AT | 2QQ | 1294. | 4.90 | 231. | 77. | 77. | 1.67 |
| + | 2 COMBINED AT | C126 | 2664. | 8.30 | 1526. | 581. | 581. | 13.91 |
| + | ROUTED TO | 126140 | 2503. | 9.10 | 1465. | 554. | 554. | 13.91 |
| + | 2 COMBINED AT | C140 | 5881. | 9.40 | 4275. | 1830. | 1830. | 50.39 |
| + | ROUTED TO | 140127 | 5778. | 9.85 | 4210. | 1797. | 1797. | 50.39 |
| + | HYDROGRAPH AT | 2RR | 650. | 5.10 | 134. | 45. | 45. | 0.93 |
| + | HYDROGRAPH AT | 2YY | 649. | 5.15 | 139. | 46. | 46. | 1.12 |
| + | 3 COMBINED AT | C127L | 5777. | 9.85 | 4210. | 1821. | 1821. | 52.44 |
| + | 2 COMBINED AT | C127 | 15411. | 9.40 | 10563. | 4262. | 4262. | 156.01 |
| + | ROUTED TO | 127131 | 15311. | 9.65 | 10489. | 4227. | 4227. | 156.01 |
| + | HYDROGRAPH AT | BDC78L | 499. | 5.45 | 178. | 61. | 61. | 4.77 |
| + | ROUTED TO | 78L128 | 351. | 6.50 | 119. | 40. | 40. | 4.77 |
| + | HYDROGRAPH AT | 2SS | 1261. | 5.45 | 380. | 128. | 128. | 3.83 |
| + | 2 COMBINED AT | C128 | 1009. | 5.45 | 398. | 137. | 137. | 8.60 |
| + | ROUTED TO | 128129 | 782. | 6.80 | 310. | 105. | 105. | 8.60 |
| + | HYDROGRAPH AT | 2TT | 2019. | 5.10 | 505. | 170. | 170. | 4.60 |
| + | 2 COMBINED AT | C129 | 1531. | 5.10 | 524. | 221. | 221. | 13.20 |
| + | ROUTED TO | 129130 | 1332. | 5.60 | 547. | 187. | 187. | 13.20 |
| + | HYDROGRAPH AT | BDC80L | 4565. | 8.95 | 2386. | 881. | 881. | 77.13 |
| + | ROUTED TO | 80L130 | 4380. | 9.60 | 2311. | 845. | 845. | 77.13 |
| + | 2 COMBINED AT | C130 | 4219. | 9.65 | 2241. | 854. | 854. | 85.56 |
| + | ROUTED TO | 130131 | 3876. | 11.45 | 2102. | 791. | 791. | 85.56 |
| + | 2 COMBINED AT | C131 | 15353. | 9.70 | 11444. | 4577. | 4577. | 241.57 |
| + | ROUTED TO | 131132 | 12752. | 10.45 | 9525. | 3772. | 3772. | 241.57 |
| + | HYDROGRAPH AT | 2UU | 1559. | 6.45 | 664. | 228. | 228. | 8.10 |
| + | HYDROGRAPH AT | BDC82L | 0. | 0.05 | 0. | 0. | 0. | 85.07 |
| + | 3 COMBINED AT | C132 | 12973. | 10.20 | 9583. | 3779. | 3779. | 330.40 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| + | DIVERSION TO | DC132L | 1836. | 10.60 | 1000. | 334. | 334. | 330.40 |
| + | HYDROGRAPH AT | DC132R | 9199. | 10.60 | 7265. | 2915. | 2915. | 330.40 |
| + | ROUTED TO | 132133 | 8988. | 10.95 | 7064. | 2786. | 2786. | 330.40 |
| + | 2 COMBINED AT | C133I | 9126. | 11.90 | 7321. | 2892. | 2892. | 334.14 |
| + | ROUTED TO | PND3 | 9104. | 12.00 | 7317. | 2887. | 2887. | 334.14 |
| + | DIVERSION TO | DPND3W | 0. | 0.05 | 0. | 0. | 0. | 334.14 |
| + | HYDROGRAPH AT | PND3N | 9104. | 12.00 | 7317. | 2887. | 2887. | 334.14 |
| + | DIVERSION TO | D135O | 2003. | 12.05 | 1475. | 507. | 507. | 334.14 |
| + | HYDROGRAPH AT | D133O | 7101. | 12.00 | 5842. | 2380. | 2380. | 334.14 |
| + | ROUTED TO | 133141 | 7056. | 12.35 | 5821. | 2361. | 2361. | 334.14 |
| + | HYDROGRAPH AT | BD135O | 2003. | 12.05 | 1475. | 507. | 507. | 334.14 |
| + | ROUTED TO | 135141 | 1992. | 12.25 | 1469. | 505. | 505. | 334.14 |
| + | 2 COMBINED AT | C141 | 9044. | 12.35 | 7288. | 2866. | 2866. | 334.14 |
| + | ROUTED TO | 141149 | 8975. | 12.60 | 7247. | 2831. | 2831. | 334.14 |
| + | HYDROGRAPH AT | 2WW | 1256. | 6.05 | 469. | 159. | 159. | 5.82 |
| + | ROUTED TO | C136O | 502. | 7.30 | 414. | 158. | 158. | 5.82 |
| + | ROUTED TO | 136149 | 161. | 8.45 | 116. | 40. | 40. | 5.82 |
| + | 2 COMBINED AT | C149 | 8975. | 12.60 | 7247. | 2831. | 2831. | 339.96 |
| + | ROUTED TO | 149137 | 8937. | 12.90 | 7224. | 2805. | 2805. | 339.96 |
| + | HYDROGRAPH AT | 2XX | 1665. | 5.10 | 359. | 120. | 120. | 2.17 |
| + | 2 COMBINED AT | C137 | 8937. | 12.90 | 7224. | 2814. | 2814. | 342.13 |
| + | HYDROGRAPH AT | BC132L | 1834. | 10.60 | 999. | 334. | 334. | 330.40 |
| + | DIVERSION TO | DC150L | 0. | 0.05 | 0. | 0. | 0. | 330.40 |
| + | HYDROGRAPH AT | DC150R | 1834. | 10.60 | 999. | 334. | 334. | 330.40 |
| + | ROUTED TO | 150142 | 1822. | 10.80 | 989. | 332. | 332. | 330.40 |
| + | HYDROGRAPH AT | 7A | 1052. | 5.35 | 273. | 91. | 91. | 2.45 |
| + | HYDROGRAPH AT | BPND3W | 0. | 0.05 | 0. | 0. | 0. | 334.14 |
| + | 3 COMBINED AT | C142I | 1822. | 10.80 | 989. | 336. | 336. | 336.59 |
| + | ROUTED TO | C142O | 1810. | 10.85 | 889. | 332. | 332. | 336.59 |
| + | DIVERSION TO | DC142L | 159. | 10.85 | 35. | 12. | 12. | 336.59 |
| + | HYDROGRAPH AT | DC142R | 1650. | 10.85 | 854. | 320. | 320. | 336.59 |
| + | ROUTED TO | 142139 | 1568. | 11.85 | 814. | 290. | 290. | 336.59 |
| + | HYDROGRAPH AT | 7D | 1093. | 4.80 | 194. | 65. | 65. | 1.17 |
| + | 2 COMBINED AT | C139 | 1567. | 11.85 | 814. | 305. | 305. | 337.76 |
| + | HYDROGRAPH AT | 7C | 587. | 4.50 | 67. | 22. | 22. | 0.60 |
| + | HYDROGRAPH AT | BC142L | 158. | 10.85 | 35. | 12. | 12. | 336.59 |
| + | ROUTED TO | 142-18 | 101. | 12.60 | 23. | 8. | 8. | 336.59 |
| + | HYDROGRAPH AT | 7B | 1425. | 4.95 | 280. | 94. | 94. | 1.67 |
| | 2 COMBINED AT | | | | | | | |

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+                          C18        99.   12.60          29.          18.          18.      338.26
        HYDROGRAPH AT
+                        BD150L        0.    0.05           0.           0.           0.      330.40
        ROUTED TO
+                         C151         0.    0.05           0.           0.           0.      330.40

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

   -----DSS---ZCLOSE Unit:  71,   File: B&ST6.DSS
            Pointer Utilization:  0.25
            Number of Records:     4
            File Size:     19.2  Kbytes
            Percent Inactive:   0.0
```

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*          MAY   1991               *
*        VERSION 4.0.1E             *
*                                   *
*  RUN DATE  03/25/92  TIME  11:43:13 *
*                                   *
*************************************
```

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

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

1

HEC-1 INPUT  PAGE 1

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

  1           ID   FCDMC GILA BEND FLOOD INSURANCE STUDY PROJECT NO. 11358
  2           ID   FCD 90-67
  3           ID
  4           ID   100-Year 6-Hour Duration Storm
  5           ID
  6           ID   03/25/92     Input Filename:  S&Q6.H1
  7           ID                                 Sauceda and Quilotosa Washes
  8           ID                                 (Major Basins # 3, 4, 5, & 6)
  9           ID
 10           ID        Green & AMPT Loss Rate Method
 11           ID        S-Graph Unit Hydrograph
 12           ID        Normal Depth Routing
              *
 13           IT       3 13MAR92    1200     360
 14           IO       5
 15           IN      15
              *
 16           JD   3.700   0.010
 17           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
 18           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
 19           PC   0.962   0.972   0.983   0.991   1.000
 20           JD   3.670   0.500
 21           JD   3.610   2.800
 22           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.067   0.076
 23           PC   0.087   0.100   0.120   0.163   0.252   0.451   0.694   0.837   0.900   0.938
 24           PC   0.950   0.963   0.975   0.988   1.000
 25           JD   3.410  15.800
 26           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
 27           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
 28           PC   0.946   0.960   0.973   0.987   1.000
 29           JD   3.180  50.000
 30           PC   0.000   0.018   0.027   0.040   0.059   0.074   0.089   0.106   0.123   0.138
 31           PC   0.155   0.175   0.201   0.249   0.332   0.485   0.664   0.785   0.856   0.901
 32           PC   0.937   0.953   0.969   0.985   1.000
 33           JD   3.050  80.000
 34           PC   0.000   0.020   0.033   0.048   0.068   0.084   0.101   0.120   0.138   0.154
 35           PC   0.173   0.194   0.224   0.273   0.356   0.496   0.660   0.776   0.845   0.891
 36           PC   0.930   0.947   0.965   0.983   1.000
 37           JD   3.000  90.000
 38           PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
 39           PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
 40           PC   0.927   0.945   0.964   0.982   1.000
 41           JD   2.660 200.000
 42           PC   0.000   0.022   0.037   0.053   0.073   0.090   0.109   0.129   0.148   0.167
 43           PC   0.188   0.211   0.242   0.292   0.376   0.504   0.650   0.763   0.834   0.882
 44           PC   0.922   0.941   0.961   0.981   1.000
 45           JD   2.440 300.000
 46           PC   0.000   0.023   0.039   0.055   0.075   0.093   0.112   0.133   0.153   0.173
 47           PC   0.196   0.220   0.252   0.301   0.387   0.508   0.642   0.754   0.827   0.876
 48           PC   0.917   0.937   0.959   0.979   1.000
 49           JD   2.350 350.000
 50           PC   0.000   0.023   0.040   0.056   0.075   0.094   0.114   0.135   0.155   0.176
 51           PC   0.200   0.225   0.257   0.306   0.392   0.510   0.638   0.749   0.824   0.873
 52           PC   0.914   0.935   0.958   0.979   1.000
 53           JD   2.110 500.000
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1

HEC-1 INPUT  PAGE 2

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

 54           PC   0.000   0.024   0.043   0.059   0.078   0.098   0.119   0.141   0.162   0.186
 55           PC   0.212   0.239   0.271   0.321   0.408   0.515   0.627   0.735   0.814   0.864
 56           PC   0.907   0.930   0.954   0.977   1.000
              *
 57           KK     3K
 58           KM        SUB-BASIN 3K at C12
 59           BA   8.94
 60           LG   0.35    0.34    4.01    0.58    1.00
 61           UI    251     251     251     251     251     251     251     251     251     710
 62           UI    824     824     962     962    1077    1154    1198    1227    1310    1342
 63           UI   1407    1433    1479    1543    1588    1648    1740    1816    1883    1934
 64           UI   1989    2137    2294    2492    2692    3022    3004    3364    3303    3077
 65           UI   2857    2702    2568    2450    2346    2254    2173    2100    2035    1976
 66           UI   1923    1803    1727    1663    1603    1525    1488    1442    1337    1308
 67           UI   1227    1216    1154    1123     962     962     779     721     721     566
 68           UI    444     444     444     444     432     412     412     412     412     412
 69           UI    290     251     251     251     251     251     251     251     251     153
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 70          UI      77      77      77      77      77      77      77      77      77      77
 71          UI      77      77      77      77      77      77      77      77      77      77
 72          UI      77      77      77      77      77      77      77      77      77       0
 73          UI       0       0       0       0       0       0       0       0       0       0
 74          UI       0       0       0       0       0       0       0       0       0       0
             *

 75          KK    C151
 76          KM        Return Hydrograph from C151ZR=QI A=BENDER   C=FLOW  F=C151-SPLIT
 77          ZR  =QI A=BENDER   C=FLOW  F=C151-SPLIT
             *

 78          KK    C12I
 79          KM        Combine 3K + C151
 80          HC       2  339.24
             *

 81          KK    C12O
 82          KM        Reservoir Route at C12 At The Gila Bend Canal
 83          RS       1    ELEV     730
 84          SV     0.0     5.0    12.0    22.0    36.0    52.0    72.0    99.0   132.0   171.0
 85          SV   216.0   266.0   294.5   323.0   355.5   388.0   437.5   487.0
 86          SE   730.0   731.0   732.0   733.0   734.0   735.0   736.0   737.0   738.0   739.0
 87          SE   740.0   741.0   741.5   742.0   742.5   743.0   743.5   744.0
 88          SQ     0.0     0.0    15.0    35.0    84.0   150.0   226.0   299.0   356.0   396.0
 89          SQ   439.0   482.0   503.8   637.8  1152.6  2529.6  5419.8  9836.1
 90          RL                    0.67   730.0
             *

 91          KK   DC12R
 92          KM        Main flow at C12 is in the right channel (C12R)
 93          KM        Diverted flow (DQ record) goes into the left channel (C12L)
 94          KM          C12R is outflow from the 2 sets of culverts plus weir flow over
 95          KM          the Gila Bend Canal north into R12-14.  The diverted flow is
 96          KM          added to the ponding at C11, C36, and C53.
 97          DT   DC12L
 98          DI     0.0   637.8  1152.6  2529.6  5419.8  9836.1
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 99          DQ     0.0     0.0    90.8   594.5  1836.5  3814.3
             *

100          KK  R12-14
101          KM       Channel Route From C12 To C14
102          KM       Representative Of X-SECT. 3M2
103          RS       4    FLOW      -1
104          RC   0.035   0.033   0.035    3200   0.001
105          RX  4010.0  5010.0  5055.0  5072.0  5087.0  5102.0  5147.0  5483.8
106          RY   100.6    95.6    95.9    85.6    85.6    94.8    94.2   100.6
107          RL                    9.78    85.6
             *

108          KK  R14-13
109          KM       Channel Route From C14 To C13
110          KM       X-SECT. 3M2
111          KO                                  21
112          RS       6    FLOW      -1
113          RC   0.035   0.033   0.035    6200   0.003
114          RX  4010.0  5010.0  5055.0  5072.0  5087.0  5102.0  5147.0  5483.8
115          RY   100.6    95.6    95.9    85.6    85.6    94.8    94.2   100.6
116          RL                   10.00    85.6
             *
             * Move to Top of Major Basin 3
             *

117          KK      3F
118          KM       SUB-BASIN 3F at C1
119          BA   12.14
120          LG    0.22    0.35    3.99    0.54   12.00
121          UI     303     303     303     303     303     303     303     303     303     303
122          UI     672     870     870     885    1161    1161    1242    1393    1428    1741
123          UI    1768    1833    1893    1934    2045    2105    2176    2246    2292    2342
124          UI    2401    2483    2619    2794    2957    3145    3392    3585    3969    3506
125          UI    3131    2487    2356    2257    2176    2048    1995    1934    1848    1826
126          UI    1786    1768    1741    1692    1658    1606    1583    1533    1514    1473
127          UI    1451    1423    1393    1369    1290    1290    1235    1222    1207    1161
128          UI    1161    1095    1039    1039     988     941     941     914     800     800
129          UI     800     784     741     741     741     739     696     696     696     696
130          UI     662     633     633     633     633     552     497     497     497     497
131          UI     497     464     387     387     387     387     387     387     387     376
132          UI     332     332     332     332     332     332     332     332     332     257
133          UI     232     232     232     232     232     232     232     232     232     232
134          UI     232     232     211     148     148     148     148     148     148     148
135          UI     148     148     148     148     148     148     148     148     148     148
136          UI     148     148     148     139      58      58      58      58      58      58
137          UI      58      58      58      58      58      58      58      58      58      58
138          UI      58      58      58      58      58      58      58      58      58      58
139          UI      58      58      58      58      58      58      58      58      58      58
140          UI      58      58      58      58      58      58      58      58      58      58
141          UI      58      58      58      58      58      58      58       0       0       0
142          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

143          KK    R1-3
144          KM       Channel Route From C1 To C3
145          KM       X-SECT. 3G1
146          RS      22    FLOW      -1
147          RC   0.060   0.049   0.070   13600   0.010
148          RX  4012.0  5012.0  5054.0  5064.0  5121.0  5136.0  5242.0  7602.0
149          RY    99.7    94.7    93.4    90.2    91.7    94.7    92.9    99.7
150          RL                    0.65    90.2
             *

151          KK      3E
152          KM       SUB-BASIN 3E at C2
153          BA    8.24
154          LG    0.23    0.35    4.24    0.42    4.00
155          UI     224     224     224     224     224     224     224     224     224     431
156          UI     643     643     683     858     858     979    1029    1194    1286    1353
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```
157        UI    1386    1429    1507    1563    1618    1660    1711    1755    1805    1883
158        UI    2020    2168    2302    2504    2656    2916    2504    2145    1810    1715
159        UI    1609    1545    1492    1429    1371    1347    1319    1300    1286    1229
160        UI    1214    1170    1150    1119    1096    1072    1051    1029     996     953
161        UI     943     903     903     865     858     825     768     768     725     695
162        UI     695     640     591     591     591     550     547     547     546     515
163        UI     515     515     515     472     468     468     468     430     368     368
164        UI     368     368     368     320     286     286     286     286     286     286
165        UI     280     245     245     245     245     245     245     245     245     211
166        UI     172     172     172     172     172     172     172     172     172     172
167        UI     172     167     109     109     109     109     109     109     109     109
168        UI     109     109     109     109     109     109     109     109     109     109
169        UI     109      67      43      43      43      43      43      43      43      43
170        UI      43      43      43      43      43      43      43      43      43      43
171        UI      43      43      43      43      43      43      43      43      43      43
172        UI      43      43      43      43      43      43      43      43      43      43
173        UI      43      43      43      43      43      43      43      43      43      43
174        UI       0       0       0       0       0       0       0       0       0       0
175        UI       0       0       0       0       0       0       0       0       0       0
           *

176        KK    R2-3
177        KM       Channel Route From C2 To C3
178        KM       Representative Of X-SECT. 3G1
179        RS      12    FLOW      -1
180        RC   0.060   0.049   0.070    7200   0.010
181        RX  4012.0  5012.0  5054.0  5064.0  5121.0  5136.0  5242.0  7602.0
182        RY    99.7    94.7    93.4    90.2    91.7    94.7    92.9    99.7
183        RL                    0.70    90.2
           *

184        KK      3G
185        KM       SUB-BASIN 3G
186        BA    5.12
187        LG    0.26    0.35    4.14    0.42    4.00
188        UI     187     187     187     187     187     187     187     520     539     627
189        UI     718     812     888    1077    1128    1180    1241    1314    1373    1420
190        UI    1473    1531    1681    1831    2016    2210    2364    1965    1515    1408
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LINE       ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

191        UI    1320    1247    1185    1134    1105    1082    1047    1012     979     939
192        UI     915     895     862     827     798     761     751     718     696     643
193        UI     628     582     582     497     495     484     458     458     447     431
194        UI     431     417     392     392     392     309     308     308     308     260
195        UI     239     239     239     239     233     205     205     205     205     205
196        UI     205     160     144     144     144     144     144     144     144     144
197        UI     116      92      92      92      92      92      92      92      92      92
198        UI      92      92      92      92      85      36      36      36      36      36
199        UI      36      36      36      36      36      36      36      36      36      36
200        UI      36      36      36      36      36      36      36      36      36      36
201        UI      36      36      36      36      36      36      36      36      36      36
202        UI      36       0       0       0       0       0       0       0       0       0
203        UI       0       0       0       0       0       0       0       0       0       0
           *

204        KK      C3
205        KM       Combine R1-3 + R2-3 + 3G
206        HC       3
           *

207        KK    R3-5
208        KM       Channel Route From C3 To C5
209        KM       X-SECT. 3H1
210        RS       8    FLOW      -1
211        RC   0.060   0.043   0.070   14000   0.011
212        RX  4006.0  5006.0  5012.0  5030.0  5099.0  5114.0  5214.0  5440.5
213        RY   101.6    96.6    94.9    89.5    91.2    94.3    92.5   101.6
214        RL                    1.75    89.5
           *

215        KK      3H
216        KM       SUB-BASIN 3H
217        BA    6.78
218        LG    0.26    0.35    4.03    0.39    3.00
219        UI     148     148     148     148     148     148     148     148     148     148
220        UI     148     202     426     426     426     438     568     568     569     682
221        UI     682     757     852     870     897     919     947     980    1003    1056
222        UI    1072    1100    1122    1139    1176    1200    1231    1311    1400    1456
223        UI    1538    1649    1731    1861    1872    1640    1455    1218    1149    1114
224        UI    1065    1024    1003     951     943     897     894     874     872     852
225        UI     850     812     812     778     775     753     741     732     710     710
226        UI     687     682     669     631     631     615     598     598     581     568
227        UI     568     540     509     509     507     461     461     461     444     392
228        UI     392     392     392     369     363     363     363     363     342     341
229        UI     341     341     341     316     310     310     310     310     298     244
230        UI     244     244     244     244     244     244     190     189     189     189
231        UI     189     189     189     189     189     169     162     162     162     162
232        UI     162     162     162     162     162     162     115     114     114     114
233        UI     114     114     114     114     114     114     114     114     114     114
234        UI     114      90      73      73      73      73      73      73      73      73
235        UI      73      73      73      73      73      73      73      73      73      73
236        UI      73      73      73      73      73      53      28      28      28      28
237        UI      28      28      28      28      28      28      28      28      28      28
238        UI      28      28      28      28      28      28      28      28      28      28
239        UI      28      28      28      28      28      28      28      28      28      28
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LINE       ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

240        UI      28      28      28      28      28      28      28      28      28      28
241        UI      28      28      28      28      28      28      28      28      28      28
242        UI      28      28      28      28      28      28      28       0       0       0
243        UI       0       0       0       0       0       0       0       0       0       0
           *

244        KK      C5
245        KM       Combine R3-5 + 3H
246        HC       2
           *

247        KK    R5-7
248        KM       Channel Route From C5 To C7
249        KM       Representative Of X-SECT. 3D1
```

```
250          RS      12    FLOW      -1
251          RC   0.060   0.044   0.050   11200   0.010
252          RX  4066.0  5066.0  5129.0  5159.0  5291.0  5296.0  5371.0  6331.0
253          RY    98.1    93.1    94.7    91.2    90.0    92.8    93.3    98.1
254          RL                    2.09    90.0
             *

255          KK      3C
256          KM       SUB-BASIN 3C at C4
257          BA   11.27
258          LG    0.28    0.35    3.98    0.37    1.00
259          UI     281     281     281     281     281     281     281     281     281     281
260          UI     624     808     808     822    1077    1077    1153    1293    1325    1616
261          UI    1642    1701    1757    1796    1898    1954    2020    2085    2127    2174
262          UI    2229    2305    2431    2594    2745    2919    3149    3328    3685    3255
263          UI    2907    2309    2187    2096    2020    1901    1852    1796    [illegible]    1593
264          UI    1658    1642    1616    1571    1539    1491    1469    1424    1405    1368
265          UI    1347    1321    1293    1270    1197    1197    1146    1134    1121    1077
266          UI    1077    1017     965     965     917     874     874     848     743     743
267          UI     743     728     688     688     688     686     646     646     646     646
268          UI     614     588     588     588     588     512     462     462     462     462
269          UI     462     431     359     359     359     359     359     359     359     349
270          UI     308     308     308     308     308     308     308     308     308     239
271          UI     216     215     215     215     215     215     215     215     215     215
272          UI     215     216     196     138     138     138     138     138     138     138
273          UI     138     138     138     138     138     138     138     138     138     138
274          UI     138     138     138     129      54      54      54      54      54      54
275          UI      54      54      54      54      54      54      54      54      54      54
276          UI      54      54      54      54      54      54      54      54      54      54
277          UI      54      54      54      54      54      54      54      54      54      54
278          UI      54      54      54      54      54      54      54      54      54      54
279          UI      54      54      54      54      54      54      54       0       0       0
280          UI       0       0       0       0       0       0       0       0       0       0
             *

281          KK    R4-7
282          KM       Channel Route From C4 To C7
283          KM       X-SECT. 3D1
284          RS      15    FLOW      -1
285          RC   0.060   0.044   0.050   14800   0.011
286          RX  4066.0  5066.0  5129.0  5159.0  5291.0  5296.0  5371.0  6331.0
```



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

287          RY    98.1    93.1    94.7    91.2    90.0    92.8    93.3    98.1
288          RL                    3.32    90.0
             *

289          KK      3D
290          KM       SUB-BASIN 3D
291          BA    6.51
292          LG    0.33    0.35    3.61    0.31    0.00
293          UI     196     196     196     196     196     196     196     196     381     643
294          UI     643     729     750     834     900     940     958    1041    1064    1098
295          UI    1143    1176    1217    1284    1337    1402    1465    1508    1560    1675
296          UI    1820    1981    2248    2224    2544    2641    2451    2290    2139    2018
297          UI    1920    1833    1757    1689    1629    1574    1525    1463    1390    1324
298          UI    1255    1211    1174    1125    1056    1021     958     941     900     838
299          UI     750     717     563     563     522     346     346     346     346     338
300          UI     322     322     322     322     308     196     196     196     196     196
301          UI     196     196     196     125      60      60      60      60      60      60
302          UI      60      60      60      60      60      60      60      60      60      60
303          UI      60      60      60      60      60      60      60      60      60      60
304          UI      60       0       0       0       0       0       0       0       0       0
305          UI       0       0       0       0       0       0       0       0       0       0
             *

306          KK      C7
307          KM       Combine R5-7 + R4-7 + 3D
308          HC       3
             *

309          KK   R7-90
310          KM       Channel Route From C7 To C90
311          KM       Representative Of X-SECT. 3D1
312          RS       8    FLOW      -1
313          RC   0.060   0.044   0.050    9200   0.011
314          RX  4066.0  5066.0  5129.0  5159.0  5291.0  5296.0  5371.0  6331.0
315          RY    98.1    93.1    94.7    91.2    90.0    92.8    93.3    98.1
316          RL                    1.73    90.0
             *

317          KK      3A
318          KM       SUB-BASIN 3A at C6
319          BA   11.19
320          LG    0.24    0.35    4.20    0.46    4.00
321          UI     230     230     230     230     230     230     230     230     230     230
322          UI     230     230     414     660     660     660     672     881     881     881
323          UI    1017    1057    1067    1321    1321    1380    1390    1450    1468    1537
324          UI    1554    1646    1662    1704    1733    1761    1814    1840    1887    1996
325          UI    2088    2203    2297    2463    2593    2714    2938    2852    2532    2271
326          UI    1887    1796    1752    1651    1619    1554    1513    1468    1429    1390
327          UI    1375    1355    1345    1321    1314    1258    1258    1211    1201    1179
328          UI    1149    1149    1106    1101    1089    1057    1057    1015     978     978
329          UI     948     927     927     905     881     881     863     789     789     789
330          UI     749     714     714     714     663     607     607     607     607     575
331          UI     562     562     562     562     542     528     528     528     528     523
332          UI     480     480     480     480     480     469     377     377     377     377
333          UI     377     377     377     339     294     294     294     294     294     294
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

334          UI     294     294     294     268     252     252     252     [illegible]     252     252
335          UI     252     252     252     252     242     176     176     176     176     176
336          UI     176     176     176     176     176     176     176     176     176     176
337          UI     176     129     112     112     112     112     112     112     112     112
338          UI     112     112     112     112     112     112     112     112     112     112
339          UI     112     112     112     112     112     112     110      44      44      44
340          UI      44      44      44      44      44      44      44      44      44      44
341          UI      44      44      44      44      44      44      44      44      44      44
342          UI      44      44      44      44      44      44      44      44      44      44
343          UI      44      44      44      44      44      44      44      44      44      44
344          UI      44      44      44      44      44      44      44      44      44      44
```

```
345        UI      44      44      44      44      44      44      44      44      44      44
346        UI      44      44       0       0       0       0       0       0       0       0
347        UI       0       0       0       0       0       0       0       0       0       0
           *

348        KK   R6-90
349        KM       Channel Route From C6 To C90
350        KM       X-SECT. 3B1
351        RS      44    FLOW      -1
352        RC   0.050   0.049   0.060   34000   0.014
353        RX  4129.0  5129.0  5153.0  5159.0  5184.0  5193.0  5355.0  7275.0
354        RY   101.0    96.0    94.7    91.0    90.8    93.8    91.4   101.0
355        RL                   0.79    90.8
           *

356        KK     C90
357        KM       Combine R7-90 + R6-90
358        HC       2
           *

359        KK   R90-8
360        KM       Channel Route From C90 To C8
361        KM       Representative Of X-SECT. 3I1
362        RS       6    FLOW      -1
363        RC   0.050   0.059   0.050    7200   0.009
364        RX  5069.1  5261.0  5330.0  5365.0  5392.0  5402.0  5996.0  6122.0
365        RY    96.7    91.7    94.1    91.0    90.7    94.0    94.2    98.5
366        RL                   0.64    90.7
           *

367        KK      3B
368        KM       SUB-BASIN 3B
369        BA    6.42
370        LG    0.35    0.35    3.50    0.29    0.00
371        UI     198     198     198     198     198     198     198     198     490     652
372        UI     662     760     760     900     918     970    1006    1061    1104    1132
373        UI    1170    1228    1274    1328    1392    1471    1520    1567    1671    1806
374        UI    1986    2219    2294    2535    2681    2486    2321    2161    2039    1938
375        UI    1850    1771    1701    1639    1583    1533    1456    1382    1321    1267
376        UI    1202    1165    1126    1037    1001     970     922     910     760     760
377        UI     602     570     570     367     351     351     351     346     326     326
378        UI     326     326     311     198     198     198     198     198     198     198
379        UI     198      94      61      61      61      61      61      61      61      61
380        UI      61      61      61      61      61      61      61      61      61      61
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LINE       ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

381        UI      61      61      61      61      61      61      61      61       0       0
382        UI       0       0       0       0       0       0       0       0       0       0
           *

383        KK      C8
384        KM       Combine R90-8 + 3B
385        HC       2
           *

386        KK    R8-9
387        KM       Channel Route From C8 To C9
388        KM       X-SECT. 3I1
389        RS      45    FLOW      -1
390        RC   0.050   0.059   0.050   42000   0.009
391        RX  5069.1  5261.0  5330.0  5365.0  5392.0  5402.0  5996.0  6122.0
392        RY    96.7    91.7    94.1    91.0    90.7    94.0    94.2    98.5
393        RL                   0.64    90.7
           *

394        KK      3I
395        KM       SUB-BASIN 3I
396        BA    5.10
397        LG    0.35    0.35    3.50    0.30    0.00
398        UI     124     124     124     124     124     124     124     124     124     124
399        UI     220     406     406     413     474     474     504     568     568     605
400        UI     605     651     661     688     693     726     734     768     786     812
401        UI     851     876     917     942     961     986    1052    1123    1204    1270
402        UI    1463    1406    1531    1667    1636    1533    1446    1371    1306    1250
403        UI    1200    1157    1119    1084    1052    1016     992     969     947     892
404        UI     865     836     795     781     748     731     710     673     646     623
405        UI     605     591     568     563     474     474     441     355     355     355
406        UI     278     219     219     219     219     219     210     203     203     203
407        UI     203     203     199     124     124     124     124     124     124     124
408        UI     124     124     124      89      38      38      38      38      38      38
409        UI      38      38      38      38      38      38      38      38      38      38
410        UI      38      38      38      38      38      38      38      38      38      38
411        UI      38      38      38      38      38      38      38      38       0       0
412        UI       0       0       0       0       0       0       0       0       0       0
           *

413        KK      C9
414        KM       Combine R8-9 + 3I
415        HC       2
           *

416        KK   R9-10
417        KM       Channel Route From C9 To C10
418        KM       Revised Interpolation of X-SECTS. 3J1 and 3J2.
419        RS      53    FLOW      -1
420        RC   0.050   0.050   0.060   47000   0.007
421        RX  4940.4  5089.0  5172.0  5191.0  5236.0  5252.0  5309.0  5642.1
422        RY    99.9    93.9    93.9    89.1    88.9    94.1    93.6    99.9
423        RL                   1.73    88.9
           *
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LINE       ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

424        KK      3J
425        KM       SUB-BASIN 3J
426        BA   11.25
427        LG    0.35    0.35    3.82    0.36    0.00
428        UI     189     189     189     189     189     189     189     189     189     189
429        UI     189     189     189     189     189     478     622     622     622     622
430        UI     726     726     726     726     871     871     871     908     927     927
431        UI     973    1013    1013    1046    1062    1062    1113    1117    1137    1177
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432          UI    1177    1236    1245    1285    1320    1348    1405    1418    1452    1465
433          UI    1502    1539    1613    1682    1742    1874    1923    1980    2361    2190
434          UI    2166    2429    2562    2562    2448    2344    2254    2178    2074    2018
435          UI    1969    1894    1847    1815    1742    1720    1675    1638    1613    1567
436          UI    1556    1506    1502    1452    1452    1361    1361    1292    1281    1238
437          UI    1210    1197    1146    1146    1108    1089    1089     990     990     986
438          UI     927     927     927     875     871     871     784     726     726     726
439          UI     617     544     544     544     544     489     335     335     335     335
440          UI     335     335     335     335     321     311     311     311     311     311
441          UI     311     311     311     279     189     189     189     189     189     189
442          UI     189     189     189     189     189     189     189     189     189      67
443          UI      58      58      58      58      58      58      58      58      58      58
444          UI      58      58      58      58      58      58      58      58      58      58
445          UI      58      58      58      58      58      58      58      58      58      58
446          UI      58      58      58      58      58      58      58      58      58      58
447          UI      58      58      58      58      58      58      58      58      58       0
448          UI       0       0       0       0       0       0       0       0       0       0
449          UI       0       0       0       0       0       0       0       0       0       0
             *

450          KK     C10
451          KM       Combine R9-10 + 3J
452          HC       2
             *

453          KK  R10-11
454          KM       Channel Route From C10 To C11
455          KM       X-SECT. 3L1
456          RS      24     FLOW      -1
457          RC   0.600    0.053   0.060   13000   0.005
458          RX  4829.0   5054.0  5108.0  5116.0  5124.0  5129.0  5869.0  7369.0
459          RY    99.1     94.1    92.9    89.9    89.8    91.6    91.6    99.1
460          RL                    0.36    89.8
             *

461          KK      3L
462          KM       SUB-BASIN 3L
463          BA    2.48
464          LG    0.36    0.31    3.82    0.33    3.00
465          UI      96      96      96      96      96      96     168     315     331     368
466          UI     409     445     470     502     526     547     572     600     634     675
467          UI     718     745     791     867     975    1129    1157    1293    1191    1082
468          UI    1005     940     887     839     802     768     737     686     645     611
469          UI     581     553     511     485     465     441     389     368     278     276
470          UI     206     170     170     170     159     158     158     158     107      96
471          UI      96      96      96      96      86      29      29      29      29      29
```



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

472          UI      29      29      29      29      29      29      29      29      29      29
473          UI      29      29      29      29      29      29       0       0       0       0
474          UI       0       0       0       0       0       0       0       0       0       0
             *

475          KK    C11I
476          KM       Combine R10-11 + 3L
477          KO                                     21
478          HC       2
             *
             * Move to Top of Major Basin 4
             *

479          KK      4A
480          KM       SUB-BASIN 4A at C26
481          BA   11.75
482          LG    0.23    0.35    4.26    0.43    4.00
483          UI     235     235     235     235     235     235     235     235     235     235
484          UI     235     235     288     677     677     677     677     821     903     903
485          UI     953    1083    1083    1213    1354    1371    1425    1434    1504    1513
486          UI    1593    1612    1693    1714    1747    1786    1805    1867    1892    1934
487          UI    2052    2141    2257    2354    2513    2647    2766    2966    2999    2641
488          UI    2441    1934    1873    1805    1716    1693    1593    1584    1504    1498
489          UI    1425    1425    1391    1389    1362    1354    1320    1290    1279    1231
490          UI    1231    1193    1177    1171    1128    1128    1108    1083    1083    1031
491          UI    1003    1003     970     950     950     930     903     903     896     808
492          UI     808     808     784     732     732     732     713     623     623     623
493          UI     623     608     576     576     576     576     575     542     542     542
494          UI     542     542     520     492     492     492     492     492     463     387
495          UI     387     387     387     387     387     387     349     301     301     301
496          UI     301     301     301     301     301     301     285     258     258     258
497          UI     258     258     258     258     258     258     258     258     211     181
498          UI     181     181     181     181     181     181     181     181     181     181
499          UI     181     181     181     181     181     128     115     115     115     115
500          UI     115     115     115     115     115     115     115     115     115     115
501          UI     115     115     115     115     115     115     115     115     115     115
502          UI     115      82      45      45      45      45      45      45      45      45
503          UI      45      45      45      45      45      45      45      45      45      45
504          UI      45      45      45      45      45      45      45      45      45      45
505          UI      45      45      45      45      45      45      45      45      45      45
506          UI      45      45      45      45      45      45      45      45      45      45
507          UI      45      45      45      45      45      45      45      45      45      45
508          UI      45      45      45      45      45      45      45      45       0       0
509          UI       0       0       0       0       0       0       0       0       0       0
             *

510          KK  R26-27
511          KM       Channel Route From C26 To C27
512          KM       X-SECT. 481
513          RS      11     FLOW      -1
514          RC   0.060    0.051   0.060   17800   0.010
515          RX  4600.0   5100.0  5175.0  5180.0  5264.0  5336.0  5386.0  6626.0
516          RY   100.6     95.6    94.5    90.3    89.6    94.1    94.4   100.6
517          RL                    5.67    89.6
             *
```



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

518          KK      4B
519          KM       SUB-BASIN 4B
520          BA    6.14
521          LG    0.30    0.35    3.87    0.38    0.00
522          UI     205     205     205     205     205     205     205     325     673     673
```

```
523     UI     773     785     923     953    1002    1059    1104    1148    1195    1238
524     UI    1289    1349    1427    1513    1564    1617    1733    1909    2082    2432
525     UI    2365    2727    2680    2440    2280    2125    2009    1912    1826    1749
526     UI    1678    1619    1562    1471    1385    1319    1264    1216    1175    1070
527     UI    1033    1002     944     899     785     736     588     588     463     362
528     UI     362     362     358     336     336     336     336     275     205     205
529     UI     205     205     205     205     205     102      63      63      63      63
530     UI      63      63      63      63      63      63      63      63      63      63
531     UI      63      63      63      63      63      63      63      63      63      63
532     UI       0       0       0       0       0       0       0       0       0       0
533     UI       0       0       0       0       0       0       0       0       0       0
        *

534     KK     C27
535     KM       Combine R26-27 + 4B
536     HC       2
        *

537     KK   R27-28
538     KM       Channel Route From C27 To C28
539     KM       X-SECT. 4C1
540     RS      45    FLOW      -1
541     RC   0.060   0.043   0.060   24800   0.006
542     RX  4054.0  5054.0  5066.0  5076.0  5133.0  5151.0  5214.0  6054.0
543     RY   101.2    96.2    95.8    92.8    93.3    95.5    97.0   101.2
544     RL                   1.56    92.8
        *

545     KK      4C
546     KM       SUB-BASIN 4C
547     BA   12.33
548     LG    0.31    0.35    3.77    0.38    0.00
549     UI     264     264     264     264     264     264     264     264     264     264
550     UI     264     264     847     869     869     912    1014    1014    1046    1216
551     UI    1216    1259    1294    1304    1414    1414    1472    1483    1536    1559
552     UI    1614    1644    1710    1738    1830    1861    1962    1996    2027    2094
553     UI    2166    2258    2433    2585    2706    2989    3174    3053    3455    3577
554     UI    3458    3261    3094    2951    2827    2720    2626    2534    2442    2376
555     UI    2318    2252    2186    2145    2097    2038    1992    1901    1833    1789
556     UI    1707    1689    1606    1600    1525    1520    1402    1382    1333    1294
557     UI    1287    1216    1216    1120    1014    1014     928     760     760     760
558     UI     717     468     468     468     468     468     468     456     434     434
559     UI     434     434     434     434     431     264     264     264     264     264
560     UI     264     264     264     264     264     264     264      84      81      81
561     UI      81      81      81      81      81      81      81      81      81      81
562     UI      81      81      81      81      81      81      81      81      81      81
563     UI      81      81      81      81      81      81      81      81      81      81
564     UI      81      81      81      81      81      81       0       0       0       0
565     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

566     KK     C28
567     KM       Combine R27-28 + 4C
568     HC       2
        *

569     KK   R28-29
570     KM       Channel Route From C28 To C29
571     KM       Representative Of X-SECT. 4C1
572     RS       6    FLOW      -1
573     RC   0.060   0.043   0.060    7000   0.022
574     RX  4054.0  5054.0  5066.0  5076.0  5133.0  5151.0  5214.0  6054.0
575     RY   101.2    96.2    95.8    92.8    93.3    95.5    97.0   101.2
576     RL                   2.17    92.8
        *

577     KK      4E
578     KM       SUB-BASIN 4E at C20
579     BA    4.88
580     LG    0.25    0.35    4.11    0.48    7.00
581     UI     124     124     124     124     124     124     124     124     124     124
582     UI     330     358     358     401     477     477     546     573     647     716
583     UI     744     757     795     819     842     895     912     931     954     984
584     UI    1010    1055    1125    1204    1268    1382    1461    1605    1480    1311
585     UI    1034     973     930     895     842     818     795     757     749     734
586     UI     724     716     689     682     653     651     623     622     597     596
587     UI     576     573     545     530     522     502     502     483     477     471
588     UI     427     427     420     387     387     387     333     329     329     327
589     UI     305     305     305     305     287     286     286     286     272     260
590     UI     260     260     260     220     204     204     204     204     204     179
591     UI     159     159     159     159     159     159     159     145     136     136
592     UI     136     136     136     136     136     136     120      95      95      95
593     UI      95      95      95      95      95      95      95      95      95      89
594     UI      61      61      61      61      61      61      61      61      61      61
595     UI      61      61      61      61      61      61      61      61      61      61
596     UI      42      24      24      24      24      24      24      24      24      24
597     UI      24      24      24      24      24      24      24      24      24      24
598     UI      24      24      24      24      24      24      24      24      24      24
599     UI      24      24      24      24      24      24      24      24      24      24
600     UI      24      24      24      24      24      24      24      24      24      24
601     UI      24      24      24       0       0       0       0       0       0       0
602     UI       0       0       0       0       0       0       0       0       0       0
        *

603     KK   R20-21
604     KM       Channel Route From C20 To C21
605     KM       Representative Of X-SECT. 4G1
606     RS       8    FLOW      -1
607     RC   0.070   0.049   0.060   15400   0.013
608     RX  4015.0  5015.0  5070.0  5080.0  5110.0  5119.0  5149.0  6249.0
609     RY   101.7    96.7    93.9    90.6    91.0    95.0    96.2   101.7
610     RL                   2.58    90.6
        *
```



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

611     KK      4F
612     KM       SUB-BASIN 4F
613     BA    6.16
```

```
614          LG    0.27    0.35    4.14    0.49   10.00
615          UI     216     216     216     216     216     216     216     475     621     638
616          UI     828     855     994    1133    1261    1312    1380    1454    1537    1593
617          UI    1646    1705    1773    1942    2109    2304    2534    2753    2353    1833
618          UI    1656    1553    1461    1387    1325    1289    1265    1241    1183    1147
619          UI    1116    1080    1045    1025     994     946     920     875     867     828
620          UI     812     742     739     671     671     604     571     571     533     529
621          UI     529     501     497     497     466     452     452     436     355     355
622          UI     355     355     301     276     276     276     276     276     240     237
623          UI     237     237     237     237     222     166     166     166     166     166
624          UI     166     166     166     166     130     106     106     106     106     106
625          UI     106     106     106     106     106     106     106     106     106      70
626          UI      41      41      41      41      41      41      41      41      41      41
627          UI      41      41      41      41      41      41      41      41      41      41
628          UI      41      41      41      41      41      41      41      41      41      41
629          UI      41      41      41      41      41      41      41       0       0       0
630          UI       0       0       0       0       0       0       0       0       0       0
             *

631          KK     C21
632          KM       Combine R20-21 + 4F
633          HC       2
             *

634          KK  R21-23
635          KM       Channel Route From C21 To C23
636          KM       X-SECT. 4G1
637          RS      11    FLOW      -1
638          RC   0.070   0.049   0.060    8000   0.010
639          RX  4015.0  5015.0  5070.0  5080.0  5110.0  5119.0  5149.0  6249.0
640          RY   101.7    96.7    93.9    90.6    91.0    95.0    96.2   101.7
641          RL                   0.84    90.6
             *

642          KK      4D
643          KM       SUB-BASIN 4D at C22
644          BA    4.57
645          LG    0.25    0.35    4.24    0.40    0.00
646          UI     105     105     105     105     105     105     105     105     105     105
647          UI     105     265     303     303     303     395     404     404     484     485
648          UI     553     606     626     638     665     674     713     729     757     777
649          UI     790     808     831     848     870     932     994    1037    1105    1182
650          UI    1244    1364    1264    1126     933     845     808     763     743     713
651          UI     686     673     640     637     622     619     606     599     577     572
652          UI     551     550     527     527     509     505     495     485     483     449
653          UI     449     439     425     425     412     404     404     374     362     362
654          UI     346     328     328     328     286     279     279     279     266     258
655          UI     258     258     257     242     242     242     242     238     220     220
656          UI     220     220     220     181     173     173     173     173     173     173
657          UI     135     135     135     135     135     135     135     135     130     115
658          UI     115     115     115     115     115     115     115     115     114      81
```



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

659          UI      81      81      81      81      81      81      81      81      81      81
660          UI      81      81      81      68      52      52      52      52      52      52
661          UI      52      52      52      52      52      52      52      52      52      52
662          UI      52      52      52      52      52      52      34      20      20      20
663          UI      20      20      20      20      20      20      20      20      20      20
664          UI      20      20      20      20      20      20      20      20      20      20
665          UI      20      20      20      20      20      20      20      20      20      20
666          UI      20      20      20      20      20      20      20      20      20      20
667          UI      20      20      20      20      20      20      20      20      20      20
668          UI      20      20      20      20       0       0       0       0       0       0
669          UI       0       0       0       0       0       0       0       0       0       0
             *

670          KK  R22-23
671          KM       Channel Route From C22 To C23
672          KM       X-SECT. 4G2
673          RS      13    FLOW      -1
674          RC   0.050   0.050   0.050   14200   0.011
675          RX  4015.0  5015.0  5030.0  5048.0  5084.0  5096.0  5201.0  7381.0
676          RY   103.6    98.6    97.7    89.5    88.0    92.3    92.7   103.6
677          RL                   1.45    88.0
             *

678          KK      4G
679          KM       SUB-BASIN 4G
680          BA    7.70
681          LG    0.27    0.35    4.08    0.44    0.00
682          UI     229     229     229     229     229     229     229     229     374     660
683          UI     660     731     879     891    1055    1103    1319    1366    1407    1466
684          UI    1542    1611    1670    1715    1765    1820    1885    2023    2202    2339
685          UI    2565    2730    2944    2506    2027    1801    1700    1617    1547    1466
686          UI    1412    1379    1353    1326    1301    1256    1216    1197    1147    1132
687          UI    1099    1077    1055    1006     977     947     926     905     879     862
688          UI     788     788     738     713     713     620     607     607     580     561
689          UI     561     559     528     528     528     514     480     480     480     465
690          UI     377     377     377     377     377     304     293     293     293     293
691          UI     293     289     251     251     251     251     251     251     251     237
692          UI     176     176     176     176     176     176     176     176     176     176
693          UI     176     120     112     112     112     112     112     112     112     112
694          UI     112     112     112     112     112     112     112     112     100      44
695          UI      44      44      44      44      44      44      44      44      44      44
696          UI      44      44      44      44      44      44      44      44      44      44
697          UI      44      44      44      44      44      44      44      44      44      44
698          UI      44      44      44      44      44      44      44      44      44      44
699          UI      44      44      44      44       0       0       0       0       0       0
700          UI       0       0       0       0       0       0       0       0       0       0
             *

701          KK     C23
702          KM       Combine R21-23 + R22-23 + 4G
703          HC       3
             *
```



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

704          KK  R23-29
705          KM       Channel Route From C23 To C29
706          KM       X-SECT. 4J1
```

```
707          RS      41    FLOW      -1
708          RC   0.060   0.040   0.070   38800   0.009
709          RX  4010.0  5010.0  5106.0  5118.0  5187.0  5202.0  5499.0  6039.0
710          RY    99.0    94.0    93.8    90.0    90.0    95.3    96.3    99.0
711          RL                    2.34    90.0
             *

712          KK      4J
713          KM       SUB-BASIN 4J
714          BA    6.09
715          LG    0.33    0.35    3.61    0.30    0.00
716          UI     163     163     163     163     163     163     163     163     163     289
717          UI     535     535     570     624     624     734     749     786     796     856
718          UI     870     913     926     960     993    1017    1069    1109    1151    1207
719          UI    1245    1276    1334    1421    1532    1650    1843    1895    2002    2200
720          UI    2134    1992    1857    1760    1675    1601    1536    1478    1427    1381
721          UI    1337    1294    1260    1213    1162    1101    1059    1031     985     957
722          UI     936     860     848     796     793     749     749     628     624     554
723          UI     468     468     452     288     288     288     288     288     275     267
724          UI     267     267     267     267     189     163     163     163     163     163
725          UI     163     163     163     153      50      50      50      50      50      50
726          UI      50      50      50      50      50      50      50      50      50      50
727          UI      50      50      50      50      50      50      50      50      50      50
728          UI      50      50      50      50      50       0       0       0       0       0
729          UI       0       0       0       0       0       0       0       0       0       0
             *

730          KK     C29
731          KM       Combine R28-29 + R23-29 + 4J
732          HC       3
             *

733          KK  R29-31
734          KM       Channel Route From C29 To C31
735          KM       X-SECT. 4K1
736          RS      12    FLOW      -1
737          RC   0.070   0.031   0.060   18000   0.008
738          RX  4949.3  5180.0  5280.0  5286.0  5380.0  5386.0  5449.0  5604.7
739          RY    95.8    90.8    88.7    87.0    86.6    89.1    89.7    95.8
740          RL                    3.03    86.6
             *

741          KK      4K
742          KM       SUB-BASIN 4K
743          BA    3.91
744          LG    0.35    0.35    3.50    0.28    0.00
745          UI     115     115     115     115     115     115     115     115     184     379
746          UI     379     417     443     471     531     545     565     598     618     648
747          UI     662     681     716     741     769     805     855     879     905     953
748          UI    1025    1115    1192    1401    1345    1536    1527    1420    1313    1239
749          UI    1175    1120    1070    1027     988     954     923     895     855     814
```



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

750          UI     779     738     712     691     664     621     602     565     557     531
751          UI     500     443     435     332     332     328     204     204     204     204
752          UI     203     190     190     190     190     190     132     115     115     115
753          UI     115     115     115     115     113      35      35      35      35      35
754          UI      35      35      35      35      35      35      35      35      35      35
755          UI      35      35      35      35      35      35      35      35      35      35
756          UI      35      35      35       0       0       0       0       0       0       0
757          UI       0       0       0       0       0       0       0       0       0       0
             *

758          KK     C31
759          KM       Combine R29-31 + 4K
760          HC       2
             *

761          KK  R31-32
762          KM       Channel Route From C31 To C32
763          KM       Representative Of X-SECT. 4K1
764          KO                                     21
765          RS      12    FLOW      -1
766          RC   0.070   0.031   0.060   20600   0.010
767          RX  4949.3  5180.0  5280.0  5286.0  5380.0  5386.0  5449.0  5604.7
768          RY    95.8    90.8    88.7    87.0    86.6    89.1    89.7    95.8
769          RL                    3.21    86.6
             *

770          KK      4H
771          KM       SUB-BASIN 4H at C24
772          BA    6.11
773          LG    0.24    0.40    6.29    0.16   12.00
774          UI     179     179     179     179     179     179     179     179     240     514
775          UI     514     534     686     686     798     823    1008    1048    1083    1137
776          UI    1179    1227    1286    1327    1363    1403    1447    1523    1646    1756
777          UI    1904    2056    2262    2156    1831    1465    1371    1295    1235    1186
778          UI    1143    1084    1068    1054    1029    1004     980     940     927     894
779          UI     878     857     837     823     781     762     737     722     706     686
780          UI     677     614     614     582     556     556     496     473     473     459
781          UI     438     438     438     417     411     411     411     376     374     374
782          UI     374     315     294     294     294     294     270     229     229     229
783          UI     229     229     229     213     196     196     196     196     196     196
784          UI     196     171     137     137     137     137     137     137     137     137
785          UI     137     137     137      92      88      88      88      88      88      88
786          UI      88      88      88      88      88      88      88      88      88      88
787          UI      88      40      34      34      34      34      34      34      34      34
788          UI      34      34      34      34      34      34      34      34      34      34
789          UI      34      34      34      34      34      34      34      34      34      34
790          UI      34      34      34      34      34      34      34      34      34      34
791          UI      34      34      34      34      34      34      34       0       0       0
792          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

793          KK  R24-25
794          KM       Channel Route From C24 To C25
795          KM       Representative Of X-SECT. 681
796          RS      59    FLOW      -1
797          RC   0.070   0.045   0.060   20000   0.001
```

```
 798          RX  4662.5  5037.5  5075.0  5088.0  5133.0  5146.0  5196.0  5566.0
 799          RY   101.0    96.0    95.5    91.5    90.0    96.8    97.3   101.0
 800          RL                    0.73    90.0
              *

 801          KK      4I
 802          KM       SUB-BASIN 4I
 803          BA   15.52
 804          LG    0.29    0.35    4.14    0.40    4.00
 805          UI     405     405     405     405     405     405     405     405     405     489
 806          UI    1165    1165    1165    1425    1553    1681    1863    1863    2301    2356
 807          UI    2452    2532    2594    2740    2839    2930    3005    3092    3167    3251
 808          UI    3360    3586    3882    4047    4450    4713    5138    4925    4313    3445
 809          UI    3180    3033    2911    2740    2658    2588    2453    2429    2389    2348
 810          UI    2329    2223    2203    2117    2093    2025    2001    1941    1924    1863
 811          UI    1854    1725    1725    1657    1635    1610    1553    1553    1437    1391
 812          UI    1391    1281    1259    1259    1136    1071    1071    1071     998     991
 813          UI     991     991     939     932     932     932     883     847     847     847
 814          UI     847     695     665     665     665     665     665     544     518     518
 815          UI     518     518     518     518     512     444     444     444     444     444
 816          UI     444     444     444     437     311     311     311     311     311     311
 817          UI     311     311     311     311     311     311     294     198     198     198
 818          UI     198     198     198     198     198     198     198     198     198     198
 819          UI     198     198     198     198     198     198     198      85      78      78
 820          UI      78      78      78      78      78      78      78      78      78      78
 821          UI      78      78      78      78      78      78      78      78      78      78
 822          UI      78      78      78      78      78      78      78      78      78      78
 823          UI      78      78      78      78      78      78      78      78      78      78
 824          UI      78      78      78      78      78      78      78      78       0       0
 825          UI       0       0       0       0       0       0       0       0       0       0
              *

 826          KK     C25
 827          KM       Combine R24-25 + 4I
 828          HC       2
              *

 829          KK  R25-30
 830          KM       Channel Route From C25 To C30
 831          KM       X-SECT. 4L2
 832          RS      35    FLOW      -1
 833          RC   0.050   0.047   0.050   34000   0.012
 834          RX  4033.0  5033.0  5069.0  5084.0  5129.0  5138.0  5168.0  5426.8
 835          RY   100.6    95.6    94.8    91.7    91.0    93.2    96.0   100.6
 836          RL                    1.68    91.0
              *
```



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

 837          KK      6A
 838          KM       SUB-BASIN 6A at C39
 839          BA    9.04
 840          LG    0.26    0.25    8.60    0.07   10.00
 841          UI     247     247     247     247     247     247     247     247     247     512
 842          UI     711     711     780     949     949    1106    1138    1360    1433    1498
 843          UI    1546    1591    1674    1748    1802    1844    1897    1956    2012    2121
 844          UI    2280    2424    2609    2806    3017    3141    2693    2205    1959    1860
 845          UI    1779    1674    1618    1570    1498    1476    1459    1424    1400    1355
 846          UI    1317    1294    1248    1237    1190    1186    1141    1138    1062    1054
 847          UI    1016     999     981     949     949     860     849     838     769     769
 848          UI     756     654     654     654     628     605     605     605     580     569
 849          UI     569     569     539     517     517     517     509     407     407     407
 850          UI     407     407     376     316     316     316     316     316     316     316
 851          UI     273     271     271     271     271     271     271     271     243     190
 852          UI     190     190     190     190     190     190     190     190     190     190
 853          UI     186     121     121     121     121     121     121     121     121     121
 854          UI     121     121     121     121     121     121     121     121     121     121
 855          UI      64      47      47      47      47      47      47      47      47      47
 856          UI      47      47      47      47      47      47      47      47      47      47
 857          UI      47      47      47      47      47      47      47      47      47      47
 858          UI      47      47      47      47      47      47      47      47      47      47
 859          UI      47      47      47      47      47      47      47      47      47       0
 860          UI       0       0       0       0       0       0       0       0       0       0
 861          UI       0       0       0       0       0       0       0       0       0       0
              *

 862          KK  R39-40
 863          KM       Channel Route From C39 To C40
 864          KM       X-SECT. 6B1
 865          RS      10    FLOW      -1
 866          RC   0.070   0.045   0.060   11400   0.009
 867          RX  4662.5  5037.5  5075.0  5088.0  5133.0  5146.0  5196.0  5566.0
 868          RY   101.0    96.0    95.5    91.5    90.0    96.8    97.3   101.0
 869          RL                    1.10    90.0
              *

