TWIN BUTTES WASH AND WHITE PEAK WASH IMPROVEMENT
Phase I
City of Peoria, Maricopa County, Arizona

CONDITIONAL LETTER OF MAP REVISION SUBMITTAL TECHNICAL DATA NOTEBOOK

October 2002

WP #021607

Submitted to:

Federal Emergency Management Agency
Hazard Study Branch
Mr. Matthew Miller, Chief
Technical Services Division
500 C Street Southwest
Washington, D.C. 20472
Phone: (202) 646-2746

And:

City of Peoria
8401 W. Monroe Street
Peoria, AZ 85345
Phone: (623) 773-7600

And:

Flood Control District of Maricopa County
2801 West Durango
Phoenix, AZ 85096
Phone: (602) 506-1501

Prepared for:

Shea Sunbelt Pleasant Point L.L.C.
9051 West Kelton Lane
Suite 4
Peoria, AZ 85382
Phone: (623) 583-1887

Prepared by:

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

Engineer **Peer Reviewer**

FEDERAL EMERGENCY MANAGEMENT AGENCY

CREDIT CARD INFORMATION

O.M.B. Burden No. 3067-0148
Expires April 30, 2001

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 6 minutes per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.

If paying by credit card, this form must be completed. **THIS FORM SHOULD NOT BE INCLUDED WITH THE REST OF THE FORMS PACKAGE. IT MUST BE MAILED OR FAXED TO:**

Federal Emergency Management Agency
Revisions Fee-Collection System Administrator
P.O. Box 3173
Merrifield, Virginia 22116
Fax: (703) 849-0282

Case # N/A(if known) Amount: $800 ← or $4,200

☒ FEE ☐ ADDITIONAL FEE ☐ INVOICE

☐ VISA ☐ MASTERCARD

CARD NUMBER: _____

EXPIRATION DATE: _____

_____
Signature

NAME *(AS IT APPEARS ON CARD)*: _____
(please print)

ADDRESS: _____
(for your credit card receipt- please print) _____

DAYTIME PHONE: _____

NOTICE: A COPY OF FORM 1, BEING SUBMITTED FOR THIS REQUEST MUST BE ATTACHED TO THIS FORM.

TWIN BUTTES WASH AND WHITE PEAK WASH IMPROVEMENT
Phase I
City of Peoria, Maricopa County, Arizona

CONDITIONAL LETTER OF MAP REVISION SUBMITTAL TECHNICAL DATA NOTEBOOK

October 2002

WP #021607

Manual Submission according to Form 5 and they are using floodway as limit of encroachment which is all on their property.

(1) Not Electronic files provided with Submittal

(2) No fee included for Maricopa County.

Submitted to:

Federal Emergency Management Agency
Hazard Study Branch
Mr. Matthew Miller, Chief
Technical Services Division
500 C Street Southwest
Washington, D.C. 20472
Phone: (202) 646-2746

And:

City of Peoria
8401 W. Monroe Street
Peoria, AZ 85345
Phone: (623) 773-7600

And:

Flood Control District of Maricopa County
2801 West Durango
Phoenix, AZ 85096
Phone: (602) 506-1501

Prepared for:

Shea Sunbelt Pleasant Point L.L.C.
9051 West Kelton Lane
Suite 4
Peoria, AZ 85382
Phone: (623) 583-1887

Prepared by:

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

Engineer **Peer Reviewer**

TWIN BUTTES WASH AND WHITE PEAK WASH IMPROVEMENT
Phase I
City of Peoria, Maricopa County, Arizona

CONDITIONAL LETTER OF MAP REVISION SUBMITTAL TECHNICAL DATA NOTEBOOK

October 2002

WP #021607

Submitted to:

Federal Emergency Management Agency
Hazard Study Branch
Mr. Matthew Miller, Chief
Technical Services Division
500 C Street Southwest
Washington, D.C. 20472
Phone: (202) 646-2746

And:

City of Peoria
8401 W. Monroe Street
Peoria, AZ 85345
Phone: (623) 773-7600

And:

Flood Control District of Maricopa County
2801 West Durango
Phoenix, AZ 85096
Phone: (602) 506-1501

Prepared for:

Shea Sunbelt Pleasant Point L.L.C.
9051 West Kelton Lane
Suite 4
Peoria, AZ 85382
Phone: (623) 583-1887

Prepared by:

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

PRELIMINARY
NOT FOR CONSTRUCTION
OR RECORDING

Registered Professional Engineer (Civil)
CERTIFICATE NO.
32854
SHIMIN
ZOU
Date Signed 10/17/02
ARIZONA U.S.A.

Engineer

Registered Professional Engineer (Civil)
CERTIFICATE NO.
22208
JACK K.
MOODY
Date Signed 10/17/2
ARIZONA, U.S.A.

Peer Reviewer

TABLE OF CONTENTS

1.0 INTRODUCTION 1

1.1 Project Location 1

1.2 Purposes and Scope 1

1.3 Methods of Analysis 3

2.0 FEMA MT-2 FORMS 4

2.1 Form 1 – Revision Requestor and Community Official Form 5

2.2 Form 4 – Riverine Hydraulic Analysis Form 6

2.3 Form 5 - Riverine/Costal Mapping Form 8

3.0 SURVEY AND MAPPING INFORMATION 9

3.1 Field Survey Information 9

3.2 Mapping 9

4.0 HYDROLOGY AND HYDRAULICS 10

4.1 Hydrology 10

4.2 Hydraulic Models 10

4.3 Cross Section Description 10

4.4 Parameter Estimation 10

4.5 Modeling Conditions 10

4.6 Floodway Modeling 10

4.7 Problems Encountered During the Study 10

4.8 Calibration 11

4.9 Final Results 11

5.0 EROSION AND TOEDOWN DEPTH ESTIMATION FOR BANK PROTECTION 12

6.0 DRAFT FIS REPORT DATA 13

6.1 Summary of Discharge 13

6.2 Annotated Flood Insurance Rate Map 13

6.3 Flood Profiles 14

7.0 REFERENCES 15

LIST OF FIGURES

Figure 1 Location and Vicinity Map

Figure 2 Draft FEMA Flood Profiles

LIST OF TABLES

Table 1 Duplicate Effective FIS HEC-2 Modeling Results

Table 2 Post-Project Conditions HEC-2 Modeling Results

Table 3 Summary of Discharge in FEMA Format

LIST OF APPENDICES

Appendix A HEC-2 Models Output Files

- Appendix A1 HEC-2 Output for Regulatory FIRM Conditions Duplicate Effective Model (Twin Buttes Wash)
- Appendix A2 HEC-2 Output for Regulatory FIRM Conditions Duplicate Effective Model (White Peak Wash)
- Appendix A3 HEC-2 Output for Post-Project Conditions Model (Twin Buttes Wash)
- Appendix A4 HEC-2 Output for Post-Project Conditions Model (White Peak Wash)

Appendix B General Documentation & Correspondence

Appendix C Scour Computation Sheets

LIST OF EXHIBITS

Exhibit A Existing Floodplain Maps

Exhibit B Proposed Improvement Plans

Exhibit C Study Work Maps

Exhibit D Annotated FIRM Panels

1.0 INTRODUCTION

1.1 Project Location

Lakeland Village, a portion of the Vistancia Development, is an approximate 3,100-acre master planned community located within the north-central planning area of the City of Peoria. The community will consist of residential and commercial development, schools, golf courses, and recreational facilities. The land uses will be designed to minimize disturbances to existing major washes and hillsides keeping them in a natural state as much as possible. Lakeland Village is located in Township 5 North, Range 1 West, Sections 23, 24, 25, 26, 35 and Township 5 North, Range 1 East, Sections 19 and 30. Twin Buttes Wash and White Peak Wash are two major washes through this site from northwest to southeast. For a graphic location of the site, please refer to Figure 1, *Vicinity Map*.

1.2 Purposes and Scope

As part of the master plan for this community, improvements proposed for the washes include floodway fringe fill of 5 sites (Site A, Site B, Site D, Site F, and Site G) along the washes and bank protection of the 5 sites. The proposed improvements will contain the Effective Flood Insurance Study (FIS) flows, improve the uniformity of the wash conveyance, and increase the stability of the washes. According to FEMA floodplain management policy, these proposed modifications to the wash corridors require a Conditional Letter of Map Revision (CLOMR).

The study reaches include portion of Twin Buttes Wash from river mile station 3.50 to 5.40, and a portion of White Peak Wash from the confluence with Twin Buttes Wash to about 1.0 mile upstream.

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panels 04013C0740G and 04013C1155G dated July 19, 2001, designate Twin Buttes Wash and White Peak Wash in the study reaches as a Special Flood Hazard Area, Zone AE (see Exhibit A).

Mark Location on FIRM Maps Area's of Study "Exhibit "A"

Zone "AE" is defined as: A special flood hazard area that corresponds to the 100-year floodplains and the base flood elevations for this zone are determined in the FIS by detailed methods.

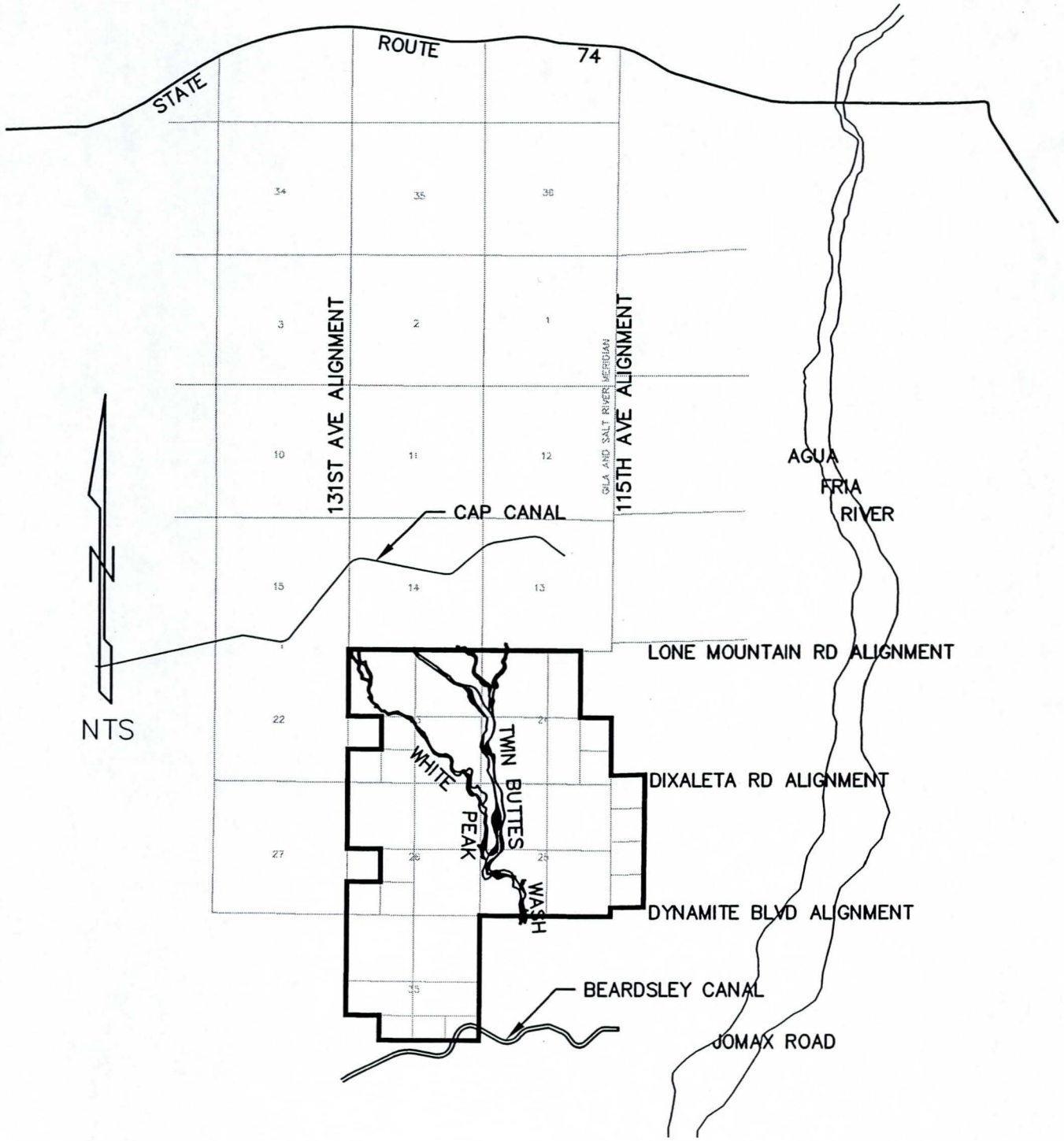


FIG.1 VICINITY MAP

TWIN BUTTES WASH AND
WHITE PEAK WASH IMPROVEMENT
PHASE 1

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

This report will document the engineering analysis and MT-2 forms necessary to meet the FEMA requirements for a CLOMR. Once the CLOMR is issued, the wash improvement plans will be finalized, the fill construction will be finished, and a set of as-built plans will be prepared for the Letter of Map Revision (LOMR) submittal.

1.3 Methods of Analysis

The following methods of analysis are used for this project:

- Hydrology - In 1995, the Federal Emergency Management Agency (FEMA) published a revised Flood Insurance Study for Maricopa County, Arizona, and Incorporated Areas that included Twin Buttes Wash and White Peak Wash. The 2001 FIS documents adopted all work previously performed in the 1995 FIS for the study areas. We are utilizing this FEMA accepted hydrology; therefore, no new hydrologic data is required for this CLOMR.

- Hydraulics - The HEC-2 models for the effective FIS study are utilized for this project. The geometric data for the 5 fill sites are revised to reflect the new cross sections.

The HEC-2 models for the effective FIS were prepared by AGK Engineers, Inc. June 1991, as part of the Agua Fria Floodplain Delineation Study for the Flood Control District of Maricopa County. In order to match and tie into the FIS floodplain and floodway at the upstream and downstream limits of the reaches, the wash reaches were modeled using the same flow regime and boundary conditions as the effective FIS models.

2.0 FEMA MT-2 FORMS

The basis of this CLOMR is physical changes of the watercourse; therefore, the appropriate FEMA forms from the current FEMA MT-2 packet are as follows:

Form 1 - Revision Requestor and Community Official Form

Form 4 - Riverine Hydraulic Analysis Form

Form 5 - Riverine/Coastal Mapping Form

2.1 Form 1 – Revision Requestor and Community Official Form

The attached "Revision Requestor and Community Official Form" is provided per FEMA requirements for submittals. The basis for this revision request is physical change, specifically, encroachment of the floodway fringe by filling.

FEDERAL EMERGENCY MANAGEMENT AGENCY **REVISION REQUESTER AND COMMUNITY OFFICIAL**	O.M.B No. 3067-0148 Expires April 30, 2001

Public reporting burden for this form is estimated to average 2.13 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.

1. REQUESTED RESPONSE FROM FEMA

This request is for a:

☒ CLOMR A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60,65 & 72).

☐ LOMR A letter from FEMA officially revising the current NFIP map to show the changes to floodplains, floodway or flood elevations. LOMRs typically decrease flood hazards. (See 44 CFR Ch. 1 Parts 60 & 65.)

☐ Other Describe: _____

2. OVERVIEW

1. The basis for this revision request is (are): (check all that apply)

☒ Physical Change ☐ Improved Methodology/Data ☐ Floodway Revision

☐ Other Describe: _____

Note: A photograph is not required, but is very helpful during review.

2. Flooding Source: Twin Buttes Wash

3. Project Name/Identifier: Twin Buttes Wash and White Peak Wash Improvement, Phase I

4. FEMA zone designations affected: AE
(example: A, AH, AO, A1-A30, A99, AE, V, V1-V30, VE, B, C, D, X)

5. The NFIP map panel(s) affected for all impacted communities is (are):

040050 City of Peoria
040037 Maricopa County

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Ex: 480301	Katy, City	TX	480301	0005D	02/08/83
480287	Harris County	TX	48201C	0220G	09/28/90
040037	City of Peoria	AZ	04013C	0740G	07/19/02
040037	Maricopa County	AZ	04013C	1155G	07/19/02

6. The area of revision encompasses the following types of flooding and structures. Check all that apply.

Types of Flooding	Structures
☒ Riverine	☐ Channelization
☐ Coastal	☐ Levee/Floodwall
☐ Alluvial fan	☐ Bridge/Culvert
☐ Shallow Flooding (e.g. Zones AO and AH)	☐ Dam
☐ Lakes	☒ Fill
☐ Other (describe)	☐ Other (describe)

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

Check computer runs to verify

4. ENCROACHMENT INFORMATION

1. Does the State have jurisdiction over the floodway or its adoption by communities participating in the NFIP?
   ☐ Yes ☒ No

If Yes, attach a copy of a letter notifying the appropriate State agency of the floodway revision and documentation of the approval of the revised floodway by the appropriate State agency.

2. Does the development in the floodway cause the 1% annual chance (base) elevation to increase at any location by more than 0.000 feet? ☐ Yes ☒ No ☐ N/A

3. Does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the base flood elevation to increase at any location by more than one foot (or other increase limit if community or state has adopted more stringent criteria - even if a floodway has not been delineated by FEMA)? ☐ Yes ☒ No

If the answer to either items is Yes, please attach documentation that all requirements of Section 65.12 of the NFIP regulations have been met, regarding evaluation of alternatives, notice to individual legal property owners, concurrence of CEO, and certification that no insurable structures are impacted.

5. MAINTENANCE RESPONSIBILITY

The community is willing to assume responsibility for ☐ performing ☐ overseeing compliance with the maintenance and operation plans of the _____
(Name)
flood control structure. If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

Operation and maintenance plans are attached. ☐ **Yes** ☐ **No** ☒ **N/A**

6. REVIEW FEE

The review fee for the appropriate request category has been included. ☒ Yes Fee amount: $4,200

OR

This request is based on a federally sponsored flood-control project where 50 percent or more of the project's cost is federally sponsored, or the request is based on detailed hydrologic and hydraulic studies conducted by Federal, State, or local agencies to replace approximate studies conducted by FEMA and shown on the effective FIRM; thus the project is fee exempt. ☐ Yes

Please see Instructions for Fee Amounts

7. SIGNATURE

Note: **I understand that my signature indicates that all information submitted in support of this request is correct**

Signature of Revision Requester

Jack Moody, P.E., Project Manager
Printed Name and Title of Revision Requester

Wood, Patel & Associates, Inc.
Company Name

Telephone No.: 602-335-8500 Date:

Note: **Signature indicates that the community understands, from the revision requester, the impacts of the revision on flooding conditions in the community.**

Signature of Community Official

David Moody, P.E., Floodplain Manager
Printed Name and Title of Community Official

City of Peoria
Community Name

Telephone No.: 623-773-7600 Date:

CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is in accordance with 44 CFR Ch. 1, Sect 65.2

Signature

Jack Moody, P.E., Project Manager
Printed Name and Title of Revision Requester

Registr No. 22208 Expires (Date) 9/30/01 State AZ

Type of License/Expertise: Civil Engineer

Check which forms have been included with this request

Form Name and (Number)	Required if .....
☐ **Hydrologic** (3)	new or revised discharges
☒ **Hydraulic** (4)	new or revised water-surface elevations
☒ **Mapping** (5)	floodplain/floodway changes
☐ **Channelization** (6)	channel is modified
☐ **Bridge/Culvert** (7)	addition/revision of bridge/culvert
☐ **Levee/Floodwall** (8)	addition/revision of levee/floodwall
☐ **Coastal** (9)	new or revised coastal elevations
☐ **Coastal Structures** (10)	addition/revision of coastal structure
☐ **Dam** (11)	addition/revision of dam
☐ **Alluvial Fan** (12)	structures proposed on alluvial fan

2.2 Form 4 – Riverine Hydraulic Analysis Form

The attached "Riverine Hydraulic Analysis Forms" are provided per FEMA requirements for submittals. Responses to questions in the following sections require further explanation:

Models Submitted
Duplicate Effective Models (CAPTBW_E.DAT and CAPWPW_E.DAT)

The HEC-2 models used for this regulatory FIS were prepared by AGK Engineers, Inc. June 1991, as part of the Agua Fria Floodplain Delineation Study for the Flood Control District of Maricopa County. The models were subsequently approved by FEMA through their LOMR process. These models were run to create and verify the HEC-2 *Duplicate Effective Models* and the modeling results were shown in Table 1. Note that there are minor negative surcharges in the effective FIS.

Revised or Post-Project Condition Models (CAPTBW_P.DAT and CAPWPW_P.DAT)
The *Post-Project Conditions Models* were obtained by replacing the geometric data for the segments of the existing study wash geometry with the proposed floodway fringe fill for the 5 sites (A, B, D, F, and G, see Exhibit C) cross section geometry data.

Starting Water-Surface Elevations
The starting water-surface elevations for the most downstream cross sections for the *Post-Project Condition Models* were the same as those of the effective FIS models.

Results
The modeling results of the *Duplicate Effective Models* and the *Post-Project Condition Models* are shown in Tables 1 and 2. The HEC-2 models output files are included in Appendix A, and the water surface profiles for the *Post-Project Condition Models* are shown in Figure 2.

The computed regulatory water surface elevations from the *Post-Project Condition Models* at both upstream and downstream tie-in cross sections (RM 3.60 (D/S) and RM 5.40 (U/S) for Twin Buttes Wash, and confluence with Twin Buttes Wash, RM 3.60 and RM 0.95 (U/S) for White Peak Wash) match the *Duplicate Effective Models* very well.

Revised FIRM/FBFM and Flood Profiles

The computed water surface profiles the *Post-Project Conditions Models* are plotted in Figure 2. The revised floodplain and floodway delineations are shown on Exhibit C.

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE HYDRAULIC ANALYSIS**	O.M.B No. 3067-0148 Expires April 30, 2001

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2.25 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.

Note: Fill out one form for each flooding source studied

Community Name: City of Peoria, AZ

Flooding Source: Twin Buttes Wash

Project Name/Identifier: Twin Buttes Wash and White Peak Wash Improvement, Phase I

1. REACH TO BE REVISED

Describe the limits of the revision OR submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Not hilighted or circled on Exhibit A & C

Downstream Limit: RM 3.60

Upstream Limit: RM 5.40

2. MODELS SUBMITTED

Requirements: for areas which have detailed flooding:
Full input and output listings along with files on diskette for each of the models listed below (items 1-4) and a summary of the source of input parameters used in the models must be provided. The summary must include a description of any changes made from model to model (e.g., Duplicate Effective model to Corrected Effective model). At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See instructions for directions on when other models may be required.

for areas which do not have detailed flooding:
Only the 100-year (Base) flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted.

If hydraulic models are not developed, hydraulic analyses (including all calculations) for existing or pre-project conditions and revised or post-project conditions must be submitted.

1. Duplicate Effective Model ☒ **Natural** **File Name** captbw_e.dat ☒ **Floodway** **File Name** captbw_e.dat
Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models (10-, 50-, 100-, and 500-year multi-profile runs and the floodway run) must be obtained and then reproduced on the requester's equipment to produce the Duplicate Effective model. This is required to assure that the effective models input data has been transferred correctly to the requester's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

2. Corrected Effective Model ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____
The Corrected Effective model is the model that corrects any errors that occur in the Duplicate Effective model, adds any additional cross sections to the Duplicate Effective model, or incorporates more detailed topographic information than that used in the currently effective model. The Correctly Effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

3. Existing or Pre-Project Conditions Model ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____
The Duplicate Effective model or Corrective Effective model is modified to produce the Existing or Pre-Project Conditions model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the Corrected Effective model or Duplicate Effective model.

4. Revised or Post-Project Conditions Model ☒ **Natural** **File Name** captbw_p.dat ☒ **Floodway** **File Name** captbw_p.dat
The Existing or Pre-Project Conditions model (or Duplicate Effective model or Corrected Effective model, as appropriate) is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for the proposed project this model must reflect proposed conditions.

5. Other – Please attach a sheet describing all other models submitted along with the file names. ☐ **Natural** ☐ **Floodway**

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

ACK Engr Study

3. STARTING WATER-SURFACE ELEVATIONS

Explain how they were determined. Explanation Attached? ☒ Yes ☐ No

NOTE: If the effective study is an approximate study, the slope/area method is recommended.
For detailed analysis studies, using a known water-surface elevation is recommended.

4. RESULTS (from the model used to revise the 100-year water surface elevations)

If the results indicate any of the following, attach an explanation - to this form, or to the hydraulic model printout- as to the reasonableness of the situation.

☐ Supercritical depth ☐ Critical Depth ☐ Drawdowns ☐ Negative Floodway Surcharges

☐ Floodway Surcharges Greater Than Maximum Allowed by Community/State

☐ Water surface elevations higher than the end points of cross sections.

☐ Floodway discharge is different than the Natural 100-year (base) flood discharge.

☒ Project causes 100-year floodplain or floodway elevations to increase (state if increases are located off the requester's property)

Explanation attached with Form ☒ **Explanation provided on attached printout** ☐

If Hydraulic model used is HEC-2, has it been checked with FEMA'S CHECK-2 computer program? ☒ **Yes** ☐ **No**
(see instructions for information on how to obtain CHECK-2)

5. REVISED FIRM/FBFM AND FLOOD PROFILES

1. Profile Transition

a. 100-Year Water-Surface Elevations - indicate the difference in water surface elevations where the project 100-year elevations tie into the existing 100-year water surface elevations at each end of the project.

Downstream End 3.60 within 0.0 (feet) *Cross-Section #* Upstream End 5.40 within 0.0 (feet) *Cross-Section #*

check with Run

b. Floodway Elevations - indicate the difference in water surface elevations where the project floodway elevations tie into the existing floodway water surface elevations at each end of the project.

Downstream End 3.60 within 0.0 (feet) *Cross-Section #* Upstream End 5.40 within 0.0 (feet) *Cross-Section #*

c. Floodway widths - indicate the difference in floodway widths where the project floodway widths tie into the existing floodway width at each end of the project.

Downstream End 3.60 within 0 (feet) *Cross-Section #* Upstream End 5.40 within 0 (feet) *Cross-Section #*

Not Labeled for Garrillo Wash on Twin Buttes Wash

2. Profile Checklist (check box if information has been provided on profile)

The following information (unless in parentheses) must be included at the same scale as the existing profiles for this project:

☒ Stream Name ☒ Community Name ☐ Corporate Limits labeled ☒ Study limits labeled

☒ Confluences labeled ☐ Channel Stationing ☒ Streambed profiled ☒ Cross Sections labeled

☒ Horizontal/Vertical Scales indicated ☒ 100-year elevs profiled*

☐ Road Crossings ☐ Labeled ☐ Low Chord Elevations ☐ Top of Road Elevations

*All recurrence intervals in the effective study must also be profiled.

Floodway Data Table

Attach a Floodway Data Table for each cross section listed in the published Floodway Data table in the FIS report.

Floodway Data Table Attached ☒ **Yes** ☐ **Not Required**

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE HYDRAULIC ANALYSIS**	O.M.B No. 3067-0148 Expires April 30, 2001

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2.25 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.

Note: Fill out one form for each flooding source studied

Community Name: City of Peoria, AZ

Flooding Source: White Peak Wash

Project Name/Identifier: Twin Buttes Wash and White Peak Wash Improvement, Phase I

1. REACH TO BE REVISED

Describe the limits of the revision OR submit a copy of the FIRM with the revision area clearly highlighted.
Copy of FIRM(s) attached depicting area of the revision (highlighted, or circled)? ☒ Yes

Not hilighted or circled on Exhibit A&C

Downstream Limit: confluence with Twin Buttes Wash (RM 3.60 of Twin Buttes Wash)

Upstream Limit: RM 0.95

2. MODELS SUBMITTED

Requirements: for areas which have detailed flooding:
Full input and output listings along with files on diskette for each of the models listed below (items 1-4) and a summary of the source of input parameters used in the models must be provided. The summary must include a description of any changes made from model to model (e.g., Duplicate Effective model to Corrected Effective model). At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See instructions for directions on when other models may be required.

for areas which do not have detailed flooding:
Only the 100-year (Base) flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted.

If hydraulic models are not developed, hydraulic analyses (including all calculations) for existing or pre-project conditions and revised or post-project conditions must be submitted.

1. Duplicate Effective Model ☒ **Natural** **File Name** capwpw_e.dat ☒ **Floodway** **File Name** capwpw_e.dat
Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models (10-, 50-, 100-, and 500-year multi-profile runs and the floodway run) must be obtained and then reproduced on the requester's equipment to produce the Duplicate Effective model. This is required to assure that the effective models input data has been transferred correctly to the requester's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

2. Corrected Effective Model ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____
The Corrected Effective model is the model that corrects any errors that occur in the Duplicate Effective model, adds any additional cross sections to the Duplicate Effective model, or incorporates more detailed topographic information than that used in the currently effective model. The Correctly Effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

3. Existing or Pre-Project Conditions Model ☐ **Natural** **File Name** _____ ☐ **Floodway** **File Name** _____
The Duplicate Effective model or Corrective Effective model is modified to produce the Existing or Pre-Project Conditions model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the Corrected Effective model or Duplicate Effective model.

4. Revised or Post-Project Conditions Model ☒ **Natural** **File Name** capwpw_p.dat ☒ **Floodway** **File Name** capwpw_p.dat
The Existing or Pre-Project Conditions model (or Duplicate Effective model or Corrected Effective model, as appropriate) is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for the proposed project this model must reflect proposed conditions.

5. Other – Please attach a sheet describing all other models submitted along with the file names. ☐ **Natural** ☐ **Floodway**

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

ABK Engr Study

3. STARTING WATER-SURFACE ELEVATIONS

Explain how they were determined. Explanation Attached? ☒ Yes ☐ No

NOTE: If the effective study is an approximate study, the slope/area method is recommended. For detailed analysis studies, using a known water-surface elevation is recommended.

4. RESULTS (from the model used to revise the 100-year water surface elevations)

If the results indicate any of the following, attach an explanation - to this form, or to the hydraulic model printout- as to the reasonableness of the situation.

☐ Supercritical depth ☐ Critical Depth ☐ Drawdowns ☐ Negative Floodway Surcharges

☐ Floodway Surcharges Greater Than Maximum Allowed by Community/State

☐ Water surface elevations higher than the end points of cross sections.

☐ Floodway discharge is different than the Natural 100-year (base) flood discharge.

☒ Project causes 100-year floodplain or floodway elevations to increase (state if increases are located off the requester's property)

Explanation attached with Form ☒ **Explanation provided on attached printout** ☐

If Hydraulic model used is HEC-2, has it been checked with FEMA'S CHECK-2 computer program? ☒ **Yes** ☐ **No**
(see instructions for information on how to obtain CHECK-2)

5. REVISED FIRM/FBFM AND FLOOD PROFILES

1. Profile Transition

check with Run

a. 100-Year Water-Surface Elevations - indicate the difference in water surface elevations where the project 100-year elevations tie into the existing 100-year water surface elevations at each end of the project.

Downstream End 3.60 within 0.0 (feet) *Cross-Section #* Upstream End 0.95 within 0.0 (feet) *Cross-Section #*

b. Floodway Elevations - indicate the difference in water surface elevations where the project floodway elevations tie into the existing floodway water surface elevations at each end of the project.

Downstream End 3.60 within 0.0 (feet) *Cross-Section #* Upstream End 0.95 within 0.0 (feet) *Cross-Section #*

c. Floodway widths - indicate the difference in floodway widths where the project floodway widths tie into the existing floodway width at each end of the project.

Downstream End 3.60 within 0 (feet) *Cross-Section #* Upstream End 0.95 within 0 (feet) *Cross-Section #*

?

?

2. Profile Checklist (check box if information has been provided on profile)

The following information (unless in parentheses) must be included at the same scale as the existing profiles for this project:

☒ Stream Name ☒ Community Name ☐ Corporate Limits labeled ☒ Study limits labeled

☒ Confluences labeled ☐ Channel Stationing ☒ Streambed profiled ☒ Cross Sections labeled

☒ Horizontal/Vertical Scales indicated ☒ 100-year elevs profiled*

☐ Road Crossings ☐ Labeled ☐ Low Chord Elevations ☐ Top of Road Elevations

*All recurrence intervals in the effective study must also be profiled.

Floodway Data Table

Attach a Floodway Data Table for each cross section listed in the published Floodway Data table in the FIS report.

Floodway Data Table Attached ☒ **Yes** ☐ **Not Required**

2.3 Form 5 - Riverine/Costal Mapping Form

The attached "Riverine/Coastal Mapping Form" is provided per FEMA requirements for submittals. Responses to questions in the following sections require further explanation:

Mapping Changes

a.	The revised reaches in the effective FIS were defined as detailed study areas; therefore, they are not approximate 100-year floodplains;
f.	Current community boundaries are outside of the revision work maps limits.
l.	National Geodetic Vertical Datum of 1929 is used in this study.
m., n., and o.	The study washes are riverine systems not coastal region.

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE / COASTAL MAPPING**	O.M.B No. 3067-0148 Expires April 30, 2001

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1.5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.

Note: Fill out one form for each flooding source studied

Community Name: City of Peoria, AZ

Flooding Source: Twin Buttes Wash

Project Name/Identifier: Twin Buttes Wash and White Peak Wash Improvement, Phase I

This is a ☒ Manual ☐ Digital submission. *Digital map submissions may be used to update digital FIRMs (DFIRMs). For updating DFIRMs, these submissions must be coordinated with FEMA Headquarters as far in advance as possible.*

1. MAPPING CHANGES

1. A topographic workmap must be submitted showing the following information (check N/A when not applicable):

	Yes	No	N/A
a. Revised approximate 100-year floodplain boundaries (Zone A)	☐	☐	☒
b. Revised detailed 100- and 500-year floodplain boundaries.	☒	☐	☐
c. Revised floodway boundaries ? Phase 9 Since not Revised	☒	☐	☐
d. Location and alignment of all cross sections with stationing control indicated.	☒	☐	☐
e. Stream alignments, road alignments and dam alignments.	☒	☐	☐
f. Current community boundaries.	☐	☐	☒
g. Effective 100- year floodplain and floodway boundaries from FIRM/FBFM reduced or enlarged to the scale of the topographic workmap	☒	☐	☐
h. Tie-ins between the effective and revised 100-, 500-year and floodway boundaries	☒	☐	☐
i. The requester's property boundaries and community easements	☒	☐	☐
j. The signed certification of a registered professional engineer ?	☒	☐	☐
k. Location and description of reference marks	☒	☐	☐
l. Vertical datum (example: NGVD, NAVD)	☒	☐	☐
m. Coastal zone designations tie into adjacent areas not being revised	☐	☐	☒
n. Location and alignment of all coastal transects used to revise the coastal analyze	☐	☐	☒
o. V-zone has been delineated to extend landward to the heel of the primary frontal dune	☐	☐	☒

If any items are marked No or N/A please attach an explanation.

2. What is the source and date of the updated topographic information (example: orthophoto maps, July 1985; filed survey, May 1979, beach profile, June 1987 etc.)? Effective FIS Work Maps

OK

3. What is the scale and contour interval of the following workmaps?

Effective FIS Scale 1:400 Contour Interval 4'

Revision Request Scale 1:400 Contour Interval 4'

1:100

? 1' Interval Exhibit "B"

NOTE: Revised topographic information must be of equal or greater detail than effective.

4. Attach an annotated FIRM/FBFM at the scale of the effective FIRM/FBFM showing the revised 100- and 500-year floodplain and the floodway boundaries and how they tie into those shown on the effective FIRM/FBFM downstream and upstream of the revisions or adjacent to the area of revision for coastal studies. **FIRM/FBFM attached?** ☒ **Yes** ☐ **No**

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

Exhibit "A" does not show

2. EARTH FILL PLACEMENT

1. The fill is: ☐ Existing ☒ Proposed

2. Has fill been/will be placed in the regulatory floodway? ☐ Yes ☒ No
If Yes, please attach completed Riverine Hydraulic Analysis Form (Form 4).

3. Has fill been/will be placed in floodway fringe (*area between the floodway and 100-year floodplain boundaries*)? ☒ Yes ☐ No

If Yes, then complete A, B, C, and D below.

a. Are fill slopes for granular materials steeper than one vertical on one-and-one-half horizontal? ☐ Yes ☒ No

If Yes, justify steeper slopes _____

b. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? (*Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.)*

☒ Yes ☐ No

If No, describe erosion protection provided _____

c. Has all fill placed in revised 100-year floodplain been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test Method or acceptable equivalent method? ☒ Yes ☐ No

d. Can structures conceivably be constructed on the fill at any time in the future? ☒ Yes ☐ No

If Yes, attach certification of fill compaction (item 3c. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer in accordance with Subparagraph 65.5(a)(6) of the NFIP regulations.

Fill certification attached ☐ **Yes** ☒ **No** will be provided with LOMR

4. Has fill been/will be placed in a V zone? ☐ Yes ☒ No

If Yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall?

☐ Yes ☐ No

If Yes, attach the Coastal Structures Form (Form 10).

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE / COASTAL MAPPING**	O.M.B No. 3067-0148 Expires April 30, 2001

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1.5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.

Note: Fill out one form for each flooding source studied

Community Name: City of Peoria, AZ

Flooding Source: White Peak Wash

Project Name/Identifier: Twin Buttes Wash and White Peak Wash Improvement, Phase I

This is a ☒ Manual ☐ Digital submission. *Digital map submissions may be used to update digital FIRMs (DFIRMs). For updating DFIRMs, these submissions must be coordinated with FEMA Headquarters as far in advance as possible.*

1. MAPPING CHANGES

1. A topographic workmap must be submitted showing the following information (check N/A when not applicable):

	Yes	No	N/A
a. Revised approximate 100-year floodplain boundaries (Zone A)	☐	☐	☒
b. Revised detailed 100- and 500-year floodplain boundaries.	☒	☐	☐
c. Revised floodway boundaries ... Page 9 Says ? not Revised.	☒	☐	☐
d. Location and alignment of all cross sections with stationing control indicated.	☒	☐	☐
e. Stream alignments, road alignments and dam alignments.	☒	☐	☐
f. Current community boundaries.	☐	☐	☒
g. Effective 100- year floodplain and floodway boundaries from FIRM/FBFM reduced or enlarged to the scale of the topographic workmap	☒	☐	☐
h. Tie-ins between the effective and revised 100-, 500-year and floodway boundaries	☒	☐	☐
i. The requester's property boundaries and community easements	☒	☐	☐
j. The signed certification of a registered professional engineer ... ?	☒	☐	☐
k. Location and description of reference marks	☒	☐	☐
l. Vertical datum (example: NGVD, NAVD)	☒	☐	☐
m. Coastal zone designations tie into adjacent areas not being revised	☐	☐	☒
n. Location and alignment of all coastal transects used to revise the coastal analyze	☐	☐	☒
o. V-zone has been delineated to extend landward to the heel of the primary frontal dune	☐	☐	☒

If any items are marked No or N/A please attach an explanation.

2. What is the source and date of the updated topographic information (example: orthophoto maps, July 1985; filed survey, May 1979, beach profile, June 1987 etc.)? Effective FIS Work Maps

3. What is the scale and contour interval of the following workmaps?

Effective FIS Scale 1:400 Contour Interval 4' or 1' Interval Exhibit "B"

Revision Request Scale 1:400 Contour Interval 4' ? 1:100 Exhibit "B" 1' Interval

NOTE: Revised topographic information must be of equal or greater detail than effective.

4. Attach an annotated FIRM/FBFM at the scale of the effective FIRM/FBFM showing the revised 100- and 500-year floodplain and the floodway boundaries and how they tie into those shown on the effective FIRM/FBFM downstream and upstream of the revisions or adjacent to the area of revision for coastal studies. **FIRM/FBFM attached?** ☒ **Yes** ☐ **No**

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

Exhibit "A" does not Show

2. EARTH FILL PLACEMENT

1. The fill is: ☐ Existing ☒ Proposed

2. Has fill been/will be placed in the regulatory floodway? ☐ Yes ☒ No
If Yes, please attach completed Riverine Hydraulic Analysis Form (Form 4).

3. Has fill been/will be placed in floodway fringe (*area between the floodway and 100-year floodplain boundaries*)? ☒ Yes ☐ No

If Yes, then complete A, B, C, and D below.

a. Are fill slopes for granular materials steeper than one vertical on one-and-one-half horizontal? ☐ Yes ☒ No

If Yes, justify steeper slopes _____

b. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? (*Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.)*

☒ Yes ☐ No

If No, describe erosion protection provided _____

c. Has all fill placed in revised 100-year floodplain been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test Method or acceptable equivalent method? ☒ Yes ☐ No

d. Can structures conceivably be constructed on the fill at any time in the future? ☒ Yes ☐ No

If Yes, attach certification of fill compaction (item 3c. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer in accordance with Subparagraph 65.5(a)(6) of the NFIP regulations.

Fill certification attached ☐ **Yes** ☒ **No** Will be provided with LOMR

4. Has fill been/will be placed in a V zone? ☐ Yes ☒ No

If Yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall?

☐ Yes ☐ No

If Yes, attach the Coastal Structures Form (Form 10).

3.0 SURVEY AND MAPPING INFORMATION

3.1 Field Survey Information

No field survey is conducted for this study.

3.2 Mapping

Since the changes to the floodplain delineations (no floodway delineations are revised) are limited to 5 localized floodway fringe sites, the effective Flood Insurance Study (FIS) work map 3 of 4 was used for this study. The modified work map is shown on Exhibit C.

4.0 HYDROLOGY AND HYDRAULICS

4.1 Hydrology

As discussed previously, no new hydrologic analysis was conducted for this study. The 100-year flows were applied based on the effective FIS models for both Twin Buttes Wash and White Peak Wash.

4.2 Hydraulic Model

The original effective FIS HEC-2 models were prepared by AGK Engineers, Inc. dated June 1991. The post-project condition models were obtained by modifying the effective FIS HEC-2 models geometric data for the proposed floodway fringe fill locations.

4.3 Cross Section Description

The original effective FIS HEC-2 models were applied in this study. The cross sections are representative of the local channel reach, are oriented perpendicular to the direction of flow with the perspective of looking downstream, and are large enough to contain the 100-year peak discharge.

4.4 Parameter Estimation

No new parameters were estimated since the original effective FIS HEC-2 models were applied in this study.

4.5 Modeling Conditions

Twin Buttes Wash and White Peak Wash were modeled separately and sub-critical flow regimes were applied as the same as in the effective FIS.

4.6 Floodway Modeling

Floodway encroachment Method 1 was applied in this study as the same as the effective FIS models.

4.7 Problems Encountered During the Study

No problems were encountered during the hydraulic modeling process.

4.8 Calibration

No calibration of hydraulic parameters is performed for this study.

4.9 Final Results

The HEC-2 models output files are included in Appendix A for both *Duplicate Effective Models* and *Post-Project Condition Models*. The hydraulic modeling results are included in Tables 1 and 2, which show that the water surface elevations form post-project conditions models are matching the water surface elevations of the effective FIS models very well at the tie-in locations and the proposed wash improvements do not change the floodway delineations.

from AGK Engineer June 1991 Study and pencilled Elevations

OKAY Better Contour data

Table 1 Summary of Duplicate Effective Modeling Results

Wash Name	River Sta	Top Width (ft)	Flow Area (sq ft)	Vel Total (ft/s)	W.S. Elev W/Floodway (ft)	W.S. Elev W/O Floodway (ft)	Elevation Difference (ft)	
Twin Buttes Wash	2.94	61	339	8.2	1354.0	1353.8	0.2	
	3.03	86	338	8.2	1357.3	1356.9	0.4	
	3.13	175	685	4.1	1360.0	1359.8	0.2	
	3.22	78	309	9.0	1361.2	1360.7	0.5	
	3.31	144	500	5.6	1365.2	1365.0	0.2	
	3.41	91	375	7.4	1367.6	1366.6	1.0	
	3.47	206	513	5.4	1370.3	1370.0	0.3	
	3.50	206	703	4.0	1371.3	1371.0	0.3	
Q =	AN 3.60	154	341	7.1	1372.9 1373.0	1372.7	0.3	0.2'
	AO 3.69	138	401	6.1	1377.3	1377.3	0.0	
	AP 3.79	147	336	7.2	1380.5 1380.4	1380.3	0.1	0.2'
	AQ 3.88	122	377	6.4	1384.1	1383.7	0.4	
	AR 3.98	154	404	6.0	1387.7 1387.6	1386.7	0.9	1.0'
	AS 4.07	223	483	5.0	1391.7	1391.6	0.1	
	AT 4.17	248	604	4.0	1394.0	1394.0	0.0	
	AU 4.26	109	268	9.0	1396.9	1396.9	0.0	
	AV 4.36	283	685	3.5	1401.6 1401.7	1401.4	0.3	0.2'
	AW 4.45	174	405	6.0	1404.5	1404.0	0.5	
	AX 4.55	126	310	7.8	1409.6	1409.5	0.1	
	AY 4.64	344	748	3.2	1413.1	1412.5	0.6	
	AZ 4.73	371	402	6.0	1416.2 1416.3	1416.2	0.1	0.0'
	BA 4.79	239	501	4.3	1420.3	1419.8	0.5	
	BB 4.92	268	430	5.0	1426.4	1425.8	0.6	
	BC 5.02	256	494	4.4	1431.4 1431.5	1430.5	1.0	0.9'
	BD 5.07	139	325	6.7	1433.8	1433.4	0.4	
	BE 5.11	120	369	5.9	1436.4	1435.8	0.6	
	BF 5.21	83	252	8.6	1440.9 1440.6	1440.9	-0.3	0.0'
	BG 5.30	102	388	5.6	1444.6 1444.7	1444.6	0.1	0.0'
	BH 5.40	122	258	8.4	1448.1	1448.1	0.0	
	3.60	457	566	1.3	1372.9 1373.0	1372.7	0.3	0.2'
White Peak Wash	A 0.09	75	108	6.7	1374.7 1374.5	1374.7	-0.2	0.0'
	B 0.19	102	246	2.9	1378.0	1377.2	0.8	
	C 0.28	52	149	4.8	1379.8 1379.6	1379.8	-0.2	0.0'
	D 0.38	45	102	7.1	1383.6	1383.3	0.3	
	E 0.47	126	247	2.9	1387.4 1387.3	1387.4	-0.1	0.0'
	F 0.57	27	76	9.5	1390.7	1390.7	0.0	
	G 0.66	104	209	3.4	1396.3	1396.1	0.2	
	H 0.76	77	139	5.2	1399.5	1398.9	0.6	
	I 0.85	72	159 158	4.5 4.6	1404.0 1403.9	1404.0	-0.1	0.0'
	J 0.95	44	122	5.9	1407.5 1407.6	1407.5	0.1	0.0'
	K 1.04	✓49	✓ 122	✓ 5.9	✓1412.2	✓1412.2	✓0.0	

why doesn't 3.60 Twin Buttes agree with one in White Peak Wash

Table 2 Summary of Post-Project Condition Modeling Results

Wash Name	River Sta	Top Width (ft)	Flow Area (sq ft)	Vel Total (ft/s)	W.S. Elev W/Floodway (ft)	W.S. Elev W/O Floodway (ft)	Elevation Difference (ft)
Twin Buttes Wash	2.94	61	339	8.2	1354.0	1353.8	0.2
	3.03	86	338	8.2	1357.3	1356.9	0.4
	3.13	175	685	4.1	1360.0	1359.8	0.2
	3.22	78	309	9.0	1361.2	1360.7	0.5
	3.31	144	500	5.6	1365.2	1365.0	0.2
	3.41	91	375	7.4	1367.6	1366.6	1.0
	3.47	206	513	5.4	1370.3	1370.0	0.3
	3.50	206	703	4.0	1371.3	1371.0	0.3
	3.60	154	341	7.1	1373.0	1372.7	0.3
	3.69	138	396	6.1	1377.3	1377.3	0.0
	3.79	147	338	7.2	1380.5	1380.5	0.0
	3.88	122	374	6.5	1384.0	1383.9	0.1
	3.98	154	406	6.0	1387.7	1387.6	0.1
	4.07	223	482	5.0	1391.7	1391.6	0.1
	4.17	248	605	4.0	1394.0	1393.9	0.1
	4.26	109	268	9.0	1396.9	1397.0	-0.1
	4.36	283	685	3.5	1401.6	1401.3	0.3
	4.45	174	405	6.0	1404.5	1404.0	0.5
	4.55	126	310	7.8	1409.6	1409.5	0.1
	4.64	344	748	3.2	1413.1	1412.5	0.6
	4.73	371	402	6.0	1416.3	1416.2	0.1
	4.79	239	501	4.3	1420.3	1419.8	0.5
	4.92	268	430	5.0	1426.4	1426.3	0.1
	5.02	256	492	4.4	1431.5	1431.1	0.4
	5.07	139	326	6.6	1433.8	1433.4	0.4
	5.11	120	368	5.9	1436.4	1436.1	0.3
	5.21	83	252	8.6	1440.6	1440.1	0.5
	5.30	102	388	5.6	1444.7	1444.8	-0.1
	5.40	122	258	8.4	1448.1	1448.1	0.0
White Peak Wash	3.60	457	566	1.3	1373.0	1372.7	0.3
	0.09	75	108	6.7	1374.5	1374.6	-0.1
	0.19	102	246	2.9	1378.0	1378.0	0.0
	0.28	52	149	4.8	1379.6	1379.6	0.0
	0.38	45	102	7.1	1383.6	1383.6	0.0
	0.47	126	247	2.9	1387.4	1387.4	0.0
	0.57	27	76	9.5	1390.7	1390.7	0.0
	0.66	104	209	3.4	1396.3	1396.3	0.0
	0.76	77	139	5.2	1399.5	1399.5	0.0
	0.85	72	158	4.6	1403.9	1403.9	0.0
	0.95	44	122	5.9	1407.5	1407.5	0.0
	1.04	49	122	5.9	1412.2	1412.2	0.0

5.0 EROSION AND TOEDOWN DEOTH ESTIMATION FOR BANK PROTECTION

The purpose of this scour analysis is to estimate the required toedown depths for the proposed bank protection of the fill sites in both portions of Twin Buttes Wash and White Peak Wash.

Because the majority of the wash banks remain in natural conditions, and the wash bottoms are not disturbed, the scour depths near the 5 fill sites were estimated by using the method proposed by Bureau of Reclamation, U.S. Department of Interior. The computation sheets, soil data, hydraulic parameters, and results are included in Appendix C. These results were used for the bank protection toedown depth design parameters. The proposed improvement plans are included in Exhibit B.

6.0 DRAFT FIS REPORT DATA

6.1 Summary of Discharge

Table 3 provides a summary of discharges in FEMA format for the study area from *Flood Insurance Study, Maricopa County Arizona and Unincorporated Areas, Volume 1 of 12*, revised September 30, 1995.

TABLE 3

Summary of Discharges in FEMA Format

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (cfs)			
		10-year	50-year	100-year	500-year
Twin Buttes Wash – Above confluence with Garambullo Wash	3.32	--[1]	--[1]	2,163	--[1]
Twin Buttes Wash – Above confluence with White Peak Wash	4.65	--[1]	--[1]	2,424	--[1]
Twin Buttes Wash – At Beardsley Canal	8.04	--[1]	--[1]	2,779	--[1]
White Peak Wash – At confluence with Twin Buttes Wash	1.59	--[1]	--[1]	721	--[1]

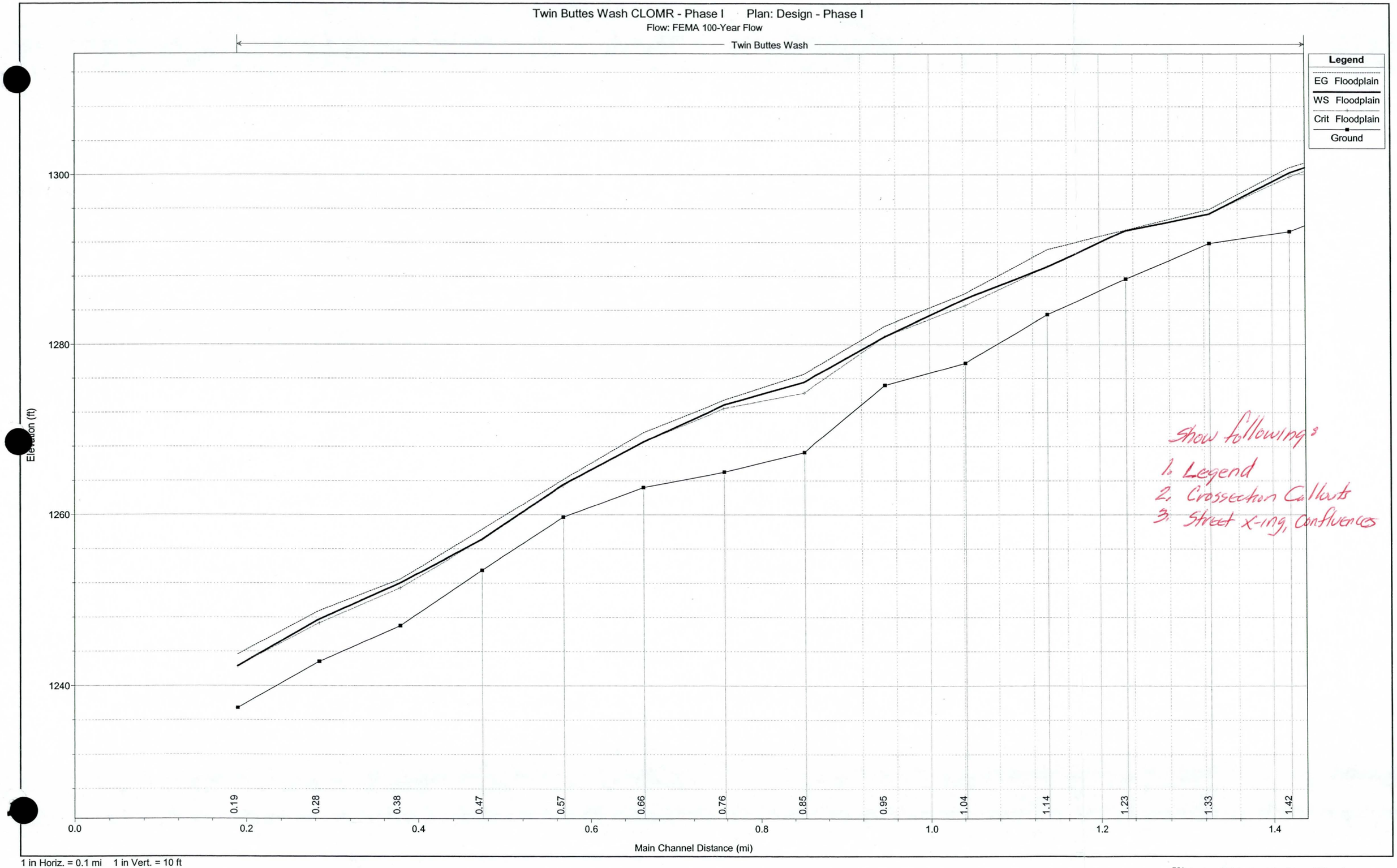
--[1] Not Computed

6.2 Annotated Flood Insurance Rate Map

The 100-year effective FIS flows are contained within the proposed study reaches as documented in this report. Exhibit D contains the revisions to the effective FIRM panels 04013C0740G and 04013C1155G. Refer to Exhibit C for *Post-Project Condition Model* Work Maps.

6.3 Flood Profiles

Figure 2 contains the 100-year peak flow flood profiles for the *Post-Project Condition Models* for the study reaches of both Twin Buttes Wash and White Peak Wash.