 870          KK      6B
 871          KM       SUB-BASIN 6B
 872          BA   10.95
 873          LG    0.26    0.28    8.28    0.08    9.00
 874          UI     354     354     354     354     354     354     355     372    1019    1019
 875          UI    1105    1359    1406    1631    1810    2044    2146    2233    2330    2444
 876          UI    2564    2641    2726    2820    2936    3190    3453    3740    4082    4543
 877          UI    4062    3346    2818    2643    2498    2377    2265    2157    2113    2078
 878          UI    2038    1956    1906    1853    1783    1752    1699    1657    1631    1525
 879          UI    1509    1430    1428    1359    1359    1224    1217    1145    1102    1092
 880          UI     937     937     934     867     867     867     826     815     815     792
 881          UI     741     741     741     661     582     582     582     582     498     453
 882          UI     453     453     453     453     426     388     388     388     388     388
 883          UI     388     373     272     272     272     272     272     272     272     272
 884          UI     272     272     200     173     173     173     173     173     173     173
 885          UI     173     173     173     173     173     173     173     173     127      68
 886          UI      68      68      68      68      68      68      68      68      68      68
```



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

 887          UI      68      68      68      68      68      68      68      68      68      68
 888          UI      68      68      68      68      68      68      68      68      68      68
 889          UI      68      68      68      68      68      68      68      68      68      68
 890          UI       0       0       0       0       0       0       0       0       0       0
 891          UI       0       0       0       0       0       0       0       0       0       0
              *
```

```
892          KK     C40
893          KM       Combine R39-40 + 68
894          HC       2
             *

895          KK   DC40R
896          KM          Main flow at C40 is in the Right channel (C40R)
897          KM          Diverted flow (DQ record) goes into the left channel (C40L)
898          DT   DC40L
899          DI       0       15       60      110      345      900     1660     3500     6800    15300
900          DQ     0.0      0.0      0.0     15.0    125.0    350.0    760.0   1400.0   2600.0   3700.0
             *

901          KK  40R-30
902          KM       Channel route right flow split at C40 from C40 To C30
903          KM       X-SECT. 4L1
904          RS      32     FLOW       -1
905          RC   0.050    0.051    0.050    26600    0.009
906          RX  4015.0   5015.0   5159.0   5204.0   5261.0   5266.0   5283.0   6383.0
907          RY    99.1     94.1     93.5     90.0     90.0     92.3     93.6     99.1
908          RL                     0.93     90.0
             *

909          KK      4L
910          KM       SUB-BASIN 4L
911          BA    9.49
912          LG    0.32     0.35     3.77     0.34     3.00
913          UI     212      212      212      212      212      212      212      212      212      212
914          UI     212      416      695      695      695      800      811      811      954      973
915          UI     996     1036     1036     1132     1132     1178     1187     1234     1248     1302
916          UI    1315     1386     1406     1475     1524     1570     1620     1648     1678     1802
917          UI    1894     2010     2137     2266     2625     2374     2742     2863     2779     2615
918          UI    2476     2357     2254     2165     2086     2017     1947     1881     1833     1789
919          UI    1738     1691     1659     1622     1539     1502     1431     1391     1352     1303
920          UI    1281     1231     1217     1132     1106     1067     1036     1024     973      973
921          UI     865      811      811      680      608      608      608      463      374      374
922          UI     374      374      374      372      348      348      348      348      348      348
923          UI     343      212      212      212      212      212      212      212      212      212
924          UI     212      212      145       65       65       65       65       65       65       65
925          UI      65       65       65       65       65       65       65       65       65       65
926          UI      65       65       65       65       65       65       65       65       65       65
927          UI      65       65       65       65       65       65       65       65       65       65
928          UI       0        0        0        0        0        0        0        0        0        0
929          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

930          KK     C30
931          KM       Combine R25-30 + R40-30 + 4L
932          HC       3
             *

933          KK  R30-32
934          KM       Channel Route From C30 To C32
935          KM       Representative Of X-SECT. 4L2
936          RS      18     FLOW       -1
937          RC   0.050    0.047    0.050    20600    0.009
938          RX  4033.0   5033.0   5069.0   5084.0   5129.0   5138.0   5168.0   5426.8
939          RY   100.6     95.6     94.8     91.7     91.0     93.2     96.0    100.6
940          RL                     0.90     91.0
             *

941          KK      4M
942          KM       SUB-BASIN 4M
943          BA    3.42
944          LG    0.35     0.35     3.50     0.27     0.00
945          UI     124      124      124      124      124      124      124      370      407      454
946          UI     475      554      580      606      653      678      703      731      770      808
947          UI     853      906      943      978     1065     1175     1275     1480     1546     1661
948          UI    1533     1398     1309     1221     1159     1103     1048     1006      969      921
949          UI     865      818      778      744      712      654      625      603      570      520
950          UI     475      396      356      331      219      219      219      217      203      203
951          UI     203      203      139      124      124      124      124      124      124       65
952          UI      38       38       38       38       38       38       38       38       38       38
953          UI      38       38       38       38       38       38       38       38       38       38
954          UI      38       38        0        0        0        0        0        0        0        0
955          UI       0        0        0        0        0        0        0        0        0        0
             *

956          KK     C32
957          KM       Combine R31-32 + R30-32 + 4M
958          HC       3
             *

959          KK   DC32R
960          KM          Main flow at C32 is in the right channel (C32R)
961          KM          Diverted flow (DQ record) goes into the left channel (C32L)
962          DT   DC32L
963          DI       0      105      615     1875     4250     7900    12700    15000
964          DQ       0     30.0    275.0    775.0   1500.0   3100.0   4500.0   5300.0
             *

965          KK  R32-33
966          KM       Channel Route From C32 To C33
967          KM       Interpolated XSECT. between 4N1 and 4N2
968          RS      45     FLOW       -1
969          RC   0.040    0.041    0.040    48400    0.007
970          RX  4350.0   5350.0   5421.0   5430.0   5479.0   5500.0   5583.0   5867.7
971          RY    99.8     94.8     93.6     90.4     90.5     94.0     95.4     99.8
972          RL                     1.21     90.4
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

973          KK      4N
974          KM       SUB-BASIN 4N
975          BA    7.61
976          LG    0.35     0.35     3.50     0.27     0.00
977          UI     143      143      143      143      143      143      143      143      143      143
```

```
 978          UI     143     143     143     234     470     470     470     478     549     549
 979          UI     549     606     658     658     681     700     700     748     766     772
 980          UI     803     803     833     844     862     890     899     941     946     998
 981          UI    1006    1062    1072    1097    1116    1135    1199    1234    1317    1392
 982          UI    1450    1496    1819    1595    1736    1890    1937    1878    1784    1704
 983          UI    1635    1568    1505    1459    1419    1372    1330    1303    1266    1232
 984          UI    1214    1176    1158    1135    1108    1097    1034    1028    968     968
 985          UI     915     915     874     866     842     823     809     748     748     721
 986          UI     700     700     669     658     658     574     549     549     522     412
 987          UI     412     412     412     345     253     253     253     253     253     253
 988          UI     253     241     235     235     235     235     235     235     235     207
 989          UI     143     143     143     143     143     143     143     143     143     143
 990          UI     143     143     143      85      44      44      44      44      44      44
 991          UI      44      44      44      44      44      44      44      44      44      44
 992          UI      44      44      44      44      44      44      44      44      44      44
 993          UI      44      44      44      44      44      44      44      44      44      44
 994          UI      44      44      44      44      44      44      44      44       0       0
 995          UI       0       0       0       0       0       0       0       0       0       0
              *

 996          KK     C33
 997          KO                                      21
 998          KM       Combine R32-33 + 4N
 999          HC       2
              *

1000          KK  R33-34
1001          KM       Channel Route From C33 To C34
1002          KM       Representative Of X-SECT. 5B1
1003          RS      27    FLOW      -1
1004          RC   0.060   0.048   0.060   19200   0.006
1005          RX  3447.0  5090.0  5240.0  5247.0  5289.0  5299.0  5377.0  5647.0
1006          RY    98.4    92.3    91.3    89.2    89.7    91.1    95.0    98.4
1007          RL                    0.76    89.2
              *

1008          KK      4O
1009          KM       SUB-BASIN 4O
1010          BA    5.50
1011          LG    0.35    0.35    3.66    0.31    0.00
1012          UI     134     134     134     134     134     134     134     134     134     134
1013          UI     263     441     441     456     514     514     560     617     623     657
1014          UI     657     716     718     753     757     791     805     834     864     882
1015          UI     935     965     998    1029    1053    1092    1153    1235    1337    1397
1016          UI    1665    1493    1741    1816    1745    1636    1537    1462    1397    1339
1017          UI    1286    1238    1197    1161    1129    1100    1064    1038    1006     964
1018          UI     915     892     857     828     812     775     767     701     699     657
1019          UI     657     622     617     557     514     514     408     386     386     364
1020          UI     237     237     237     237     237     235     220     220     220     220
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1021          UI     220     220     158     134     134     134     134     134     134     134
1022          UI     134     134     121      41      41      41      41      41      41      41
1023          UI      41      41      41      41      41      41      41      41      41      41
1024          UI      41      41      41      41      41      41      41      41      41      41
1025          UI      41      41      41      41      41      41      41       0       0       0
1026          UI       0       0       0       0       0       0       0       0       0       0
              *

1027          KK     C34
1028          KM       Combine R33-34 + 4O
1029          KO                                      21
1030          HC       2
              *

1031          KK  BDC32L
1032          KM       Recall flow split diverted hydrograph C32L
1033          DR   DC32L
              *

1034          KK  32L-35
1035          KM       Channel Route From left C32 flow split from C32 To C35
1036          KM       Interpolated XSECT. between 5A1 and 5A2
1037          RS      49    FLOW      -1
1038          RC   0.050   0.054   0.050   45000   0.007
1039          RX  4777.8  5125.0  5259.0  5274.0  5297.0  5313.0  5406.0  5787.3
1040          RY   100.1    95.1    92.7    90.4    90.1    93.6    95.8   100.1
1041          RL                    1.15    90.1
              *

1042          KK      5A
1043          KM       SUB-BASIN 5A
1044          BA    9.29
1045          LG    0.35    0.35    3.50    0.27    0.00
1046          UI     180     180     180     180     180     180     180     180     180     180
1047          UI     180     180     180     451     591     591     591     650     689     689
1048          UI     706     827     827     839     880     880     920     962     962    1008
1049          UI    1008    1041    1060    1081    1117    1131    1181    1194    1253    1275
1050          UI    1334    1355    1378    1413    1431    1531    1591    1659    1798    1855
1051          UI    2056    2172    2022    2313    2432    2412    2285    2176    2067    1985
1052          UI    1913    1851    1797    1723    1680    1643    1590    1551    1526    1477
1053          UI    1463    1426    1388    1374    1292    1277    1216    1201    1148    1140
1054          UI    1088    1088    1037    1034     976     940     936     880     880     862
1055          UI     827     827     767     689     689     689     525     517     517     517
1056          UI     455     318     318     318     318     318     318     318     301     295
1057          UI     295     295     295     295     295     295     220     180     180     180
1058          UI     180     180     180     180     180     180     180     180     180     141
1059          UI      55      55      55      55      55      55      55      55      55      55
1060          UI      55      55      55      55      55      55      55      55      55      55
1061          UI      55      55      55      55      55      55      55      55      55      55
1062          UI      55      55      55      55      55      55      55      55      55      55
1063          UI      55      55      55       0       0       0       0       0       0       0
1064          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

1065          KK     C35
1066          KM       Combine R32L-35 + 5A
1067          HC       2  127.35
              *
```

```
1068    KK  R35-36
1069    KM       Channel Route From C35 To C36
1070    KM       X-SECT. 5B1
1071    RS       25    FLOW       -1
1072    RC   0.060   0.048   0.060   24600   0.006
1073    RX  4974.6  5090.0  5240.0  5247.0  5289.0  5299.0  5377.0  5842.0
1074    RY    97.3    92.3    91.3    89.2    89.7    91.1    95.0    97.4
1075    RL                    1.82    89.2
        *

1076    KK      5B
1077    KM       SUB-BASIN 5B
1078    BA    4.88
1079    LG    0.35    0.35    3.82    0.36    0.00
1080    UI     144     144     144     144     144     144     144     144     230     474
1081    UI     474     521     552     588     663     681     705     747     771     809
1082    UI     827     850     894     924     960    1005    1067    1098    1130    1190
1083    UI    1279    1392    1487    1749    1679    1917    1906    1772    1639    1547
1084    UI    1467    1397    1336    1282    1233    1190    1152    1117    1067    1016
1085    UI     973     921     888     862     829     775     752     705     695     663
1086    UI     624     552     543     414     414     409     255     255     255     255
1087    UI     253     237     237     237     237     237     165     144     144     144
1088    UI     144     144     144     144     141      44      44      44      44      44
1089    UI      44      44      44      44      44      44      44      44      44      44
1090    UI      44      44      44      44      44      44      44      44      44      44
1091    UI      44      44      44       0       0       0       0       0       0       0
1092    UI       0       0       0       0       0       0       0       0       0       0
        *

1093    KK    C36I
1094    KM       Combine R35-36 + 5B + C34
1095    HC       3  140.36
        *

1096    KK      6N
1097    KM       SUB-BASIN 6N at C53
1098    BA    7.84
1099    LG    0.35    0.35    3.71    0.32    0.00
1100    UI     208     208     208     208     208     208     208     208     208     333
1101    UI     683     683     717     797     797     918     956     995    1017    1079
1102    UI    1112    1157    1172    1226    1255    1292    1357    1399    1449    1542
1103    UI    1578    1617    1672    1777    1912    2078    2214    2533    2441    2761
1104    UI    2776    2590    2432    2297    2180    2076    1991    1912    1842    1781
1105    UI    1726    1677    1632    1591    1494    1435    1388    1328    1279    1252
1106    UI    1195    1151    1086    1049    1017     983     956     887     797     797
1107    UI     618     598     598     481     368     368     368     368     368     341
1108    UI     341     341     341     341     331     208     208     208     208     208
1109    UI     208     208     208     208     158      64      64      64      64      64
1110    UI      64      64      64      64      64      64      64      64      64      64
```



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

1111    UI      64      64      64      64      64      64      64      64      64      64
1112    UI      64      64      64      64      64      64       0       0       0       0
1113    UI       0       0       0       0       0       0       0       0       0       0
        *

1114    KK  BDC12L
1115    KM       Recall Flow Split Diverted Hydrograph DC12L
1116    DR   DC12L
        *

1117    KK   CPND2
1118    KM    Combine C11 + C36 + C53 + C12L
1119    HC       4  239.68
        *

1120    KK    PND2
1121    KM       Reservoir Route at PND2 At The Gila Bend Canal
1122    KM          Route all flow from C11, C36, C53, and overflow from C12.
1123    RS       1    ELEV     726
1124    SV     0.0    21.0    36.0    56.0    80.0   109.0   142.0   182.0   234.0   311.0
1125    SV   438.0   627.0   883.0  1210.0  1377.5  1545.0  1581.0  1617.0  1652.0   728.0
1126    SE   726.0   728.0   729.0   730.0   731.0   732.0   733.0   734.0   735.0   736.0
1127    SE   737.0   738.0   739.0   740.0   740.5   741.0   741.1   741.2   741.3   741.5
1128    SQ     0.0    28.0   270.0   740.0  1245.0  1900.0  2700.0  3725.0  5059.0  6472.0
1129    SQ  8195.0 10137.0 12316.0 14545.0 15808.0 18790.0 19656.0 20734.0 22224.0 25967.0
1130    RL                    0.63   726.0
        *

1131    KK    C530
1132    KM       Main flow at PND2 is in channel R53-56 (C530).
1133    KM       Diverted flow (DQ record) will be split again at C36 and C11 (PND2R).
1134    DT   PND2R
1135    DI     0.0    28.0   270.0   740.0  1245.0  1900.0  2700.0  3725.0  5059.0  6472.0
1136    DI  8195.0 10137.0 12316.0 14545.0 15808.0 18790.0 19656.0 20734.0 22224.0 25967.0
1137    DQ     0.0    23.0   250.0   690.0  1150.0  1750.0  2500.0  3485.0  4784.0  6167.0
1138    DQ  7865.0  9782.0 11941.0 14150.0 15303.0 16456.0 16691.0 16954.0 22224.0 25967.0
        *

1139    KK  R53-56
1140    KM       Channel Route From C53 To C56
1141    KM       X-SECT. 6Q2
1142    RS       3    FLOW       -1
1143    RC   0.035   0.037   0.035    3200   0.005
1144    RX  4850.0  5100.0  5200.0  5213.5  5231.5  5245.0  5345.0  5595.0
1145    RY   101.5    96.5    94.5    90.0    90.0    94.5    96.5   101.5
1146    RL                    9.91    90.0
        *

1147    KK  R56-59
1148    KM       Channel Route From C56 To C59
1149    KM       X-SECT. 6Q1
1150    RS      20    FLOW       -1
1151    RC   0.030   0.036   0.030   14800   0.004
1152    RX  4871.9  5066.0  5149.0  5174.0  5191.0  5217.0  5242.0  6282.0
1153    RY   100.0    95.0    94.3    88.2    88.4    94.8    94.8   100.0
```



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

1154    RL                   10.00    88.2
        *
```

```
1155        KK      6Q
1156        KM       SUB-BASIN 6Q
1157        BA    2.86
1158        LG    0.47     0.05     3.64     0.68     1.00
1159        UI     117      117      117      117      117      117      309      386      437      465
1160        UI     540      568      602      638      666      698      736      780      833      884
1161        UI     919      994     1118     1260     1377     1554     1514     1366     1254     1162
1162        UI    1096     1030      981      939      893      830      779      736      699      661
1163        UI     613      575      549      506      450      367      338      266      208      208
1164        UI     208      193      193      193      180      117      117      117      117      117
1165        UI     117       46       36       36       36       36       36       36       36       36
1166        UI      36       36       36       36       36       36       36       36       36       36
1167        UI      36        0        0        0        0        0        0        0        0        0
1168        UI       0        0        0        0        0        0        0        0        0        0
            *

1169        KK     C59
1170        KM       Combine R56-59 + 6Q
1171        HC       2
            *

1172        KK   BPND2
1173        KM        Recall Flow Split Diverted Hydrograph PND2R
1174        DR   PND2R
            *

1175        KK    C360
1176        KM         Main flow at PND2 is in channel R36-37   (C360)
1177        KM         Diverted flow (DQ record) goes into channel R11-17 (C110)
1178        DT    C110
1179        DI     0.0   2860.0   3485.0   4784.0   6167.0   7865.0   9782.0  11941.0  14150.0   15303.
1180        DI   16456.  18275.0  23528.0
1181        DQ     0.0      0.0     85.0    284.0    567.0    965.0   1532.0   2241.0   2950.0   3378.0
1182        DQ  3806.0   4348.0   6359.0
            *

1183        KK  R36-37
1184        KM       Channel Route From C36 To C37
1185        KM       X-SECT. 5C2
1186        RS       2    FLOW      -1
1187        RC   0.035   0.030    0.035     2200    0.005
1188        RX  4905.8   5120.0   5204.0   5222.0   5292.0   5309.0   5409.0   6229.0
1189        RY   101.5     96.5     97.0     90.9     90.6     96.7     97.4    101.5
1190        RL                     8.54     90.6
            *

1191        KK  R37-38
1192        KM       Channel Route From C37 To C38
1193        KM       X-SECT. 5C1
1194        RS      10    FLOW      -1
1195        RC   0.030   0.036    0.030    13200    0.005
1196        RX  4925.4   5103.0   5139.0   5148.0   5208.0   5219.0   5255.0   6255.0
```



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

1197        RY    99.1     94.1     94.9     88.9     89.1     95.1     94.1     99.1
1198        RL                     2.24     88.9
            *

1199        KK      5C
1200        KM       SUB-BASIN 5C
1201        BA    2.41
1202        LG    0.45     0.09     3.54     0.72     1.00
1203        UI     105      105      105      105      105      129      346      364      404      465
1204        UI     500      529      568      595      625      661      704      754      798      838
1205        UI     928     1044     1223     1285     1403     1267     1150     1062      989      930
1206        UI     881      841      794      737      690      650      616      570      532      506
1207        UI     482      404      354      303      251      186      186      185      173      173
1208        UI     173      138      105      105      105      105      105       61       32       32
1209        UI      32       32       32       32       32       32       32       32       32       32
1210        UI      32       32       32       32       32       32        0        0        0        0
1211        UI       0        0        0        0        0        0        0        0        0        0
            *

1212        KK     C38
1213        KM       Combine R37-38 + 5C
1214        HC       2  242.09
            *

1215        KK   BC110
1216        KM        Recall Flow Split Diverted Hydrograph C110
1217        DR    C110
            *

1218        KK  R11-17
1219        KM       Channel Route From C11 To C17
1220        KM       Representative Of X-SECT. 5C2
1221        RS       1    FLOW      -1
1222        RC   0.035   0.030    0.035     3000    0.009
1223        RX  4905.8   5120.0   5204.0   5222.0   5292.0   5309.0   5409.0   6229.0
1224        RY   101.5     96.5     97.0     90.9     90.6     96.7     97.4    101.5
1225        RL                     8.69     90.6
            *

1226        KK  R17-13
1227        KM       Channel Route From C17 To C13
1228        KM       Representative Of X-SECT. 5C2
1229        RS       1    FLOW      -1
1230        RC   0.035   0.030    0.035      800    0.001
1231        RX  4905.8   5120.0   5204.0   5222.0   5292.0   5309.0   5409.0   6229.0
1232        RY   101.5     96.5     97.0     90.9     90.6     96.7     97.4    101.5
1233        RL                     9.66     90.6
            *

1234        KK  B14-13
1235        KM       Recall Hydrograph R14-13
1236        BI  R14-13      21
            *
```



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

```
1237        KK     C13
1238        KM       Combine R17-13 + R14-13
1239        HC       2  239.68
            *

1240        KK  R13-16
1241        KM       Channel Route From C13 To C16
1242        KM       X-SECT. 3M1
1243        RS      16     FLOW      -1
1244        RC   0.030   0.035   0.030   11800   0.004
1245        RX  4925.4  5103.0  5139.0  5147.0  5192.0  5202.0  5238.0  6238.0
1246        RY    99.1    94.1    94.9    89.6    89.7    95.1    94.1    99.1
1247        RL                    9.61    89.6
            *

1248        KK      3M
1249        KM       SUB-BASIN 3M
1250        BA    3.89
1251        LG    0.44    0.10    3.94    0.55    2.00
1252        UI     179     179     179     179     179     345     590     658     721     827
1253        UI     878     950     999    1050    1109    1188    1277    1357    1431    1588
1254        UI    1802    2089    2291    2335    2082    1894    1751    1627    1538    1453
1255        UI    1390    1277    1189    1117    1055     976     906     858     803     688
1256        UI     567     516     366     317     317     304     295     295     273     179
1257        UI     179     179     179     179     106      55      55      55      55      55
1258        UI      55      55      55      55      55      55      55      55      55      55
1259        UI      55      55       0       0       0       0       0       0       0       0
1260        UI       0       0       0       0       0       0       0       0       0       0
            *

1261        KK     C16
1262        KM       Combine R13-16 + 3M
1263        HC       2
            *
            * Move to Top of Major Basin 6
            *

1264        KK  BDC40L
1265        KM       Recall stored hydrograph from C40 diversion left channel
1266        DR   DC40L
            *

1267        KK  40L-41
1268        KM       Channel route left diversion from C40 To C41
1269        KM       X-SECT. 6C1
1270        RS      18     FLOW      -1
1271        RC   0.050   0.044   0.050   18000   0.009
1272        RX  4808.0  5048.0  5099.0  5110.0  5131.0  5136.0  5166.0  5346.0
1273        RY   101.0    96.0    95.9    91.4    91.2    95.2    96.6   101.0
1274        RL                    0.73    91.2
            *
```



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

1275        KK      6C
1276        KM       SUB-BASIN 6C
1277        BA    8.83
1278        LG    0.28    0.35    4.03    0.37    0.00
1279        UI     297     297     297     297     297     297     297     483     855     855
1280        UI    1045    1140    1292    1368    1709    1769    1839    1922    2020    2137
1281        UI    2206    2277    2355    2455    2674    2899    3152    3456    3827    3295
1282        UI    2664    2323    2175    2053    1952    1866    1796    1753    1720    1674
1283        UI    1626    1554    1516    1484    1425    1400    1368    1290    1266    1202
1284        UI    1196    1140    1132    1021    1021     940     924     873     786     786
1285        UI     759     727     727     713     684     684     684     622     622     622
1286        UI     577     488     488     488     488     416     380     380     380     380
1287        UI     380     344     326     326     326     326     326     326     260     228
1288        UI     228     228     228     228     228     228     228     228     173     145
1289        UI     145     145     145     145     145     145     145     145     145     145
1290        UI     145     145     145     145      57      57      57      57      57      57
1291        UI      57      57      57      57      57      57      57      57      57      57
1292        UI      57      57      57      57      57      57      57      57      57      57
1293        UI      57      57      57      57      57      57      57      57      57      57
1294        UI      57      57      57      57       0       0       0       0       0       0
1295        UI       0       0       0       0       0       0       0       0       0       0
            *

1296        KK     C41
1297        KM       Combine R40L-41 + 6C
1298        HC       2   28.82
            *

1299        KK  R41-43
1300        KM       Channel Route From C41 To C43
1301        KM       Representative Of X-SECT. 6F2
1302        RS      32     FLOW      -1
1303        RC   0.050   0.051   0.050   29600   0.009
1304        RX  4066.0  5066.0  5240.0  5250.0  5300.0  5318.0  5418.0  5718.0
1305        RY    96.0    91.0    89.9    85.1    86.6    89.6    94.5    96.0
1306        RL                    1.77    85.1
            *

1307        KK      6D
1308        KM       SUB-BASIN 6D
1309        BA    9.98
1310        LG    0.30    0.30    8.05    0.09    5.00
1311        UI     242     242     242     242     242     242     242     242     242     242
1312        UI     431     794     794     808     927     927     986    1112    1112    1183
1313        UI    1183    1274    1293    1346    1356    1421    1435    1503    1538    1589
1314        UI    1665    1713    1794    1843    1881    1930    2059    2198    2356    2485
1315        UI    2863    2752    2996    3263    3201    3000    2829    2682    2555    2445
1316        UI    2349    2264    2189    2122    2059    1989    1941    1897    1853    1746
1317        UI    1692    1635    1557    1528    1463    1431    1390    1316    1264    1220
1318        UI    1183    1157    1112    1102     927     927     864     695     695     695
1319        UI     544     428     428     428     428     428     411     397     397     397
1320        UI     397     397     389     242     242     242     242     242     242     242
1321        UI     242     242     242     175      74      74      74      74      74      74
1322        UI      74      74      74      74      74      74      74      74      74      74
```



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

1323        UI      74      74      74      74      74      74      74      74      74      74
```

```
1324          UI      74      74      74      74      74      74      74      74       0       0
1325          UI       0       0       0       0       0       0       0       0       0       0
              *

1326          KK      6E
1327          KM        SUB-BASIN 6E at C42
1328          BA    7.12
1329          LG    0.24    0.25    8.20    0.04   10.00
1330          UI     155     155     155     155     155     155     155     155     155     155
1331          UI     155     188     445     445     445     445     590     593     593     698
1332          UI     711     765     889     900     936     950     988    1012    1046    1089
1333          UI    1112    1147    1163    1186    1220    1242    1270    1359    1432    1503
1334          UI    1566    1698    1780    1879    2044    1759    1617    1276    1225    1186
1335          UI    1113    1090    1046    1013     988     951     936     918     912     895
1336          UI     889     861     847     828     808     800     773     773     746     741
1337          UI     730     711     711     670     659     659     624     624     622     593
1338          UI     593     593     534     531     531     506     481     481     481     433
1339          UI     409     409     409     404     378     378     378     378     371     356
1340          UI     356     356     356     351     323     323     323     323     323     291
1341          UI     254     254     254     254     254     254     241     198     198     198
1342          UI     198     198     198     198     198     198     171     169     169     169
1343          UI     169     169     169     169     169     169     165     119     119     119
1344          UI     119     119     119     119     119     119     119     119     119     119
1345          UI     119     119      94      76      76      76      76      76      76      76
1346          UI      76      76      76      76      76      76      76      76      76      76
1347          UI      76      76      76      76      76      76      62      30      30      30
1348          UI      30      30      30      30      30      30      30      30      30      30
1349          UI      30      30      30      30      30      30      30      30      30      30
1350          UI      30      30      30      30      30      30      30      30      30      30
1351          UI      30      30      30      30      30      30      30      30      30      30
1352          UI      30      30      30      30      30      30      30      30      30      30
1353          UI      30      30      30      30      30      30      30      30       0       0
1354          UI       0       0       0       0       0       0       0       0       0       0
              *

1355          KK  R42-43
1356          KM        Channel Route From C42 To C43
1357          KM        Representative Of X-SECT. 6F2
1358          RS      13    FLOW      -1
1359          RC   0.050   0.051   0.050   13000   0.008
1360          RX  4066.0  5066.0  5240.0  5250.0  5300.0  5318.0  5418.0  5718.0
1361          RY    96.0    91.0    89.9    85.1    86.6    89.6    94.5    96.0
1362          RL                    1.95    85.1
              *

1363          KK     C43
1364          KM        Combine R41-43 + 6D + R42-43
1365          HC        3
              *
```

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

1366          KK  R43-44
1367          KM        Channel Route From C43 To C44
1368          KM        Interpolated XSECT. between 6F1 and 6F2
1369          RS      32    FLOW      -1
1370          RC   0.055   0.051   0.050   31000   0.007
1371          RX  4797.5  5135.0  5239.0  5250.0  5286.0  5301.0  5372.0  5812.0
1372          RY    96.9    91.9    91.2    86.9    87.4    92.0    94.7    96.9
1373          RL                    0.98    86.9
              *

1374          KK      6F
1375          KM        SUB-BASIN 6F
1376          BA    5.05
1377          LG    0.32    0.35    3.82    0.32    4.00
1378          UI     113     113     113     113     113     113     113     113     113     113
1379          UI     113     222     370     370     370     425     432     432     508     518
1380          UI     530     551     551     602     602     627     632     657     664     693
1381          UI     700     738     748     785     811     835     862     877     893     959
1382          UI    1008    1070    1137    1206    1397    1263    1459    1523    1479    1392
1383          UI    1318    1254    1199    1152    1110    1073    1036    1001     975     952
1384          UI     925     900     883     863     819     799     762     740     719     693
1385          UI     682     655     647     602     589     568     551     545     518     518
1386          UI     460     432     432     362     324     324     324     246     199     199
1387          UI     199     199     199     198     185     185     185     185     185     185
1388          UI     183     113     113     113     113     113     113     113     113     113
1389          UI     113     113      77      35      35      35      35      35      35      35
1390          UI      35      35      35      35      35      35      35      35      35      35
1391          UI      35      35      35      35      35      35      35      35      35      35
1392          UI      35      35      35      35      35      35      35      35      35      35
1393          UI       0       0       0       0       0       0       0       0       0       0
1394          UI       0       0       0       0       0       0       0       0       0       0
              *

1395          KK     C44
1396          KM        Combine R43-44 + 6F
1397          HC        2
              *

1398          KK  R44-69
1399          KM        Channel Route From C44 To C69
1400          KM        X-SECT. 6J1
1401          RS      10    FLOW      -1
1402          RC   0.050   0.069   0.050    8000   0.005
1403          RX  4867.1  5144.0  5192.0  5217.0  5237.0  5285.0  5395.0  6575.0
1404          RY    99.4    94.4    94.1    89.5    89.6    91.6    93.5    99.4
1405          RL                    0.89    89.5
              *

1406          KK      6H
1407          KM        SUB-BASIN 6H
1408          BA    4.97
1409          LG    0.32    0.35    3.87    0.34    5.00
1410          UI     120     120     120     120     120     120     120     120     120     120
1411          UI     192     393     393     393     458     458     477     550     550     580
```

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

1412          UI     585     622     639     660     671     696     705     740     752     785
1413          UI     813     835     887     904     922     948    1006    1065    1139    1213
1414          UI    1335    1425    1415    1585    1612    1510    1423    1348    1284    1228
```

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1415   UI    1179    1136    1098    1057    1025     998     973     948     920     888
1416   UI     859     809     790     764     734     723     688     681     625     623
1417   UI     585     585     555     550     502     458     458     376     344     344
1418   UI     344     213     211     211     211     211     211     198     196     196
1419   UI     196     196     196     167     120     120     120     120     120     120
1420   UI     120     120     120     120      65      37      37      37      37      37
1421   UI      37      37      37      37      37      37      37      37      37      37
1422   UI      37      37      37      37      37      37      37      37      37      37
1423   UI      37      37      37      37      37      37      37      37      37       0
1424   UI       0       0       0       0       0       0       0       0       0       0
1425   UI       0       0       0       0       0       0       0       0       0       0
       *

1426   KK      6I
1427   KM        SUB-BASIN 6I
1428   BA    6.97
1429   LG    0.31    0.35    4.08    0.38    7.00
1430   UI     206     206     206     206     206     206     206     206     328     676
1431   UI     676     744     789     840     947     972    1007    1067    1101    1155
1432   UI    1181    1214    1277    1320    1371    1435    1525    1568    1614    1699
1433   UI    1827    1988    2124    2498    2398    2738    2722    2530    2340    2209
1434   UI    2095    1996    1908    1831    1762    1700    1645    1595    1524    1451
1435   UI    1389    1315    1269    1232    1184    1107    1073    1007     992     947
1436   UI     891     789     775     592     592     585     364     364     364     364
1437   UI     362     338     338     338     338     338     236     206     206     206
1438   UI     206     206     206     206     201      63      63      63      63      63
1439   UI      63      63      63      63      63      63      63      63      63      63
1440   UI      63      63      63      63      63      63      63      63      63      63
1441   UI      63      63      63       0       0       0       0       0       0       0
1442   UI       0       0       0       0       0       0       0       0       0       0
       *

1443   KK     C46
1444   KM       Combine 6H + 6I
1445   HC       2
       *

1446   KK  R46-69
1447   KM       Channel Route From C46 To C69
1448   KM       Representative Of X-SECT. 6K1
1449   RS      13     FLOW      -1
1450   RC   0.060   0.047   0.050    7200   0.004
1451   RX  4300.0  5300.0  5963.0  5972.0  5994.0  6012.0  6357.0  7008.4
1452   RY   100.1    95.1    93.1    91.2    90.9    94.1    92.5   100.1
1453   RL                    0.55    90.9
       *
```



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

1454   KK     C69
1455   KM       Combine R44-69 + R46-69
1456   HC       2
       *

1457   KK  R69-47
1458   KM       Channel Route From C69 To C47
1459   KM       Representative Of X-SECT. 6K1
1460   RS       8     FLOW      -1
1461   RC   0.060   0.047   0.050    4800   0.003
1462   RX  4300.0  5300.0  5963.0  5972.0  5994.0  6012.0  6357.0  7008.4
1463   RY   100.1    95.1    93.1    91.2    90.9    94.1    92.5   100.1
1464   RL                    0.49    90.9
       *

1465   KK      6J
1466   KM       SUB-BASIN 6J
1467   BA    4.47
1468   LG    0.33    0.35    3.87    0.36    4.00
1469   UI     148     148     148     148     148     148     148     208     485     485
1470   UI     549     566     652     681     722     753     789     828     853     883
1471   UI     918     970    1019    1075    1119    1156    1227    1331    1468    1663
1472   UI    1693    1931    1968    1821    1671    1572    1480    1399    1336    1280
1473   UI    1230    1185    1144    1085    1025     976     934     893     853     808
1474   UI     770     722     703     679     595     566     467     424     424     265
1475   UI     261     261     261     251     242     242     242     242     167     148
1476   UI     148     148     148     148     148     148      48      45      45      45
1477   UI      45      45      45      45      45      45      45      45      45      45
1478   UI      45      45      45      45      45      45      45      45      45      45
1479   UI      45       0       0       0       0       0       0       0       0       0
1480   UI       0       0       0       0       0       0       0       0       0       0
       *

1481   KK     C47
1482   KM       Combine R69-47 + 6J
1483   HC       2
       *

1484   KK   DC47R
1485   KM         Main flow at C47 is in the right channel (C47R)
1486   KM         Diverted flow (DQ record) goes into the left channel (C47L)
1487   DT   DC47L
1488   DI       0     100     500    1000    2000    4000    8000   16000   32000
1489   DQ       0      50     250     500    1000    2000    4000    8000   16000
       *

1490   KK  47R-48
1491   KM       Channel Route From C47R To C48
1492   KM       X-SECT. 6K1
1493   RS      15     FLOW      -1
1494   RC   0.060   0.047   0.050    9600   0.005
1495   RX  4300.0  5300.0  5963.0  5972.0  5994.0  6012.0  6357.0  7008.4
1496   RY   100.1    95.1    93.1    91.2    90.9    94.1    92.5   100.1
1497   RL                    0.55    90.9
       *
```



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

1498   KK      6K
1499   KM       SUB-BASIN 6K
1500   BA    5.95
1501   LG    0.35    0.35    3.50    0.28    0.00
```

```
1502    UI     157     157     157     157     157     157     157     157     157     223
1503    UI     514     514     531     600     600     677     720     743     766     802
1504    UI     837     864     878     919     936     973    1010    1040    1091    1145
1505    UI    1179    1207    1241    1327    1417    1529    1617    1918    1751    2043
1506    UI    2117    1995    1863    1759    1669    1590    1522    1461    1408    1361
1507    UI    1318    1280    1241    1205    1155    1109    1059    1013     987     947
1508    UI     918     900     825     816     766     764     720     720     611     600
1509    UI     548     450     450     450     289     277     277     277     277     269
1510    UI     257     257     257     257     257     216     157     157     157     157
1511    UI     157     157     157     157     157      92      48      48      48      48
1512    UI      48      48      48      48      48      48      48      48      48      48
1513    UI      48      48      48      48      48      48      48      48      48      48
1514    UI      48      48      48      48      48      48      48       0       0       0
1515    UI       0       0       0       0       0       0       0       0       0       0
        *

1516    KK     C48
1517    KM       Combine R47R-48 + 6K
1518    HC       2
        *

1519    KK   DC48R
1520    KM         Main flow at C48 is in the right channel (C48R)
1521    KM         Diverted flow (DQ record) goes into the left channel (C48L)
1522    DT   DC48L
1523    DI       0     100     500    1000    2000    4000    8000   16000   32000
1524    DQ       0      50     250     500    1000    2000    4000    8000   16000
        *

1525    KK  48R-50
1526    KM       Channel Route From C48R To C50
1527    KM       Representative Of X-SECT. 6L2
1528    RS      24    FLOW      -1
1529    RC   0.050   0.070   0.050   10600   0.005
1530    RX  4213.0  5213.0  5570.0  5595.0  5707.0  5761.0  5887.0  6887.0
1531    RY    99.5    94.5    94.5    92.8    91.3    93.4    94.5    99.5
1532    RL                    2.06    91.3
        *

1533    KK      6G
1534    KM       SUB-BASIN 6G at C45
1535    BA    6.37
1536    LG    0.35    0.35    3.50    0.27    0.00
1537    UI     129     129     129     129     129     129     129     129     129     129
1538    UI     129     129     210     425     425     425     453     495     495     503
1539    UI     594     594     606     632     632     674     691     702     725     727
1540    UI     762     762     799     803     843     849     897     906     959     971
1541    UI     991    1015    1034    1101    1155    1213    1292    1349    1576    1473
1542    UI    1555    1709    1748    1679    1589    1512    1446    1389    1340    1292
1543    UI    1243    1209    1180    1143    1111    1090    1061    1035    1021     991
```



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

1544    UI     963     929     892     874     835     825     790     782     755     743
1545    UI     710     675     673     632     632     615     594     594     526     496
1546    UI     496     450     371     371     371     371     237     229     229     229
1547    UI     229     229     229     216     212     212     212     212     212     212
1548    UI     212     129     129     129     129     129     129     129     129     129
1549    UI     129     129     129     105      40      40      40      40      40      40
1550    UI      40      40      40      40      40      40      40      40      40      40
1551    UI      40      40      40      40      40      40      40      40      40      40
1552    UI      40      40      40      40      40      40      40      40      40      40
1553    UI      40      40      40      40      40       0       0       0       0       0
1554    UI       0       0       0       0       0       0       0       0       0       0
        *

1555    KK  R45-50
1556    KM       Channel Route From C45 To C50
1557    KM       Interpolated XSECT. between 6L1 and 6L2
1558    RS      48    FLOW      -1
1559    RC   0.050   0.062    0.05   22600   0.005
1560    RX  4257.0  5257.0  5479.0  5501.0  5573.0  5604.0  5717.0  6557.0
1561    RY    98.6    93.6    94.5    91.3    90.7    93.5    94.4    98.6
1562    RL                    1.54    90.7
        *

1563    KK      6L
1564    KM       SUB-BASIN 6L
1565    BA    6.34
1566    LG    0.35    0.35    3.50    0.27    0.00
1567    UI     140     140     140     140     140     140     140     140     140     140
1568    UI     140     226     458     458     458     512     535     535     603     642
1569    UI     645     683     683     727     746     764     783     799     823     841
1570    UI     867     894     917     958     976    1035    1052    1070    1105    1145
1571    UI    1198    1284    1375    1436    1630    1627    1665    1848    1888    1795
1572    UI    1692    1604    1530    1465    1409    1359    1316    1278    1234    1198
1573    UI    1171    1146    1107    1088    1070    1004     983     944     912     891
1574    UI     855     844     809     802     744     729     704     683     676     642
1575    UI     642     577     535     535     462     401     401     401     330     247
1576    UI     247     247     247     247     247     232     229     229     229     229
1577    UI     229     229     167     140     140     140     140     140     140     140
1578    UI     140     140     140     140      46      43      43      43      43      43
1579    UI      43      43      43      43      43      43      43      43      43      43
1580    UI      43      43      43      43      43      43      43      43      43      43
1581    UI      43      43      43      43      43      43      43      43      43      43
1582    UI      43      43       0       0       0       0       0       0       0       0
1583    UI       0       0       0       0       0       0       0       0       0       0
        *

1584    KK     C50
1585    KM       Combine R48R-50 + R45-50 + 6L
1586    HC       3
        *
```



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

1587    KK  R50-52
1588    KM       Channel Route From C50 To C52
1589    KM       X-SECT. 602
1590    KO                                21
1591    RS      25    FLOW      -1
1592    RC   0.050   0.050   0.050   13400   0.005
```

```
1593          RX  4255.0  5255.0  5450.0  5603.0  5891.0  6002.0  6302.0  6437.0
1594          RY    98.9    93.9    93.2    92.6    93.9    94.4    96.0    99.2
1595          RL                    4.71    92.6
              *

1596          KK  BDC47L
1597          KM       Recall diverted hydrograph C47L
1598          DR   DC47L
              *

1599          KK  47L-49
1600          KM       Channel Route From C47L To C49
1601          KM       Representative Of X-SECT. 6K1
1602          RS      30    FLOW      -1
1603          RC   0.060   0.047   0.050   19400   0.005
1604          RX  4300.0  5300.0  5963.0  5972.0  5994.0  6012.0  6357.0  7008.4
1605          RY   100:1    95.1    93.1    91.2    90.9    94.1    92.5   100.1
1606          RL                    0.56    90.9
              *

1607          KK  BDC48L
1608          KM       Recall diverted hydrograph C48L
1609          DR   DC48L
              *

1610          KK  48L-49
1611          KM       Channel Route From C48L To C49
1612          KM       Representative Of X-SECT. 6L2
1613          RS      24    FLOW      -1
1614          RC   0.050   0.070   0.050   10600   0.005
1615          RX  4213.0  5213.0  5570.0  5595.0  5707.0  5761.0  5887.0  6887.0
1616          RY    99.5    94.5    94.5    92.8    91.3    93.4    94.5    99.5
1617          RL                    2.06    91.3
              *

1618          KK      6M
1619          KM       SUB-BASIN 6M
1620          BA    3.86
1621          LG    0.34    0.35    3.55    0.29    1.00
1622          UI     137     137     137     137     137     137     137     361     449     487
1623          UI     524     587     630     669     702     738     767     802     834     873
1624          UI     918     972    1026    1062    1122    1222    1353    1553    1582    1808
1625          UI    1799    1634    1518    1409    1333    1264    1200    1150    1105    1064
1626          UI    1008     948     898     856     820     787     720     691     668     629
1627          UI     581     524     451     393     389     242     242     242     242     226
1628          UI     225     225     225     183     137     137     137     137     137     137
1629          UI     118      42      42      42      42      42      42      42      42      42
1630          UI      42      42      42      42      42      42      42      42      42      42
1
                                          HEC-1 INPUT                                          PAGE 37

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

1631          UI      42      42      42      42       0       0       0       0       0       0
1632          UI       0       0       0       0       0       0       0       0       0       0
              *

1633          KK     C49
1634          KM       Combine R47L-49 + R48L-49 + 6M
1635          HC       3   77.19
              *

1636          KK  R49-51
1637          KM       Channel Route From C49 To C51
1638          KM       X-SECT. 6O1
1639          RS      22    FLOW      -1
1640          RC   0.050   0.069   0.050   15000   0.005
1641          RX  4013.0  5013.0  5076.0  5093.0  5100.0  5112.0  5229.0  5849.0
1642          RY    95.0    90.0    88.8    84.9    84.9    89.7    91.9    95.0
1643          RL                    0.65    84.9
              *

1644          KK      6O
1645          KM       SUB-BASIN 6O
1646          BA    8.13
1647          LG    0.37    0.30    3.66    0.31    0.00
1648          UI     288     288     288     288     288     288     288     760     947    1026
1649          UI    1105    1237    1327    1410    1479    1554    1616    1688    1757    1838
1650          UI    1934    2048    2161    2238    2363    2573    2849    3271    3332    3808
1651          UI    3789    3442    3198    2968    2808    2662    2527    2421    2327    2241
1652          UI    2123    1996    1891    1803    1727    1657    1517    1455    1406    1325
1653          UI    1224    1105     950     828     820     510     510     510     510     477
1654          UI     473     473     473     385     288     288     288     288     288     288
1655          UI     250      88      88      88      88      88      88      88      88      88
1656          UI      88      88      88      88      88      88      88      88      88      88
1657          UI      88      88      88      88       0       0       0       0       0       0
1658          UI       0       0       0       0       0       0       0       0       0       0
              *

1659          KK    C51I
1660          KM       Combine R49-51 + 6O
1661          HC       2
              *

1662          KK   CPND1
1663          KM       Combine R50-52 + C51I
1664          HC       2   98.03
              *

1665          KK    PND1
1666          KM       Reservoir Route at PND1 (C51 + C52) At The Gila Bend Canal
1667          RS       1    ELEV   727.5
1668          SV     0.0     0.0     1.0     3.0     7.0    12.0    22.0    41.0    74.0   129.0
1669          SV   226.0   369.0   561.0   662.0   801.0   921.0  1041.0
1670          SE   727.5   728.0   729.0   730.0   731.0   732.0   733.0   734.0   735.0   736.0
1671          SE   737.0   738.0   739.0   739.5   740.0   740.5   741.0
1672          SQ     0.0    10.0    30.0    75.0   135.0   233.0   287.0   377.0   400.0   442.0
1673          SQ   479.0   515.0   546.0   582.0  2834.6 11355.1 27511.5
1
                                          HEC-1 INPUT                                          PAGE 38

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

1674          RL                    0.47   727.5
              *

1675          KK    C51O
```

```
1676          KM        Main flow at C510 is in the left channel (R51-54)
1677          KM        Diverted flow (DQ record) goes into the right channel (R52-55).
1678          KM           Split reservoir route hydrograph downstream of GBC to simulate
1679          KM           outflow from C51 and C52.
1680          DT    C520
1681          DI     0.0    135.0    233.0    287.0    377.0    400.0    442.0    479.0    515.0    546.0
1682          DI   582.0   2834.6  11355.1  27511.5
1683          DQ     0.0      0.0      8.0     12.0     27.0     40.0     47.0     54.0     60.0     66.0
1684          DQ    87.0    192.0   1698.3   6480.3
              *

1685          KK  R51-54
1686          KM       Channel Route From C51 To C54
1687          KM       Representative Of X-SECT. 6P2
1688          RS       1    FLOW      -1
1689          RC   0.035    0.034    0.035     1800    0.004
1690          RX  4799.4   5078.0   5091.0   5121.0   5136.0   5166.0   5177.0   5548.3
1691          RY    98.9     93.9     88.7     87.2     87.6     88.5     92.3     98.9
1692          RL                     1.82     87.2
              *

1693          KK  R54-57
1694          KM       Channel Route From C54 To C57
1695          KM       X-SECT. 6P2
1696          RS       6    FLOW      -1
1697          RC   0.035    0.034    0.035     7600    0.004
1698          RX  4799.4   5078.0   5091.0   5121.0   5136.0   5166.0   5177.0   5548.3
1699          RY    98.9     93.9     88.7     87.2     87.6     88.5     92.3     98.9
1700          RL                     1.96     87.2
              *

1701          KK   BC520
1702          KM       Recall diverted hydrograph C520
1703          DR    C520
              *

1704          KK  R52-55
1705          KM       Channel Route From C52 To C55
1706          KM       Representative Of X-SECT. 6P4
1707          RS       1    FLOW      -1
1708          RC   0.035    0.034    0.035     2400    0.004
1709          RX  4033.0   5033.0   5042.0   5062.0   5072.0   5082.0   5097.0   5277.0
1710          RY    98.9     93.9     90.2     88.6     88.6     89.8     98.0     98.9
1711          RL                     4.07     88.6
              *
```



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

1712          KK  R55-57
1713          KM       Channel Route From C55 To C57
1714          KM       X-SECT. 6P4
1715          RS       4    FLOW      -1
1716          RC   0.035    0.034    0.035     6600    0.005
1717          RX  4033.0   5033.0   5042.0   5062.0   5072.0   5082.0   5097.0   5277.0
1718          RY    98.9     93.9     90.2     88.6     88.6     89.8     98.0     98.9
1719          RL                     4.16     88.6
              *

1720          KK     C57
1721          KM       Combine R54-57 + R55-57
1722          HC       2   98.03
              *

1723          KK  R57-58
1724          KM       Channel Route From C57 To C58
1725          KM       X-SECT. 6P3
1726          RS      13    FLOW      -1
1727          RC   0.060    0.065    0.050    10400    0.004
1728          RX  4795.5   5240.0   5318.0   5333.0   5357.0   5382.0   5532.0   5982.0
1729          RY    99.2     94.2     94.0     92.0     92.0     93.7     93.9     99.3
1730          RL                     0.79     92.0
              *

1731          KK      6P
1732          KM       SUB-BASIN 6P
1733          BA    5.21
1734          LG    0.42     0.13     4.07     0.50     2.00
1735          UI     177      177      177      177      177      177      177      343      582      592
1736          UI     679      696      815      840      867      941      971     1001     1045     1094
1737          UI    1142     1199     1266     1331     1376     1450     1574     1731     1941     2060
1738          UI    2289     2368     2189     2005     1884     1766     1673     1596     1528     1466
1739          UI    1412     1362     1280     1208     1149     1099     1056     1019      928      895
1740          UI     867      816      770      679      619      509      509      370      313      313
1741          UI     313      304      291      291      291      291      200      177      177      177
1742          UI     177      177      177      151       54       54       54       54       54       54
1743          UI      54       54       54       54       54       54       54       54       54       54
1744          UI      54       54       54       54       54       54       54       54        0        0
1745          UI       0        0        0        0        0        0        0        0        0        0
              *

1746          KK     C58
1747          KM       Combine R57-58 + 6P
1748          HC       2
              *
              *
1749          ZZ
```

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*            MAY   1991             *
*          VERSION 4.0.1E           *
*                                   *
*  RUN DATE  03/25/92  TIME  11:43:13*
*                                   *
*************************************
```

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

FCDMC GILA BEND FLOOD INSURANCE STUDY PROJECT NO. 11358
FCD 90-67

100-Year 6-Hour Duration Storm

03/25/92 Input Filename: S&Q6.H1
Saucada and Quilotosa Washes
(Major Basins # 3, 4, 5, & 6)

Green & AMPT Loss Rate Method
S-Graph Unit Hydrograph
Normal Depth Routing

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

   IT        HYDROGRAPH TIME DATA
                 NMIN           3  MINUTES IN COMPUTATION INTERVAL
                IDATE     13MAR92  STARTING DATE
                ITIME        1200  STARTING TIME
                   NQ         360  NUMBER OF HYDROGRAPH ORDINATES
              NDDATE     14MAR92  ENDING DATE
              NDTIME        0557  ENDING TIME
               ICENT          19  CENTURY MARK

          COMPUTATION INTERVAL    0.05 HOURS
               TOTAL TIME BASE   17.95 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

16 JD        INDEX STORM NO. 1
                 STRM        3.70  PRECIPITATION DEPTH
                 TRDA        2.35  TRANSPOSITION DRAINAGE AREA

17 PI         PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.03      0.03      0.03      0.03      0.03      0.02      0.02      0.02      0.02      0.02
                0.02      0.02      0.02      0.02      0.02      0.09      0.09      0.09      0.09      0.09
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

20 JD        INDEX STORM NO. 2
                 STRM        3.67  PRECIPITATION DEPTH
                 TRDA        2.11  TRANSPOSITION DRAINAGE AREA

 0 PI         PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.03      0.03      0.03      0.03      0.03      0.02      0.02      0.02      0.02      0.02
                0.02      0.02      0.02      0.02      0.02      0.09      0.09      0.09      0.09      0.09
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

21 JD        INDEX STORM NO. 3
                 STRM        3.61  PRECIPITATION DEPTH
                 TRDA        2.80  TRANSPOSITION DRAINAGE AREA

22 PI         PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                0.04      0.04      0.04      0.04      0.04      0.05      0.05      0.05      0.05      0.05
                0.03      0.03      0.03      0.03      0.03      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

25 JD        INDEX STORM NO. 4
                 STRM        3.41  PRECIPITATION DEPTH
                 TRDA       15.80  TRANSPOSITION DRAINAGE AREA

26 PI         PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.01      0.01      0.01      0.01      0.01      0.02      0.02      0.02      0.02      0.02
                0.03      0.03      0.03      0.03      0.03      0.04      0.04      0.04      0.04      0.04
                0.03      0.03      0.03      0.03      0.03      0.01      0.01      0.01      0.01      0.01
                0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

29 JD        INDEX STORM NO. 5
                 STRM        3.18  PRECIPITATION DEPTH
                 TRDA       50.00  TRANSPOSITION DRAINAGE AREA

30 PI         PRECIPITATION PATTERN
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

33 JD INDEX STORM NO. 6
STRM 3.05 PRECIPITATION DEPTH
TRDA 80.00 TRANSPOSITION DRAINAGE AREA

34 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

37 JD INDEX STORM NO. 7
STRM 3.00 PRECIPITATION DEPTH
TRDA 90.00 TRANSPOSITION DRAINAGE AREA

38 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

41 JD INDEX STORM NO. 8
STRM 2.66 PRECIPITATION DEPTH
TRDA 200.00 TRANSPOSITION DRAINAGE AREA

42 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

45 JD INDEX STORM NO. 9
STRM 2.44 PRECIPITATION DEPTH
TRDA 300.00 TRANSPOSITION DRAINAGE AREA

46 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

49 JD INDEX STORM NO.10
STRM 2.35 PRECIPITATION DEPTH
TRDA 350.00 TRANSPOSITION DRAINAGE AREA

50 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

53 JD INDEX STORM NO.11
STRM 2.11 PRECIPITATION DEPTH
TRDA 500.00 TRANSPOSITION DRAINAGE AREA

54 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |

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                    0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                    0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
   -----DSS---ZOPEN:  Existing File Opened,  File: S&Q6.DSS
                    Unit:  71;  DSS Version: 6-FT
-----DSS--- ZREAD Unit  71; Vers.    9:  /BENDER/C151/FLOW/13MAR1992/3MIN/C151-SPLIT/
-----DSS--- ZREAD Unit  71; Vers.    9:  /BENDER/C151/FLOW/13MAR1992/3MIN/C151-SPLIT/
-----DSS--- ZREAD Unit  71; Vers.    9:  /BENDER/C151/FLOW/14MAR1992/3MIN/C151-SPLIT/


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            **************
            *            *
 108 KK     *    R14-13  *
            *            *
            **************

 111 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            5  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE
                      IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                       IOUT           21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2          360  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        0.050  TIME INTERVAL IN HOURS


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

            **************
            *            *
 475 KK     *      C11I  *
            *            *
            **************

 477 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            5  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE
                      IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                       IOUT           21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2          360  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        0.050  TIME INTERVAL IN HOURS


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

            **************
            *            *
 761 KK     *    R31-32  *
            *            *
            **************

 764 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            5  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE
                      IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                       IOUT           21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2          360  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        0.050  TIME INTERVAL IN HOURS


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

            **************
            *            *
 996 KK     *       C33  *
            *            *
            **************

 997 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            5  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE
                      IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                       IOUT           21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2          360  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        0.050  TIME INTERVAL IN HOURS


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

            **************
            *            *
1027 KK     *       C34  *
            *            *
            **************

1029 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            5  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE
                      IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                       IOUT           21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
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                    ISAV2        360  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.050  TIME INTERVAL IN HOURS

1236 BI          READ STATION   R14-13 HYDROGRAPH FROM UNIT 21

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

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            *            *
1587 KK     *    R50-52  *
            *            *
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1590 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          5  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        360  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT      0.050  TIME INTERVAL IN HOURS

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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

| | OPERATION | STATION | PEAK FLOW | TIME OF PEAK | AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR | 24-HOUR | 72-HOUR | BASIN AREA | MAXIMUM STAGE | TIME OF MAX STAGE |
|---|---|---|---|---|---|---|---|---|---|---|
| + | HYDROGRAPH AT | 3K | 2432. | 5.75 | 833. | 280. | 280. | 8.94 | | |
| + | HYDROGRAPH AT | C151 | 0. | 0.05 | 0. | 0. | 0. | 8.94 | | |
| + | 2 COMBINED AT | C12I | 2762. | 5.85 | 841. | 287. | 287. | 339.24 | | |
| + | ROUTED TO | C12O | 8. | 7.90 | 6. | 2. | 2. | 339.24 | | |
| + | DIVERSION TO | DC12L | 0. | 0.05 | 0. | 0. | 0. | 339.24 | | |
| + | HYDROGRAPH AT | DC12R | 8. | 7.90 | 6. | 2. | 2. | 339.24 | | |
| + | ROUTED TO | R12-14 | 0. | 0.05 | 0. | 0. | 0. | 339.24 | | |
| + | ROUTED TO | R14-13 | 0. | 0.05 | 0. | 0. | 0. | 339.24 | | |
| + | HYDROGRAPH AT | 3F | 3233. | 5.70 | 1408. | 516. | 516. | 12.14 | | |
| + | ROUTED TO | R1-3 | 2947. | 6.85 | 1385. | 506. | 506. | 12.14 | | |
| + | HYDROGRAPH AT | 3E | 2595. | 5.55 | 1032. | 365. | 365. | 8.24 | | |
| + | ROUTED TO | R2-3 | 2444. | 6.15 | 1021. | 361. | 361. | 8.24 | | |
| + | HYDROGRAPH AT | 3G | 2208. | 5.10 | 716. | 245. | 245. | 5.12 | | |
| + | 3 COMBINED AT | C3 | 4511. | 6.55 | 2525. | 914. | 914. | 25.50 | | |
| + | ROUTED TO | R3-5 | 4406. | 7.00 | 2470. | 889. | 889. | 25.50 | | |
| + | HYDROGRAPH AT | 3H | 1928. | 6.00 | 869. | 321. | 321. | 6.78 | | |
| + | 2 COMBINED AT | C5 | 4968. | 6.90 | 2979. | 1083. | 1083. | 32.28 | | |
| + | ROUTED TO | R5-7 | 4801. | 7.55 | 2891. | 1040. | 1040. | 32.28 | | |
| + | HYDROGRAPH AT | 3C | 3264. | 5.70 | 1360. | 486. | 486. | 11.27 | | |
| + | ROUTED TO | R4-7 | 2938. | 6.45 | 1231. | 431. | 431. | 11.27 | | |
| + | HYDROGRAPH AT | 3D | 3010. | 5.65 | 1009. | 338. | 338. | 6.51 | | |
| + | 3 COMBINED AT | C7 | 707[illegible] | 6.35 | 4062. | 1474. | 1474. | 50.06 | | |
| + | ROUTED TO | R7-90 | 6866 | 6.80 | 3993. | 1440. | 1440. | 50.06 | | |
| + | HYDROGRAPH AT | 3A | 2512. | 6.15 | 1173. | 442. | 442. | 11.19 | | |
| + | ROUTED TO | R6-90 | 2034. | 8.35 | 1035. | 388. | 388. | 11.19 | | |
| + | 2 COMBINED AT | C90 | 6868. | 6.80 | 4559. | 1705. | 1705. | 61.25 | | |
| | ROUTED TO | | | | | | | | | |

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|---|---|---|---|---|---|---|---|
| + | R90-8 | 6277. | 7.10 | 4134. | 1549. | 1549. | 61.25 |
| + HYDROGRAPH AT | 3B | 3137. | 5.60 | 1034. | 346. | 346. | 6.42 |
| + 2 COMBINED AT | C8 | 6557. | 6.95 | 4345. | 1696. | 1696. | 67.67 |
| + ROUTED TO | R8-9 | 6088. | 9.10 | 4053. | 1576. | 1576. | 67.67 |
| + HYDROGRAPH AT | 3I | 2086. | 6.10 | 823. | 279. | 279. | 5.10 |
| + 2 COMBINED AT | C9 | 6116. | 9.05 | 4045. | 1731. | 1731. | 72.77 |
| + ROUTED TO | R9-10 | 5253. | 11.60 | 3711. | 1498. | 1498. | 72.77 |
| + HYDROGRAPH AT | 3J | 2656. | 7.05 | 1346. | 479. | 479. | 11.25 |
| + 2 COMBINED AT | C10 | 5483. | 11.45 | 3741. | 1792. | 1792. | 84.02 |
| + ROUTED TO | R10-11 | 4746. | 12.95 | 3383. | 1478. | 1478. | 84.02 |
| + HYDROGRAPH AT | 3L | 1826. | 5.25 | 474. | 159. | 159. | 2.48 |
| + 2 COMBINED AT | C11I | 4745. | 12.95 | 3383. | 1553. | 1553. | 86.50 |
| + HYDROGRAPH AT | 4A | 2675. | 6.20 | 1269. | 481. | 481. | 11.75 |
| + ROUTED TO | R26-27 | 2312. | 6.75 | 1037. | 364. | 364. | 11.75 |
| + HYDROGRAPH AT | 4B | 2798. | 5.45 | 852. | 285. | 285. | 6.14 |
| + 2 COMBINED AT | C27 | 2970. | 5.85 | 1567. | 563. | 563. | 17.89 |
| + ROUTED TO | R27-28 | 2770. | 8.15 | 1466. | 523. | 523. | 17.89 |
| + HYDROGRAPH AT | 4C | 3459. | 6.40 | 1488. | 509. | 509. | 12.33 |
| + 2 COMBINED AT | C28 | 4240. | 6.40 | 2424. | 880. | 880. | 30.22 |
| + ROUTED TO | R28-29 | 4161. | 6.75 | 2396. | 864. | 864. | 30.22 |
| + HYDROGRAPH AT | 4E | 1547. | 5.65 | 642. | 231. | 231. | 4.88 |
| + ROUTED TO | R20-21 | 1445. | 6.10 | 606. | 212. | 212. | 4.88 |
| + HYDROGRAPH AT | 4F | 2438. | 5.15 | 838. | 291. | 291. | 6.16 |
| + 2 COMBINED AT | C21 | 2793. | 5.30 | 1261. | 448. | 448. | 11.04 |
| + ROUTED TO | R21-23 | 2688. | 5.85 | 1253. | 444. | 444. | 11.04 |
| + HYDROGRAPH AT | 4D | 1367. | 5.85 | 587. | 213. | 213. | 4.57 |
| + ROUTED TO | R22-23 | 1275. | 6.55 | 567. | 205. | 205. | 4.57 |
| + HYDROGRAPH AT | 4G | 2448. | 5.40 | 895. | 310. | 310. | 7.70 |
| + 3 COMBINED AT | C23 | 4596. | 5.55 | 2171. | 775. | 775. | 23.31 |
| + ROUTED TO | R23-29 | 4098. | 7.65 | 1936. | 670. | 670. | 23.31 |
| + HYDROGRAPH AT | 4J | 2624. | 5.90 | 964. | 324. | 324. | 6.09 |
| + 3 COMBINED AT | C29 | 7227. | 6.75 | 3874. | 1394. | 1394. | 59.62 |
| + ROUTED TO | R29-31 | 6954. | 7.35 | 3703. | 1308. | 1308. | 59.62 |
| + HYDROGRAPH AT | 4K | 2005. | 5.65 | 681. | 228. | 228. | 3.91 |
| + 2 COMBINED AT | C31 | 7082. | 7.20 | 3910. | 1405. | 1405. | 63.53 |
| + ROUTED TO | R31-32 | 6770. | 7.85 | 3712. | 1306. | 1306. | 63.53 |
| + HYDROGRAPH AT | 4H | 2926. | 5.45 | 1173. | 414. | 414. | 6.11 |
| + ROUTED TO | R24-25 | 2489. | 8.40 | 1130. | 401. | 401. | 6.11 |
| + HYDROGRAPH AT | 4I | 4276. | 5.65 | 1759. | 628. | 628. | 15.52 |