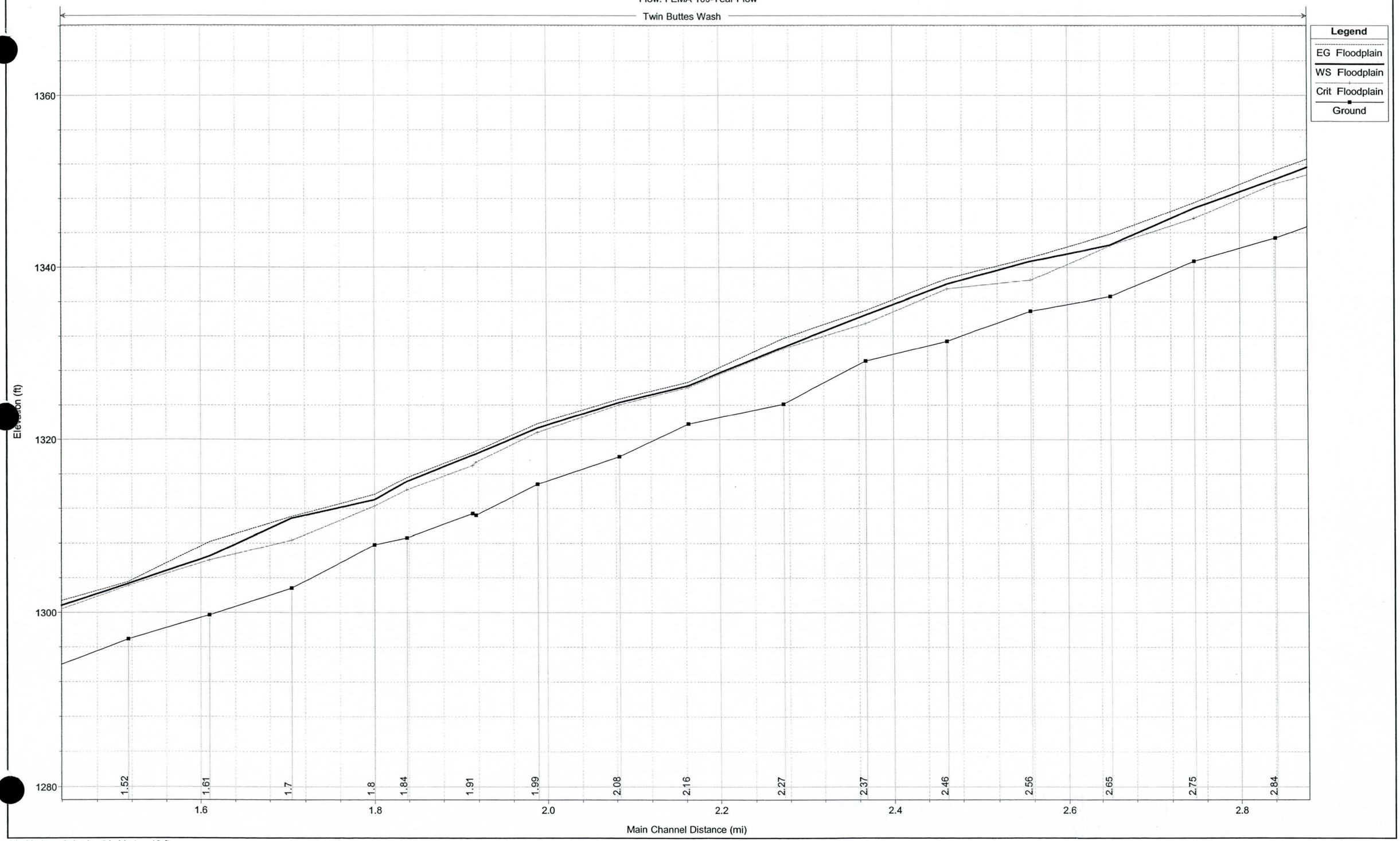


1 in Horiz. = 0.1 mi 1 in Vert. = 10 ft

Figure 2 Twin Buttes Wash

Twin Buttes Wash CLOMR - Phase I Plan: Design - Phase I

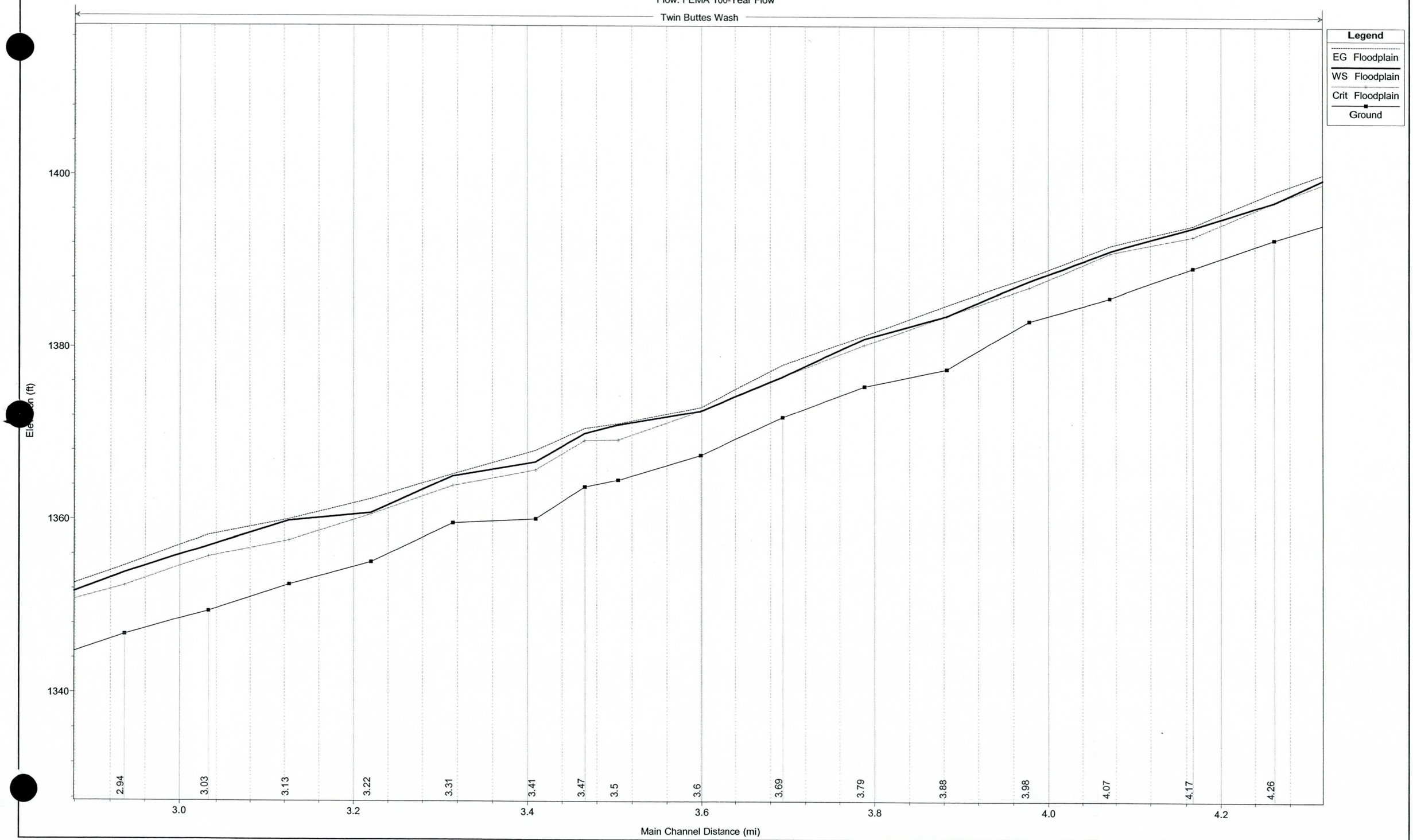
Flow: FEMA 100-Year Flow



1 in Horiz. = 0.1 mi 1 in Vert. = 10 ft

Twin Buttes Wash CLOMR - Phase I Plan: Design - Phase I

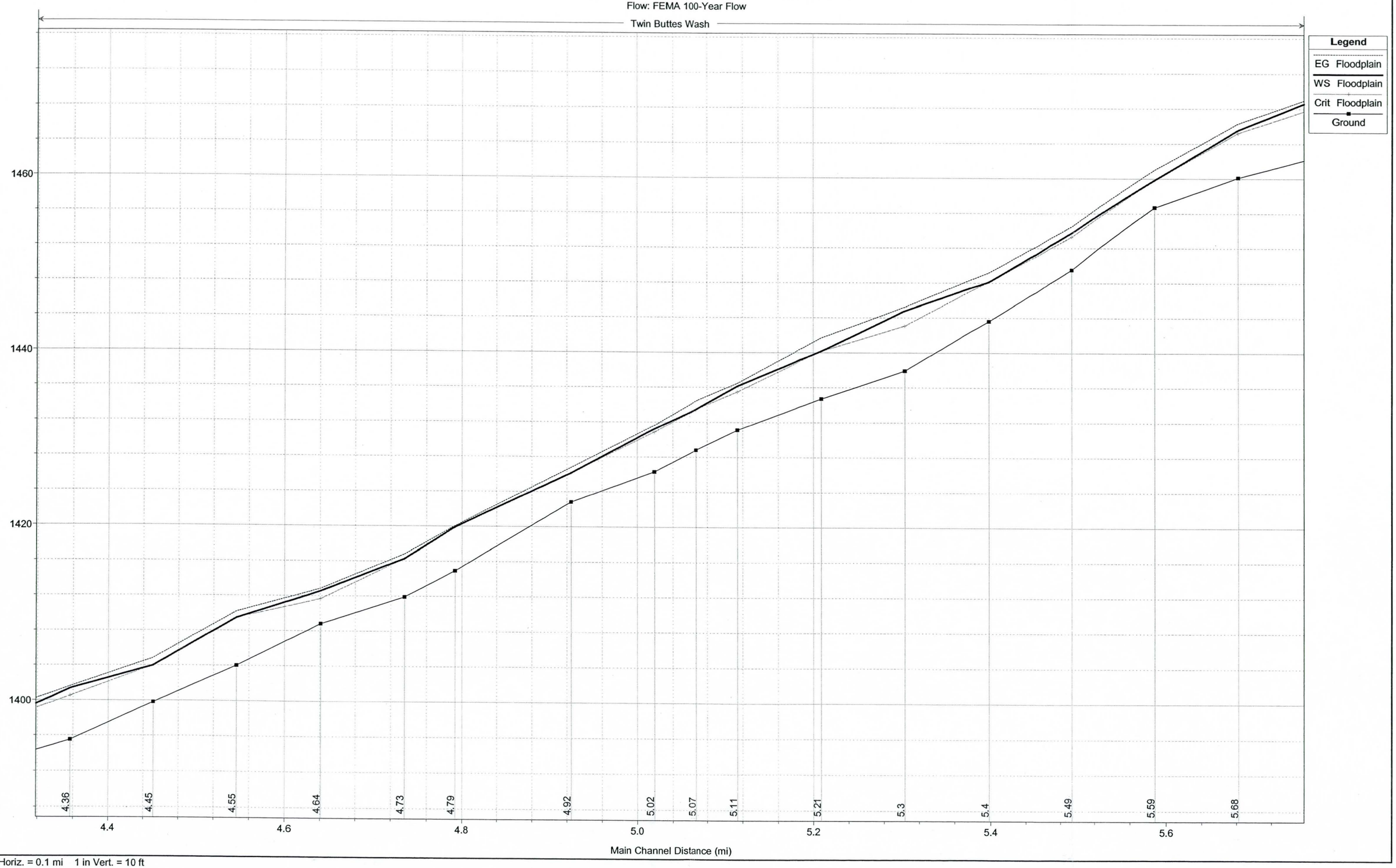
Flow: FEMA 100-Year Flow



1 in Horiz. = 0.1 mi 1 in Vert. = 10 ft

Twin Buttes Wash CLOMR - Phase I Plan: Design - Phase I

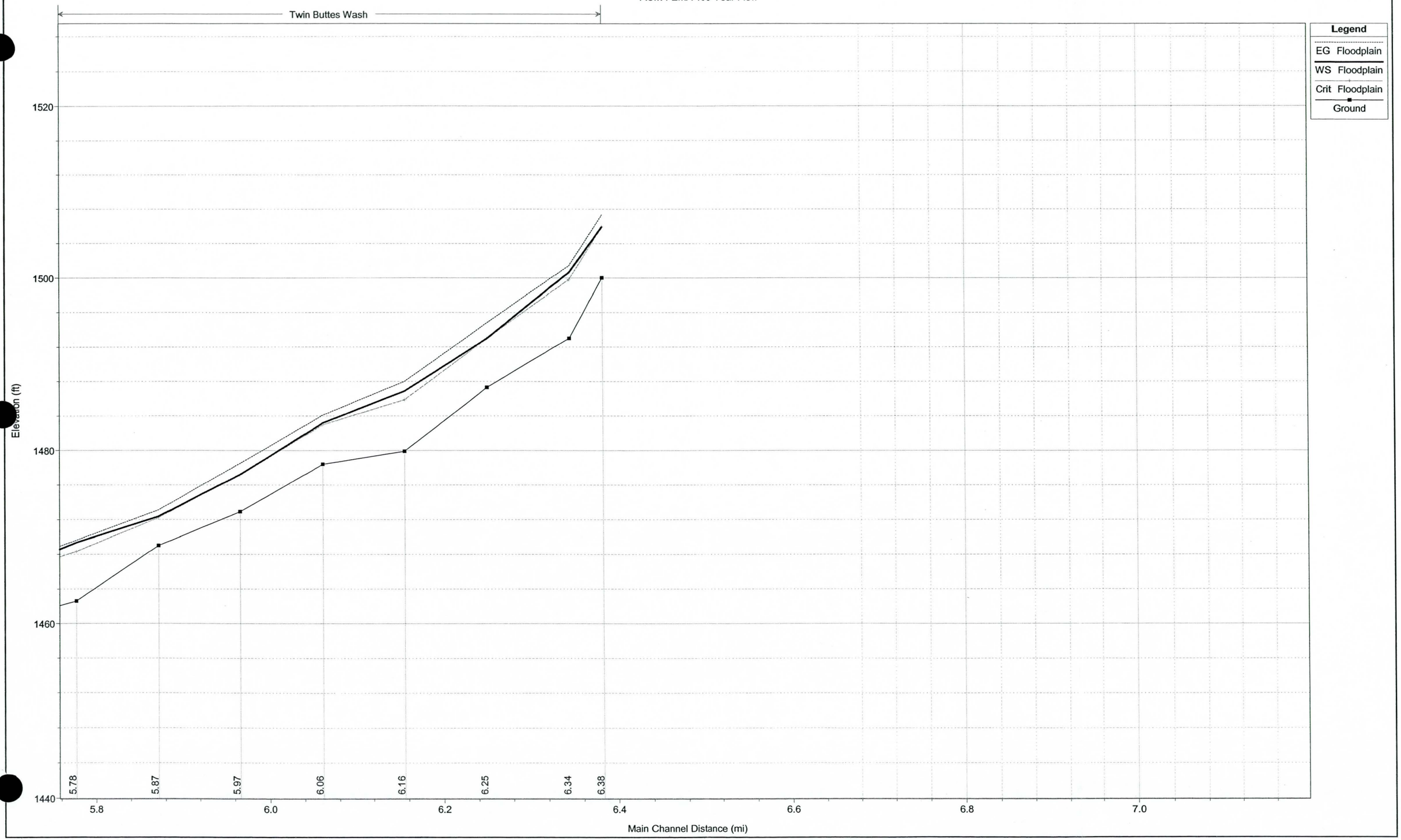
Flow: FEMA 100-Year Flow



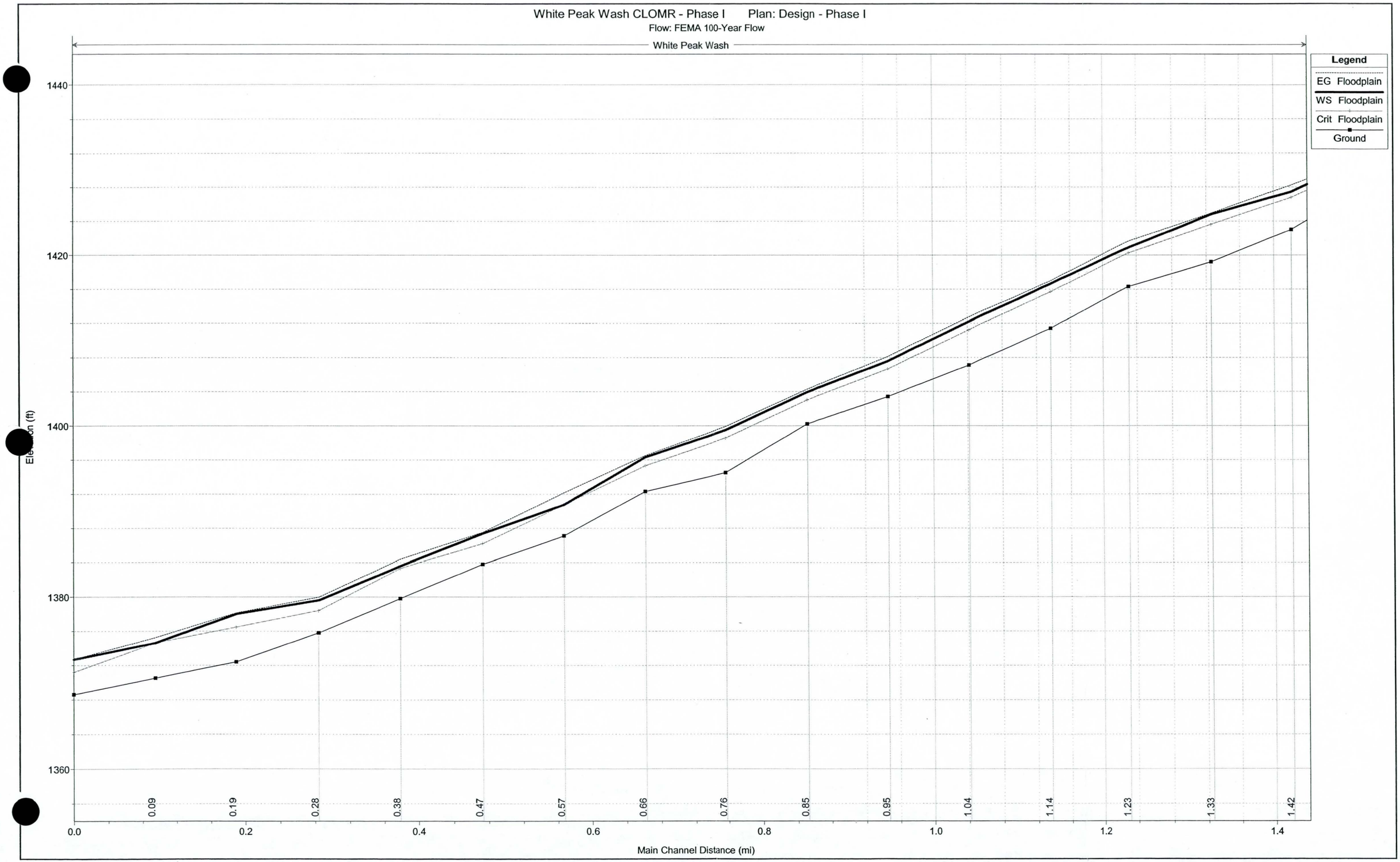
1 in Horiz. = 0.1 mi 1 in Vert. = 10 ft

Twin Buttes Wash CLOMR - Phase I Plan: Design - Phase I

Flow: FEMA 100-Year Flow



1 in Horiz. = 0.1 mi 1 in Vert. = 10 ft

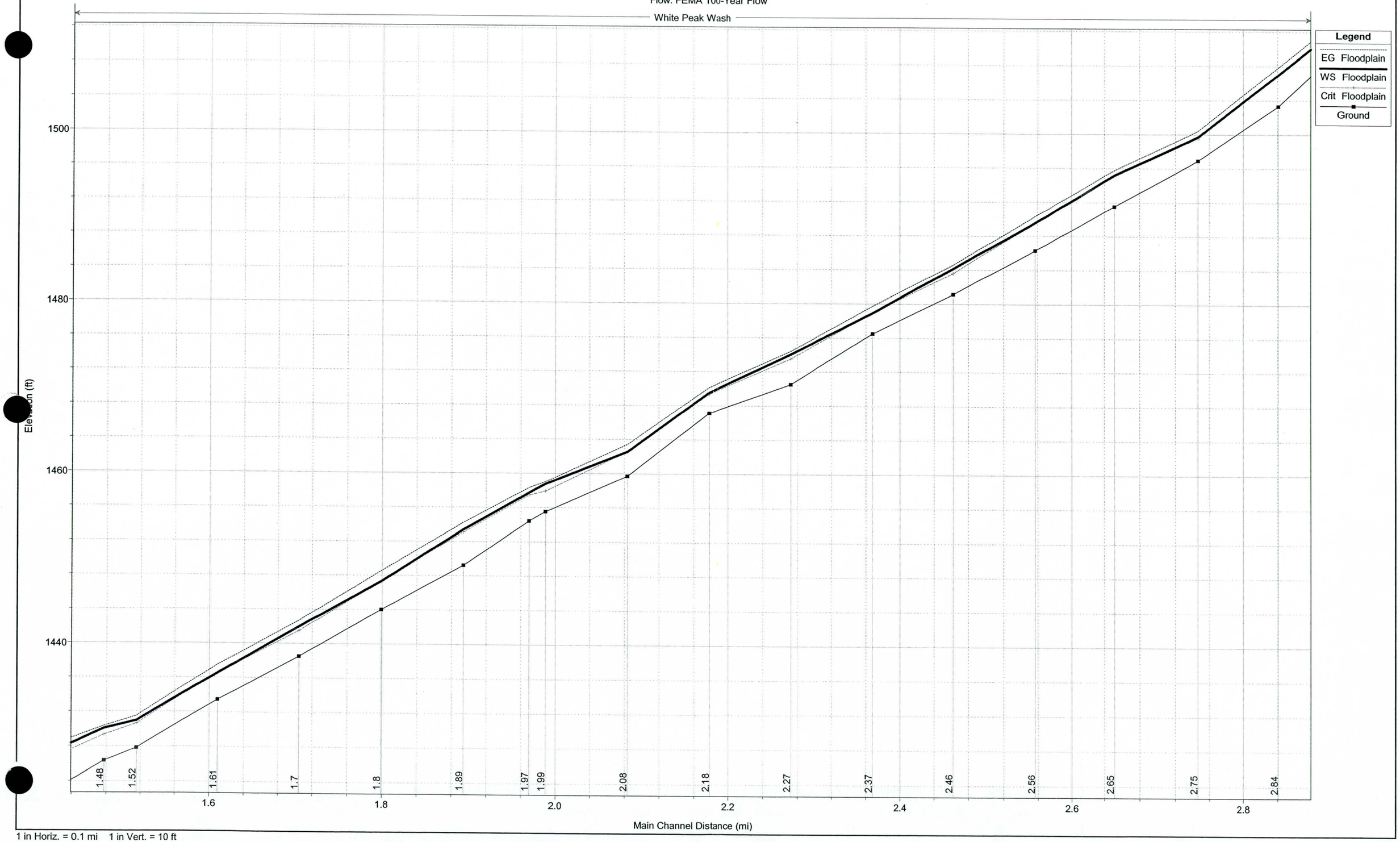


1 in Horiz. = 0.1 mi 1 in Vert. = 10 ft

Figure 2 White Peak Wash

White Peak Wash CLOMR - Phase I Plan: Design - Phase I

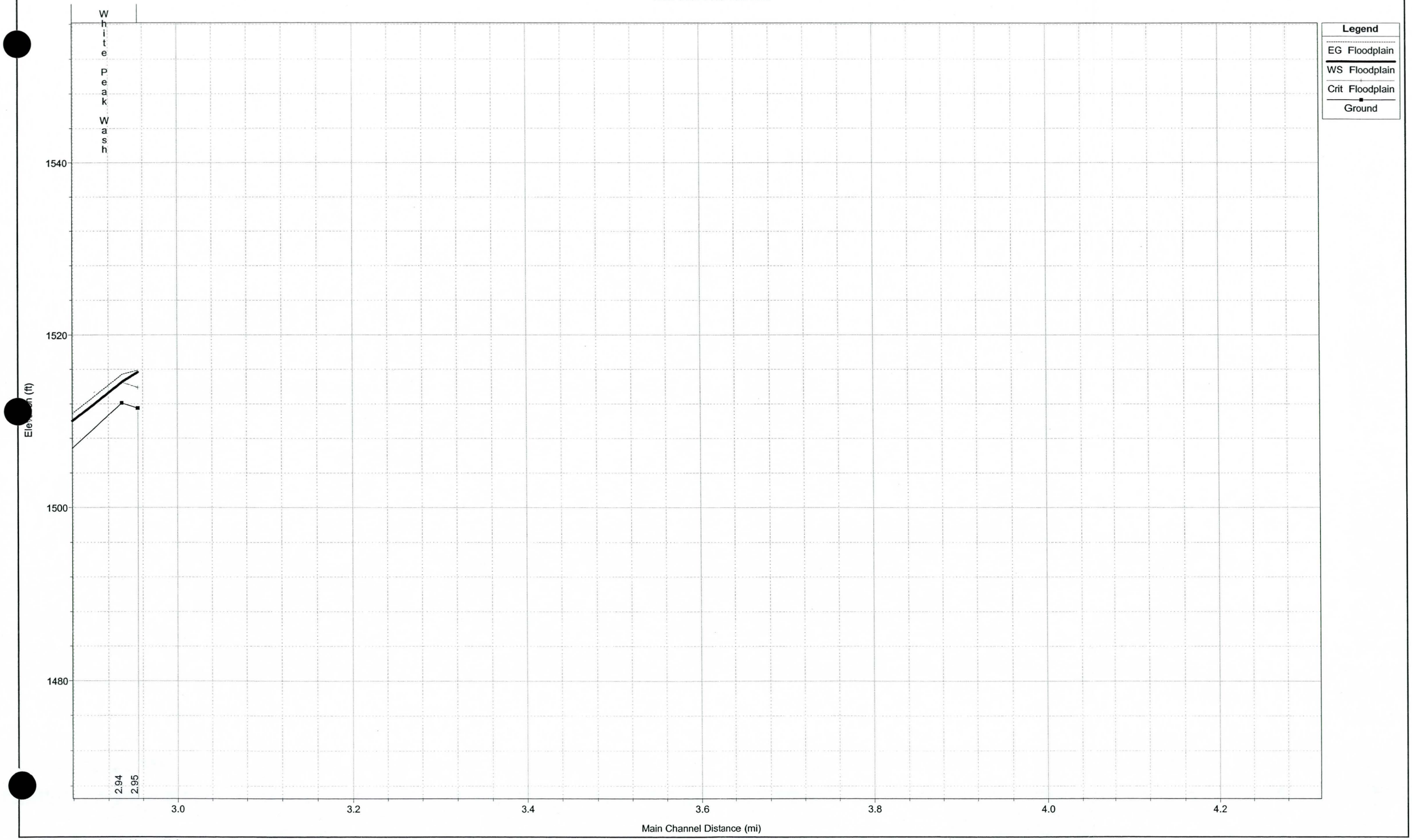
Flow: FEMA 100-Year Flow



1 in Horiz. = 0.1 mi 1 in Vert. = 10 ft

White Peak Wash CLOMR - Phase I Plan: Design - Phase I

Flow: FEMA 100-Year Flow



1 in Horiz. = 0.1 mi 1 in Vert. = 10 ft

7.0 REFERENCES

1. AGK Engineers, Inc., *Agua Fria Floodplain Delineation Study*, June 1991.

2. U.S. Army Corps of Engineers, Hydrologic Modeling Center, *HEC-2 Water Surface Profiles User's Manual*, 1991.

3. FEMA, *Flood Insurance Study, Maricopa County and Incorporated Areas, Arizona*, 1995.

4. Bureau of Reclamation, U.S. Department of the Interior, *Computing Degradation and Local Scour*, January 1984.

5. Geological Consultants Inc., *Geological and Geomorphic Evaluation, Lakeland Village Master Planned Community, Peoria, Arizona*, February 2002.

6. FEMA, *Flood Insurance Study, Maricopa County and Incorporated Areas, Arizona*, 2001.

Appendix A

HEC-2 Models Output Files

Appendix A1
HEC-2 Output for Regulatory FIRM Conditions Duplicate Effective Model (Twin Buttes Wash)

Appendix A2
HEC-2 Output for Regulatory FIRM Conditions Duplicate Effective Model (White Peak Wash)

Appendix A3
HEC-2 Output for Post-Project Conditions Model (Twin Buttes Wash)

Appendix A4
HEC-2 Output for Post-Project Conditions Model (White Peak Wash)

Appendix A1
HEC-2 Output for Regulatory FIRM Conditions
Duplicate Effective Model (Twin Buttes Wash)

```
*****************************************
* HEC-2 WATER SURFACE PROFILES          *
*                                       *
* Version   4.6.2;  May 1991            *
*                                       *
* RUN DATE    11SEP02    TIME   14:16:56 *
*****************************************
```

```
****************************************
* 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

```
11SEP02      14:16:56                                                                    PAGE    1
```

```
                                                                THIS RUN EXECUTED 11SEP02    14:16:56
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************


T1  CAP OVERCHUTES - AGUA FRIA FLOOD PLAIN STUDY
T2  FOR FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
T3      TWIN BUTTES WASH                March, 1991

    ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0        3         0         0        -1         0         0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       1        0        -1                                      -1                            15


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38        43        26         1        53        54         3         4       200

NC     .045      .045      .035       .1        .3
QT        3                 2746     2746      2746
  Agua Fria River (mile 0.00) - first approximation start at critical depth
  Starting Q from concentration point N  (2746 CFS) - HEC-1 dated May 7, 1991
  NC card used as majority of flow expected to remain in channel
  N values from n-value determination report dated February, 1991
ET                                   9.1       9.1                                        9959      10066
X1     0.19        38    9945.8   10098.5
X3       10
GR   1264.8    9494.5    1262.3    9537.2    1260.8    9594.4    1261.3    9639.3    1258.5    9659.2
GR   1248.4    9684.6    1244.5    9697.1    1244.7    9712.2    1241.0    9714.7    1245.0    9725.6
GR   1244.6    9762.6    1247.8    9780.3    1249.6    9796.2    1249.7    9833.0    1247.2    9857.3
GR   1245.7    9868.9    1245.7    9899.3    1245.8    9926.2    1245.8    9945.8    1243.4    9956.9
GR   1240.8    9963.5    1240.7    9990.2    1240.2   10000.0    1237.4   10042.1    1238.0   10056.4
GR   1245.0   10070.9    1246.7   10098.5    1245.4   10129.1    1246.7   10186.4    1246.6   10229.9
GR   1247.0   10302.0    1247.7   10368.0    1247.7   10427.6    1246.7   10482.4    1248.0   10514.5
GR   1246.5   10532.6    1247.8   10563.7    1248.7   10571.8

ET                                   9.1       9.1                                        9982      10094
X1     0.28        34    9956.6   10097.9     520       340       500
X3       10
GR   1268.3    9144.4    1268.3    9238.2    1267.8    9332.9    1267.3    9434.4    1267.6    9533.8
GR   1265.3    9615.1    1261.4    9669.4    1259.2    9698.1    1260.9    9735.7    1261.3    9777.4
GR   1261.9    9809.2    1263.7    9875.5    1264.0    9930.6    1263.9    9956.6    1244.3    9987.8
GR   1242.8   10000.0    1242.9   10019.0    1245.9   10043.1    1245.4   10070.9    1245.1   10086.5
GR   1249.2   10097.9    1249.9   10174.5    1250.0   10250.0    1249.4   10357.3    1250.0   10438.0
     1250.2   10517.2    1248.4   10574.3    1248.7   10594.5    1247.1   10609.3    1249.1   10638.6
     1249.8   10682.3    1250.4   10770.8    1251.1   10803.4    1262.7   10834.6
```

```
ET                                  9.1       9.1                                  9978      10136
X1     0.38       43     9829.3   10222.6       580       330       500
X3       10

GR   1261.8     9239.4   1261.4    9296.4    1260.6    9387.2    1257.6    9486.2    1256.1    9518.6
GR   1253.7     9552.0   1255.5    9578.0    1255.9    9632.6    1256.3    9665.6    1263.0    9699.5
GR   1266.5     9716.2   1260.2    9739.4    1255.7    9753.3    1256.3    9784.1    1254.9    9799.5
GR   1255.3     9829.3   1253.6    9874.5    1248.7    9887.3    1250.8    9907.2    1250.6    9948.7
GR   1250.4     9993.5   1249.6   10000.0    1249.2   10029.9    1247.0   10048.8    1251.7   10059.9
GR   1251.7    10089.4   1248.9   10104.0    1247.1   10119.0    1252.3   10137.0    1253.0   10174.1
GR   1253.7    10222.6   1252.9   10262.5    1250.7   10287.7    1251.6   10315.8    1251.9   10348.7
GR   1251.9    10397.4   1252.6   10420.6    1259.4   10468.3    1259.8   10489.9    1254.2   10514.3
GR   1262.5    10545.4   1268.0   10579.3    1267.7   10614.7

ET                                  9.1       9.1                                  9910      10046
X1     0.47       38     9869.5   10050.9       380       720       500
X3       10
GR   1262.7     9219.3   1261.8    9271.1    1260.8    9314.8    1259.8    9363.3    1258.7    9404.7
GR   1258.8     9430.9   1257.9    9457.1    1260.1    9474.5    1262.8    9510.5    1263.0    9564.1
GR   1261.7     9678.4   1259.2    9727.0    1257.7    9747.2    1260.0    9784.2    1259.6    9817.8
GR   1259.6     9869.5   1257.6    9907.5    1254.4    9923.5    1256.5    9953.0    1253.9    9986.5
GR   1253.8    10000.0   1253.5   10036.7    1259.1   10050.9    1259.6   10078.4    1257.6   10102.9
GR   1257.1    10133.1   1259.3   10158.3    1257.9   10177.3    1254.5   10184.6    1255.0   10192.2
GR   1259.3    10202.8   1258.8   10227.4    1257.7   10244.1    1254.3   10252.4    1263.0   10280.7
GR   1272.1    10309.3   1272.8   10380.9    1272.6   10411.5

ET                                  9.1       9.1                                  9923      10115
X1     0.57       40     9923.3   10177.1       490       730       500
X3       10
GR   1267.3     9364.5   1267.1    9423.9    1267.1    9500.9    1266.6    9563.0    1267.9    9587.8
GR   1267.8     9643.6   1266.8    9667.1    1268.4    9721.6    1267.3    9767.8    1265.5    9810.7
GR   1266.7     9843.6   1267.0    9873.6    1265.6    9884.0    1260.2    9903.8    1263.4    9923.3
GR   1262.8     9933.8   1259.7    9943.5    1260.7    9963.8    1260.5   10000.0    1259.8   10037.7
GR   1262.9    10052.9   1262.8   10075.5    1263.3   10115.9    1263.8   10177.1    1263.4   10224.1
GR   1264.0    10282.8   1265.5   10320.2    1265.5   10342.2    1266.0   10355.4    1275.2   10383.7
     1278.8    10417.9   1278.5   10446.6    1274.5   10463.9    1277.8   10482.4    1279.2   10510.8
     1277.7    10547.6   1276.2   10583.1    1278.2   10621.7    1278.4   10666.7    1280.9   10730.1

ET                                  9.1       9.1                                  9928     10030.7
X1     0.66       41     9918.8   10030.7       300       900       500
X3       10
GR   1283.1     8929.8   1274.5    8966.1    1273.8    8994.2    1269.1    9029.6    1268.5    9038.6
GR   1269.0     9084.7   1267.5    9105.6    1263.0    9126.0    1266.8    9164.6    1267.2    9224.7
GR   1267.8     9307.1   1268.5    9370.0    1268.5    9419.5    1268.5    9483.8    1268.5    9555.4
GR   1274.8     9573.0   1273.0    9605.3    1274.7    9616.6    1274.1    9648.9    1268.5    9672.8
GR   1268.6     9714.8   1266.8    9753.3    1267.7    9775.7    1267.7    9839.9    1268.8    9918.8
GR   1266.8     9961.9   1264.5    9978.3    1263.2    9999.4    1263.2   10000.0    1263.5   10017.4
GR   1268.1    10030.7   1267.4   10071.6    1269.2   10106.1    1268.7   10122.5    1270.7   10151.5
GR   1270.8    10211.0   1270.1   10264.2    1271.4   10306.6    1271.8   10330.4    1294.9   10388.1
GR   1301.0    10413.8
1
```



```
ET                                  9.1       9.1                                  9965      10189
X1     0.76       36     9874.5   10078.3       530       430       500
X3       10
GR   1280.4     9251.6   1280.1    9263.5    1280.8    9288.8    1277.3    9320.2    1274.7    9350.9
GR   1279.6     9384.1   1273.7    9412.4    1271.2    9447.0    1269.1    9502.8    1265.2    9531.3
GR   1269.9     9551.8   1269.8    9582.6    1267.3    9629.9    1270.7    9686.8    1271.8    9774.1
GR   1273.5     9874.5   1273.1    9965.0    1265.0    9987.7    1266.8   10000.0    1269.1   10019.7
GR   1271.3    10027.0   1272.8   10078.3    1272.7   10154.3    1270.8   10197.3    1272.8   10233.3
GR   1269.7    10245.6   1272.1   10265.8    1273.6   10288.3    1272.0   10317.8    1271.4   10349.8
GR   1272.5    10383.7   1274.5   10450.3    1275.4   10520.4    1276.0   10578.5    1279.0   10610.6
GR   1300.1    10652.6

ET                                  9.1       9.1                                  9932     10035.4
X1     0.85       23     9930.6   10035.4       530       290       500
X3       10
GR   1287.9     9773.4   1286.3    9811.6    1287.1    9848.3    1281.3    9864.5    1275.8    9890.1
GR   1276.0     9930.6   1274.4    9965.1    1272.7    9986.3    1269.0    9998.9    1267.9   10000.0
GR   1267.3    10021.7   1275.7   10035.4    1275.7   10060.0    1276.6   10119.0    1277.4   10187.5
GR   1276.5    10268.5   1276.6   10330.7    1276.5   10389.2    1278.6   10429.2    1283.6   10457.9
     1298.2    10492.6   1304.0   10559.5    1303.9   10560.8
hange channel contraction and expansion values to .2 and .4
```

```
      .045       .045       .035         .2         .4
                                        9.1        9.1                                          9970       10080
      0.95         39     9957.1    10082.8        530        270        500
X3      10                                          10245
GR   1293.3     9330.4     1293.0     9391.2     1292.5     9441.0     1292.5     9499.7     1289.9     9545.2
GR   1288.9     9580.2     1290.7     9616.7     1292.5     9648.5     1292.7     9683.8     1291.5     9731.9
GR   1290.6     9771.9     1289.6     9785.7     1292.2     9837.9     1294.4     9894.5     1292.3     9928.1
GR   1288.4     9957.1     1275.2     9980.9     1276.4    10000.0     1278.9    10043.5     1280.9    10082.8
GR   1281.3    10160.0     1282.1    10245.0     1281.6    10333.6     1278.6    10392.1     1280.1    10438.8
GR   1280.1    10455.6     1285.3    10472.8     1283.6    10489.0     1289.7    10530.1     1299.8    10589.0
GR   1300.1    10608.9     1300.2    10656.2     1298.9    10700.4     1297.5    10733.6     1292.5    10790.3
GR   1299.3    10838.1     1300.5    10888.2     1304.0    10937.1     1304.2    10945.8

ET                                      9.1        9.1                                          9956       10081
X1     1.04         27     9956.9    10081.3        410        700        500
X3      10
GR   1295.0     9313.8     1295.8     9409.0     1295.4     9551.6     1291.1     9603.2     1296.0     9694.8
GR   1293.6     9752.6     1290.8     9818.5     1284.0     9843.0     1284.0     9869.7     1285.2     9912.2
GR   1285.1     9956.9     1280.9     9980.7     1277.8     9998.7     1278.9    10000.0     1282.5    10030.3
GR   1285.0    10081.3     1285.3    10131.6     1285.1    10218.5     1286.3    10257.0     1286.7    10287.2
GR   1287.4    10319.2     1292.7    10357.8     1296.7    10422.3     1292.7    10467.8     1301.9    10512.7
GR   1305.6    10581.4     1305.8    10666.7

NC      .045       .045       .040         .2         .4
  Change channel n value to .040 for wider and less defined channel
  Leave contraction and expansion values to .2 and .4
  NH cards input for stations 1.14 through 1.84
NH        4       .045     9941.1       .040    10025.5       .050    10198.0       .045    10831.0
ET                                      9.1        9.1                                          9956       10180
1
   11SEP02      14:16:56                                                                                    PAGE    4


X1     1.14         30     9941.1    10198.0        560        260        500
X3      10
GR   1301.8     9696.6     1301.7     9765.9     1297.9     9844.9     1296.0     9891.6     1296.8     9915.1
GR   1291.6     9941.1     1289.5     9964.4     1284.3     9980.5     1283.8    10000.0     1283.5    10013.5
GR   1289.7    10025.5     1289.9    10075.4     1289.8    10131.7     1289.6    10172.7     1291.8    10198.0
GR   1291.1    10263.3     1288.0    10301.6     1285.8    10320.3     1288.1    10377.5     1290.0    10404.3
GR   1289.5    10456.1     1290.1    10508.4     1296.1    10538.6     1299.5    10577.9     1301.1    10615.8
GR   1305.2    10667.9     1307.6    10708.5     1308.4    10758.9     1308.5    10817.9     1308.6    10831.0
  Change contraction and expansion values to .3 and .5 - rapid expansion

NC                                       .3         .5
NH        5       .045     9971.6       .040    10025.3       .060    10273.2       .040    10540.3       .045
NH    10792
ET                                      9.1        9.1                                          9975       10380
X1     1.23         33     9971.6    10025.3        530        200        500
X3      10
GR   1326.4     9527.5     1313.8     9613.9     1309.0     9681.1     1304.2     9735.5     1304.5     9769.8
GR   1302.4     9807.4     1298.4     9839.5     1293.9     9855.0     1299.6     9879.8     1299.5     9898.7
GR   1302.0     9932.4     1302.2     9971.6     1287.8    10000.0     1287.7    10011.2     1293.4    10025.3
GR   1292.9    10065.3     1293.0    10136.4     1292.9    10212.4     1293.3    10273.2     1289.7    10331.6
GR   1288.9    10368.6     1286.4    10403.9     1290.0    10439.0     1290.5    10457.6     1291.3    10487.8
GR   1291.7    10522.0     1292.2    10540.3     1296.8    10557.0     1300.6    10591.2     1303.2    10654.7
GR   1308.1    10705.8     1308.2    10756.4     1311.2     10792

NH        7       .045     9870.4       .05     9951.8       .04    10075.3       .06    10153.8       .045
NH    10220        .06    10249.5       .045    10562.9
ET                                      9.1        9.1                                          9900    10153.8
X1     1.33         41     9870.4    10153.8        500        470        500
X3      10
GR   1329.0     9096.0     1322.4     9151.0     1320.1     9183.2     1315.3     9215.8     1311.9     9264.0
GR   1309.6     9313.9     1308.4     9346.4     1308.8     9401.1     1308.0     9443.1     1305.9     9473.6
GR   1309.9     9499.2     1308.2     9573.9     1308.4     9631.2     1308.4     9693.7     1306.9     9747.5
GR   1305.8     9796.8     1305.1     9835.6     1305.2     9870.4     1295.2     9903.3     1294.8     9951.8
GR   1292.4     9964.1     1292.5     9993.1     1292.7    10000.0     1294.0    10035.6     1291.9    10053.8
GR   1295.1    10075.3     1295.1    10153.8     1293.6    10192.5     1295.3     10220      1295.1    10249.5
GR   1293.5    10277.4     1296.4    10301.0     1296.5    10316.4     1293.7    10327.7     1294.0    10351.2
GR   1294.2    10364.1     1309.8    10410.2     1313.7    10435.7     1318.0    10480.6     1321.7    10547.3
GR   1323.0    10562.9

NH        4       .045     9631.4       .06     9913.8       .04    10073.0       .045    10168.3
ET                                      9.1        9.1                                          9913       10058
X1     1.42         31     9913.8    10073.0        520        460        500
X3      10
GR   1327.0     8877.7     1324.0     8926.5       1320     8951.5     1319.3     8980.6     1319.3     9020.9
GR   1315.5     9063.2     1314.9     9100.1     1314.1     9141.5     1313.0     9206.3     1311.7     9276.4
GR   1311.8     9321.7     1310.5     9389.1     1306.6     9452.9     1304.6     9474.6     1308.5     9514.1
GR   1305.6     9547.4     1300.2     9569.1     1301.4     9631.4     1300.7     9706.1     1299.8     9794.6
GR   1299.6     9856.4     1299.3     9913.8     1297.8     9967.5     1296.3    10000.0     1293.3    10021.2
```

```
    1299.4    10044.1     1299.8    10057.7     1306.5    10073.0     1318.9    10098.4     1334.8    10139.9
    1336.8    10168.3
```



```
NH        5      .045     9606.0       .04     9852.4       .05     9943.0       .04    10074.2      .045
NH    10760
ET                                     9.1       9.1                                     9845     10030
X1     1.52        25     9852.4    10074.2       180       530       500
X3       10
GR   1305.6    9565.4     1305.6     9565.5    1305.6    9565.6    1305.1    9606.0    1301.4    9648.8
GR   1301.7    9697.3     1301.6     9756.6    1300.7    9802.7    1303.1    9852.4    1302.4    9900.5
GR   1302.3    9943.0     1300.7     9976.3    1298.5    9993.8    1297.8   10000.0    1296.9   10019.5
GR   1336.3   10074.2     1337.7    10106.0    1338.8   10167.4    1339.3   10242.6    1338.7   10331.2
GR   1336.8   10405.1     1336.7    10494.0    1336.9   10596.2    1336.6   10755.8    1336.5     10760
  Change channel n value to .045 due to shallower flows

NC      .045      .045       .045
ET                                     9.1       9.1                                     9973     10036
X1     1.61        34     9973.4    10035.5       480       600       500
X3       10
GR   1340.5    9306.5     1336.5     9352.8    1329.6    9385.2    1322.6    9443.0    1318.7    9493.7
GR   1313.9    9552.5     1311.2     9595.2    1310.8    9608.9    1314.3    9643.6    1314.3    9674.6
GR   1316.0    9733.5     1316.7     9803.1    1316.4    9835.9    1312.4    9862.5    1308.1    9897.6
GR   1304.8    9921.7     1306.5     9950.9    1306.6    9973.4    1299.7    9985.3    1300.9   10000.0
GR   1300.9   10014.1     1306.8    10035.5    1305.4   10064.0    1305.2   10095.1    1305.4   10109.9
GR   1309.7   10131.0     1312.8    10165.9    1311.7   10218.3    1309.9   10248.2    1312.8   10299.4
GR   1318.0   10329.4     1331.1    10379.8    1334.3   10416.9    1336.4   10429.0
  increment channel n value to .05

NC      .045      .045        .05
ET                                     9.1       9.1                                     9926     10029
X1     1.70        28     9903.2    10141.8       500       560       500
X3       10
GR   1339.2    9462.0     1336.8     9495.9    1326.5    9555.7    1321.8    9603.8    1318.9    9659.7
GR   1316.9    9766.6     1316.4     9820.9    1317.1    9863.2    1314.2    9903.2    1308.7    9940.2
GR   1306.7    9955.1     1306.7     9977.3    1302.8    9988.4    1303.3   10000.0    1303.1   10017.9
     1307.6   10036.7     1307.6    10063.8    1308.3   10091.8    1311.6   10141.8    1311.3   10172.7
     1312.6   10204.7     1327.9    10262.0    1333.5   10299.7    1336.9   10346.2    1339.3   10409.7
GR   1339.3   10478.1     1340.6    10573.6    1339.2   10587.2

ET                                     9.1       9.1                                     9929     10090
X1     1.80        27     9929.4    10089.9       430       550       500
X3       10
GR   1347.5    9328.5     1346.8     9378.9    1341.8    9429.4    1335.2    9490.1    1328.9    9538.5
GR   1321.9    9565.6     1319.1     9591.5    1322.8    9618.7    1321.0    9673.7    1321.5    9727.0
GR   1319.4    9790.3     1317.0     9829.2    1317.1    9852.2    1312.9    9885.2    1312.4    9929.4
GR   1309.7    9948.0     1307.8     9965.8    1309.0    9993.3    1309.7   10000.0    1310.0   10025.6
GR   1312.0   10061.3     1313.1    10089.9    1313.6   10112.9    1323.6   10156.8    1328.8   10217.0
GR   1337.6   10281.1     1338.5    10302.1

ET                                     9.1       9.1                                     9967     10100
X1     1.84        23     9967.7    10100.6       220       180       200
X3       10                                                                   1316
GR   1346.2    9477.7     1342.7     9570.6    1340.1    9626.2    1334.3    9672.9    1327.6    9722.2
GR   1324.0    9765.1     1318.5     9810.1    1316.1    9832.7    1314.7    9855.6    1318.0    9900.5
GR   1315.3    9935.5     1314.8     9967.7    1308.6    9977.8    1310.3   10000.0    1312.9   10062.6
GR   1314.7   10100.6     1312.8    10138.7    1313.3   10153.5    1320.8   10178.9    1327.3   10237.2
1
```



```
GR   1333.5   10291.1     1342.1    10347.1    1343.4   10374.3
  Concentration point M - change of Q to 2779 cfs
  Change channel n value to .055 due to salt cedars

NC      .045      .045       .055
QT        3                 2779       2779       2779
ET                                     9.1       9.1                                     9719     10148
X1     1.91        17     9719.8    10148.1       310       350       400
X3       10
GR   1340.4    9477.0     1347.8     9515.3    1344.7    9529.6    1340.3    9592.4    1338.7    9645.1
GR   1337.5    9719.8     1324.9     9775.5    1316.3    9826.7    1315.6    9861.6    1315.5    9922.3
GR   1315.7    9985.5     1315.3    10000.0    1311.4   10028.0    1322.6   10055.7    1333.3   10098.7
GR   1344.8   10147.5     1345.1    10148.1

                                       9.1       9.1                                     9714     10102
     1.92        12     9714.6    10102.0        30        30        20
X3       10
```

```
     1339.8     9486.1     1345.7     9514.1     1338.3     9576.1     1336.5     9714.6     1316.8     9807.8
     1316.3     9922.7     1315.2     9994.4     1313.8    10000.0     1311.2    10021.8     1344.1    10102.0
     1336.4    10124.0     1337.1    10136.0
  Use NH records from 1.99 to 2.16

NH       4       .045     9786.7       .055     9972.2       .045    10066.4       .045    10622.3
ET                                      9.1        9.1                                     9804      10034
X1    1.99         30     9786.7    10066.4       530       390        380
X3      10
GR   1348.9     9230.9     1339.4     9317.8     1334.6     9351.3     1332.4     9400.7     1330.9     9466.9
GR   1327.2     9542.3     1325.8     9615.7     1325.9     9628.4     1328.6     9663.2     1326.9     9695.4
GR   1327.7     9750.2     1323.8     9786.7     1319.7     9816.3     1319.3     9838.9     1320.4     9888.8
GR   1320.5     9942.7     1320.3     9972.2     1315.3     9980.6     1315.0     9995.8     1314.9    10000.0
GR   1314.8    10010.4     1318.4    10019.8     1319.4    10029.9     1335.6    10066.4     1341.1    10130.1
GR   1344.4    10180.3     1345.9    10253.8     1346.2    10335.7     1347.9    10516.5     1348.3    10622.3
  Change of n value back to .040 above Beardsly Canal crossing
  Change expansion and contraction coefficients to .2 and .4

NC     .045       .045       .040        .2        .4
NH       5       .045     9964.3       .04    10016.8       .05    10107.9       .04    10269.4      .045
NH   10539
ET                                      9.1        9.1                                     9972      10140
X1    2.08         24     9964.3    10063.3       270       540        500
X3      10
GR   1346.4     9443.5     1340.3     9495.1     1331.3     9566.4     1329.7     9619.4     1330.1     9655.4
GR   1330.8     9695.9     1331.7     9784.0     1332.3     9877.6     1331.8     9964.3     1319.1     9979.7
GR   1318.0     9987.5     1318.0    10000.0     1322.8    10016.8     1324.0    10063.3     1323.4    10107.9
GR   1320.1    10139.9     1320.0    10154.1     1322.0    10174.2     1322.0    10204.1     1325.3    10223.4
GR   1341.2    10269.4     1346.0    10355.2     1346.6    10465.8     1348.0      10539

NH       4       .045     9854.5       .05     9964.0       .04    10047.1       .045    10469.8
ET                                      9.1        9.1                                     9964      10088
X1    2.16         28     9964.0    10047.1       790       200        420
X3      10
GR   1353.6     9544.9     1354.7     9557.1     1350.8     9598.7     1341.0     9670.5     1332.6     9742.9
GR   1330.6     9767.0     1330.2     9788.5     1326.8     9804.3     1334.9     9826.1     1335.8     9854.5
GR   1332.1     9874.5     1323.9     9907.5     1324.9     9939.9     1326.2     9964.0     1321.8     9981.5
1
   11SEP02      14:16:56                                                                                    PAGE    7

GR   1322.3    10000.0     1324.0    10024.3     1326.0    10047.1     1324.4    10062.6     1325.2    10110.5
GR   1325.0    10161.4     1323.4    10211.9     1325.4    10233.2     1331.9    10259.6     1339.9    10301.4
GR   1342.5    10337.4     1344.1    10388.8     1347.4    10469.8
  Change right overbank n to .05

NC     .045        .05        .04
ET                                      9.1        9.1                                     9970     10029.2
X1    2.27         28     9942.0    10029.2       650       670        580
X3      10
GR   1359.4     9468.6     1358.9     9532.8     1357.4     9613.8     1355.5     9697.9     1350.6     9771.8
GR   1344.6     9809.3     1342.5     9829.3     1334.0     9850.5     1334.2     9860.2     1332.4     9871.7
GR   1343.9     9893.1     1346.5     9918.3     1345.4     9942.0     1335.0     9966.5     1324.5     9976.2
GR   1324.1     9992.3     1326.1    10000.0     1326.6    10018.3     1329.4    10029.2     1329.6    10060.8
GR   1329.2    10101.4     1329.7    10135.1     1332.4    10153.6     1338.0    10179.6     1341.4    10230.6
GR   1341.0    10268.1     1343.1    10348.2     1344.6    10374.3

ET                                      9.1        9.1                                     9923      10072
X1    2.37         20     9885.1    10071.6       550       190        500
X3      10
GR   1362.6     9487.7     1360.8     9612.3     1359.9     9750.3     1359.9     9837.5     1357.9     9885.1
GR   1329.1     9933.6     1331.6     9951.9     1329.1     9973.5     1330.5     9995.2     1330.3    10000.0
GR   1331.6    10019.0     1332.9    10043.1     1334.3    10071.6     1334.3    10132.4     1333.8    10183.5
GR   1332.9    10223.9     1336.6    10259.6     1345.6    10294.5     1345.4    10314.8     1345.3    10340.0
  Change rt overbank n value to .045

NC     .045       .045        .04
ET                                      9.1        9.1                                     9851      10026
X1    2.46         32     9829.0    10045.8       500       530        500
X3      10
GR   1358.3     9283.4     1354.9     9386.6     1351.7     9456.1     1343.5     9541.4     1344.4     9627.8
GR   1338.0     9682.9     1336.2     9730.6     1335.8     9750.0     1336.0     9782.9     1336.3     9801.8
GR   1338.6     9829.0     1336.7     9886.9     1336.7     9938.4     1336.3     9966.7     1332.4     9985.2
GR   1331.4    10000.0     1331.5    10016.4     1351.3    10045.8     1350.2    10099.6     1347.8    10183.4
GR   1345.0    10261.8     1344.4    10339.9     1343.4    10387.1     1343.6    10449.9     1343.5    10521.1
GR   1342.1    10620.6     1343.1    10747.7     1343.1    10818.0     1346.2    10868.1     1345.5    10923.6
GR   1350.1    10996.4     1350.0    11033.4

                                        9.1        9.1                                     9957      10090
     2.56         39     9954.7    10100.1       350       580        500
X3      10
```

```
     1355.5     9250.5     1345.9     9277.1     1342.2     9294.2     1345.4     9313.4     1346.9     9354.2
     1347.1     9403.9     1347.9     9456.0     1349.7     9522.9     1348.2     9570.1     1351.9     9628.0
     1350.6     9649.3     1349.5     9668.6     1343.7     9687.1     1338.9     9712.9     1340.8     9766.7
GR   1341.5     9837.2     1341.2     9900.0     1340.9     9954.7     1340.2     9969.6     1334.9     9985.6
GR   1334.9    10000.0     1334.9    10016.7     1335.2    10041.3     1336.9    10069.1     1342.7    10100.1
GR   1346.0    10122.9     1348.3    10161.9     1350.3    10219.6     1350.0    10286.2     1347.3    10322.6
GR   1343.6    10340.4     1348.6    10359.8     1348.1    10378.8     1347.3    10407.7     1351.4    10475.5
GR   1352.7    10581.2     1356.4    10735.9     1358.4    10840.3     1358.6    10874.1
1
   11SEP02      14:16:56                                                                                    PAGE    8


ET                                        9.1         9.1                                         9965       10038
X1     2.65        36     9965.9    10041.1         370         570         500
X3       10
GR   1361.1     9311.9     1360.8     9361.9     1358.7     9395.0     1349.8     9422.0     1346.2     9441.0
GR   1345.9     9473.1     1347.2     9534.4     1347.6     9582.7     1347.5     9632.2     1348.1     9711.0
GR   1348.6     9776.0     1347.0     9833.6     1344.0     9867.2     1341.9     9884.8     1342.3     9936.3
GR   1342.0     9965.9     1337.9     9982.0     1337.6    10000.0     1336.6    10020.7     1343.8    10041.1
GR   1339.8    10060.4     1343.3    10076.7     1344.4    10078.8     1351.2    10101.3     1352.7    10129.5
GR   1349.4    10145.3     1355.8    10201.1     1357.7    10284.3     1359.6    10433.3     1357.5    10515.4
GR   1356.7    10593.4     1355.9    10641.7     1357.7    10735.2     1359.0    10843.0     1361.0    10972.8
GR   1361.9    11028.1

ET                                        9.1         9.1                                         9971       10090
X1     2.75        28     9971.7    10110.1         460         520         500
X3       10
GR   1365.0     9430.5     1364.3     9496.5     1361.1     9561.4     1355.4     9618.0     1353.4     9641.2
GR   1352.9     9714.1     1352.8     9796.5     1354.4     9874.1     1355.0     9919.5     1346.7     9952.5
GR   1346.4     9971.7     1341.0     9979.0     1341.4    10000.0     1340.7    10016.9     1343.5    10024.3
GR   1344.7    10074.7     1350.1    10110.1     1350.7    10135.0     1352.6    10154.1     1350.8    10179.0
GR   1353.8    10224.6     1358.8    10329.5     1356.9    10389.5     1357.8    10447.3     1359.0    10515.3
GR   1362.0    10587.4     1363.5    10670.8     1364.3    10700.0

ET                                        9.1         9.1                                         9963       10060
X1     2.84        40     9963.9    10059.2         500         500         500
X3       10
GR   1367.5     9749.2     1368.8     9858.5     1368.5     9886.6     1361.8     9911.1     1352.8     9943.0
     1349.5     9963.9     1348.1     9978.0     1343.4     9989.3     1344.1    10000.0     1344.1    10018.0
     1348.4    10029.0     1350.2    10059.2     1348.9    10112.9     1355.4    10140.7     1356.6    10197.3
GR   1354.7    10246.5     1355.0    10278.5     1356.3    10329.7     1360.2    10440.4     1362.2    10522.9
GR   1363.2    10594.0     1359.7    10647.0     1357.0    10669.0     1360.9    10691.4     1360.9    10714.5
GR   1351.2    10754.6     1358.1    10780.4     1358.1    10799.3     1355.1    10821.8     1359.3    10852.6
GR   1357.9    10864.5     1360.7    10895.1     1365.0    10956.2     1366.8    11031.4     1366.2    11123.2
GR   1366.7    11227.7     1365.9    11325.7     1370.7    11420.8     1375.8    11514.9     1374.6    11520.0

ET                                        9.1         9.1                                         9969       10030
X1     2.94        53     9969.7    10031.5         650         440         500
X3       10
GR   1372.1     9409.4     1372.3     9472.4     1371.3     9485.3     1367.1     9526.2     1362.1     9594.7
GR   1359.5     9612.6     1362.1     9639.8     1363.4     9665.2     1361.8     9675.2     1365.5     9713.0
GR   1365.3     9744.0     1362.3     9785.7     1359.9     9832.7     1352.5     9879.4     1352.7     9917.9
GR   1352.2     9969.7     1346.8     9981.6     1346.8     9996.2     1346.7    10000.0     1346.7    10011.4
GR   1354.5    10031.5     1350.1    10050.0     1357.2    10075.2     1362.2    10109.5     1364.5    10146.3
GR   1363.1    10192.4     1364.5    10267.5     1365.1    10335.4     1366.9    10410.1     1365.5    10418.4
GR   1364.8    10512.8     1364.9    10579.3     1363.5    10635.2     1360.8    10675.2     1360.6    10700.8
GR   1362.5    10729.8     1362.8    10771.7     1360.8    10812.6     1360.0    10834.8     1360.0    10846.6
GR   1357.1    10865.1     1364.7    10896.4     1365.5    10920.9     1364.5    10950.2     1362.3    10972.7
GR   1363.4    11007.8     1365.1    11065.9     1367.6    11131.9     1367.8    11198.1     1369.5    11303.9
GR   1370.9    11365.1     1374.9    11455.6     1375.3    11476.2
1
   11SEP02      14:16:56                                                                                    PAGE    9


ET                                        9.1         9.1                                         9970       10056
X1     3.03        49     9939.0    10056.3         420         710         500
X3       10
GR   1373.8     9539.6     1374.9     9576.3     1372.7     9614.1     1370.6     9650.8     1367.4     9697.2
GR   1369.8     9743.4     1370.9     9779.6     1376.1     9820.6     1374.5     9846.8     1369.9     9874.9
GR   1367.3     9907.3     1367.2     9939.0     1366.4     9949.2     1349.4     9988.4     1349.5    10000.0
GR   1349.5    10010.4     1355.9    10025.9     1356.9    10056.3     1352.5    10087.8     1352.4    10097.7
GR   1356.3    10126.8     1354.4    10157.0     1358.0    10180.9     1358.7    10217.5     1357.6    10231.3
GR   1363.4    10281.5     1363.4    10309.5     1363.6    10360.6     1363.2    10386.3     1366.9    10445.4
GR   1368.1    10519.4     1370.3    10664.2     1370.4    10749.2     1371.6    10856.0     1372.0    10943.0
GR   1372.0    11021.7     1371.1    11109.9     1370.2    11156.1     1370.5    11214.2     1371.5    11260.8
GR   1372.6    11317.2     1372.9    11378.8     1371.6    11462.6     1372.1    11515.2     1374.0    11611.6
     1374.1    11696.2     1375.3    11781.9     1374.6    11854.8     1376.2    11876.5
hange channel n values to .040 this area
```

```
     .045       .045       .040
                                        9.1        9.1                                        9983       10159
X1     3.13         40     9983.1    10191.5        540        240        500
X3       10
GR   1376.8     9518.4     1376.3     9602.7     1376.2     9677.6     1372.9     9764.8     1374.6     9808.0
GR   1374.9     9847.8     1371.7     9869.4     1361.6     9901.1     1358.3     9933.0     1357.7     9956.3
GR   1353.1     9969.5     1357.3     9983.1     1352.5     9997.3     1352.5    10000.0     1352.5    10024.1
GR   1356.7    10042.9     1357.2    10093.3     1356.6    10129.6     1359.6    10155.0     1363.7    10191.5
GR   1365.1    10243.2     1363.8    10293.7     1367.4    10329.5     1367.1    10341.3     1366.3    10383.4
GR   1366.4    10426.5     1369.9    10474.5     1371.3    10537.9     1372.4    10573.9     1371.4    10725.2
GR   1372.5    10860.3     1371.8    10940.8     1371.0    11033.4     1370.2    11125.1     1372.8    11205.3
GR   1374.8    11281.1     1375.4    11349.4     1373.0    11390.3     1374.8    11475.3     1377.7    11577.6