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|---|---|---|---|---|---|---|---|
| + | 2 COMBINED AT | C25 | 3995. | 5.65 | 2543. | 935. | 935. | 21.63 |
| + | ROUTED TO | R25-30 | 3671. | 7.45 | 2428. | 878. | 878. | 21.63 |
| + | HYDROGRAPH AT | 6A | 4725. | 5.55 | 2047. | 729. | 729. | 9.04 |
| + | ROUTED TO | R39-40 | 4562. | 6.05 | 2029. | 721. | 721. | 9.04 |
| + | HYDROGRAPH AT | 6B | 6102. | 5.30 | 2393. | 833. | 833. | 10.95 |
| + | 2 COMBINED AT | C40 | 8792. | 5.45 | 4128. | 1462. | 1462. | 19.99 |
| + | DIVERSION TO | DC40L | 2858. | 5.45 | 1535. | 537. | 537. | 19.99 |
| + | HYDROGRAPH AT | DC40R | 5934. | 5.45 | 2593. | 926. | 926. | 19.99 |
| + | ROUTED TO | 40R-30 | 5532. | 7.15 | 2507. | 883. | 883. | 19.99 |
| + | HYDROGRAPH AT | 4L | 3161. | 6.30 | 1341. | 459. | 459. | 9.49 |
| + | 3 COMBINED AT | C30 | 9157. | 7.15 | 5038. | 1840. | 1840. | 51.11 |
| + | ROUTED TO | R30-32 | 8909. | 8.10 | 4975. | 1804. | 1804. | 51.11 |
| + | HYDROGRAPH AT | 4M | 2132. | 5.35 | 617. | 206. | 206. | 3.42 |
| + | 3 COMBINED AT | C32 | 11298. | 8.05 | 6223. | 2290. | 2290. | 118.06 |
| + | DIVERSION TO | DC32L | 4098. | 8.05 | 2316. | 862. | 862. | 118.06 |
| + | HYDROGRAPH AT | DC32R | 7200. | 8.05 | 3907. | 1428. | 1428. | 118.06 |
| + | ROUTED TO | R32-33 | 6580. | 10.35 | 3715. | 1327. | 1327. | 118.06 |
| + | HYDROGRAPH AT | 4N | 2489. | 6.70 | 1191. | 415. | 415. | 7.61 |
| + | 2 COMBINED AT | C33 | 6498. | 10.35 | 3872. | 1505. | 1505. | 125.67 |
| + | ROUTED TO | R33-34 | 6132. | 11.75 | 3737. | 1442. | 1442. | 125.67 |
| + | HYDROGRAPH AT | 4O | 2181. | 6.10 | 853. | 289. | 289. | 5.50 |
| + | 2 COMBINED AT | C34 | 6109. | 11.75 | 3736. | 1566. | 1566. | 131.17 |
| + | HYDROGRAPH AT | BDC32L | 4098. | 8.05 | 2316. | 862. | 862. | 118.06 |
| + | ROUTED TO | 32L-35 | 3770. | 10.55 | 2189. | 795. | 795. | 118.06 |
| + | HYDROGRAPH AT | 5A | 3027. | 6.65 | 1423. | 493. | 493. | 9.29 |
| + | 2 COMBINED AT | C35 | 3738. | 10.55 | 2283. | 1028. | 1028. | 127.35 |
| + | ROUTED TO | R35-36 | 3464. | 11.80 | 2133. | 931. | 931. | 127.35 |
| + | HYDROGRAPH AT | 5B | 2130. | 5.65 | 714. | 239. | 239. | 4.88 |
| + | 3 COMBINED AT | C36I | 9012. | 11.85 | 5538. | 2446. | 2446. | 140.36 |
| + | HYDROGRAPH AT | 6N | 3088. | 5.85 | 1137. | 383. | 383. | 7.84 |
| + | HYDROGRAPH AT | BDC12L | 0. | 0.05 | 0. | 0. | 0. | 339.24 |
| + | 4 COMBINED AT | CPND2 | 9055. | 12.30 | 6302. | 3138. | 3138. | 239.68 |
| + | ROUTED TO | PND2 | 6409. | 13.05 | 4823. | 2376. | 2376. | 239.68 |
| + | DIVERSION TO | PND2R | 6110. | 13.05 | 4561. | 2231. | 2231. | 239.68 |
| + | HYDROGRAPH AT | C53O | 299. | 13.05 | 261. | 145. | 145. | 239.68 |
| + | ROUTED TO | R53-56 | 280. | 13.20 | 243. | 131. | 131. | 239.68 |
| + | ROUTED TO | R56-59 | 192. | 14.00 | 158. | 72. | 72. | 239.68 |
| + | HYDROGRAPH AT | 6Q | 1838. | 5.15 | 475. | 159. | 159. | 2.86 |
| | 2 COMBINED AT | | | | | | | |

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|---|---|---|---|---|---|---|---|
| + | C59 | 424. | 5.20 | 158. | 109. | 109. | 242.54 |
| + HYDROGRAPH AT | BPND2 | 6110. | 13.05 | 4561. | 2231. | 2231. | 239.68 |
| + DIVERSION TO | C110 | 578. | 13.00 | 298. | 100. | 100. | 239.68 |
| + HYDROGRAPH AT | C360 | 5532. | 13.05 | 4264. | 2131. | 2131. | 239.68 |
| + ROUTED TO | R36-37 | 5492. | 13.10 | 4227. | 2098. | 2098. | 239.68 |
| + ROUTED TO | R37-38 | 5375. | 13.70 | 4156. | 2016. | 2016. | 239.68 |
| + HYDROGRAPH AT | 5C | 1822. | 5.10 | 412. | 138. | 138. | 2.41 |
| + 2 COMBINED AT | C38 | 5374. | 13.70 | 4156. | 2037. | 2037. | 242.09 |
| + HYDROGRAPH AT | BC110 | 578. | 13.00 | 298. | 100. | 100. | 239.68 |
| + ROUTED TO | R11-17 | 536. | 13.10 | 266. | 89. | 89. | 239.68 |
| + ROUTED TO | R17-13 | 522. | 13.20 | 256. | 85. | 85. | 239.68 |
| + HYDROGRAPH AT | B14-13 | 0. | 0.05 | 0. | 0. | 0. | 339.24 |
| + 2 COMBINED AT | C13 | 522. | 13.20 | 257. | 90. | 90. | 239.68 |
| + ROUTED TO | R13-16 | 383. | 13.85 | 172. | 57. | 57. | 239.68 |
| + HYDROGRAPH AT | 3M | 2643. | 5.05 | 631. | 211. | 211. | 3.89 |
| + 2 COMBINED AT | C16 | 673. | 5.05 | 166. | 109. | 109. | 243.57 |
| + HYDROGRAPH AT | BDC40L | 2858. | 5.45 | 1535. | 537. | 537. | 19.99 |
| + ROUTED TO | 40L-41 | 2813. | 6.40 | 1517. | 530. | 530. | 19.99 |
| + HYDROGRAPH AT | 6C | 3337. | 5.20 | 1138. | 388. | 388. | 8.83 |
| + 2 COMBINED AT | C41 | 4178. | 5.90 | 2345. | 822. | 822. | 28.82 |
| + ROUTED TO | R41-43 | 3955. | 7.50 | 2222. | 781. | 781. | 28.82 |
| + HYDROGRAPH AT | 6D | 4949. | 6.10 | 2082. | 710. | 710. | 9.98 |
| + HYDROGRAPH AT | 6E | 3465. | 6.00 | 1728. | 646. | 646. | 7.12 |
| + ROUTED TO | R42-43 | 3290. | 6.70 | 1688. | 625. | 625. | 7.12 |
| + 3 COMBINED AT | C43 | 9072. | 6.65 | 5112. | 1862. | 1862. | 45.92 |
| + ROUTED TO | R43-44 | 8759. | 8.20 | 5007. | 1809. | 1809. | 45.92 |
| + HYDROGRAPH AT | 6F | 1920. | 6.30 | 815. | 279. | 279. | 5.05 |
| + 2 COMBINED AT | C44 | 8964. | 8.10 | 5325. | 1970. | 1970. | 50.97 |
| + ROUTED TO | R44-69 | 8856. | 8.60 | 5269. | 1945. | 1945. | 50.97 |
| + HYDROGRAPH AT | 6H | 1976. | 6.10 | 793. | 271. | 271. | 4.97 |
| + HYDROGRAPH AT | 6I | 2976. | 5.65 | 1032. | 350. | 350. | 6.97 |
| + 2 COMBINED AT | C46 | 4185. | 5.80 | 1643. | 560. | 560. | 11.94 |
| + ROUTED TO | R46-69 | 4030. | 6.50 | 1621. | 553. | 553. | 11.94 |
| + 2 COMBINED AT | C69 | 9267. | 8.45 | 5940. | 2242. | 2242. | 62.91 |
| + ROUTED TO | R69-47 | 9195. | 8.80 | 5895. | 2224. | 2224. | 62.91 |
| + HYDROGRAPH AT | 6J | 2247. | 5.50 | 703. | 236. | 236. | 4.47 |
| + 2 COMBINED AT | C47 | 9194. | 8.80 | 5958. | 2357. | 2357. | 67.38 |
| + DIVERSION TO | DC47L | 4536. | 8.80 | 2935. | 1161. | 1161. | 67.38 |
| + HYDROGRAPH AT | DC47R | 4536. | 8.80 | 2935. | 1161. | 1161. | 67.38 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| + | ROUTED TO | 47R-48 | 4445. | 9.60 | 2881. | 1138. | 1138. | 67.38 |
| + | HYDROGRAPH AT | 6K | 2616. | 5.95 | 977. | 329. | 329. | 5.95 |
| + | 2 COMBINED AT | C48 | 4445. | 9.60 | 2936. | 1329. | 1329. | 73.33 |
| + | DIVERSION TO | DC48L | 2199. | 9.60 | 1449. | 656. | 656. | 73.33 |
| + | HYDROGRAPH AT | DC48R | 2199. | 9.60 | 1449. | 656. | 656. | 73.33 |
| + | ROUTED TO | 48R-50 | 2047. | 10.80 | 1357. | 595. | 595. | 73.33 |
| + | HYDROGRAPH AT | 6G | 2276. | 6.50 | 1033. | 356. | 356. | 6.37 |
| + | ROUTED TO | R45-50 | 1906. | 8.90 | 912. | 314. | 314. | 6.37 |
| + | HYDROGRAPH AT | 6L | 2426. | 6.30 | 1038. | 354. | 354. | 6.34 |
| + | 3 COMBINED AT | C50 | 2354. | 7.10 | 2033. | 941. | 941. | 86.04 |
| + | ROUTED TO | R50-52 | 1566. | 8.40 | 1380. | 574. | 574. | 86.04 |
| + | HYDROGRAPH AT | BDC47L | 4536. | 8.80 | 2935. | 1161. | 1161. | 67.38 |
| + | ROUTED TO | 47L-49 | 4348. | 10.45 | 2822. | 1109. | 1109. | 67.38 |
| + | HYDROGRAPH AT | BDC48L | 2199. | 9.60 | 1449. | 656. | 656. | 73.33 |
| + | ROUTED TO | 48L-49 | 2047. | 10.80 | 1357. | 595. | 595. | 73.33 |
| + | HYDROGRAPH AT | 6M | 2277. | 5.35 | 672. | 225. | 225. | 3.86 |
| + | 3 COMBINED AT | C49 | 6175. | 10.60 | 4040. | 1780. | 1780. | 77.19 |
| + | ROUTED TO | R49-51 | 6043. | 11.70 | 3983. | 1718. | 1718. | 77.19 |
| + | HYDROGRAPH AT | 6O | 4237. | 5.35 | 1255. | 419. | 419. | 8.13 |
| + | 2 COMBINED AT | C51I | 6043. | 11.70 | 3983. | 1975. | 1975. | 85.32 |
| + | 2 COMBINED AT | CPND1 | 6975. | 11.80 | 4673. | 2321. | 2321. | 98.03 |
| + | ROUTED TO | PND1 | 6721. | 12.15 | 4468. | 1835. | 1835. | 98.03 |
| + | DIVERSION TO | C52O | 879. | 12.15 | 498. | 199. | 199. | 98.03 |
| + | HYDROGRAPH AT | C51O | 5842. | 12.15 | 3969. | 1636. | 1636. | 98.03 |
| + | ROUTED TO | R51-54 | 5831. | 12.25 | 3962. | 1626. | 1626. | 98.03 |
| + | ROUTED TO | R54-57 | 5796. | 12.50 | 3930. | 1584. | 1584. | 98.03 |
| + | HYDROGRAPH AT | BC52O | 879. | 12.15 | 498. | 199. | 199. | 98.03 |
| + | ROUTED TO | R52-55 | 865. | 12.25 | 491. | 193. | 193. | 98.03 |
| + | ROUTED TO | R55-57 | 830. | 12.50 | 470. | 177. | 177. | 98.03 |
| + | 2 COMBINED AT | C57 | 6626. | 12.50 | 4399. | 1761. | 1761. | 98.03 |
| + | ROUTED TO | R57-58 | 6398. | 13.25 | 4316. | 1624. | 1624. | 98.03 |
| + | HYDROGRAPH AT | 6P | 2663. | 5.45 | 808. | 271. | 271. | 5.21 |
| + | 2 COMBINED AT | C58 | 6378. | 13.25 | 4305. | 1750. | 1750. | 103.24 |

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

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-----DSS---ZCLOSE Unit:  71.   File: S&Q6.DSS
           Pointer Utilization:  0.25
           Number of Records:      4
           File Size:     19.2  Kbytes
           Percent Inactive:   0.0
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1****************************************                    ****************************************
*                                      *                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *   U.S. ARMY CORPS OF ENGINEERS       *
*             MAY  1991                *                    *   HYDROLOGIC ENGINEERING CENTER      *
*          VERSION 4.0.1E              *                    *        609 SECOND STREET             *
*                                      *                    *     DAVIS, CALIFORNIA 95616          *
*  RUN DATE  03/30/92  TIME  14:02:43  *                    *        (916) 551-1748                *
*                                      *                    *                                      *
****************************************                    ****************************************

                                        X     X  XXXXXXX   XXXXX          X
                                        X     X  X        X     X        XX
                                        X     X  X        X              X
                                        XXXXXXX  XXXX     X        XXXXX  X
                                        X     X  X        X              X
                                        X     X  X        X     X        X
                                        X     X  XXXXXXX   XXXXX        XXX

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

1                                          HEC-1 INPUT                                                    PAGE  1

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

    1           ID   FCDMC GILA BEND FLOOD INSURANCE STUDY PROJECT NO. 11358
    2           ID   FCD 90-67
    3           ID
    4           ID   100-Year 6-Hour Duration Storm
    5           ID
    6           ID   03/30/92    Input Filename:  UN-6.H1
    7           ID                                Un-named Washes #1 and #2
    8           ID
    9           ID        Green & AMPT Loss Rate Method
   10           ID        S-Graph Unit Hydrograph
   11           ID        Normal Depth Routing
                *
   12           IT       1                     600
   13           IO       5
   14           IN      15
                *
   15           JD    3.70     .01
   16           PC   0.000   0.008   0.016   0.025   0.033   0.041   0.050   0.058   0.066   0.074
   17           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931   0.950
   18           PC   0.962   0.972   0.983   0.991   1.000
   19           JD    3.67     0.5
   20           JD    3.61     2.8
   21           PC   0.000   0.009   0.016   0.025   0.034   0.042   0.051   0.059   0.067   0.076
   22           PC   0.087   0.100   0.120   0.163   0.252   0.451   0.694   0.837   0.900   0.938
   23           PC   0.950   0.963   0.975   0.988   1.000
   24           JD    3.41    15.8
   25           PC   0.000   0.015   0.020   0.030   0.048   0.063   0.076   0.090   0.105   0.119
   26           PC   0.135   0.152   0.175   0.222   0.304   0.472   0.670   0.796   0.868   0.912
   27           PC   0.946   0.960   0.973   0.987   1.000
   28           JD    3.00    90.0
   29           PC   0.000   0.021   0.035   0.051   0.071   0.087   0.105   0.125   0.143   0.160
   30           PC   0.179   0.201   0.232   0.281   0.364   0.500   0.658   0.773   0.841   0.888
   31           PC   0.927   0.945   0.964   0.982   1.000
   32           JD    2.11   500.0
   33           PC   0.000   0.024   0.043   0.059   0.078   0.098   0.119   0.141   0.162   0.186
   34           PC   0.212   0.239   0.271   0.321   0.408   0.515   0.627   0.735   0.814   0.864
   35           PC   0.907   0.930   0.954   0.977   1.000
                *
   36           KK    2VV1
   37           KM    Basin 2VV1 at CP143
   38           KM    LAG USED =  67.0 minutes
   39           KM    The Phoenix Valley S-Graph was used for this basin.
   40           BA    0.54
   41           LG    0.34    0.34    3.84    0.63    4.00
   42           UI      27      27      27      27      27      27      27      27      27      27
   43           UI      27      27      27      27      27      64      89      89      89      89
   44           UI     103     104     104     104     122     125     125     129     133     133
   45           UI     138     145     145     149     152     152     158     160     161     169
   46           UI     169     175     178     182     189     190     201     202     208     208
   47           UI     215     216     231     236     250     262     272     284     320     328
   48           UI     297     345     362     367     357     342     328     312     302     294
   49           UI     284     274     269     260     254     250     240     238     231     228
   50           UI     223     219     215     211     208     201     195     190     184     182
   51           UI     173     173     167     164     163     156     156     149     142     142
1                                          HEC-1 INPUT                                                    PAGE  2

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

   52           UI     137     133     133     129     125     125     123     104     104     104
   53           UI     103      78      78      78      78      78      57      48      48      48
   54           UI      48      48      48      48      48      45      45      45      45      45
   55           UI      45      45      45      45      34      27      27      27      27      27
   56           UI      27      27      27      27      27      27      27      27      27      24
   57           UI       8       8       8       8       8       8       8       8       8       8
   58           UI       8       8       8       8       8       8       8       8       8       8
   59           UI       8       8       8       8       8       8       8       8       8       8
   60           UI       8       8       8       8       8       8       8       8       8       8
   61           UI       8       8       8       8       8       8       8       8       8       8
   62           UI       0       0       0       0       0       0       0       0       0       0
   63           UI       0       0       0       0       0       0       0       0       0       0
                *
   64           KK  143144
   65           KM        Channel Route From CP143 to CP144
   66           KM        Unnamed Wash #2 Section 2.335
   67           RS      33    FLOW      -1
```

```
 68          RC   0.035   0.035   0.035  5800.0  0.0066
 69          RX   9842.  9896.1  9971.3  9991.7 10000.0 10034.9 10278.6 10587.0
 70          RY    825   824.2   820.4   818.8   817.9   820.7   819.3   826.9
 71          RL                   1.17   817.9
             *

 72          KK    2VV2
 73          KM    Basin 2VV2
 74          KM    LAG USED =  67.0 minutes
 75          KM    The Phoenix Valley S-Graph was used for this basin.
 76          BA    0.96
 77          LG    0.34    0.34    3.32    0.86    4.00
 78          UI      48      48      48      48      48      48      48      48      48      48
 79          UI      48      48      48      48      48     113     159     159     159     159
 80          UI     182     185     185     185     217     222     222     229     236     236
 81          UI     244     258     258     264     271     271     281     285     287     300
 82          UI     300     311     317     323     336     339     358     358     370     370
 83          UI     383     385     411     420     444     467     484     504     569     584
 84          UI     528     613     644     653     635     608     584     555     537     522
 85          UI     504     487     478     462     451     444     428     423     411     405
 86          UI     396     389     383     375     370     357     347     338     326     324
 87          UI     308     308     296     292     289     277     277     264     252     252
 88          UI     243     236     236     230     222     222     219     185     185     185
 89          UI     183     139     139     139     139     139     102      85      85      85
 90          UI      85      85      85      85      85      79      79      79      79      79
 91          UI      79      79      79      79      61      48      48      48      48      48
 92          UI      48      48      48      48      48      48      48      48      48      42
 93          UI      15      15      15      15      15      15      15      15      15      15
 94          UI      15      15      15      15      15      15      15      15      15      15
 95          UI      15      15      15      15      15      15      15      15      15      15
 96          UI      15      15      15      15      15      15      15      15      15      15
 97          UI      15      15      15      15      15      15      15      15      15      15
 98          UI       0       0       0       0       0       0       0       0       0       0
 99          UI       0       0       0       0       0       0       0       0       0       0
             *
1                                          HEC-1 INPUT                                          PAGE  3
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

100          KK    C144
101          KM    Combine R143-144 + 2VV2
102          HC       2
             *

103          KK  144145
104          KM        Channel Route From CP144 To CP145
105          KM        Unnamed Wash #2 Section 0.821
106          RS      54    FLOW      -1
107          RC   0.030   0.035   0.030  9100.0  0.0065
108          RX   9855.  9913.8  9952.9  9983.9 10009.5 10023.7 10692.6 10921.0
109          RY    770   769.5   768.3   765.4   765.3   767.7   766.8   772.9
110          RL                   1.24   765.3
             *

111          KK    2VV6
112          KM    Basin 2VV6
113          KM    LAG USED =  45.0 minutes
114          KM    The Phoenix Valley S-Graph was used for this basin.
115          BA    0.56
116          LG    0.34    0.34    3.26    0.89    4.00
117          UI      42      42      42      42      42      42      42      42      42      42
118          UI     104     138     138     149     161     161     186     193     200     205
119          UI     213     224     230     235     243     247     259     264     275     286
120          UI     295     311     319     326     335     357     383     412     433     512
121          UI     463     542     567     546     511     480     456     435     417     401
122          UI     385     372     360     350     341     332     322     309     298     283
123          UI     273     267     254     249     241     229     219     211     205     200
124          UI     193     187     161     161     141     120     120     120      80      74
125          UI      74      74      74      74      69      69      69      69      69      69
126          UI      49      42      42      42      42      42      42      42      42      42
127          UI      31      13      13      13      13      13      13      13      13      13
128          UI      13      13      13      13      13      13      13      13      13      13
129          UI      13      13      13      13      13      13      13      13      13      13
130          UI      13      13      13      13       0       0       0       0       0       0
131          UI       0       0       0       0       0       0       0       0       0       0
             *

132          KK   C145R
133          KM    Combine R144-145 + 2VV6
134          HC       2
             *

135          KK    2VV3
136          KM    Basin 2VV3 at CP146
137          KM    LAG USED =  14.0 minutes
138          KM    The Phoenix Valley S-Graph was used for this basin.
139          BA    0.02
140          LG    0.34    0.34    3.26    0.89    4.00
141          UI       5       5       5      13      18      22      25      28      30      34
142          UI      38      45      57      62      52      45      41      37      33      29
143          UI      26      23      20      15      10       9       8       8       5       5
144          UI       5       2       1       1       1       1       1       1       1       1
145          UI       1       0       0       0       0       0       0       0       0       0
1                                          HEC-1 INPUT                                          PAGE  4
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

146          UI       0       0       0       0       0       0       0       0       0       0
             *

147          KK  145147
148          KM        Channel Route From CP146 To CP147
149          KM        Unnamed Wash #1 Section 2.936
150          RS      15    FLOW      -1
151          RC   0.035   0.035   0.035  3100.0  0.0071
152          RX   9903.  9943.7  9975.5  9988.0 10000.0 10013.6 10043.6 10146.0
153          RY    841   837.3   836.7   836.0   834.7   836.5   836.6   840.6
154          RL                   5.34   834.7
             *

155          KK    2VV4
156          KM    Basin 2VV4
157          KM    LAG USED =  22.0 minutes
158          KM    The Phoenix Valley S-Graph was used for this basin.
```

```
159          BA    0.10
160          LG    0.34    0.34    3.26    0.89    4.00
161          UI      15      15      15      15      15      48      54      60      70      75
162          UI      81      86      91      97     105     114     120     134     153     177
163          UI     201     193     171     155     143     133     125     119     109     101
164          UI      94      89      80      75      70      60      50      44      30      27
165          UI      27      25      25      25      17      15      15      15      15       7
166          UI       5       5       5       5       5       5       5       5       5       5
167          UI       5       5       5       5       5       0       0       0       0       0
168          UI       0       0       0       0       0       0       0       0       0       0
             *

169          KK    C147
170          KM    Combine R146-147 + 2VV4
171          HC       2
             *

172          KK  147148
173          KM        Channel Route From CP147 To CP148
174          KM        Unnamed Wash #1 Section 2.127
175          RS      19    FLOW      -1
176          RC   0.030   0.035   0.030  6200.0  0.0081
177          RX   9848.  9921.3  9957.6  9996.7 10000.0 10089.0 10137.9 10185.0
178          RY     812   808.5   806.0   801.3   801.0   807.0   808.5   809.3
179          RL                    1.48   801.0
             *

180          KK    2VV8
181          KM   Basin 2VV8
182          KM    LAG USED =  33.0 minutes
183          KM    The Phoenix Valley S-Graph was used for this basin.
184          BA    0.36
185          LG    0.34    0.34    3.26    0.89    4.00
186          UI      37      37      37      37      37      37      37      71     121     123
187          UI     141     144     169     174     180     195     201     208     217     227
188          UI     237     248     263     276     285     300     326     359     402     427
189          UI     475     491     454     416     390     366     347     331     317     304
190          UI     293     282     265     251     238     228     219     211     192     185
```



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

191          UI     180     169     160     141     128     106     106      77      65      65
192          UI      66      63      60      60      60      60      41      37      37      37
193          UI      37      37      37      31      11      11      11      11      11      11
194          UI      11      11      11      11      11      11      11      11      11      11
195          UI      11      11      11      11      11      11      11      11       0       0
196          UI       0       0       0       0       0       0       0       0       0       0
             *

197          KK    C148
198          KM    Combine R147-148 + 2VV8
199          HC       2
             *

200          KK  148145
201          KM        Channel Route From CP148 To CP145
202          KM        Unnamed Wash #1 Section 0.769
203          RS      24    FLOW      -1
204          RC   0.035   0.035   0.035  7000.0  0.0057
205          RX   9366.  9805.1  9965.0  9993.2 10000.0 10009.3 10066.8 10169.0
206          RY     761   758.2   754.6   752.7   751.5   754.3   756.1   760.5
207          RL                    1.29   751.5
             *

208          KK    2VV5
209          KM   Basin 2VV5
210          KM    LAG USED =  39.0 minutes
211          KM    The Phoenix Valley S-Graph was used for this basin.
212          BA    0.25
213          LG    0.34    0.34    3.26    0.89    4.00
214          UI      22      22      22      22      22      22      22      22      23      71
215          UI      71      74      83      83      99      99     106     107     115     118
216          UI     121     127     130     134     141     147     153     161     165     171
217          UI     181     194     211     224     264     255     288     285     265     246
218          UI     232     220     210     201     193     186     179     174     169     163
219          UI     155     146     140     136     131     125     121     113     109     106
220          UI     101      99      87      83      74      62      62      55      38      38
221          UI      38      38      38      35      35      35      35      35      25      22
222          UI      22      22      22      22      22      22      22      10       7       7
223          UI       7       7       7       7       7       7       7       7       7       7
224          UI       7       7       7       7       7       7       7       7       7       7
225          UI       7       7       7       7       7       7       0       0       0       0
226          UI       0       0       0       0       0       0       0       0       0       0
             *

227          KK   C145L
228          KM    Combine R148-145 + 2VV5
229          HC       2
             *

230          KK    C145
231          KM    Combine C145L + C145R
232          HC       2
             *
```



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

233          KK  145135
234          KM        Channel Route From CP145 To CP135
235          KM        Unnamed Wash #1 Section 0.061
236          RS       4    FLOW      -1
237          RC   0.060   0.035   0.060  1100.0  0.0027
238          RX   9883.  9933.8  9984.9 10000.0 10005.6 10028.4 10038.5 10047.0
239          RY     743   741.0   742.7   738.0   738.8   745.9   746.5   746.6
240          RL                    1.22   738.0
             *

241          KK    2VV7
242          KM   Basin 2VV7
243          KM    LAG USED =  37.0 minutes
244          KM    The Phoenix Valley S-Graph was used for this basin.
245          BA    0.12
```

```
246          LG    0.34    0.34    3.26    0.89    4.00
247          UI      11      11      11      11      11      11      11      11      23      36
248          UI      36      41      42      48      50      53      54      58      60      61
249          UI      64      66      69      72      76      79      82      85      89      95
250          UI     104     112     131     125     145     145     134     124     117     111
251          UI     105     101      96      93      90      87      84      79      76      72
252          UI      70      66      64      62      57      55      53      51      50      42
253          UI      42      34      31      31      22      19      19      19      19      18
254          UI      18      18      18      18      12      11      11      11      11      11
255          UI      11      11       9       3       3       3       3       3       3       3
256          UI       3       3       3       3       3       3       3       3       3       3
257          UI       3       3       3       3       3       3       3       3       3       3
258          UI       0       0       0       0       0       0       0       0       0       0
259          UI       0       0       0       0       0       0       0       0       0       0
             *

260          KK   C135I
261          KM    Combine R145-135 + 2VV7
262          HC       2
             *
             *
             *
263          ZZ
1****************************************                    ****************************************
*                                        *                    *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *                    *    U.S. ARMY CORPS OF ENGINEERS      *
*              MAY  1991                 *                    *  HYDROLOGIC ENGINEERING CENTER       *
*           VERSION 4.0.1E               *                    *        609 SECOND STREET             *
*                                        *                    *     DAVIS, CALIFORNIA 95616          *
*  RUN DATE  03/30/92  TIME  14:02:43    *                    *        (916) 551-1748                *
*                                        *                    *                                      *
****************************************                    ****************************************
```

FCDMC GILA BEND FLOOD INSURANCE STUDY PROJECT NO. 11358
FCD 90-67

100-Year 6-Hour Duration Storm

03/30/92  Input Filename: UN-6.H1
Un-named Washes #1 and #2

Green & AMPT Loss Rate Method
S-Graph Unit Hydrograph
Normal Depth Routing

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

   IT        HYDROGRAPH TIME DATA
                    NMIN          1  MINUTES IN COMPUTATION INTERVAL
                   IDATE      1    0  STARTING DATE
                   ITIME       0000  STARTING TIME
                      NQ        600  NUMBER OF HYDROGRAPH ORDINATES
                  NDDATE      1    0  ENDING DATE
                  NDTIME       0959  ENDING TIME
                   ICENT         19  CENTURY MARK

             COMPUTATION INTERVAL    0.02 HOURS
                  TOTAL TIME BASE    9.98 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

15 JD        INDEX STORM NO. 1
                   STRM       3.70  PRECIPITATION DEPTH
                   TRDA       0.01  TRANSPOSITION DRAINAGE AREA

16 PI          PRECIPITATION PATTERN
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.01    0.01    0.01    0.01    0.01
                 0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01
                 0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01
                 0.01    0.01    0.01    0.01    0.01    0.03    0.03    0.03    0.03    0.03
                 0.03    0.03    0.03    0.03    0.03    0.03    0.03    0.03    0.03    0.03
                 0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01    0.01
                 0.01    0.01    0.01    0.01    0.01    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

19 JD INDEX STORM NO. 2

STRM 3.67 PRECIPITATION DEPTH
TRDA 0.50 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

20 JD INDEX STORM NO. 3

STRM 3.61 PRECIPITATION DEPTH
TRDA 2.80 TRANSPOSITION DRAINAGE AREA

21 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

24 JD INDEX STORM NO. 4

STRM 3.41 PRECIPITATION DEPTH
TRDA 15.80 TRANSPOSITION DRAINAGE AREA

25 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

28 JD INDEX STORM NO. 5
STRM 3.00 PRECIPITATION DEPTH
TRDA 90.00 TRANSPOSITION DRAINAGE AREA

29 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

32 JD INDEX STORM NO. 6
STRM 2.11 PRECIPITATION DEPTH
TRDA 500.00 TRANSPOSITION DRAINAGE AREA

33 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

| | OPERATION | STATION | PEAK FLOW | TIME OF PEAK | AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR | 24-HOUR | 72-HOUR | BASIN AREA | MAXIMUM STAGE | TIME OF MAX STAGE |
|---|---|---|---|---|---|---|---|---|---|---|
| + | HYDROGRAPH AT | 2VV1 | 463. | 4.93 | 89. | 53. | 53. | 0.54 | | |
| + | ROUTED TO | 143144 | 427. | 5.48 | 86. | 51. | 51. | 0.54 | | |
| + | HYDROGRAPH AT | 2VV2 | 645. | 4.95 | 127. | 76. | 76. | 0.96 | | |
| | 2 COMBINED AT | | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| + | | C144 | 730. | 5.02 | 187. | 113. | 113. | 1.50 |
| + | ROUTED TO | 144145 | 680. | 5.93 | 175. | 105. | 105. | 1.50 |
| + | HYDROGRAPH AT | 2VV6 | 596. | 4.60 | 82. | 49. | 49. | 0.56 |
| + | 2 COMBINED AT | C145R | 673. | 5.93 | 234. | 141. | 141. | 2.06 |
| + | HYDROGRAPH AT | 2VV3 | 51. | 4.10 | 3. | 2. | 2. | 0.02 |
| + | ROUTED TO | 146147 | 41. | 4.35 | 2. | 1. | 1. | 0.02 |
| + | HYDROGRAPH AT | 2VV4 | 188. | 4.23 | 15. | 9. | 9. | 0.10 |
| + | 2 COMBINED AT | C147 | 217. | 4.28 | 17. | 10. | 10. | 0.12 |
| + | ROUTED TO | 147148 | 192. | 4.60 | 16. | 10. | 10. | 0.12 |
| + | HYDROGRAPH AT | 2VV8 | 502. | 4.42 | 54. | 32. | 32. | 0.36 |
| + | 2 COMBINED AT | C148 | 615. | 4.48 | 70. | 42. | 42. | 0.48 |
| + | ROUTED TO | 148145 | 562. | 4.88 | 68. | 41. | 41. | 0.48 |
| + | HYDROGRAPH AT | 2VV5 | 307. | 4.52 | 37. | 23. | 23. | 0.25 |
| + | 2 COMBINED AT | C145L | 636. | 4.83 | 98. | 59. | 59. | 0.73 |
| + | 2 COMBINED AT | C145 | 822. | 4.82 | 274. | 166. | 166. | 2.79 |
| + | ROUTED TO | 145135 | 816. | 4.90 | 274. | 165. | 165. | 2.79 |
| + | HYDROGRAPH AT | 2VV7 | 154. | 4.48 | 18. | 11. | 11. | 0.12 |
| + | 2 COMBINED AT | C135I | 841. | 4.88 | 282. | 171. | 171. | 2.91 |

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

FLOOD CONTROL
DISTRICT
of
MARICOPA
COUNTY
1959

# GILA BEND
# FLOODPLAIN DELINEATION STUDY

**FCD 90-67**

Section 3.5.8

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*            MAY   1991                 *
*          VERSION 4.0.1E               *
*                                       *
*  RUN DATE  04/04/92  TIME  06:33:37   *
*                                       *
*****************************************
```

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

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

```
1                                    HEC-1 INPUT                                                          PAGE  1
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
  1           ID   FCDMC GILA BEND FLOOD INSURANCE STUDY PROJECT NO. 11358
  2           ID   FCD 90-67
  3           ID
  4           ID   Bender and Sand Tank Washes (Major Basins 1, 2, and 7)
  5           ID
  6           ID   100-Year 24-Hour Duration Storm
  7           ID
  8           ID   04/06/92    Input Filename:  B&ST24.H1
  9           ID
 10           ID        Green & AMPT Loss Rate Method
 11           ID        S-Graph Unit Hydrograph
 12           ID        Normal Depth Routing
              *
              *DIAGRAM
              *
 13           IT       3 13MAR92    1200     600
 14           IO       5
 15           IN      15
              *
 16           JD    4.53    0.01
 17           PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
 18           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
 19           PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
 20           PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.173
 21           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.487   0.663   0.707
 22           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 23           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 24           PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
 25           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
 26           PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
 27           JD    4.44     5.0
 28           JD    4.30    10.0
 29           JD    4.00    50.0
 30           JD    3.90    80.0
 31           JD    3.85   100.0
 32           JD    3.71   200.0
 33           JD    3.53   500.0
              *
              *    ************************************
              *    *                START               *
              *    * START BENDER WASH (Major Basin 1) *
              *    *                                   *
              *    ************************************
              *

 34           KK      1B
 35           KM        SUB-BASIN 1B At C61
 36           BA    2.10
 37           LG    0.33    0.35    4.29    0.47    2.00
 38           UI     106     106     106     106     106     314     364     405     482     512
 39           UI     555     587     621     664     712     769     819     886    1016    1208
 40           UI    1302    1382    1222    1104    1014     944     884     836     783     720
 41           UI     665     626     579     533     502     457     403     303     277     187
 42           UI     187     182     173     173     160     106     106     106     106     101
 43           UI      32      32      32      32      32      32      32      32      32      32
1                                    HEC-1 INPUT                                                          PAGE  2
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
 44           UI      32      32      32      32      32      32       0       0       0       0
 45           UI       0       0       0       0       0       0       0       0       0       0
              *

 46           KK  R61-62
 47           KM        Channel Route From C61 To C62
 48           KM        Representative Of X-SECT. 1E1
 49           RS       5    FLOW      -1
 50           RC   0.060   0.046   0.060    3600   0.006
 51           RX  3228.6  4300.0  4330.0  4347.0  4380.0  4393.0  4423.0  5423.0
 52           RY    99.6    94.6    94.1    90.0    90.6    94.0    94.6    99.6
 53           RL                    1.20    90.0
              *

 54           KK      1C
 55           KM        SUB-BASIN 1C
 56           BA    3.83
 57           LG    0.35    0.35    3.66    0.33    0.00
```

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 58          UI     154     154     154     154     154     154     350     504     555     588
 59          UI     697     730     766     821     861     899     943     994    1054    1127
 60          UI    1180    1245    1365    1530    1791    1819    2071    1907    1728    1600
 61          UI    1497    1405    1333    1273    1214    1155    1077    1012     958     912
 62          UI     862     801     751     719     669     588     495     441     375     272
 63          UI     272     272     257     252     252     252     170     154     154     154
 64          UI     154     154     112      47      47      47      47      47      47      47
 65          UI      47      47      47      47      47      47      47      47      47      47
 66          UI      47      47      47       0       0       0       0       0       0       0
 67          UI       0       0       0       0       0       0       0       0       0       0
             *

 68          KK      1A
 69          KM        SUB-BASIN 1A
 70          BA    2.10
 71          LG    0.21    0.35    4.05    0.51   13.00
 72          UI      73      73      73      73      73      73      73     150     210     210
 73          UI     278     281     335     371     422     441     463     486     513     534
 74          UI     552     571     592     635     701     758     832     933     826     668
 75          UI     572     534     503     478     456     439     430     420     407     394
 76          UI     381     367     359     349     338     331     310     303     294     285
 77          UI     279     260     250     239     227     223     193     193     189     178
 78          UI     178     176     168     168     168     152     152     152     138     120
 79          UI     120     120     120      95      93      93      93      93      92      80
 80          UI      80      80      80      80      80      72      56      56      56      56
 81          UI      56      56      56      56      56      43      36      36      36      36
 82          UI      36      36      36      36      36      36      36      36      36      36
 83          UI      27      14      14      14      14      14      14      14      14      14
 84          UI      14      14      14      14      14      14      14      14      14      14
 85          UI      14      14      14      14      14      14      14      14      14      14
 86          UI      14      14      14      14      14      14      14      14      14       0
 87          UI       0       0       0       0       0       0       0       0       0       0
 88          UI       0       0       0       0       0       0       0       0       0       0
             *
1                                          HEC-1 INPUT                                          PAGE  3
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 89          KK     C62
 90          KM       Combine R61-62 + 1C + 1A
 91          HC       3
             *

 92          KK  R62-64
 93          KM        Channel Route From C62 To C64
 94          KM        X-SECT. 1E1
 95          RS       8    FLOW      -1
 96          RC   0.060   0.046   0.060    4800   0.006
 97          RX  3228.6  4300.0  4330.0  4347.0  4380.0  4393.0  4423.0  5423.0
 98          RY    99.6    94.6    94.1    90.0    90.6    94.0    94.6    99.6
 99          RL                    1.38    90.0
             *

100          KK      1D
101          KM        SUB-BASIN 1D At C63
102          BA    0.34
103          LG    0.25    0.20    9.40    0.02   10.00
104          UI      34      34      59     113     159     206     237     263     314     401
105          UI     295     229     203     188     171     158     142     131     113      98
106          UI      86      81      76      70      56      51      43      41      37      37
107          UI      26      26      26      21      16      16      16      16      14       6
108          UI       6       6       6       6       6       6       6       6       6       6
109          UI       6       6       0       0       0       0       0       0       0       0
110          UI       0       0       0       0       0       0       0       0       0       0
             *

111          KK  R63-64
112          KM        Channel Route From C63 To C64
113          KM        Representative Of X-SECT. 1L1
114          RS      29    FLOW      -1
115          RC   0.070   0.058   0.070   33400   0.019
116          RX  3914.5  4027.0  4038.0  4057.0  4070.0  4076.0  4103.0  5283.0
117          RY   102.5    97.5    94.6    91.1    91.0    93.3    96.6   102.5
118          RL                    2.93    91.0
             *

119          KK     C64
120          KM       Combine R62-64 + R63-64
121          HC       2
             *

122          KK  R64-65
123          KM        Channel Route From C64 To C65
124          KM        Representative Of X-SECT. 1E1
125          RS       5    FLOW      -1
126          RC   0.060   0.046   0.060    2800   0.006
127          RX  3228.6  4300.0  4330.0  4347.0  4380.0  4393.0  4423.0  5423.0
128          RY    99.6    94.6    94.1    90.0    90.6    94.0    94.6    99.6
129          RL                    1.61    90.0
             *
1                                          HEC-1 INPUT                                          PAGE  4
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

130          KK      1E
131          KM        SUB-BASIN 1E
132          BA    3.91
133          LG    0.35    0.35    4.03    0.40    0.00
134          UI     139     139     139     139     139     139     139     366     455     493
135          UI     531     595     638     678     711     747     777     812     845     884
136          UI     930     985    1039    1076    1136    1237    1370    1573    1602    1831
137          UI    1822    1656    1538    1427    1351    1280    1215    1164    1119    1078
138          UI    1021     960     910     867     831     797     730     700     676     637
139          UI     589     531     457     398     394     245     245     245     245     229
140          UI     228     228     228     185     139     139     139     139     139     139
141          UI     120      42      42      42      42      42      42      42      42      42
142          UI      42      42      42      42      42      42      42      42      42      42
143          UI      42      42      42      42       0       0       0       0       0       0
144          UI       0       0       0       0       0       0       0       0       0       0
             *

145          KK      1F
146          KM        SUB-BASIN 1F
```

```
147          BA    5.55
148          LG    0.26     0.35     3.44     0.80    14.00
149          UI     170      170      170      170      170      170      170      170      350      488
150          UI     488      592      651      708      781      899      984     1028     1070     1112
151          UI    1162     1221     1260     1297     1337     1381     1468     1593     1687     1881
152          UI    2004     2189     1875     1535     1339     1261     1197     1144     1085     1042
153          UI    1018     1002      978      955      930      891      876      849      827      814
154          UI     785      779      724      721      685      685      652      651      599      583
155          UI     566      528      528      480      449      449      435      416      416      416
156          UI     392      391      391      380      355      355      355      335      279      279
157          UI     279      279      271      217      217      217      217      217      217      201
158          UI     186      186      186      186      186      186      186      140      130      130
159          UI     130      130      130      130      130      130      130      130       91       83
160          UI      83       83       83       83       83       83       83       83       83       83
161          UI      83       83       83       83       83       53       33       33       33       33
162          UI      33       33       33       33       33       33       33       33       33       33
163          UI      33       33       33       33       33       33       33       33       33       33
164          UI      33       33       33       33       33       33       33       33       33       33
165          UI      33       33       33       33       33       33       33       33       33        0
166          UI       0        0        0        0        0        0        0        0        0        0
167          UI       0        0        0        0        0        0        0        0        0        0
             *

168          KK     C65
169          KM       Combine R64-65 + 1E + 1F
170          HC       3
             *

171          KK   R65-67
172          KM        Channel Route From C65 To C67
173          KM        X-SECT. 1I1
174          RS       6    FLOW      -1
175          RC   0.060    0.038    0.060     6600    0.008
176          RX  3800.0   4300.0   4351.0   4375.0   4458.0   4468.0   4618.0   5068.2
177          RY    99.9     94.9     94.6     91.2     90.7     93.5     95.1     99.9
1                                                   HEC-1 INPUT                                                    PAGE  5

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

178          RL                         1.80     90.7
             *

179          KK      1J
180          KM        SUB-BASIN 1J At C66
181          BA    0.62
182          LG    0.26     0.20     9.40     0.02     9.00
183          UI      50       50       50      122      174      229      295      328      366      396
184          UI     465      575      528      374      326      297      281      260      243      227
185          UI     207      194      175      157      136      126      120      114      105       97
186          UI      82       75       64       64       56       54       54       40       38       38
187          UI      38       28       24       24       24       24       24       23       10       10
188          UI      10       10       10       10       10       10       10       10       10       10
189          UI      10       10       10       10        0        0        0        0        0        0
190          UI       0        0        0        0        0        0        0        0        0        0
             *

191          KK   R66-67
192          KM        Channel Route From C66 To C67
193          KM        X-SECT. 1I1
194          RS      35    FLOW      -1
195          RC   0.060    0.038    0.060    33600    0.016
196          RX  3800.0   4300.0   4351.0   4375.0   4458.0   4468.0   4618.0   5068.2
197          RY    99.9     94.9     94.6     91.2     90.7     93.5     95.1     99.9
198          RL                         8.29     90.7
             *

199          KK      1I
200          KM        SUB-BASIN 1I
201          BA    4.11
202          LG    0.35     0.35     4.14     0.41     0.00
203          UI     146      146      146      146      146      146      146      384      479      518
204          UI     558      625      671      713      748      785      817      854      888      929
205          UI     978     1035     1093     1131     1194     1301     1440     1654     1684     1925
206          UI    1915     1740     1617     1500     1420     1345     1277     1224     1176     1133
207          UI    1073     1009      956      911      873      838      767      736      711      670
208          UI     619      558      480      419      414      258      258      258      258      241
209          UI     239      239      239      195      146      146      146      146      146      146
210          UI     126       45       45       45       45       45       45       45       45       45
211          UI      45       45       45       45       45       45       45       45       45       45
212          UI      45       45       45       45        0        0        0        0        0        0
213          UI       0        0        0        0        0        0        0        0        0        0
             *

214          KK     C67
215          KM       Combine R66-67 + 1I
216          HC       3
             *

217          KK   R67-71
218          KM        Channel Route From C67 To C71
219          KM        Representative Of X-SECT. 1I1
220          RS       2    FLOW      -1
221          RC   0.060    0.038    0.060     2200    0.006
222          RX  3800.0   4300.0   4351.0   4375.0   4458.0   4468.0   4618.0   5068.2
1                                                   HEC-1 INPUT                                                    PAGE  6

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

223          RY    99.9     94.9     94.6     91.2     90.7     93.5     95.1     99.9
224          RL                         1.74     90.7
             *

225          KK      1G
226          KM        SUB-BASIN 1G At C70
227          BA    3.78
228          LG    0.27     0.35     2.86     1.02    21.00
229          UI     131      131      131      131      131      131      131      270      377      377
230          UI     500      507      604      667      759      794      834      874      923      961
231          UI     993     1028     1066     1143     1261     1365     1498     1679     1487     1202
232          UI    1030      962      906      860      820      791      774      756      732      710
233          UI     686      661      646      629      609      595      559      546      529      514
234          UI     503      469      450      430      408      402      347      347      340      321
235          UI     321      316      302      302      302      274      274      274      248      216
236          UI     216      216      216      171      168      168      168      168      165      144
237          UI     144      144      144      144      144      130      101      101      101      101
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238          UI     101     101     101     101     101      78      64      64      64      64
239          UI      64      64      64      64      64      64      64      64      64      64
240          UI      48      25      25      25      25      25      25      25      25      25
241          UI      25      25      25      25      25      25      25      25      25      25
242          UI      25      25      25      25      25      25      25      25      25      25
243          UI      25      25      25      25      25      25      25      25      25       0
244          UI       0       0       0       0       0       0       0       0       0       0
245          UI       0       0       0       0       0       0       0       0       0       0
             *

246          KK  R70-71
247          KM        Channel Route From C70 To C71
248          KM       X-SECT. 1H1
249          RS      20    FLOW      -1
250          RC   0.060   0.038   0.080   20400   0.013
251          RX  3919.1  4208.0  4286.0  4291.0  4321.0  4326.0  4336.0  4346.0
252          RY    96.6    91.6    92.0    90.8    90.6    92.0    95.0    98.0
253          RL                    1.59    90.6
             *

254          KK      1H
255          KM        SUB-BASIN 1H
256          BA    6.77
257          LG    0.29    0.35    3.51    0.87   13.00
258          UI     200     200     200     200     200     200     200     200     297     575
259          UI     575     617     766     766     911     929    1150    1181    1215    1277
260          UI    1331    1388    1446    1485    1533    1580    1630    1733    1876    1984
261          UI    2195    2346    2602    2246    1902    1603    1512    1437    1353    1299
262          UI    1255    1210    1182    1167    1150    1101    1080    1045    1017    1000
263          UI     963     956     920     909     852     847     807     807     769     766
264          UI     714     686     679     621     621     594     529     529     529     490
265          UI     489     489     477     460     460     460     434     418     418     418
266          UI     379     328     328     328     328     320     255     255     255     255
267          UI     255     255     245     219     219     219     219     219     219     219
268          UI     199     153     153     153     153     153     153     153     153     153
269          UI     153     153     103      98      98      98      98      98      98      98
270          UI      98      98      98      98      98      98      98      98      98      95
271          UI      38      38      38      38      38      38      38      38      38      38
```



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

272          UI      38      38      38      38      38      38      38      38      38      38
273          UI      38      38      38      38      38      38      38      38      38      38
274          UI      38      38      38      38      38      38      38      38      38      38
275          UI      38      38      38      38      38       0       0       0       0       0
276          UI       0       0       0       0       0       0       0       0       0       0
             *

277          KK    C71R
278          KM        Combine R70-71 + 1H
279          HC       2
             *

280          KK      1K
281          KM        SUB-BASIN 1K At C68
282          BA    1.08
283          LG    0.25    0.20    9.40    0.02   10.00
284          UI      58      58      58      58      76     166     193     231     277     338
285          UI     360     388     420     441     466     524     595     691     669     479
286          UI     424     384     358     343     331     313     298     285     273     261
287          UI     244     233     222     206     194     179     161     153     143     141
288          UI     134     133     123     121     108      95      95      83      74      74
289          UI      74      66      63      63      63      57      44      44      44      44
290          UI      44      43      28      28      28      28      28      28      28      28
291          UI      28      25      11      11      11      11      11      11      11      11
292          UI      11      11      11      11      11      11      11      11      11      11
293          UI      11      11      11      11      11      11      11       0       0       0
294          UI       0       0       0       0       0       0       0       0       0       0
             *

295          KK  R68-71
296          KM        Channel Route From C68 To C71
297          KM       X-SECT. 1L1
298          RS      20    FLOW      -1
299          RC   0.070   0.058   0.070   29400   0.017
300          RX  3914.5  4027.0  4038.0  4057.0  4070.0  4076.0  4103.0  5283.0
301          RY   102.5    97.5    94.6    91.1    91.0    93.3    96.6   102.5
302          RL                    2.19    91.0
             *

303          KK      1L
304          KM        SUB-BASIN 1L
305          BA    4.69
306          LG    0.33    0.39    5.67    0.20    2.00
307          UI     144     144     144     144     144     144     144     144     329     472
308          UI     472     550     550     638     660     701     718     768     793     812
309          UI     847     880     912     949    1001    1058    1092    1125    1188    1281
310          UI    1398    1499    1738    1729    1935    1865    1709    1604    1511    1425
311          UI    1359    1301    1250    1204    1162    1125    1083    1027     971     926
312          UI     893     864     825     777     749     702     689     660     608     550
313          UI     512     413     413     388     254     254     254     254     243     236
314          UI     236     236     236     195     144     144     144     144     144     144
315          UI     144     142      44      44      44      44      44      44      44      44
316          UI      44      44      44      44      44      44      44      44      44      44
317          UI      44      44      44      44      44      44      44      44      44       0
318          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

319          UI       0       0       0       0       0       0       0       0       0       0
             *

320          KK    C71L
321          KM        Combine R68-71 + 1L
322          HC       2
             *

323          KK     C71
324          KM        Combine R67-71 + C71R(R70-71 + 1H) + C71L(R68-71 + 1L)
325          HC       3
             *

326          KK  R71-73
```

```
KM        Channel Route From C71 To C73
KM        Representative Of X-SECT. 1P1
RS        6     FLOW      -1
RC    0.060    0.050    0.060     7000    0.008
RX   3668.7   4142.0   4202.0   4208.0   4253.0   4276.0   4405.0   5131.9
RY     99.5     94.5     94.0     91.5     91.5     94.3     94.1     99.5
RL                       1.10     91.5
*

KK      1M
KM        SUB-BASIN 1M At C72
BA     2.19
LG     0.25     0.20     9.40     0.02    10.00
UI      117      117      117      117      154      336      391      469      563      685
UI      730      786      852      894      945     1062     1208     1402     1357      971
UI      860      779      727      695      672      635      605      578      554      529
UI      496      472      451      418      392      364      326      309      290      286
UI      271      269      250      245      220      192      192      169      150      150
UI      150      133      128      128      128      115       90       90       90       90
UI       90       88       57       57       57       57       57       57       57       57
UI       57       51       22       22       22       22       22       22       22       22
UI       22       22       22       22       22       22       22       22       22       22
UI       22       22       22       22       22       22       22        0        0        0
UI        0        0        0        0        0        0        0        0        0        0
*

KK  R72-73
KM        Channel Route From C72 To C73
KM        X-SECT. 1N1
RS       32     FLOW      -1
RC    0.060    0.048    0.060    28600    0.017
RX   3760.9   4093.0   4156.0   4162.0   4207.0   4237.0   4366.0   5786.0
RY    101.5     96.5     93.4     91.7     92.3     94.4     94.4    101.5
RL                       1.99     91.7
*
```

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

KK      1N
KM        SUB-BASIN 1N
BA     2.75
LG     0.35     0.35     4.18     0.49     0.00
UI      114      114      114      114      114      114      321      376      432      463
UI      526      557      594      626      654      687      724      769      823      867
UI      907     1001     1116     1316     1342     1539     1421     1286     1186     1109
UI     1037      987      936      895      845      787      739      699      664      615
UI      577      551      526      446      407      329      312      202      202      202
UI      193      188      188      188      126      114      114      114      114      114
UI       65       35       35       35       35       35       35       35       35       35
UI       35       35       35       35       35       35       35       35       35       35
UI        0        0        0        0        0        0        0        0        0        0
UI        0        0        0        0        0        0        0        0        0        0
*

KK     C73
KM        Combine R71-73 + RR72-73 + 1N
HC        3
*

KK  R73-74
KM        Channel Route From C73 To C74
KM        X-SECT. 1P1
RS       13     FLOW      -1
RC    0.060    0.050    0.060    13400    0.007
RX   3668.7   4142.0   4202.0   4208.0   4253.0   4276.0   4405.0   5131.9
RY     99.5     94.5     94.0     91.5     91.5     94.3     94.1     99.5
RL                       1.43     91.5
*

KK      1P
KM        SUB-BASIN 1P
BA     4.56
LG     0.35     0.35     4.07     0.54     0.00
UI      140      140      140      140      140      140      140      140      320      459
UI      459      535      535      621      642      682      698      747      771      790
UI      823      856      886      922      973     1028     1061     1094     1155     1245
UI     1360     1457     1690     1681     1882     1813     1661     1559     1470     1385
UI     1322     1265     1215     1170     1130     1094     1053      999      944      901
UI      868      840      803      755      728      683      670      642      591      535
UI      498      401      401      348      247      247      247      247      237      229
UI      229      229      229      189      140      140      140      140      140      140
UI      140      138       43       43       43       43       43       43       43       43
UI       43       43       43       43       43       43       43       43       43       43
UI       43       43       43       43       43       43       43       43       43        0
UI        0        0        0        0        0        0        0        0        0        0
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

KK      1O
KM        SUB-BASIN 1O
BA     5.23
LG     0.28     0.35     3.67     0.69    10.00
UI      132      132      132      132      132      132      132      132      132      132
UI      332      381      381      413      508      508      568      609      667      761
UI      786      801      842      862      896      941      964      983     1015     1039
UI     1065     1102     1173     1269     1321     1442     1532     1654     1652     1435
UI     1189     1057     1010      952      914      888      846      821      801      783
UI      778      761      748      725      708      692      675      662      648      634
UI      624      609      601      564      564      541      534      527      508      508
UI      476      455      455      427      412      412      390      350      350      350
UI      337      324      324      324      318      305      305      305      305      280
UI      277      277      277      276      218      218      218      218      218      218
UI      179      169      169      169      169      169      169      169      149      145
UI      145      145      145      145      145      145      145      123      102      102
UI      102      102      102      102      102      102      102      102      102      102
UI       94       65       65       65       65       65       65       65       65       65
UI       65       65       65       65       65       65       65       65       65       65
UI       65       50       25       25       25       25       25       25       25       25
UI       25       25       25       25       25       25       25       25       25       25
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 420          UI      25      25      25      25      25      25      25      25      25      25
 421          UI      25      25      25      25      25      25      25      25      25      25
 422          UI      25      25      25      25      25      25      25      25      25      25
 423          UI      25      25      25      25       0       0       0       0       0       0
 424          UI       0       0       0       0       0       0       0       0       0       0
              *

 425          KK     C74
 426          KM        Combine R73-74 + 1P + 1Q
 427          HC       3
              *

 428          KK  R74-77
 429          KM        Channel Route From C74 To C77
 430          KM        X-SECT. 1U1
 431          RS      25    FLOW     -1
 432          RC   0.050   0.039   0.050   29800   0.011
 433          RX  3469.0  4354.0  4597.0  4609.0  4776.0  4785.0  4875.0  5931.0
 434          RY    98.3    93.3    93.1    90.9    89.3    92.7    92.6    98.3
 435          RL                    2.81    89.3
              *

 436          KK      1U
 437          KM        SUB-BASIN 1U
 438          BA    3.19
 439          LG    0.35    0.35    3.21    0.93    0.00
 440          UI      92      92      92      92      92      92      92      92      98     302
 441          UI     302     317     352     352     419     423     449     457     491     503
 442          UI     515     539     553     571     601     624     652     683     704     726
 443          UI     770     827     899     953    1123    1084    1226    1211    1127    1045
 444          UI     987     937     893     855     821     790     763     739     717     692
 445          UI     659     621     597     577     556     533     516     480     463     449
 446          UI     430     422     369     352     315     264     264     234     162     162
1                                            HEC-1 INPUT                                          PAGE 11

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

 447          UI     162     162     160     151     151     151     151     151     106      92
 448          UI      92      92      92      92      92      92      92      41      28      28
 449          UI      28      28      28      28      28      28      28      28      28      28
 450          UI      28      28      28      28      28      28      28      28      28      28
 451          UI      28      28      28      28      28      28       0       0       0       0
 452          UI       0       0       0       0       0       0       0       0       0       0
              *

 453          KK    C77R
 454          KM        Combine R74-77 + 1U
 455          HC       2
              *

 456          KK      1Q
 457          KM        SUB-BASIN 1Q At C75
 458          BA    5.30
 459          LG    0.31    0.38    6.96    0.15    4.00
 460          UI     142     142     142     142     142     142     142     142     142     252
 461          UI     465     465     496     543     543     638     651     684     693     745
 462          UI     758     794     806     835     864     885     931     965    1002    1051
 463          UI    1083    1111    1161    1237    1333    1436    1604    1649    1742    1914
 464          UI    1857    1734    1616    1532    1458    1393    1337    1286    1242    1202
 465          UI    1163    1126    1097    1055    1012     958     922     897     857     833
 466          UI     814     748     738     693     690     651     651     646     543     482
 467          UI     407     407     393     251     251     251     251     251     239     233
 468          UI     233     233     233     233     165     142     142     142     142     142
 469          UI     142     142     142     133      43      43      43      43      43      43
 470          UI      43      43      43      43      43      43      43      43      43      43
 471          UI      43      43      43      43      43      43      43      43      43      43
 472          UI      43      43      43      43      43       0       0       0       0       0
 473          UI       0       0       0       0       0       0       0       0       0       0
              *

 474          KK  R75-76
 475          KM        Channel Route From C75 To C76
 476          KM        Representative Of X-SECT. 1T1
 477          RS       3    FLOW     -1
 478          RC   0.060   0.052   0.060    3200   0.013
 479          RX  3928.3  4099.0  4162.0  4170.0  4210.0  4234.0  4259.0  4564.4
 480          RY    99.1    94.1    94.2    93.0    92.7    94.6    93.4    99.1
 481          RL                    1.51    92.7
              *

 482          KK      1R
 483          KM        SUB-BASIN 1R
 484          BA    2.90
 485          LG    0.25    0.35    4.18    0.47   13.00
 486          UI     122     122     122     122     122     122     320     351     437     480
 487          UI     561     674     729     768     815     870     911     948     989    1083
 488          UI    1196    1349    1517    1399    1075     926     860     806     761     730
 489          UI     712     690     661     637     610     589     572     553     520     499
 490          UI     486     468     436     419     385     379     329     323     309     299
 491          UI     297     281     281     271     255     255     230     201     201     201
 492          UI     168     156     156     156     156     135     134     134     134     134
 493          UI     120      94      94      94      94      94      94      94      82      60
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 494          UI      60      60      60      60      60      60      60      60      60      60
 495          UI      60      31      23      23      23      23      23      23      23      23
 496          UI      23      23      23      23      23      23      23      23      23      23
 497          UI      23      23      23      23      23      23      23      23      23      23
 498          UI      23      23      23       0       0       0       0       0       0       0
 499          UI       0       0       0       0       0       0       0       0       0       0
              *

 500          KK     C76
 501          KM        Combine R75-76 + 1R
 502          HC       2
              *

 503          KK  R76-77
 504          KM        Channel Route From C76 To C77
 505          KM        X-SECT. 1T1
 506          RS      34    FLOW     -1
 507          RC   0.060   0.052   0.060   34600   0.011
 508          RX  3928.3  4099.0  4162.0  4170.0  4210.0  4234.0  4259.0  4564.4
```

```
 509          RY    99.1    94.1    94.2    93.0    92.7    94.6    93.4    99.1
 510          RL                    2.11    92.7
              *

 511          KK      1T
 512          KM        SUB-BASIN 1T
 513          BA    4.67
 514          LG    0.32    0.35    3.68    0.69    6.00
 515          UI     111     111     111     111     111     111     111     111     111     111
 516          UI     139     364     364     364     412     424     424     506     509     529
 517          UI     542     560     592     602     621     634     653     672     688     720
 518          UI     734     772     800     825     849     869     899     946    1019    1094
 519          UI    1146    1344    1238    1393    1498    1463    1373    1296    1230    1173
 520          UI    1123    1080    1042    1008     978     943     917     896     876     849
 521          UI     814     790     749     727     707     677     669     637     629     579
 522          UI     577     542     542     515     509     471     424     424     359     318
 523          UI     318     318     217     196     196     196     196     196     186     182
 524          UI     182     182     182     182     178     111     111     111     111     111
 525          UI     111     111     111     111     111      98      34      34      34      34
 526          UI      34      34      34      34      34      34      34      34      34      34
 527          UI      34      34      34      34      34      34      34      34      34      34
 528          UI      34      34      34      34      34      34      34      34      34      34
 529          UI      34       0       0       0       0       0       0       0       0       0
 530          UI       0       0       0       0       0       0       0       0       0       0
              *

 531          KK    C77L
 532          KM        Combine R76-77 + 1T
 533          HC       2
              *
1                                        HEC-1 INPUT                                                PAGE 13
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 534          KK     C77
 535          KM        Combine C77R(R74-77 + 1U) + C77L(R76-77 + 1T)
 536          HC       2
              *

 537          KK  R77-79
 538          KM        Channel Route From C77 To C79
 539          KM        X-SECT. 1W1
 540          RS       6    FLOW      -1
 541          RC   0.050   0.034   0.070    8400   0.008
 542          RX  3116.0  4116.0  4199.0  4210.0  4307.0  4318.0  4372.0  4427.0
 543          RY    96.6    91.6    91.0    88.9    88.3    91.1    93.9    98.9
 544          RL                    1.53    88.3
              *

 545          KK      1W
 546          KM        SUB-BASIN 1W
 547          BA    0.53
 548          LG    0.29    0.35    3.44    0.81    7.00
 549          UI      34      34      34      35     113     128     152     168     187     199
 550          UI     216     237     260     286     338     407     454     396     348     315
 551          UI     289     269     243     221     203     183     166     149     122      99
 552          UI      64      61      58      56      51      34      34      34      29      11
 553          UI      11      11      11      11      11      11      11      11      11      11
 554          UI      11       0       0       0       0       0       0       0       0       0
 555          UI       0       0       0       0       0       0       0       0       0       0
              *

 556          KK  C79RUP
 557          KM        Combine R77-79 + 1W
 558          HC       2
              *

 559          KK      1S
 560          KM        SUB-BASIN 1S At C78
 561          BA    4.77
 562          LG    0.25    0.35    3.52    0.78    9.00
 563          UI     138     138     138     138     138     138     138     138     166     398
 564          UI     398     400     531     531     604     637     758     805     838     873
 565          UI     903     939     995    1021    1048    1078    1111    1158    1248    1344
 566          UI    1439    1562    1680    1750    1496    1195    1082    1024     976     936
 567          UI     885     855     835     817     803     792     758     742     724     699
 568          UI     692     663     660     637     627     590     586     559     559     533
 569          UI     531     498     475     475     430     430     421     366     366     366
 570          UI     345     339     339     336     318     318     318     310     289     289
 571          UI     289     288     227     227     227     227     227     196     177     177
 572          UI     177     177     177     177     160     152     152     152     152     152
 573          UI     152     152     127     106     106     106     106     106     106     106
 574          UI     106     106     106     106      70      68      68      68      68      68
 575          UI      68      68      68      68      68      68      68      68      68      68
 576          UI      68      68      36      27      27      27      27      27      27      27
 577          UI      27      27      27      27      27      27      27      27      27      27
 578          UI      27      27      27      27      27      27      27      27      27      27
 579          UI      27      27      27      27      27      27      27      27      27      27
1                                        HEC-1 INPUT                                                PAGE 14
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 580          UI      27      27      27      27      27      27      27      27       0       0
 581          UI       0       0       0       0       0       0       0       0       0       0
              *

 582          KK   DC78R
 583          KM        Main flow at C78 is in the right channel (DC78R)
 584          KM        Diverted flow (DQ record) goes into the left channel (DC78L)
 585          DT   DC78L
 586          DI     0.0    25.0   270.0  1115.0  3200.0  7100.0 11900.0 18200.0
 587          DQ     0.0     0.0    90.0   390.0  1400.0  3700.0  6900.0 11000.0
              *

 588          KK  78R-79
 589          KM        Channel Route From C78 To C79
 590          KM        Representative Of X-SECT. 1W1
 591          RS      13    FLOW      -1
 592          RC   0.050   0.034   0.070   18200   0.009
 593          RX  3116.0  4116.0  4199.0  4210.0  4307.0  4318.0  4372.0  4427.0
 594          RY    96.6    91.6    91.0    88.9    88.3    91.1    93.9    98.9
 595          RL                    8.51    88.3
              *
```

```
596          KK      1V
597          KM        SUB-BASIN S1V
598          BA    2.16
599          LG    0.29     0.35     3.73     0.67     6.00
600          UI      98       98       98       98       98      172      323      355      386      452
601          UI     478      513      543      570      601      638      686      737      769      845
602          UI     953     1131     1177     1311     1163     1069      984      918      858      816
603          UI     772      728      675      630      592      559      513      481      456      404
604          UI     362      263      263      174      174      174      162      161      161      129
605          UI      98       98       98       98       98       41       30       30       30       30
606          UI      30       30       30       30       30       30       30       30       30       30
607          UI      30       30       30        0        0        0        0        0        0        0
608          UI       0        0        0        0        0        0        0        0        0        0
             *

609          KK  C79LUP
610          KM        Combine R78R-79 + 1V
611          HC       2
             *

612          KK     C79
613          KM        Combine C79RUP(R77-79 + 1W) + C79LUP(R78R-79 + 1V)
614          HC       2
             *

615          KK   DC79R
616          KM         Main flow at C79 is in the right channel (DC79R)
617          KM         Diverted flow (DQ record) goes into the left channel (DC79L)
618          DT   DC79L
619          DI     0.0    110.0    400.0    500.0   1700.0   5000.0  10300.0  19700.0
620          DQ     0.0    110.0    400.0    485.0   1300.0   3100.0   5500.0   9400.0
             *
```



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

621          KK  79R-81
622          KM        Channel Route From C79R To C81
623          KM        X-SECT. 1X1
624          RS      12     FLOW       -1
625          RC   0.050    0.040    0.060    17000    0.010
626          RX  3762.5   4075.0   4162.0   4172.0   4223.0   4239.0   4260.0   4480.8
627          RY   100.6     95.6     94.8     91.9     92.0     93.9     92.7    100.6
628          RL                     1.76     91.9
             *

629          KK  BDC79L
630          KM        Bring Back Flow Split Diverted Hydrograph DC79L
631          DR   DC79L
             *

632          KK  79L-80
633          KM        Channel Route From C79L To C80
634          KM        Representative Of X-SECT. 1X1
635          RS       4     FLOW       -1
636          RC   0.050    0.040    0.060     5200    0.009
637          RX  3762.5   4075.0   4162.0   4172.0   4223.0   4239.0   4260.0   4480.8
638          RY   100.6     95.6     94.8     91.9     92.0     93.9     92.7    100.6
639          RL                     1.93     91.9
             *

640          KK   DC80R
641          KM         Main flow at C80 is in the right channel (C80R)
642          KM         Diverted flow (DQ record) goes into the left channel (C80L)
643          DT   DC80L
644          DI     0.0    170.0   1300.0   2500.0   4950.0   5275.0  11240.0
645          DQ     0.0    170.0   1300.0   2500.0   4900.0   5200.0  10900.0
             *

646          KK  80R-81
647          KM        Channel Route From C80R To C81
648          KM        Representative Of X-SECT. 1X1
649          RS      25     FLOW       -1
650          RC   0.050    0.040    0.060    12600    0.009
651          RX  3762.5   4075.0   4162.0   4172.0   4223.0   4239.0   4260.0   4480.8
652          RY   100.6     95.6     94.8     91.9     92.0     93.9     92.7    100.6
653          RL                     7.87     91.9
             *

654          KK      1X
655          KM        Basin 1X
656          KM    Lag Used =  66.0 minutes
657          KM    The Phoenix Valley S-Graph was used for this basin.
658          BA    2.62
659          LG    0.35     0.35     3.94     0.58     0.00
660          UI     121      121      121      121      121      232      397      443      485      557
661          UI     591      640      673      707      747      800      860      914      964     1069
662          UI    1214     1407     1543     1573     1402     1276     1180     1096     1036      979
663          UI     936      860      801      752      711      657      611      578      541      463
664          UI     382      347      246      214      214      205      199      199      184      121
```



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

665          UI     121      121      121      121       71       37       37       37       37       37
666          UI      37       37       37       37       37       37       37       37       37       37
667          UI      37       37        0        0        0        0        0        0        0        0
668          UI       0        0        0        0        0        0        0        0        0        0
             *

669          KK     C81
670          KM        Combine R79R-81 + R80R-81 + 1X
671          KM        Area: 77.13sm, 1X=2.62sm
672          HC       3   79.75
             *

673          KK   DC81R
674          KM         Main flow at C81 is in the right channel (C81R)
675          KM         Diverted flow (DQ record) goes into the left channel (C81L)
676          DT   DC81L
677          DI     0.0     50.0    110.0    655.0   3060.0   9600.0  16600.0
678          DQ     0.0     50.0     95.0    580.0   2600.0   6200.0   9600.0
             *
```

```
679          KK  81R-82
680          KM        Channel Route From C81R To C82
681          KM        X-SECT. 1Y2
682          RS      37    FLOW      -1
683          RC   0.050   0.041   0.050   23400   0.008
684          RX  3316.7  4150.0  4322.0  4328.0  4344.0  4349.0  4458.0  5043.8
685          RY    99.8    94.8    94.7    92.2    92.0    93.8    93.0    99.8
686          RL                    0.95    92.0
             *

687          KK  BDC81L
688          KM        Bring Back Flow Split Diverted Hydrograph DC81L
689          DR   DC81L
             *

690          KK  81L-82
691          KM        Channel Route From C81L To C82
692          KM        X-SECT. 1Y1
693          RS      32    FLOW      -1
694          RC   0.050   0.036   0.060   24000   0.008
695          RX  3804.0  4294.0  4315.0  4325.0  4362.0  4370.0  4412.0  5892.0
696          RY   101.2    96.2    96.3    93.6    93.4    95.2    93.8   101.2
697          RL                    1.26    93.4
             *

698          KK      1Y
699          KM        Basin 1Y
700          KM    Lag Used =  91.0 minutes
701          KM    The Phoenix Valley S-Graph was used for this basin.
702          BA    5.32
703          LG    0.35    0.35    3.91    0.60    0.00
704          UI     179     179     179     179     179     179     179     316     589     589
705          UI     687     687     824     841     877     939     974    1005    1055    1094
706          UI    1141    1196    1262    1335    1380    1438    1558    1710    1845    2152
707          UI    2173    2423    2266    2096    1935    1826    1732    1637    1567    1504
```



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

708          UI    1448    1397    1330    1255    1192    1138    1084    1039     983     934
709          UI     877     852     824     714     687     549     515     489     317     317
710          UI     317     317     299     294     294     294     279     179     179     179
711          UI     179     179     179     179     121      55      55      55      55      55
712          UI      55      55      55      55      55      55      55      55      55      55
713          UI      55      55      55      55      55      55      55      55      55       0
714          UI       0       0       0       0       0       0       0       0       0       0
715          UI       0       0       0       0       0       0       0       0       0       0
             *

716          KK     C82
717          KM        Combine R81R-82 + R81L-82 + 1Y At Interstate 8
718          KM        Area: 79.75sm, 1Y=5.32sm
719          HC      3   85.07
             *

720          KK   DC82R
721          KM        Main flow at CP82 is in the right channel (C82R) and passes under I-8.
722          KM        Diverted flow (DQ record) goes into the left channel (C82L) and runs
723          KM        west along the south side of I-8 to C132 at Sand Tank Wash.
724          DT   DC82L
725          DI     0.0    4465    5508    6900
726          DQ     0.0     0.0     500    1350
             *

727          KK  82-135
728          KM        Channel Route From C82 To C135I
729          KM        Bender Wash HEC-2 Section 1.172
730          RS      6    FLOW      -1
731          RC   0.030   0.035   0.030    7000   0.006
732          RX  9361.4 10095.4 10469.3 10482.5 10645.3 10695.3 10747.9 10999.7
733          RY   757.5   752.5   751.5   748.5   751.1   751.6   752.2   757.5
734          RL                    2.63   748.5
             *

735          KK     2VV
736          KM        SUB-BASIN 2VV
737          BA    3.74
738          LG    0.34    0.34    3.49    0.79    4.00
739          UI     138     138     138     138     138     138     146     455     455     523
740          UI     539     637     659     686     740     770     800     834     874     922
741          UI     978    1036    1074    1137    1242    1388    1622    1608    1853    1767
742          UI    1615    1486    1396    1309    1245    1189    1134    1089    1039     974
743          UI     919     873     834     796     733     699     673     637     574     530
744          UI     429     398     346     245     245     245     238     227     227     227
745          UI     214     138     138     138     138     138     138     122      42      42
746          UI      42      42      42      42      42      42      42      42      42      42
747          UI      42      42      42      42      42      42      42      42      42      42
748          UI       0       0       0       0       0       0       0       0       0       0
749          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

750          KK   C135I
751          KM        Combine R82-135 + 2VV At The Gila Bend Canal
752          KO                                  21
753          HC      2
             *
             *
             *    ******************************************************
             *    *                          END                       *
             *    * BENDER WASH (Major Basin 1) At The Gila Bend Canal *
             *    *                                                    *
             *    ******************************************************
             *
             *
             *    ********************************
             *    *              START             *
             *    * SAND TANK WASH (Major Basin 2) *
             *    *                                *
             *    ********************************
             *
             *
```

```
 754          KK      2D
 755          KM         SUB-BASIN 2D At C87
 756          BA    1.75
 757          LG    0.25     0.20     9.40     0.02    10.00
 758          UI      92       92       92       92      108      265      299      360      428      535
 759          UI     569      609      661      695      735      805      917     1056     1130      841
 760          UI     691      636      585      552      536      512      486      464      444      426
 761          UI     399      379      364      348      316      295      281      243      239      225
 762          UI     222      212      209      192      192      161      151      151      125      118
 763          UI     118      118      102      101      101      101       87       71       71       71
 764          UI      71       71       69       45       45       45       45       45       45       45
 765          UI      45       45       44       18       18       18       18       18       18       18
 766          UI      18       18       18       18       18       18       18       18       18       18
 767          UI      18       18       18       18       18       18       18       18        0        0
 768          UI       0        0        0        0        0        0        0        0        0        0
              *

 769          KK  R87-89
 770          KM         Channel Route From C87 To C89
 771          KM         Representative Of X-SECT. 2H1
 772          RS       8     FLOW       -1
 773          RC   0.050    0.047    0.050     7000    0.013
 774          RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
 775          RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
 776          RL                     0.89     86.0
              *

 777          KK      2F
 778          KM         SUB-BASIN 2F At C88
 779          BA    0.75
 780          LG    0.25     0.20     9.40     0.02    10.00
 781          UI      51       51       51       66      145      186      226      295      319      353
 782          UI     381      409      473      561      605      424      359      324      302      288
```



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

 783          UI     270      255      240      226      210      198      183      167      153      134
 784          UI     126      122      116      111      106       91       83       77       65       65
 785          UI      61       55       55       55       41       39       39       39       39       27
 786          UI      25       25       25       25       25       25       25       10       10       10
 787          UI      10       10       10       10       10       10       10       10       10       10
 788          UI      10       10       10       10       10       10       10        0        0        0
 789          UI       0        0        0        0        0        0        0        0        0        0
              *

 790          KK  R88-89
 791          KM         Channel Route From C88 To C89
 792          KM         Representative Of X-SECT. 2H1
 793          RS       4     FLOW       -1
 794          RC   0.050    0.047    0.050     3200    0.033
 795          RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
 796          RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
 797          RL                     1.27     86.0
              *

 798          KK     C89
 799          KM         Combine R87-89 + R88-89
 800          HC       2
              *

 801          KK  R89-91
 802          KM         Channel Route From C89 To C91
 803          KM         X-SECT.
 804          RS       6     FLOW       -1
 805          RC   0.050    0.047    0.050     6000    0.018
 806          RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
 807          RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
 808          RL                     0.89     86.0
              *

 809          KK      2E
 810          KM         SUB-BASIN 2E
 811          BA    1.00
 812          LG    0.32     0.36     7.32     0.12     3.00
 813          UI      91       91      125      314      388      459      515      574      659      747
 814          UI     965     1152     1043      881      775      694      604      533      460      398
 815          UI     299      202      161      150      134       91       91       64       28       28
 816          UI      28       28       28       28       28       28        0        0        0        0
 817          UI       0        0        0        0        0        0        0        0        0        0
              *

 818          KK      2G
 819          KM         SUB-BASIN 2G
 820          BA    1.13
 821          LG    0.31     0.33     7.78     0.10     4.00
 822          UI      81       81       81      154      279      333      386      431      466      511
 823          UI     567      623      710      890     1021      988      846      751      685      632
 824          UI     564      506      461      409      378      306      233      161      143      135
 825          UI     133      103       81       81       81       27       25       25       25       25
 826          UI      25       25       25       25       25       25        0        0        0        0
 827          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

 828          KK     C91
 829          KM         Combine R89-91 + 2E + 2G
 830          HC       3
              *

 831          KK  R91-92
 832          KM         Channel Route From C91 To C92
 833          KM         Representative Of X-SECT. 2H1
 834          RS       4     FLOW       -1
 835          RC   0.050    0.047    0.050     4400    0.014
 836          RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
 837          RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
 838          RL                     0.50     86.0
              *

 839          KK      2I
```

```
840        KM        SUB-BASIN 2I
841        BA    0.87
842        LG    0.25     0.20     9.40     0.02    10.00
843        UI      73       73       73      201      275      371      449      505      558      621
844        UI     764      875      600      500      447      421      389      360      337      306
845        UI     286      256      229      195      182      173      165      153      129      120
846        UI      97       94       87       80       80       64       56       56       56       43
847        UI      36       36       36       36       36       27       14       14       14       14
848        UI      14       14       14       14       14       14       14       14       14       14
849        UI      14        0        0        0        0        0        0        0        0        0
850        UI       0        0        0        0        0        0        0        0        0        0
           *

851        KK      2H
852        KM        SUB-BASIN 2H
853        BA    1.59
854        LG    0.33     0.40     6.60     0.18     2.00
855        UI     114      114      114      217      393      468      543      606      656      718
856        UI     798      877      999     1252     1437     1390     1190     1057      964      889
857        UI     793      712      649      576      531      431      327      226      202      190
858        UI     187      145      114      114      114       37       35       35       35       35
859        UI      35       35       35       35       35       35        0        0        0        0
860        UI       0        0        0        0        0        0        0        0        0        0
           *

861        KK     C92
862        KM        Combine R91-92 + 2I + 2H
863        HC       3
           *

864        KK  R92-95
865        KM        Channel Route From C92 To C95
866        KM        Representative Of X-SECT. 2H1
867        RS       4     FLOW       -1
868        RC   0.050    0.047    0.050     4200    0.011
869        RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
870        RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
871        RL                     0.45     86.0
           *
```

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

872        KK      2K
873        KM        SUB-BASIN 2K
874        BA    2.19
875        LG    0.25     0.20     9.40     0.02    10.00
876        UI      81       81       81       81       81       81       85      233      233      279
877        UI     311      359      397      467      490      515      542      575      597      618
878        UI     643      677      743      801      904      991      981      775      641      596
879        UI     560      529      503      486      475      466      444      429      416      405
880        UI     388      380      372      345      338      327      316      311      284      278
881        UI     257      252      231      214      214      200      198      198      186      186
882        UI     186      169      169      169      144      133      133      133      120      104
883        UI     104      104      104      104       89       89       89       89       89       89
884        UI      72       62       62       62       62       62       62       62       62       51
885        UI      40       40       40       40       40       40       40       40       40       40
886        UI      40       40       40       33       16       16       16       16       16       16
887        UI      16       16       16       16       16       16       16       16       16       16
888        UI      16       16       16       16       16       16       16       16       16       16
889        UI      16       16       16       16       16       16       16       16       16       16
890        UI       0        0        0        0        0        0        0        0        0        0
891        UI       0        0        0        0        0        0        0        0        0        0
           *

892        KK  R93-94
893        KM        Channel Route From C93 To C94
894        KM        Representative Of X-SECT. 2H1
895        RS       5     FLOW       -1
896        RC   0.050    0.047    0.050     4800    0.023
897        RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
898        RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
899        RL                     0.99     86.0
           *

900        KK      2L
901        KM        SUB-BASIN 2L
902        BA    0.94
903        LG    0.28     0.25     8.20     0.04     7.00
904        UI      44       44       44       44       44       84      126      150      173      202
905        UI     249      266      284      304      322      337      354      387      432      495
906        UI     553      458      349      321      294      276      263      256      247      235
907        UI     225      217      209      202      187      180      174      169      153      147
908        UI     137      126      116      113      108      107      101      101       94       92
909        UI      90       72       72       72       60       56       56       56       53       48
910        UI      48       48       48       42       34       34       34       34       34       34
911        UI      31       22       22       22       22       22       22       22       22       22
912        UI      22       22        9        8        8        8        8        8        8        8
913        UI       8        8        8        8        8        8        8        8        8        8
914        UI       8        8        8        8        8        8        8        8        8        8
915        UI       0        0        0        0        0        0        0        0        0        0
916        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

917        KK     C94
918        KM        Combine R93-94 + 2L
919        HC       2
           *

920        KK  R94-95
921        KM        Channel Route From C94 To C95
922        KM        X-SECT. 2M1
923        RS       3     FLOW       -1
924        RC   0.060    0.048    0.060     5800    0.020
925        RX  3030.0   4030.0   4067.0   4081.0   4127.0   4163.0   4308.0   5708.0
926        RY   100.7     95.7     93.6     89.6     89.6     92.1     93.7    100.7
927        RL                     2.27     89.6
           *

928        KK      2M
```

```
 929          KM        SUB-BASIN 2M
 930          BA    1.40
 931          LG    0.34     0.38     5.05     0.26     1.00
 932          UI     139      139      263      501      644      742      832      960     1097     1398
 933          UI    1751     1586     1320     1157     1019      878      761      659      510      349
 934          UI     245      230      204      139      139       75       43       43       43       43
 935          UI      43       43       43        0        0        0        0        0        0        0
 936          UI       0        0        0        0        0        0        0        0        0        0
              *

 937          KK      2J
 938          KM        SUB-BASIN 2J
 939          BA    1.16
 940          LG    0.25     0.20     9.40     0.02    10.00
 941          UI      57       57       57       57       57      142      165      219      247      296
 942          UI     340      361      389      418      436      461      504      568      653      715
 943          UI     560      447      405      376      353      340      329      312      298      286
 944          UI     275      264      247      236      228      220      197      188      179      157
 945          UI     152      142      141      135      132      127      120      120       96       94
 946          UI      94       78       73       73       73       66       63       63       63       63
 947          UI      45       44       44       44       44       44       42       28       28       28
 948          UI      28       28       28       28       28       28       28       20       11       11
 949          UI      11       11       11       11       11       11       11       11       11       11
 950          UI      11       11       11       11       11       11       11       11       11       11
 951          UI      11       11       11       11        0        0        0        0        0        0
 952          UI       0        0        0        0        0        0        0        0        0        0
              *

 953          KK     C95
 954          KM        Combine R92-95 + R94-95 + 2M + 2J
 955          HC       4
              *
```



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

 956          KK  R95-96
 957          KM        Channel Route From C95 To C96
 958          KM        Representative Of X-SECT. 2O1
 959          RS      13     FLOW       -1
 960          RC   0.070    0.043    0.060    11600    0.012
 961          RX  3030.0   4030.0   4372.0   4385.0   4427.0   4437.0   4543.0   4563.0
 962          RY    91.9     86.9     89.9     86.7     86.8     88.5     95.0    100.0
 963          RL                     0.21     86.7
              *

 964          KK      2A
 965          KM        SUB-BASIN 2A At C83
 966          BA    4.33
 967          LG    0.30     0.30     8.05     0.08     5.00
 968          UI     144      144      144      144      144      144      144      229      474      474
 969          UI     545      553      651      672      706      747      778      810      842      873
 970          UI     909      951     1006     1067     1103     1140     1222     1346     1469     1715
 971          UI    1668     1923     1890     1721     1608     1499     1417     1348     1288     1234
 972          UI    1183     1142     1101     1037      977      930      891      858      829      755
 973          UI     729      706      666      634      553      519      415      415      326      255
 974          UI     255      255      252      237      237      237      237      194      144      144
 975          UI     144      144      144      144      144       72       44       44       44       44
 976          UI      44       44       44       44       44       44       44       44       44       44
 977          UI      44       44       44       44       44       44       44       44       44       44
 978          UI       0        0        0        0        0        0        0        0        0        0
 979          UI       0        0        0        0        0        0        0        0        0        0
              *

 980          KK  R83-84
 981          KM        Channel Route From C83 To C84
 982          KM        Representative Of X-SECT. 2H1
 983          RS       6     FLOW       -1
 984          RC   0.050    0.047    0.050     8200    0.033
 985          RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
 986          RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
 987          RL                     0.86     86.0
              *

 988          KK   DC84L
 989          KM         Main flow at C84 is in the left channel (DC84L)
 990          KM         Diverted flow (DQ record) goes into the right channel (DC84R)
 991          DT   DC84R
 992          DI     0.0    200.0   1000.0   1110.0   3590.0   7400.0  12900.0  18100.0
 993          DQ     0.0      0.0      0.0     10.0    190.0   1000.0   2900.0   4600.0
              *

 994          KK  84L-85
 995          KM        Channel Route From C84L To C85
 996          KM        X-SECT. 2B1
 997          RS      10     FLOW       -1
 998          RC   0.060    0.039    0.080     8800    0.020
 999          RX  3022.0   4022.0   4622.0   4629.0   4656.0   4661.0   4761.0   4779.0
1000          RY    98.9     93.9     94.4     93.4     93.2     94.1     93.7     99.5
1001          RL                     0.52     93.2
              *
```



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

1002          KK      2B
1003          KM        SUB-BASIN 2B
1004          BA    3.31
1005          LG    0.33     0.40     6.29     0.20     2.00
1006          UI     153      153      153      153      153      293      502      560      613      703
1007          UI     747      808      850      893      943     1011     1087     1154     1217     1351
1008          UI    1534     1777     1949     1987     1771     1612     1490     1384     1309     1236
1009          UI    1182     1086     1012      950      898      830      771      730      683      585
1010          UI     482      439      311      270      270      259      251      251      232      153
1011          UI     153      153      153      153       90       47       47       47       47       47
1012          UI      47       47       47       47       47       47       47       47       47       47
1013          UI      47       47        0        0        0        0        0        0        0        0
1014          UI       0        0        0        0        0        0        0        0        0        0
              *

1015          KK     C85
1016          KM        Combine R84L-85 + 2B
1017          HC       2
```

```
                 *
1018             KK  R85-96
1019             KM        Channel Route From C85 To C96
1020             KM        Representative Of X-SECT. 2P1
1021             RS      16     FLOW      -1
1022             RC   0.060    0.044    0.070    10800    0.015
1023             RX  3050.0   4050.0   4850.0   4859.0   5014.0   5026.0   5251.0   5271.0
1024             RY    99.2     94.2     94.4     92.8     92.0     94.8     97.0    100.0
1025             RL                      0.71     92.0
                 *

1026             KK  BDC84R
1027             KM        Bring Back Diverted Flow DC84R
1028             DR   DC84R
                 *

1029             KK  84R-86
1030             KM        Channel Route From C84R To C86
1031             KM        Representative Of X-SECT. 2D1
1032             RS      17     FLOW      -1
1033             RC   0.070    0.043    0.060     7200    0.022
1034             RX  3030.0   4030.0   4372.0   4385.0   4427.0   4437.0   4543.0   4563.0
1035             RY    91.9     86.9     89.9     86.7     86.8     88.5     95.0    100.0
1036             RL                      2.24     86.7
                 *

1037             KK      2N
1038             KM        SUB-BASIN 2N
1039             BA    2.20
1040             LG    0.33     0.40     6.29     0.20     2.00
1041             UI     135      135      135      135      376      479      558      639      697      753
1042             UI     810      873      965     1040     1158     1359     1626     1783     1554     1377
1043             UI    1248     1151     1073      990      890      824      752      681      633      543
1044             UI     434      361      238      238      225      221      202      135      135      135
1045             UI     134       41       41       41       41       41       41       41       41       41
1                                                HEC-1 INPUT                                                PAGE 25
LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
1046             UI      41       41       41       41        0        0        0        0        0        0
1047             UI       0        0        0        0        0        0        0        0        0        0
                 *

1048             KK     C86
1049             KM        Combine R84R-86 + 2N
1050             KM        Area: DC84R=4.33sm, 2N=2.20sm
1051             HC       2     6.53
                 *

1052             KK  R86-96
1053             KM        Channel Route From C86 To C96
1054             KM        X-SECT. 2D1
1055             RS      18     FLOW      -1
1056             RC   0.070    0.043    0.060    12200    0.015
1057             RX  3030.0   4030.0   4372.0   4385.0   4427.0   4437.0   4543.0   4563.0
1058             RY    91.9     86.9     89.9     86.7     86.8     88.5     95.0    100.0
1059             RL                      0.34     86.7
                 *

1060             KK      2C
1061             KM        SUB-BASIN 2C
1062             BA    2.32
1063             LG    0.25     0.20     9.40     0.02    10.00
1064             UI     107      107      107      107      107      188      308      354      410      492
1065             UI     588      641      680      732      779      811      853      915     1031     1161
1066             UI    1324     1213      903      798      739      690      648      630      612      583
1067             UI     559      535      515      498      473      451      432      414      395      367
1068             UI     342      333      286      283      266      262      254      246      244      224
1069             UI     224      204      176      176      176      137      137      137      137      124
1070             UI     117      117      117      117       99       82       82       82       82       82
1071             UI      82       76       52       52       52       52       52       52       52       52
1072             UI      52       52       52       28       21       21       21       21       21       21
1073             UI      21       21       21       21       21       21       21       21       21       21
1074             UI      21       21       21       21       21       21       21       21       21       21
1075             UI      21       21        0        0        0        0        0        0        0        0
1076             UI       0        0        0        0        0        0        0        0        0        0
                 *

1077             KK      20
1078             KM        SUB-BASIN 20
1079             BA    3.37
1080             LG    0.25     0.20     9.40     0.02    10.00
1081             UI     169      169      169      169      169      443      499      649      745      900
1082             UI    1011     1080     1168     1241     1305     1371     1542     1737     1978     2049
1083             UI    1509     1267     1169     1082     1018      989      951      904      863      828
1084             UI     796      759      716      683      653      613      579      526      496      448
1085             UI     433      414      406      390      386      354      354      305      278      278
1086             UI     246      216      216      216      201      185      185      185      185      140
1087             UI     130      130      130      130      130      124       83       83       83       83
1088             UI      83       83       83       83       83       83       52       32       32       32
1089             UI      32       32       32       32       32       32       32       32       32       32
1090             UI      32       32       32       32       32       32       32       32       32       32
1091             UI      32       32       32        0        0        0        0        0        0        0
1092             UI       0        0        0        0        0        0        0        0        0        0
                 *
1                                                HEC-1 INPUT                                                PAGE 26
LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1093             KK     C96
1094             KM        Combine R95-96 + R85-96 + R86-96 + 2C + 20
1095             HC       5
                 *

1096             KK  R96-97
1097             KM        Channel Route From C96 To C97
1098             KM        X-SECT. 2P1
1099             RS      15     FLOW      -1
1100             RC   0.060    0.044    0.070    16600    0.014
1101             RX  3050.0   4050.0   4850.0   4859.0   5014.0   5026.0   5251.0   5271.0
1102             RY    99.2     94.2     94.4     92.8     92.0     94.8     97.0    100.0
1103             RL                      1.58     92.0
                 *
```

```
1104        KK      2P
1105        KM        SUB-BASIN 2P
1106        BA    3.51
1107        LG    0.28     0.39     5.98     0.18     9.00
1108        UI     169      169      169      169      169      369      485      609      695      815
1109        UI     984     1043     1113     1195     1264     1320     1408     1579     1781     2036
1110        UI    1979     1465     1261     1166     1085     1018      990      957      911      871
1111        UI     836      806      777      723      693      669      647      583      559      525
1112        UI     473      446      425      413      402      388      385      353      353      313
1113        UI     277      277      261      216      216      216      214      185      185      185
1114        UI     185      176      129      129      129      129      129      129      122       83
1115        UI      83       83       83       83       83       83       83       83       83       73
1116        UI      32       32       32       32       32       32       32       32       32       32
1117        UI      32       32       32       32       32       32       32       32       32       32
1118        UI      32       32       32       32       32       32       32        0        0        0
1119        UI       0        0        0        0        0        0        0        0        0        0
            *

1120        KK     C97
1121        KM        Combine R96-97 + 2P
1122        HC       2
            *

1123        KK  97-100
1124        KM        Channel Route From C97 To C100
1125        KM        Interpolated X-SECT. Between 2U1 and 2P1
1126        RS       6     FLOW      -1
1127        RC   0.060    0.046    0.065     6200    0.012
1128        RX  3033.0   4033.0   4458.0   4471.0   4586.0   4610.0   4741.0   6001.0
1129        RY   101.0     96.0     95.4     91.4     90.9     93.7     94.7    101.0
1130        RL                     1.63     90.9
            *

1131        KK      2Q
1132        KM        SUB-BASIN 2Q At C98
1133        BA    2.93
1134        LG    0.22     0.35     3.71     0.30    10.00
1135        UI     117      117      117      117      117      117      241      338      374      450
1136        UI     508      573      680      713      752      799      850      881      916      954
```



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

1137        UI    1046     1150     1287     1429     1406     1091      917      850      792      749
1138        UI     711      693      677      651      626      604      586      563      546      527
1139        UI     500      479      469      450      425      403      378      365      333      310
1140        UI     307      287      287      278      270      270      252      246      246      212
1141        UI     193      193      193      162      150      150      150      150      135      129
1142        UI     129      129      129      129       98       90       90       90       90       90
1143        UI      90       90       77       57       57       57       57       57       57       57
1144        UI      57       57       57       57       57       49       23       23       23       23
1145        UI      23       23       23       23       23       23       23       23       23       23
1146        UI      23       23       23       23       23       23       23       23       23       23
1147        UI      23       23       23       23       23       23       23       23       23        0
1148        UI       0        0        0        0        0        0        0        0        0        0
1149        UI       0        0        0        0        0        0        0        0        0        0
            *

1150        KK  R98-99
1151        KM        Channel Route From C98 To C99
1152        KM        Interpolated X-SECT. Between 2U1 and 2P1
1153        RS       6     FLOW      -1
1154        RC   0.060    0.046    0.065    12400    0.015
1155        RX  3033.0   4033.0   4458.0   4471.0   4586.0   4610.0   4741.0   6001.0
1156        RY   101.0     96.0     95.4     91.4     90.9     93.7     94.7    101.0
1157        RL                     8.16     90.9
            *

1158        KK      2R
1159        KM        SUB-BASIN 2R
1160        BA    2.67
1161        LG    0.30     0.35     3.36     0.83     5.00
1162        UI     134      134      134      134      134      399      463      514      613      650
1163        UI     705      747      790      845      905      978     1041     1127     1292     1536
1164        UI    1655     1757     1554     1404     1289     1200     1124     1063      995      916
1165        UI     846      796      736      678      638      581      512      386      352      237
1166        UI     237      232      220      220      203      134      134      134      134      128
1167        UI      41       41       41       41       41       41       41       41       41       41
1168        UI      41       41       41       41       41       41        0        0        0        0
1169        UI       0        0        0        0        0        0        0        0        0        0
            *

1170        KK     C99
1171        KM        Combine R98-99 + 2R
1172        HC       2
            *

1173        KK  99-100
1174        KM        Channel Route From C99 To C100
1175        KM        Interpolated X-SECT. Between 2U1 and 2P1
1176        RS       6     FLOW      -1
1177        RC   0.060    0.046    0.065     9800    0.012
1178        RX  3033.0   4033.0   4458.0   4471.0   4586.0   4610.0   4741.0   6001.0
1179        RY   101.0     96.0     95.4     91.4     90.9     93.7     94.7    101.0
1180        RL                     4.99     90.9
            *
```



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

1181        KK      2S
1182        KM        SUB-BASIN 2S
1183        BA    1.82
1184        LG    0.32     0.35     3.35     0.85     4.00
1185        UI     128      128      128      221      433      513      604      665      729      788
1186        UI     870      967     1072     1290     1566     1644     1399     1232     1119     1027
1187        UI     937      838      760      685      615      542      428      335      226      224
1188        UI     210      210      136      128      128      108       39       39       39       39
1189        UI      39       39       39       39       39       39       39        0        0        0
1190        UI       0        0        0        0        0        0        0        0        0        0
            *

1191        KK    C100
```

```
1192    KM        Combine R97-100 + R99-100 + 2S
1193    HC       3
        *

1194    KK  100101
1195    KM        Channel Route From C100 To C101
1196    KM        Representative Of X-SECT. 2U1
1197    RS       4    FLOW      -1
1198    RC   0.060   0.047   0.060    4600   0.011
1199    RX  3015.0  4015.0  4066.0  4083.0  4158.0  4194.0  4230.0  6290.0
1200    RY   102.7    97.7    96.3    90.0    89.7    92.6    92.4   102.7
1201    RL                    1.28    89.7
        *

1202    KK      2T
1203    KM        SUB-BASIN 2T
1204    BA    4.90
1205    LG    0.27    0.33    7.78    0.09    9.00
1206    UI     128     128     128     128     128     128     128     128     128     154
1207    UI     368     368     368     450     490     499     588     588     727     744
1208    UI     774     799     819     865     896     925     949     976    1000    1026
1209    UI    1061    1132    1226    1278    1405    1488    1622    1555    1362    1088
1210    UI    1004     957     919     865     839     817     775     767     754     741
1211    UI     735     702     695     669     661     639     632     613     607     588
1212    UI     585     545     545     523     516     508     490     490     454     439
1213    UI     439     404     398     397     359     338     338     338     315     313
1214    UI     313     313     297     294     294     294     279     267     267     267
1215    UI     267     219     210     210     210     210     210     172     163     163
1216    UI     163     163     163     163     162     140     140     140     140     140
1217    UI     140     140     140     138      98      98      98      98      98      98
1218    UI      98      98      98      98      98      98      93      63      63      63
1219    UI      63      63      63      63      63      63      63      63      63      63
1220    UI      63      63      63      63      63      63      63      27      25      25
1221    UI      25      25      25      25      25      25      25      25      25      25
1222    UI      25      25      25      25      25      25      25      25      25      25
1223    UI      25      25      25      25      25      25      25      25      25      25
1224    UI      25      25      25      25      25      25      25      25      25      25
1225    UI      25      25      25      25      25      25      25      25      25      25
1226    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

1227        KK    C101
1228        KM        Combine R100-101 + 2T
1229        HC       2
            *

1230        KK  101102
1231        KM        X-SECT. 2U1
1232        RS       6    FLOW      -1
1233        RC   0.060   0.047   0.060    7600   0.011
1234        RX  3015.0  4015.0  4066.0  4083.0  4158.0  4194.0  4230.0  6290.0
1235        RY   102.7    97.7    96.3    90.0    89.7    92.6    92.4   102.7
1236        RL                    2.15    89.7
            *

1237        KK      2U
1238        KM        SUB-BASIN 2U
1239        BA    1.38
1240        LG    0.32    0.35    3.32    0.91    4.00
1241        UI      82      82      82      82     199     281     322     380     411     447
1242        UI     474     514     556     612     656     755     915    1017    1040     901
1243        UI     810     740     685     641     589     535     495     454     412     384
1244        UI     333     271     233     144     144     139     134     134      87      82
1245        UI      82      82      52      25      25      25      25      25      25      25
1246        UI      25      25      25      25      25      25       0       0       0       0
1247        UI       0       0       0       0       0       0       0       0       0       0
            *

1248        KK    C102
1249        KM        Combine R101-102 + 2U
1250        HC       2
            *

1251        KK  102103
1252        KM        Channel Route From C102 To C103
1253        KM        Representative Of X-SECT. 2U1
1254        RS       5    FLOW      -1
1255        RC   0.060   0.047   0.060    5400   0.010
1256        RX  3015.0  4015.0  4066.0  4083.0  4158.0  4194.0  4230.0  6290.0
1257        RY   102.7    97.7    96.3    90.0    89.7    92.6    92.4   102.7
1258        RL                    1.24    89.7
            *

1259        KK      2V
1260        KM        SUB-BASIN 2V
1261        BA    7.57
1262        LG    0.27    0.39    5.67    0.19    9.00
1263        UI     209     209     209     209     209     209     209     209     209     462
1264        UI     601     601     679     801     801     954     961    1182    1220    1264
1265        UI    1317    1357    1413    1493    1531    1568    1608    1657    1713    1822
1266        UI    1963    2069    2255    2421    2646    2529    2209    1719    1618    1538
1267        UI    1472    1413    1339    1301    1264    1234    1221    1201    1160    1143
1268        UI    1092    1081    1045    1029    1001     985     961     934     890     881
1269        UI     843     843     807     801     766     717     717     670     649     649
1270        UI     583     552     552     546     511     511     511     501     481     481
```



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

1271        UI     481     469     437     437     437     437     363     343     343     343
1272        UI     343     336     267     267     267     267     267     267     267     237
1273        UI     229     229     229     229     229     229     229     213     160     160
1274        UI     160     160     160     160     160     160     160     160     160     158
1275        UI     102     102     102     102     102     102     102     102     102     102
1276        UI     102     102     102     102     102     102     102     102     102      45
1277        UI      40      40      40      40      40      40      40      40      40      40
1278        UI      40      40      40      40      40      40      40      40      40      40
1279        UI      40      40      40      40      40      40      40      40      40      40
1280        UI      40      40      40      40      40      40      40      40      40      40
1281        UI      40      40      40      40      40      40      40       0       0       0
1282        UI       0       0       0       0       0       0       0       0       0       0
```

```
                 *
1283             KK    C103
1284             KM        Combine R102-103 + 2V
1285             HC       2
                 *

1286             KK  103107
1287             KM        Channel Route From C103 To C107
1288             KM        X-SECT. 2Y1
1289             RS      22    FLOW      -1
1290             RC   0.050   0.050   0.050   24200   0.009
1291             RX  3841.4  4219.0  4294.0  4322.0  4337.0  4347.0  4485.0  5305.0
1292             RY    97.7    92.7    93.7    91.2    91.6    93.6    93.6    97.7
1293             RL                    0.55    91.2
                 *

1294             KK      2W
1295             KM        SUB-BASIN 2W At C104
1296             BA    6.29
1297             LG    0.28    0.25    8.40    0.05    7.00
1298             UI     210     210     210     210     210     210     210     311     603     603
1299             UI     716     804     891     965    1172    1238    1286    1341    1418    1496
1300             UI    1546    1595    1649    1709    1832    2015    2171    2373    2641    2483
1301             UI    2021    1674    1566    1478    1404    1340    1271    1246    1225    1204
1302             UI    1148    1116    1089    1048    1022    1005     965     944     893     871
1303             UI     846     823     804     759     720     701     652     652     575     554
1304             UI     554     519     513     513     492     482     482     468     438     438
1305             UI     438     380     344     344     344     344     275     268     268     268
1306             UI     268     268     235     230     230     230     230     230     230     176
1307             UI     161     161     161     161     161     161     161     161     161     121
1308             UI     103     103     103     103     103     103     103     103     103     103
1309             UI     103     103     103     103     103      49      40      40      40      40
1310             UI      40      40      40      40      40      40      40      40      40      40
1311             UI      40      40      40      40      40      40      40      40      40      40
1312             UI      40      40      40      40      40      40      40      40      40      40
1313             UI      40      40      40      40      40       0       0       0       0       0
1314             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

1315             KK  104105
1316             KM        Channel Route From C104 To C105
1317             KM        X-SECT. 2X1
1318             RS      20    FLOW      -1
1319             RC   0.060   0.034   0.060   30400   0.015
1320             RX  3933.3  4100.0  4156.0  4173.0  4331.0  4336.0  4389.0  4579.9
1321             RY    98.0    93.0    93.2    92.3    92.4    93.4    93.8    98.0
1322             RL                    2.38    92.3
                 *

1323             KK      2X
1324             KM        SUB-BASIN 2X
1325             BA   10.31
1326             LG    0.29    0.25    8.60    0.06    6.00
1327             UI     235     235     235     235     235     235     235     235     235     235
1328             UI     235     522     674     674     674     833     899     899    1033    1079
1329             UI    1154    1349    1370    1420    1454    1499    1556    1587    1684    1708
1330             UI    1740    1791    1822    1860    1924    2012    2126    2259    2345    2564
1331             UI    2690    2839    3088    2650    2396    1927    1833    1771    1686    1620
1332             UI    1587    1499    1482    1420    1407    1383    1369    1349    1320    1284
1333             UI    1263    1226    1215    1173    1173    1127    1124    1099    1079    1071
1334             UI     999     999     976     946     946     917     899     899     837     805
1335             UI     805     778     729     729     729     652     620     620     620     601
1336             UI     574     574     574     574     547     539     539     539     539     498
1337             UI     490     490     490     490     447     385     385     385     385     385
1338             UI     385     342     300     300     300     300     300     300     300     300
1339             UI     273     257     257     257     257     257     257     257     257     257
1340             UI     236     180     180     180     180     180     180     180     180     180
1341             UI     180     180     180     180     180     149     115     115     115     115
1342             UI     115     115     115     115     115     115     115     115     115     115
1343             UI     115     115     115     115     115     115     115     115      95      45
1344             UI      45      45      45      45      45      45      45      45      45      45
1345             UI      45      45      45      45      45      45      45      45      45      45
1346             UI      45      45      45      45      45      45      45      45      45      45
1347             UI      45      45      45      45      45      45      45      45      45      45
1348             UI      45      45      45      45      45      45      45      45      45      45
1349             UI      45      45      45      45      45      45      45       0       0       0
1350             UI       0       0       0       0       0       0       0       0       0       0
                 *

1351             KK    C105
1352             KM        Combine R104-105 + 2X
1353             HC       2
                 *

1354             KK  105107
1355             KM        Channel Route From C105 To C107
1356             KM        X-SECT. 2Y2
1357             RS      44    FLOW      -1
1358             RC   0.050   0.051   0.050   36800   0.009
1359             RX  3063.0  4063.0  4156.0  4162.0  4177.0  4184.0  4229.0  4914.7
1360             RY    99.7    94.7    93.2    90.9    90.5    92.8    94.9    99.7
1361             RL                    0.59    90.5
                 *
```



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

1362             KK      2Y
1363             KM        SUB-BASIN 2Y
1364             BA   13.40
1365             LG    0.33    0.35    4.03    0.36    2.00
1366             UI     318     318     318     318     318     318     318     318     318     318
1367             UI     400    1044    1044    1044    1183    1218    1218    1452    1462    1517
1368             UI    1555    1608    1699    1727    1782    1818    1874    1929    1975    2065
1369             UI    2105    2214    2297    2366    2436    2494    2579    2715    2923    3140
1370             UI    3288    3857    3553    3996    4299    4199    3939    3718    3529    3365
1371             UI    3223    3098    2989    2892    2806    2707    2632    2570    2514    2436
1372             UI    2337    2265    2149    2087    2030    1942    1921    1827    1805    1661
1373             UI    1656    1555    1555    1478    1462    1350    1218    1218    1030     913
```

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1374    UI     913     913     622     562     562     562     562     562     535     522
1375    UI     522     522     522     522     512     318     318     318     318     318
1376    UI     318     318     318     318     318     282      97      97      97      97
1377    UI      97      97      97      97      97      97      97      97      97      97
1378    UI      97      97      97      97      97      97      97      97      97      97
1379    UI      97      97      97      97      97      97      97      97      97      97
1380    UI      97       0       0       0       0       0       0       0       0       0
1381    UI       0       0       0       0       0       0       0       0       0       0
        *

1382    KK    C107
1383    KM        Combine R103-107 + R105-107 + 2Y
1384    HC        3
        *
        * No Route Performed From C107 To C113.  Reach length is too short.
        *

1385    KK      2BB
1386    KM        SUB-BASIN 2BB At C108
1387    BA     2.40
1388    LG     0.29    0.25    8.60    0.07    6.00
1389    UI      144     144     144     144     335     444     563     690     848     909
1390    UI     1000    1072    1136    1252    1455    1712    1650    1147    1022     937
1391    UI      866     838     794     746     710     678     637     597     568     532
1392    UI      490     448     400     379     353     346     332     317     302     274
1393    UI      237     237     194     184     184     172     158     158     158     133
1394    UI      111     111     111     111     111      73      71      71      71      71
1395    UI       71      71      71      64      28      28      28      28      28      28
1396    UI       28      28      28      28      28      28      28      28      28      28
1397    UI       28      28      28      28      28      28       0       0       0       0
1398    UI        0       0       0       0       0       0       0       0       0       0
        *

1399    KK   108111
1400    KM        Channel Route From C108 To C111
1401    KM        X-SECT. 2AA1
1402    RS       16    FLOW      -1
1403    RC    0.050   0.065   0.050   12200   0.009
1404    RX   3711.2  4055.0  4145.0  4157.0  4183.0  4234.0  4309.0  4504.7
1405    RY     99.4    94.4    94.2    91.5    91.4    94.4    93.4    99.4
1406    RL                    1.02    91.4
        *
```



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

1407    KK      2Z
1408    KM        SUB-BASIN 2Z At 110
1409    BA     5.10
1410    LG     0.30    0.28    8.28    0.08    5.00
1411    UI      153     153     153     153     153     153     153     153     272     441
1412    UI      441     503     588     610     705     762     882     920     949     983
1413    UI     1037    1089    1123    1154    1189    1226    1278    1382    1490    1602
1414    UI     1737    1900    1889    1618    1259    1177    1112    1059    1014     977
1415    UI      928     913     900     882     853     835     801     785     767     742
1416    UI      735     706     700     653     650     619     619     589     588     544
1417    UI      526     516     477     477     444     405     405     399     375     375
1418    UI      375     360     353     353     353     322     321     321     321     262
1419    UI      252     252     252     252     217     196     196     196     196     196
1420    UI      196     171     168     168     168     168     168     168     165     118
1421    UI      118     118     118     118     118     118     118     118     118     118
1422    UI       81      75      75      75      75      75      75      75      75      75
1423    UI       75      75      75      75      75      75      75      60      29      29
1424    UI       29      29      29      29      29      29      29      29      29      29
1425    UI       29      29      29      29      29      29      29      29      29      29
1426    UI       29      29      29      29      29      29      29      29      29      29
1427    UI       29      29      29      29      29      29      29      29      29      29
1428    UI       29      29       0       0       0       0       0       0       0       0
1429    UI        0       0       0       0       0       0       0       0       0       0
        *

1430    KK   110111
1431    KM        Channel Route From C110 To C111
1432    KM        X-SECT. 2AA2
1433    RS       20    FLOW      -1
1434    RC    0.050   0.045   0.050   21000   0.011
1435    RX   3827.9  4081.0  4184.0  4193.0  4236.0  4246.0  4321.0  4648.5
1436    RY    100.0    95.0    94.9    93.9    93.8    94.9    94.1   100.0
1437    RL                    1.67    93.8
        *

1438    KK      2AA
1439    KM        SUB-BASIN 2AA
1440    BA     3.73
1441    LG     0.33    0.39    5.98    0.18    2.00
1442    UI      157     157     157     157     157     157     468     516     602     650
1443    UI      725     768     826     867     907     952    1006    1070    1146    1204
1444    UI     1276    1403    1587    1837    1949    2086    1886    1718    1592    1480
1445    UI     1401    1322    1264    1212    1119    1048     988     937     886     819
1446    UI      768     733     669     602     475     451     329     278     278     273
1447    UI      258     258     258     207     157     157     157     157     157     116
1448    UI       48      48      48      48      48      48      48      48      48      48
1449    UI       48      48      48      48      48      48      48      48      48       0
1450    UI        0       0       0       0       0       0       0       0       0       0
1451    UI        0       0       0       0       0       0       0       0       0       0
        *
```



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

1452    KK    C111
1453    KM        Combine R108-111 + R110-111 + 2AA
1454    HC        3
        *

1455    KK   111113
1456    KM        Channel Route From C111 To C113
1457    KM        Representative Of X-SECT. 2CC2
1458    RS       40    FLOW      -1
1459    RC    0.050   0.046   0.050   33200   0.008
1460    RX   3896.5  4069.0  4210.0  4220.0  4245.0  4250.0  4300.0  4538.5
1461    RY     97.9    92.9    93.4    91.9    91.5    93.3    93.4    97.9
1462    RL                    1.12    91.5
```

```
                 *
1463             KK     2CC
1464             KM        SUB-BASIN 2CC
1465             BA    4.38
1466             LG    0.35     0.35     4.30     0.45     0.00
1467             UI     117      117      117      117      117      117      117      117      117      208
1468             UI     385      385      410      449      449      526      538      565      573      616
1469             UI     626      657      666      690      714      731      769      798      828      868
1470             UI     895      918      959     1022     1102     1186     1326     1363     1440     1582
1471             UI    1535 -   1433     1336     1266     1205     1151     1105     1063     1026      993
1472             UI     961      931      906      872      836      792      762      741      708      688
1473             UI     673      619      610      573      570      538      538      482      449      398
1474             UI     336      336      325      207      207      207      207      207      198      192
1475             UI     192      192      192      192      136      117      117      117      117      117
1476             UI     117      117      117      110       36       36       36       36       36       36
1477             UI      36       36       36       36       36       36       36       36       36       36
1478             UI      36       36       36       36       36       36       36       36       36       36
1479             UI      36       36       36       36       36        0        0        0        0        0
1480             UI       0        0        0        0        0        0        0        0        0        0
                 *

1481             KK    C113
1482             KM        Combine C107 + R111-113 + 2CC
1483             HC       3
                 *

1484             KK  113127
1485             KM        Channel Route From C113 To C127
1486             KM        Representative Of X-SECT. 2UU1
1487             RS       6    FLOW      -1
1488             RC   0.050    0.038    0.050     8200    0.006
1489             RX  3516.0   4516.0   5083.0   5094.0   5148.0   5160.0   5298.0   5480.4
1490             RY    99.7     94.7     93.9     91.6     92.1     93.4     94.0     99.7
1491             RL                     0.80     91.6
                 *
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LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1492             KK     2DD
1493             KM     SUB-BASIN 2DD
1494             BA    0.64
1495             LG    0.35     0.35     4.18     0.50     0.00
1496             UI      34       34       34       34      108      126      148      165      184      197
1497             UI     212      232      256      277      322      388      448      416      362      326
1498             UI     298      277      255      229      211      192      173      161      137      107
1499             UI      86       61       61       56       56       44       34       34       34       22
1500             UI      11       11       11       11       11       11       11       11       11       11
1501             UI      11       11        0        0        0        0        0        0        0        0
1502             UI       0        0        0        0        0        0        0        0        0        0
                 *

1503             KK   C127R
1504             KM        Combine R113-127 + 2DD
1505             KO                                       21
1506             HC       2
                 *

1507             KK     2GG
1508             KM        SUB-BASIN 2GG At C114
1509             BA    6.69
1510             LG    0.31     0.30     8.05     0.09     4.00
1511             UI     207      207      207      207      207      207      207      207      511      679
1512             UI     690      792      792      938      957     1011     1048     1105     1150     1180
1513             UI    1219     1280     1327     1384     1451     1533     1584     1633     1741     1882
1514             UI    2070     2313     2390     2641     2794     2591     2418     2252     2125     2020
1515             UI    1927     1846     1773     1708     1650     1597     1517     1441     1376     1320
1516             UI    1253     1214     1174     1080     1043     1011      961      949      792      792
1517             UI     627      594      594      383      366      366      366      360      339      339
1518             UI     339      339      324      207      207      207      207      207      207      207
1519             UI     207       98       63       63       63       63       63       63       63       63
1520             UI      63       63       63       63       63       63       63       63       63       63
1521             UI      63       63       63       63       63       63       63       63        0        0
1522             UI       0        0        0        0        0        0        0        0        0        0
                 *

1523             KK  114115
1524             KM        Channel Route From C114 To C115
1525             KM        Representative Of X-SECT. 3B1
1526             RS      17    FLOW      -1
1527             RC   0.050    0.049    0.060    14000    0.013
1528             RX  3484.0   4129.0   4153.0   4159.0   4184.0   4193.0   4355.0   6275.0
1529             RY   101.0     96.0     94.7     91.0     90.8     93.8     91.4    101.0
1530             RL                     1.37     90.8
                 *

1531             KK     2HH
1532             KM        SUB-BASIN 2HH
1533             BA    6.76
1534             LG    0.32     0.38     5.05     0.22     3.00
1535             UI     268      268      268      268      268      268      564      880      953     1026
1536             UI    1191     1262     1317     1432     1490     1554     1628     1714     1816     1938
1537             UI    2034     2121     2331     2585     2972     3131     3558     3442     3119     2865
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LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1538             UI    2666     2510     2375     2253     2158     2072     1941     1814     1711     1622
1539             UI    1547     1431     1353     1295     1232     1072     1006      770      770      529
1540             UI     474      474      469      440      440      440      412      268      268      268
1541             UI     268      268      268      148       82       82       82       82       82       82
1542             UI      82       82       82       82       82       82       82       82       82       82
1543             UI      82       82       82       82        0        0        0        0        0        0
1544             UI       0        0        0        0        0        0        0        0        0        0
                 *