ET                                      9.1        9.1                                        9963       10041
X1     3.22         44     9944.4    10040.8        650        400        500
X3       10
GR   1382.6     9361.9     1380.6     9442.8     1378.5     9464.7     1374.2     9490.2     1375.7     9522.0
GR   1378.8     9541.9     1376.3     9586.4     1374.6     9599.8     1378.3     9656.5     1372.9     9732.7
GR   1375.5     9781.7     1374.2     9798.6     1370.7     9823.8     1366.1     9873.0     1364.5     9908.4
GR   1364.2     9944.4     1359.5     9974.1     1355.1     9985.6     1355.4    10000.0     1357.6    10031.6
GR   1360.8    10040.8     1361.1    10088.7     1362.0    10203.4     1362.2    10329.4     1363.0    10398.4
GR   1363.1    10420.0     1372.2    10453.7     1372.0    10477.4     1371.0    10508.5     1375.4    10581.1
GR   1374.5    10663.0     1375.5    10753.0     1372.9    10829.2     1372.2    10910.3     1374.2    10981.9
GR   1371.4    11038.2     1371.7    11078.6     1376.6    11133.0     1376.6    11192.6     1376.5    11247.3
GR   1378.7    11320.1     1380.4    11387.4     1381.0    11464.6     1381.1    11470.9

ET                                      9.1        9.1                                        9968       10113
X1     3.31         31     9965.4    10112.8        600        300        500
X3       10
GR   1386.0     9606.9     1384.9     9664.6     1383.2     9741.7     1382.7     9821.5     1380.8     9873.3
GR   1375.8     9893.0     1367.6     9936.5     1367.5     9965.4     1360.3     9975.7     1359.6    10000.0
GR   1361.3    10036.0     1364.5    10112.8     1364.1    10179.5     1362.9    10266.9     1363.8    10353.5
GR   1367.2    10380.7     1367.6    10396.1     1373.3    10433.1     1374.9    10470.8     1375.2    10521.9
GR   1373.9    10619.7     1373.0    10681.2     1374.7    10734.6     1376.6    10769.4     1373.9    10807.6
GR   1374.5    10845.8     1376.1    10900.4     1377.6    10944.7     1382.9    11069.0     1384.3    11133.3
GR   1384.2    11157.0
1
   11SEP02       14:16:56                                                                                    PAGE    10

ET                                      9.1        9.1                                        9925       10017
X1     3.41         30     9890.4    10056.8        430        290        500
X3       10
GR   1375.2     9653.2     1374.0     9692.2     1371.1     9737.1     1373.9     9781.2     1372.1     9814.9
GR   1367.2     9840.6     1364.5     9854.1     1367.6     9871.7     1369.6     9890.4     1366.2     9950.9
GR   1363.6     9960.5     1360.1     9965.9     1360.2     9995.0     1361.7    10000.0     1367.0    10015.1
GR   1373.4    10032.1     1376.0    10056.8     1375.3    10125.8     1375.7    10131.6     1374.3    10209.3
GR   1374.4    10263.3     1376.9    10318.1     1375.6    10348.3     1374.5    10385.8     1374.5    10427.1
GR   1377.6    10489.8     1382.9    10593.8     1384.3    10644.1     1384.6    10694.6     1384.9    10698.4
  NH records used 3.47 to 3.6

NH       5       .045     9608.9       .04     9727.1        .06     9882.9       .04    10036.0       .045
NH   10350
ET                                      9.1        9.1                                        9817       10023
X1     3.47         21     9817.0    10036.0         40        380        300
X3       10
GR   1373.6     9457.0     1372.9     9504.3     1374.1     9562.4     1370.7     9608.9     1364.2     9658.1
GR   1365.3     9673.7     1369.2     9727.1     1370.0     9817.0     1369.4     9882.9     1367.9     9930.2
GR   1367.0     9972.1     1363.8     9988.9     1364.1    10000.0     1363.8    10015.0     1379.5    10036.0
GR   1378.7    10069.3     1380.4    10140.0     1383.8    10220.6     1390.4    10304.2     1392.0    10335.5
GR   1390.9    10350.0

NH       5       .045     9736.6       .04     9911.8        .05     9948.8       .04    10119.5       .045
NH   10638
ET                                      9.1        9.1                                        9883       10089
X1     3.50         23     9911.8    10119.5         50        250        200
X3       10
GR   1374.6     9605.5     1373.7     9647.8     1373.1     9736.6     1369.2     9805.1     1365.4     9844.2
GR   1368.3     9871.2     1370.3     9911.8     1369.3     9948.8     1365.9     9991.6     1365.5    10000.0
GR   1364.6    10026.3     1367.2    10045.5     1368.7    10073.5     1372.3    10097.2     1379.6    10119.5
GR   1380.9    10150.7     1380.6    10205.1     1381.6    10247.7     1383.9    10293.4     1384.6    10361.1
GR   1386.3    10453.0     1390.1    10613.5     1388.1    10638.0
  Confluence with White Peak Wash (CAPWPW.DAT) - Mile 0.00
  Concentration point J - Combined Flow of Twin Buttes and White Peak - 2776 cfs
                        - Flow from White Peak Wash -(node J10) - 721 cfs
                        - Flow from Twin Buttes Wash (node J14) - 2424 cfs
  Change Q to 2424 cfs

       3                 2424       2424       2424
NH     6       .045       9808        .04     9851.5       .035     9911.2        .05     9952.4       .035
```

```
    10069       .045    10381.4
                                        9.1         9.1                                          9894       10048
     3.60         29     9952.4    10069.4         470         500         500
X3      10
GR   1388.1     9502.0    1380.7     9585.6      1377.5      9646.0      1381.0      9701.8      1377.2      9760.8
GR   1377.3     9808.0    1370.9     9830.3      1371.0      9851.5      1368.6      9880.2      1368.8      9894.4
GR   1368.7     9903.1    1371.8     9911.2      1372.6      9952.4      1369.4      9978.7      1367.5      9985.9
GR   1368.4    10000.0    1371.2    10023.9      1374.2       10069      1373.7     10097.8      1382.2     10146.6
GR   1382.7    10169.0    1378.3    10230.2      1375.3     10248.7      1370.9     10266.4      1371.6     10277.2
GR   1379.1    10294.0    1380.1    10317.8      1381.1     10369.8      1380.8     10381.4
  change n values to .035 for channel
1
   11SEP02      14:16:56                                                                                    PAGE    11


NC     .045       .045       .035
ET                                      9.1         9.1                                          9973       10111
X1     3.69         29     9966.4    10070.0         380                     500
X3      10
GR   1381.1     9490.4    1381.4     9529.0      1379.5      9584.3      1379.1      9613.0      1382.1      9647.7
GR   1382.8     9696.1    1385.4     9750.5      1388.6      9816.0      1387.9      9836.8      1383.1      9892.4
GR   1380.7     9907.1    1382.5     9935.7      1379.6      9966.4      1371.9      9988.1      1371.9     10000.0
GR   1371.9    10008.5    1375.2    10028.2      1373.7     10051.4      1377.2     10070.0      1375.9     10086.8
GR   1373.7    10105.3    1374.5    10151.0      1375.7     10193.1      1376.9     10224.6      1373.6     10248.4
GR   1378.5    10278.4    1384.4    10332.3      1384.1     10385.3      1384.0     10388.0

ET                                      9.1         9.1                                          9924       10071
X1     3.79         30     9924.1    10078.5         650         340         500
X3      10
GR   1387.9     9526.0    1387.8     9583.6      1385.9      9601.1      1383.0      9619.0      1384.4      9642.5
GR   1380.6     9657.2    1384.7     9678.7      1387.2      9717.4      1387.1      9751.8      1387.4      9780.1
GR   1384.1     9804.4    1380.7     9831.7      1379.2      9864.1      1380.2      9924.1      1379.7      9966.4
GR   1375.5     9974.5    1375.6    10000.0      1379.3     10016.7      1378.0     10038.6      1377.3     10056.6
GR   1382.2    10078.5    1384.3    10106.2      1384.1     10141.6      1386.2     10170.8      1383.7     10211.2
GR   1382.1    10273.9    1382.5    10297.6      1382.9     10326.4      1384.2     10376.1      1385.3     10407.4
  Change right overbank n value to .050

NC     .045        .05       .035
                                        9.1         9.1                                          9971       10094
     3.88         23     9931.0    10017.2         450         640         500
X3      10
GR   1389.6     9598.5    1388.6     9702.6      1390.7      9767.1      1390.6      9807.5      1385.4      9863.6
GR   1391.1     9917.7    1391.5     9931.0      1388.0      9950.5      1383.4      9975.3      1377.5      9982.0
GR   1377.6     9995.8    1378.1    10000.0      1381.2     10017.2      1382.7     10069.7      1381.1     10106.2
GR   1381.9    10134.0    1383.0    10166.3      1381.1     10214.0      1382.4     10252.8      1387.5     10291.3
GR   1389.6    10319.0    1390.8    10367.0      1390.3     10379.5
  Use NH records 3.98 to 4.45

NH       6       .045     9857.4       .04      9926.4        .05      9972.9       .035     10020.3        .07
NH   10127       .045    10417.5
ET                                      9.1         9.1                                          9866       10020
X1     3.98         32     9857.4    10020.3         590         330         500
X3      10
GR   1394.7     9442.5    1394.8     9463.6      1390.3      9501.3      1384.0      9533.7      1383.1      9544.4
GR   1387.8     9561.2    1394.4     9592.7      1394.9      9621.3      1396.1      9653.0      1395.7      9690.3
GR   1392.9     9708.9    1398.3     9762.1      1399.2      9791.1      1398.4      9819.3      1396.6      9857.4
GR   1383.6     9870.5    1384.7     9887.3      1386.3      9926.4      1385.1      9951.2      1385.7      9972.9
GR   1383.1     9995.1    1383.7    10000.0      1383.9     10010.7      1386.7     10020.3      1386.9     10056.0
GR   1387.1      10127    1385.0    10210.6      1385.4     10264.6      1385.9     10347.1      1385.0     10365.2
GR   1394.6    10395.0    1393.7    10417.5

NH       5       .045     9853.5       .05      9978.1       .035     10018.7        .04     10129.9       .045
NH   10516
ET                                      9.1         9.1                                          9906       10130
1
   11SEP02      14:16:56                                                                                    PAGE    12


X1     4.07         27     9853.4    10129.9         480         670         500
X3      10
GR   1411.1     9740.9    1409.4     9771.2      1402.7      9800.4      1397.9      9820.7      1399.3      9853.4
GR   1396.8     9885.2    1390.9     9909.9      1390.0      9928.0      1390.8      9967.6      1390.7      9978.1
GR   1385.8     9990.9    1386.6    10000.0      1387.0     10009.1      1389.7     10018.7      1388.8     10084.4
GR   1391.6    10129.9    1392.6    10152.5      1389.8     10187.3      1392.3     10240.5      1393.5     10280.9
GR   1392.1    10313.5    1390.9    10319.7      1395.9     10348.6      1396.5     10372.2      1394.5     10423.2
GR   1396.3    10461.9    1397.8      10516
  Use NC record - .035 channel, .045 left overbank, .050 right overbank

     .045       .050       .035
ET                                      9.1         9.1                                          9933       10182
```

```
     4.17        35     9928.8    10209.7       640       430       500
       10
GR   1419.5    9136.7    1413.9     9212.3    1407.3    9287.4    1406.6    9330.6    1405.1    9390.6
GR   1401.9    9456.9    1398.9     9511.3    1397.7    9539.8    1401.4    9554.6    1398.8    9590.9
GR   1399.3    9619.0    1403.4     9658.5    1404.2    9692.6    1404.0    9725.2    1405.5    9747.1
GR   1397.0    9855.9    1395.7     9895.3    1395.0    9928.8    1390.6    9950.5    1392.6    9964.8
GR   1390.3    9976.1    1390.0    10000.0    1389.3   10006.1    1392.3   10020.7    1391.7   10054.0
GR   1392.1   10123.9    1390.3    10150.9    1392.8   10174.7    1398.3   10209.7    1398.6   10260.0
GR   1397.9   10323.1    1395.8    10381.2    1395.1   10414.0    1398.1   10448.1    1398.3   10505.9

ET                                     9.1       9.1                                    9955     10064
X1     4.26        38     9909.9    10115.8       450       700       500
X3       10
GR   1423.2    8953.4    1420.9     8987.9    1416.4    9042.5    1413.6    9087.2    1411.1    9145.2
GR   1408.6    9196.7    1404.8     9220.3    1406.8    9284.2    1403.6    9311.3    1403.2    9340.1
GR   1404.5    9366.5    1406.5     9399.3    1407.8    9452.4    1408.0    9492.1    1404.4    9528.5
GR   1402.0    9549.1    1400.8     9566.5    1400.5    9611.8    1401.6    9654.5    1401.8    9687.7
GR   1400.1    9741.7    1397.7     9784.5    1395.7    9822.1    1396.8    9859.3    1398.1    9909.9
GR   1397.2    9954.0    1392.6     9972.0    1394.4    9995.3    1394.5   10000.0    1394.4   10048.2
GR   1398.0   10070.7    1400.4    10115.8    1398.5   10142.1    1397.3   10173.8    1398.5   10215.2
GR   1400.7   10242.3    1405.2    10271.1    1405.2   10315.6

NH        4      .045     9963.1      .035   10012.7       .05   10279.2      .045   10495.5
ET                                     9.1       9.1                                    9968     10252
X1     4.36        43     9963.1    10279.2       560       530       500
X3       10
GR   1431.2    8899.4    1427.2     8959.4    1423.2    9000.6    1423.5    9044.5    1418.7    9064.2
GR   1420.9    9095.9    1417.6     9140.8    1416.6    9178.7    1413.9    9231.5    1412.9    9289.2
GR   1411.4    9318.3    1408.8     9345.1    1411.2    9380.8    1407.9    9411.9    1407.0    9430.3
GR   1407.6    9457.7    1404.6     9492.3    1403.2    9522.3    1402.2    9563.1    1401.8    9661.7
GR   1402.0    9684.5    1403.4     9710.6    1402.7    9740.0    1404.3    9778.5    1407.7    9813.7
GR   1409.8    9842.9    1404.2     9904.8    1406.0    9933.9    1408.8    9963.1    1397.1    9972.0
GR   1395.6   10000.0    1395.5    10005.6    1399.1   10012.7    1399.3   10040.2    1400.2   10132.7
GR   1399.3   10245.2    1408.7    10279.2    1407.6   10310.0    1405.7   10343.6    1405.9   10368.8
GR   1406.6   10407.7    1407.2    10463.6    1407.1   10495.5

NH        6      .045     9578.8       .06    9850.7       .05    9953.4      .035     10026       .04
NH    10219      .045    10415.1
ET                                     9.1       9.1                                    9850     10024
```



```
X1     4.45        47     9850.7     10026       630       360       500
X3       10
GR   1437.1    8712.9    1430.1     8847.1    1425.2    8920.5    1421.7    8956.3    1415.2    8991.4
GR   1412.3    9024.4    1411.2     9046.5    1416.6    9091.5    1416.3    9115.8    1413.1    9127.2
GR   1417.9    9155.7    1420.5     9194.3    1417.5    9214.0    1415.1    9228.3    1419.6    9259.9
GR   1421.5    9298.1    1422.4     9328.8    1427.7    9391.7    1429.5    9444.7    1430.3    9458.3
GR   1427.5    9491.9    1422.2     9515.4    1416.4    9547.4    1417.1    9578.8    1415.5    9640.6
GR   1413.4    9691.8    1407.4     9736.8    1405.0    9754.5    1402.3    9771.1    1404.2    9792.9
GR   1403.9    9850.7    1402.5     9934.6    1402.4    9953.4    1399.8    9967.9    1399.8    9982.1
GR   1399.9   10000.0    1404.4    10026.0    1403.5   10087.2    1402.2   10156.5    1403.0   10172.7
GR   1412.2     10219    1412.1    10253.7    1408.6   10294.8    1412.2   10321.7    1413.7   10373.3
GR   1413.2   10412.0    1412.6    10415.1
  Use NH records 4.55 to 5.11

NH        6      .045     9773.5      .050    9876.9      .060    9921.7      .035   10018.8      .040
NH    10149      .045      10578
ET                                     9.1       9.1                                    9921     10047
X1     4.55        26     9921.7    10047.1       550       640       500
X3       10
GR   1411.7    9773.3    1411.7     9773.4    1411.7    9773.5    1409.6    9801.6    1408.7    9822.7
GR   1409.3    9876.9    1409.3     9921.7    1407.4    9964.0    1404.5    9983.9    1404.0    9994.1
GR   1404.1   10000.0    1408.2    10018.8    1408.6   10047.1    1408.1   10076.5    1408.9   10116.4
GR   1409.6     10149    1419.0    10179.0    1419.8   10191.9    1417.3   10213.4    1416.0   10261.3
GR   1418.8   10292.4    1416.1    10318.9    1416.8   10341.6    1418.0   10398.1    1417.7   10477.1
GR   1421.0   10578.0

NH        5      .045     9959.7      .035   10118.7      .040   10195.5      .050   10337.8      .045
NH    11170
ET                                     9.1       9.1                                    9974     10318
X1     4.64        53     9959.7    10337.8       390       360       500
X3       10
GR   1438.4    9329.7    1434.7     9392.7    1426.6    9477.2    1422.0    9540.1    1418.5    9596.7
GR   1413.4    9627.3    1412.0     9652.1    1412.9    9698.9    1410.3    9738.6    1413.1    9804.7
GR   1411.8    9841.1    1414.1     9880.4    1419.1    9914.3    1420.5    9941.0    1418.7    9959.7
GR   1408.9    9984.4    1409.3    10000.0    1410.7   10027.6    1408.9   10052.7    1408.8   10098.0
     1410.9   10118.7    1412.1    10195.5    1412.2   10288.2    1412.3   10312.1    1414.4   10337.8
     1411.6   10371.3    1410.6    10407.4    1416.0   10437.0    1422.8   10459.0    1421.7   10485.6
GR   1416.1   10513.8    1421.2    10540.9    1423.7   10566.5    1420.5   10594.5    1418.9   10646.0
```

```
      1417.7    10700.2     1419.4    10730.6     1421.7    10759.5     1420.5    10768.2     1416.7    10783.6
      1419.8    10802.1     1420.6    10840.6     1420.6    10891.0     1418.4    10911.6     1416.0    10926.0
      1421.6    10948.8     1426.3    10975.5     1427.4    11003.3     1423.4    11043.3     1419.5    11071.0
 GR   1425.7    11107.5     1427.3    11140.8     1426.6      11170

 NH        5       .045     9948.4       .035      10020       .045   10256.5        .04   10385.6       .045
 NH    11305
 ET                                       9.1        9.1                                     9979       10351
 X1     4.73         64     9948.4    10385.6        500        410       500
 X3       10
 GR   1444.9     9217.0     1443.2     9259.8     1441.2     9281.9     1440.0     9339.4     1435.6     9412.2
 GR   1430.9     9488.4     1427.0     9539.7     1424.8     9603.6     1420.9     9622.5     1415.2     9633.4
 GR   1418.1     9645.3     1417.0     9659.9     1415.0     9672.8     1417.2     9686.7     1419.0     9709.2
 GR   1418.5     9743.1     1417.3     9772.0     1422.0     9793.1     1423.1     9821.2     1421.3     9843.5
 GR   1418.3     9863.4     1422.4     9886.8     1425.8     9928.3     1429.3     9948.4     1429.5     9977.3
 GR   1411.9     9980.6     1412.0     9990.5     1412.0    10000.0     1416.0    10020.0     1415.2    10076.0
1
    11SEP02      14:16:56                                                                                  PAGE   14


 GR   1415.6    10175.0     1416.0    10256.5     1415.6    10298.1     1413.0    10315.8     1412.5    10326.6
 GR   1416.1    10334.1     1415.1    10345.8     1419.8    10368.3     1419.4    10385.6     1413.2    10416.5
 GR   1416.0    10426.8     1418.5    10454.1     1419.7    10493.9     1426.0    10537.9     1426.5    10591.0
 GR   1426.5    10619.8     1422.9    10639.3     1426.3    10669.6     1425.0    10731.3     1422.7    10741.5
 GR   1427.2    10780.2     1426.9    10805.3     1424.3    10855.3     1426.1    10902.9     1423.5    10950.6
 GR   1422.3    10981.1     1424.3    11005.4     1426.1    11051.5     1423.8    11089.4     1424.8    11140.1
 GR   1428.7    11203.2     1430.7    11242.6     1429.1    11288.4     1430.3      11305
   Confluence with East and West Garambullo Washes (CAPEGW.DAT & CAPWGW.DAT)
                            Mile 0.00 for Both
   Concentration point E - Combined Flow of Twin Buttes and Garambullo - 2462 cfs
                         - Flow from East Garambullo Wash -(node E13) - 259 cfs
                         - Flow from West Garambullo Wash -(node E12) - 483 cfs
                         - Flow from Twin Buttes Wash (node DtoE) - 2163 cfs
   Change Q to 2163 cfs

 QT        3                  2163       2163       2163
   Channel n value changes from .035 to .040
 NH        5       .045     9872.5       .040    10034.7       .050   10189.2        .04   10401.2       .045
 NH    11380
                                          9.1        9.1                                     9932       10171
      4.79         71     9872.5    10189.2        330        320       300
 X3       10
 GR   1460.0     8959.2     1455.1     9009.5     1451.6     9056.8     1446.1     9123.3     1441.5     9182.6
 GR   1439.9     9222.0     1439.9     9253.5     1434.7     9312.8     1429.6     9382.4     1425.8     9442.0
 GR   1420.6     9490.4     1422.5     9509.9     1429.2     9535.9     1428.3     9559.2     1425.3     9583.7
 GR   1424.1     9605.9     1429.8     9646.7     1431.2     9674.4     1432.9     9707.9     1435.9     9742.0
 GR   1436.1     9770.4     1435.2     9791.8     1432.0     9819.9     1434.5     9854.2     1431.6     9872.5
 GR   1422.1     9918.8     1418.1     9941.1     1418.5     9960.7     1414.9     9988.2     1415.2    10000.0
 GR   1416.1    10022.0     1418.9    10034.7     1419.1    10106.7     1419.9    10189.2     1419.7    10201.1
 GR   1417.7    10216.1     1417.7    10229.4     1417.9    10268.9     1418.6    10308.1     1418.3    10328.6
 GR   1416.9    10336.4     1418.6    10358.7     1419.8    10378.3     1425.6    10401.2     1424.1    10463.7
 GR   1425.8    10514.8     1428.9    10542.0     1429.3    10579.7     1430.4    10611.2     1430.0    10668.9
 GR   1429.3    10720.3     1430.6    10780.2     1430.1    10806.8     1431.3    10840.3     1431.4    10876.4
 GR   1427.9    10911.4     1425.6    10940.2     1423.5    10958.0     1427.3    10980.8     1427.0    11010.2
 GR   1425.3    11033.1     1426.9    11075.0     1425.7    11089.9     1427.0    11115.8     1430.0    11180.4
 GR   1432.9    11238.0     1433.4    11290.2     1432.7    11312.1     1435.5    11347.6     1436.3    11373.8
 GR   1436.2    11380.0

 NH        7       .045     9956.6        .04    10032.3        .05   10138.7       .040   10189.2        .05
 NH    10245       .040    10320.8       .045    10360.5
 ET                                       9.1        9.1                                     9960       10230
 X1     4.92         24     9956.6    10189.2                   570       700
 X3       10
 GR   1440.6     9742.1     1440.3     9767.3     1435.5     9790.7     1430.6     9829.8     1426.9     9863.4
 GR   1425.1     9927.3     1426.7     9956.6     1426.2     9966.1     1423.6     9978.3     1423.6    10000.0
 GR   1423.7    10018.4     1425.5    10032.3     1426.0    10071.6     1425.2    10138.7     1422.8    10165.8
 GR   1422.9    10174.0     1425.4    10189.2     1425.0    10208.0     1424.2      10245     1422.6    10278.0
 GR   1422.6    10283.8     1436.3    10320.8     1435.6    10351.3     1435.4    10360.5
1
    11SEP02      14:16:56                                                                                  PAGE   15


 NH        6       .045     9935.8        .04    10034.6       .050   10179.2       .045   10350.4        .05
 NH    10461       .045    10482.2
 ET                                       9.1        9.1                                     9974       10230
 X1     5.02         24     9935.8    10179.2        510        420       500
 X3       10
      1444.7     9744.2     1444.7     9770.3     1441.5     9794.3     1439.7     9834.0     1436.1     9874.1
      1436.2     9882.6     1439.7     9922.5     1440.3     9935.8     1431.6     9972.6     1426.3     9994.1
 GR   1426.4    10000.0     1426.9    10021.8     1429.6    10034.6     1430.4    10087.1     1430.3    10120.8
```

```
     1430.1    10179.2     1429.0    10256.3     1428.7    10301.8     1430.1    10350.4     1429.8    10397.9
     1429.3    10419.5     1430.0    10428.4     1441.5      10461     1441.8    10482.2
NH        7       .045     9907.1       .060     9971.2        .04    10024.3       .045    10070.0       .060
NH    10178        .05    10235.8       .045    10380.1
ET                                       9.1        9.1                                        9931      10070
X1     5.07         33     9907.1    10070.0        320        210        250
X3       10
GR   1441.5     9633.1     1441.1     9659.3     1438.8     9704.3     1433.6     9719.1     1433.6     9728.8
GR   1437.3     9770.6     1438.6     9801.5     1438.7     9839.2     1437.0     9860.0     1435.2     9869.1
GR   1439.8     9890.5     1441.5     9907.1     1433.9     9929.6     1433.1     9938.0     1432.7     9954.6
GR   1432.8     9971.2     1430.4     9984.8     1428.8     9990.2     1428.8    10000.0     1429.1    10014.9
GR   1431.4    10024.3     1432.0    10047.4     1432.9    10070.0     1432.8    10110.6     1432.8      10178
GR   1431.4    10205.1     1433.5    10219.2     1437.7    10235.8     1437.8    10265.2     1439.4    10289.7
GR   1442.5    10325.4     1442.3    10362.1     1441.1    10380.1

NH        7       .045     9864.3        .05     9932.2       .045     9958.8        .08     9974.1        .04
NH    10049        .05    10122.3       .045    10261.8
ET                                       9.1        9.1                                        9974      10094
X1     5.11         26     9974.1    10122.3        280        200        250
X3       10
GR   1451.8     9573.4     1450.9     9611.1     1449.9     9657.3     1448.9     9688.1     1448.6     9739.6
GR   1447.2     9796.3     1446.8     9845.1     1442.2     9864.3     1434.2     9890.0     1434.5     9932.2
GR   1431.4     9945.9     1436.0     9958.8     1436.1     9974.1     1433.5     9989.7     1431.1    10000.0
GR   1431.1    10023.1     1431.7    10028.6     1434.5      10049     1434.4    10063.8     1434.4    10081.0
GR   1439.4    10122.3     1439.6    10150.5     1442.1    10177.6     1441.1    10201.9     1439.3    10241.6
GR   1439.3    10261.8
  Use NC record with .04 for channels and .045 for overbank

NC     .045       .045       .040
ET                                       9.1        9.1                                        9946      10034
X1     5.21         34     9931.2    10042.5        360        540        500
X3       10
GR   1452.9     9515.2     1452.8     9561.6     1451.4     9609.5     1449.9     9658.8     1445.6     9701.9
GR   1438.2     9731.2     1436.3     9741.7     1439.0     9756.7     1441.4     9788.4     1440.5     9822.5
GR   1440.1     9862.7     1440.5     9895.1     1441.3     9931.2     1440.0     9966.9     1438.4     9985.3
GR   1435.7     9995.9     1434.8    10000.0     1434.7    10021.4     1444.9    10042.5     1446.8    10062.6
GR   1445.1    10090.6     1446.0    10127.1     1443.7    10139.1     1446.3    10166.4     1445.9    10220.6
GR   1444.3    10259.9     1445.7    10294.8     1443.1    10318.6     1448.5    10353.8     1447.0    10380.4
     1444.5    10432.1     1444.5    10451.0     1449.2    10494.9     1449.9    10524.2
```



```
ET                                       9.1        9.1                                        9952      10054
X1     5.30         28     9945.4    10077.5        540        500        500
X3       10
GR   1460.2     9402.8     1458.6     9473.6     1457.3     9526.0     1454.6     9578.3     1452.8     9609.5
GR   1452.0     9669.7     1448.3     9707.9     1443.3     9726.1     1445.9     9743.2     1450.7     9768.1
GR   1455.3     9809.2     1456.4     9834.9     1453.1     9867.1     1449.2     9903.3     1446.8     9921.5
GR   1447.7     9945.4     1439.2     9963.8     1438.9     9975.3     1438.0     9997.5     1437.9    10000.0
GR   1442.4    10012.6     1443.1    10028.5     1441.3    10041.5     1450.8    10077.5     1451.6    10098.4
GR   1455.2    10135.8     1455.6    10180.3     1455.2    10190.4
  Change n values to .035 for channel

NC     .045       .045       .035

ET                                       9.1        9.1                                        9963      10085
X1     5.40         38     9955.5    10106.9        550        470        500
X3       10
GR   1472.5     9258.9     1470.3     9335.3     1468.7     9377.8     1470.5     9418.8     1469.0     9468.3
GR   1465.4     9543.4     1466.0     9598.1     1462.4     9618.6     1456.4     9644.9     1456.2     9657.2
GR   1456.2     9667.2     1457.7     9685.8     1464.4     9735.4     1465.3     9761.1     1462.3     9788.3
GR   1458.7     9819.0     1457.8     9833.6     1458.0     9869.6     1458.3     9879.8     1451.4     9916.1
GR   1451.3     9955.5     1443.6     9974.2     1444.3    10000.0     1445.2    10011.2     1446.4    10032.1
GR   1447.6    10063.0     1447.7    10083.8     1455.7    10106.9     1457.1    10122.7     1460.8    10143.3
GR   1461.9    10176.1     1461.1    10215.6     1459.9    10276.1     1455.8    10320.7     1456.7    10336.3
GR   1457.8    10368.7     1465.2    10415.0     1463.9    10438.0