1545             KK    C115
1546             KM        Combine R114-115 + 2HH
1547             HC       2
                 *

1548             KK  115116
1549             KM        Channel Route From C115 To C116
```

```
KM        Representative Of X-SECT. 381
RS      10     FLOW      -1
RC   0.050    0.049    0.060     9600    0.015
RX  3484.0   4129.0   4153.0   4159.0   4184.0   4193.0   4355.0   6275.0
RY   101.0     96.0     94.7     91.0     90.8     93.8     91.4    101.0
RL                     0.79     90.8
*

KK     2II
KM       SUB-BASIN 2II
BA    2.22
LG    0.28     0.25     8.40     0.05     7.00
UI      83       83       83       83       83       83       99      239      239      294
UI     318      376      420      483      504      531      561      596      618      640
UI     666      706      776      850      941     1061      931      738      643      599
UI     562      531      505      493      483      469      452      434      419      408
UI     398      382      368      354      338      332      318      306      285      276
UI     258      253      220      220      211      203      203      195      191      191
UI     179      174      174      159      136      136      136      130      106      106
UI     106      106      106       94       91       91       91       91       91       77
UI      64       64       64       64       64       64       64       64       52       41
UI      41       41       41       41       41       41       41       41       41       41
UI      41       41       31       16       16       16       16       16       16       16
UI      16       16       16       16       16       16       16       16       16       16
UI      16       16       16       16       16       16       16       16       16       16
UI      16       16       16       16       16       16       16       16       16       16
UI       0        0        0        0        0        0        0        0        0        0
*

KK    C116
KM       Combine R115-116 + 2II
HC       2
*
```

1

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

KK  DC116R
KM        Main flow at C116 is in the right channel (DC116R)
KM        Diverted flow (DQ record) goes into the left channel (DC116L)
DT  DC116L
DI     0.0     15.0     75.0    490.0   1450.0   3300.0   5950.0   8900.0  11400.0
DQ     0.0     15.0     35.0    175.0    490.0   1100.0   2050.0   3200.0   4000.0
*

KK  116119
KM       Channel Route From C116R To C119
KM       Representative Of X-SECT. 2KK1
RS      17     FLOW      -1
RC   0.050    0.055    0.050    14200    0.014
RX  3854.0   4219.0   4339.0   4352.0   4384.0   4402.0   4465.0   4966.8
RY    97.7     92.7     95.0     91.0     92.1     94.0     94.7     97.7
RL                     0.97     91.0
*

KK     2EE
KM       SUB-BASIN 2EE At C118
BA    4.13
LG    0.28     0.25     8.20     0.04     7.00
UI     170      170      170      170      170      170      396      488      573      650
UI     765      881      997     1049     1109     1181     1242     1290     1349     1433
UI    1584     1757     1959     2137     1773     1359     1256     1171     1100     1040
UI    1008      984      949      911      879      848      814      792      765      722
UI     692      676      650      610      582      540      527      469      448      436
UI     415      415      395      390      388      355      355      351      279      279
UI     279      265      217      217      217      217      207      186      186      186
UI     186      186      154      130      130      130      130      130      130      130
UI     113       83       83       83       83       83       83       83       83       83
UI      83       83       83       57       33       33       33       33       33       33
UI      33       33       33       33       33       33       33       33       33       33
UI      33       33       33       33       33       33       33       33       33       33
UI      33       33       33       33       33       33        0        0        0        0
UI       0        0        0        0        0        0        0        0        0        0
*

KK  118119
KM       Channel Route From C118 To C119
KM       Representative Of X-SECT. 2KK1
RS       6     FLOW      -1
RC   0.050    0.055    0.050     5400    0.013
RX  3854.0   4219.0   4339.0   4352.0   4384.0   4402.0   4465.0   4966.8
RY    97.7     92.7     95.0     91.0     92.1     94.0     94.7     97.7
RL                     0.97     91.0
*

KK     2JJ
KM       SUB-BASIN 2JJ
BA    0.89
LG    0.35     0.35     3.50     0.28     0.00
UI      59       59       59       71      193      222      265      294      322      346
UI     376      417      453      509      624      722      754      646      573      521
```

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HEC-1 INPUT

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

UI     481      444      398      364      331      297      275      231      177      137
UI     104      102       97       97       63       59       59       59       19       18
UI      18       18       18       18       18       18       18       18       18       18
UI       0        0        0        0        0        0        0        0        0        0
UI       0        0        0        0        0        0        0        0        0        0
*

KK    C119
KM       Combine R116R-119 + R118-119 + 2JJ
HC       3
*

KK  119120
KM       Channel Route From C119 To C120
KM       X-SECT. 2KK1
RS      45     FLOW      -1
RC   0.050    0.055    0.050    43600    0.011
RX  3854.0   4219.0   4339.0   4352.0   4384.0   4402.0   4465.0   4966.8
RY    97.7     92.7     95.0     91.0     92.1     94.0     94.7     97.7
```

```
1639          RL                    0.91    91.0
              *

1640          KK     2KK
1641          KM        SUB-BASIN 2KK
1642          BA    4.19
1643          LG    0.35    0.35    3.55    0.29    0.00
1644          UI     101     101     101     101     101     101     101     101     101     101
1645          UI     162     331     331     331     386     386     402     464     464     489
1646          UI     493     524     539     557     565     587     594     624     634     662
1647          UI     685     704     748     762     778     799     849     898     960    1023
1648          UI    1125    1202    1193    1337    1359    1273    1199    1137    1083    1035
1649          UI     994     958     926     891     864     841     821     799     775     748
1650          UI     724     682     666     644     619     610     580     574     527     525
1651          UI     493     493     468     464     423     386     386     317     290     290
1652          UI     290     180     178     178     178     178     178     167     166     166
1653          UI     166     166     166     140     101     101     101     101     101     101
1654          UI     101     101     101     101      55      31      31      31      31      31
1655          UI      31      31      31      31      31      31      31      31      31      31
1656          UI      31      31      31      31      31      31      31      31      31      31
1657          UI      31      31      31      31      31      31      31      31      31       0
1658          UI       0       0       0       0       0       0       0       0       0       0
1659          UI       0       0       0       0       0       0       0       0       0       0
              *

1660          KK   C120R
1661          KM        Combine R119-120 + 2KK
1662          KM        Area: 2GG-2II=15.67, 2KK=4.19, 2JJ=0.89, 2EE=4.13
1663          HC       2
              *
```



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

1664          KK     2LL
1665          KM        SUB-BASIN 2LL
1666          BA    5.18
1667          LG    0.35    0.35    3.50    0.29    0.00
1668          UI      99      99      99      99      99      99      99      99      99      99
1669          UI      99      99      99     195     324     324     324     340     378     378
1670          UI     378     435     453     453     477     482     484     527     527     540
1671          UI     553     555     581     581     606     613     633     648     668     687
1672          UI     713     731     749     755     781     797     839     885     923     985
1673          UI    1023    1157    1171    1124    1273    1333    1320    1251    1193    1133
1674          UI    1089    1051    1017     985     947     925     905     872     855     839
1675          UI     812     802     781     767     755     719     708     671     667     634
1676          UI     630     604     596     581     567     559     515     515     497     482
1677          UI     482     459     453     453     390     378     378     350     283     283
1678          UI     283     283     221     174     174     174     174     174     174     174
1679          UI     163     162     162     162     162     162     162     162     121      99
1680          UI      99      99      99      99      99      99      99      99      99      99
1681          UI      99      93      30      30      30      30      30      30      30      30
1682          UI      30      30      30      30      30      30      30      30      30      30
1683          UI      30      30      30      30      30      30      30      30      30      30
1684          UI      30      30      30      30      30      30      30      30      30      30
1685          UI      30      30      30      30      30      30       0       0       0       0
1686          UI       0       0       0       0       0       0       0       0       0       0
              *

1687          KK  BC116L
1688          KM        Bring Back Flow Split Diverted Hydrograph DC116L
1689          DR  DC116L
              *

1690          KK  116120
1691          KM        Channel Route From C116L To C120
1692          KM        Interpolated X-SECT. Between 2LL1 and 2LL2
1693          RS      86     FLOW      -1
1694          RC   0.055   0.051   0.060   59400   0.011
1695          RX  3949.7  4059.0  4146.0  4167.0  4221.0  4231.0  4378.0  4533.2
1696          RY    99.6    94.6    94.4    93.0    92.9    95.0    94.0    99.6
1697          RL                    1.79    92.9
              *

1698          KK    C120
1699          KM        Combine C120R(R119-120 + 2KK) + 2LL + R116L-120
1700          HC       3   30.06
              *

1701          KK  120121
1702          KM        Channel Route From C120 To C121
1703          KM        Representative Of X-SECT. 2FF3
1704          RS       8     FLOW      -1
1705          RC   0.050   0.051   0.050    9000   0.008
1706          RX  3689.3  4225.0  4325.0  4337.0  4357.0  4367.0  4391.0  4830.6
1707          RY    98.1    93.1    94.2    91.9    91.8    94.4    92.8    98.1
1708          RL                    1.20    91.8
              *
```



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

1709          KK     2MM
1710          KM        SUB-BASIN 2MM
1711          BA    0.91
1712          LG    0.35    0.35    3.32    0.86    0.00
1713          UI      57      57      57      57     168     205     240     271     298     323
1714          UI     345     377     414     445     510     626     698     726     625     560
1715          UI     509     471     440     396     361     334     302     275     249     207
1716          UI     163     116     100      97      93      93      61      57      57      57
1717          UI      27      17      17      17      17      17      17      17      17      17
1718          UI      17      17      17       0       0       0       0       0       0       0
1719          UI       0       0       0       0       0       0       0       0       0       0
              *

1720          KK    C121
1721          KM        Combine R120-121 + 2MM
1722          HC       2
              *

1723          KK  121123
1724          KM        Channel Route From C121 To C123
1725          KM        Representative Of X-SECT. 2FF3
```

```
1726    RS      11    FLOW      -1
1727    RC   0.050   0.051   0.050   10000   0.007
1728    RX  3689.3  4225.0  4325.0  4337.0  4357.0  4367.0  4391.0  4830.6
1729    RY    98.1    93.1    94.2    91.9    91.8    94.4    92.8    98.1
1730    RL                    0.75    91.8
        *

1731    KK     2FF
1732    KM       SUB-BASIN 2FF
1733    BA    5.51
1734    LG    0.35    0.35    3.82    0.35    0.00
1735    UI     102     102     102     102     102     102     102     102     102     102
1736    UI     102     102     102     131     337     337     337     337     387     393
1737    UI     393     415     471     471     479     502     502     522     548     548
1738    UI     571     575     586     604     605     637     637     665     674     701
1739    UI     714     745     760     781     786     813     827     873     916     952
1740    UI    1025    1058    1164    1253    1129    1310    1383    1387    1317    1254
1741    UI    1199    1153    1113    1072    1031    1005     981     943     924     907
1742    UI     875     863     842     824     813     789     782     737     730     693
1743    UI     690     655     655     623     620     601     589     578     536     536
1744    UI     517     502     502     480     471     471     416     393     393     384
1745    UI     295     295     295     295     265     181     181     181     181     181
1746    UI     181     181     176     168     168     168     168     168     168     168
1747    UI     168     104     102     102     102     102     102     102     102     102
1748    UI     102     102     102     102      96      31      31      31      31      31
1749    UI      31      31      31      31      31      31      31      31      31      31
1750    UI      31      31      31      31      31      31      31      31      31      31
1751    UI      31      31      31      31      31      31      31      31      31      31
1752    UI      31      31      31      31      31      31      31      31      31      31
1753    UI       0       0       0       0       0       0       0       0       0       0
1754    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

1755    KK    C123
1756    KM       Combine R121-123 + 2FF
1757    HC       2
        *

1758    KK  123140
1759    KM        Channel Route From C123 To C140
1760    KM        Representative Of X-SECT. 2FF3
1761    RS     4    FLOW      -1
1762    RC   0.050   0.051   0.050    3800   0.006
1763    RX  3689.3  4225.0  4325.0  4337.0  4357.0  4367.0  4391.0  4830.6
1764    RY    98.1    93.1    94.2    91.9    91.8    94.4    92.8    98.1
1765    RL                    0.80    91.8
        *

1766    KK     2NN
1767    KM       SUB-BASIN 2NN At C124
1768    BA    9.61
1769    LG    0.35    0.35    3.50    0.29    0.00
1770    UI     199     199     199     199     199     199     199     199     199     199
1771    UI     199     199     427     652     652     652     728     761     761     828
1772    UI     913     913     955     971     987    1062    1062    1105    1114    1148
1773    UI    1171    1201    1234    1268    1304    1350    1384    1453    1478    1522
1774    UI    1546    1574    1678    1748    1837    1985    2059    2362    2303    2356
1775    UI    2615    2686    2585    2443    2323    2220    2131    2053    1985    1903
1776    UI    1850    1803    1756    1696    1664    1631    1578    1556    1522    1453
1777    UI    1427    1344    1332    1268    1256    1201    1194    1141    1141    1043
1778    UI    1038    1001     971     971     913     913     870     761     761     756
1779    UI     571     571     571     571     422     351     351     351     351     351
1780    UI     351     336     326     326     326     326     326     326     325     199
1781    UI     199     199     199     199     199     199     199     199     199     199
1782    UI     199     128      61      61      61      61      61      61      61      61
1783    UI      61      61      61      61      61      61      61      61      61      61
1784    UI      61      61      61      61      61      61      61      61      61      61
1785    UI      61      61      61      61      61      61      61      61      61      61
1786    UI      61      61       0       0       0       0       0       0       0       0
1787    UI       0       0       0       0       0       0       0       0       0       0
        *

1788    KK     200
1789    KM       SUB-BASIN 200 At C124
1790    BA    0.85
1791    LG    0.35    0.35    3.50    0.29    0.00
1792    UI      52      52      52      52     145     185     215     247     269     291
1793    UI     313     337     373     402     447     525     628     689     600     532
1794    UI     482     445     415     383     344     318     290     263     245     210
1795    UI     168     140      92      92      87      85      78      52      52      52
1796    UI      52      16      16      16      16      16      16      16      16      16
1797    UI      16      16      16      16       0       0       0       0       0       0
1798    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

1799    KK    C124
1800    KM       Combine 2NN + 200
1801    HC       2
        *

1802    KK  124125
1803    KM        Channel Route From C124 To C125
1804    KM        Representative Of X-SECT. 2KK1
1805    RS    18    FLOW      -1
1806    RC   0.050   0.055   0.050   14600   0.008
1807    RX  3854.0  4219.0  4339.0  4352.0  4384.0  4402.0  4465.0  4966.8
1808    RY    97.7    92.7    95.0    91.0    92.1    94.0    94.7    97.7
1809    RL                    0.93    91.0
        *

1810    KK     2PP
1811    KM       SUB-BASIN 2PP
1812    BA    1.78
1813    LG    0.35    0.35    3.61    0.31    0.00
1814    UI      92      92      92      92      96     303     328     368     427     455
1815    UI     497     525     556     594     645     695     739     831     969    1102
1816    UI    1229    1113     994     905     837     783     740     690     636     586
```

```
1817          UI     549     507     466     438     394     343     265     226     163     163
1818          UI     156     151     151     120      92      92      92      92      57      28
1819          UI      28      28      28      28      28      28      28      28      28      28
1820          UI      28      28      28      28       0       0       0       0       0       0
1821          UI       0       0       0       0       0       0       0       0       0       0
              *

1822          KK    C125
1823          KM        Combine R124-125 + 2PP
1824          HC       2
              *

1825          KK  125126
1826          KM        Channel Route From C125 To C126
1827          KM        Representative Of X-SECT. 2FF3
1828          RS      18    FLOW      -1
1829          RC   0.050   0.051   0.050   14800   0.007
1830          RX  3689.3  4225.0  4325.0  4337.0  4367.0  4367.0  4391.0  4830.6
1831          RY    98.1    93.1    94.2    91.9    91.8    94.4    92.8    98.1
1832          RL                    1.24    91.8
              *

1833          KK     2QQ
1834          KM        SUB-BASIN 2QQ
1835          BA    1.67
1836          LG    0.35    0.35    3.48    0.80    0.00
1837          UI      87      87      87      87      90     284     308     345     401     427
1838          UI     466     492     522     557     605     652     693     779     909    1033
1839          UI    1153    1045     933     849     785     734     694     648     597     550
1840          UI     515     476     437     411     370     322     249     212     153     153
1841          UI     147     142     142     112      87      87      87      87      53      27
1842          UI      27      27      27      27      27      27      27      27      27      27
```



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

1843          UI      27      27      27      27       0       0       0       0       0       0
1844          UI       0       0       0       0       0       0       0       0       0       0
              *

1845          KK    C126
1846          KM        Combine R125-126 + 2QQ
1847          HC       2
              *

1848          KK  126140
1849          KM        Channel Route From C126 To C140
1850          KM        Representative Of X-SECT. 2UU1
1851          RS      15    FLOW      -1
1852          RC   0.050   0.038   0.050    9200   0.007
1853          RX  3516.0  4516.0  5083.0  5094.0  5148.0  5160.0  5298.0  5480.4
1854          RY    99.7    94.7    93.9    91.6    92.1    93.4    94.0    99.7
1855          RL                    0.85    91.6
              *

1856          KK    C140
1857          KM        Combine R123-140 + R126-140
1858          HC       2
              *

1859          KK  140127
1860          KM        Channel Route From C140 To C127
1861          KM        Representative Of X-SECT. 2UU1
1862          RS       8    FLOW      -1
1863          RC   0.050   0.038   0.050    6800   0.006
1864          RX  3516.0  4516.0  5083.0  5094.0  5148.0  5160.0  5298.0  5480.4
1865          RY    99.7    94.7    93.9    91.6    92.1    93.4    94.0    99.7
1866          RL                    0.93    91.6
              *

1867          KK     2RR
1868          KM        SUB-BASIN 2RR
1869          BA    0.93
1870          LG    0.35    0.35    4.15    0.54    0.00
1871          UI      41      41      41      41      41      58     135     144     158     186
1872          UI     197     210     224     235     247     262     279     299     316     336
1873          UI     372     421     484     535     538     479     437     404     377     357
1874          UI     337     322     302     280     262     247     234     215     202     192
1875          UI     172     156     118     117      73      73      73      69      68      68
1876          UI      63      41      41      41      41      41      31      13      13      13
1877          UI      13      13      13      13      13      13      13      13      13      13
1878          UI      13      13      13      13      13       0       0       0       0       0
1879          UI       0       0       0       0       0       0       0       0       0       0
              *

1880          KK     2YY
1881          KM        SUB-BASIN 2YY
1882          BA    1.12
1883          LG    0.35    0.35    3.36    0.90    0.00
1884          UI      47      47      47      47      47      47     131     153     176     188
1885          UI     214     227     242     255     266     280     295     313     335     353
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1886          UI     370     408     454     536     547     627     579     524     483     452
1887          UI     422     402     381     364     344     321     301     285     271     250
1888          UI     235     224     214     182     166     134     127      82      82      82
1889          UI      79      76      76      76      51      47      47      47      47      47
1890          UI      26      14      14      14      14      14      14      14      14      14
1891          UI      14      14      14      14      14      14      14      14      14      14
1892          UI       0       0       0       0       0       0       0       0       0       0
1893          UI       0       0       0       0       0       0       0       0       0       0
              *

1894          KK   C127L
1895          KM        Combine R140-127 + 2RR + 2YY
1896          HC       3
              *

1897          KK    C127
1898          KM        Combine C127L(R140-127 + 2RR + 2YY) + C127R(R113-127 + 2DD)
1899          HC       2
              *
```

```
1900          KK  127131
1901          KM        Channel Route From C127 To C131
1902          KM        Representative Of X-SECT. 2UU1
1903          KO                                   21
1904          RS       6    FLOW       -1
1905          RC   0.050   0.038    0.050     4800    0.004
1906          RX  3516.0  4516.0   5083.0   5094.0   5148.0   5160.0   5298.0   5480.4
1907          RY    99.7    94.7     93.9     91.6     92.1     93.4     94.0     99.7
1908          RL                     0.77     91.6
              *

1909          KK  BDC78L
1910          KM        Bring Back Flow Split Diverted Hydrograph DC78L
1911          DR   DC78L
              *

1912          KK  78L128
1913          KM        Channel Route From C78L To C128
1914          KM        Representative Of X-SECT. 2TT1
1915          RS      20    FLOW       -1
1916          RC   0.060   0.039    0.060    10000    0.009
1917          RX  3066.0  4066.0   4102.0   4112.0   4150.0   4158.0   4208.0   4253.0
1918          RY    93.8    88.8     91.3     89.0     89.6     90.9     89.4     94.8
1919          RL                     2.09     88.8
              *

1920          KK     2SS
1921          KM        SUB-BASIN 2SS
1922          BA    3.83
1923          LG    0.29    0.35     3.34     0.84     5.00
1924          UI     129     129      129      129      129      129      129      227      424      424
1925          UI     494     494      593      606      631      676      701      723      759      788
1926          UI     821     861      908      961      993     1035     1122     1231     1329     1549
1927          UI    1565    1745     1631     1509     1393     1315     1247     1179     1128     1083
1928          UI    1042    1006      958      903      858      820      781      748      708      673
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1929          UI     631     613      593      514      494      395      371      352      228      228
1930          UI     228     228      215      212      212      212      201      129      129      129
1931          UI     129     129      129      129       87       40       40       40       40       40
1932          UI      40      40       40       40       40       40       40       40       40       40
1933          UI      40      40       40       40       40       40       40       40       40       40
1934          UI       0       0        0        0        0        0        0        0        0        0
1935          UI       0       0        0        0        0        0        0        0        0        0
              *

1936          KK    C128
1937          KM        Combine R78L-128 + 2SS
1938          KM        Area: BDC78L=4.77sm, 2SS=3.83sm
1939          HC       2    8.60
              *

1940          KK  128129
1941          KM        Channel Route From C128 To C129
1942          KM        X-SECT. 2TT1
1943          RS      25    FLOW       -1
1944          RC   0.060   0.039    0.060    14200    0.010
1945          RX  4066.0  5066.0   5102.0   5112.0   5150.0   5158.0   5208.0   5253.0
1946          RY    93.8    88.8     91.3     89.0     89.6     90.9     89.4     94.8
1947          RL                     1.53     88.8
              *

1948          KK     2TT
1949          KM        SUB-BASIN 2TT
1950          BA    4.60
1951          LG    0.30    0.35     3.57     0.72     6.00
1952          UI     201     201      201      201      201      246      661      694      771      888
1953          UI     953    1009     1085     1135     1193     1262     1343     1440     1523     1600
1954          UI    1770    1992     2334     2453     2679     2419     2195     2027     1888     1775
1955          UI    1682    1605     1516     1407     1317     1241     1176     1088     1016      965
1956          UI     920     771      675      578      480      356      356      353      330      330
1957          UI     330     264      201      201      201      201      201      116       62       62
1958          UI      62      62       62       62       62       62       62       62       62       62
1959          UI      62      62       62       62       62       62        0        0        0        0
1960          UI       0       0        0        0        0        0        0        0        0        0
              *

1961          KK    C129
1962          KM        Combine R128-129 + 2TT
1963          HC       2
              *

1964          KK  129130
1965          KM        Channel Route From C129 To C130
1966          KM        X-SECT. 2UU2
1967          RS      12    FLOW       -1
1968          RC   0.050   0.055    0.050     9600    0.009
1969          RX  4225.0  5225.0   5375.0   5409.0   5464.0   5494.0   5794.0   5990.4
1970          RY    98.9    93.9     94.2     90.9     90.0     93.9     95.7     98.9
1971          RL                     1.48     90.0
              *
```



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

1972          KK  BDC80L
1973          KM        Bring Back Flow Split Diverted Hydrograph DC80L
1974          DR   DC80L
              *

1975          KK  80L130
1976          KM        Channel Route From C80L To C130
1977          KM        X-SECT. 2UU2
1978          RS      12    FLOW       -1
1979          RC   0.050   0.055    0.050    12000    0.009
1980          RX  3662.5  4225.0   4375.0   4409.0   4464.0   4494.0   4794.0   4990.4
1981          RY    98.9    93.9     94.2     90.9     90.0     93.9     95.7     98.9
1982          RL                     1.79     90.0
              *

1983          KK    C130
1984          KM        Combine R80L-130 + 2SS + 2TT
```

```
1985    KM        Area: DC80L=77.13sm, 2SS + 2TT 8.43sm
1986    HC       2   85.56
        *

1987    KK  130131
1988    KM       Channel Route From C130 To C131
1989    KM       X-SECT. 2UU1
1990    KO                                  21
1991    RS       32     FLOW      -1
1992    RC   0.050   0.038   0.050   27400   0.007
1993    RX  4516.0  5516.0  6083.0  6094.0  6148.0  6160.0  6298.0  6480.4
1994    RY    99.7    94.7    93.9    91.6    92.1    93.4    94.0    99.7
1995    RL                    0.94    91.6
        *

1996    KK    C131
1997    KM       Combine R127-131 + R130-131
1998    HC       2
        *

1999    KK  131132
2000    KM       Channel Route From C131 To C132
2001    KM       Interpolated X-SECT. Between 6P1 and 2UU1
2002    RS        6     FLOW      -1
2003    RC   0.050   0.055   0.050    4400   0.004
2004    RX  3432.0  5432.0  5783.0  5849.0  5909.0  6027.0  6271.0  7648.0
2005    RY    98.3    92.3    91.9    90.4    90.8    92.4    93.4    98.3
2006    RL                    0.70    90.4
        *

2007    KK     2UU
2008    KM        SUB-BASIN 2UU
2009    BA    8.10
2010    LG    0.35    0.35    3.81    0.65    0.00
2011    UI     168     168     168     168     168     168     168     168     168     168
2012    UI     168     168     392     553     553     553     627     645     645     718
2013    UI     774     774     817     824     849     900     900     944     944     982
```

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

2014    UI     993    1029    1046    1087    1106    1159    1174    1249    1263    1291
2015    UI    1323    1350    1434    1513    1595    1691    1760    2117    1862    2091
2016    UI    2257    2278    2148    2038    1936    1851    1778    1714    1659    1609
2017    UI    1549    1507    1472    1434    1391    1367    1335    1301    1279    1210
2018    UI    1180    1139    1102    1076    1039    1019     989     968     930     880
2019    UI     877     824     824     798     774     774     669     645     645     552
2020    UI     484     484     484     436     298     298     298     298     298     298
2021    UI     293     277     277     277     277     277     277     277     203     168
2022    UI     168     168     168     168     168     168     168     168     168     168
2023    UI     138      52      52      52      52      52      52      52      52      52
2024    UI      52      52      52      52      52      52      52      52      52      52
2025    UI      52      52      52      52      52      52      52      52      52      52
2026    UI      52      52      52      52      52      52      52      52      52      52
2027    UI      52       0       0       0       0       0       0       0       0       0
2028    UI       0       0       0       0       0       0       0       0       0       0
        *

2029    KK  BDC82L
2030    KM       Recall Flow Split Diverted Hydrograph DC82L
2031    DR   DC82L
        *

2032    KK    C132
2033    KM       Combine R131-132 + 2UU + C82L at Interstate 8
2034    HC       3  330.40
        *

2035    KK  DC132R
2036    KM       Main flow at C132 is in the right channel (C132R) and passes
2037    KM       under I-8.  Diverted flow (DQ record) goes into the left channel
2038    KM       (C132L) west along the south side of I-8.
2039    DT  DC132L
2040    DI     0.0  3550.0  5850.0  8750.0 12850.0  18450.  24000.  25400.  33600.
2041    DQ     0.0     0.0   300.0  1000.0  2500.0  5400.0  8700.0  9600.0 15000.0
        *

2042    KK  132133
2043    KM       Channel Route From C132 To C133 At The Gila Bend Canal
2044    KM       Representative Of X-SECT. 6P1
2045    RS        6     FLOW      -1
2046    RC   0.050   0.072   0.050    5000   0.006
2047    RX  3969.8  5348.0  5483.0  5603.0  5669.0  5894.0  6244.0  7544.0
2048    RY    95.8    89.8    89.8    89.1    89.4    91.3    92.7    95.8
2049    RL                    0.81    89.1
        *

2050    KK   C133I
2051    KM       Combine R132-133 + C135I(R82-135 + 2VV)
2052    HC       2  334.14
        *
```

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

2053    KK    PND3
2054    KM       Reservoir Route at POND3 (C133 + C135) At The Gila Bend Canal
2055    RS        1    ELEV   731.3
2056    SV     0.0    26.0    38.0    54.0    81.0   127.0   226.0
2057    SE   731.3     740     741     742     743     744     748
2058    SQ     0.0  2000.0  5035.0  8275.0 11092.0 14799.0 17002.0 18353.0 19926.0 20541.0
2059    SQ   21317 25570.0
2060    SE   731.3   738.2   738.2   740.4   742.3   744.5   745.5   746.0   746.3   746.4
2061    SE   746.5   746.9
2062    RL                    0.67   731.3
        *

2063    KK   PND3N
2064    KM       Main flow at C133 north in main channel.
2065    KM       Diverted flow (DQ record) goes over the levee to the west into
2066    KM       sub-basin 7A.
2067    DT  DPND3W
2068    DI     0.0 17502.0 18353.0 18824.0 19305.0 19926.0 20541.0 21317.0 25570.0
2069    DQ     0.0     0.0   100.0   200.0   300.0   400.0   495.0   640.0  1400.0
```

```
*
KK   D1330
KM        Main flow at C1330 is in the left channel (R1330-141)
KM        Diverted flow (DQ record) goes into the right channel (R1350-141)
KM           Split reservoir route hydrograph downstream of GBC To simulate
KM           outflow from C133 and C135.  The diverted hydrograph is the
KM           outflow from the 30" CMP culverts at C135 plus flow diverted from
KM           Sand Tank Wash into Bender Wash downstream of the Gila Bend Canal
KM           by the Southern Pacific Railroad.
DT   D1350
DI     0.0     100     350     900    1500    1800    2350    3550    5050    6600
DI    8600   11500   19200   24100   27600
DQ       0       0       0       0       0       0      50     350     750    1250
DQ    1900    2500    3200    3300    3600
*

KK  133141
KM        Channel Route From C1330 To C141
KM        Sand Tank Wash HEC-2 Section 3.470
RS       6    FLOW      -1
RC   0.050   0.030   0.050    3700   0.003
RX  7646.2  9932.3  9948.6  9965.5 10027.8 10034.0 10046.7 11681.8
RY   730.0   724.1   722.7   719.4   719.5   723.2   725.2   730.0
RL                    0.76   719.4
*

KK  BD1350
KM        Bring Back diverted hydrograph D1350
DR   D1350
*
```



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

KK  135141
KM        Channel Route From C1350 To C141
KM        Bender Wash HEC-2 Section 0.224
RS       5    FLOW      -1
RC   0.035   0.030   0.035    3400   0.004
RX  8926.2  9926.2  9971.9  9995.2 10000.0 10018.9 10041.8 11401.8
RY   728.6   723.6   722.9   717.5   717.1   721.6   721.8   728.6
RL                    0.60   717.1
*

KK    C141
KM        Combine C133I + 2VV
KM        Area: 330.40 + 3.74 = 334.14 sm
HC       2  334.14
*

KK  141149
KM        Channel Route From C141 To C149
KM        Sand Tank Wash HEC-2 Section 2.147
RS       6    FLOW      -1
RC   0.060   0.030   0.050    6500   0.006
RX  8945.8  9945.8  9953.5  9980.0 10000.0 10078.2 10116.8 11396.8
RY   699.3   694.3   692.2   686.5   686.2   692.9   692.9   699.3
RL                    0.61   686.2
*

KK     2WW
KM        SUB-BASIN 2WW at C136I
BA    5.82
LG    0.34    0.35    3.49    0.78    1.00
UI     144     144     144     144     144     144     144     144     144     144
UI     333     473     473     505     552     552     627     663     680     705
UI     724     771     783     808     828     850     882     897     947     972
UI    1004    1066    1088    1112    1143    1216    1290    1384    1471    1663
UI    1669    1763    1937    1912    1790    1686    1597    1520    1453    1395
UI    1343    1298    1257    1221    1184    1148    1121    1091    1036     990
UI     963     921     893     872     835     825     753     751     705     705
UI     666     663     591     552     552     424     414     414     366     255
UI     255     255     255     255     247     237     237     237     237     237
UI     231     144     144     144     144     144     144     144     144     144
UI     144      81      44      44      44      44      44      44      44      44
UI      44      44      44      44      44      44      44      44      44      44
UI      44      44      44      44      44      44      44      44      44      44
UI      44      44      44      44      44       0       0       0       0       0
UI       0       0       0       0       0       0       0       0       0       0
*

KK   C1360
KM        Reservoir Route at C136 At The Gila Bend Canal
RS       1    ELEV     731
SV     0.0     0.0    0.24    0.81    1.72    2.95    8.30    23.7    48.5    82.9
SV   130.0   196.0   280.0   380.0   480.0   580.0   680.0
SE     731     732     733     734     735     736     737     738     739     740
SE     741     742     743     744     745     746     747
```



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

SQ     0.0    30.0    70.0   140.0   220.0   295.0   360.0   415.0   460.0   505.0
SQ   550.0   585.0   620.0   650.0   680.0   710.0   740.0
RL                    0.56   731.0
*

KK  136149
KM        Channel Route From C136 To C149
KM        X-SECT. 2XX1 From 200-Scale Mapping
RS      20    FLOW      -1
RC   0.040   0.045   0.040    9500   0.005
RX  8505.0  9330.0  9450.0  9520.0  9760.0  9920.0 10120.0 10905.7
RY   717.0   712.0   713.5   712.0   709.7   710.7   712.0   717.0
RL                    6.68   709.7
*

KK    C149
KM        Combine R141-149 + R1360-149
HC       2
*

KK  149137
```

```
2155          KM       Channel Route From C149 To C137
2156          KM       Sand Tank Wash HEC-2 Section 1.608
2157          RS       6    FLOW      -1
2158          RC   0.060   0.030   0.040    5400   0.005
2159          RX  8890.5  9890.5  9917.5  9993.1 10000.0 10018.7 10040.3 11220.3
2160          RY   680.2   675.2   671.4   670.0   670.0   672.0   674.3   680.2
2161          RL                    0.60   670.0
              *

2162          KK     2XX
2163          KM       SUB-BASIN 2XX
2164          BA    2.17
2165          LG    0.33    0.34    3.86    0.62    5.00
2166          UI      96      96      96      96      96     134     316     337     369     433
2167          UI     460     489     523     547     576     610     650     698     736     783
2168          UI     867     982    1129    1248    1247    1117    1020     942     880     832
2169          UI     767     751     705     654     610     577     546     502     470     447
2170          UI     400     364     276     274     170     170     170     161     158     158
2171          UI     147      96      96      96      96      96      72      29      29      29
2172          UI      29      29      29      29      29      29      29      29      29      29
2173          UI      29      29      29      29      29       0       0       0       0       0
2174          UI       0       0       0       0       0       0       0       0       0       0
              *

2175          KK    C137
2176          KM       Combine R149-137 + 2XX
2177          HC       2
              *
              *    ****************************************************
              *    *                          END                     *
              *    * BENDER AND SAND TANK WASHES (Major Basins 1 & 2) *
              *    *                                                  *
              *    ****************************************************
              *
              *
              *    ************************************
              *    *                START               *
              *    * SCOTT AVENUE WASH (Major Basin 7) *
              *    *                                    *
              *    ************************************
              *
```



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

2178          KK  BC132L
2179          KM        Recall Flow Split Diverted Hydrograph DC132L
2180          DR  DC132L
              *

2181          KK  DC150R
2182          KM       Main flow is through I-8 via culverts and Scott Ave. (C150R).
2183          KM       Diverted flow (DQ record) goes west along the south side of
2184          KM       I-8  (C150L)
2185          DT  DC150L
2186          DI       0    2850    4800    7450   11800   18625   26500
2187          DQ       0       0    1600    4000    8000   14500   22000
              *

2188          KK  150142
2189          KM       Channel Route flow through culverts and Scott Ave. (C150R)
2190          KM       from I-8 to CP142.
2191          KM       Representative of HEC-2 X-Sect. "Scott Ave Wash 4.911"
2192          RS       4    FLOW      -1
2193          RC   0.035   0.050   0.035  3680.0   0.004
2194          RX    9793  9952.7  9981.1 10000.0 10005.9 10013.1 10044.4 10201.9
2195          RY   749.0   748.9   744.7   742.3   742.7   745.5   745.0   749.9
2196          RL                    1.05   742.3
              *

2197          KK     7A
2198          KM       SUB-BASIN 7A
2199          BA    2.45
2200          LG    0.34    0.35    3.27    0.93    2.00
2201          UI      88      88      88      88      88      88      88     247     288     317
2202          UI     336     385     408     429     457     477     494     518     541     566
2203          UI     597     633     663     687     733     806     892    1037    1034    1180
2204          UI    1117    1025     944     890     835     794     758     727     699     671
2205          UI     629     594     561     535     514     486     458     429     415     404
2206          UI     337     327     252     252     194     155     155     155     149     144
2207          UI     144     144     136      88      88      88      88      88      88      88
2208          UI      31      27      27      27      27      27      27      27      27      27
2209          UI      27      27      27      27      27      27      27      27      27      27
2210          UI      27      27      27       0       0       0       0       0       0       0
2211          UI       0       0       0       0       0       0       0       0       0       0
              *

2212          KK  BPND3W
2213          KM        Recall Flow Split Diverted Hydrograph DPND3W
2214          DR  DPND3W
              *

2215          KK   C142I
2216          KM    Combine R150R-142 + 7A + DC133W
2217          HC       3  336.59
              *
```



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

2218          KK   C142O
2219          KM        Reservoir Route at C142O At The Gila Bend Canal
2220          RS       1   ELEV     732
2221          SV     0.0     0.0     0.0       1       2       4       8      14      24      34
2222          SV      44      54      59      64      69      74      79      84
2223          SE     732     733     734     735     736     737     738     739     740     741
2224          SE     742     743   743.5     744   744.5     745   745.5     746
2225          SQ       0      12      40      73     112     143     170     190     212     234
2226          SQ     256     278     289     345     569    1022    2502    7402
2227          RL                    0.84   732.0
              *

2228          KK  DC142R
```

```
2229        KM        Main flow is into Sub-basin 7D and reach 142139 (C142R)
2230        KM        Diverted flow (DQ record) flows over over the Gila Bend Canal west
2231        KM        of C142 into Sub-basin 7B and reach 142-18 (C150L)
2232        DT   DC142L
2233        DI     0.0   1146.0   1304.0   1545.0   1936.0   2502.0   3190.0   4072.0   5084.0   6243.0
2234        DI  7402.0
2235        DQ     0.0      0.0      7.0     57.0    206.0    422.0    707.0   1082.0   1531.0   2059.0
2236        DQ  2587.0
            *

2237        KK   142139
2238        KM        Channel Route From C142O To C139
2239        KM        Scott Avenue Wash HEC-2 Section 3.292
2240        RS       15     FLOW      -1
2241        RC    0.035    0.070    0.035    12600    0.006
2242        RX   8929.2   9929.2 10040.5 10055.8 10065.5 10084.8 10148.6 10407.5
2243        RY    710.5    705.5    704.1    702.7    701.3    703.9    707.1    710.5
2244        RL                       1.03    701.3
            *

2245        KK      7D
2246        KM        SUB-BASIN 7D
2247        BA    1.17
2248        LG    0.30     0.33     3.34     0.88    15.00
2249        UI      69       69       69       69      169      238      273      322      348      379
2250        UI     402      436      471      519      556      640      776      862      882      764
2251        UI     687      628      581      544      499      454      420      385      349      325
2252        UI     282      229      197      122      122      118      114      114       74       69
2253        UI      69       69       44       21       21       21       21       21       21       21
2254        UI      21       21       21       21       21       21        0        0        0        0
2255        UI       0        0        0        0        0        0        0        0        0        0
            *

2256        KK    C139
2257        KM       Combine R142O-139 + 7D
2258        HC       2
            *
```

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

2259        KK      7C
2260        KM        SUB-BASIN 7C at C138
2261        BA    0.60
2262        LG    0.35     0.35     2.99     1.01     1.00
2263        UI      53       53       64      180      222      262      296      328      373      420
2264        UI     511      657      654      542      473      425      376      328      290      254
2265        UI     211      152       94       92       87       67       53       53       28       16
2266        UI      16       16       16       16       16       16       16        0        0        0
2267        UI       0        0        0        0        0        0        0        0        0        0
            *

2268        KK   BC142L
2269        KM        Recall Flow Split Diverted Hydrograph DC142L
2270        DR   DC142L
            *

2271        KK   142-18
2272        KM        Channel Route From C142L To C18
2273        KM        Representative of Scott Avenue Wash HEC-2 Section 3.292
2274        RS       22     FLOW      -1
2275        RC    0.035    0.070    0.035    14800    0.006
2276        RX   8929.2   9929.2 10040.5 10055.8 10065.5 10084.8 10148.6 10407.5
2277        RY    710.5    705.5    704.1    702.7    701.3    703.9    707.1    710.5
2278        RL                       1.66    701.3
            *

2279        KK      7B
2280        KM        SUB-BASIN 7B at C18
2281        BA    1.67
2282        LG    0.35     0.27     3.53     0.75     7.00
2283        UI      83       83       83       83       83      231      281      317      370      398
2284        UI     429      457      481      511      551      594      631      677      768      900
2285        UI     985     1104      997      894      817      758      711      669      635      581
2286        UI     541      506      476      432      405      381      328      280      238      178
2287        UI     146      146      139      136      136      108       83       83       83       83
2288        UI      64       25       25       25       25       25       25       25       25       25
2289        UI      25       25       25       25       25       25       25        0        0        0
2290        UI       0        0        0        0        0        0        0        0        0        0
            *

2291        KK     C18
2292        KM       Combine R142-18 + 7B
2293        HC       2  338.26
            *
            * Move to C151 and route Sand Tank Wash overflow to Quilotosa Wash watershed
            * at C12
            *

2294        KK   BD150L
2295        KM        Recall Flow Split Diverted Hydrograph DC150L
2296        DR   DC150L
            *
```

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

2297        KK    C151
2298        KM        Reservoir Route at CP151 At The Gila Bend Canal
2299        ZW      A=BENDER   C=FLOW  F=C151-SPLIT
2300        RS       1     ELEV     742
2301        SV     0.0        2        3       12       24       45       83      124      172      230
2302        SV     241      252      296      321      333      365      380      408      446      485
2303        SE     742      743      744      745      746      747      748      749      750      751
2304        SE   751.2    751.4      752    752.4    752.6      753    753.2    753.5      754    754.5
2305        SQ     0.0      700     1300     1900     2500     3200     3800     4400     5100     5700
2306        SQ    5800     6100     6800     7500     8000     9100    10000    12000    17600    25000
2307        RL                       1.16    742.0
            *
            *
            *    ************************************
            *    *                END                 *
            *    * SCOTT AVENUE WASH (Major Basin 7 *
```

```
                    *    *                                  *
                    *    ***********************************
                    *
                    *
        2308        ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW
  NO.     (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW
   34          1B
               V
               V
   46      R61-62
               .
   54          .          1C
               .           .
   68          .           .          1A
               .           .           .
   89        C62.......................
               V
               V
   92      R62-64
               .
  100          .          1D
               .           V
               .           V
  111          .      R63-64
               .           .
  119        C64............
               V
               V
  122      R64-65
               .
  130          .          1E
               .           .
  145          .           .          1F
               .           .           .
  168        C65.......................
               V
               V
  171      R65-67
               .
  179          .          1J
               .           V
               .           V
  191          .      R66-67
               .           .
  199          .           .          1I
               .           .           .
  214        C67.......................
               V
               V
  217      R67-71
               .
  225          .          1G
               .           V
               .           V
  246          .      R70-71
               .           .
  254          .           .          1H
               .           .           .
  277          .        C71R............
               .           .
  280          .           .          1K
               .           .           V
               .           .           V
  295          .           .      R68-71
               .           .           .
  303          .           .           .          1L
               .           .           .           .
  320          .           .        C71L............
               .           .           .
  323        C71.......................
               V
               V
  326      R71-73
               .
  334          .          1M
               .           V
               .           V
  349          .      R72-73
               .           .
  357          .           .          1N
               .           .           .
  371        C73.......................
               V
               V
  374      R73-74
               .
  382          .          1P
```

```
399                                  1O
                                      :
425          C74........................
               V
               V
428       R74-77
                :
436                   1U
                      :
453        C77R............
                :
456                   1Q
                       V
                       V
474             R75-76
                      :
482                   :          1R
                      :           :
500                C76............
                       V
                       V
503             R76-77
                      :
511                   :          1T
                      :           :
531              C77L............
                      :
534          C77............
               V
               V
537       R77-79
                :
545                   1W
                      :
556       C79RUP............
                :
559                   1S
                      :
585                   :-------->   DC78L
582             DC78R
                       V
                       V
588             78R-79
                      :
596                   :          1V
                      :           :
609             C79LUP............
                      :
612          C79............
                :
618          :-------->   DC79L
615        DC79R
               V
               V
621       79R-81
                :
631                   :<--------   DC79L
629             BDC79L
                       V
                       V
632             79L-80
                      :
643                   :-------->   DC80L
640             DC80R
                       V
                       V
646             80R-81
                      :
654                   :          1X
                      :           :
669          C81........................
                :
676          :-------->   DC81L
673        DC81R
               V
               V
679   —   81R-82
                :
689                   :<--------   DC81L
687             BDC81L
                       V
                       V
690             81L-82
                      :
698                   :          1Y
                      :           :
716          C82........................
                :
```

```
 724          :-------> DC82L
 720     DC82R
           V
           V
 727     82-135
           :
 735       :        2VV
           :         :
 750     C135I............
           :
 754       :         2D
           :          V
           :          V
 769       :      R87-89
           :         :
 777       :         :          2F
           :         :           V
           :         :           V
 790       :         :      R88-89
           :         :         :
           :         :         :
 798       :        C89............
           :         V
           :         V
 801       :      R89-91
           :         :
 809       :         :          2E
           :         :           :
 818       :         :           :          2G
           :         :           :           :
 828       :        C91.........................
           :         V
           :         V
 831       :      R91-92
           :         :
 839       :         :          2I
           :         :           :
 851       :         :           :          2H
           :         :           :           :
 861       :        C92.........................
           :         V
           :         V
 864       :      R92-95
           :         :
 872       :         :          2K
           :         :           V
           :         :           V
 892       :         :      R93-94
           :         :         :
 900       :         :         :          2L
           :         :         :           :
 917       :         :        C94............
           :         :         V
           :         :         V
 920       :         :      R94-95
           :         :         :
 928       :         :         :          2M
           :         :         :           :
 937       :         :         :           :          2J
           :         :         :           :           :
 953       :        C95.....................................
           :         V
           :         V
 956       :      R95-96
           :         :
 964       :         :          2A
           :         :           V
           :         :           V
 980       :         :      R83-84
           :         :         :
 991       :         :         :-------> DC84R
 988       :         :      DC84L
           :         :         V
           :         :         V
 994       :         :      84L-85
           :         :         :
1002       :         :         :          2B
           :         :         :           :
1015       :         :        C85............
           :         :         V
           :         :         V
1018       :         :      R85-96
           :         :         :
1028       :         :         :         .<-------  DC84R
1026       :         :         :     BDC84R
           :         :         :         V
           :         :         :         V
1029       :         :         :     84R-86
           :         :         :         :
1037       :         :         :         :          2N
           :         :         :         :           :
```

```
1048                                  C86............
                                        V
                                        V
1052                                R86-96
                                        .
1060                                    .           2C
                                        .            .
1077                                    .            .          2O
                                        .            .           .
1093                    C96.............................................
                         V
                         V
1096                R96-97
                         .
1104                     .        2P
                         .         .
1120                    C97............
                         V
                         V
1123                97-100
                         .
1131                     .        2Q
                         .         V
                         .         V
1150                     .     R98-99
                         .         .
1158                     .         .          2R
                         .         .           .
1170                     .       C99............
                         .         V
                         .         V
1173                     .     99-100
                         .         .
1181                     .         .          2S
                         .         .           .
1191                    C100........................
                         V
                         V
1194                100101
                         .
1202                     .        2T
                         .         .
1227                    C101............
                         V
                         V
1230                101102
                         .
1237                     .        2U
                         .         .
1248                    C102............
                         V
                         V
1251                102103
                         .
1259                     .        2V
                         .         .
1283                    C103............
                         V
                         V
1286                103107
                         .
1294                     .        2W
                         .         V
                         .         V
1315                     .     104105
                         .         .
1323                     .         .          2X
                         .         .           .
1351                     .       C105............
                         .         V
                         .         V
1354                     .     105107
                         .         .
1362                     .         .          2Y
                         .         .           .
1382                    C107........................
                         .
1385                     .       2BB
                         .         V
                         .         V
1399                     .     108111
                         .         .
1407                     .         .          2Z
                         .         .           V
                         .         .           V
1430                     .       110111
                         .         .           .
1438                     .         .           .          2AA
                         .         .           .           .
1452                     .       C111........................
```

```
                 :          :          V
                 :          :          V
1455             :          :     111113
                 :          :          :
1463             :          :          :        2CC
                 :          :          :         :
1481             :       C113..........................
                 :          V          :         :
                 :          V          :         :
1484             :     113127          :         :
                 :          :          :         :
1492             :          :       2DD          :
                 :          :          :         :
1503             :     C127R............          :
                 :          :          :         :
1507             :          :       2GG          :
                 :          :          V         :
                 :          :          V         :
1523             :          :     114115         :
                 :          :          :         :
1531             :          :          :        2HH
                 :          :          :         :
1545             :          :      C115...........
                 :          :          V         :
                 :          :          V         :
1548             :          :     115116         :
                 :          :          :         :
1556             :          :          :        2II
                 :          :          :         :
1575             :          :      C116...........
                 :          :          :         :
1581             :          :          :-------> DC116L
1578             :          :     DC116R         :
                 :          :          V         :
                 :          :          V         :
1584             :          :     116119         :
                 :          :          :         :
1592             :          :          :        2EE
                 :          :          :         V
                 :          :          :         V
1610             :          :          :    118119
                 :          :          :         :
1618             :          :          :         :        2JJ
                 :          :          :         :         :
1629             :          :      C119..........................
                 :          :          V         :
                 :          :          V         :
1632             :          :     119120         :
                 :          :          :         :
1640             :          :          :        2KK
                 :          :          :         :
1660             :          :     C120R...........
                 :          :          :         :
1664             :          :          :        2LL
                 :          :          :         :
1689             :          :          :         :        <------- DC116L
1687             :          :          :         :   BC116L
                 :          :          :         :        V
                 :          :          :         :        V
1690             :          :          :         :   116120
                 :          :          :         :         :
1698             :          :      C120..........................
                 :          :          V         :
                 :          :          V         :
1701             :          :     120121         :
                 :          :          :         :
1709             :          :          :        2MM
                 :          :          :         :
1720             :          :      C121...........
                 :          :          V         :
                 :          :          V         :
1723             :          :     121123         :
                 :          :          :         :
1731             :          :          :        2FF
                 :          :          :         :
1755             :          :      C123...........
                 :          :          V         :
                 :          :          V         :
1758             :          :     123140         :
                 :          :          :         :
1766             :          :          :        2NN
                 :          :          :         :
1788             :          :          :         :        2OO
                 :          :          :         :         :
1799             :          :          :      C124...........
                 :          :          :         V
                 :          :          :         V
1802             :          :          :    124125
                 :          :          :         :
```

```
1810                                                    2PP
1822                                          C125............
                                                 V
                                                 V
1825                                        125126
1833                                                    2QQ
1845                                          C126............
                                                 V
                                                 V
1848                                        126140
1856                                 C140............
                                        V
                                        V
1859                                140127
1867                                            2RR
1880                                                    2YY
1894                                 C127L......................
1897                         C127............
                                V
                                V
1900                        127131
1911                                     <-------   DC78L
1909                                BDC78L
                                        V
                                        V
1912                                78L128
1920                                            2SS
1936                                 C128............
                                        V
                                        V
1940                                128129
1948                                            2TT
1961                                 C129............
                                        V
                                        V
1964                                129130
1974                                                    <-------   DC80L
1972                                          BDC80L
                                                 V
                                                 V
1975                                          80L130
1983                                 C130............
                                        V
                                        V
1987                                130131
1996                         C131............
                                V
                                V
1999                        131132
2007                                 2UU
2031                                                    <-------   DC82L
2029                                          BDC82L
2032                         C132......................
2039                                 -------> DC132L
2035                        DC132R
                                V
                                V
2042                        132133
2050                 C133I............
                        V
                        V
2053                  PND3
2067                 -------> DPND3W
2063                PND3N
2078                 -------> D1350
2070                D1330
                        V
                        V
2083               133141
```

```
                 :
2093             :            .<-------   D135O
2091             :      8D135O
                 :          V
                 :          V
2094             :      135141
                 :          :
2102             :          :
           C141...........:
                V
                V
2106       141149
                 :
2114             :        2WW
                 :          V
                 :          V
2133             :      C136O
                 :          V
                 :          V
2143             :      136149
                 :          :
2151             :          :
           C149...........:
                V
                V
2154       149137
                 :
2162             :        2XX
                 :          :
2175             :          :
           C137...........:
                 :
2180             :            .<-------  DC132L
2178             :      8C132L
                 :          :
2185             :            .------->  DC150L
2181             :      DC150R
                 :          V
                 :          V
2188             :      150142
                 :          :
2197             :          :          7A
                 :          :           :
2214             :          :           :          .<-------  DPND3W
2212             :          :           :      BPND3W
                 :          :           :          :
2215             :      C142I.......................:
                 :          V
                 :          V
2218             :      C142O
                 :          :
2232             :            .------->  DC142L
2228             :      DC142R
                 :          V
                 :          V
2237             :      142139
                 :          :
2245             :          :          7D
                 :          :           :
2256             :        C139...........:
                 :          :
2259             :          :          7C
                 :          :           :
2270             :          :           :          .<-------  DC142L
2268             :          :           :      8C142L
                 :          :           :          V
                 :          :           :          V
2271             :          :           :      142-18
                 :          :           :          :
2279             :          :           :          :          78
                 :          :           :          :           :
2291             :          :           :        C18...........:
                 :          :           :          :
2296             :          :           :          :            .<-------  DC150L
2294             :          :           :          :      8D150L
                 :          :           :          :          V
                 :          :           :          :          V
2297             :          :           :          :        C151
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             MAY   1991               *
*           VERSION 4.0.1E             *
*                                      *
*  RUN DATE  04/04/92  TIME  06:33:37  *
*                                      *
****************************************
```

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

FCDMC GILA BEND FLOOD INSURANCE STUDY PROJECT NO. 11358
FCD 90-67

Bender and Sand Tank Washes (Major Basins 1, 2, and 7)

100-Year 24-Hour Duration Storm

04/06/92 Input Filename: B&ST24.H1

Green & AMPT Loss Rate Method
S-Graph Unit Hydrograph
Normal Depth Routing

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

   IT          HYDROGRAPH TIME DATA
                     NMIN            3  MINUTES IN COMPUTATION INTERVAL
                    IDATE      13MAR92  STARTING DATE
                    ITIME         1200  STARTING TIME
                       NQ          600  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      14MAR92  ENDING DATE
                   NDTIME         1757  ENDING TIME
                    ICENT           19  CENTURY MARK

                COMPUTATION INTERVAL    0.05 HOURS
                     TOTAL TIME BASE   29.95 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

16 JD          INDEX STORM NO. 1
                     STRM         4.53  PRECIPITATION DEPTH
                     TRDA         0.01  TRANSPOSITION DRAINAGE AREA
```

17 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

```
27 JD          INDEX STORM NO. 2
                     STRM         4.44  PRECIPITATION DEPTH
                     TRDA         5.00  TRANSPOSITION DRAINAGE AREA
```

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

28 JD INDEX STORM NO. 3
STRM 4.30 PRECIPITATION DEPTH
TRDA 10.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

29 JD INDEX STORM NO. 4
STRM 4.00 PRECIPITATION DEPTH
TRDA 50.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

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|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

30 JD INDEX STORM NO. 5

STRM 3.90 PRECIPITATION DEPTH
TRDA 80.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

31 JD INDEX STORM NO. 6

STRM 3.85 PRECIPITATION DEPTH
TRDA 100.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

32 JD INDEX STORM NO. 7

STRM 3.71 PRECIPITATION DEPTH

TRDA 200.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

33 JD INDEX STORM NO. 8

STRM 3.53 PRECIPITATION DEPTH

TRDA 500.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

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                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
     WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
     WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
     WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO


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


          **************
          *            *
 750 KK   *    C135I   *
          *            *
          **************

 752 KO         OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        600  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.050  TIME INTERVAL IN HOURS

     WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
     WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
     WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
     WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
     WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
     WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
     WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
     WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
     WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO


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          *            *
1503 KK   *    C127R   *
          *            *
          **************

1505 KO         OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        600  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.050  TIME INTERVAL IN HOURS

     WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO


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


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          *            *
1900 KK   *   127131   *
          *            *
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1903 KO         OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        600  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.050  TIME INTERVAL IN HOURS


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          *            *
1987 KK   *   130131   *
          *            *
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1990 KO         OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        600  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.050  TIME INTERVAL IN HOURS

   -----DSS---ZOPEN:  Existing File Opened,  File: B&ST24.DSS
                      Unit:  71:  DSS Version: 6-FT
 -----DSS---ZWRITE Unit  71; Vers.    3:  /BENDER/C151/FLOW/13MAR1992/3MIN/C151-SPLIT/
 -----DSS---ZWRITE Unit  71; Vers.    3:  /BENDER/C151/FLOW/14MAR1992/3MIN/C151-SPLIT/
1
                                                  RUNOFF SUMMARY
                                          FLOW IN CUBIC FEET PER SECOND
                                        TIME IN HOURS,  AREA IN SQUARE MILES
```

| | OPERATION | STATION | PEAK FLOW | TIME OF PEAK | AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR | 24-HOUR | 72-HOUR | BASIN AREA | MAXIMUM STAGE | TIME OF MAX STAGE |
|---|---|---|---|---|---|---|---|---|---|---|
| + | HYDROGRAPH AT | 1B | 1288. | 12.80 | 271. | 69. | 55. | 2.10 | | |
| + | ROUTED TO | R61-62 | 1249. | 13.05 | 268. | 67. | 54. | 2.10 | | |
| + | HYDROGRAPH AT | 1C | 2254. | 13.10 | 561. | 140. | 112. | 3.83 | | |
| + | HYDROGRAPH AT | 1A | 925. | 13.00 | 314. | 89. | 72. | 2.10 | | |
| + | 3 COMBINED AT | C62 | 4265. | 13.05 | 1101. | 286. | 230. | 8.03 | | |
| + | ROUTED TO | R62-64 | 4024. | 13.45 | 1090. | 282. | 226. | 8.03 | | |
| + | HYDROGRAPH AT | 1D | 452. | 12.20 | 100. | 28. | 22. | 0.34 | | |
| + | ROUTED TO | R63-64 | 307. | 13.65 | 65. | 16. | 13. | 0.34 | | |
| + | 2 COMBINED AT | C64 | 4215. | 13.50 | 1149. | 296. | 238. | 8.37 | | |
| + | ROUTED TO | R64-65 | 4081. | 13.75 | 1141. | 293. | 235. | 8.37 | | |
| + | HYDROGRAPH AT | 1E | 1911. | 13.25 | 521. | 130. | 104. | 3.91 | | |
| + | HYDROGRAPH AT | 1F | 1892. | 13.20 | 710. | 210. | 169. | 5.55 | | |
| + | 3 COMBINED AT | C65 | 6348. | 13.50 | 2197. | 588. | 472. | 17.83 | | |
| + | ROUTED TO | R65-67 | 6207. | 13.85 | 2166. | 571. | 458. | 17.83 | | |
| + | HYDROGRAPH AT | 1J | 731. | 12.30 | 182. | 50. | 40. | 0.62 | | |
| + | ROUTED TO | R66-67 | 114. | 14.05 | 12. | 3. | 2. | 0.62 | | |
| + | HYDROGRAPH AT | 1I | 1980. | 13.25 | 540. | 135. | 108. | 4.11 | | |
| + | 3 COMBINED AT | C67 | 7228. | 13.75 | 2611. | 683. | 547. | 22.56 | | |
| + | ROUTED TO | R67-71 | 7178. | 13.85 | 2599. | 677. | 543. | 22.56 | | |
| + | HYDROGRAPH AT | 1G | 1421. | 13.05 | 517. | 159. | 128. | 3.78 | | |
| + | ROUTED TO | R70-71 | 1210. | 14.05 | 468. | 133. | 107. | 3.78 | | |
| + | HYDROGRAPH AT | 1H | 2052. | 13.25 | 768. | 234. | 188. | 6.77 | | |
| + | 2 COMBINED AT | C71R | 2304. | 13.95 | 1189. | 350. | 282. | 10.55 | | |
| + | HYDROGRAPH AT | 1K | 998. | 12.60 | 315. | 87. | 70. | 1.08 | | |
| + | ROUTED TO | R68-71 | 860. | 13.55 | 280. | 72. | 57. | 1.08 | | |
| + | HYDROGRAPH AT | 1L | 2362. | 13.50 | 744. | 189. | 152. | 4.69 | | |
| + | 2 COMBINED AT | C71L | 3177. | 13.50 | 1003. | 258. | 207. | 5.77 | | |
| + | 3 COMBINED AT | C71 | 11330. | 13.70 | 4426. | 1188. | 953. | 38.88 | | |
| + | ROUTED TO | R71-73 | 11118. | 14.05 | 4386. | 1172. | 939. | 38.88 | | |
| + | HYDROGRAPH AT | 1M | 2018. | 12.60 | 638. | 177. | 142. | 2.19 | | |
| + | ROUTED TO | R72-73 | 1616. | 14.25 | 564. | 145. | 117. | 2.19 | | |
| + | HYDROGRAPH AT | 1N | 1407. | 13.05 | 337. | 84. | 68. | 2.75 | | |
| + | 3 COMBINED AT | C73 | 12652. | 14.10 | 5095. | 1356. | 1087. | 43.82 | | |
| + | ROUTED TO | R73-74 | 12187. | 14.80 | 4972. | 1313. | 1052. | 43.82 | | |
| + | HYDROGRAPH AT | 1P | 1747. | 13.50 | 537. | 134. | 108. | 4.56 | | |
| + | HYDROGRAPH AT | 1O | 1567. | 13.55 | 641. | 168. | 151. | 5.23 | | |
| + | 3 COMBINED AT | C74 | 13013. | 14.75 | 5744. | 1553. | 1246. | 53.61 | | |

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|---|---|---|---|---|---|---|---|
| + | ROUTED TO | R74-77 | 11875. | 16.00 | 5337. | 1405. | 1125. | 53.61 |
| + | HYDROGRAPH AT | 1U | 878. | 13.60 | 283. | 71. | 57. | 3.19 |
| + | 2 COMBINED AT | C77R | 11875. | 16.00 | 5432. | 1452. | 1164. | 56.80 |
| + | HYDROGRAPH AT | 1Q | 2511. | 13.75 | 895. | 232. | 186. | 5.30 |
| + | ROUTED TO | R75-76 | 2456. | 13.90 | 882. | 227. | 182. | 5.30 |
| + | HYDROGRAPH AT | 1R | 1499. | 12.80 | 443. | 125. | 100. | 2.90 |
| + | 2 COMBINED AT | C76 | 2982. | 13.85 | 1282. | 341. | 274. | 8.20 |
| + | ROUTED TO | R76-77 | 2430. | 15.55 | 1059. | 268. | 215. | 8.20 |
| + | HYDROGRAPH AT | 1T | 1412. | 14.00 | 555. | 150. | 121. | 4.67 |
| + | 2 COMBINED AT | C77L | 2860. | 15.40 | 1430. | 398. | 319. | 12.87 |
| + | 2 COMBINED AT | C77 | 13685. | 15.95 | 6500. | 1762. | 1412. | 69.67 |
| + | ROUTED TO | R77-79 | 13443. | 16.30 | 6442. | 1736. | 1391. | 69.67 |
| + | HYDROGRAPH AT | 1W | 337. | 12.55 | 62. | 17. | 13. | 0.53 |
| + | 2 COMBINED AT | C79RUP | 13441. | 16.30 | 6444. | 1748. | 1401. | 70.20 |
| + | HYDROGRAPH AT | 1S | 1499. | 13.30 | 563. | 161. | 129. | 4.77 |
| + | DIVERSION TO | DC78L | 576. | 13.30 | 197. | 52. | 41. | 4.77 |
| + | HYDROGRAPH AT | DC78R | 923. | 13.30 | 366. | 109. | 88. | 4.77 |
| + | ROUTED TO | 78R-79 | 562. | 14.00 | 145. | 36. | 29. | 4.77 |
| + | HYDROGRAPH AT | 1V | 1126. | 12.95 | 266. | 71. | 57. | 2.16 |
| + | 2 COMBINED AT | C79LUP | 1089. | 12.95 | 395. | 103. | 83. | 6.93 |
| + | 2 COMBINED AT | C79 | 13438. | 16.30 | 6558. | 1821. | 1459. | 77.13 |
| + | DIVERSION TO | DC79L | 6761. | 16.30 | 3679. | 1074. | 861. | 77.13 |
| + | HYDROGRAPH AT | DC79R | 6578. | 16.30 | 2830. | 733. | 588. | 77.13 |
| + | ROUTED TO | 79R-81 | 6309. | 16.95 | 2746. | 707. | 566. | 77.13 |
| + | HYDROGRAPH AT | BDC79L | 6761. | 16.30 | 3679. | 1074. | 861. | 77.13 |
| + | ROUTED TO | 79L-80 | 6684. | 16.50 | 3646. | 1057. | 847. | 77.13 |
| + | DIVERSION TO | DC80L | 6547. | 16.50 | 3606. | 1047. | 839. | 77.13 |
| + | HYDROGRAPH AT | DC80R | 138. | 16.50 | 40. | 10. | 8. | 77.13 |
| + | ROUTED TO | 80R-81 | 11. | 17.80 | 1. | 0. | 0. | 77.13 |
| + | HYDROGRAPH AT | 1X | 1364. | 12.90 | 301. | 75. | 60. | 2.62 |
| + | 3 COMBINED AT | C81 | 6308. | 16.95 | 2760. | 765. | 613. | 79.75 |
| + | DIVERSION TO | DC81L | 4373. | 16.95 | 2122. | 596. | 478. | 79.75 |
| + | HYDROGRAPH AT | DC81R | 1908. | 16.95 | 625. | 165. | 132. | 79.75 |
| + | ROUTED TO | 81R-82 | 1673. | 18.80 | 582. | 153. | 122. | 79.75 |
| + | HYDROGRAPH AT | BDC81L | 4373. | 16.95 | 2122. | 596. | 478. | 79.75 |
| + | ROUTED TO | 81L-82 | 3970. | 18.50 | 1952. | 539. | 432. | 79.75 |
| + | HYDROGRAPH AT | 1Y | 2100. | 13.35 | 597. | 149. | 120. | 5.32 |
| + | 3 COMBINED AT | C82 | 5530. | 18.65 | 2511. | 799. | 640. | 85.07 |
| | DIVERSION TO | | | | | | | |

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|---|---|---|---|---|---|---|---|
| + | DC82L | 517. | 18.65 | 73. | 18. | 15. | 85.07 |
| + HYDROGRAPH AT | DC82R | 5013. | 18.65 | 2438. | 780. | 625. | 85.07 |
| + ROUTED TO | 82-135 | 4900. | 18.95 | 2378. | 756. | 606. | 85.07 |
| + HYDROGRAPH AT | 2VV | 1493. | 13.20 | 408. | 107. | 86. | 3.74 |
| + 2 COMBINED AT | C135I | 4900. | 18.95 | 2378. | 834. | 668. | 88.81 |
| + HYDROGRAPH AT | 2D | 1600. | 12.60 | 510. | 141. | 113. | 1.75 |
| + ROUTED TO | R87-89 | 1504. | 13.05 | 500. | 137. | 110. | 1.75 |
| + HYDROGRAPH AT | 2F | 798. | 12.40 | 220. | 61. | 49. | 0.75 |
| + ROUTED TO | R88-89 | 779. | 12.60 | 217. | 59. | 47. | 0.75 |
| + 2 COMBINED AT | C89 | 2071. | 12.95 | 714. | 195. | 156. | 2.50 |
| + ROUTED TO | R89-91 | 2003. | 13.30 | 704. | 191. | 153. | 2.50 |
| + HYDROGRAPH AT | 2E | 1246. | 12.35 | 181. | 46. | 37. | 1.00 |
| + HYDROGRAPH AT | 2G | 1248. | 12.50 | 218. | 56. | 45. | 1.13 |
| + 3 COMBINED AT | C91 | 2919. | 12.55 | 1097. | 292. | 234. | 4.63 |
| + ROUTED TO | R91-92 | 2840. | 12.80 | 1090. | 290. | 232. | 4.63 |
| + HYDROGRAPH AT | 2I | 1054. | 12.30 | 256. | 70. | 56. | 0.87 |
| + HYDROGRAPH AT | 2H | 1551. | 12.50 | 253. | 64. | 51. | 1.59 |
| + 3 COMBINED AT | C92 | 4892. | 12.60 | 1551. | 413. | 332. | 7.09 |
| + ROUTED TO | R92-95 | 4767. | 12.80 | 1544. | 411. | 330. | 7.09 |
| + HYDROGRAPH AT | 2K | 1596. | 12.95 | 625. | 177. | 142. | 2.19 |
| + ROUTED TO | R93-94 | 1555. | 13.20 | 617. | 173. | 139. | 2.19 |
| + HYDROGRAPH AT | 2L | 762. | 12.70 | 240. | 63. | 50. | 0.94 |
| + 2 COMBINED AT | C94 | 2115. | 13.15 | 854. | 235. | 189. | 3.13 |
| + ROUTED TO | R94-95 | 2062. | 13.30 | 833. | 221. | 177. | 3.13 |
| + HYDROGRAPH AT | 2M | 1626. | 12.30 | 210. | 53. | 42. | 1.40 |
| + HYDROGRAPH AT | 2J | 1022. | 12.65 | 338. | 94. | 75. | 1.16 |
| + 4 COMBINED AT | C95 | 7459. | 12.80 | 2781. | 740. | 593. | 12.78 |
| + ROUTED TO | R95-96 | 7024. | 13.50 | 2743. | 730. | 585. | 12.78 |
| + HYDROGRAPH AT | 2A | 2857. | 13.35 | 899. | 232. | 186. | 4.33 |
| + ROUTED TO | R83-84 | 2755. | 13.70 | 887. | 227. | 182. | 4.33 |
| + DIVERSION TO | DC84R | 129. | 13.70 | 25. | 6. | 5. | 4.33 |
| + HYDROGRAPH AT | DC84L | 2625. | 13.70 | 861. | 221. | 177. | 4.33 |
| + ROUTED TO | 84L-85 | 2481. | 14.20 | 837. | 214. | 171. | 4.33 |
| + HYDROGRAPH AT | 2B | 2263. | 12.95 | 514. | 131. | 105. | 3.31 |
| + 2 COMBINED AT | C85 | 2720. | 14.15 | 1298. | 334. | 268. | 7.64 |
| + ROUTED TO | R85-96 | 2548. | 14.95 | 1263. | 323. | 259. | 7.64 |
| + HYDROGRAPH AT | BDC84R | 129. | 13.70 | 25. | 6. | 5. | 4.33 |
| + ROUTED TO | 84R-86 | 81. | 14.60 | 13. | 3. | 3. | 4.33 |
| + HYDROGRAPH AT | 2N | 1872. | 12.65 | 342. | 87. | 70. | 2.20 |

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|---|---|---|---|---|---|---|---|
| + | 2 COMBINED AT | C86 | 1830. | 12.65 | 347. | 88. | 71. | 6.53 |
| + | ROUTED TO | R86-96 | 1568. | 13.60 | 334. | 83. | 67. | 6.53 |
| + | HYDROGRAPH AT | 2C | 1950. | 12.70 | 672. | 187. | 150. | 2.32 |
| + | HYDROGRAPH AT | 2O | 2985. | 12.65 | 978. | 271. | 218. | 3.37 |
| + | 5 COMBINED AT | C96 | 12315. | 13.50 | 5392. | 1457. | 1169. | 32.64 |
| + | ROUTED TO | R96-97 | 11514. | 14.25 | 5175. | 1379. | 1105. | 32.64 |
| + | HYDROGRAPH AT | 2P | 2330. | 12.65 | 616. | 165. | 133. | 3.51 |
| + | 2 COMBINED AT | C97 | 11891. | 14.25 | 5619. | 1513. | 1213. | 36.15 |
| + | ROUTED TO | 97-100 | 11570. | 14.60 | 5571. | 1490. | 1194. | 36.15 |
| + | HYDROGRAPH AT | 2Q | 1660. | 12.85 | 498. | 136. | 109. | 2.93 |
| + | ROUTED TO | R98-99 | 1313. | 13.25 | 313. | 78. | 63. | 2.93 |
| + | HYDROGRAPH AT | 2R | 1343. | 12.80 | 293. | 78. | 62. | 2.67 |
| + | 2 COMBINED AT | C99 | 2243. | 13.05 | 597. | 154. | 123. | 5.60 |
| + | ROUTED TO | 99-100 | 2039. | 13.40 | 501. | 125. | 100. | 5.60 |
| + | HYDROGRAPH AT | 2S | 1143. | 12.50 | 192. | 50. | 40. | 1.82 |
| + | 3 COMBINED AT | C100 | 11974. | 14.55 | 6011. | 1611. | 1291. | 43.57 |
| + | ROUTED TO | 100101 | 11801. | 14.75 | 5976. | 1598. | 1281. | 43.57 |
| + | HYDROGRAPH AT | 2T | 2329. | 13.50 | 952. | 267. | 214. | 4.90 |
| + | 2 COMBINED AT | C101 | 12686. | 14.75 | 6726. | 1815. | 1455. | 48.47 |
| + | ROUTED TO | 101102 | 12367. | 15.10 | 6628. | 1777. | 1424. | 48.47 |
| + | HYDROGRAPH AT | 2U | 727. | 12.65 | 139. | 37. | 29. | 1.38 |
| + | 2 COMBINED AT | C102 | 12365. | 15.10 | 6678. | 1804. | 1446. | 49.85 |
| + | ROUTED TO | 102103 | 12182. | 15.30 | 6625. | 1787. | 1432. | 49.85 |
| + | HYDROGRAPH AT | 2V | 3205. | 13.40 | 1231. | 345. | 277. | 7.57 |
| + | 2 COMBINED AT | C103 | 12871. | 15.30 | 7502. | 2067. | 1657. | 57.42 |
| + | ROUTED TO | 103107 | 12258. | 16.40 | 7297. | 2030. | 1627. | 57.42 |
| + | HYDROGRAPH AT | 2W | 3882. | 13.10 | 1461. | 390. | 313. | 6.29 |
| + | ROUTED TO | 104105 | 3173. | 14.10 | 1124. | 282. | 226. | 6.29 |
| + | HYDROGRAPH AT | 2X | 4574. | 13.75 | 2066. | 584. | 469. | 10.31 |
| + | 2 COMBINED AT | C105 | 7037. | 13.95 | 3030. | 827. | 664. | 16.60 |
| + | ROUTED TO | 105107 | 6071. | 16.15 | 2945. | 804. | 645. | 16.60 |
| + | HYDROGRAPH AT | 2Y | 4610. | 14.00 | 1760. | 455. | 365. | 13.40 |
| + | 3 COMBINED AT | C107 | 17469. | 16.35 | 10352. | 3054. | 2448. | 87.42 |
| + | HYDROGRAPH AT | 2BB | 2154. | 12.50 | 532. | 138. | 111. | 2.40 |
| + | ROUTED TO | 108111 | 1920. | 13.25 | 513. | 129. | 103. | 2.40 |
| + | HYDROGRAPH AT | 2Z | 2733. | 13.25 | 1029. | 275. | 221. | 5.10 |
| + | ROUTED TO | 110111 | 2297. | 14.30 | 888. | 230. | 184. | 5.10 |
| + | HYDROGRAPH AT | 2AA | 2471. | 13.05 | 605. | 154. | 123. | 3.73 |
| | 3 COMBINED AT | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| + | C111 | 3957. | 13.20 | 1822. | 483. | 387. | 11.23 |
| + ROUTED TO | 111113 | 3240. | 14.95 | 1637. | 443. | 355. | 11.23 |
| + HYDROGRAPH AT | 2CC | 1600. | 13.75 | 548. | 138. | 110. | 4.38 |
| + 3 COMBINED AT | C113 | 19580. | 16.30 | 11731. | 3484. | 2793. | 103.03 |
| + ROUTED TO | 113127 | 19236. | 16.70 | 11630. | 3454. | 2768. | 103.03 |
| + HYDROGRAPH AT | 2DD | 384. | 12.60 | 66. | 17. | 13. | 0.54 |
| + 2 COMBINED AT | C127R | 19236. | 16.70 | 11630. | 3466. | 2777. | 103.57 |
| + HYDROGRAPH AT | 2GG | 3979. | 13.50 | 1305. | 336. | 269. | 6.69 |
| + ROUTED TO | 114115 | 3585. | 14.35 | 1229. | 311. | 249. | 6.69 |
| + HYDROGRAPH AT | 2HH | 4129. | 13.10 | 1063. | 273. | 219. | 6.76 |
| + 2 COMBINED AT | C115 | 4400. | 14.00 | 2161. | 556. | 446. | 13.45 |
| + ROUTED TO | 115116 | 4293. | 14.50 | 2113. | 544. | 436. | 13.45 |
| + HYDROGRAPH AT | 2II | 1509. | 12.95 | 530. | 140. | 113. | 2.22 |
| + 2 COMBINED AT | C116 | 4850. | 13.75 | 2553. | 668. | 535. | 15.67 |
| + DIVERSION TO | DC116L | 1656. | 13.75 | 866. | 232. | 186. | 15.67 |
| + HYDROGRAPH AT | DC116R | 3194. | 13.75 | 1687. | 436. | 349. | 15.67 |
| + ROUTED TO | 116119 | 3109. | 14.55 | 1649. | 426. | 341. | 15.67 |
| + HYDROGRAPH AT | 2EE | 3050. | 12.85 | 1041. | 275. | 220. | 4.13 |
| + ROUTED TO | 118119 | 2947. | 13.15 | 1031. | 271. | 218. | 4.13 |
| + HYDROGRAPH AT | 2JJ | 817. | 12.55 | 139. | 35. | 28. | 0.89 |
| + 3 COMBINED AT | C119 | 4308. | 14.30 | 2618. | 697. | 558. | 20.69 |
| + ROUTED TO | 119120 | 3950. | 16.55 | 2420. | 652. | 523. | 20.69 |
| + HYDROGRAPH AT | 2KK | 1686. | 13.95 | 635. | 161. | 129. | 4.19 |
| + 2 COMBINED AT | C120R | 4048. | 16.50 | 2572. | 788. | 631. | 24.88 |
| + HYDROGRAPH AT | 2LL | 1701. | 14.55 | 764. | 198. | 159. | 5.18 |
| + HYDROGRAPH AT | BC116L | 1656. | 13.75 | 866. | 232. | 186. | 15.67 |
| + ROUTED TO | 116120 | 1160. | 18.10 | 565. | 142. | 114. | 15.67 |
| + 3 COMBINED AT | C120 | 4526. | 16.35 | 3421. | 1087. | 871. | 30.06 |
| + ROUTED TO | 120121 | 4416. | 16.80 | 3348. | 1061. | 850. | 30.06 |
| + HYDROGRAPH AT | 2MM | 495. | 12.60 | 86. | 22. | 17. | 0.91 |
| + 2 COMBINED AT | C121 | 4416. | 16.80 | 3348. | 1078. | 864. | 30.97 |
| + ROUTED TO | 121123 | 4322. | 17.35 | 3286. | 1057. | 847. | 30.97 |
| + HYDROGRAPH AT | 2FF | 1641. | 14.60 | 745. | 194. | 156. | 5.51 |
| + 2 COMBINED AT | C123 | 4460. | 17.35 | 3590. | 1212. | 971. | 36.48 |
| + ROUTED TO | 123140 | 4429. | 17.55 | 3565. | 1203. | 964. | 36.48 |
| + HYDROGRAPH AT | 2NN | 3248. | 14.35 | 1376. | 353. | 283. | 9.61 |
| + HYDROGRAPH AT | 2OO | 731. | 12.65 | 132. | 33. | 26. | 0.85 |
| + 2 COMBINED AT | C124 | 3248. | 14.30 | 1492. | 382. | 306. | 10.46 |
| + ROUTED TO | 124125 | 2984. | 15.25 | 1444. | 372. | 298. | 10.46 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| + HYDROGRAPH AT | 2PP | 1312. | 12.80 | 268. | 67. | 54. | 1.78 |
| + 2 COMBINED AT | C125 | 2984. | 15.25 | 1628. | 435. | 348. | 12.24 |
| + ROUTED TO | 125126 | 2711. | 16.20 | 1510. | 407. | 326. | 12.24 |
| + HYDROGRAPH AT | 2QQ | 813. | 12.80 | 164. | 41. | 33. | 1.67 |
| + 2 COMBINED AT | C126 | 2711. | 16.20 | 1519. | 444. | 356. | 13.91 |
| + ROUTED TO | 126140 | 2569. | 16.95 | 1478. | 430. | 345. | 13.91 |
| + 2 COMBINED AT | C140 | 6497. | 17.20 | 4790. | 1562. | 1252. | 50.39 |
| + ROUTED TO | 140127 | 6405. | 17.60 | 4727. | 1542. | 1236. | 50.39 |
| + HYDROGRAPH AT | 2RR | 483. | 12.95 | 110. | 28. | 22. | 0.93 |
| + HYDROGRAPH AT | 2YY | 424. | 13.05 | 101. | 25. | 20. | 1.12 |
| + 3 COMBINED AT | C127L | 6405. | 17.60 | 4729. | 1583. | 1269. | 52.44 |
| + 2 COMBINED AT | C127 | 22611. | 16.75 | 15254. | 4758. | 3813. | 156.01 |
| + ROUTED TO | 127131 | 22489. | 17.05 | 15189. | 4735. | 3794. | 156.01 |
| + HYDROGRAPH AT | BDC78L | 576. | 13.30 | 197. | 52. | 41. | 4.77 |
| + ROUTED TO | 78L128 | 414. | 14.35 | 140. | 35. | 28. | 4.77 |
| + HYDROGRAPH AT | 2SS | 1402. | 13.35 | 417. | 111. | 89. | 3.83 |
| + 2 COMBINED AT | C128 | 1328. | 13.35 | 517. | 139. | 111. | 8.60 |
| + ROUTED TO | 128129 | 1079. | 14.60 | 428. | 110. | 88. | 8.60 |
| + HYDROGRAPH AT | 2TT | 2248. | 13.00 | 549. | 147. | 118. | 4.60 |
| + 2 COMBINED AT | C129 | 2061. | 13.00 | 878. | 239. | 192. | 13.20 |
| + ROUTED TO | 129130 | 1868. | 13.65 | 851. | 228. | 183. | 13.20 |
| + HYDROGRAPH AT | BDC80L | 6547. | 16.50 | 3606. | 1047. | 839. | 77.13 |
| + ROUTED TO | 80L130 | 6343. | 17.15 | 3531. | 1018. | 816. | 77.13 |
| + 2 COMBINED AT | C130 | 6599. | 17.10 | 3996. | 1192. | 955. | 85.56 |
| + ROUTED TO | 130131 | 6162. | 18.70 | 3778. | 1129. | 905. | 85.56 |
| + 2 COMBINED AT | C131 | 23787. | 17.25 | 17810. | 5557. | 4453. | 241.57 |
| + ROUTED TO | 131132 | 23668. | 17.55 | 17713. | 5523. | 4426. | 241.57 |
| + HYDROGRAPH AT | 2UU | 1967. | 14.30 | 821. | 210. | 169. | 8.10 |
| + HYDROGRAPH AT | BDC82L | 517. | 18.65 | 73. | 18. | 15. | 85.07 |
| + 3 COMBINED AT | C132 | 23667. | 17.50 | 17782. | 5646. | 4525. | 330.40 |
| + DIVERSION TO | DC132L | 8086. | 17.50 | 4982. | 1295. | 1037. | 330.40 |
| + HYDROGRAPH AT | DC132R | 14872. | 17.50 | 12312. | 4200. | 3365. | 330.40 |
| + ROUTED TO | 132133 | 14763. | 17.85 | 12217. | 4153. | 3328. | 330.40 |
| + 2 COMBINED AT | C133I | 18404. | 18.95 | 14168. | 4839. | 3878. | 334.14 |
| + ROUTED TO | PND3 | 18352. | 19.05 | 14155. | 4836. | 3875. | 334.14 |
| + DIVERSION TO | DPND3W | 131. | 19.00 | 17. | 4. | 3. | 334.14 |
| + HYDROGRAPH AT | PND3N | 18223. | 19.05 | 14138. | 4831. | 3872. | 334.14 |
| + DIVERSION TO | D135O | 3111. | 19.05 | 2700. | 833. | 667. | 334.14 |
| HYDROGRAPH AT | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| + | D133O | 15112. | 19.05 | 11438. | 3999. | 3205. | 334.14 |
| + ROUTED TO | 133141 | 15038. | 19.35 | 11401. | 3985. | 3194. | 334.14 |
| + HYDROGRAPH AT | BD135O | 3111. | 19.05 | 2700. | 833. | 667. | 334.14 |
| + ROUTED TO | 135141 | 3104. | 19.25 | 2694. | 831. | 666. | 334.14 |
| + 2 COMBINED AT | C141 | 18140. | 19.35 | 14093. | 4817. | 3860. | 334.14 |
| + ROUTED TO | 141149 | 18070. | 19.65 | 14067. | 4806. | 3851. | 334.14 |
| + HYDROGRAPH AT | 2WW | 1574. | 13.90 | 577. | 148. | 119. | 5.82 |
| + ROUTED TO | C136O | 542. | 15.35 | 490. | 147. | 118. | 5.82 |
| + ROUTED TO | 136149 | 291. | 16.35 | 249. | 69. | 55. | 5.82 |
| + 2 COMBINED AT | C149 | 18053. | 19.65 | 14117. | 4835. | 3874. | 339.96 |
| + ROUTED TO | 149137 | 17991. | 19.90 | 14086. | 4822. | 3864. | 339.96 |
| + HYDROGRAPH AT | 2XX | 1131. | 12.95 | 270. | 71. | 57. | 2.17 |
| + 2 COMBINED AT | C137 | 17990. | 19.90 | 14086. | 4867. | 3901. | 342.13 |
| + HYDROGRAPH AT | BC132L | 8086. | 17.50 | 4982. | 1295. | 1037. | 330.40 |
| + DIVERSION TO | DC150L | 4585. | 17.50 | 2057. | 514. | 412. | 330.40 |
| + HYDROGRAPH AT | DC150R | 3501. | 17.50 | 2925. | 780. | 625. | 330.40 |
| + ROUTED TO | 150142 | 3490. | 17.70 | 2914. | 778. | 623. | 330.40 |
| + HYDROGRAPH AT | 7A | 832. | 13.25 | 230. | 59. | 47. | 2.45 |
| + HYDROGRAPH AT | BPND3W | 131. | 19.00 | 17. | 4. | 3. | 334.14 |
| + 3 COMBINED AT | C142I | 3522. | 18.90 | 2931. | 813. | 652. | 336.59 |
| + ROUTED TO | C142O | 3517. | 18.90 | 2875. | 811. | 650. | 336.59 |
| + DIVERSION TO | DC142L | 846. | 18.90 | 602. | 151. | 121. | 336.59 |
| + HYDROGRAPH AT | DC142R | 2671. | 18.90 | 2273. | 661. | 529. | 336.59 |
| + ROUTED TO | 142139 | 2626. | 19.55 | 2214. | 648. | 519. | 336.59 |
| + HYDROGRAPH AT | 7D | 732. | 12.65 | 155. | 45. | 36. | 1.17 |
| + 2 COMBINED AT | C139 | 2632. | 19.55 | 2220. | 677. | 544. | 337.76 |
| + HYDROGRAPH AT | 7C | 387. | 12.35 | 53. | 13. | 11. | 0.60 |
| + HYDROGRAPH AT | BC142L | 846. | 18.90 | 602. | 151. | 121. | 336.59 |
| + ROUTED TO | 142-18 | 804. | 19.90 | 566. | 143. | 115. | 336.59 |
| + HYDROGRAPH AT | 7B | 944. | 12.85 | 211. | 57. | 46. | 1.67 |
| + 2 COMBINED AT | C18 | 807. | 19.90 | 570. | 181. | 145. | 338.26 |
| + HYDROGRAPH AT | BD150L | 4585. | 17.50 | 2057. | 514. | 412. | 330.40 |
| + ROUTED TO | C151 | 4080. | 18.20 | 2049. | 512. | 410. | 330.40 |

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

```
-----DSS---ZCLOSE Unit:  71,   File: B&ST24.DSS
          Pointer Utilization:  0.26
          Number of Records:     4
          File Size:     19.2  Kbytes
          Percent Inactive:   0.0
```

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*            MAY   1991             *
*          VERSION 4.0.1E           *
*                                   *
*  RUN DATE  03/25/92  TIME  12:03:14  *
*                                   *
*************************************
```

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

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

1 HEC-1 INPUT PAGE 1

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

   1          ID   FCDMC GILA BEND FLOOD INSURANCE STUDY PROJECT NO. 11358
   2          ID   FCD 90-67
   3          ID
   4          ID   Quilotosa and Sauceda Washes (Major Basins 3, 4, 5, and 6)
   5          ID
   6          ID   100-Year 24-Hour Duration Storm
   7          ID
   8          ID   03/25/92    Input Filename:  S&Q24.H1
   9          ID
  10          ID        Green & AMPT Loss Rate Method
  11          ID        S-Graph Unit Hydrograph
  12          ID        Normal Depth Routing
              *
  13          IT       3 13MAR92    1200     600
  14          IO       5
  15          IN      15
              *
              *DIAGRAM
              *
  16          JD    4.53    0.01
  17          PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
  18          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
  19          PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
  20          PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.173
  21          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.487   0.663   0.707
  22          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
  23          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
  24          PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
  25          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
  26          PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
  27          JD    4.44     5.0
  28          JD    4.30    10.0
  29          JD    4.00    50.0
  30          JD    3.90    80.0
  31          JD    3.85   100.0
  32          JD    3.81   125.0
  33          JD    3.71   200.0
  34          JD    3.53   500.0
              *

  35          KK      3K
  36          KM        SUB-BASIN 3K at C12
  37          BA    8.94
  38          LG    0.35    0.34    4.01    0.58    1.00
  39          UI     251     251     251     251     251     251     251     251     251     710
  40          UI     824     824     962     962    1077    1154    1198    1227    1310    1342
  41          UI    1407    1433    1479    1543    1588    1648    1740    1816    1883    1934
  42          UI    1989    2137    2294    2492    2692    3022    3004    3364    3303    3077
  43          UI    2857    2702    2568    2450    2346    2254    2173    2100    2035    1976
  44          UI    1923    1803    1727    1663    1603    1525    1488    1442    1337    1308
  45          UI    1227    1216    1154    1123     962     962     779     721     721     566
  46          UI     444     444     444     444     432     412     412     412     412     412
  47          UI     290     251     251     251     251     251     251     251     251     153
  48          UI      77      77      77      77      77      77      77      77      77      77
  49          UI      77      77      77      77      77      77      77      77      77      77
```

1 HEC-1 INPUT PAGE 2

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

  50          UI      77      77      77      77      77      77      77      77      77       0
  51          UI       0       0       0       0       0       0       0       0       0       0
  52          UI       0       0       0       0       0       0       0       0       0       0
              *

  53          KK    C151
  54          KM        Return Hydrograph from C151ZR=QI A=BENDER   C=FLOW  F=C151-SPLIT
  55          ZR   =QI A=BENDER   C=FLOW  F=C151-SPLIT
              *

  56          KK    C12I
  57          KM        Combine 3K + C151
  58          HC       2  339.24
              *

  59          KK    C12O
  60          KM        Reservoir Route at C12 At The Gila Bend Canal
  61          RS       1    ELEV     730
```

```
 62          SV     0.0     5.0    12.0    22.0    36.0    52.0    72.0    99.0   132.0   171.0
 63          SV   216.0   266.0   294.5   323.0   355.5   388.0   437.5   487.0
 64          SE   730.0   731.0   732.0   733.0   734.0   735.0   736.0   737.0   738.0   739.0
 65          SE   740.0   741.0   741.5   742.0   742.5   743.0   743.5   744.0
 66          SQ     0.0     0.0    15.0    35.0    84.0   150.0   226.0   299.0   356.0   396.0
 67          SQ   439.0   482.0   503.8   637.8  1152.6  2529.6  5419.8  9836.1
 68          RL                    0.67   730.0
             *

 69          KK   DC12R
 70          KM         Main flow at C12 is in the right channel (C12R)
 71          KM         Diverted flow (DQ record) goes into the left channel (C12L)
 72          KM           C12R is outflow from the 2 sets of culverts plus weir flow over
 73          KM           the Gila Bend Canal north into R12-14.  The diverted flow is
 74          KM           added to the ponding at C11, C36, and C53.
 75          DT   DC12L
 76          DI     0.0   637.8  1152.6  2529.6  5419.8  9836.1
 77          DQ     0.0     0.0    90.8   594.5  1836.5  3814.3
             *

 78          KK  R12-14
 79          KM       Channel Route From C12 To C14
 80          KM       Representative Of X-SECT. 3M2
 81          RS       4    FLOW      -1
 82          RC   0.035   0.033   0.035    3200   0.001
 83          RX  4010.0  5010.0  5055.0  5072.0  5087.0  5102.0  5147.0  5483.8
 84          RY   100.6    95.6    95.9    85.6    85.6    94.8    94.2   100.6
 85          RL                    9.78    85.6
             *

 86          KK  R14-13
 87          KM       Channel Route From C14 To C13
 88          KM       X-SECT. 3M2
 89          KO                                  21
 90          RS       6    FLOW      -1
 91          RC   0.035   0.033   0.035    6200   0.003
 92          RX  4010.0  5010.0  5055.0  5072.0  5087.0  5102.0  5147.0  5483.8
1                                         HEC-1 INPUT                                          PAGE  3

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

 93          RY   100.6    95.6    95.9    85.6    85.6    94.8    94.2   100.6
 94          RL                   10.00    85.6
             *
             * Move to Top of Major Basin 3
             *

 95          KK      3F
 96          KM        SUB-BASIN 3F at C1
 97          BA   12.14
 98          LG    0.22    0.35    3.99    0.54   12.00
 99          UI     303     303     303     303     303     303     303     303     303     303
100          UI     672     870     870     885    1161    1161    1242    1393    1428    1741
101          UI    1768    1833    1893    1934    2045    2105    2176    2246    2292    2342
102          UI    2401    2483    2619    2794    2957    3145    3392    3585    3969    3506
103          UI    3131    2487    2356    2257    2176    2048    1996    1934    1848    1826
104          UI    1786    1768    1741    1692    1658    1606    1583    1533    1514    1473
105          UI    1451    1423    1393    1369    1290    1290    1235    1222    1207    1161
106          UI    1161    1095    1039    1039     988     941     941     914     800     800
107          UI     800     784     741     741     741     739     696     696     696     696
108          UI     662     633     633     633     633     552     497     497     497     497
109          UI     497     464     387     387     387     387     387     387     387     376
110          UI     332     332     332     332     332     332     332     332     332     257
111          UI     232     232     232     232     232     232     232     232     232     232
112          UI     232     232     211     148     148     148     148     148     148     148
113          UI     148     148     148     148     148     148     148     148     148     148
114          UI     148     148     148     139      58      58      58      58      58      58
115          UI      58      58      58      58      58      58      58      58      58      58
116          UI      58      58      58      58      58      58      58      58      58      58
117          UI      58      58      58      58      58      58      58      58      58      58
118          UI      58      58      58      58      58      58      58      58      58      58
119          UI      58      58      58      58      58      58      58       0       0       0
120          UI       0       0       0       0       0       0       0       0       0       0
             *

121          KK    R1-3
122          KM       Channel Route From C1 To C3
123          KM       X-SECT. 3G1
124          RS      22    FLOW      -1
125          RC   0.060   0.049   0.070   13600   0.010
126          RX  4012.0  5012.0  5054.0  5064.0  5121.0  5136.0  5242.0  7602.0
127          RY    99.7    94.7    93.4    90.2    91.7    94.7    92.9    99.7
128          RL                    0.65    90.2
             *

129          KK      3E
130          KM       SUB-BASIN 3E at C2
131          BA    8.24
132          LG    0.23    0.35    4.24    0.42    4.00
133          UI     224     224     224     224     224     224     224     224     224     431
134          UI     643     643     683     858     858     979    1029    1194    1286    1353
135          UI    1386    1429    1507    1563    1618    1660    1711    1755    1806    1883
136          UI    2020    2168    2302    2504    2656    2916    2504    2145    1810    1715
137          UI    1609    1545    1492    1429    1371    1347    1319    1300    1286    1229
138          UI    1214    1170    1150    1119    1096    1072    1051    1029     996     953
139          UI     943     903     903     865     858     825     768     768     725     695
1                                         HEC-1 INPUT                                          PAGE  4

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

140          UI     695     640     591     591     591     550     547     547     546     515
141          UI     515     515     515     472     468     468     468     430     368     368
142          UI     368     368     368     320     286     286     286     286     286     286
143          UI     280     245     245     245     245     245     245     245     245     211
144          UI     172     172     172     172     172     172     172     172     172     172
145          UI     172     167     109     109     109     109     109     109     109     109
146          UI     109     109     109     109     109     109     109     109     109     109
147          UI     109      67      43      43      43      43      43      43      43      43
148          UI      43      43      43      43      43      43      43      43      43      43
149          UI      43      43      43      43      43      43      43      43      43      43
150          UI      43      43      43      43      43      43      43      43      43      43
151          UI      43      43      43      43      43      43      43      43      43      43
152          UI       0       0       0       0       0       0       0       0       0       0
153          UI       0       0       0       0       0       0       0       0       0       0
             *
```

```
154          KK    R2-3
155          KM       Channel Route From C2 To C3
156          KM       Representative Of X-SECT. 3G1
157          RS      12     FLOW      -1
158          RC   0.060    0.049    0.070     7200    0.010
159          RX  4012.0   5012.0   5054.0   5064.0   5121.0   5136.0   5242.0   7602.0
160          RY    99.7     94.7     93.4     90.2     91.7     94.7     92.9     99.7
161          RL                     0.70     90.2
             *

162          KK      3G
163          KM       SUB-BASIN 3G
164          BA    5.12
165          LG    0.26     0.35     4.14     0.42     4.00
166          UI     187      187      187      187      187      187      187      520      539      627
167          UI     718      812      888     1077     1128     1180     1241     1314     1373     1420
168          UI    1473     1531     1681     1831     2016     2210     2364     1965     1515     1408
169          UI    1320     1247     1185     1134     1105     1082     1047     1012      979      939
170          UI     915      895      862      827      798      761      751      718      696      643
171          UI     628      582      582      497      495      484      458      458      447      431
172          UI     431      417      392      392      392      309      308      308      308      260
173          UI     239      239      239      239      233      205      205      205      205      205
174          UI     205      160      144      144      144      144      144      144      144      144
175          UI     116       92       92       92       92       92       92       92       92       92
176          UI      92       92       92       92       85       36       36       36       36       36
177          UI      36       36       36       36       36       36       36       36       36       36
178          UI      36       36       36       36       36       36       36       36       36       36
179          UI      36       36       36       36       36       36       36       36       36       36
180          UI      36        0        0        0        0        0        0        0        0        0
181          UI       0        0        0        0        0        0        0        0        0        0
             *

182          KK      C3
183          KM       Combine R1-3 + R2-3 + 3G
184          HC       3
             *
```



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

185          KK    R3-5
186          KM       Channel Route From C3 To C5
187          KM       X-SECT. 3H1
188          RS       8     FLOW      -1
189          RC   0.060    0.043    0.070    14000    0.011
190          RX  4006.0   5006.0   5012.0   5030.0   5099.0   5114.0   5214.0   5440.5
191          RY   101.6     96.6     94.9     89.5     91.2     94.3     92.5    101.6
192          RL                     1.75     89.5
             *

193          KK      3H
194          KM       SUB-BASIN 3H
195          BA    6.78
196          LG    0.26     0.35     4.03     0.39     3.00
197          UI     148      148      148      148      148      148      148      148      148      148
198          UI     148      202      426      426      426      438      568      568      569      682
199          UI     682      757      852      870      897      919      947      980     1003     1056
200          UI    1072     1100     1122     1139     1176     1200     1231     1311     1400     1456
201          UI    1538     1649     1731     1861     1872     1640     1455     1218     1149     1114
202          UI    1065     1024     1003      951      943      897      894      874      872      852
203          UI     850      812      812      778      775      753      741      732      710      710
204          UI     687      682      669      631      631      615      598      598      581      568
205          UI     568      540      509      509      507      461      461      461      444      392
206          UI     392      392      392      369      363      363      363      363      342      341
207          UI     341      341      341      316      310      310      310      310      298      244
208          UI     244      244      244      244      244      244      190      189      189      189
209          UI     189      189      189      189      189      169      162      162      162      162
210          UI     162      162      162      162      162      162      115      114      114      114
211          UI     114      114      114      114      114      114      114      114      114      114
212          UI     114       90       73       73       73       73       73       73       73       73
213          UI      73       73       73       73       73       73       73       73       73       73
214          UI      73       73       73       73       73       53       28       28       28       28
215          UI      28       28       28       28       28       28       28       28       28       28
216          UI      28       28       28       28       28       28       28       28       28       28
217          UI      28       28       28       28       28       28       28       28       28       28
218          UI      28       28       28       28       28       28       28       28       28       28
219          UI      28       28       28       28       28       28       28       28       28       28
220          UI      28       28       28       28       28       28       28        0        0        0
221          UI       0        0        0        0        0        0        0        0        0        0
             *

222          KK      C5
223          KM       Combine R3-5 + 3H
224          HC       2
             *

225          KK    R5-7
226          KM       Channel Route From C5 To C7
227          KM       Representative Of X-SECT. 3D1
228          RS      12     FLOW      -1
229          RC   0.060    0.044    0.050    11200    0.010
230          RX  4066.0   5066.0   5129.0   5159.0   5291.0   5296.0   5371.0   6331.0
231          RY    98.1     93.1     94.7     91.2     90.0     92.8     93.3     98.1
232          RL                     2.09     90.0
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

233          KK      3C
234          KM       SUB-BASIN 3C at C4
235          BA   11.27
236          LG    0.28     0.35     3.98     0.37     1.00
237          UI     281      281      281      281      281      281      281      281      281      281
238          UI     624      808      808      822     1077     1077     1153     1293     1325     1616
239          UI    1642     1701     1757     1796     1898     1954     2020     2085     2127     2174
240          UI    2229     2305     2431     2594     2745     2919     3149     3328     3685     3255
241          UI    2907     2309     2187     2096     2020     1901     1852     1796     1715     1695
242          UI    1658     1642     1616     1571     1539     1491     1469     1424     1405     1368
243          UI    1347     1321     1293     1270     1197     1197     1146     1134     1121     1077
244          UI    1077     1017      965      965      917      874      874      848      743      743
245          UI     743      728      688      688      688      686      646      646      646      646
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246          UI     614     588     588     588     588     512     462     462     462     462
247          UI     462     431     359     359     359     359     359     359     359     349
248          UI     308     308     308     308     308     308     308     308     308     239
249          UI     216     215     215     215     215     215     215     215     215     215
250          UI     215     216     196     138     138     138     138     138     138     138
251          UI     138     138     138     138     138     138     138     138     138     138
252          UI     138     138     138     129      54      54      54      54      54      54
253          UI      54      54      54      54      54      54      54      54      54      54
254          UI      54      54      54      54      54      54      54      54      54      54
255          UI      54      54      54      54      54      54      54      54      54      54
256          UI      54      54      54      54      54      54      54      54      54      54
257          UI      54      54      54      54      54      54      54       0       0       0
258          UI       0       0       0       0       0       0       0       0       0       0
             *

259          KK    R4-7
260          KM       Channel Route From C4 To C7
261          KM       X-SECT. 3D1
262          RS      15    FLOW      -1
263          RC   0.060   0.044   0.050   14800   0.011
264          RX  4066.0  5066.0  5129.0  5159.0  5291.0  5296.0  5371.0  6331.0
265          RY    98.1    93.1    94.7    91.2    90.0    92.8    93.3    98.1
266          RL                    3.32    90.0
             *

267          KK      3D
268          KM       SUB-BASIN 3D
269          BA    6.51
270          LG    0.33    0.35    3.61    0.31    0.00
271          UI     196     196     196     196     196     196     196     196     381     643
272          UI     643     729     750     834     900     940     958    1041    1064    1098
273          UI    1143    1176    1217    1284    1337    1402    1465    1508    1560    1675
274          UI    1820    1981    2248    2224    2544    2641    2451    2290    2139    2018
275          UI    1920    1833    1757    1689    1629    1574    1525    1463    1390    1324
276          UI    1255    1211    1174    1125    1056    1021     958     941     900     838
277          UI     750     717     563     563     522     346     346     346     346     338
278          UI     322     322     322     322     308     196     196     196     196     196
279          UI     196     196     196     125      60      60      60      60      60      60
280          UI      60      60      60      60      60      60      60      60      60      60
281          UI      60      60      60      60      60      60      60      60      60      60
282          UI      60       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

283          UI       0       0       0       0       0       0       0       0       0       0
             *

284          KK      C7
285          KM       Combine R5-7 + R4-7 + 3D
286          HC       3
             *

287          KK   R7-90
288          KM       Channel Route From C7 To C90
289          KM       Representative Of X-SECT. 3D1
290          RS       8    FLOW      -1
291          RC   0.060   0.044   0.050    9200   0.011
292          RX  4066.0  5066.0  5129.0  5159.0  5291.0  5296.0  5371.0  6331.0
293          RY    98.1    93.1    94.7    91.2    90.0    92.8    93.3    98.1
294          RL                    1.73    90.0
             *

295          KK      3A
296          KM       SUB-BASIN 3A at C6
297          BA   11.19
298          LG    0.24    0.35    4.20    0.46    4.00
299          UI     230     230     230     230     230     230     230     230     230     230
300          UI     230     230     414     660     660     660     672     881     881     881
301          UI    1017    1067    1067    1321    1321    1380    1390    1450    1468    1537
302          UI    1554    1646    1662    1704    1733    1761    1814    1840    1887    1996
303          UI    2088    2203    2297    2463    2593    2714    2938    2852    2532    2271
304          UI    1887    1796    1752    1651    1619    1554    1513    1468    1429    1390
305          UI    1375    1355    1345    1321    1314    1258    1258    1211    1201    1179
306          UI    1149    1149    1106    1101    1089    1057    1057    1015     978     978
307          UI     948     927     927     905     881     881     863     789     789     789
308          UI     749     714     714     714     663     607     607     607     607     575
309          UI     562     562     562     562     542     528     528     528     528     523
310          UI     480     480     480     480     480     469     377     377     377     377
311          UI     377     377     377     339     294     294     294     294     294     294
312          UI     294     294     294     268     252     252     252     252     252     252
313          UI     252     252     252     252     242     176     176     176     176     176
314          UI     176     176     176     176     176     176     176     176     176     176
315          UI     176     129     112     112     112     112     112     112     112     112
316          UI     112     112     112     112     112     112     112     112     112     112
317          UI     112     112     112     112     112     112     110      44      44      44
318          UI      44      44      44      44      44      44      44      44      44      44
319          UI      44      44      44      44      44      44      44      44      44      44
320          UI      44      44      44      44      44      44      44      44      44      44
321          UI      44      44      44      44      44      44      44      44      44      44
322          UI      44      44      44      44      44      44      44      44      44      44
323          UI      44      44      44      44      44      44      44      44      44      44
324          UI      44      44       0       0       0       0       0       0       0       0
325          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

326          KK   R6-90
327          KM       Channel Route From C6 To C90
328          KM       X-SECT. 3B1
329          RS      44    FLOW      -1
330          RC   0.050   0.049   0.060   34000   0.014
331          RX  4129.0  5129.0  5153.0  5159.0  5184.0  5193.0  5355.0  7275.0
332          RY   101.0    96.0    94.7    91.0    90.8    93.8    91.4   101.0
333          RL                    0.79    90.8
             *

334          KK     C90
335          KM       Combine R7-90 + R6-90
336          HC       2
             *
```

```
 337          KK   R90-8
 338          KM       Channel Route From C90 To C8
 339          KM       Representative Of X-SECT. 3I1
 340          RS       6     FLOW      -1
 341          RC   0.050   0.059   0.050    7200   0.009
 342          RX  5069.1  5261.0  5330.0  5365.0  5392.0  5402.0  5996.0  6122.0
 343          RY    96.7    91.7    94.1    91.0    90.7    94.0    94.2    98.5
 344          RL                    0.64    90.7
              *

 345          KK      3B
 346          KM       SUB-BASIN 3B
 347          BA    6.42
 348          LG    0.35    0.35    3.50    0.29    0.00
 349          UI     198     198     198     198     198     198     198     198     490     652
 350          UI     662     760     760     900     918     970    1006    1061    1104    1132
 351          UI    1170    1228    1274    1328    1392    1471    1520    1567    1671    1806
 352          UI    1986    2219    2294    2535    2681    2486    2321    2161    2039    1938
 353          UI    1850    1771    1701    1639    1583    1533    1456    1382    1321    1267
 354          UI    1202    1165    1126    1037    1001     970     922     910     760     760
 355          UI     602     570     570     367     351     351     351     346     326     326
 356          UI     326     326     311     198     198     198     198     198     198     198
 357          UI     198      94      61      61      61      61      61      61      61      61
 358          UI      61      61      61      61      61      61      61      61      61      61
 359          UI      61      61      61      61      61      61      61      61       0       0
 360          UI       0       0       0       0       0       0       0       0       0       0
              *

 361          KK      C8
 362          KM       Combine R90-8 + 3B
 363          HC       2
              *

 364          KK   R8-9
 365          KM       Channel Route From C8 To C9
 366          KM       X-SECT. 3I1
 367          RS      45     FLOW      -1
 368          RC   0.050   0.059   0.050   42000   0.009
 369          RX  5069.1  5261.0  5330.0  5365.0  5392.0  5402.0  5996.0  6122.0
```



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

 370          RY    96.7    91.7    94.1    91.0    90.7    94.0    94.2    98.5
 371          RL                    0.64    90.7
              *

 372          KK      3I
 373          KM       SUB-BASIN 3I
 374          BA    5.10
 375          LG    0.35    0.35    3.50    0.30    0.00
 376          UI     124     124     124     124     124     124     124     124     124     124
 377          UI     220     406     406     413     474     474     504     568     568     605
 378          UI     605     651     661     688     693     726     734     768     786     812
 379          UI     851     876     917     942     961     986    1052    1123    1204    1270
 380          UI    1463    1406    1531    1667    1636    1533    1446    1371    1306    1250
 381          UI    1200    1157    1119    1084    1052    1016     992     969     947     892
 382          UI     865     836     795     781     748     731     710     673     646     623
 383          UI     605     591     568     563     474     474     441     355     355     355
 384          UI     278     219     219     219     219     219     210     203     203     203
 385          UI     203     203     199     124     124     124     124     124     124     124
 386          UI     124     124     124      89      38      38      38      38      38      38
 387          UI      38      38      38      38      38      38      38      38      38      38
 388          UI      38      38      38      38      38      38      38      38      38      38
 389          UI      38      38      38      38      38      38      38      38       0       0
 390          UI       0       0       0       0       0       0       0       0       0       0
              *

 391          KK      C9
 392          KM       Combine R8-9 + 3I
 393          HC       2
              *

 394          KK   R9-10
 395          KM       Channel Route From C9 To C10
 396          KM       Revised Interpolation of X-SECTS. 3J1 and 3J2.
 397          RS      53     FLOW      -1
 398          RC   0.050   0.050   0.060   47000   0.007
 399          RX  4940.4  5089.0  5172.0  5191.0  5236.0  5252.0  5309.0  5642.1
 400          RY    99.9    93.9    93.9    89.1    88.9    94.1    93.6    99.9
 401          RL                    1.73    88.9
              *

 402          KK      3J
 403          KM       SUB-BASIN 3J
 404          BA   11.25
 405          LG    0.35    0.35    3.82    0.36    0.00
 406          UI     189     189     189     189     189     189     189     189     189     189
 407          UI     189     189     189     189     189     478     622     622     622     622
 408          UI     726     726     726     726     871     871     871     908     927     927
 409          UI     973    1013    1013    1046    1062    1062    1113    1117    1137    1177
 410          UI    1177    1236    1245    1285    1320    1348    1405    1418    1452    1465
 411          UI    1502    1539    1613    1682    1742    1874    1923    1980    2361    2190
 412          UI    2166    2429    2562    2562    2448    2344    2254    2178    2074    2018
 413          UI    1969    1894    1847    1815    1742    1720    1675    1638    1613    1567
 414          UI    1556    1506    1502    1452    1452    1361    1361    1292    1281    1238
 415          UI    1210    1197    1146    1146    1108    1089    1089    990     990     986
 416          UI     927     927     927     875     871     871     784     726     726     726
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 417          UI     617     544     544     544     544     489     335     335     335     335
 418          UI     335     335     335     335     321     311     311     311     311     311
 419          UI     311     311     311     279     189     189     189     189     189     189
 420          UI     189     189     189     189     189     189     189     189     189      67
 421          UI      58      58      58      58      58      58      58      58      58      58
 422          UI      58      58      58      58      58      58      58      58      58      58
 423          UI      58      58      58      58      58      58      58      58      58      58
 424          UI      58      58      58      58      58      58      58      58      58      58
 425          UI      58      58      58      58      58      58      58      58      58       0
 426          UI       0       0       0       0       0       0       0       0       0       0
 427          UI       0       0       0       0       0       0       0       0       0       0
              *
```

```
428          KK     C10
429          KM       Combine R9-10 + 3J
430          HC       2
             *

431          KK  R10-11
432          KM       Channel Route From C10 To C11
433          KM       X-SECT. 3L1
434          RS      24     FLOW      -1
435          RC   0.600    0.053   0.060   13000   0.005
436          RX  4829.0   5054.0  5108.0  5116.0  5124.0  5129.0  5869.0  7369.0
437          RY    99.1     94.1    92.9    89.9    89.8    91.6    91.6    99.1
438          RL                    0.36    89.8
             *

439          KK      3L
440          KM       SUB-BASIN 3L
441          BA    2.48
442          LG    0.36     0.31    3.82    0.33    3.00
443          UI      96       96      96      96      96      96     168     315     331     368
444          UI     409      445     470     502     526     547     572     600     634     675
445          UI     718      745     791     867     975    1129    1157    1293    1191    1082
446          UI    1005      940     887     839     802     768     737     686     645     611
447          UI     581      553     511     485     465     441     389     368     278     276
448          UI     206      170     170     170     159     158     158     158     107      96
449          UI      96       96      96      96      86      29      29      29      29      29
450          UI      29       29      29      29      29      29      29      29      29      29
451          UI      29       29      29      29      29      29       0       0       0       0
452          UI       0        0       0       0       0       0       0       0       0       0
             *

453          KK    C11I
454          KM       Combine R10-11 + 3L
455          KO                                     21
456          HC       2
             *
             * Move to Top of Major Basin 4
             *
```



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

457          KK      4A
458          KM       SUB-BASIN 4A at C26
459          BA   11.75
460          LG    0.23     0.35    4.26    0.43    4.00
461          UI     235      235     235     235     235     235     235     235     235     235
462          UI     235      235     288     677     677     677     677     821     903     903
463          UI     953     1083    1083    1213    1354    1371    1425    1434    1504    1513
464          UI    1593     1612    1693    1714    1747    1786    1805    1867    1892    1934
465          UI    2052     2141    2257    2354    2513    2647    2766    2966    2999    2641
466          UI    2441     1934    1873    1805    1716    1693    1593    1584    1504    1498
467          UI    1425     1425    1391    1389    1362    1354    1320    1290    1279    1231
468          UI    1231     1193    1177    1171    1128    1128    1108    1083    1083    1031
469          UI    1003     1003     970     950     950     930     903     903     896     808
470          UI     808      808     784     732     732     732     713     623     623     623
471          UI     623      608     576     576     576     576     575     542     542     542
472          UI     542      542     520     492     492     492     492     492     463     387
473          UI     387      387     387     387     387     387     349     301     301     301
474          UI     301      301     301     301     301     301     285     258     258     258
475          UI     258      258     258     258     258     258     258     258     211     181
476          UI     181      181     181     181     181     181     181     181     181     181
477          UI     181      181     181     181     181     128     115     115     115     115
478          UI     115      115     115     115     115     115     115     115     115     115
479          UI     115      115     115     115     115     115     115     115     115     115
480          UI     115       82      45      45      45      45      45      45      45      45
481          UI      45       45      45      45      45      45      45      45      45      45
482          UI      45       45      45      45      45      45      45      45      45      45
483          UI      45       45      45      45      45      45      45      45      45      45
484          UI      45       45      45      45      45      45      45      45      45      45
485          UI      45       45      45      45      45      45      45      45      45      45
486          UI      45       45      45      45      45      45      45      45       0       0
487          UI       0        0       0       0       0       0       0       0       0       0
             *

488          KK  R26-27
489          KM       Channel Route From C26 To C27
490          KM       X-SECT. 4B1
491          RS      11     FLOW      -1
492          RC   0.060    0.051   0.060   17800   0.010
493          RX  4600.0   5100.0  5175.0  5180.0  5264.0  5336.0  5386.0  6626.0
494          RY   100.6     95.6    94.5    90.3    89.6    94.1    94.4   100.6
495          RL                    5.67    89.6
             *

496          KK      4B
497          KM       SUB-BASIN 4B
498          BA    6.14
499          LG    0.30     0.35    3.87    0.38    0.00
500          UI     205      205     205     205     205     205     205     325     673     673
501          UI     773      785     923     953    1002    1059    1104    1148    1195    1238
502          UI    1289     1349    1427    1513    1564    1617    1733    1909    2082    2432
503          UI    2365     2727    2680    2440    2280    2125    2009    1912    1826    1749
504          UI    1678     1619    1562    1471    1385    1319    1264    1216    1175    1070
505          UI    1033     1002     944     899     785     736     588     588     463     362
506          UI     362      362     358     336     336     336     336     275     205     205
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

507          UI     205      205     205     205     205     102      63      63      63      63
508          UI      63       63      63      63      63      63      63      63      63      63
509          UI      63       63      63      63      63      63      63      63      63      63
510          UI       0        0       0       0       0       0       0       0       0       0
511          UI       0        0       0       0       0       0       0       0       0       0
             *

512          KK     C27
513          KM       Combine R26-27 + 4B
514          HC       2
             *

515          KK  R27-28
516          KM       Channel Route From C27 To C28
```

```
517          KM       X-SECT. 4C1
518          RS      45     FLOW      -1
519          RC   0.060    0.043    0.060    24800    0.006
520          RX  4054.0   5054.0   5066.0   5076.0   5133.0   5151.0   5214.0   6054.0
521          RY   101.2     96.2     95.8     92.8     93.3     95.5     97.0    101.2
522          RL                     1.56     92.8
             *

523          KK      4C
524          KM       SUB-BASIN 4C
525          BA   12.33
526          LG    0.31     0.35     3.77     0.38     0.00
527          UI     264      264      264      264      264      264      264      264      264      264
528          UI     264      264      847      869      869      912     1014     1014     1046     1216
529          UI    1216     1259     1294     1304     1414     1414     1472     1483     1536     1559
530          UI    1614     1644     1710     1738     1830     1861     1962     1996     2027     2094
531          UI    2166     2258     2433     2585     2706     2989     3174     3053     3455     3577
532          UI    3458     3261     3094     2951     2827     2720     2626     2534     2442     2376
533          UI    2318     2252     2186     2145     2097     2038     1992     1901     1833     1789
534          UI    1707     1689     1606     1600     1525     1520     1402     1382     1333     1294
535          UI    1287     1216     1216     1120     1014     1014      928      760      760      760
536          UI     717      468      468      468      468      468      468      456      434      434
537          UI     434      434      434      434      431      264      264      264      264      264
538          UI     264      264      264      264      264      264      264       84       81       81
539          UI      81       81       81       81       81       81       81       81       81       81
540          UI      81       81       81       81       81       81       81       81       81       81
541          UI      81       81       81       81       81       81       81       81       81       81
542          UI      81       81       81       81       81       81        0        0        0        0
543          UI       0        0        0        0        0        0        0        0        0        0
             *

544          KK     C28
545          KM       Combine R27-28 + 4C
546          HC       2
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

547          KK  R28-29
548          KM       Channel Route From C28 To C29
549          KM       Representative Of X-SECT. 4C1
550          RS       6     FLOW      -1
551          RC   0.060    0.043    0.060     7000    0.022
552          RX  4054.0   5054.0   5066.0   5076.0   5133.0   5151.0   5214.0   6054.0
553          RY   101.2     96.2     95.8     92.8     93.3     95.5     97.0    101.2
554          RL                     2.17     92.8
             *