ET                                       9.1        9.1                                        9922      10050
X1     5.49         43     9852.3    10092.0        460        580        500
X3       10
GR   1475.2     9117.2     1474.7     9146.2     1470.7     9180.3     1471.3     9210.4     1471.3     9259.1
GR   1471.0     9295.1     1469.7     9343.8     1467.1     9382.7     1466.9     9413.3     1464.1     9437.0
GR   1462.8     9448.9     1466.1     9485.6     1465.0     9524.0     1464.1     9566.2     1463.8     9598.4
GR   1465.7     9631.5     1465.5     9666.3     1467.3     9709.6     1465.8     9751.7     1464.5     9787.9
GR   1466.0     9814.7     1466.4     9852.3     1464.8     9882.5     1455.5     9916.5     1451.0     9931.0
     1451.2     9949.5     1453.7     9970.5     1450.8     9989.3     1449.5     9995.6     1449.7    10000.0
     1450.7    10040.2     1456.3    10058.2     1470.1    10092.0     1470.8    10132.3     1472.4    10187.4
GR   1475.0    10229.9     1474.2    10266.9     1473.1    10317.0     1471.6    10377.5     1471.4    10405.5
```

```
    1474.2    10458.8     1476.2    10511.4      1477.6     10561.6
                                        9.1          9.1                                          9934       10042
 X1     5.59        38     9789.6    10083.7        580         500         500
 X3       10
 GR   1479.5    9219.8     1480.1     9266.8     1479.3      9311.6      1478.8      9354.9      1478.2      9392.8
 GR   1474.8    9425.2     1470.6     9436.5     1470.9      9444.6      1476.9      9476.1      1478.7      9499.0
 GR   1477.4    9528.3     1473.9     9570.4     1471.5      9600.5      1472.2      9626.1      1474.1      9663.4
 GR   1474.1    9702.4     1472.3     9730.2     1476.0      9763.7      1479.8      9789.6      1478.7      9809.0
 GR   1475.5    9845.2     1471.9     9883.1     1466.1      9917.1      1459.9      9934.1      1456.9      9942.7
 GR   1457.7    9960.0     1457.6     9989.4     1457.5     10000.0      1456.7     10034.0      1476.5     10083.7
 GR   1476.3   10117.6     1475.6    10172.9     1475.7     10229.8      1475.5     10292.2      1475.7     10329.3
 GR   1478.1   10387.3     1479.3    10444.7     1479.6     10463.3
   Use NH records 5.68 through 5.97
1
   11SEP02      14:16:56                                                                                          PAGE   17


 NH       4       .045     9803.6       .05     9968.9       .035     10042.5       .045     10170.5
 ET                                      9.1          9.1                                          9890       10027
 X1     5.68        37     9803.6    10042.5        400         530         500
 X3       10
 GR   1480.7    9338.1     1481.4     9384.7     1481.3      9398.5      1477.0      9419.4      1475.1      9431.3
 GR   1479.3    9452.7     1481.5     9463.0     1480.8      9479.1      1479.6      9495.3      1480.0      9518.3
 GR   1481.9    9543.9     1484.5     9576.4     1483.9      9602.4      1481.2      9629.5      1478.4      9644.7
 GR   1482.7    9666.5     1483.3     9684.3     1483.7      9702.0      1482.5      9727.4      1481.8      9751.5
 GR   1481.3    9772.1     1481.4     9803.6     1477.3      9830.7      1471.8      9856.8      1466.6      9882.0
 GR   1464.3    9900.2     1464.2     9915.4     1464.3      9939.1      1463.7      9968.9      1462.7      9993.7
 GR   1460.2   10000.0     1460.1    10019.1     1477.5     10042.5      1480.2     10068.9      1486.7     10114.1
 GR   1487.4   10137.4     1487.7    10170.5

 NH       5       .045     9953.5       .035    10014.9       .05      10143.3        .04     10202.5        .045
 NH   10423
 ET                                      9.1          9.1                                          9970       10183
 X1     5.78        34     9953.5    10202.5        370         440         500
 X3       10
 GR   1487.1    9422.6     1486.6     9452.4     1486.3      9497.2      1484.1      9549.3      1484.3      9588.6
 GR   1481.5    9636.7     1482.6     9670.8     1487.0      9742.3      1489.5      9789.9      1490.4      9827.5
      1488.6    9863.5     1486.2     9896.0     1481.5      9918.1      1483.7      9945.7      1482.2      9953.5
      1462.6    9979.2     1463.5    10000.0     1463.5     10005.2      1468.4     10014.9      1468.0     10053.7
 GR   1467.6   10101.7     1467.6    10145.3     1466.0     10158.5      1465.4     10168.3      1474.4     10202.5
 GR   1474.8   10212.6     1467.6    10239.6     1473.1     10266.9      1475.6     10286.6      1482.5     10325.8
 GR   1489.0   10352.2     1492.2    10377.8     1491.2     10414.6      1490.5       10423

 NH       5       .045     9875.7       .04     9941.2       .07      9954.6       .035     10088.3        .045
 NH   10389
 ET                                      9.1          9.1                                          9941       10057
 X1     5.87        22     9941.2    10088.3        480         450         500
 X3       10
 GR   1488.4    9875.7     1467.5     9921.8     1470.4      9926.0      1472.2      9941.2      1471.9      9954.6
 GR   1469.0    9962.7     1469.2     9983.9     1469.2     10000.0      1470.0     10006.8      1470.4     10013.9
 GR   1469.8   10031.3     1470.4    10048.7     1477.7     10077.3      1480.9     10088.3      1480.5     10116.4
 GR   1481.3   10143.6     1484.3    10187.5     1483.2     10226.9      1485.4     10258.2      1492.3     10300.2
 GR   1497.1   10339.9     1495.8      10389

 NH       4       .045     9871.8       .04     9981.7       .035     10062.6       .045     10343.3
 ET                                      9.1          9.1                                          9945       10037
 X1     5.97        25     9871.8    10062.6        500         610         500
 X3       10
 GR   1501.4    9786.5     1501.3     9800.6     1498.1      9836.8      1496.5      9871.8      1491.4      9903.6
 GR   1479.9    9936.4     1475.9     9951.4     1475.3      9963.8      1475.1      9981.7      1472.9      9988.8
 GR   1473.0   10000.0     1473.7    10021.7     1476.7     10034.1      1484.9     10062.6      1485.0     10075.4
 GR   1480.4   10100.0     1478.8    10106.8     1483.0     10118.1      1486.2     10140.4      1494.8     10165.7
 GR   1499.8   10200.1     1499.2    10228.0     1502.7     10282.4      1504.2     10343.0      1504.7     10343.3
   Use NC record - channel n = .035, overbanks = .045
1
   11SEP02      14:16:56                                                                                          PAGE   18


 NC     .045       .045       .035
 ET                                      9.1          9.1                                          9942       10058
 X1     6.06        19     9942.7    10058.0        460         520         500
 X3       10
 GR   1505.0    9825.0     1502.8     9863.0     1488.4      9922.6      1482.6      9942.7      1481.4      9960.9
 GR   1480.0    9971.9     1479.4     9996.0     1479.1     10000.0      1478.4     10014.9      1481.1     10020.7
 GR   1482.7   10058.0     1495.8    10090.6     1497.2     10166.6      1497.3     10218.7      1493.6     10263.9
      1495.3   10274.8     1509.2    10330.2     1510.9     10376.7      1511.3     10427.8

 ET                                      9.1          9.1                                          9966       10026
```

```
      6.16        31     9931.5    10043.9        530        500        500
        10
   1517.0    9404.7     1513.9     9484.7     1511.9     9519.7     1514.6     9554.9     1514.6     9605.3
GR 1513.6    9669.1     1511.9     9732.2     1510.0     9791.7     1509.8     9862.5     1509.5     9904.5
GR 1507.1    9931.5     1485.4     9969.8     1481.1     9997.3     1480.7    10000.0     1479.9    10015.9
GR 1500.7   10043.9     1503.9    10072.5     1506.7    10126.5     1508.6    10173.0     1507.8    10219.6
GR 1507.7   10266.5     1508.8    10314.4     1504.0    10348.5     1506.7    10368.1     1508.5    10411.9
GR 1510.5   10451.2     1512.0    10475.4     1514.9    10508.5     1516.4    10537.0     1516.6    10584.9
GR 1516.9   10587.7
  Use NH record 6.25 through 6.34

NH       4      .045     9937.0      .035    10022.9       .05    10143.2      .045    10614.6
ET                                    9.1        9.1                                      9985      10040
X1    6.25        25     9937.0    10143.2        560        470        500
X3      10
GR 1523.8    9823.8     1521.5     9885.9     1523.3     9923.3     1522.5     9937.0     1501.7     9982.8
GR 1487.3    9986.1     1487.4    10000.0     1488.0    10009.7     1492.1    10022.9     1489.9    10030.5
GR 1495.5   10046.4     1500.8    10073.4     1502.0    10098.7     1504.1    10124.4     1506.3    10143.2
GR 1511.1   10161.2     1512.8    10223.3     1511.8    10294.0     1512.5    10337.0     1513.2    10390.2
GR 1511.3   10428.0     1513.8    10461.9     1516.7    10496.2     1519.1    10538.2     1519.3    10614.6

NH       4      .045     9952.0      .035     10000       .050    10100.8      .045    10336.4
ET                                    9.1        9.1                                      9970      10063
X1    6.34        25     9952.0    10100.8        420        600        500
X3      10
GR 1526.0    9660.5     1526.8     9728.8     1524.7     9762.1     1517.8     9796.5     1515.3     9814.2
GR 1515.0    9831.5     1511.6     9848.7     1511.0     9851.8     1511.4     9864.2     1511.9     9891.5
GR 1512.0    9929.5     1509.7     9952.0     1493.0     9985.8     1493.2     9998.4     1494.3    10000.0
GR 1499.0   10015.7     1498.5    10047.1     1501.4    10069.0     1508.1    10100.8     1513.5    10138.9
GR 1514.2   10169.3     1516.7    10219.0     1522.0    10257.6     1524.0    10285.7     1523.9    10336.4
  Outlet of Four 72" Concrete Pipes under CAP Canal
  Outflow controlled by stage-storage-discharge relationship at point CCAP
         on upstream side of canal - CCAP flow 2154 cfs

ET                                    9.1        9.1                                      9949      10033
X1    6.38        24     9844.6    10066.5         90        180        200
X3      10
GR 1526.9    9514.5     1528.0     9572.6     1528.0     9596.9     1521.7     9638.4     1519.5     9663.0
GR 1517.8    9692.7     1513.2     9729.6     1512.7     9752.9     1514.3     9802.5     1512.9     9844.6
   1508.3    9873.4     1507.6     9911.5     1506.8     9939.9     1504.0     9971.8     1502.7    10000.0
   1500.0   10023.7     1508.9    10037.2     1509.2    10055.2     1515.5    10066.5     1516.3    10085.3
GR 1517.1   10123.1     1521.7    10150.5     1524.2    10180.7     1523.5    10259.0
1
   11SEP02      14:16:56                                                                                    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 1

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

 CCHV=     .100 CEHV=     .300
 *SECNO  .190
 2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
 3720 CRITICAL DEPTH ASSUMED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1245.80 ELREA=      1246.70

       .190      4.84   1242.24   1242.24       .00   1243.65      1.41       .00       .00   1245.80
    2746.0        .0    2746.0        .0        .0     287.9        .0        .0        .0   1246.70
       .00       .00      9.54       .00      .000      .035      .000      .000   1237.40   9959.86
   .013431        0.        0.        0.         0        14         0       .00    105.32  10065.17


 FLOW DISTRIBUTION FOR SECNO=       .19          CWSEL=   1242.24

 STA=    9960.   10099.
   PER Q=    100.0
    AREA=    287.9
     VEL=      9.5
   DEPTH=      2.7

 SECNO  .280

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1263.90 ELREA=      1249.20
```

```
     .280      4.98   1247.78   1247.30       .00   1248.76       .98      5.07       .04   1263.90
   2746.0        .0    2746.0        .0        .0     345.7        .0       3.6       1.2   1249.20
     .02       .00      7.94       .00      .000      .035      .000      .000   1242.80   9982.25
  .007924      520.      500.      340.         3        11         0       .00    111.72  10093.97


 FLOW DISTRIBUTION FOR SECNO=       .28          CWSEL=   1247.78

 STA=    9982.   10098.
   PER Q=    100.0
    AREA=    345.7
     VEL=      7.9
   DEPTH=      3.1

1
   11SEP02      14:16:56                                                                                                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


 *SECNO  .380

 3301 HV CHANGED MORE THAN HVINS


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1255.30 ELREA=      1253.70

      .380      5.00   1252.00   1251.35       .00   1252.45       .46      3.64       .05   1255.30
   2746.0        .0    2746.0        .0        .0     506.5        .0       8.5       3.4   1253.70
     .04       .00      5.42       .00      .000      .035      .000      .000   1247.00   9878.71
  .006707      580.      500.      330.         3        15         0       .00    257.22  10135.92


 FLOW DISTRIBUTION FOR SECNO=       .38          CWSEL=   1252.00

 A=    9879.   10223.
   PER Q=    100.0
    AREA=    506.5
     VEL=      5.4
   DEPTH=      2.0

 *SECNO  .470

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1259.60 ELREA=      1259.10

      .470      3.57   1257.07   1257.07       .00   1258.26      1.19      4.68       .22   1259.60
   2746.0        .0    2746.0        .0        .0     314.1        .0      13.2       5.6   1259.10
     .06       .00      8.74       .00      .000      .035      .000      .000   1253.50   9910.13
  .013998      380.      500.      720.         0        19         0       .00    135.64  10045.76


 FLOW DISTRIBUTION FOR SECNO=       .47          CWSEL=   1257.07

 STA=    9910.   10051.
   PER Q=    100.0
    AREA=    314.1
     VEL=      8.7
   DEPTH=      2.3

1
   11SEP02      14:16:56                                                                                                PAGE   21


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 CNO  .570
```

```
[illegible]1 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1263.40 ELREA=      1263.80

      .570      3.84   1263.54   1263.43       .00   1264.12       .57      5.79       .06   1263.40
    2746.0     251.3    2494.7        .0      54.5     401.8        .0      17.7       7.9   1263.80
       .08      4.61      6.21       .00      .045      .035      .000      .000   1259.70   9891.54
   .009768      490.      500.      730.         3        10         0       .00    254.12  10145.66


FLOW DISTRIBUTION FOR SECNO=        .57          CWSEL=   1263.54

STA=    9892.    9904.    9923.   10177.
  PER Q=      3.3      5.8     90.9
   AREA=     20.5     34.0    401.8
    VEL=      4.5      4.7      6.2
  DEPTH=      1.7      1.7      1.8

*SECNO  .660

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1268.80 ELREA=      1268.10

      .660      5.23   1268.43   1268.43       .00   1269.62      1.19      5.15       .18   1268.80
    2746.0        .0    2648.7      97.3        .0     297.5      38.1      22.2      10.5   1268.10
       .10       .00      8.90      2.55      .000      .035      .045      .000   1263.20   9926.74
   .010961      300.      500.      900.         0        15         0       .00    164.63  10091.37


FLOW DISTRIBUTION FOR SECNO=        .66          CWSEL=   1268.43

STA=    9927.   10031.   10072.   10091.
  PER Q=     96.5      2.7       .8
   AREA=    297.5     27.9     10.2
    VEL=      8.9      2.7      2.2
  [illegible]EPTH=      2.9       .7       .5
```

1

11SEP02 14:16:56 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


*SECNO  .760

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1273.50 ELREA=      1272.80

      .760      7.93   1272.93   1272.93       .00   1273.40       .47      3.48       .07   1273.50
    2746.0        .0    2078.2     667.8        .0     338.1     256.4      27.3      13.5   1272.80
       .12       .00      6.15      2.60      .000      .035      .045      .000   1265.00   9965.47
   .004967      530.      500.      430.         0        17         0       .00    410.33  10398.11


FLOW DISTRIBUTION FOR SECNO=        .76          CWSEL=   1272.93

STA=    9965.   10078.   10154.   10197.   10233.   10246.   10266.   10278.   10318.   10350.   10384.   10398.
  PER Q=     75.7       .4      4.8      3.8      2.4      5.6       .2       .4      3.8      2.8       .1
   AREA=    338.1     13.9     50.9     40.8     20.7     41.1      5.2      8.0     39.4     33.3      3.1
    VEL=      6.1       .7      2.6      2.5      3.2      3.7      1.3      1.4      2.7      2.3       .8
  DEPTH=      3.0       .2      1.2      1.1      1.7      2.0       .4       .2      1.2      1.0       .2

[illegible]CNO  .850

[illegible]01 HV CHANGED MORE THAN HVINS
```

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1276.00 ELREA=      1275.70

      .850      8.00   1275.30   1274.27       .00   1276.38      1.08      2.80       .18   1276.00
    2746.0        .0    2746.0        .0        .0     329.1        .0      32.0      15.6   1275.70
      .14       .00      8.35       .00      .000      .035      .000      .000   1267.30   9945.61
   .007112      530.      500.      290.         2        12         0       .00     89.14  10034.75


FLOW DISTRIBUTION FOR SECNO=        .85          CWSEL=   1275.30

1
   11SEP02      14:16:56                                                                                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


STA=     9946.   10035.
  PER Q=     100.0
   AREA=     329.1
    VEL=       8.3
  DEPTH=       3.7

CCHV=      .200 CEHV=      .400
*SECNO  .950
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=          .0   10245.0  TYPE=       1  TARGET=    10245.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1288.40 ELREA=      1280.90

      .950      5.58   1280.78   1280.78       .00   1282.13      1.36      4.74       .11   1288.40
    2746.0        .0    2746.0        .0        .0     293.6        .0      35.6      16.8   1280.90
      .15       .00      9.35       .00      .000      .035      .000      .000   1275.20   9970.85
   .013281      530.      500.      270.         0        15         0       .00    109.51  10080.36


FLOW DISTRIBUTION FOR SECNO=        .95          CWSEL=   1280.78

STA=     9971.   10083.
  PER Q=     100.0
   AREA=     293.6
    VEL=       9.4
  DEPTH=       2.7

*SECNO 1.040

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.68

     1.040      7.60   1285.40   1284.46       .00   1285.97       .58      3.68       .16   1285.10
    2746.0     187.3    2533.7      25.0      85.7     401.3      30.9      40.2      19.8   1285.00
       .18      2.19      6.31       .81      .045      .035      .045      .000   1277.80   9837.97
   .004704      410.      500.      700.         3        14         0       .00    390.04  10228.01


1
   11SEP02      14:16:56                                                                                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


FLOW DISTRIBUTION FOR SECNO=       1.04          CWSEL=   1285.40

STA=     9838.    9843.    9870.    9912.    9957.   10081.   10132.   10219.   10228.
  PER Q=       .2       3.8      2.4       .4     92.3       .4       .5       .0
   AREA=      3.5      37.3     33.9     11.0    401.3     12.4     17.1      1.4
    VEL=      1.7       2.8      1.9       .9      6.3       .9       .8       .6
```

```
 DEPTH=        .7       1.4        .8        .2       3.2        .2        .2        .1

 HV=      .200 CEHV=      .400
1490 NH CARD USED
*SECNO 1.140
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1291.60 ELREA=      1291.80

     1.140      6.71   1290.21   1290.21       .00   1291.06       .85      2.96       .11   1291.60
    2746.0        .0    2746.0        .0        .0     371.6        .0      45.3      23.0   1291.80
       .20       .00      7.39       .00      .000      .025      .000      .000   1283.50   9956.54
   .007654      560.      500.      260.         0        13         0       .00    223.17  10179.70


FLOW DISTRIBUTION FOR SECNO=      1.14          CWSEL=   1290.21

STA=    9957.   10026.   10198.
  PER Q=      96.7      3.3
   AREA=     308.0     63.6
    VEL=       8.6      1.4
  DEPTH=       4.5       .4

CCHV=      .300 CEHV=      .500
1490 NH CARD USED
*SECNO 1.230

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1302.20 ELREA=      1293.40

1
   11SEP02      14:16:56                                                                                                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


     1.230      5.70   1293.40   1293.40       .00   1293.50       .10       .72       .23   1302.20
    2746.0        .0     338.4    2407.6        .0     134.4     970.9      50.5      25.7   1293.40
       .24       .00      2.52      2.48      .000      .040      .040      .000   1287.70   9988.96
   .000876      530.      500.      200.         0        15         0       .00    555.70  10544.66


FLOW DISTRIBUTION FOR SECNO=      1.23          CWSEL=   1293.40

STA=    9989.   10025.   10332.   10369.   10404.   10439.   10458.   10488.   10522.   10545.
  PER Q=      12.3      8.2     15.6     26.0     21.9      5.0      5.6      4.0      1.4
   AREA=     134.4    205.5    151.7    203.0    182.5     58.6     75.5     65.0     29.2
    VEL=       2.5      1.1      2.8      3.5      3.3      2.4      2.0      1.7      1.3
  DEPTH=       3.7       .7      4.1      5.8      5.2      3.2      2.5      1.9      1.3

1490 NH CARD USED
*SECNO 1.330

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1305.20 ELREA=      1295.10

     1.330      3.50   1295.40   1295.40       .00   1295.92       .52      1.05       .21   1305.20
    2746.0        .0    2064.9     681.1        .0     327.3     178.3      59.3      31.2   1295.10
       .26       .00      6.31      3.82      .000      .031      .045      .000   1291.90   9902.66
   .011846      500.      500.      470.         0        16         0       .00    436.94  10367.63


FLOW DISTRIBUTION FOR SECNO=      1.33          CWSEL=   1295.40

 =    9903.    9952.   10075.   10154.   10193.   10220.   10277.   10351.   10368.
ER Q=      1.2     73.0      1.0      5.5      3.3      4.4      8.9      2.8
AREA=     19.2    284.8     23.2     40.5     26.0     36.3     56.7     18.8
```

```
 VEL=      1.7      7.0      1.2      3.7      3.5      3.4      4.3      4.1
EPTH=       .4      2.3       .3      1.0       .9       .6       .8      1.1

1490 NH CARD USED
*SECNO 1.420
1
   11SEP02      14:16:56                                                                                    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


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1299.30 ELREA=      1306.50

     1.420      6.88   1300.18   1299.76       .00   1300.82       .64      4.85       .06   1299.30
    2746.0     121.7    2624.3        .0      78.4     398.8        .0      64.9      35.4   1306.50
       .28      1.55      6.58       .00      .060      .040      .000      .000   1293.30   9757.41
   .008210      520.      500.      460.         4        17         0       .00    301.16  10058.56


FLOW DISTRIBUTION FOR SECNO=      1.42          CWSEL=   1300.18

STA=    9757.    9795.    9856.    9914.   10073.
  PER Q=       .2       1.5      2.8     95.6
   AREA=      7.0      29.6     41.8    398.8
    VEL=       .7       1.4      1.8      6.6
  DEPTH=       .2        .5       .7      2.8

1490 NH CARD USED
*SECNO 1.520

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1303.10 ELREA=      1336.30

     1.520      6.40   1303.30   1303.15       .00   1303.51       .21      2.56       .13   1303.10
    2746.0    1379.2    1366.8        .0     372.7     368.2        .0      70.2      38.0   1336.30
       .31      3.70      3.71       .00      .040      .045      .000      .000   1296.90   9626.80
   .004851      180.      500.      530.         3        19         0       .00    401.59  10028.39


FLOW DISTRIBUTION FOR SECNO=      1.52          CWSEL=   1303.30

STA=    9627.    9649.    9697.    9757.    9803.    9852.   10074.
  PER Q=      1.9     11.6     12.9     15.6      8.2     49.8
   AREA=     20.9     85.0     98.0     99.2     69.7    368.2
    VEL=      2.5      3.8      3.6      4.3      3.2      3.7
  DEPTH=      1.0      1.8      1.7      2.2      1.4      2.1

*SECNO 1.610

3301 HV CHANGED MORE THAN HVINS

1
   11SEP02      14:16:56                                                                                    PAGE   27

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 =   .57


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1306.60 ELREA=      1306.80

     1.610      6.74   1306.44   1306.01       .00   1308.13      1.68      3.88       .73   1306.60
    2746.0        .0    2746.0        .0        .0     264.0        .0      75.9      40.6   1306.80
       .33       .00     10.40       .00      .000      .045      .000      .000   1299.70   9973.65
   .014754      480.      500.      600.         2         8         0       .00     60.58  10034.24


FLOW DISTRIBUTION FOR SECNO=      1.61          CWSEL=   1306.44

=    9974.   10036.
PER Q=    100.0
```

```
 AREA=     264.0
  VEL=      10.4
DEPTH=       4.4

*SECNO 1.700

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.45


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1314.20 ELREA=      1311.60

     1.700      8.06   1310.86   1308.30       .00   1311.05       .20      2.48       .45   1314.20
    2746.0        .0    2746.0        .0        .0     772.4        .0      81.8      42.1   1311.60
       .37       .00      3.55       .00      .000      .050      .000      .000   1302.80   9925.71
   .002462      500.      500.      560.         2        15         0       .00    204.78  10130.49


FLOW DISTRIBUTION FOR SECNO=      1.70          CWSEL=   1310.86

STA=    9926.   10142.
  PER Q=    100.0
   AREA=    772.4
    VEL=      3.6
  DEPTH=      3.8

1
   11SEP02      14:16:56                                                                                PAGE   28


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 1.800

02 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .45


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1312.40 ELREA=      1313.10

     1.800      5.19   1312.99   1312.24       .00   1313.62       .63      2.35       .22   1312.40
    2746.0      26.2    2719.8        .0      14.8     425.6        .0      88.8      44.4   1313.10
       .39      1.77      6.39       .00      .045      .050      .000      .000   1307.80   9884.53
   .012333      430.      500.      550.         3        11         0       .00    202.38  10086.91


FLOW DISTRIBUTION FOR SECNO=      1.80          CWSEL=   1312.99

STA=    9885.    9929.   10090.
  PER Q=      1.0     99.0
   AREA=     14.8    425.6
    VEL=      1.8      6.4
  DEPTH=       .3      2.7

*SECNO 1.840

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1316.00 ELREA=      1314.70

     1.840      6.51   1315.11   1314.10       .00   1315.57       .46      1.89       .05   1314.80
    2746.0        .0    2407.0     339.0        .0     429.5      87.8      91.0      45.3   1314.70
       .40       .00      5.60      3.86      .000      .050      .045      .000   1308.60   9967.70
   .007582      220.      200.      180.         3         8         0       .00    191.93  10159.63


FLOW DISTRIBUTION FOR SECNO=      1.84          CWSEL=   1315.11

STA=    9968.   10101.   10139.   10154.   10160.
  PER Q=     87.7      6.7      5.2       .5
   AREA=    429.5     51.8     30.5      5.5
    VEL=      5.6      3.5      4.7      2.6
  DEPTH=      3.2      1.4      2.1       .9

*SECNO 1.910

11SEP02      14:16:56                                                                                PAGE   29
```

```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=      1337.50 ELREA=      1345.10

     1.910      6.76   1318.16   1316.96       .00   1318.45       .30       2.84       .05   1337.50
    2779.0        .0    2779.0        .0        .0     636.4        .0       96.2      47.2   1345.10
       .42       .00      4.37       .00      .000      .055      .000       .000   1311.40   9815.65
   .006757      310.      400.      350.         3         9         0        .00    229.05  10044.71


FLOW DISTRIBUTION FOR SECNO=      1.91          CWSEL=   1318.16

STA=    9816.   10148.
  PER Q=    100.0
   AREA=    636.4
    VEL=      4.4
  DEPTH=      2.8

*SECNO 1.920

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1336.50 ELREA=      1344.10

     1.920      7.09   1318.29   1317.29       .00   1318.63       .34        .15       .02   1336.50
    2779.0        .0    2779.0        .0        .0     595.7        .0       96.5      47.3   1344.10
       .42       .00      4.67       .00      .000      .055      .000       .000   1311.20   9800.76
   .008883       30.       20.       30.         2         9         0        .00    238.32  10039.08


FLOW DISTRIBUTION FOR SECNO=      1.92          CWSEL=   1318.29

STA=    9801.   10102.
  PER Q=    100.0
   AREA=    595.7
    VEL=      4.7
  DEPTH=      2.5

1490 NH CARD USED
*SECNO 1.990

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1323.80 ELREA=      1335.60

     1.990      6.51   1321.31   1320.77       .00   1321.81       .51       3.10       .08   1323.80
    2779.0        .0    2779.0        .0        .0     487.1        .0      101.2      49.4   1335.60
       .44       .00      5.70       .00      .000      .037      .000       .000   1314.80   9804.64
   .007532      530.      380.      390.         2         9         0        .00    229.57  10034.21


1
   11SEP02      14:16:56                                                                                    PAGE   30

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      1.99          CWSEL=   1321.31

STA=    9805.    9972.   10066.
  PER Q=     18.5     81.5
   AREA=    197.1    290.0
    VEL=      2.6      7.8
  DEPTH=      1.2      4.7

CCHV=      .200 CEHV=      .400
1490 NH CARD USED
*SECNO 2.080

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1331.80 ELREA=      1324.00

     2.080      6.23   1324.23   1324.01       .00   1324.64       .41       2.81       .02   1331.80
    2779.0        .0    1376.9    1402.1        .0     241.2     308.8      107.3      52.2   1324.00
       .47       .00      5.71      4.54      .000      .032      .040       .000   1318.00   9973.48
   .004196      270.      500.      540.         2        18         0        .00    243.67  10217.15
```

```
OW DISTRIBUTION FOR SECNO=      2.08          CWSEL=   1324.23

STA=    9973.   10017.   10063.   10108.   10140.   10154.   10174.   10204.   10217.
  PER Q=     47.2      2.4      1.1     12.6     13.3     12.3      9.9      1.3
   AREA=    202.5     38.7     23.7     79.4     59.4     65.0     66.7     14.6
    VEL=      6.5      1.7      1.3      4.4      6.2      5.2      4.1      2.6
  DEPTH=      4.7       .8       .5      2.5      4.2      3.2      2.2      1.1

1490 NH CARD USED
*SECNO 2.160
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.160      4.47   1326.27   1326.27       .00   1326.66       .39      1.84       .00   1326.20
    2779.0     297.9    1346.3    1134.8      89.0     222.3     291.8     111.7      54.4   1326.00
       .49      3.35      6.06      3.89      .050      .040      .045      .000   1321.80   9897.98
   .007237      790.      420.      200.         0        16         0       .00    338.75  10236.72


FLOW DISTRIBUTION FOR SECNO=      2.16          CWSEL=   1326.27
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


STA=    9898.    9940.    9964.   10047.   10111.   10161.   10212.   10233.   10237.
  PER Q=      9.5      1.3     48.4     10.9      6.7     17.1      6.1       .1
   AREA=     71.8     17.3    222.3     86.8     59.4    104.4     39.8      1.5
    VEL=      3.7      2.0      6.1      3.5      3.1      4.6      4.2      1.6
  DEPTH=      1.7       .7      2.7      1.4      1.2      2.1      1.9       .4

*SECNO 2.270

1 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1345.40 ELREA=      1329.40

     2.270      6.49   1330.59   1330.55       .00   1331.71      1.12      4.76       .29   1345.40
    2779.0        .0    2412.9     366.1        .0     266.3     123.5     118.9      58.1   1329.40
       .51       .00      9.06      2.96      .000      .040      .050      .000   1324.10   9970.58
   .008503      650.      580.      670.         2        18         0       .00    170.60  10141.17


FLOW DISTRIBUTION FOR SECNO=      2.27          CWSEL=   1330.59

STA=    9971.   10029.   10061.   10101.   10135.   10141.
  PER Q=     86.8      3.6      5.3      4.1       .2
   AREA=    266.3     34.3     48.2     38.3      2.7
    VEL=      9.1      2.9      3.1      3.0      1.6
  DEPTH=      4.5      1.1      1.2      1.1       .4

*SECNO 2.370

3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1357.90 ELREA=      1334.30

     2.370      5.38   1334.48   1333.43       .00   1334.96       .48      3.12       .13   1357.90
    2779.0        .0    2612.4     166.6        .0     457.2      91.8     123.5      59.9   1334.30
       .53       .00      5.71      1.82      .000      .040      .050      .000   1329.10   9924.53
   .005306      550.      500.      190.         2        20         0       .00    314.68  10239.21
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
```

```
W DISTRIBUTION FOR SECNO=      2.37          CWSEL=   1334.48

STA=    9925.   10072.   10132.   10184.   10224.   10239.
  PER Q=     94.0       .3      1.0      3.9       .8
   AREA=    457.2     11.4     22.3     45.9     12.1
    VEL=      5.7       .7      1.2      2.4      1.8
  DEPTH=      3.1       .2       .4      1.1       .8

*SECNO 2.460

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1338.60 ELREA=      1351.30

     2.460      6.54   1337.94   1337.44       .00   1338.62       .68      3.58       .08   1338.60
    2779.0        .0    2779.0        .0        .0     420.7        .0     129.1      62.8   1351.30
       .56       .00      6.61       .00      .000      .040      .000      .000   1331.40   9849.18
   .010136      500.      500.      530.         2         8         0       .00    176.77  10025.96


FLOW DISTRIBUTION FOR SECNO=      2.46          CWSEL=   1337.94

STA=    9849.   10046.
  PER Q=    100.0
   AREA=    420.7
    VEL=      6.6
  DEPTH=      2.4

*SECNO 2.560

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.87


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1340.90 ELREA=      1342.70

     2.560      5.82   1340.72   1338.49       .00   1341.13       .41      2.46       .05   1340.90
    2779.0        .0    2779.0        .0        .0     542.7        .0     134.6      64.6   1342.70
       .58       .00      5.12       .00      .000      .040      .000      .000   1334.90   9958.56
   .002890      350.      500.      580.         3        11         0       .00    130.95  10089.51

W DISTRIBUTION FOR SECNO=      2.56          CWSEL=   1340.72
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


STA=    9959.   10100.
  PER Q=    100.0
   AREA=    542.7
    VEL=      5.1
  DEPTH=      4.1

*SECNO 2.650

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .55


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1342.00 ELREA=      1343.80

     2.650      6.00   1342.60   1342.51       .00   1343.86      1.27      2.39       .34   1342.00
    2779.0      80.3    2698.7        .0      41.0     294.7        .0     139.6      66.1   1343.80
       .60      1.96      9.16       .00      .045      .040      .000      .000   1336.60   9878.95
   .009515      370.      500.      570.         3         5         0       .00    158.75  10037.70


FLOW DISTRIBUTION FOR SECNO=      2.65          CWSEL=   1342.60

STA=    9879.    9885.    9936.    9966.   10041.
  PER Q=       .1      1.9       .9     97.1
   AREA=      2.0     25.7     13.3    294.7
    VEL=      1.6      2.0      1.9      9.2
  DEPTH=       .3       .5       .4      4.1
```

```
CNO 2.750

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1346.40 ELREA=      1350.10

     2.750      6.17   1346.87   1345.65       .00   1347.51       .64      3.53       .12   1346.40
    2779.0       6.9    2772.1        .0       6.1     430.6        .0     144.0      67.7   1350.10
       .62      1.12      6.44       .00      .045      .040      .000      .000   1340.70   9951.83
   .005448      460.      500.      520.         3        15         0       .00    137.07  10088.91


1
   11SEP02      14:16:56                                                                                PAGE   34

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      2.75          CWSEL=   1346.87

STA=    9952.    9972.   10110.
  PER Q=       .2     99.8
   AREA=      6.1    430.6
    VEL=      1.1      6.4
  DEPTH=       .3      3.7

*SECNO 2.840
     2.840      6.84   1350.24   1349.73       .00   1351.26      1.02      3.60       .15   1349.50
    2779.0       2.9    2670.6     105.4       1.7     323.6      41.1     148.6      69.4   1350.20
       .64      1.69      8.25      2.57      .045      .040      .045      .000   1343.40   9959.20
   .009930      500.      500.      500.         2         5         0       .00    159.45  10118.64

OW DISTRIBUTION FOR SECNO=      2.84          CWSEL=   1350.24

TA=    9959.    9964.   10059.   10113.   10119.
  PER Q=       .1     96.1      3.4       .3

   AREA=      1.7    323.6     37.2      3.9
    VEL=      1.7      8.3      2.6      2.5
  DEPTH=       .4      3.4       .7       .7

*SECNO 2.940

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.47

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1352.20 ELREA=      1354.50

     2.940      7.10   1353.80   1352.96       .00   1354.60       .80      3.29       .04   1352.20
    2779.0     316.0    2463.0        .0     121.5     326.1        .0     153.5      71.4   1354.50
       .66      2.60      7.55       .00      .045      .040      .000      .000   1346.70   9871.20
   .004569      650.      500.      440.         2        11         0       .00    158.50  10029.70


FLOW DISTRIBUTION FOR SECNO=      2.94          CWSEL=   1353.80

STA=    9871.    9879.    9918.    9970.   10032.
  PER Q=       .3      4.2      6.9     88.6
   AREA=      5.3     46.2     69.9    326.1
    VEL=      1.7      2.5      2.7      7.6
  DEPTH=       .7      1.2      1.4      5.4

1
   11SEP02      14:16:56                                                                                PAGE   35

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

CNO 3.030
```

```
02 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1367.20 ELREA=      1356.90

     3.030      7.48   1356.88   1355.68       .00   1358.15      1.27      3.36       .19   1367.20
    2779.0        .0    2779.0        .0        .0     307.4        .0     157.7      72.7   1356.90
       .67       .00      9.04       .00      .000      .040      .000      .000   1349.40   9971.14
   .011103      420.      500.      710.         1        13         0       .00     84.76  10055.90

FLOW DISTRIBUTION FOR SECNO=      3.03          CWSEL=   1356.88

STA=    9971.   10056.
  PER Q=    100.0
   AREA=    307.4
    VEL=      9.0
  DEPTH=      3.6

*SECNO 3.130

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.72

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1357.30 ELREA=      1363.70

     3.130      7.31   1359.81   1357.63       .00   1359.99       .18      1.62       .22   1357.30
    2779.0     499.2    2279.8        .0     173.7     655.8        .0     164.3      74.6   1363.70
       .71      2.87      3.48       .00      .045      .040      .000      .000   1352.50   9918.47
   .001506      540.      500.      240.         2        18         0       .00    238.34  10156.81

FLOW DISTRIBUTION FOR SECNO=      3.13          CWSEL=   1359.81

STA=    9918.    9933.    9956.    9970.    9983.   10192.
  PER Q=       .4      2.9      6.9      7.7     82.0
   AREA=     10.9     42.0     58.1     62.6    655.8
    VEL=      1.1      1.9      3.3      3.4      3.5
  DEPTH=       .8      1.8      4.4      4.6      3.8
```



```
    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

*SECNO 3.220

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .32

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1364.20 ELREA=      1360.80

     3.220      5.58   1360.68   1360.55       .00   1362.36      1.68      1.77       .60   1364.20
    2779.0        .0    2779.0        .0        .0     267.0        .0     170.9      76.5   1360.80
       .73       .00     10.41       .00      .000      .040      .000      .000   1355.10   9966.66
   .014518      650.      500.      400.         4        16         0       .00     73.79  10040.45

FLOW DISTRIBUTION FOR SECNO=      3.22          CWSEL=   1360.68

STA=    9967.   10041.
  PER Q=    100.0
   AREA=    267.0
    VEL=     10.4
  DEPTH=      3.6

*SECNO 3.310

1 HV CHANGED MORE THAN HVINS
```

```
2 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.24

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1367.50 ELREA=      1364.50

     3.310      5.42   1365.02   1364.51       .00   1365.26       .23      2.61       .29   1367.50
    2779.0        .0    2027.5     751.5        .0     467.0     332.4     176.2      78.6   1364.50
       .76       .00      4.34      2.26      .000      .040      .045      .000   1359.60   9968.94
   .002883      600.      500.       300.         4        14         0       .00    394.35  10363.29


FLOW DISTRIBUTION FOR SECNO=      3.31          CWSEL=   1365.02

1
   11SEP02      14:16:56                                                                                PAGE   37


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=    9969.   10113.   10180.   10267.   10354.   10363.
  PER Q=     73.0      2.5     11.3     13.0       .3
   AREA=    467.0     48.3    133.2    144.9      6.0
    VEL=      4.3      1.4      2.3      2.5      1.3
  DEPTH=      3.2       .7      1.5      1.7       .6

*SECNO 3.410

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .54

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1369.60 ELREA=      1376.00

     3.410      6.54   1366.64   1365.76       .00   1368.00      1.36      2.29       .45   1369.60
    2779.0        .0    2779.0        .0        .0     297.1        .0     181.7      80.7   1376.00
       .78       .00      9.35       .00      .000      .040      .000      .000   1360.10   9942.89
   .009876      430.      500.       290.         3         8         0       .00     71.21  10014.10


FLOW DISTRIBUTION FOR SECNO=      3.41          CWSEL=   1366.64

STA=    9943.   10057.
  PER Q=    100.0
   AREA=    297.1
    VEL=      9.4
  DEPTH=      4.2

1490 NH CARD USED
*SECNO 3.470

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1370.00 ELREA=      1379.50

     3.470      6.17   1369.97   1369.24       .00   1370.58       .60      3.46       .23   1370.00
    2779.0        .0    2779.0        .0        .0     445.8        .0     184.3      81.6   1379.50
       .79       .00      6.23       .00      .000      .047      .000      .000   1363.80   9819.98
   .013602       40.      300.       380.        20        10         0       .00    203.28  10023.26


1
   11SEP02      14:16:56                                                                                PAGE   38


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      3.47          CWSEL=   1369.97
```

```
=    9820.   10036.
PER Q=    100.0
 AREA=    445.8
  VEL=      6.2
DEPTH=      2.2

1490 NH CARD USED
*SECNO 3.500

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.40


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1370.30 ELREA=      1379.60

     3.500      6.43   1371.03   1369.22       .00   1371.16       .13       .49       .09   1370.30
    2779.0     980.1    1798.9        .0     358.0     596.5        .0     186.9      82.6   1379.60
       .81      2.74      3.02       .00      .040      .038      .000      .000   1364.60   9773.01
   .001176       50.      200.      250.         3        16         0       .00    315.82  10088.82


FLOW DISTRIBUTION FOR SECNO=      3.50          CWSEL=   1371.03

STA=    9773.    9805.    9844.    9871.    9912.    9949.   10097.
  PER Q=      1.3     16.0     13.4      4.6      1.9     62.8
   AREA=     29.3    145.7    112.8     70.1     45.4    551.1
    VEL=      1.2      3.1      3.3      1.8      1.2      3.2
  DEPTH=       .9      3.7      4.2      1.7      1.2      3.9

1490 NH CARD USED
*SECNO 3.600
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1372.60 ELREA=      1374.20

     3.600      5.16   1372.66   1372.66       .00   1373.06       .40       .94       .11   1372.60
    2424.0    1321.3    1102.7        .0     252.1     224.5        .0     194.9      85.6   1374.20
       .83      5.24      4.91       .00      .036      .035      .000      .000   1367.50   9824.18
   .004198       470.      500.      500.         0        17         0       .00    221.63  10045.81


1
   11SEP02      14:16:56                                                                                PAGE   39

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      3.60          CWSEL=   1372.66

STA=    9824.    9830.    9852.    9880.    9894.    9903.    9911.    9952.   10069.
  PER Q=       .5      5.1     18.7     16.0      9.6      3.8       .9     45.5
   AREA=      5.4     36.2     82.0     56.2     34.0     19.5     18.8    224.5
    VEL=      2.2      3.4      5.5      6.9      6.8      4.7      1.1      4.9
  DEPTH=       .9      1.7      2.9      4.0      3.9      2.4       .5      2.4

*SECNO 3.690
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1379.60 ELREA=      1377.20

     3.690      5.40   1377.30   1377.30       .00   1377.49       .19       .98       .04   1379.60
    2424.0        .0    1347.8    1076.2        .0     325.2     419.1     199.1      87.2   1377.20
       .86       .00      4.14      2.57      .000      .035      .045      .000   1371.90   9972.89
   .001942       380.      500.        0.         0        11         0       .00    298.13  10271.03


FLOW DISTRIBUTION FOR SECNO=      3.69          CWSEL=   1377.30

STA=    9973.   10070.   10087.   10105.   10151.   10193.   10225.   10248.   10271.
  PER Q=     55.6       .6      5.1     19.0      9.4      1.9      4.7      3.7
   AREA=    325.2     12.5     46.2    146.0     92.4     31.4     48.7     41.8
    VEL=      4.1      1.2      2.7      3.2      2.5      1.5      2.3      2.2
  DEPTH=      3.3       .7      2.5      3.2      2.2      1.0      2.0      1.8
```

```
*SECNO 3.790

3201 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1380.20 ELREA=      1382.20

     3.790      4.84   1380.34   1380.34       .00   1381.12       .78      1.79       .23   1380.20
    2424.0     130.9    2293.1        .0      52.6     315.5        .0     204.8      90.0   1382.20
       .88      2.49      7.27       .00      .045      .035      .000      .000   1375.50   9839.43
   .010671      650.      500.      340.         0        10         0       .00    230.77  10070.20


1
   11SEP02      14:16:56                                                                                    PAGE   40

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      3.79          CWSEL=   1380.34

STA=    9839.    9864.    9924.   10079.
  PER Q=      1.4      4.0     94.6
   AREA=     14.1     38.5    315.5
    VEL=      2.3      2.5      7.3
  DEPTH=       .6       .6      2.2

*SECNO 3.880

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.77


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1391.50 ELREA=      1381.20

     3.880      6.22   1383.72   1383.21       .00   1384.14       .42      2.94       .07   1391.50
    2424.0        .0    1337.9    1086.1        .0     202.1     425.6     211.2      93.4   1381.20
       .91       .00      6.62      2.55      .000      .035      .050      .000   1377.50   9973.56
   .003397      450.      500.      640.         3        11         0       .00    289.23  10262.79


FLOW DISTRIBUTION FOR SECNO=      3.88          CWSEL=   1383.72

STA=    9974.   10017.   10070.   10106.   10134.   10166.   10214.   10253.   10263.
  PER Q=     55.2      9.7      7.1      7.5      3.5      8.0      8.6       .4
   AREA=    202.1     93.1     66.6     61.8     41.1     79.8     76.6      6.6
    VEL=      6.6      2.5      2.6      2.9      2.0      2.4      2.7      1.3
  DEPTH=      4.6      1.8      1.8      2.2      1.3      1.7      2.0       .7

1490 NH CARD USED
*SECNO 3.980

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1396.60 ELREA=      1386.70

     3.980      3.64   1386.74   1386.74       .00   1387.12       .37      2.27       .01   1396.60
    2424.0        .0    1484.9     939.1        .0     266.2     262.7     216.5      96.3   1386.70
       .94       .00      5.58      3.58      .000      .037      .045      .000   1383.10   9867.33
   .009309      590.      500.      330.         0        21         0       .00    390.46  10370.62


1
   11SEP02      14:16:56                                                                                    PAGE   41

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      3.98          CWSEL=   1386.74
```

```
STA=     9867.    9926.    9973.   10020.   10211.   10265.   10347.   10365.   10371.
 PER Q=     19.7      7.3     34.2      7.3     14.7     12.6      3.7       .5
  AREA=     97.3     55.1    113.8     60.8     83.4     90.3     23.4      4.7
   VEL=      4.9      3.2      7.3      2.9      4.3      3.4      3.8      2.8
 DEPTH=      1.6      1.2      2.4       .3      1.5      1.1      1.3       .9

1490 NH CARD USED
*SECNO 4.070

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1399.30 ELREA=      1391.60

     4.070      5.76   1391.56   1390.95       .00   1392.00       .44      4.86       .03   1399.30
    2424.0        .0    2424.0       .0        .0     455.8        .0     222.7     100.3   1391.60
       .96       .00      5.32       .00      .000      .042      .000      .000   1385.80   9907.11
   .008926      480.      500.      670.         3        14         0       .00    222.25  10129.36


FLOW DISTRIBUTION FOR SECNO=      4.07          CWSEL=   1391.56

STA=     9907.   10130.
  PER Q=    100.0
   AREA=    455.8
    VEL=      5.3
  DEPTH=      2.1

*SECNO 4.170

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.84


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1395.00 ELREA=      1398.30

     4.170      4.71   1394.01   1392.92       .00   1394.25       .24      2.21       .04   1395.00
    2424.0        .0    2424.0       .0        .0     612.2        .0     228.8     103.0   1398.30
      1.00       .00      3.96       .00      .000      .035      .000      .000   1389.30   9933.66
   .002636      640.      500.      430.         4        14         0       .00    248.76  10182.42


11SEP02      14:16:56                                                                                PAGE    42

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      4.17          CWSEL=   1394.01

STA=     9934.   10210.
  PER Q=    100.0
   AREA=    612.2
    VEL=      4.0
  DEPTH=      2.5

*SECNO 4.260

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1398.10 ELREA=      1400.40

     4.260      4.32   1396.92   1396.92       .00   1398.20      1.29      2.57       .42   1398.10
    2424.0        .0    2424.0       .0        .0     266.2        .0     233.8     105.1   1400.40
      1.01       .00      9.11       .00      .000      .035      .000      .000   1392.60   9955.11
   .014089      450.      500.      700.         0        11         0       .00    108.81  10063.92


FLOW DISTRIBUTION FOR SECNO=      4.26          CWSEL=   1396.92

STA=     9955.   10116.
  PER Q=    100.0
   AREA=    266.2
    VEL=      9.1
  DEPTH=      2.4

1490 NH CARD USED
```

```
ECNO 4.360

1 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.97

1
   11SEP02      14:16:56                                                                                                PAGE   43

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=      1408.80 ELREA=      1408.70

     4.360      5.85   1401.35   1400.44       .00   1401.60       .25       3.19       .21   1408.80
    2424.0       .0    2424.0       .0        .0     603.8        .0      238.8     107.3   1408.70
      1.05      .00      4.01       .00      .000      .037      .000       .000   1395.50   9968.76
   .003624     560.      500.      530.         4        11         0        .00    283.86  10252.63


FLOW DISTRIBUTION FOR SECNO=      4.36          CWSEL=   1401.35

STA=    9969.   10013.   10279.
  PER Q=     59.3     40.7
   AREA=    208.3    395.6
    VEL=      6.9      2.5
  DEPTH=      4.7      1.6

1490 NH CARD USED
*SECNO 4.450

3265 DIVIDED FLOW


1 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1403.90 ELREA=      1404.40

     4.450      4.17   1403.97   1403.97       .00   1404.83       .86       2.91       .24   1403.90
    2424.0      55.7    2368.3       .0      25.0     315.6        .0      244.3     110.2   1404.40
      1.07      2.23      7.50       .00      .060      .031      .000       .000   1399.80   9760.83
   .010719      630.      500.      360.         0        16         0        .00    215.75  10023.52


FLOW DISTRIBUTION FOR SECNO=      4.45          CWSEL=   1403.97

STA=    9761.    9771.    9790.    9851.    9953.   10026.
  PER Q=       .8      1.5       .0     11.1     86.6
   AREA=      8.6     16.0       .5     93.2    222.4
    VEL=      2.3      2.3       .3      2.9      9.4
  DEPTH=       .8       .8       .0       .9      3.2

1
   11SEP02      14:16:56                                                                                                PAGE   44

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 4.550
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     4.550      5.50   1409.50   1409.50       .00   1410.18       .68       4.69       .04   1409.30
    2424.0      61.9    2095.9     266.2      43.0     298.6      81.7      248.8     113.7   1408.60
      1.09      1.44      7.02      3.26      .051      .034      .040       .000   1404.00   9804.05
   .007993      550.      500.      640.         0        13         0        .00    340.09  10144.14
```

```
OW DISTRIBUTION FOR SECNO=       4.55          CWSEL=   1409.50

A=    9804.    9823.    9877.    9922.   10019.   10047.   10077.   10116.   10144.
 PER Q=       .4       1.8       .3      81.9      4.5      5.1      5.4       .5
  AREA=      7.4      26.9      8.8     267.5     31.0     33.7     39.7      8.3
   VEL=      1.4       1.7       .7       7.4      3.5      3.6      3.3      1.5
 DEPTH=       .4        .5       .2       2.8      1.1      1.1      1.0       .3

1490 NH CARD USED
*SECNO 4.640

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.48


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1418.70 ELREA=      1414.40

     4.640      3.68   1412.48   1411.65       .00   1412.80       .32      2.55       .07   1418.70
    2424.0        .0    2424.0        .0        .0     535.4        .0     254.2     117.3   1414.40
      1.12       .00      4.53       .00      .000      .027      .000      .000   1408.80   9975.38
   .003646      390.      500.      360.         3        11         0       .00    338.94  10314.32


FLOW DISTRIBUTION FOR SECNO=       4.64          CWSEL=   1412.48

STA=    9975.   10119.   10196.   10338.
 PER Q=     91.9      6.9      1.2
  AREA=    423.6     75.3     36.4
   VEL=      5.3      2.2       .8
 DEPTH=      3.0      1.0       .3

1
   11SEP02      14:16:56                                                                                                PAGE   45


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


90 NH CARD USED
*SECNO 4.730
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1429.30 ELREA=      1419.40

     4.730      4.29   1416.19   1416.19       .00   1416.82       .63      3.38       .12   1429.30
    2424.0        .0    2424.0        .0        .0     380.6        .0     259.4     121.4   1419.40
      1.14       .00      6.37       .00      .000      .030      .000      .000   1411.90   9979.80
   .016563      500.      500.      410.         0        11         0       .00    371.22  10351.01


FLOW DISTRIBUTION FOR SECNO=       4.73          CWSEL=   1416.19

STA=    9980.   10020.   10257.   10368.
 PER Q=     58.1     17.9     24.0
  AREA=    127.3    142.7    110.6
   VEL=     11.1      3.0      5.3
 DEPTH=      3.2       .6      1.2

1490 NH CARD USED
*SECNO 4.790

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1431.60 ELREA=      1419.90

     4.790      4.88   1419.78   1419.45       .00   1420.29       .51      3.45       .02   1431.60
    2163.0        .0    2163.0        .0        .0     377.9        .0     262.0     123.5   1419.90
      1.16       .00      5.72       .00      .000      .031      .000      .000   1414.90   9931.72
   .008159      330.      300.      320.         4        11         0       .00    245.38  10177.10


FLOW DISTRIBUTION FOR SECNO=       4.79          CWSEL=   1419.78

STA=    9932.   10035.   10189.
 PER Q=     93.2      6.8
  AREA=    297.5     80.4
   VEL=      6.8      1.8
 DEPTH=      2.9       .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


1490 NH CARD USED
*SECNO 4.920

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1426.70 ELREA=      1425.40

     4.920      3.03   1425.83   1425.54       .00   1426.27       .43      5.96       .01   1426.70
    2163.0        .0    1235.4     927.6        .0     238.4     170.7     268.1     127.7   1425.40
      1.19       .00      5.18      5.43      .000      .032      .042      .000   1422.80   9967.82
   .009676        0.      700.      570.         4        23         0       .00    297.66  10292.53


FLOW DISTRIBUTION FOR SECNO=      4.92          CWSEL=   1425.83

STA=    9968.   10032.   10139.   10189.   10208.   10245.   10278.   10284.   10293.
  PER Q=     29.5      1.2     26.4      1.2      7.1     24.5      6.9      3.1
   AREA=    117.5     21.2     99.7     11.9     45.6     80.3     18.8     14.1
    VEL=      5.4      1.2      5.7      2.2      3.4      6.6      8.0      4.8
  DEPTH=      1.8       .3      2.0       .6      1.2      2.4      3.2      1.6

1490 NH CARD USED
*SECNO 5.020
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1440.30 ELREA=      1430.10

     5.020      4.16   1430.46   1430.46       .00   1430.90       .44      4.50       .00   1440.30
    2163.0        .0    1331.0     832.0        .0     214.3     247.0     272.7     131.7   1430.10
      1.22       .00      6.21      3.37      .000      .024      .046      .000   1426.30   9977.21
   .009585      510.      500.      420.         0        12         0       .00    452.50  10429.71


FLOW DISTRIBUTION FOR SECNO=      5.02          CWSEL=   1430.46

STA=    9977.   10035.   10179.   10256.   10302.   10350.   10398.   10420.   10428.   10430.
  PER Q=     58.9      2.6      9.9     15.1      8.0      2.1      2.5       .8       .0
   AREA=    170.8     43.4     70.4     73.4     51.6     24.4     19.7      7.2       .3
    VEL=      7.5      1.3      3.0      4.4      3.4      1.9      2.7      2.5      1.1
  DEPTH=      3.0       .3       .9      1.6      1.1       .5       .9       .8       .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


1490 NH CARD USED
*SECNO 5.070
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1441.50 ELREA=      1432.90

     5.070      4.59   1433.39   1433.39       .00   1434.09       .70      2.41       .11   1441.50
    2163.0        .0    1889.0     274.0        .0     264.9     109.9     274.9     133.6   1432.90
      1.23       .00      7.13      2.49      .000      .033      .054      .000   1428.80   9934.96
   .010519      320.      250.      210.         0         8         0       .00    283.50  10218.46


FLOW DISTRIBUTION FOR SECNO=      5.07          CWSEL=   1433.39

STA=    9935.    9971.   10024.   10070.   10111.   10178.   10205.   10218.
  PER Q=      1.5     74.5     11.3      1.7      3.3      5.8      1.9
   AREA=     19.2    185.4     60.3     21.9     39.7     34.9     13.3
    VEL=      1.7      8.7      4.1      1.7      1.8      3.6      3.0
```

```
DEPTH=        .5       3.5       1.3        .5        .6       1.3       1.0

90 NH CARD USED
*SECNO 5.110

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1436.10 ELREA=      1439.40

     5.110      4.73   1435.83   1435.43       .00   1436.66       .82      2.52       .05   1436.10
    2163.0        .0    2163.0        .0        .0     296.8        .0     276.8     134.7   1439.40
      1.24       .00      7.29       .00      .000      .037      .000      .000   1431.10   9975.65
   .009885      280.      250.      200.         1        10         0       .00    117.26  10092.91


FLOW DISTRIBUTION FOR SECNO=      5.11          CWSEL=   1435.83

STA=    9976.   10049.   10122.
  PER Q=     91.5      8.5
   AREA=    242.8     54.0
    VEL=      8.2      3.4
  DEPTH=      3.3      1.2

1
   11SEP02      14:16:56                                                                                    PAGE   48


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 5.210

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1441.30 ELREA=      1444.90

     5.210      6.17   1440.87   1440.14       .00   1441.83       .96      5.12       .06   1441.30
    2163.0        .0    2163.0        .0        .0     274.6        .0     280.1     135.9   1444.90
      1.25       .00      7.88       .00      .000      .040      .000      .000   1434.70   9943.14
   .010608      360.      500.      540.         2         8         0       .00     91.02  10034.15


FLOW DISTRIBUTION FOR SECNO=      5.21          CWSEL=   1440.87

STA=    9943.   10043.
  PER Q=    100.0
   AREA=    274.6
    VEL=      7.9
  DEPTH=      3.0

*SECNO 5.300

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.60


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1447.70 ELREA=      1450.80

     5.300      6.66   1444.56   1443.05       .00   1445.05       .50      3.13       .09   1447.70
    2163.0        .0    2163.0        .0        .0     381.4        .0     283.9     137.0   1450.80
      1.28       .00      5.67       .00      .000      .040      .000      .000   1437.90   9952.20
   .004128      540.      500.      500.         3        15         0       .00    101.64  10053.84


FLOW DISTRIBUTION FOR SECNO=      5.30          CWSEL=   1444.56

STA=    9952.   10078.
  PER Q=    100.0
   AREA=    381.4
    VEL=      5.7
  DEPTH=      3.8

*SECNO 5.400
1
   11SEP02      14:16:56                                                                                    PAGE   49


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
```

```
1 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1451.30 ELREA=      1455.70

     5.400      4.50   1448.10   1448.10       .00   1449.17      1.07      3.46       .23   1451.30
    2163.0        .0    2163.0        .0        .0     261.0        .0     287.5     138.2   1455.70
      1.29       .00      8.29       .00      .000      .035      .000      .000   1443.60   9963.27
   .013941      550.      500.      470.         0        20         0       .00    121.69  10084.96


FLOW DISTRIBUTION FOR SECNO=      5.40          CWSEL=   1448.10

STA=    9963.   10107.
  PER Q=    100.0
   AREA=    261.0
    VEL=      8.3
  DEPTH=      2.1

*SECNO 5.490

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1466.40 ELREA=      1470.10

     5.490      4.23   1453.73   1453.27       .00   1454.47       .74      5.24       .06   1466.40
    2163.0        .0    2163.0        .0        .0     312.8        .0     290.8     139.7   1470.10
      1.31       .00      6.91       .00      .000      .035      .000      .000   1449.50   9922.20
   .008152      460.      500.      580.         3        15         0       .00    127.74  10049.94