555          KK      4E
556          KM       SUB-BASIN 4E at C20
557          BA    4.88
558          LG    0.25     0.35     4.11     0.48     7.00
559          UI     124      124      124      124      124      124      124      124      124      124
560          UI     330      358      358      401      477      477      546      573      647      716
561          UI     744      757      795      819      842      895      912      931      954      984
562          UI    1010     1055     1125     1204     1268     1382     1461     1605     1480     1311
563          UI    1034      973      930      895      842      818      795      757      749      734
564          UI     724      716      689      682      653      651      623      622      597      596
565          UI     576      573      545      530      522      502      502      483      477      471
566          UI     427      427      420      387      387      387      333      329      329      327
567          UI     305      305      305      305      287      286      286      286      272      260
568          UI     260      260      260      220      204      204      204      204      204      179
569          UI     159      159      159      159      159      159      159      145      136      136
570          UI     136      136      136      136      136      136      120       95       95       95
571          UI      95       95       95       95       95       95       95       95       95       89
572          UI      61       61       61       61       61       61       61       61       61       61
573          UI      61       61       61       61       61       61       61       61       61       61
574          UI      42       24       24       24       24       24       24       24       24       24
575          UI      24       24       24       24       24       24       24       24       24       24
576          UI      24       24       24       24       24       24       24       24       24       24
577          UI      24       24       24       24       24       24       24       24       24       24
578          UI      24       24       24       24       24       24       24       24       24       24
579          UI      24       24       24        0        0        0        0        0        0        0
580          UI       0        0        0        0        0        0        0        0        0        0
             *

581          KK  R20-21
582          KM       Channel Route From C20 To C21
583          KM       Representative Of X-SECT. 4G1
584          RS       8     FLOW      -1
585          RC   0.070    0.049    0.060    15400    0.013
586          RX  4015.0   5015.0   5070.0   5080.0   5110.0   5119.0   5149.0   6249.0
587          RY   101.7     96.7     93.9     90.6     91.0     95.0     96.2    101.7
588          RL                     2.58     90.6
             *

589          KK      4F
590          KM       SUB-BASIN 4F
591          BA    6.16
592          LG    0.27     0.35     4.14     0.49    10.00
593          UI     216      216      216      216      216      216      216      475      621      638
594          UI     828      855      994     1133     1261     1312     1380     1454     1537     1593
```



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

595          UI    1646     1705     1773     1942     2109     2304     2534     2753     2353     1833
596          UI    1656     1553     1461     1387     1325     1289     1265     1241     1183     1147
597          UI    1116     1080     1045     1025      994      946      920      875      867      828
598          UI     812      742      739      671      671      604      571      571      533      529
599          UI     529      501      497      497      466      452      452      436      355      355
600          UI     355      355      301      276      276      276      276      276      240      237
601          UI     237      237      237      237      222      166      166      166      166      166
602          UI     166      166      166      166      130      106      106      106      106      106
603          UI     106      106      106      106      106      106      106      106      106       70
604          UI      41       41       41       41       41       41       41       41       41       41
605          UI      41       41       41       41       41       41       41       41       41       41
606          UI      41       41       41       41       41       41       41       41       41       41
607          UI      41       41       41       41       41       41       41        0        0        0
608          UI       0        0        0        0        0        0        0        0        0        0
             *

609          KK     C21
```

```
610          KM       Combine R20-21 + 4F
611          HC       2
             *

612          KK  R21-23
613          KM       Channel Route From C21 To C23
614          KM       X-SECT. 4G1
615          RS      11    FLOW      -1
616          RC   0.070   0.049   0.060    8000   0.010
617          RX  4015.0  5015.0  5070.0  5080.0  5110.0  5119.0  5149.0  6249.0
618          RY   101.7    96.7    93.9    90.6    91.0    95.0    96.2   101.7
619          RL                    0.84    90.6
             *

620          KK      4D
621          KM       SUB-BASIN 4D at C22
622          BA    4.57
623          LG    0.25    0.35    4.24    0.40    0.00
624          UI     105     105     105     105     105     105     105     105     105     105
625          UI     105     265     303     303     303     395     404     404     484     485
626          UI     553     606     626     638     665     674     713     729     757     777
627          UI     790     808     831     848     870     932     994    1037    1105    1182
628          UI    1244    1364    1264    1126     933     845     808     763     743     713
629          UI     686     673     640     637     622     619     606     599     577     572
630          UI     551     550     527     527     509     505     495     485     483     449
631          UI     449     439     425     425     412     404     404     374     362     362
632          UI     346     328     328     328     286     279     279     279     266     258
633          UI     258     258     257     242     242     242     242     238     220     220
634          UI     220     220     220     181     173     173     173     173     173     173
635          UI     135     135     135     135     135     135     135     135     130     115
636          UI     115     115     115     115     115     115     115     115     114      81
637          UI      81      81      81      81      81      81      81      81      81      81
638          UI      81      81      81      68      52      52      52      52      52      52
639          UI      52      52      52      52      52      52      52      52      52      52
640          UI      52      52      52      52      52      52      34      20      20      20
641          UI      20      20      20      20      20      20      20      20      20      20
642          UI      20      20      20      20      20      20      20      20      20      20
643          UI      20      20      20      20      20      20      20      20      20      20
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

644          UI      20      20      20      20      20      20      20      20      20      20
645          UI      20      20      20      20      20      20      20      20      20      20
646          UI      20      20      20      20       0       0       0       0       0       0
647          UI       0       0       0       0       0       0       0       0       0       0
             *

648          KK  R22-23
649          KM       Channel Route From C22 To C23
650          KM       X-SECT. 4G2
651          RS      13    FLOW      -1
652          RC   0.050   0.050   0.050   14200   0.011
653          RX  4015.0  5015.0  5030.0  5048.0  5084.0  5096.0  5201.0  7381.0
654          RY   103.6    98.6    97.7    89.5    88.0    92.3    92.7   103.6
655          RL                    1.45    88.0
             *

656          KK      4G
657          KM       SUB-BASIN 4G
658          BA    7.70
659          LG    0.27    0.35    4.08    0.44    0.00
660          UI     229     229     229     229     229     229     229     229     374     660
661          UI     660     731     879     891    1055    1103    1319    1366    1407    1466
662          UI    1542    1611    1670    1715    1765    1820    1885    2023    2202    2339
663          UI    2565    2730    2944    2506    2027    1801    1700    1617    1547    1466
664          UI    1412    1379    1353    1326    1301    1256    1216    1197    1147    1132
665          UI    1099    1077    1055    1006     977     947     926     905     879     862
666          UI     788     788     738     713     713     620     607     607     580     561
667          UI     561     559     528     528     528     514     480     480     480     465
668          UI     377     377     377     377     377     304     293     293     293     293
669          UI     293     289     251     251     251     251     251     251     251     237
670          UI     176     176     176     176     176     176     176     176     176     176
671          UI     176     120     112     112     112     112     112     112     112     112
672          UI     112     112     112     112     112     112     112     112     100      44
673          UI      44      44      44      44      44      44      44      44      44      44
674          UI      44      44      44      44      44      44      44      44      44      44
675          UI      44      44      44      44      44      44      44      44      44      44
676          UI      44      44      44      44      44      44      44      44      44      44
677          UI      44      44      44      44       0       0       0       0       0       0
678          UI       0       0       0       0       0       0       0       0       0       0
             *

679          KK     C23
680          KM       Combine R21-23 + R22-23 + 4G
681          HC       3
             *

682          KK  R23-29
683          KM       Channel Route From C23 To C29
684          KM       X-SECT. 4J1
685          RS      41    FLOW      -1
686          RC   0.060   0.040   0.070   38800   0.009
687          RX  4010.0  5010.0  5106.0  5118.0  5187.0  5202.0  5499.0  6039.0
688          RY    99.0    94.0    93.8    90.0    90.0    95.3    96.3    99.0
689          RL                    2.34    90.0
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

690          KK      4J
691          KM       SUB-BASIN 4J
692          BA    6.09
693          LG    0.33    0.35    3.61    0.30    0.00
694          UI     163     163     163     163     163     163     163     163     163     289
695          UI     535     535     570     624     624     734     749     786     796     856
696          UI     870     913     926     960     993    1017    1069    1109    1151    1207
697          UI    1245    1276    1334    1421    1532    1650    1843    1895    2002    2200
698          UI    2134    1992    1857    1760    1675    1601    1536    1478    1427    1381
699          UI    1337    1294    1260    1213    1162    1101    1059    1031     985     957
700          UI     936     860     848     796     793     749     749     628     624     554
701          UI     468     468     452     288     288     288     288     288     275     267
702          UI     267     267     267     267     189     163     163     163     163     163
```

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703          UI     163     163     163     153      50      50      50      50      50      50
704          UI      50      50      50      50      50      50      50      50      50      50
705          UI      50      50      50      50      50      50      50      50      50      50
706          UI      50      50      50      50      50       0       0       0       0       0
707          UI       0       0       0       0       0       0       0       0       0       0
             *

708          KK     C29
709          KM       Combine R28-29 + R23-29 + 4J
710          HC       3
             *

711          KK  R29-31
712          KM       Channel Route From C29 To C31
713          KM       X-SECT. 4K1
714          RS      12    FLOW      -1
715          RC   0.070   0.031   0.060   18000   0.008
716          RX  4949.3  5180.0  5280.0  5286.0  5380.0  5386.0  5449.0  5604.7
717          RY    95.8    90.8    88.7    87.0    86.6    89.1    89.7    95.8
718          RL                    3.03    86.6
             *

719          KK      4K
720          KM       SUB-BASIN 4K
721          BA    3.91
722          LG    0.35    0.35    3.50    0.28    0.00
723          UI     115     115     115     115     115     115     115     115     184     379
724          UI     379     417     443     471     531     545     565     598     618     648
725          UI     662     681     716     741     769     805     855     879     905     953
726          UI    1025    1115    1192    1401    1345    1536    1527    1420    1313    1239
727          UI    1175    1120    1070    1027     988     954     923     895     855     814
728          UI     779     738     712     691     664     621     602     565     557     531
729          UI     500     443     435     332     332     328     204     204     204     204
730          UI     203     190     190     190     190     190     132     115     115     115
731          UI     115     115     115     115     113      35      35      35      35      35
732          UI      35      35      35      35      35      35      35      35      35      35
733          UI      35      35      35      35      35      35      35      35      35      35
734          UI      35      35      35       0       0       0       0       0       0       0
735          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

736          KK     C31
737          KM       Combine R29-31 + 4K
738          HC       2
             *

739          KK  R31-32
740          KM       Channel Route From C31 To C32
741          KM       Representative Of X-SECT. 4K1
742          KO                                 21
743          RS      12    FLOW      -1
744          RC   0.070   0.031   0.060   20600   0.010
745          RX  4949.3  5180.0  5280.0  5286.0  5380.0  5386.0  5449.0  5604.7
746          RY    95.8    90.8    88.7    87.0    86.6    89.1    89.7    95.8
747          RL                    3.21    86.6
             *

748          KK      4H
749          KM       SUB-BASIN 4H at C24
750          BA    6.11
751          LG    0.24    0.40    6.29    0.16   12.00
752          UI     179     179     179     179     179     179     179     179     240     514
753          UI     514     534     686     686     798     823    1008    1048    1083    1137
754          UI    1179    1227    1286    1327    1363    1403    1447    1523    1646    1756
755          UI    1904    2056    2262    2156    1831    1465    1371    1295    1235    1186
756          UI    1143    1084    1068    1054    1029    1004     980     940     927     894
757          UI     878     857     837     823     781     762     737     722     706     686
758          UI     677     614     614     582     556     556     496     473     473     459
759          UI     438     438     438     417     411     411     411     376     374     374
760          UI     374     315     294     294     294     294     270     229     229     229
761          UI     229     229     229     213     196     196     196     196     196     196
762          UI     196     171     137     137     137     137     137     137     137     137
763          UI     137     137     137      92      88      88      88      88      88      88
764          UI      88      88      88      88      88      88      88      88      88      88
765          UI      88      40      34      34      34      34      34      34      34      34
766          UI      34      34      34      34      34      34      34      34      34      34
767          UI      34      34      34      34      34      34      34      34      34      34
768          UI      34      34      34      34      34      34      34      34      34      34
769          UI      34      34      34      34      34      34      34       0       0       0
770          UI       0       0       0       0       0       0       0       0       0       0
             *

771          KK  R24-25
772          KM       Channel Route From C24 To C25
773          KM       Representative Of X-SECT. 6B1
774          RS      59    FLOW      -1
775          RC   0.070   0.045   0.060   20000   0.001
776          RX  4662.5  5037.5  5075.0  5088.0  5133.0  5146.0  5196.0  5566.0
777          RY   101.0    96.0    95.5    91.5    90.0    96.8    97.3   101.0
778          RL                    0.73    90.0
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

779          KK      4I
780          KM       SUB-BASIN 4I
781          BA   15.52
782          LG    0.29    0.35    4.14    0.40    4.00
783          UI     405     405     405     405     405     405     405     405     405     489
784          UI    1165    1165    1165    1425    1553    1581    1863    1863    2301    2356
785          UI    2452    2532    2594    2740    2839    2930    3005    3092    3167    3251
786          UI    3360    3586    3882    4047    4450    4713    5138    4925    4313    3445
787          UI    3180    3033    2911    2740    2658    2588    2453    2429    2389    2348
788          UI    2329    2223    2203    2117    2093    2025    2001    1941    1924    1863
789          UI    1854    1725    1725    1657    1635    1610    1553    1553    1437    1391
790          UI    1391    1281    1259    1259    1136    1071    1071    1071     998     991
791          UI     991     991     939     932     932     932     883     847     847     847
792          UI     847     695     665     665     665     665     665     544     518     518
793          UI     518     518     518     518     512     444     444     444     444     444
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794          UI     444     444     444     437     311     311     311     311     311     311
795          UI     311     311     311     311     311     311     294     198     198     198
796          UI     198     198     198     198     198     198     198     198     198     198
797          UI     198     198     198     198     198     198     198      85      78      78
798          UI      78      78      78      78      78      78      78      78      78      78
799          UI      78      78      78      78      78      78      78      78      78      78
800          UI      78      78      78      78      78      78      78      78      78      78
801          UI      78      78      78      78      78      78      78      78      78      78
802          UI      78      78      78      78      78      78      78      78       0       0
803          UI       0       0       0       0       0       0       0       0       0       0
             *

804          KK     C25
805          KM       Combine R24-25 + 4I
806          HC       2
             *

807          KK  R25-30
808          KM       Channel Route From C25 To C30
809          KM       X-SECT. 4L2
810          RS      35    FLOW      -1
811          RC   0.050   0.047   0.050   34000   0.012
812          RX  4033.0  5033.0  5069.0  5084.0  5129.0  5138.0  5168.0  5426.8
813          RY   100.6    95.6    94.8    91.7    91.0    93.2    96.0   100.6
814          RL                   1.68    91.0
             *

815          KK      6A
816          KM       SUB-BASIN 6A at C39
817          BA    9.04
818          LG    0.26    0.25    8.60    0.07   10.00
819          UI     247     247     247     247     247     247     247     247     247     512
820          UI     711     711     780     949     949    1106    1138    1360    1433    1498
821          UI    1546    1591    1674    1748    1802    1844    1897    1956    2012    2121
822          UI    2280    2424    2609    2806    3017    3141    2693    2205    1959    1860
823          UI    1779    1674    1618    1570    1498    1476    1459    1424    1400    1355
824          UI    1317    1294    1248    1237    1190    1186    1141    1138    1062    1054
825          UI    1016     999     981     949     949     860     849     838     769     769
826          UI     756     654     654     654     628     605     605     605     580     569
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

827          UI     569     569     539     517     517     517     509     407     407     407
828          UI     407     407     376     316     316     316     316     316     316     316
829          UI     273     271     271     271     271     271     271     271     243     190
830          UI     190     190     190     190     190     190     190     190     190     190
831          UI     186     121     121     121     121     121     121     121     121     121
832          UI     121     121     121     121     121     121     121     121     121     121
833          UI      64      47      47      47      47      47      47      47      47      47
834          UI      47      47      47      47      47      47      47      47      47      47
835          UI      47      47      47      47      47      47      47      47      47      47
836          UI      47      47      47      47      47      47      47      47      47      47
837          UI      47      47      47      47      47      47      47      47      47       0
838          UI       0       0       0       0       0       0       0       0       0       0
839          UI       0       0       0       0       0       0       0       0       0       0
             *

840          KK  R39-40
841          KM       Channel Route From C39 To C40
842          KM       X-SECT. 6B1
843          RS      10    FLOW      -1
844          RC   0.070   0.045   0.060   11400   0.009
845          RX  4662.5  5037.5  5075.0  5088.0  5133.0  5146.0  5196.0  5566.0
846          RY   101.0    96.0    95.5    91.5    90.0    96.8    97.3   101.0
847          RL                   1.10    90.0
             *

848          KK      6B
849          KM       SUB-BASIN 6B
850          BA   10.95
851          LG    0.26    0.28    8.28    0.08    9.00
852          UI     354     354     354     354     354     354     355     372    1019    1019
853          UI    1105    1359    1406    1631    1810    2044    2146    2233    2330    2444
854          UI    2564    2641    2726    2820    2936    3190    3453    3740    4082    4543
855          UI    4062    3346    2818    2643    2498    2377    2265    2157    2113    2078
856          UI    2038    1956    1906    1853    1783    1752    1699    1657    1631    1525
857          UI    1509    1430    1428    1359    1359    1224    1217    1145    1102    1092
858          UI     937     937     934     867     867     867     826     815     815     792
859          UI     741     741     741     661     582     582     582     582     498     453
860          UI     453     453     453     453     426     388     388     388     388     388
861          UI     388     373     272     272     272     272     272     272     272     272
862          UI     272     272     200     173     173     173     173     173     173     173
863          UI     173     173     173     173     173     173     173     173     127      68
864          UI      68      68      68      68      68      68      68      68      68      68
865          UI      68      68      68      68      68      68      68      68      68      68
866          UI      68      68      68      68      68      68      68      68      68      68
867          UI      68      68      68      68      68      68      68      68      68      68
868          UI       0       0       0       0       0       0       0       0       0       0
869          UI       0       0       0       0       0       0       0       0       0       0
             *

870          KK     C40
871          KM       Combine R39-40 + 6B
872          HC       2
             *
```



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

873          KK   DC40R
874          KM        Main flow at C40 is in the Right channel (C40R)
875          KM        Diverted flow (DQ record) goes into the left channel (C40L)
876          DT   DC40L
877          DI       0      15      60     110     345     900    1660    3500    6800   15300
878          DQ     0.0     0.0     0.0    15.0   125.0   350.0   760.0  1400.0  2600.0  3700.0
             *

879          KK  40R-30
880          KM       Channel route right flow split at C40 from C40 To C30
881          KM       X-SECT. 4L1
882          RS      32    FLOW      -1
883          RC   0.050   0.051   0.050   26600   0.009
884          RX  4015.0  5015.0  5159.0  5204.0  5261.0  5266.0  5283.0  6383.0
```

```
885          RY    99.1    94.1    93.5    90.0    90.0    92.3    93.6    99.1
886          RL                    0.93    90.0
             *

887          KK      4L
888          KM       SUB-BASIN 4L
889          BA    9.49
890          LG    0.32    0.35    3.77    0.34    3.00
891          UI     212     212     212     212     212     212     212     212     212     212
892          UI     212     416     695     695     695     800     811     811     954     973
893          UI     996    1036    1036    1132    1132    1178    1187    1234    1248    1302
894          UI    1315    1386    1406    1475    1524    1570    1620    1648    1678    1802
895          UI    1894    2010    2137    2266    2625    2374    2742    2863    2779    2615
896          UI    2476    2357    2254    2165    2086    2017    1947    1881    1833    1789
897          UI    1738    1691    1659    1622    1539    1502    1431    1391    1352    1303
898          UI    1281    1231    1217    1132    1106    1067    1036    1024     973     973
899          UI     865     811     811     680     608     608     608     463     374     374
900          UI     374     374     374     372     348     348     348     348     348     348
901          UI     343     212     212     212     212     212     212     212     212     212
902          UI     212     212     145      65      65      65      65      65      65      65
903          UI      65      65      65      65      65      65      65      65      65      65
904          UI      65      65      65      65      65      65      65      65      65      65
905          UI      65      65      65      65      65      65      65      65      65      65
906          UI       0       0       0       0       0       0       0       0       0       0
907          UI       0       0       0       0       0       0       0       0       0       0
             *

908          KK     C30
909          KM       Combine R25-30 + R40-30 + 4L
910          HC       3
             *

911          KK  R30-32
912          KM       Channel Route From C30 To C32
913          KM       Representative Of X-SECT. 4L2
914          RS      18    FLOW      -1
915          RC   0.050   0.047   0.050   20600   0.009
916          RX  4033.0  5033.0  5069.0  5084.0  5129.0  5138.0  5168.0  5426.8
917          RY   100.6    95.6    94.8    91.7    91.0    93.2    96.0   100.6
918          RL                    0.90    91.0
             *
```



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

919          KK      4M
920          KM       SUB-BASIN 4M
921          BA    3.42
922          LG    0.35    0.35    3.50    0.27    0.00
923          UI     124     124     124     124     124     124     124     370     407     454
924          UI     475     554     580     606     653     678     703     731     770     808
925          UI     853     906     943     978    1065    1175    1275    1480    1546    1661
926          UI    1533    1398    1309    1221    1159    1103    1048    1006     969     921
927          UI     865     818     778     744     712     654     625     603     570     520
928          UI     475     396     356     331     219     219     219     217     203     203
929          UI     203     203     139     124     124     124     124     124     124      65
930          UI      38      38      38      38      38      38      38      38      38      38
931          UI      38      38      38      38      38      38      38      38      38      38
932          UI      38      38       0       0       0       0       0       0       0       0
933          UI       0       0       0       0       0       0       0       0       0       0
             *

934          KK     C32
935          KM       Combine R31-32 + R30-32 + 4M
936          HC       3
             *

937          KK   DC32R
938          KM         Main flow at C32 is in the right channel (C32R)
939          KM         Diverted flow (DQ record) goes into the left channel (C32L)
940          DT   DC32L
941          DI       0     105     615    1875    4250    7900   12700   15000
942          DQ       0    30.0   275.0   775.0  1500.0  3100.0  4500.0  5300.0
             *

943          KK  R32-33
944          KM       Channel Route From C32 To C33
945          KM       Interpolated XSECT. between 4N1 and 4N2
946          RS      45    FLOW      -1
947          RC   0.040   0.041   0.040   48400   0.007
948          RX  4350.0  5350.0  5421.0  5430.0  5479.0  5500.0  5583.0  5867.7
949          RY    99.8    94.8    93.6    90.4    90.5    94.0    95.4    99.8
950          RL                    1.21    90.4
             *

951          KK      4N
952          KM       SUB-BASIN 4N
953          BA    7.61
954          LG    0.35    0.35    3.50    0.27    0.00
955          UI     143     143     143     143     143     143     143     143     143     143
956          UI     143     143     143     234     470     470     470     478     549     549
957          UI     549     606     658     658     681     700     700     748     766     772
958          UI     803     803     833     844     862     890     899     941     946     998
959          UI    1006    1062    1072    1097    1116    1135    1199    1234    1317    1392
960          UI    1450    1496    1819    1595    1736    1890    1937    1878    1784    1704
961          UI    1635    1568    1505    1459    1419    1372    1330    1303    1266    1232
962          UI    1214    1176    1158    1135    1108    1097    1034    1028     968     968
963          UI     915     915     874     866     842     823     809     748     748     721
964          UI     700     700     669     658     658     574     549     549     522     412
```



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

965          UI     412     412     412     345     253     253     253     253     253     253
966          UI     253     241     235     235     235     235     235     235     235     207
967          UI     143     143     143     143     143     143     143     143     143     143
968          UI     143     143     143      85      44      44      44      44      44      44
969          UI      44      44      44      44      44      44      44      44      44      44
970          UI      44      44      44      44      44      44      44      44      44      44
971          UI      44      44      44      44      44      44      44      44      44      44
972          UI      44      44      44      44      44      44      44      44       0       0
973          UI       0       0       0       0       0       0       0       0       0       0
             *
```

```
 974          KK     C33
 975          KO                                      21
 976          KM       Combine R32-33 + 4N
 977          HC       2
              *

 978          KK  R33-34
 979          KM       Channel Route From C33 To C34
 980          KM       Representative Of X-SECT. 5B1
 981          RS      27    FLOW      -1
 982          RC   0.060   0.048   0.060   19200   0.006
 983          RX  3447.0  5090.0  5240.0  5247.0  5289.0  5299.0  5377.0  5647.0
 984          RY    98.4    92.3    91.3    89.2    89.7    91.1    95.0    98.4
 985          RL                    0.76    89.2
              *

 986          KK      40
 987          KM       SUB-BASIN 40
 988          BA    5.50
 989          LG    0.35    0.35    3.66    0.31    0.00
 990          UI     134     134     134     134     134     134     134     134     134     134
 991          UI     283     441     441     456     514     514     560     617     623     657
 992          UI     657     716     718     753     757     791     805     834     864     882
 993          UI     935     965     998    1029    1053    1092    1153    1235    1337    1397
 994          UI    1665    1493    1741    1816    1745    1636    1537    1462    1397    1339
 995          UI    1286    1238    1197    1161    1129    1100    1064    1038    1006     964
 996          UI     915     892     857     828     812     775     767     701     699     657
 997          UI     657     622     617     557     514     514     408     386     386     364
 998          UI     237     237     237     237     237     235     220     220     220     220
 999          UI     220     220     158     134     134     134     134     134     134     134
1000          UI     134     134     121      41      41      41      41      41      41      41
1001          UI      41      41      41      41      41      41      41      41      41      41
1002          UI      41      41      41      41      41      41      41      41      41      41
1003          UI      41      41      41      41      41      41      41       0       0       0
1004          UI       0       0       0       0       0       0       0       0       0       0
              *

1005          KK     C34
1006          KM       Combine R33-34 + 40
1007          KO                                      21
1008          HC       2
              *
```



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

1009          KK  BDC32L
1010          KM       Recall flow split diverted hydrograph C32L
1011          DR   DC32L
              *

1012          KK  32L-35
1013          KM       Channel Route From left C32 flow split from C32 To C35
1014          KM       Interpolated XSECT. between 5A1 and 5A2
1015          RS      49    FLOW      -1
1016          RC   0.050   0.054   0.050   45000   0.007
1017          RX  4777.8  5125.0  5259.0  5274.0  5297.0  5313.0  5406.0  5787.3
1018          RY   100.1    95.1    92.7    90.4    90.1    93.6    95.8   100.1
1019          RL                    1.15    90.1
              *

1020          KK      5A
1021          KM       SUB-BASIN 5A
1022          BA    9.29
1023          LG    0.35    0.35    3.50    0.27    0.00
1024          UI     180     180     180     180     180     180     180     180     180     180
1025          UI     180     180     180     451     591     591     591     650     689     689
1026          UI     706     827     827     839     880     880     920     962     962    1008
1027          UI    1008    1041    1060    1081    1117    1131    1181    1194    1253    1275
1028          UI    1334    1355    1378    1413    1431    1531    1591    1659    1798    1855
1029          UI    2056    2172    2022    2313    2432    2412    2285    2176    2067    1985
1030          UI    1913    1851    1797    1723    1680    1643    1590    1551    1526    1477
1031          UI    1453    1426    1388    1374    1292    1277    1216    1201    1148    1140
1032          UI    1088    1088    1037    1034     976     940     936     880     880     862
1033          UI     827     827     767     689     689     689     525     517     517     517
1034          UI     455     318     318     318     318     318     318     318     301     295
1035          UI     295     295     295     295     295     295     220     180     180     180
1036          UI     180     180     180     180     180     180     180     180     180     141
1037          UI      55      55      55      55      55      55      55      55      55      55
1038          UI      55      55      55      55      55      55      55      55      55      55
1039          UI      55      55      55      55      55      55      55      55      55      55
1040          UI      55      55      55      55      55      55      55      55      55      55
1041          UI      55      55      55       0       0       0       0       0       0       0
1042          UI       0       0       0       0       0       0       0       0       0       0
              *

1043          KK     C35
1044          KM       Combine R32L-35 + 5A
1045          HC       2  127.35
              *

1046          KK  R35-36
1047          KM       Channel Route From C35 To C36
1048          KM       X-SECT. 5B1
1049          RS      25    FLOW      -1
1050          RC   0.060   0.048   0.060   24600   0.006
1051          RX  4974.6  5090.0  5240.0  5247.0  5289.0  5299.0  5377.0  5842.0
1052          RY    97.3    92.3    91.3    89.2    89.7    91.1    95.0    97.4
1053          RL                    1.82    89.2
              *
```



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

1054          KK      5B
1055          KM       SUB-BASIN 5B
1056          BA    4.88
1057          LG    0.35    0.35    3.82    0.36    0.00
1058          UI     144     144     144     144     144     144     144     144     230     474
1059          UI     474     521     552     588     663     681     705     747     771     809
1060          UI     827     850     894     924     960    1005    1067    1098    1130    1190
1061          UI    1279    1392    1487    1749    1679    1917    1906    1772    1639    1547
1062          UI    1467    1397    1336    1282    1233    1190    1152    1117    1067    1016
```

```
1063    UI     973     921     888     862     829     775     752     705     695     663
1064    UI     624     552     543     414     414     409     255     255     255     255
1065    UI     253     237     237     237     237     237     165     144     144     144
1066    UI     144     144     144     144     141      44      44      44      44      44
1067    UI      44      44      44      44      44      44      44      44      44      44
1068    UI      44      44      44      44      44      44      44      44      44      44
1069    UI      44      44      44       0       0       0       0       0       0       0
1070    UI       0       0       0       0       0       0       0       0       0       0
        *

1071    KK    C36I
1072    KM      Combine R35-36 + 5B + C34
1073    HC        3  140.36
        *

1074    KK      6N
1075    KM      SUB-BASIN 6N at C53
1076    BA    7.84
1077    LG    0.35    0.35    3.71    0.32    0.00
1078    UI     208     208     208     208     208     208     208     208     208     333
1079    UI     683     683     717     797     797     918     956     995    1017    1079
1080    UI    1112    1157    1172    1226    1255    1292    1357    1399    1449    1542
1081    UI    1578    1617    1672    1777    1912    2078    2214    2533    2441    2761
1082    UI    2776    2590    2432    2297    2180    2076    1991    1912    1842    1781
1083    UI    1726    1677    1632    1591    1494    1435    1388    1328    1279    1252
1084    UI    1195    1151    1086    1049    1017     983     956     887     797     797
1085    UI     618     598     598     481     368     368     368     368     368     341
1086    UI     341     341     341     341     331     208     208     208     208     208
1087    UI     208     208     208     208     158      64      64      64      64      64
1088    UI      64      64      64      64      64      64      64      64      64      64
1089    UI      64      64      64      64      64      64      64      64      64      64
1090    UI      64      64      64      64      64      64       0       0       0       0
1091    UI       0       0       0       0       0       0       0       0       0       0
        *

1092    KK  BDC12L
1093    KM        Recall Flow Split Diverted Hydrograph DC12L
1094    DR   DC12L
        *
```



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

1095    KK   CPND2
1096    KM    Combine C11 + C36 + C53 + C12L
1097    HC       4  239.68
        *

1098    KK    PND2
1099    KM        Reservoir Route at PND2 At The Gila Bend Canal
1100    KM            Route all flow from C11, C36, C53, and overflow from C12.
1101    RS       1    ELEV     726
1102    SV     0.0    21.0    36.0    56.0    80.0   109.0   142.0   182.0   234.0   311.0
1103    SV   438.0   627.0   883.0  1210.0  1377.5  1545.0  1581.0  1617.0  1652.0   728.0
1104    SE   726.0   728.0   729.0   730.0   731.0   732.0   733.0   734.0   735.0   736.0
1105    SE   737.0   738.0   739.0   740.0   740.5   741.0   741.1   741.2   741.3   741.5
1106    SQ     0.0    28.0   270.0   740.0  1245.0  1900.0  2700.0  3725.0  5059.0  6472.0
1107    SQ  8195.0 10137.0 12316.0 14545.0 15808.0 18790.0 19656.0 20734.0 22224.0 25967.0
1108    RL                   0.63   726.0
        *

1109    KK    C53O
1110    KM         Main flow at PND2 is in channel R53-56 (C53O).
1111    KM         Diverted flow (DQ record) will be split again at C36 and C11 (PND2R).
1112    DT   PND2R
1113    DI     0.0    28.0   270.0   740.0  1245.0  1900.0  2700.0  3725.0  5059.0  6472.0
1114    DI  8195.0 10137.0 12316.0 14545.0 15808.0 18790.0 19656.0 20734.0 22224.0 25967.0
1115    DQ     0.0    23.0   250.0   690.0  1150.0  1750.0  2500.0  3485.0  4784.0  6167.0
1116    DQ  7865.0  9782.0 11941.0 14150.0 15303.0 16456.0 16691.0 16954.0 22224.0 25967.0
        *

1117    KK  R53-56
1118    KM       Channel Route From C53 To C56
1119    KM       X-SECT. 6Q2
1120    RS       3    FLOW      -1
1121    RC   0.035   0.037   0.035    3200   0.005
1122    RX  4850.0  5100.0  5200.0  5213.5  5231.5  5245.0  5345.0  5595.0
1123    RY   101.5    96.5    94.5    90.0    90.0    94.5    96.5   101.5
1124    RL                   9.91    90.0
        *

1125    KK  R56-59
1126    KM       Channel Route From C56 To C59
1127    KM       X-SECT. 6Q1
1128    RS      20    FLOW      -1
1129    RC   0.030   0.036   0.030   14800   0.004
1130    RX  4871.9  5066.0  5149.0  5174.0  5191.0  5217.0  5242.0  6282.0
1131    RY   100.0    95.0    94.3    88.2    88.4    94.8    94.8   100.0
1132    RL                  10.00    88.2
        *

1133    KK      6Q
1134    KM       SUB-BASIN 6Q
1135    BA    2.86
1136    LG    0.47    0.05    3.64    0.68    1.00
1137    UI     117     117     117     117     117     117     309     386     437     465
1138    UI     540     568     602     638     666     698     736     780     833     884
```



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

1139    UI     919     994    1118    1260    1377    1554    1514    1366    1254    1162
1140    UI    1096    1030     981     939     893     830     779     736     699     661
1141    UI     613     575     549     506     450     367     338     266     208     208
1142    UI     208     193     193     193     180     117     117     117     117     117
1143    UI     117      46      36      36      36      36      36      36      36      36
1144    UI      36      36      36      36      36      36      36      36      36      36
1145    UI      36       0       0       0       0       0       0       0       0       0
1146    UI       0       0       0       0       0       0       0       0       0       0
        *

1147    KK     C59
1148    KM       Combine R56-59 + 6Q
1149    HC       2
```

```
                 *
1150             KK   BPND2
1151             KM        Recall Flow Split Diverted Hydrograph PND2R
1152             OR   PND2R
                 *

1153             KK    C360
1154             KM         Main flow at PND2 is in channel R36-37   (C360)
1155             KM         Diverted flow (DQ record) goes into channel R11-17 (C110)
1156             DT    C110
1157             DI     0.0  2860.0  3485.0  4784.0  6167.0  7865.0  9782.0 11941.0 14150.0  15303.
1158             DI  16456. 18275.0 23528.0
1159             DQ     0.0     0.0    85.0   284.0   567.0   965.0  1532.0  2241.0  2950.0  3378.0
1160             DQ  3806.0  4348.0  6359.0
                 *

1161             KK  R36-37
1162             KM       Channel Route From C36 To C37
1163             KM       X-SECT. 5C2
1164             RS      2    FLOW     -1
1165             RC  0.035   0.030   0.035    2200   0.005
1166             RX  4905.8  5120.0  5204.0  5222.0  5292.0  5309.0  5409.0  6229.0
1167             RY   101.5    96.5    97.0    90.9    90.6    96.7    97.4   101.5
1168             RL                   8.54    90.6
                 *

1169             KK  R37-38
1170             KM       Channel Route From C37 To C38
1171             KM       X-SECT. 5C1
1172             RS     10    FLOW      -1
1173             RC  0.030   0.036   0.030   13200   0.005
1174             RX  4925.4  5103.0  5139.0  5148.0  5208.0  5219.0  5255.0  6255.0
1175             RY   99.1    94.1    94.9    88.9    89.1    95.1    94.1    99.1
1176             RL                   2.24    88.9
                 *
```



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

1177             KK      5C
1178             KM       SUB-BASIN 5C
1179             BA    2.41
1180             LG    0.45    0.09    3.54    0.72    1.00
1181             UI     105     105     105     105     105     129     346     364     404     465
1182             UI     500     529     568     595     625     661     704     754     798     838
1183             UI     928    1044    1223    1285    1403    1267    1150    1062     989     930
1184             UI     881     841     794     737     690     650     616     570     532     506
1185             UI     482     404     354     303     251     186     186     185     173     173
1186             UI     173     138     105     105     105     105     105      61      32      32
1187             UI      32      32      32      32      32      32      32      32      32      32
1188             UI      32      32      32      32      32      32       0       0       0       0
1189             UI       0       0       0       0       0       0       0       0       0       0
                 *

1190             KK     C38
1191             KM       Combine R37-38 + 5C
1192             HC       2  242.09
                 *

1193             KK   BC110
1194             KM        Recall Flow Split Diverted Hydrograph C110
1195             DR    C110
                 *

1196             KK  R11-17
1197             KM       Channel Route From C11 To C17
1198             KM       Representative Of X-SECT. 5C2
1199             RS       1    FLOW     -1
1200             RC  0.035   0.030   0.035    3000   0.009
1201             RX  4905.8  5120.0  5204.0  5222.0  5292.0  5309.0  5409.0  6229.0
1202             RY   101.5    96.5    97.0    90.9    90.6    96.7    97.4   101.5
1203             RL                   8.69    90.6
                 *

1204             KK  R17-13
1205             KM       Channel Route From C17 To C13
1206             KM       Representative Of X-SECT. 5C2
1207             RS       1    FLOW     -1
1208             RC  0.035   0.030   0.035     800   0.001
1209             RX  4905.8  5120.0  5204.0  5222.0  5292.0  5309.0  5409.0  6229.0
1210             RY   101.5    96.5    97.0    90.9    90.6    96.7    97.4   101.5
1211             RL                   9.66    90.6
                 *

1212             KK  B14-13
1213             KM       Recall Hydrograph R14-13
1214             BI  R14-13      21
                 *
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                           0
LINE             ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1215             KK     C13
1216             KM       Combine R17-13 + R14-13
1217             HC       2  239.68
                 *

1218             KK  R13-16
1219             KM       Channel Route From C13 To C16
1220             KM       X-SECT. 3M1
1221             RS     16    FLOW     -1
1222             RC  0.030   0.035   0.030   11800   0.004
1223             RX  4925.4  5103.0  5139.0  5147.0  5192.0  5202.0  5238.0  6238.0
1224             RY   99.1    94.1    94.9    89.6    89.7    95.1    94.1    99.1
1225             RL                   9.61    89.6
                 *

1226             KK      3M
1227             KM       SUB-BASIN 3M
1228             BA    3.89
1229             LG    0.44    0.10    3.94    0.55    2.00
1230             UI     179     179     179     179     179     345     590     658     721     827
```

```
1231    UI     878     950     999    1050    1109    1188    1277    1357    1431    1588
1232    UI    1802    2089    2291    2335    2082    1894    1751    1627    1538    1453
1233    UI    1390    1277    1189    1117    1055     976     906     858     803     688
1234    UI     567     516     366     317     317     304     295     295     273     179
1235    UI     179     179     179     179     106      55      55      55      55      55
1236    UI      55      55      55      55      55      55      55      55      55      55
1237    UI      55      55       0       0       0       0       0       0       0       0
1238    UI       0       0       0       0       0       0       0       0       0       0
        *

1239    KK     C16
1240    KM       Combine R13-16 + 3M
1241    HC       2
        *
        * Move to Top of Major Basin 6
        *

1242    KK  BDC40L
1243    KM       Recall stored hydrograph from C40 diversion left channel
1244    DR   DC40L
        *

1245    KK  40L-41
1246    KM       Channel route left diversion from C40 To C41
1247    KM       X-SECT. 6C1
1248    RS      18    FLOW      -1
1249    RC   0.050   0.044   0.050   18000   0.009
1250    RX  4808.0  5048.0  5099.0  5110.0  5131.0  5136.0  5166.0  5346.0
1251    RY   101.0    96.0    95.9    91.4    91.2    95.2    96.6   101.0
1252    RL                    0.73    91.2
        *
```

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

1253    KK      6C
1254    KM       SUB-BASIN 6C
1255    BA    8.83
1256    LG    0.28    0.35    4.03    0.37    0.00
1257    UI     297     297     297     297     297     297     297     483     855     855
1258    UI    1045    1140    1292    1368    1709    1769    1839    1922    2020    2137
1259    UI    2206    2277    2355    2455    2674    2899    3152    3456    3827    3295
1260    UI    2664    2323    2175    2053    1952    1866    1796    1753    1720    1674
1261    UI    1626    1554    1516    1484    1425    1400    1368    1290    1266    1202
1262    UI    1196    1140    1132    1021    1021     940     924     873     786     786
1263    UI     759     727     727     713     684     684     684     622     622     622
1264    UI     577     488     488     488     488     416     380     380     380     380
1265    UI     380     344     326     326     326     326     326     326     260     228
1266    UI     228     228     228     228     228     228     228     228     173     145
1267    UI     145     145     145     145     145     145     145     145     145     145
1268    UI     145     145     145     145      57      57      57      57      57      57
1269    UI      57      57      57      57      57      57      57      57      57      57
1270    UI      57      57      57      57      57      57      57      57      57      57
1271    UI      57      57      57      57      57      57      57      57      57      57
1272    UI      57      57      57      57       0       0       0       0       0       0
1273    UI       0       0       0       0       0       0       0       0       0       0
        *

1274    KK     C41
1275    KM       Combine R40L-41 + 6C
1276    HC       2   28.82
        *

1277    KK  R41-43
1278    KM       Channel Route From C41 To C43
1279    KM       Representative Of X-SECT. 6F2
1280    RS      32    FLOW      -1
1281    RC   0.050   0.051   0.050   29600   0.009
1282    RX  4066.0  5066.0  5240.0  5250.0  5300.0  5318.0  5418.0  5718.0
1283    RY    96.0    91.0    89.9    85.1    86.6    89.6    94.5    96.0
1284    RL                    1.77    85.1
        *

1285    KK      6D
1286    KM       SUB-BASIN 6D
1287    BA    9.98
1288    LG    0.30    0.30    8.05    0.09    5.00
1289    UI     242     242     242     242     242     242     242     242     242     242
1290    UI     431     794     794     808     927     927     986    1112    1112    1183
1291    UI    1183    1274    1293    1346    1356    1421    1435    1503    1538    1589
1292    UI    1665    1713    1794    1843    1881    1930    2059    2198    2356    2485
1293    UI    2863    2752    2996    3263    3201    3000    2829    2682    2555    2445
1294    UI    2349    2264    2189    2122    2059    1989    1941    1897    1853    1746
1295    UI    1692    1635    1557    1528    1463    1431    1390    1316    1264    1220
1296    UI    1183    1157    1112    1102     927     927     864     695     695     695
1297    UI     544     428     428     428     428     428     411     397     397     397
1298    UI     397     397     389     242     242     242     242     242     242     242
1299    UI     242     242     242     175      74      74      74      74      74      74
1300    UI      74      74      74      74      74      74      74      74      74      74
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LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1301    UI      74      74      74      74      74      74      74      74      74      74
1302    UI      74      74      74      74      74      74      74      74       0       0
1303    UI       0       0       0       0       0       0       0       0       0       0
        *

1304    KK      6E
1305    KM       SUB-BASIN 6E at C42
1306    BA    7.12
1307    LG    0.24    0.25    8.20    0.04   10.00
1308    UI     155     155     155     155     155     155     155     155     155     155
1309    UI     155     188     445     445     445     445     590     593     593     698
1310    UI     711     765     889     900     936     950     988    1012    1046    1089
1311    UI    1112    1147    1163    1186    1220    1242    1270    1359    1432    1503
1312    UI    1566    1698    1780    1879    2044    1759    1617    1276    1225    1186
1313    UI    1113    1090    1046    1013     988     951     936     918     912     895
1314    UI     889     861     847     828     808     800     773     773     746     741
1315    UI     730     711     711     670     659     659     624     624     622     593
1316    UI     593     593     534     531     531     506     481     481     481     433
1317    UI     409     409     409     404     378     378     378     378     371     356
1318    UI     356     356     356     351     323     323     323     323     323     291
1319    UI     254     254     254     254     254     254     241     198     198     198
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1320          UI     198     198     198     198     198     198     171     169     169     169
1321          UI     169     169     169     169     169     169     165     119     119     119
1322          UI     119     119     119     119     119     119     119     119     119     119
1323          UI     119     119      94      76      76      76      76      76      76      76
1324          UI      76      76      76      76      76      76      76      76      76      76
1325          UI      76      76      76      76      76      76      62      30      30      30
1326          UI      30      30      30      30      30      30      30      30      30      30
1327          UI      30      30      30      30      30      30      30      30      30      30
1328          UI      30      30      30      30      30      30      30      30      30      30
1329          UI      30      30      30      30      30      30      30      30      30      30
1330          UI      30      30      30      30      30      30      30      30      30      30
1331          UI      30      30      30      30      30      30      30      30       0       0
1332          UI       0       0       0       0       0       0       0       0       0       0
              *

1333          KK  R42-43
1334          KM       Channel Route From C42 To C43
1335          KM       Representative Of X-SECT. 6F2
1336          RS      13     FLOW      -1
1337          RC   0.050   0.051   0.050   13000   0.008
1338          RX  4066.0  5066.0  5240.0  5250.0  5300.0  5318.0  5418.0  5718.0
1339          RY    96.0    91.0    89.9    85.1    86.6    89.6    94.5    96.0
1340          RL                    1.95    85.1
              *

1341          KK     C43
1342          KM       Combine R41-43 + 6D + R42-43
1343          HC       3
              *
```



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

1344          KK  R43-44
1345          KM       Channel Route From C43 To C44
1346          KM       Interpolated XSECT. between 6F1 and 6F2
1347          RS      32     FLOW      -1
1348          RC   0.055   0.051   0.050   31000   0.007
1349          RX  4797.5  5135.0  5239.0  5250.0  5286.0  5301.0  5372.0  5812.0
1350          RY    96.9    91.9    91.2    86.9    87.4    92.0    94.7    96.9
1351          RL                    0.98    86.9
              *

1352          KK      6F
1353          KM       SUB-BASIN 6F
1354          BA    5.05
1355          LG    0.32    0.35    3.82    0.32    4.00
1356          UI     113     113     113     113     113     113     113     113     113     113
1357          UI     113     222     370     370     370     425     432     432     508     518
1358          UI     530     551     551     602     602     627     632     657     664     693
1359          UI     700     738     748     785     811     835     862     877     893     959
1360          UI    1008    1070    1137    1206    1397    1263    1459    1523    1479    1392
1361          UI    1318    1254    1199    1152    1110    1073    1036    1001     975     952
1362          UI     925     900     883     863     819     799     762     740     719     693
1363          UI     682     655     647     602     589     568     551     545     518     518
1364          UI     460     432     432     362     324     324     324     246     199     199
1365          UI     199     199     199     198     185     185     185     185     185     185
1366          UI     183     113     113     113     113     113     113     113     113     113
1367          UI     113     113      77      35      35      35      35      35      35      35
1368          UI      35      35      35      35      35      35      35      35      35      35
1369          UI      35      35      35      35      35      35      35      35      35      35
1370          UI      35      35      35      35      35      35      35      35      35      35
1371          UI       0       0       0       0       0       0       0       0       0       0
1372          UI       0       0       0       0       0       0       0       0       0       0
              *

1373          KK     C44
1374          KM       Combine R43-44 + 6F
1375          HC       2
              *

1376          KK  R44-69
1377          KM       Channel Route From C44 To C69
1378          KM       X-SECT. 6J1
1379          RS      10     FLOW      -1
1380          RC   0.050   0.069   0.050    8000   0.005
1381          RX  4867.1  5144.0  5192.0  5217.0  5237.0  5285.0  5395.0  6575.0
1382          RY    99.4    94.4    94.1    89.5    89.6    91.6    93.5    99.4
1383          RL                    0.89    89.5
              *

1384          KK      6H
1385          KM       SUB-BASIN 6H
1386          BA    4.97
1387          LG    0.32    0.35    3.87    0.34    5.00
1388          UI     120     120     120     120     120     120     120     120     120     120
1389          UI     192     393     393     393     458     458     477     550     550     580
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1390          UI     585     622     639     660     671     696     705     740     752     785
1391          UI     813     835     887     904     922     948    1006    1065    1139    1213
1392          UI    1335    1425    1415    1585    1612    1510    1423    1348    1284    1228
1393          UI    1179    1136    1098    1057    1025     998     973     948     920     888
1394          UI     859     809     790     764     734     723     688     681     625     623
1395          UI     585     585     555     550     502     458     458     376     344     344
1396          UI     344     213     211     211     211     211     211     198     196     196
1397          UI     196     196     196     167     120     120     120     120     120     120
1398          UI     120     120     120     120      65      37      37      37      37      37
1399          UI      37      37      37      37      37      37      37      37      37      37
1400          UI      37      37      37      37      37      37      37      37      37      37
1401          UI      37      37      37      37      37      37      37      37      37       0
1402          UI       0       0       0       0       0       0       0       0       0       0
1403          UI       0       0       0       0       0       0       0       0       0       0
              *

1404          KK      6I
1405          KM       SUB-BASIN 6I
1406          BA    6.97
1407          LG    0.31    0.35    4.08    0.38    7.00
1408          UI     206     206     206     206     206     206     206     206     328     676
1409          UI     676     744     789     840     947     972    1007    1067    1101    1155
1410          UI    1181    1214    1277    1320    1371    1435    1525    1568    1614    1699
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1411          UI    1827    1988    2124    2498    2398    2738    2722    2530    2340    2209
1412          UI    2095    1996    1908    1831    1762    1700    1645    1595    1524    1451
1413          UI    1389    1315    1269    1232    1184    1107    1073    1007     992     947
1414          UI     891     789     775     592     592     585     364     364     364     364
1415          UI     362     338     338     338     338     338     236     206     206     206
1416          UI     206     206     206     206     201      63      63      63      63      63
1417          UI      63      63      63      63      63      63      63      63      63      63
1418          UI      63      63      63      63      63      63      63      63      63      63
1419          UI      63      63      63       0       0       0       0       0       0       0
1420          UI       0       0       0       0       0       0       0       0       0       0
              *

1421          KK     C46
1422          KM       Combine 6H + 6I
1423          HC       2
              *

1424          KK  R46-69
1425          KM       Channel Route From C46 To C69
1426          KM       Representative Of X-SECT. 6K1
1427          RS      13     FLOW      -1
1428          RC   0.060   0.047   0.050    7200   0.004
1429          RX  4300.0  5300.0  5963.0  5972.0  5994.0  6012.0  6357.0  7008.4
1430          RY   100.1    95.1    93.1    91.2    90.9    94.1    92.5   100.1
1431          RL                   0.55    90.9
              *
```

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

1432          KK     C69
1433          KM       Combine R44-69 + R46-69
1434          HC       2
              *

1435          KK  R69-47
1436          KM       Channel Route From C69 To C47
1437          KM       Representative Of X-SECT. 6K1
1438          RS       8     FLOW      -1
1439          RC   0.060   0.047   0.050    4800   0.003
1440          RX  4300.0  5300.0  5963.0  5972.0  5994.0  6012.0  6357.0  7008.4
1441          RY   100.1    95.1    93.1    91.2    90.9    94.1    92.5   100.1
1442          RL                   0.49    90.9
              *

1443          KK      6J
1444          KM       SUB-BASIN 6J
1445          BA    4.47
1446          LG    0.33    0.35    3.87    0.36    4.00
1447          UI     148     148     148     148     148     148     148     208     485     485
1448          UI     549     566     652     681     722     753     789     828     853     883
1449          UI     918     970    1019    1075    1119    1156    1227    1331    1468    1663
1450          UI    1693    1931    1968    1821    1671    1572    1480    1399    1336    1280
1451          UI    1230    1185    1144    1085    1025     976     934     893     853     808
1452          UI     770     722     703     679     595     566     467     424     424     265
1453          UI     261     261     261     251     242     242     242     242     167     148
1454          UI     148     148     148     148     148     148      48      45      45      45
1455          UI      45      45      45      45      45      45      45      45      45      45
1456          UI      45      45      45      45      45      45      45      45      45      45
1457          UI      45       0       0       0       0       0       0       0       0       0
1458          UI       0       0       0       0       0       0       0       0       0       0
              *

1459          KK     C47
1460          KM       Combine R69-47 + 6J
1461          HC       2
              *

1462          KK   DC47R
1463          KM         Main flow at C47 is in the right channel (C47R)
1464          KM         Diverted flow (DQ record) goes into the left channel (C47L)
1465          DT   DC47L
1466          DI       0     100     500    1000    2000    4000    8000   16000   32000
1467          DQ       0      50     250     500    1000    2000    4000    8000   16000
              *

1468          KK  47R-48
1469          KM       Channel Route From C47R To C48
1470          KM       X-SECT. 6K1
1471          RS      15     FLOW      -1
1472          RC   0.060   0.047   0.050    9600   0.005
1473          RX  4300.0  5300.0  5963.0  5972.0  5994.0  6012.0  6357.0  7008.4
1474          RY   100.1    95.1    93.1    91.2    90.9    94.1    92.5   100.1
1475          RL                   0.55    90.9
              *
```

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

1476          KK      6K
1477          KM       SUB-BASIN 6K
1478          BA    5.95
1479          LG    0.35    0.35    3.50    0.28    0.00
1480          UI     157     157     157     157     157     157     157     157     157     223
1481          UI     514     514     531     600     600     677     720     743     766     802
1482          UI     837     864     878     919     936     973    1010    1040    1091    1145
1483          UI    1179    1207    1241    1327    1417    1529    1617    1918    1751    2043
1484          UI    2117    1995    1863    1759    1669    1590    1522    1461    1408    1361
1485          UI    1318    1280    1241    1205    1155    1109    1059    1013     987     947
1486          UI     918     900     825     816     766     764     720     720     611     600
1487          UI     548     450     450     450     289     277     277     277     277     269
1488          UI     257     257     257     257     257     216     157     157     157     157
1489          UI     157     157     157     157     157      92      48      48      48      48
1490          UI      48      48      48      48      48      48      48      48      48      48
1491          UI      48      48      48      48      48      48      48      48      48      48
1492          UI      48      48      48      48      48      48      48       0       0       0
1493          UI       0       0       0       0       0       0       0       0       0       0
              *

1494          KK     C48
1495          KM       Combine R47R-48 + 6K
1496          HC       2
              *
```

```
1497          KK   DC48R
1498          KM         Main flow at C48 is in the right channel (C48R)
1499          KM         Diverted flow (DQ record) goes into the left channel (C48L)
1500          DT   DC48L
1501          DI       0      100      500     1000     2000     4000     8000    16000    32000
1502          DQ       0       50      250      500     1000     2000     4000     8000    16000
              *

1503          KK  48R-50
1504          KM       Channel Route From C48R To C50
1505          KM       Representative Of X-SECT. 6L2
1506          RS      24     FLOW       -1
1507          RC   0.050    0.070    0.050    10600    0.005
1508          RX  4213.0   5213.0   5570.0   5595.0   5707.0   5761.0   5887.0   6887.0
1509          RY    99.5     94.5     94.5     92.8     91.3     93.4     94.5     99.5
1510          RL                     2.06     91.3
              *

1511          KK      6G
1512          KM       SUB-BASIN 6G at C45
1513          BA    6.37
1514          LG    0.35     0.35     3.50     0.27     0.00
1515          UI     129      129      129      129      129      129      129      129      129      129
1516          UI     129      129      210      425      425      425      453      495      495      503
1517          UI     594      594      606      632      632      674      691      702      725      727
1518          UI     762      762      799      803      843      849      897      906      959      971
1519          UI     991     1015     1034     1101     1155     1213     1292     1349     1576     1473
1520          UI    1555     1709     1748     1679     1589     1512     1446     1389     1340     1292
1521          UI    1243     1209     1180     1143     1111     1090     1061     1035     1021      991
```



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

1522          UI     963      929      892      874      835      825      790      782      755      743
1523          UI     710      675      673      632      632      615      594      594      526      495
1524          UI     495      450      371      371      371      371      237      229      229      229
1525          UI     229      229      229      216      212      212      212      212      212      212
1526          UI     212      129      129      129      129      129      129      129      129      129
1527          UI     129      129      129      105       40       40       40       40       40       40
1528          UI      40       40       40       40       40       40       40       40       40       40
1529          UI      40       40       40       40       40       40       40       40       40       40
1530          UI      40       40       40       40       40       40       40       40       40       40
1531          UI      40       40       40       40       40        0        0        0        0        0
1532          UI       0        0        0        0        0        0        0        0        0        0
              *

1533          KK  R45-50
1534          KM       Channel Route From C45 To C50
1535          KM       Interpolated XSECT. between 6L1 and 6L2
1536          RS      48     FLOW       -1
1537          RC   0.050    0.062     0.05    22600    0.005
1538          RX  4257.0   5257.0   5479.0   5501.0   5573.0   5604.0   5717.0   6557.0
1539          RY    98.6     93.6     94.5     91.3     90.7     93.5     94.4     98.6
1540          RL                     1.54     90.7
              *

1541          KK      6L
1542          KM       SUB-BASIN 6L
1543          BA    6.34
1544          LG    0.35     0.35     3.50     0.27     0.00
1545          UI     140      140      140      140      140      140      140      140      140      140
1546          UI     140      226      458      458      458      512      535      535      603      642
1547          UI     645      683      683      727      746      764      783      799      823      841
1548          UI     867      894      917      958      976     1035     1052     1070     1105     1145
1549          UI    1198     1284     1375     1436     1630     1627     1665     1848     1888     1795
1550          UI    1692     1604     1530     1465     1409     1359     1316     1278     1234     1198
1551          UI    1171     1146     1107     1088     1070     1004      983      944      912      891
1552          UI     855      844      809      802      744      729      704      683      676      642
1553          UI     642      577      535      535      462      401      401      401      330      247
1554          UI     247      247      247      247      247      232      229      229      229      229
1555          UI     229      229      167      140      140      140      140      140      140      140
1556          UI     140      140      140      140       46       43       43       43       43       43
1557          UI      43       43       43       43       43       43       43       43       43       43
1558          UI      43       43       43       43       43       43       43       43       43       43
1559          UI      43       43       43       43       43       43       43       43       43       43
1560          UI      43       43        0        0        0        0        0        0        0        0
1561          UI       0        0        0        0        0        0        0        0        0        0
              *

1562          KK      C50
1563          KM       Combine R48R-50 + R45-50 + 6L
1564          HC       3
              *
```



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

1565          KK  R50-52
1566          KM       Channel Route From C50 To C52
1567          KM       X-SECT. 6O2
1568          KO                                      21
1569          RS      25     FLOW       -1
1570          RC   0.050    0.050    0.050    13400    0.005
1571          RX  4255.0   5255.0   5450.0   5603.0   5891.0   6002.0   6302.0   6437.0
1572          RY    98.9     93.9     93.2     92.6     93.9     94.4     96.0     99.2
1573          RL                     4.71     92.6
              *

1574          KK  BDC47L
1575          KM       Recall diverted hydrograph C47L
1576          DR   DC47L
              *

1577          KK  47L-49
1578          KM       Channel Route From C47L To C49
1579          KM       Representative Of X-SECT. 6K1
1580          RS      30     FLOW       -1
1581          RC   0.060    0.047    0.050    19400    0.005
1582          RX  4300.0   5300.0   5963.0   5972.0   5994.0   6012.0   6357.0   7008.4
1583          RY   100.1     95.1     93.1     91.2     90.9     94.1     92.6    100.1
1584          RL                     0.56     90.9
              *
```

```
1585          KK  BDC48L
1586          KM       Recall diverted hydrograph C48L
1587          DR   DC48L
              *

1588          KK  48L-49
1589          KM        Channel Route From C48L To C49
1590          KM        Representative Of X-SECT. 6L2
1591          RS       24     FLOW      -1
1592          RC    0.050    0.070    0.050    10600    0.005
1593          RX   4213.0   5213.0   5570.0   5595.0   5707.0   5761.0   5887.0   6887.0
1594          RY     99.5     94.5     94.5     92.8     91.3     93.4     94.5     99.5
1595          RL                      2.06     91.3
              *

1596          KK       6M
1597          KM        SUB-BASIN 6M
1598          BA     3.86
1599          LG     0.34     0.35     3.55     0.29     1.00
1600          UI      137      137      137      137      137      137      137      361      449      487
1601          UI      524      587      630      669      702      738      767      802      834      873
1602          UI      918      972     1026     1062     1122     1222     1353     1553     1582     1808
1603          UI     1799     1634     1518     1409     1333     1264     1200     1150     1105     1064
1604          UI     1008      948      898      856      820      787      720      691      668      629
1605          UI      581      524      451      393      389      242      242      242      242      226
1606          UI      225      225      225      183      137      137      137      137      137      137
1607          UI      118       42       42       42       42       42       42       42       42       42
1608          UI       42       42       42       42       42       42       42       42       42       42
```



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

1609          UI       42       42       42       42        0        0        0        0        0        0
1610          UI        0        0        0        0        0        0        0        0        0        0
              *

1611          KK      C49
1612          KM        Combine R47L-49 + R48L-49 + 6M
1613          HC        3   77.19
              *

1614          KK  R49-51
1615          KM        Channel Route From C49 To C51
1616          KM        X-SECT. 6O1
1617          RS       22     FLOW      -1
1618          RC    0.050    0.069    0.050    15000    0.005
1619          RX   4013.0   5013.0   5076.0   5093.0   5100.0   5112.0   5229.0   5849.0
1620          RY     95.0     90.0     88.8     84.9     84.9     89.7     91.9     95.0
1621          RL                      0.65     84.9
              *

1622          KK       6O
1623          KM        SUB-BASIN 6O
1624          BA     8.13
1625          LG     0.37     0.30     3.66     0.31     0.00
1626          UI      288      288      288      288      288      288      288      760      947     1026
1627          UI     1105     1237     1327     1410     1479     1554     1616     1688     1757     1838
1628          UI     1934     2048     2161     2238     2363     2573     2849     3271     3332     3808
1629          UI     3789     3442     3198     2968     2808     2662     2527     2421     2327     2241
1630          UI     2123     1996     1891     1803     1727     1657     1517     1455     1406     1325
1631          UI     1224     1105      950      828      820      510      510      510      510      477
1632          UI      473      473      473      385      288      288      288      288      288      288
1633          UI      250       88       88       88       88       88       88       88       88       88
1634          UI       88       88       88       88       88       88       88       88       88       88
1635          UI       88       88       88       88        0        0        0        0        0        0
1636          UI        0        0        0        0        0        0        0        0        0        0
              *

1637          KK     C51I
1638          KM        Combine R49-51 + 6O
1639          HC        2
              *

1640          KK    CPND1
1641          KM        Combine R50-52 + C51I
1642          HC        2   98.03
              *

1643          KK     PND1
1644          KM         Reservoir Route at PND1 (C51 + C52) At The Gila Bend Canal
1645          RS        1     ELEV   727.5
1646          SV      0.0      0.0      1.0      3.0      7.0     12.0     22.0     41.0     74.0    129.0
1647          SV    226.0    369.0    561.0    662.0    801.0    921.0   1041.0
1648          SE    727.5    728.0    729.0    730.0    731.0    732.0    733.0    734.0    735.0    736.0
1649          SE    737.0    738.0    739.0    739.5    740.0    740.5    741.0
1650          SQ      0.0     10.0     30.0     75.0    135.0    233.0    287.0    377.0    400.0    442.0
1651          SQ    479.0    515.0    546.0    582.0   2834.6  11355.1  27511.5
```



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

1652          RL                      0.47    727.5
              *

1653          KK    C51O
1654          KM          Main flow at C51O is in the left channel (R51-54)
1655          KM          Diverted flow (DQ record) goes into the right channel (R52-55).
1656          KM             Split reservoir route hydrograph downstream of GBC to simulate
1657          KM             outflow from C51 and C52.
1658          DT    C52O
1659          DI      0.0    135.0    233.0    287.0    377.0    400.0    442.0    479.0    515.0    546.0
1660          DI    582.0   2834.6  11355.1  27511.5
1661          DQ      0.0      0.0      8.0     12.0     27.0     40.0     47.0     54.0     60.0     66.0
1662          DQ     87.0    192.0   1698.3   6480.3
              *

1663          KK  R51-54
1664          KM        Channel Route From C51 To C54
1665          KM        Representative Of X-SECT. 6P2
1666          RS        1     FLOW      -1
1667          RC    0.035    0.034    0.035     1800    0.004
1668          RX   4799.4   5078.0   5091.0   5121.0   5136.0   5166.0   5177.0   5548.3
1669          RY     98.9     93.9     88.7     87.2     87.6     88.5     92.3     98.9
1670          RL                      1.82     87.2
              *
```

```
1671          KK  R54-57
1672          KM       Channel Route From C54 To C57
1673          KM       X-SECT. 6P2
1674          RS       6     FLOW      -1
1675          RC   0.035   0.034   0.035    7600   0.004
1676          RX  4799.4  5078.0  5091.0  5121.0  5136.0  5166.0  5177.0  5548.3
1677          RY    98.9    93.9    88.7    87.2    87.6    88.5    92.3    98.9
1678          RL                    1.96    87.2
              *

1679          KK   8C520
1680          KM       Recall diverted hydrograph C520
1681          DR    C520
              *

1682          KK  R52-55
1683          KM       Channel Route From C52 To C55
1684          KM       Representative Of X-SECT. 6P4
1685          RS       1     FLOW      -1
1686          RC   0.035   0.034   0.035    2400   0.004
1687          RX  4033.0  5033.0  5042.0  5062.0  5072.0  5082.0  5097.0  5277.0
1688          RY    98.9    93.9    90.2    88.6    88.6    89.8    98.0    98.9
1689          RL                    4.07    88.6
              *
1                                          HEC-1 INPUT                                                    PAGE 39

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

1690          KK  R55-57
1691          KM       Channel Route From C55 To C57
1692          KM       X-SECT. 6P4
1693          RS       4     FLOW      -1
1694          RC   0.035   0.034   0.035    6600   0.005
1695          RX  4033.0  5033.0  5042.0  5062.0  5072.0  5082.0  5097.0  5277.0
1696          RY    98.9    93.9    90.2    88.6    88.6    89.8    98.0    98.9
1697          RL                    4.16    88.6
              *

1698          KK     C57
1699          KM       Combine R54-57 + R55-57
1700          HC       2   98.03
              *

1701          KK  R57-58
1702          KM       Channel Route From C57 To C58
1703          KM       X-SECT. 6P3
1704          RS      13     FLOW      -1
1705          RC   0.060   0.065   0.050   10400   0.004
1706          RX  4795.5  5240.0  5318.0  5333.0  5357.0  5382.0  5532.0  5982.0
1707          RY    99.2    94.2    94.0    92.0    92.0    93.7    93.9    99.3
1708          RL                    0.79    92.0
              *

1709          KK      6P
1710          KM       SUB-BASIN 6P
1711          BA    5.21
1712          LG    0.42    0.13    4.07    0.50    2.00
1713          UI     177     177     177     177     177     177     177     343     582     592
1714          UI     679     696     815     840     867     941     971    1001    1045    1094
1715          UI    1142    1199    1266    1331    1376    1450    1574    1731    1941    2060
1716          UI    2289    2368    2189    2005    1884    1766    1673    1596    1528    1466
1717          UI    1412    1362    1280    1208    1149    1099    1056    1019     928     895
1718          UI     867     816     770     679     619     509     509     370     313     313
1719          UI     313     304     291     291     291     291     200     177     177     177
1720          UI     177     177     177     151      54      54      54      54      54      54
1721          UI      54      54      54      54      54      54      54      54      54      54
1722          UI      54      54      54      54      54      54      54      54       0       0
1723          UI       0       0       0       0       0       0       0       0       0       0
              *

1724          KK     C58
1725          KM       Combine R57-58 + 6P
1726          HC       2
              *
              *
1727          ZZ
1
              SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   35         3K
*** HEC1 ERROR 6 *** TRIED TO COMBINE MORE HYDROGRAPHS THAN AVAILABLE
              .
              .
   56       C12I
              V
              V
   59       C12O
              .
              .
   75         .------->   DC12L
   69      DC12R
              V
              V
   78     R12-14
              V
              V
   86     R14-13
              .
              .
   95         .         3F
              .          V
              .          V
  121         .       R1-3
              .          .
              .          .
  129         .          .         3E
              .          .          V
              .          .          V
  154         .          .       R2-3
```

```
162                                                  3G
182                C3.......................
                   V
                   V
185              R3-5
193                                  3H
222                C5............
                   V
                   V
225              R5-7
233                                  3C
                                     V
                                     V
259                                R4-7
267                                                  3D
284                C7.......................
                   V
                   V
287             R7-90
295                                  3A
                                     V
                                     V
326                               R6-90
334               C90............
                   V
                   V
337             R90-8
345                                  3B
361                C8............
                   V
                   V
364              R8-9
372                                  3I
391                C9............
                   V
                   V
394             R9-10
402                                  3J
428               C10............
                   V
                   V
431            R10-11
439                                  3L
453               C11I...........
457                                  4A
                                     V
                                     V
488                            R26-27
496                                                  4B
512                            C27............
                                     V
                                     V
515                            R27-28
523                                                  4C
544                            C28............
                                     V
                                     V
547                            R28-29
555                                                  4E
                                                     V
                                                     V
581                                        R20-21
589                                                                 4F
609                                        C21............
                                                     V
```

```
612                          V
                          R21-23
620                                   4D
                                       V
                                       V
648                                 R22-23
656                                                   4G
679                          C23.......................
                             V
                             V
682                       R23-29
690                                   4J
708                    C29.......................
                       V
                       V
711                 R29-31
719                          4K
736                    C31............
                       V
                       V
739                 R31-32
748                          4H
                             V
                             V
771                       R24-25
779                                   4I
804                          C25............
                             V
                             V
807                       R25-30
815                                   6A
                                       V
                                       V
840                                 R39-40
848                                                   6B
870                                   C40............
876                                                      -------> DC40L
873                                 DC40R
                                       V
                                       V
879                                 40R-30
887                                                   4L
908                          C30.......................
                             V
                             V
911                       R30-32
919                                   4M
934                    C32.......................
940                    -------> DC32L
937                 DC32R
                       V
                       V
943                 R32-33
951                          4N
974                    C33............
                       V
                       V
978                 R33-34
986                          4O
1005                   C34............
1011                                  <-------  DC32L
1009                       BDC32L
                             V
                             V
1012                      32L-35
```

```
1020                                                  5A
                                                       .
1043                                            C35............
                                                        V
                                                        V
1046                                         R35-36
                                                        .
1054                                                  5B
                                                       .
1071                                   C36I......................
                                                        .
1074                                            6N
                                                        .
1094                                                    .<-------   DC12L
1092                                                    .     BDC12L
                                                        .
1095                          CPND2...................................
                                V
                                V
1098                          PND2
                                .
1112                            .------->   PND2R
1109                          C53O
                                V
                                V
1117                        R53-56
                                V
                                V
1125                        R56-59
                                .
1133                                   6Q
                                        .
1147                          C59............
                                .
1152                                    .<-------   PND2R
1150                                BPND2
                                        .
1156                                    .------->   C11O
1153                                C36O
                                        V
                                        V
1161                                R36-37
                                        V
                                        V
1169                                R37-38
                                        .
1177                                            5C
                                                        .
1190                                   C38............
                                                        .
1195                                                    .<-------   C11O
1193                                            BC11O
                                                        V
                                                        V
1196                                         R11-17
                                                        V
                                                        V
1204                                         R17-13
                                                        .
1212                                                    .     B14-13
                                                        .
1215                                            C13............
                                                        V
                                                        V
1218                                         R13-16
                                                        .
1226                                                    .          3M
                                                        .
1239                                            C16............
                                                        .
1244                                                    .<-------   DC40L
1242                                                    .     BDC40L
                                                        .          V
                                                        .          V
1245                                                    .     40L-41
                                                        .
1253                                                    .                6C
                                                        .                 .
1274                                                    .        C41............
                                                        .          V
                                                        .          V
1277                                                    .     R41-43
                                                        .
1285                                                    .                6D
                                                        .                 .
1304                                                    .                 .          6E
                                                        .                 .           V
                                                        .                 .           V
1333                                                    .                 .      R42-43
                                                        .                 .           .
1341                                                    .        C43........................
```

```
                 .         .         .         .         V
                 .         .         .         .         V
1344             .         .         .         .     R43-44
                 .         .         .         .         .
1352             .         .         .         .         .          6F
                 .         .         .         .         .           .
1373             .         .         .         .         .       C44............
                 .         .         .         .         V
1376             .         .         .         .         V
                 .         .         .         .     R44-69
                 .         .         .         .         .
1384             .         .         .         .         .          6H
                 .         .         .         .         .           .
1404             .         .         .         .         .           .          6I
                 .         .         .         .         .           .           .
1421             .         .         .         .         .         C46............
                 .         .         .         .         .           V
1424             .         .         .         .         .           V
                 .         .         .         .         .      R46-69
                 .         .         .         .         .           .
1432             .         .         .         .         .       C69............
                 .         .         .         .         V
1435             .         .         .         .         V
                 .         .         .         .     R69-47
                 .         .         .         .         .
1443             .         .         .         .         .          6J
                 .         .         .         .         .           .
1459             .         .         .         .         .       C47............
                 .         .         .         .         .
1465             .         .         .         .         .-------->   DC47L
1462             .         .         .         .     DC47R
                 .         .         .         .         V
1468             .         .         .         .         V
                 .         .         .         .     47R-48
                 .         .         .         .         .
1476             .         .         .         .         .          6K
                 .         .         .         .         .           .
1494             .         .         .         .         .       C48............
                 .         .         .         .         .
1500             .         .         .         .         .-------->   DC48L
1497             .         .         .         .     DC48R
                 .         .         .         .         V
1503             .         .         .         .         V
                 .         .         .         .     48R-50
                 .         .         .         .         .
1511             .         .         .         .         .          6G
                 .         .         .         .         .           V
1533             .         .         .         .         .           V
                 .         .         .         .         .      R45-50
                 .         .         .         .         .           .
1541             .         .         .         .         .           .          6L
                 .         .         .         .         .           .           .
1562             .         .         .         .         .       C50.......................
                 .         .         .         .         V
1565             .         .         .         .         V
                 .         .         .         .     R50-52
                 .         .         .         .         .
1576             .         .         .         .         .           .<-------   DC47L
1574             .         .         .         .         .      BDC47L
                 .         .         .         .         .           V
1577             .         .         .         .         .           V
                 .         .         .         .         .      47L-49
                 .         .         .         .         .           .
1587             .         .         .         .         .           .           .<-------   DC48L
1585             .         .         .         .         .           .      BDC48L
                 .         .         .         .         .           .           V
1588             .         .         .         .         .           .           V
                 .         .         .         .         .           .      48L-49
                 .         .         .         .         .           .           .
1596             .         .         .         .         .           .           .          6M
                 .         .         .         .         .           .           .           .
1611             .         .         .         .         .         C49.......................
                 .         .         .         .         .           V
1614             .         .         .         .         .           V
                 .         .         .         .         .      R49-51
                 .         .         .         .         .           .
1622             .         .         .         .         .           .          6O
                 .         .         .         .         .           .           .
1637             .         .         .         .         .         C51I...........
                 .         .         .         .         .           .
1640             .         .         .         .         .       CPND1...........
                 .         .         .         .         V
1643             .         .         .         .         V
                 .         .         .         .       PND1
                 .         .         .         .         .
1658             .         .         .         .         .-------->    C52O
1653             .         .         .         .       C51O
                 .         .         .         .         V
1663             .         .         .         .         V
                 .         .         .         .     R51-54
                 .         .         .         .         V
                 .         .         .         .         V
```

```
1671                                          R54-57
                                                 .
1681                                             .          .<-------    C520
1679                                             .       BC520
                                                 .          V
                                                 .          V
1682                                             .       R52-55
                                                 .          V
                                                 .          V
1690                                             .       R55-57
                                                 .          .
1698                                             .       C57............
                                                 .          V
                                                 .          V
1701                                             .       R57-58
                                                 .          .
1709                                             .          6P
                                                 .          .
1724                                             .       C58............
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1 ERRORS IN STREAM SYSTEM

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              MAY  1991                *
*            VERSION 4.0.1E             *
*                                       *
*  RUN DATE  03/25/92  TIME  12:03:14   *
*                                       *
*****************************************
```

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

FCDMC GILA BEND FLOOD INSURANCE STUDY PROJECT NO. 1135B
FCD 90-67

Quilotosa and Sauceda Washes (Major Basins 3, 4, 5, and 6)

100-Year 24-Hour Duration Storm

03/25/92  Input Filename:  S&Q24.H1

Green & AMPT Loss Rate Method
S-Graph Unit Hydrograph
Normal Depth Routing

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

    IT        HYDROGRAPH TIME DATA
                     NMIN          3  MINUTES IN COMPUTATION INTERVAL
                    IDATE     13MAR92  STARTING DATE
                    ITIME       1200  STARTING TIME
                       NQ        600  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE     14MAR92  ENDING DATE
                   NDTIME       1757  ENDING TIME
                    ICENT         19  CENTURY MARK

               COMPUTATION INTERVAL    0.05 HOURS
                    TOTAL TIME BASE   29.95 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

 16 JD        INDEX STORM NO. 1
                     STRM        4.53  PRECIPITATION DEPTH
                     TRDA        0.01  TRANSPOSITION DRAINAGE AREA

 17 PI          PRECIPITATION PATTERN
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.01      0.01      0.01      0.01      0.01
                  0.04      0.04      0.04      0.04      0.04      0.04      0.04      0.04      0.04      0.04
                  0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01      0.01
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                  0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

27 JD INDEX STORM NO. 2

STRM 4.44 PRECIPITATION DEPTH
TRDA 5.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

28 JD INDEX STORM NO. 3

STRM 4.30 PRECIPITATION DEPTH
TRDA 10.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

29 JD INDEX STORM NO. 4

STRM 4.00 PRECIPITATION DEPTH
TRDA 50.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

30 JD INDEX STORM NO. 5

STRM 3.90 PRECIPITATION DEPTH
TRDA 80.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

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|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

31 JD INDEX STORM NO. 6
STRM 3.85 PRECIPITATION DEPTH
TRDA 100.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

32 JD INDEX STORM NO. 7
STRM 3.81 PRECIPITATION DEPTH
TRDA 125.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

33 JD INDEX STORM NO. 8
STRM 3.71 PRECIPITATION DEPTH

TRDA 200.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

34 JD INDEX STORM NO. 9

STRM 3.53 PRECIPITATION DEPTH

TRDA 500.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

```
-----DSS---ZOPEN: Existing File Opened,  File: S&Q24.DSS
                  Unit:  71;  DSS Version: 6-FT
-----DSS--- ZREAD Unit  71; Vers.   1:  /BENDER/C151/FLOW/13MAR1992/3MIN/C151-SPLIT/
-----DSS--- ZREAD Unit  71; Vers.   1:  /BENDER/C151/FLOW/13MAR1992/3MIN/C151-SPLIT/
-----DSS--- ZREAD Unit  71; Vers.   1:  /BENDER/C151/FLOW/14MAR1992/3MIN/C151-SPLIT/
```

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

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                **************
                *            *
  86 KK         *    R14-13  *
                *            *
                **************

  89 KO             OUTPUT CONTROL VARIABLES
                          IPRNT           5  PRINT CONTROL
                          IPLOT           0  PLOT CONTROL
                          QSCAL          0.  HYDROGRAPH PLOT SCALE
                          IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                           IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                          ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                          ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                         TIMINT       0.050  TIME INTERVAL IN HOURS

          WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO

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

                **************
                *            *
 453 KK         *      C11I  *
                *            *
                **************

 455 KO             OUTPUT CONTROL VARIABLES
                          IPRNT           5  PRINT CONTROL
                          IPLOT           0  PLOT CONTROL
                          QSCAL          0.  HYDROGRAPH PLOT SCALE
                          IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                           IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                          ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                          ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                         TIMINT       0.050  TIME INTERVAL IN HOURS

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

                **************
                *            *
 739 KK         *    R31-32  *
                *            *
                **************

 742 KO             OUTPUT CONTROL VARIABLES
                          IPRNT           5  PRINT CONTROL
                          IPLOT           0  PLOT CONTROL
                          QSCAL          0.  HYDROGRAPH PLOT SCALE
                          IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                           IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                          ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                          ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                         TIMINT       0.050  TIME INTERVAL IN HOURS

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

                **************
                *            *
 974 KK         *       C33  *
                *            *
                **************

 975 KO             OUTPUT CONTROL VARIABLES
                          IPRNT           5  PRINT CONTROL
                          IPLOT           0  PLOT CONTROL
                          QSCAL          0.  HYDROGRAPH PLOT SCALE
                          IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                           IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                          ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                          ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                         TIMINT       0.050  TIME INTERVAL IN HOURS

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

                **************
                *            *
1005 KK         *       C34  *
                *            *
                **************

1007 KO             OUTPUT CONTROL VARIABLES
                          IPRNT           5  PRINT CONTROL
                          IPLOT           0  PLOT CONTROL
                          QSCAL          0.  HYDROGRAPH PLOT SCALE
                          IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                           IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                          ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                          ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                         TIMINT       0.050  TIME INTERVAL IN HOURS

1214 BI             READ STATION   R14-13 HYDROGRAPH FROM UNIT 21

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

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                *            *
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1565 KK      *    R50-52  *
             *            *
             **************

1568 KO          OUTPUT CONTROL VARIABLES
                       IPRNT          5  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE
                       IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                        IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2        600  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT      0.050  TIME INTERVAL IN HOURS

1
                                          RUNOFF SUMMARY
                                   FLOW IN CUBIC FEET PER SECOND
                                TIME IN HOURS,  AREA IN SQUARE MILES
```

| | OPERATION | STATION | PEAK FLOW | TIME OF PEAK | AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR | 24-HOUR | 72-HOUR | BASIN AREA | MAXIMUM STAGE | TIME OF MAX STAGE |
|---|---|---|---|---|---|---|---|---|---|---|
| + | HYDROGRAPH AT | 3K | 2990. | 13.65 | 994. | 252. | 202. | 8.94 | | |
| + | HYDROGRAPH AT | C151 | 4080. | 18.20 | 2049. | 512. | 410. | 8.94 | | |
| + | 2 COMBINED AT | C12I | 4085. | 18.20 | 2291. | 684. | 548. | 339.24 | | |
| + | ROUTED TO | C12O | 4031. | 18.45 | 1964. | 648. | 520. | 339.24 | | |
| + | DIVERSION TO | DC12L | 1240. | 18.45 | 477. | 119. | 95. | 339.24 | | |
| + | HYDROGRAPH AT | DC12R | 2792. | 18.45 | 1487. | 529. | 424. | 339.24 | | |
| + | ROUTED TO | R12-14 | 2724. | 18.85 | 1455. | 511. | 410. | 339.24 | | |
| + | ROUTED TO | R14-13 | 2659. | 19.20 | 1413. | 485. | 389. | 339.24 | | |
| + | HYDROGRAPH AT | 3F | 3798. | 13.55 | 1575. | 466. | 376. | 12.14 | | |
| + | ROUTED TO | R1-3 | 3374. | 14.65 | 1550. | 456. | 367. | 12.14 | | |
| + | HYDROGRAPH AT | 3E | 2834. | 13.40 | 1064. | 290. | 233. | 8.24 | | |
| + | ROUTED TO | R2-3 | 2610. | 14.05 | 1053. | 286. | 229. | 8.24 | | |
| + | HYDROGRAPH AT | 3G | 2297. | 12.95 | 706. | 186. | 149. | 5.12 | | |
| + | 3 COMBINED AT | C3 | 5468. | 14.45 | 3040. | 864. | 694. | 25.50 | | |
| + | ROUTED TO | R3-5 | 5370. | 14.85 | 2979. | 839. | 672. | 25.50 | | |
| + | HYDROGRAPH AT | 3H | 2039. | 13.85 | 862. | 243. | 195. | 6.78 | | |
| + | 2 COMBINED AT | C5 | 6235. | 14.70 | 3685. | 1042. | 836. | 32.28 | | |
| + | ROUTED TO | R5-7 | 6028. | 15.35 | 3586. | 997. | 799. | 32.28 | | |
| + | HYDROGRAPH AT | 3C | 3632. | 13.55 | 1408. | 378. | 303. | 11.27 | | |
| + | ROUTED TO | R4-7 | 3159. | 14.35 | 1278. | 335. | 268. | 11.27 | | |
| + | HYDROGRAPH AT | 3D | 3044. | 13.50 | 960. | 240. | 192. | 6.51 | | |
| + | 3 COMBINED AT | C7 | 9053. | 14.40 | 5304. | 1469. | 1177. | 50.06 | | |
| + | ROUTED TO | R7-90 | 8758. | 14.80 | 5223. | 1436. | 1151. | 50.06 | | |
| + | HYDROGRAPH AT | 3A | 2925. | 14.00 | 1289. | 373. | 300. | 11.19 | | |
| + | ROUTED TO | R6-90 | 2319. | 16.10 | 1142. | 330. | 264. | 11.19 | | |
| + | 2 COMBINED AT | C90 | 8875. | 15.95 | 5943. | 1697. | 1360. | 61.25 | | |
| + | ROUTED TO | R90-8 | 8790. | 16.25 | 5884. | 1685. | 1350. | 61.25 | | |
| + | HYDROGRAPH AT | 3B | 3140. | 13.50 | 969. | 242. | 194. | 6.42 | | |
| + | 2 COMBINED AT | C8 | 8915. | 14.95 | 6333. | 1873. | 1501. | 67.67 | | |
| + | ROUTED TO | R8-9 | 8522. | 16.65 | 5961. | 1786. | 1431. | 67.67 | | |
| + | HYDROGRAPH AT | 3I | 2046. | 13.95 | 765. | 194. | 155. | 5.10 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| + | 2 COMBINED AT | C9 | 8614. | 16.65 | 5961. | 1934. | 1550. | 72.77 |
| + | ROUTED TO | R9-10 | 7974. | 18.90 | 5590. | 1787. | 1432. | 72.77 |
| + | HYDROGRAPH AT | 3J | 2882. | 14.90 | 1397. | 371. | 298. | 11.25 |
| + | 2 COMBINED AT | C10 | 8079. | 18.90 | 5590. | 2085. | 1670. | 84.02 |
| + | ROUTED TO | R10-11 | 7850. | 19.95 | 5484. | 2008. | 1609. | 84.02 |
| + | HYDROGRAPH AT | 3L | 1463. | 13.15 | 383. | 98. | 79. | 2.48 |
| + | 2 COMBINED AT | C11I | 7848. | 19.95 | 5484. | 2086. | 1672. | 86.50 |
| + | HYDROGRAPH AT | 4A | 3079. | 14.05 | 1371. | 399. | 321. | 11.75 |
| + | ROUTED TO | R26-27 | 2608. | 14.60 | 1136. | 300. | 241. | 11.75 |
| + | HYDROGRAPH AT | 4B | 2913. | 13.35 | 836. | 209. | 168. | 6.14 |
| + | 2 COMBINED AT | C27 | 3404. | 13.55 | 1784. | 483. | 387. | 17.89 |
| + | ROUTED TO | R27-28 | 3144. | 16.00 | 1675. | 450. | 361. | 17.89 |
| + | HYDROGRAPH AT | 4C | 3830. | 14.20 | 1565. | 400. | 320. | 12.33 |
| + | 2 COMBINED AT | C28 | 5031. | 14.30 | 2955. | 805. | 645. | 30.22 |
| + | ROUTED TO | R28-29 | 4918. | 14.60 | 2923. | 792. | 635. | 30.22 |
| + | HYDROGRAPH AT | 4E | 1631. | 13.50 | 648. | 183. | 147. | 4.88 |
| + | ROUTED TO | R20-21 | 1495. | 14.00 | 613. | 163. | 131. | 4.88 |
| + | HYDROGRAPH AT | 4F | 2626. | 13.00 | 867. | 242. | 194. | 6.16 |
| + | 2 COMBINED AT | C21 | 3159. | 13.15 | 1388. | 386. | 310. | 11.04 |
| + | ROUTED TO | R21-23 | 3000. | 13.75 | 1379. | 381. | 306. | 11.04 |
| + | HYDROGRAPH AT | 4D | 1400. | 13.75 | 566. | 153. | 123. | 4.57 |
| + | ROUTED TO | R22-23 | 1269. | 14.45 | 546. | 147. | 118. | 4.57 |
| + | HYDROGRAPH AT | 4G | 2724. | 13.25 | 938. | 242. | 194. | 7.70 |
| + | 3 COMBINED AT | C23 | 5670. | 13.50 | 2633. | 716. | 574. | 23.31 |
| + | ROUTED TO | R23-29 | 4973. | 15.60 | 2374. | 619. | 496. | 23.31 |
| + | HYDROGRAPH AT | 4J | 2619. | 13.75 | 907. | 228. | 183. | 6.09 |
| + | 3 COMBINED AT | C29 | 9294. | 15.30 | 5581. | 1511. | 1210. | 59.62 |
| + | ROUTED TO | R29-31 | 9013. | 15.90 | 5384. | 1435. | 1150. | 59.62 |
| + | HYDROGRAPH AT | 4K | 1893. | 13.55 | 607. | 152. | 122. | 3.91 |
| + | 2 COMBINED AT | C31 | 9099. | 15.75 | 5753. | 1552. | 1244. | 63.53 |
| + | ROUTED TO | R31-32 | 8791. | 16.30 | 5518. | 1464. | 1173. | 63.53 |
| + | HYDROGRAPH AT | 4H | 2851. | 13.30 | 1073. | 303. | 244. | 6.11 |
| + | ROUTED TO | R24-25 | 2302. | 16.30 | 1039. | 290. | 232. | 6.11 |
| + | HYDROGRAPH AT | 4I | 5001. | 13.50 | 1926. | 528. | 424. | 15.52 |
| + | 2 COMBINED AT | C25 | 4918. | 13.50 | 2765. | 782. | 629. | 21.63 |
| + | ROUTED TO | R25-30 | 4252. | 15.20 | 2648. | 729. | 584. | 21.63 |
| + | HYDROGRAPH AT | 6A | 4582. | 13.40 | 1878. | 523. | 420. | 9.04 |
| + | ROUTED TO | R39-40 | 4337. | 13.95 | 1860. | 515. | 413. | 9.04 |
| | HYDROGRAPH AT | | | | | | | |

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|---|---|---|---|---|---|---|---|
| + | 6B | 6008. | 13.15 | 2185. | 593. | 476. | 10.95 |
| + 2 COMBINED AT | C40 | 8551. | 13.25 | 3847. | 1060. | 852. | 19.99 |
| + DIVERSION TO | DC40L | 2827. | 13.25 | 1454. | 387. | 310. | 19.99 |
| + HYDROGRAPH AT | DC40R | 5724. | 13.25 | 2392. | 673. | 542. | 19.99 |
| + ROUTED TO | 40R-30 | 5142. | 15.00 | 2310. | 630. | 505. | 19.99 |
| + HYDROGRAPH AT | 4L | 3312. | 14.15 | 1339. | 350. | 281. | 9.49 |
| + 3 COMBINED AT | C30 | 10427. | 15.05 | 5648. | 1579. | 1266. | 51.11 |
| + ROUTED TO | R30-32 | 10062. | 16.00 | 5581. | 1550. | 1242. | 51.11 |
| + HYDROGRAPH AT | 4M | 1975. | 13.25 | 537. | 134. | 108. | 3.42 |
| + 3 COMBINED AT | C32 | 17735. | 16.00 | 10542. | 2917. | 2337. | 118.06 |
| + DIVERSION TO | DC32L | 6251. | 16.00 | 3803. | 1066. | 854. | 118.06 |
| + HYDROGRAPH AT | DC32R | 11484. | 16.00 | 6738. | 1851. | 1483. | 118.06 |
| + ROUTED TO | R32-33 | 10895. | 18.00 | 6456. | 1752. | 1404. | 118.06 |
| + HYDROGRAPH AT | 4N | 2459. | 14.60 | 1114. | 290. | 232. | 7.61 |
| + 2 COMBINED AT | C33 | 11011. | 18.00 | 6746. | 1977. | 1585. | 125.67 |
| + ROUTED TO | R33-34 | 10712. | 19.25 | 6600. | 1934. | 1550. | 125.67 |
| + HYDROGRAPH AT | 4O | 2173. | 13.95 | 807. | 204. | 164. | 5.50 |
| + 2 COMBINED AT | C34 | 10712. | 19.25 | 6617. | 2094. | 1678. | 131.17 |
| + HYDROGRAPH AT | BDC32L | 6251. | 16.00 | 3803. | 1066. | 854. | 118.06 |
| + ROUTED TO | 32L-35 | 5900. | 18.25 | 3622. | 1006. | 806. | 118.06 |
| + HYDROGRAPH AT | 5A | 3034. | 14.50 | 1348. | 349. | 280. | 9.29 |
| + 2 COMBINED AT | C35 | 6008. | 18.15 | 3839. | 1287. | 1031. | 127.35 |
| + ROUTED TO | R35-36 | 5697. | 19.55 | 3667. | 1208. | 968. | 127.35 |
| + HYDROGRAPH AT | 5B | 2156. | 13.55 | 686. | 172. | 137. | 4.88 |
| + 3 COMBINED AT | C36I | 16171. | 19.40 | 10176. | 3397. | 2722. | 140.36 |
| + HYDROGRAPH AT | 6N | 3207. | 13.75 | 1113. | 280. | 224. | 7.84 |
| + HYDROGRAPH AT | BDC12L | 1240. | 18.45 | 477. | 119. | 95. | 339.24 |
| + 4 COMBINED AT | CPND2 | 21777. | 19.90 | 14444. | 5416. | 4341. | 239.68 |
| + ROUTED TO | PND2 | 18032. | 20.85 | 13774. | 5371. | 4304. | 239.68 |
| + DIVERSION TO | PND2R | 16162. | 20.90 | 13077. | 5092. | 4080. | 239.68 |
| + HYDROGRAPH AT | C53O | 1872. | 20.85 | 697. | 279. | 224. | 239.68 |
| + ROUTED TO | R53-56 | 1823. | 21.00 | 674. | 264. | 212. | 239.68 |
| + ROUTED TO | R56-59 | 1631. | 21.70 | 568. | 200. | 160. | 239.68 |
| + HYDROGRAPH AT | 6Q | 1647. | 13.05 | 402. | 101. | 81. | 2.86 |
| + 2 COMBINED AT | C59 | 1612. | 21.70 | 564. | 276. | 221. | 242.54 |
| + HYDROGRAPH AT | BPND2 | 16162. | 20.90 | 13077. | 5092. | 4080. | 239.68 |
| + DIVERSION TO | C11O | 3697. | 20.90 | 2634. | 779. | 624. | 239.68 |
| + HYDROGRAPH AT | C36O | 12465. | 20.90 | 10443. | 4313. | 3456. | 239.68 |
| + ROUTED TO | R36-37 | 12384. | 20.95 | 10375. | 4276. | 3427. | 239.68 |

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|---|---|---|---|---|---|---|---|
| + | ROUTED TO | R37-38 | 12213. | 21.45 | 10229. | 4193. | 3360. | 239.68 |
| + | HYDROGRAPH AT | 5C | 1381. | 12.95 | 321. | 81. | 65. | 2.41 |
| + | 2 COMBINED AT | C38 | 12213. | 21.45 | 10229. | 4252. | 3407. | 242.09 |
| + | HYDROGRAPH AT | BC110 | 3697. | 20.90 | 2634. | 779. | 624. | 239.68 |
| + | ROUTED TO | R11-17 | 3648. | 20.95 | 2588. | 756. | 606. | 239.68 |
| + | ROUTED TO | R17-13 | 3624. | 21.00 | 2570. | 748. | 599. | 239.68 |
| + | HYDROGRAPH AT | B14-13 | 2659. | 19.20 | 1413. | 485. | 389. | 339.24 |
| + | 2 COMBINED AT | C13 | 5422. | 20.25 | 3882. | 1238. | 992. | 239.68 |
| + | ROUTED TO | R13-16 | 4988. | 20.75 | 3571. | 1106. | 886. | 239.68 |
| + | HYDROGRAPH AT | 3M | 2519. | 12.90 | 568. | 145. | 116. | 3.89 |
| + | 2 COMBINED AT | C16 | 4988. | 20.75 | 3571. | 1213. | 972. | 243.57 |
| + | HYDROGRAPH AT | BDC40L | 2827. | 13.25 | 1454. | 387. | 310. | 19.99 |
| + | ROUTED TO | 40L-41 | 2760. | 14.20 | 1437. | 381. | 305. | 19.99 |
| + | HYDROGRAPH AT | 6C | 3628. | 13.05 | 1153. | 294. | 236. | 8.83 |
| + | 2 COMBINED AT | C41 | 4392. | 13.15 | 2433. | 644. | 516. | 28.82 |
| + | ROUTED TO | R41-43 | 4081. | 15.35 | 2308. | 611. | 490. | 28.82 |
| + | HYDROGRAPH AT | 6D | 4768. | 13.95 | 1887. | 495. | 397. | 9.98 |
| + | HYDROGRAPH AT | 6E | 3344. | 13.85 | 1627. | 476. | 383. | 7.12 |
| + | ROUTED TO | R42-43 | 3076. | 14.60 | 1589. | 458. | 367. | 7.12 |
| + | 3 COMBINED AT | C43 | 9550. | 14.60 | 5219. | 1446. | 1159. | 45.92 |
| + | ROUTED TO | R43-44 | 9125. | 16.10 | 5111. | 1406. | 1127. | 45.92 |
| + | HYDROGRAPH AT | 6F | 1888. | 14.15 | 768. | 203. | 163. | 5.05 |
| + | 2 COMBINED AT | C44 | 9435. | 16.00 | 5540. | 1567. | 1256. | 50.97 |
| + | ROUTED TO | R44-69 | 9328. | 16.45 | 5483. | 1549. | 1242. | 50.97 |
| + | HYDROGRAPH AT | 6H | 1957. | 13.95 | 754. | 199. | 160. | 4.97 |
| + | HYDROGRAPH AT | 6I | 3085. | 13.55 | 1022. | 273. | 219. | 6.97 |
| + | 2 COMBINED AT | C46 | 4442. | 13.75 | 1692. | 450. | 361. | 11.94 |
| + | ROUTED TO | R46-69 | 4249. | 14.35 | 1667. | 443. | 356. | 11.94 |
| + | 2 COMBINED AT | C69 | 10194. | 16.30 | 6634. | 1916. | 1537. | 62.91 |
| + | ROUTED TO | R69-47 | 10104. | 16.65 | 6586. | 1905. | 1527. | 62.91 |
| + | HYDROGRAPH AT | 6J | 2227. | 13.35 | 664. | 172. | 138. | 4.47 |
| + | 2 COMBINED AT | C47 | 10104. | 16.65 | 6692. | 2036. | 1633. | 67.38 |
| + | DIVERSION TO | DC47L | 5052. | 16.65 | 3346. | 1018. | 816. | 67.38 |
| + | HYDROGRAPH AT | DC47R | 5052. | 16.65 | 3346. | 1018. | 816. | 67.38 |
| + | ROUTED TO | 47R-48 | 4941. | 17.45 | 3287. | 1001. | 802. | 67.38 |
| + | HYDROGRAPH AT | 6K | 2579. | 13.75 | 906. | 228. | 183. | 5.95 |
| + | 2 COMBINED AT | C48 | 4966. | 17.45 | 3459. | 1185. | 949. | 73.33 |
| + | DIVERSION TO | DC48L | 2483. | 17.45 | 1729. | 592. | 475. | 73.33 |
| | HYDROGRAPH AT | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| + | DC48R | 2483. | 17.45 | 1729. | 592. | 475. | 73.33 |
| + ROUTED TO | 48R-50 | 2314. | 18.65 | 1621. | 542. | 435. | 73.33 |
| + HYDROGRAPH AT | 6G | 2222. | 14.40 | 955. | 246. | 197. | 6.37 |
| + ROUTED TO | R45-50 | 1800. | 16.80 | 839. | 216. | 173. | 6.37 |
| + HYDROGRAPH AT | 6L | 2374. | 14.15 | 960. | 245. | 196. | 6.34 |
| + 3 COMBINED AT | C50 | 3136. | 17.20 | 2691. | 914. | 733. | 86.04 |
| + ROUTED TO | R50-52 | 2359. | 18.35 | 1961. | 603. | 483. | 86.04 |
| + HYDROGRAPH AT | BDC47L | 5052. | 16.65 | 3346. | 1018. | 816. | 67.38 |
| + ROUTED TO | 47L-49 | 4831. | 18.25 | 3223. | 983. | 788. | 67.38 |
| + HYDROGRAPH AT | BDC48L | 2483. | 17.45 | 1729. | 592. | 475. | 73.33 |
| + ROUTED TO | 48L-49 | 2314. | 18.65 | 1621. | 542. | 435. | 73.33 |
| + HYDROGRAPH AT | 6M | 2160. | 13.25 | 600. | 151. | 121. | 3.86 |
| + 3 COMBINED AT | C49 | 7036. | 18.40 | 4777. | 1636. | 1311. | 77.19 |
| + ROUTED TO | R49-51 | 6891. | 19.50 | 4714. | 1611. | 1291. | 77.19 |
| + HYDROGRAPH AT | 6O | 4355. | 13.25 | 1200. | 300. | 240. | 8.13 |
| + 2 COMBINED AT | C51I | 6891. | 19.50 | 4714. | 1865. | 1495. | 85.32 |
| + 2 COMBINED AT | CPND1 | 8696. | 19.40 | 6211. | 2418. | 1938. | 98.03 |
| + ROUTED TO | PND1 | 8630. | 19.55 | 6169. | 2102. | 1685. | 98.03 |
| + DIVERSION TO | C52O | 1217. | 19.55 | 782. | 245. | 196. | 98.03 |
| + HYDROGRAPH AT | C51O | 7414. | 19.55 | 5388. | 1857. | 1488. | 98.03 |
| + ROUTED TO | R51-54 | 7401. | 19.65 | 5380. | 1850. | 1483. | 98.03 |
| + ROUTED TO | R54-57 | 7346. | 19.90 | 5344. | 1821. | 1460. | 98.03 |
| + HYDROGRAPH AT | BC52O | 1217. | 19.55 | 782. | 245. | 196. | 98.03 |
| + ROUTED TO | R52-55 | 1207. | 19.65 | 773. | 240. | 192. | 98.03 |
| + ROUTED TO | R55-57 | 1181. | 19.80 | 749. | 226. | 181. | 98.03 |
| + 2 COMBINED AT | C57 | 8525. | 19.90 | 6093. | 2047. | 1640. | 98.03 |
| + ROUTED TO | R57-58 | 8406. | 20.55 | 6012. | 1982. | 1588. | 98.03 |
| + HYDROGRAPH AT | 6P | 2649. | 13.30 | 761. | 194. | 155. | 5.21 |
| + 2 COMBINED AT | C58 | 8406. | 20.55 | 6013. | 2136. | 1712. | 103.24 |

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

```
-----DSS---ZCLOSE Unit:  71,   File: S&Q24.DSS
           Pointer Utilization:  0.25
           Number of Records:      4
           File Size:     19.2  Kbytes
           Percent Inactive:   0.0
```

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*             MAY   1991                *
*           VERSION 4.0.1E              *
*                                       *
*  RUN DATE  03/30/92  TIME  14:12:29   *
*                                       *
*****************************************
```

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

```
X     X  XXXXXXX   XXXXX          X
X     X  X       X     X        XX
X     X  X       X              X
XXXXXXX  XXXX    X       XXXXX  X
X     X  X       X              X
X     X  X       X     X        X
X     X  XXXXXXX   XXXXX        XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

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

1

HEC-1 INPUT

PAGE 1

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

  1           ID   FCDMC GILA BEND FLOOD INSURANCE STUDY PROJECT NO. 11358
  2           ID   FCD 90-67
  3           ID
  4           ID   100-Year 24-Hour Duration Storm
  5           ID
  6           ID   03/30/92     Input Filename: UN-24.H1
  7           ID                Unnamed Washes #1 and #2
  8           ID
  9           ID        Green & AMPT Loss Rate Method
 10           ID        S-Graph Unit Hydrograph
 11           ID        Normal Depth Routing
              *
 12           IT       1                    1880
 13           IO       5
 14           IN      15
              *
 15           JD    4.53    0.01
 16           PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
 17           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
 18           PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
 19           PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.173
 20           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.487   0.663   0.707
 21           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 22           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 23           PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
 24           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
 25           PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
 26           JD    4.44     5.0
 27           JD    4.30    10.0
 28           JD    4.00    50.0
 29           JD    3.90    80.0
 30           JD    3.85   100.0
 31           JD    3.72   200.0
              *

 32           KK    2VV1
 33           KM    Basin 2VV1 at CP143
 34           KM    LAG USED =  67.0 minutes
 35           KM    The Phoenix Valley S-Graph was used for this basin.
 36           BA    0.54
 37           LG    0.34    0.34    3.84    0.63    4.00
 38           UI      27      27      27      27      27      27      27      27      27      27
 39           UI      27      27      27      27      27      64      89      89      89      89
 40           UI     103     104     104     104     122     125     125     129     133     133
 41           UI     138     145     145     149     152     152     158     160     161     169
 42           UI     169     175     178     182     189     190     201     202     208     208
 43           UI     215     216     231     236     250     262     272     284     320     328
 44           UI     297     345     362     367     357     342     328     312     302     294
 45           UI     284     274     269     260     254     250     240     238     231     228
 46           UI     223     219     215     211     208     201     195     190     184     182
 47           UI     173     173     167     164     163     156     156     149     142     142
 48           UI     137     133     133     129     125     125     123     104     104     104
 49           UI     103      78      78      78      78      78      57      48      48      48
 50           UI      48      48      48      48      48      45      45      45      45      45
 51           UI      45      45      45      45      34      27      27      27      27      27
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1

HEC-1 INPUT

PAGE 2

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

 52           UI      27      27      27      27      27      27      27      27      27      24
 53           UI       8       8       8       8       8       8       8       8       8       8
 54           UI       8       8       8       8       8       8       8       8       8       8
 55           UI       8       8       8       8       8       8       8       8       8       8
 56           UI       8       8       8       8       8       8       8       8       8       8
 57           UI       8       8       8       8       8       8       8       8       8       8
 58           UI       0       0       0       0       0       0       0       0       0       0
 59           UI       0       0       0       0       0       0       0       0       0       0
              *

 60           KK  143144
 61           KM        Channel Route From CP143 to CP144
 62           KM        Unnamed Wash #2 Section 2.335
 63           RS      34    FLOW      -1
 64           RC   0.035   0.035   0.035  5800.0  0.0066
 65           RX   9842.  9896.1  9971.3  9991.7 10000.0 10034.9 10278.6 10587.0
 66           RY     825   824.2   820.4   818.8   817.9   820.7   819.3   826.9
 67           RL                    1.24   817.9
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 68             KK    2VV2
 69             KM    Basin 2VV2
 70             KM    LAG USED =  67.0 minutes
 71             KM    The Phoenix Valley S-Graph was used for this basin.
 72             BA    0.96
 73             LG    0.34    0.34    3.32    0.86    4.00
 74             UI      48      48      48      48      48      48      48      48      48      48
 75             UI      48      48      48      48      48     113     159     159     159     159
 76             UI     182     185     185     185     217     222     222     229     236     236
 77             UI     244     258     258     264     271     271     281     285     287     300
 78             UI     300     311     317     323     336     339     358     358     370     370
 79             UI     383     385     411     420     444     467     484     504     569     584
 80             UI     528     613     644     653     635     608     584     556     537     522
 81             UI     504     487     478     462     451     444     428     423     411     405
 82             UI     396     389     383     375     370     357     347     338     326     324
 83             UI     308     308     296     292     289     277     277     264     252     252
 84             UI     243     236     236     230     222     222     219     185     185     185
 85             UI     183     139     139     139     139     139     102      86      86      85
 86             UI      85      85      85      85      85      79      79      79      79      79
 87             UI      79      79      79      79      61      48      48      48      48      48
 88             UI      48      48      48      48      48      48      48      48      48      42
 89             UI      15      15      15      15      15      15      15      15      15      15
 90             UI      15      15      15      15      15      15      15      15      15      15
 91             UI      15      15      15      15      15      15      15      15      15      15
 92             UI      15      15      15      15      15      15      15      15      15      15
 93             UI      15      15      15      15      15      15      15      15      15      15
 94             UI       0       0       0       0       0       0       0       0       0       0
 95             UI       0       0       0       0       0       0       0       0       0       0
                *
1                                          HEC-1 INPUT                                          PAGE  3

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

 96             KK    C144
 97             KM    Combine R143-144 + 2VV2
 98             HC       2
                *

 99             KK  144145
100             KM        Channel Route From CP144 To CP145
101             KM        Unnamed Wash #2 Section 0.821
102             RS      49    FLOW      -1
103             RC   0.030   0.035   0.030  9100.0  0.0065
104             RX   9855.  9913.8  9952.9  9983.9 10009.5 10023.7 10692.6 10921.0
105             RY     770   769.5   768.3   765.4   765.3   767.7   766.8   772.9
106             RL                   1.30   765.3
                *

107             KK    2VV6
108             KM    Basin 2VV6
109             KM    LAG USED =  45.0 minutes
110             KM    The Phoenix Valley S-Graph was used for this basin.
111             BA    0.56
112             LG    0.34    0.34    3.26    0.89    4.00
113             UI      42      42      42      42      42      42      42      42      42      42
114             UI     104     138     138     149     161     161     186     193     200     205
115             UI     213     224     230     235     243     247     259     264     275     286
116             UI     295     311     319     326     335     357     383     412     433     512
117             UI     463     542     567     546     511     480     456     435     417     401
118             UI     385     372     360     350     341     332     322     309     298     283
119             UI     273     267     254     249     241     229     219     211     205     200
120             UI     193     187     161     161     141     120     120     120      80      74
121             UI      74      74      74      74      69      69      69      69      69      69
122             UI      49      42      42      42      42      42      42      42      42      42
123             UI      31      13      13      13      13      13      13      13      13      13
124             UI      13      13      13      13      13      13      13      13      13      13
125             UI      13      13      13      13      13      13      13      13      13      13
126             UI      13      13      13      13       0       0       0       0       0       0
127             UI       0       0       0       0       0       0       0       0       0       0
                *

128             KK   C145R
129             KM    Combine R144-145 + 2VV6
130             HC       2
                *

131             KK    2VV3
132             KM    Basin 2VV3 at CP146
133             KM    LAG USED =  14.0 minutes
134             KM    The Phoenix Valley S-Graph was used for this basin.
135             BA    0.02
136             LG    0.34    0.34    3.26    0.89    4.00
137             UI       5       5       5      13      18      22      25      28      30      34
138             UI      38      45      57      62      52      45      41      37      33      29
139             UI      26      23      20      15      10       9       8       8       5       5
140             UI       5       2       1       1       1       1       1       1       1       1
141             UI       1       0       0       0       0       0       0       0       0       0
1                                          HEC-1 INPUT                                          PAGE  4

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

142             UI       0       0       0       0       0       0       0       0       0       0
                *

143             KK  146147
144             KM        Channel Route From CP146 To CP147
145             KM        Unnamed Wash #1 Section 2.936
146             RS      18    FLOW      -1
147             RC   0.035   0.035   0.035  3100.0  0.0071
148             RX   9903.  9943.7  9975.5  9988.0 10000.0 10013.6 10043.6 10146.0
149             RY     841   837.3   836.7   836.0   834.7   836.5   836.6   840.6
150             RL                   7.38   834.7
                *

151             KK    2VV4
152             KM    Basin 2VV4
153             KM    LAG USED =  22.0 minutes
154             KM    The Phoenix Valley S-Graph was used for this basin.
155             BA    0.10
156             LG    0.34    0.34    3.26    0.89    4.00
157             UI      15      15      15      15      15      48      54      60      70      75
158             UI      81      86      91      97     105     114     120     134     153     177
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159          UI     201     193     171     155     143     133     125     119     109     101
160          UI      94      89      80      75      70      60      50      44      30      27
161          UI      27      25      25      25      17      15      15      15      15       7
162          UI       5       5       5       5       5       5       5       5       5       5
163          UI       5       5       5       5       5       0       0       0       0       0
164          UI       0       0       0       0       0       0       0       0       0       0
             *

165          KK    C147
166          KM    Combine R146-147 + 2VV4
167          HC      2
             *

168          KK  147148
169          KM        Channel Route From CP147 To CP148
170          KM        Unnamed Wash #1 Section 2.127
171          RS      25    FLOW      -1
172          RC   0.030   0.035   0.030  6200.0  0.0081
173          RX   9848.  9921.3  9957.6  9996.7 10000.0 10089.0 10137.9 10185.0
174          RY     812   808.5   806.0   801.3   801.0   807.0   808.5   809.3
175          RL                    1.64   801.0
             *

176          KK    2VV8
177          KM   Basin 2VV8
178          KM    LAG USED =  33.0 minutes
179          KM    The Phoenix Valley S-Graph was used for this basin.
180          BA    0.36
181          LG    0.34    0.34    3.26    0.89    4.00
182          UI      37      37      37      37      37      37      37      71     121     123
183          UI     141     144     169     174     180     195     201     208     217     227
184          UI     237     248     263     276     285     300     326     359     402     427
185          UI     475     491     454     416     390     366     347     331     317     304
186          UI     293     282     265     251     238     228     219     211     192     185
1                                          HEC-1 INPUT                                          PAGE  5
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

187          UI     180     169     160     141     128     106     106      77      65      65
188          UI      65      63      60      60      60      60      41      37      37      37
189          UI      37      37      37      31      11      11      11      11      11      11
190          UI      11      11      11      11      11      11      11      11      11      11
191          UI      11      11      11      11      11      11      11      11       0       0
192          UI       0       0       0       0       0       0       0       0       0       0
             *

193          KK    C148
194          KM    Combine R147-148 + 2VV8
195          HC      2
             *

196          KK  148145
197          KM        Channel Route From CP148 To CP145
198          KM        Unnamed Wash #1 Section 0.769
199          RS      22    FLOW      -1
200          RC   0.035   0.035   0.035  7000.0  0.0057
201          RX   9366.  9805.1  9965.0  9993.2 10000.0 10009.3 10066.8 10169.0
202          RY     761   758.2   754.6   752.7   751.5   754.3   756.1   760.5
203          RL                    1.52   751.5
             *

204          KK    2VV5
205          KM   Basin 2VV5
206          KM    LAG USED =  39.0 minutes
207          KM    The Phoenix Valley S-Graph was used for this basin.
208          BA    0.25
209          LG    0.34    0.34    3.26    0.89    4.00
210          UI      22      22      22      22      22      22      22      22      23      71
211          UI      71      74      83      83      99      99     106     107     115     118
212          UI     121     127     130     134     141     147     153     161     165     171
213          UI     181     194     211     224     264     255     288     285     265     246
214          UI     232     220     210     201     193     186     179     174     169     163
215          UI     155     146     140     136     131     125     121     113     109     106
216          UI     101      99      87      83      74      62      62      55      38      38
217          UI      38      38      38      35      35      35      35      35      25      22
218          UI      22      22      22      22      22      22      22      10       7       7
219          UI       7       7       7       7       7       7       7       7       7       7
220          UI       7       7       7       7       7       7       7       7       7       7
221          UI       7       7       7       7       7       7       0       0       0       0
222          UI       0       0       0       0       0       0       0       0       0       0
             *

223          KK   C145L
224          KM    Combine R148-145 + 2VV5
225          HC      2
             *

226          KK    C145
227          KM    Combine C145L + C145R
228          HC      2
             *
1                                          HEC-1 INPUT                                          PAGE  6
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

229          KK  145135
230          KM        Channel Route From CP145 To CP135
231          KM        Unnamed Wash #1 Section 0.061
232          RS       5    FLOW      -1
233          RC   0.060   0.035   0.060  1100.0  0.0027
234          RX   9883.  9933.8  9984.9 10000.0 10005.6 10028.4 10038.5 10047.0
235          RY     743   741.0   742.7   738.0   738.8   745.9   746.5   746.6
236          RL                    1.22   738.0
             *

237          KK    2VV7
238          KM   Basin 2VV7
239          KM    LAG USED =  37.0 minutes
240          KM    The Phoenix Valley S-Graph was used for this basin.
241          BA    0.12
242          LG    0.34    0.34    3.26    0.89    4.00
243          UI      11      11      11      11      11      11      11      11      23      36
244          UI      36      41      42      48      50      53      54      58      60      61
245          UI      64      56      69      72      76      79      82      85      89      95
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246      UI     104    112    131    125    145    145    134    124    117    111
247      UI     105    101     96     93     90     87     84     79     76     72
248      UI      70     66     64     62     57     55     53     51     50     42
249      UI      42     34     31     31     22     19     19     19     19     18
250      UI      18     18     18     18     12     11     11     11     11     11
251      UI      11     11      9      3      3      3      3      3      3      3
252      UI       3      3      3      3      3      3      3      3      3      3
253      UI       3      3      3      3      3      3      3      3      3      3
254      UI       0      0      0      0      0      0      0      0      0      0
255      UI       0      0      0      0      0      0      0      0      0      0
         *

256      KK    C135I
257      KM     Combine R145-135 + 2VV7
258      HC       2
         *
         *
         *
259      ZZ
```

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1***************************************                     ***************************************
*                                      *                     *                                     *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                     *   U.S. ARMY CORPS OF ENGINEERS      *
*              MAY   1991              *                     *   HYDROLOGIC ENGINEERING CENTER     *
*          VERSION 4.0.1E              *                     *        609 SECOND STREET            *
*                                      *                     *     DAVIS, CALIFORNIA 95616         *
*  RUN DATE  03/30/92  TIME  14:12:29  *                     *        (916) 551-1748               *
*                                      *                     *                                     *
****************************************                     ***************************************
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                    FCDMC GILA BEND FLOOD INSURANCE STUDY PROJECT NO. 11358
                    FCD 90-67

                    100-Year 24-Hour Duration Storm

                    03/30/92     Input Filename: UN-24.H1
                                 Unnamed Washes #1 and #2

                         Green & AMPT Loss Rate Method
                         S-Graph Unit Hydrograph
                         Normal Depth Routing

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

    IT        HYDROGRAPH TIME DATA
                     NMIN          1  MINUTES IN COMPUTATION INTERVAL
                    IDATE      1   0  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ       1880  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE      2   0  ENDING DATE
                   NDTIME       0719  ENDING TIME
                    ICENT         19  CENTURY MARK

                COMPUTATION INTERVAL    0.02 HOURS
                     TOTAL TIME BASE   31.32 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

 15 JD        INDEX STORM NO. 1
                     STRM       4.53  PRECIPITATION DEPTH
                     TRDA       0.01  TRANSPOSITION DRAINAGE AREA

 16 PI          PRECIPITATION PATTERN
                  0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                  0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                  0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                  0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                  0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
                  0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00     0.00
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| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
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26 JD          INDEX STORM NO. 2
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

27 JD INDEX STORM NO. 3

STRM 4.30 PRECIPITATION DEPTH

TRDA 10.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

28 JD INDEX STORM NO. 4

STRM 4.00 PRECIPITATION DEPTH

TRDA 50.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

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|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
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29 JD INDEX STORM NO. 5

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30 JD INDEX STORM NO. 6

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31 JD INDEX STORM NO. 7

STRM 3.72 PRECIPITATION DEPTH

TRDA 200.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

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| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

| + | OPERATION | STATION | PEAK FLOW | TIME OF PEAK | AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR | 24-HOUR | 72-HOUR | BASIN AREA | MAXIMUM STAGE | TIME OF MAX STAGE |
|---|---|---|---|---|---|---|---|---|---|---|
| + | HYDROGRAPH AT | 2VV1 | 307. | 12.80 | 66. | 17. | 13. | 0.54 | | |
| + | ROUTED TO | 143144 | 292. | 13.37 | 63. | 16. | 12. | 0.54 | | |
| + | HYDROGRAPH AT | 2VV2 | 470. | 12.80 | 102. | 27. | 21. | 0.96 | | |
| + | 2 COMBINED AT | C144 | 631. | 13.02 | 164. | 42. | 33. | 1.50 | | |
| + | ROUTED TO | 144145 | 584. | 13.85 | 153. | 38. | 29. | 1.50 | | |
| + | HYDROGRAPH AT | 2VV6 | 364. | 12.45 | 58. | 15. | 12. | 0.56 | | |
| + | 2 COMBINED AT | C145R | 595. | 13.85 | 210. | 53. | 41. | 2.06 | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| + | HYDROGRAPH AT | 2VV3 | 24. | 11.95 | 2. | 1. | 0. | 0.02 |
| + | ROUTED TO | 146147 | 18. | 12.25 | 1. | 0. | 0. | 0.02 |
| + | HYDROGRAPH AT | 2VV4 | 104. | 12.08 | 11. | 3. | 2. | 0.10 |
| + | 2 COMBINED AT | C147 | 115. | 12.13 | 12. | 3. | 2. | 0.12 |
| + | ROUTED TO | 147148 | 104. | 12.55 | 11. | 3. | 2. | 0.12 |
| + | HYDROGRAPH AT | 2VV8 | 291. | 12.25 | 38. | 10. | 8. | 0.36 |
| + | 2 COMBINED AT | C148 | 355. | 12.40 | 48. | 13. | 10. | 0.48 |
| + | ROUTED TO | 148145 | 330. | 12.78 | 47. | 12. | 9. | 0.48 |
| + | HYDROGRAPH AT | 2VV5 | 181. | 12.35 | 26. | 7. | 5. | 0.25 |
| + | 2 COMBINED AT | C145L | 425. | 12.60 | 72. | 19. | 14. | 0.73 |
| + | 2 COMBINED AT | C145 | 871. | 12.68 | 281. | 72. | 55. | 2.79 |
| + | ROUTED TO | 145135 | 862. | 12.77 | 281. | 71. | 55. | 2.79 |
| + | HYDROGRAPH AT | 2VV7 | 91. | 12.32 | 13. | 3. | 3. | 0.12 |
| + | 2 COMBINED AT | C135I | 901. | 12.75 | 293. | 75. | 57. | 2.91 |

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

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Section 3.6

## SECTION 5: Erosion and Sediment Transport

No erosion or sediment transport analyses have been done as a part of this study.

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Section 6

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Section 7

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## SECTION 7: Other Studies Impacted

Refer to Section 3.5.2.2 for a discussion of the results of this study as compared with other studies of record. There are no detailed studies of record for this watershed.