FLOW DISTRIBUTION FOR SECNO=      5.49          CWSEL=   1453.73

STA=    9922.   10092.
  PER Q=    100.0
   AREA=    312.8
    VEL=      6.9
  DEPTH=      2.4


  11SEP02      14:16:56                                                                                    PAGE   50

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 5.590
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1479.80 ELREA=      1476.50

     5.590      3.12   1459.82   1459.82       .00   1461.00      1.18      5.24       .17   1479.80
    2163.0        .0    2163.0        .0        .0     248.3        .0     294.1     141.0   1476.50
      1.33       .00      8.71       .00      .000      .035      .000      .000   1456.70   9934.33
   .013978      580.      500.      500.         0        19         0       .00    107.50  10041.83


FLOW DISTRIBUTION FOR SECNO=      5.59          CWSEL=   1459.82

STA=    9934.   10084.
  PER Q=    100.0
   AREA=    248.3
    VEL=      8.7
  DEPTH=      2.3

1490 NH CARD USED
*SECNO 5.680

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1481.40 ELREA=      1477.50

     5.680      5.46   1465.56   1465.21       .00   1466.30       .74      5.22       .09   1481.40
    2163.0        .0    2163.0        .0        .0     312.7        .0     297.3     142.4   1477.50
      1.35       .00      6.92       .00      .000      .033      .000      .000   1460.10   9890.16
   .008087      400.      500.      530.         3        14         0       .00    136.29  10026.45
```

```
W DISTRIBUTION FOR SECNO=      5.68          CWSEL=   1465.56

A=    9890.    9969.   10043.
  PER Q=      15.6      84.4
   AREA=     104.4     208.3
    VEL=       3.2       8.8
  DEPTH=       1.3       3.6

1490 NH CARD USED
1
   11SEP02      14:16:56                                                                                                PAGE   51

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 5.780

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1482.20 ELREA=      1474.40

     5.780       6.67   1469.27   1468.29       .00   1469.56       .29       3.17       .09   1482.20
    2163.0         .0    2163.0        .0        .0     502.1        .0      302.0     144.4   1474.40
      1.38        .00      4.31       .00      .000      .043      .000       .000   1462.60   9970.45
   .005095       370.      500.      440.         4         8         0        .00    212.56  10183.01

FLOW DISTRIBUTION FOR SECNO=      5.78          CWSEL=   1469.27

STA=    9970.   10203.
  PER Q=     100.0
   AREA=     502.1
    VEL=       4.3
  DEPTH=       2.4

1490 NH CARD USED
*SECNO 5.870

5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1472.20 ELREA=      1480.90

     5.870       3.31   1472.31   1472.24       .00   1473.09       .78       3.33       .20   1472.20
    2163.0      307.1    1855.9        .0      55.1     254.4        .0      306.6     146.5   1480.90
      1.40       5.58      7.29       .00      .040      .033      .000       .000   1469.00   9911.18
   .009159       480.      500.      450.         2        19         0        .00    145.01  10056.19

FLOW DISTRIBUTION FOR SECNO=      5.87          CWSEL=   1472.31

STA=    9911.    9922.    9926.    9941.    9955.   10077.
  PER Q=       7.1      4.6      2.5       .1     85.7
   AREA=      25.5     14.1     15.4      3.5    250.9
    VEL=       6.0      7.0      3.6       .8      7.4
  DEPTH=       2.4      3.4      1.0       .3      2.5

1490 NH CARD USED
*SECNO 5.970
1
   11SEP02      14:16:56                                                                                                PAGE   52

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1496.50 ELREA=      1484.90

     5.970       4.30   1477.20   1477.15       .00   1478.48      1.28       5.19       .20   1496.50
    2163.0         .0    2163.0        .0        .0     238.4        .0      309.7     147.8   1484.90
      1.42        .00      9.07       .00      .000      .034      .000       .000   1472.90   9946.51
   .011880       500.      500.      610.         2        11         0        .00     89.35  10035.86

FLOW DISTRIBUTION FOR SECNO=      5.97          CWSEL=   1477.20
```

```
STA=    9947.    9982.   10063.
  PER Q=      15.5     84.5
   AREA=      59.0    179.4
    VEL=       5.7     10.2
  DEPTH=       1.7      3.3

*SECNO 6.060
     6.060      4.76   1483.16   1482.92       .00   1484.09       .93      5.54       .07   1482.60
    2163.0        .7    2162.0        .3        .5     279.1        .3     312.7     149.0   1482.70
      1.44      1.39      7.75      1.19      .045      .035      .045      .000   1478.40   9940.78
   .010341      460.      500.      520.         3         8         0       .00    118.35  10059.13


FLOW DISTRIBUTION FOR SECNO=      6.06          CWSEL=   1483.16

STA=    9941.    9943.   10058.   10059.
  PER Q=        .0    100.0       .0
   AREA=        .5    279.1       .3
    VEL=       1.4      7.7      1.2
  DEPTH=        .3      2.4       .2

*SECNO 6.160

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1507.10 ELREA=      1500.70

     6.160      6.98   1486.88   1485.87       .00   1487.99      1.11      3.83       .07   1507.10
    2163.0        .0    2163.0        .0        .0     255.6        .0     315.8     150.0   1500.70
      1.45       .00      8.46       .00      .000      .035      .000      .000   1479.90   9967.18
   .005904      530.      500.      500.         3        11         0       .00     58.13  10025.30


1
   11SEP02      14:16:56                                                                          PAGE    53


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      6.16          CWSEL=   1486.88

STA=    9967.   10044.
  PER Q=     100.0
   AREA=     255.6
    VEL=       8.5
  DEPTH=       4.4

1490 NH CARD USED
*SECNO 6.250

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1522.50 ELREA=      1506.30

     6.250      5.63   1492.93   1492.93       .00   1494.79      1.86      4.72       .30   1522.50
    2163.0        .0    2163.0        .0        .0     197.6        .0     318.4     150.7   1506.30
      1.46       .00     10.95       .00      .000      .040      .000      .000   1487.30   9984.81
   .017402      560.      500.      470.         0        15         0       .00     54.29  10039.10


FLOW DISTRIBUTION FOR SECNO=      6.25          CWSEL=   1492.93

STA=    9985.   10046.
  PER Q=     100.0
   AREA=     197.6
    VEL=      10.9
  DEPTH=       3.6

1490 NH CARD USED
*SECNO 6.340

3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1509.70 ELREA=      1508.10
```

```
  6.340      7.66   1500.66   1499.76       .00   1501.44       .77      6.43       .22   1509.70
 2163.0        .0    2163.0        .0        .0     306.3        .0     321.3     151.5   1508.10
   1.48       .00      7.06       .00      .000      .045      .000      .000   1493.00   9970.30
.009885      420.      500.      600.         4        18         0       .00     93.12  10063.41


1
   11SEP02      14:16:56                                                                                PAGE   54

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 FLOW DISTRIBUTION FOR SECNO=      6.34          CWSEL=   1500.66

 STA=    9970.   10069.
   PER Q=    100.0
    AREA=    306.3
     VEL=      7.1
   DEPTH=      3.3

 *SECNO 6.380

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1512.90 ELREA=      1515.50

  6.380      5.93   1505.93   1505.93       .00   1507.31      1.38      2.63       .24   1512.90
 2163.0        .0    2163.0        .0        .0     229.3        .0     322.5     151.9   1515.50
   1.49       .00      9.43       .00      .000      .041      .000      .000   1500.00   9949.80
.018414       90.      200.      180.         0        16         0       .00     82.90  10032.70

 FLOW DISTRIBUTION FOR SECNO=      6.38          CWSEL=   1505.93

 STA=    9950.   10037.
   PER Q=    100.0
    AREA=    229.3
     VEL=      9.4
   DEPTH=      2.8

1
   11SEP02      14:16:56                                                                                PAGE   55

 T1  CAP OVERCHUTES - AGUA FRIA FLOOD PLAIN STUDY
 T2  FOR FLOOD CONTROL DISTRICT OF MARICOPA COUNTY -METHOD 1 ENCROCHEMENT
 T3      TWIN BUTTES WASH                March, 1991

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0        4         0         0        -1         0         0

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      15        0        -1                                       -1                            15


1
   11SEP02      14:16:56                                                                                PAGE   56

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VQL        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
```

```
V=     .100 CEHV=     .300
ECNO  .190
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9959.0   10066.0  TYPE=      1  TARGET=      107.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .190      4.84   1242.24   1242.24   1242.24   1243.65      1.41       .00       .00 100000.00
    2746.0        .0    2746.0        .0        .0     288.1        .0        .0        .0 100000.00
      .00       .00      9.53       .00      .000      .035      .000      .000   1237.40   9959.85
   .013399        0.        0.        0.         0        53         0       .00    105.33  10065.18


FLOW DISTRIBUTION FOR SECNO=        .19          CWSEL=   1242.24

STA=    9960.   10099.
  PER Q=    100.0
   AREA=    288.1
    VEL=      9.5
  DEPTH=      2.7

*SECNO  .280

3470 ENCROACHMENT STATIONS=     9982.0   10094.0  TYPE=      1  TARGET=      112.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .280      4.98   1247.78   1247.30   1247.78   1248.76       .98      5.07       .04 100000.00
    2746.0        .0    2746.0        .0        .0     345.5        .0       3.6       1.2 100000.00
      .02       .00      7.95       .00      .000      .035      .000      .000   1242.80   9982.25
   .007941      520.      500.      340.         3        11         0       .00    111.71  10093.96


FLOW DISTRIBUTION FOR SECNO=        .28          CWSEL=   1247.78

1
11SEP02      14:16:56                                                                                                PAGE   57

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=    9982.   10098.
  PER Q=    100.0
   AREA=    345.5
    VEL=      7.9
  DEPTH=      3.1

*SECNO  .380

3470 ENCROACHMENT STATIONS=     9978.0   10136.0  TYPE=      1  TARGET=      158.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .380      5.20   1252.20   1251.91   1252.00   1252.99       .79      4.21       .02 100000.00
    2746.0        .0    2746.0        .0        .0     384.7        .0       7.8       2.8 100000.00
      .04       .00      7.14       .00      .000      .035      .000      .000   1247.00   9978.00
   .008927      580.      500.      330.         3         6         0       .00    158.00  10136.00


FLOW DISTRIBUTION FOR SECNO=        .38          CWSEL=   1252.20

STA=    9978.   10223.
  PER Q=    100.0
   AREA=    384.7
    VEL=      7.1
  DEPTH=      2.4

*SECNO  .470

3470 ENCROACHMENT STATIONS=     9910.0   10046.0  TYPE=      1  TARGET=      136.000

5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .470      3.67   1257.17   1257.07   1257.07   1258.26      1.09      5.19       .09 100000.00
```

```
   2746.0        .0    2746.0        .0        .0     327.7        .0      11.9       4.5 100000.00
     .05        .00      8.38       .00      .000      .035      .000      .000   1253.50   9910.00
  .012204      380.      500.      720.         2        19         0       .00    136.00  10046.00


 FLOW DISTRIBUTION FOR SECNO=        .47          CWSEL=   1257.17

1
   11SEP02      14:16:56                                                                                PAGE   58


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 STA=    9910.   10051.
   PER Q=    100.0
    AREA=    327.7
     VEL=      8.4
   DEPTH=      2.4

 *SECNO  .570

 3470 ENCROACHMENT STATIONS=     9923.0   10115.0  TYPE=      1  TARGET=      192.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1263.40 ELREA=    100000.00

      .570      3.75   1263.45   1263.31   1263.54   1264.26       .81      5.97       .03   1263.40
   2746.0        .0    2746.0        .0        .0     380.3        .0      16.0       6.4 100000.00
     .07        .04      7.22       .00      .045      .035      .000      .000   1259.70   9923.00
  .011680      490.      500.      730.         3         8         0       .00    192.00  10115.00


 FLOW DISTRIBUTION FOR SECNO=        .57          CWSEL=   1263.45

 STA=    9923.   10177.
   PER Q=    100.0
    AREA=    380.3
     VEL=      7.2
   DEPTH=      2.0

 *SECNO  .660

 3470 ENCROACHMENT STATIONS=     9928.0   10030.7  TYPE=      1  TARGET=      102.700

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .660      5.36   1268.56   1268.32   1268.43   1269.77      1.20      5.39       .12 100000.00
   2746.0        .0    2746.0        .0        .0     312.1        .0      20.0       8.1 100000.00
     .09        .00      8.80       .00      .000      .035      .000      .000   1263.20   9928.00
  .009971      300.      500.      900.         3        11         0       .00    102.70  10030.70


 FLOW DISTRIBUTION FOR SECNO=        .66          CWSEL=   1268.56

1
   11SEP02      14:16:56                                                                                PAGE   59


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 STA=    9928.   10031.
   PER Q=    100.0
    AREA=    312.1
     VEL=      8.8
   DEPTH=      3.0

 *SECNO  .760

 3470 ENCROACHMENT STATIONS=     9965.0   10189.0  TYPE=      1  TARGET=      224.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1272.80

      .760      8.06   1273.06   1272.57   1272.93   1273.87       .81      4.06       .04 100000.00
   2746.0        .0    2604.3     141.7        .0     352.9      63.1      24.1       9.8   1272.80
```

```
      .11       .00      7.38      2.25      .000      .035      .045      .000   1265.00   9965.10
  .006790      530.      500.      430.         3        12         0       .00    223.90  10189.00

 FLOW DISTRIBUTION FOR SECNO=       .76          CWSEL=   1273.06

 STA=    9965.   10078.   10154.   10189.
   PER Q=      94.8      1.1      4.1
    AREA=     352.9     23.9     39.2
     VEL=       7.4      1.3      2.8
   DEPTH=       3.1       .3      1.1

 *SECNO  .850

 3470 ENCROACHMENT STATIONS=     9932.0   10035.4  TYPE=      1  TARGET=      103.400

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .850      8.64   1275.94   1274.24   1275.30   1276.71       .77      2.84       .00 100000.00
    2746.0        .0    2746.0        .0        .0     390.0        .0      28.6      11.5 100000.00
      .13       .00      7.04       .00      .000      .035      .000      .000   1267.30   9932.00
  .004908      530.      500.      290.         3        11         0       .00    103.40  10035.40

 FLOW DISTRIBUTION FOR SECNO=       .85          CWSEL=   1275.94

1
   11SEP02      14:16:56                                                                          PAGE   60

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 STA=    9932.   10035.
   PER Q=    100.0
    AREA=    390.0
     VEL=      7.0
   DEPTH=      3.8

 CCHV=     .200 CEHV=     .400
 *SECNO  .950

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=         .0   10245.0  TYPE=      1  TARGET=    10245.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1288.40 ELREA=      1280.90

      .950      5.53   1280.73   1280.73   1280.78   1282.14      1.40      3.86       .25   1288.40
    2746.0        .0    2746.0        .0        .0     288.8        .0      32.5      12.7   1280.90
      .14       .00      9.51       .00      .000      .035      .000      .000   1275.20   9970.93
  .013869      530.      500.      270.         0        14         0       .00    108.57  10079.50

 FLOW DISTRIBUTION FOR SECNO=       .95          CWSEL=   1280.73

 STA=    9971.   10083.
   PER Q=    100.0
    AREA=    288.8
     VEL=      9.5
   DEPTH=      2.7

 *SECNO 1.040

 3301 HV CHANGED MORE THAN HVINS

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.67

 3470 ENCROACHMENT STATIONS=     9956.0   10081.0  TYPE=      1  TARGET=      125.000
1
   11SEP02      14:16:56                                                                          PAGE   61
```

```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=      1285.10 ELREA=    100000.00

     1.040       7.69   1285.49   1284.49   1285.40   1286.18       .68       3.90       .14   1285.10
    2746.0        .4    2745.6        .0        .4     414.2        .0       36.5      14.0 100000.00
       .16        .99      6.63       .00      .045      .035      .000       .000   1277.80   9956.00
   .004983      410.      500.      700.         3        11         0        .00    125.00  10081.00


FLOW DISTRIBUTION FOR SECNO=      1.04          CWSEL=   1285.49

STA=    9956.    9957.   10081.
  PER Q=        .0    100.0
   AREA=        .4    414.2
    VEL=       1.0      6.6
  DEPTH=        .4      3.3

CCHV=      .200 CEHV=      .400
1490 NH CARD USED
*SECNO 1.140

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .44


3470 ENCROACHMENT STATIONS=     9956.0   10180.0  TYPE=      1  TARGET=      224.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.140       6.75   1290.25   1290.20   1290.21   1291.06       .81       4.83       .05 100000.00
    2746.0        .0    2746.0        .0        .0     379.8        .0       41.0      16.0 100000.00
       .18        .00      7.23       .00      .000      .047      .000       .000   1283.50   9956.13
   .026156      560.      500.      260.         2        13         0        .00    223.87  10180.00


FLOW DISTRIBUTION FOR SECNO=      1.14          CWSEL=   1290.25

STA=    9956.   10180.
  PER Q=    100.0
   AREA=    379.8
    VEL=      7.2
  DEPTH=      1.7

1
   11SEP02      14:16:56                                                                                          PAGE    62

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=      .300 CEHV=      .500
1490 NH CARD USED
*SECNO 1.230

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.81


3470 ENCROACHMENT STATIONS=     9975.0   10380.0  TYPE=      1  TARGET=      405.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1293.40

     1.230       6.08   1293.78   1293.41   1293.40   1294.04       .26       2.82       .17 100000.00
    2746.0        .0     764.7    1981.3        .0     148.5     549.1       45.3      18.3   1293.40
       .21        .00      5.15      3.61      .000      .040      .042       .000   1287.70   9988.20
   .003303      530.      500.      200.         4        12         0        .00    391.80  10380.00


FLOW DISTRIBUTION FOR SECNO=      1.23          CWSEL=   1293.78

STA=    9988.   10025.   10065.   10136.   10212.   10273.   10332.   10369.   10380.
```

```
 PER Q=     27.8      1.0      2.7      2.9      1.7     18.0     35.1     10.8
 AREA=    148.5     25.4     59.3     63.4     41.6    133.4    165.9     60.3
  VEL=      5.1      1.1      1.3      1.3      1.1      3.7      5.8      4.9
DEPTH=      4.0       .6       .8       .8       .7      2.3      4.5      5.3

1490 NH CARD USED
*SECNO 1.330

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59


3470 ENCROACHMENT STATIONS=     9900.0   10153.8  TYPE=      1  TARGET=      253.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.330      4.38   1296.28   1295.69   1295.40   1296.67       .39      2.56       .06 100000.00
    2746.0        .0    2746.0        .0        .0     551.1        .0      52.3      21.9 100000.00
       .24       .00      4.98       .00      .000      .049      .000      .000   1291.90   9900.00
   .009566      500.      500.      470.         5        16         0       .00    253.80  10153.80


1
   11SEP02      14:16:56                                                                                    PAGE    63


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      1.33          CWSEL=   1296.28

STA=    9900.   10154.
  PER Q=    100.0
  AREA=    551.1
   VEL=      5.0
 DEPTH=      2.2

90 NH CARD USED
ECNO 1.420

3470 ENCROACHMENT STATIONS=     9913.0   10058.0  TYPE=      1  TARGET=      145.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1299.30 ELREA=    100000.00

     1.420      7.04   1300.34   1299.58   1300.18   1301.00       .66      4.19       .14   1299.30
    2746.0       1.0    2745.0        .0        .8     422.2        .0      57.9      24.2 100000.00
       .26      1.26      6.50       .00      .060      .040      .000      .000   1293.30   9913.00
   .007415      520.      500.      460.         4        14         0       .00    145.00  10058.00


FLOW DISTRIBUTION FOR SECNO=      1.42          CWSEL=   1300.34

STA=    9913.    9914.   10058.
  PER Q=       .0    100.0
  AREA=        .8    422.2
   VEL=       1.3      6.5
 DEPTH=       1.0      2.9

1490 NH CARD USED
*SECNO 1.520

3470 ENCROACHMENT STATIONS=     9845.0   10030.0  TYPE=      1  TARGET=      185.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1303.10 ELREA=    100000.00

     1.520      7.20   1304.10   1303.10   1303.30   1304.54       .44      3.48       .06   1303.10
    2746.0      26.2    2719.8        .0       8.7     509.0        .0      63.3      26.1 100000.00
       .28      3.00      5.34       .00      .040      .045      .000      .000   1296.90   9845.00
   .006584      180.      500.      530.         3         9         0       .00    184.49  10029.49


1
   11SEP02      14:16:56                                                                                    PAGE    64


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
```

```
FLOW DISTRIBUTION FOR SECNO=       1.52          CWSEL=   1304.10

STA=     9845.    9852.   10030.
  PER Q=       1.0      99.0
   AREA=       8.7     509.0
    VEL=       3.0       5.3
  DEPTH=       1.2       2.9

*SECNO 1.610

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9973.0   10036.0  TYPE=      1  TARGET=       63.000
     1.610      7.67   1307.37   1306.01   1306.44   1308.51      1.14      3.62       .35   1306.60
    2746.0        .4    2745.3        .4        .3     320.4        .3      68.1      27.5   1306.80
       .30      1.21      8.57      1.22      .045      .045      .045      .000   1299.70   9973.00
   .007989      480.      500.      600.         2        11         0       .00     63.00  10036.00


FLOW DISTRIBUTION FOR SECNO=       1.61          CWSEL=   1307.37

STA=     9973.    9973.   10036.   10036.
  PER Q=        .0     100.0       .0
   AREA=        .3     320.4       .3
    VEL=       1.2       8.6      1.2
  DEPTH=        .8       5.2       .6

*SECNO 1.700

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.47


3470 ENCROACHMENT STATIONS=     9926.0   10029.0  TYPE=      1  TARGET=      103.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.700      8.14   1310.94   1308.17   1310.86   1311.35       .42      2.63       .22 100000.00
    2746.0        .0    2746.0        .0        .0     529.7        .0      73.0      28.4 100000.00
       .33       .00      5.18       .00      .000      .050      .000      .000   1302.80   9926.00
   .003722      500.      500.      560.         2        19         0       .00    103.00  10029.00


1
   11SEP02      14:16:56                                                                                                PAGE    65

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=       1.70          CWSEL=   1310.94

STA=     9926.   10142.
  PER Q=     100.0
   AREA=     529.7
    VEL=       5.2
  DEPTH=       5.1

*SECNO 1.800

3470 ENCROACHMENT STATIONS=     9929.0   10090.0  TYPE=      1  TARGET=      161.000
     1.800      5.67   1313.47   1312.25   1312.99   1313.93       .47      2.55       .02   1312.40
    2746.0        .5    2745.5        .0        .4     501.6        .0      78.9      29.9   1313.10
       .35      1.25      5.47       .03      .045      .050      .045      .000   1307.80   9929.00
   .007448      430.      500.      550.         2        11         0       .00    161.00  10090.00


FLOW DISTRIBUTION FOR SECNO=       1.80          CWSEL=   1313.47

STA=     9929.    9929.   10090.
  PER Q=        .0     100.0
   AREA=        .4     501.6
    VEL=       1.3       5.5
```

```
DEPTH=      1.1      3.1

SECNO 1.840

3470 ENCROACHMENT STATIONS=     9967.0   10100.0  TYPE=      1  TARGET=      133.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1316.00 ELREA=    100000.00

     1.840      6.50   1315.10   1314.13   1315.11   1315.74       .64      1.72       .09   1314.80
    2746.0        .0    2746.0        .0        .0     427.4        .0      81.0      30.6 100000.00
       .36       .00      6.42       .00      .000      .050      .000      .000   1308.60   9967.70
   .010014      220.      200.      180.         2         8         0       .00    132.30  10100.00


FLOW DISTRIBUTION FOR SECNO=      1.84          CWSEL=   1315.10

STA=    9968.   10101.
  PER Q=    100.0
   AREA=    427.4
    VEL=      6.4
  DEPTH=      3.2
```



```
    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


*SECNO 1.910

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.41


3470 ENCROACHMENT STATIONS=     9719.0   10148.0  TYPE=      1  TARGET=      429.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1337.50 ELREA=    100000.00

     1.910      6.99   1318.39   1316.97   1318.16   1318.64       .25      2.79       .12   1337.50
    2779.0        .0    2779.0        .0        .0     692.9        .0      86.2      32.3 100000.00
       .39       .00      4.01       .00      .000      .055      .000      .000   1311.40   9814.19
   .005150      310.      400.      350.         2         9         0       .00    231.13  10045.32


FLOW DISTRIBUTION FOR SECNO=      1.91          CWSEL=   1318.39

STA=    9814.   10148.
  PER Q=    100.0
   AREA=    692.9
    VEL=      4.0
  DEPTH=      3.0

*SECNO 1.920

3470 ENCROACHMENT STATIONS=     9714.0   10102.0  TYPE=      1  TARGET=      388.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1336.50 ELREA=    100000.00

     1.920      7.29   1318.49   1317.29   1318.29   1318.78       .29       .12       .02   1336.50
    2779.0        .0    2779.0        .0        .0     644.5        .0      86.5      32.4 100000.00
       .39       .00      4.31       .00      .000      .055      .000      .000   1311.20   9799.79
   .006890       30.       20.       30.         2        12         0       .00    239.79  10039.58


FLOW DISTRIBUTION FOR SECNO=      1.92          CWSEL=   1318.49

STA=    9800.   10102.
  PER Q=    100.0
   AREA=    644.5
    VEL=      4.3
  DEPTH=      2.7
```



```
    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

1490 NH CARD USED
*SECNO 1.990

3470 ENCROACHMENT STATIONS=     9804.0   10034.0  TYPE=      1  TARGET=      230.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.990      6.79   1321.59   1320.87   1321.31   1321.98       .40      3.15       .05 100000.00
    2779.0        .0    2779.0        .0        .0     548.9        .0      91.7      34.4 100000.00
       .41       .00      5.06       .00      .000      .052      .000      .000   1314.80   9804.00
   .010148      530.      380.      390.         3        10         0       .00    230.00  10034.00


FLOW DISTRIBUTION FOR SECNO=      1.99          CWSEL=   1321.59

STA=    9804.   10034.
  PER Q=    100.0
   AREA=    548.9
    VEL=      5.1
  DEPTH=      2.4

CCHV=     .200 CEHV=     .400
1490 NH CARD USED
*SECNO 2.080

3470 ENCROACHMENT STATIONS=     9972.0   10140.0  TYPE=      1  TARGET=      168.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1324.00

     2.080      7.23   1325.23   1324.24   1324.23   1325.69       .46      3.69       .03 100000.00
    2779.0        .0    1876.6     902.4        .0     332.0     180.5      97.9      36.8   1324.00
       .44       .00      5.65      5.00      .000      .045      .042      .000   1318.00   9972.26
   .005471      270.      500.      540.         2        10         0       .00    167.74  10140.00


OW DISTRIBUTION FOR SECNO=      2.08          CWSEL=   1325.23

STA=    9972.   10063.   10108.   10140.   10140.
  PER Q=     67.5      7.2     25.3       .0
   AREA=    332.0     68.5    111.5       .5
    VEL=      5.7      2.9      6.3       .6
  DEPTH=      3.6      1.5      3.5      5.1

1
   11SEP02      14:16:56                                                                                                PAGE   68


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 2.160

3470 ENCROACHMENT STATIONS=     9964.0   10088.0  TYPE=      1  TARGET=      124.000
     2.160      5.51   1327.31   1326.56   1326.27   1328.07       .76      2.26       .12   1326.20
    2779.0        .0    2283.4     495.6        .0     309.2     101.3     101.6      37.9   1326.00
       .45       .00      7.38      4.89      .000      .040      .045      .000   1321.80   9964.00
   .007053      790.      420.      200.         3        23         0       .00    124.00  10088.00


FLOW DISTRIBUTION FOR SECNO=      2.16          CWSEL=   1327.31

STA=    9964.   10047.   10063.   10088.
  PER Q=     82.2      5.4     12.5
   AREA=    309.2     32.7     68.6
    VEL=      7.4      4.5      5.1
  DEPTH=      3.7      2.1      2.7

*SECNO 2.270

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9970.0   10029.2  TYPE=      1  TARGET=       59.200
```

```
5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     2.270      7.17   1331.27   1330.13   1330.59   1332.54      1.27      4.26       .20 100000.00
    2779.0        .0    2779.0        .0        .0     306.8        .0     106.5      39.1 100000.00
       .47       .00      9.06       .00      .000      .040      .000      .000   1324.10   9970.00
   .007459      650.      580.      670.         0         8         0       .00     59.20  10029.20


 FLOW DISTRIBUTION FOR SECNO=      2.27          CWSEL=   1331.27

 STA=    9970.   10029.
   PER Q=    100.0
    AREA=    306.8
     VEL=      9.1
   DEPTH=      5.2

1
   11SEP02      14:16:56                                                                                    PAGE   69


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 2.370

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     9923.0   10072.0  TYPE=      1  TARGET=      149.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1334.30

     2.370      5.81   1334.91   1333.43   1334.48   1335.35       .44      2.65       .17 100000.00
    2779.0        .0    2778.8        .2        .0     519.4        .2     111.2      40.3   1334.30
       .50       .00      5.35       .72      .000      .040      .050      .000   1329.10   9923.82
   .003953      550.      500.      190.         3        14         0       .00    148.18  10072.00


 FLOW DISTRIBUTION FOR SECNO=      2.37          CWSEL=   1334.91

 STA=    9924.   10072.   10072.
   PER Q=    100.0       .0
    AREA=    519.4       .2
     VEL=      5.3       .7
   DEPTH=      3.5       .6

 *SECNO 2.460

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59


 3470 ENCROACHMENT STATIONS=     9851.0   10026.0  TYPE=      1  TARGET=      175.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     2.460      6.45   1337.85   1337.39   1337.94   1338.58       .73      3.11       .11 100000.00
    2779.0        .0    2779.0        .0        .0     405.5        .0     116.5      42.2 100000.00
       .52       .00      6.85       .00      .000      .040      .000      .000   1331.40   9851.81
   .011217      500.      500.      530.         1         8         0       .00    174.02  10025.83


 FLOW DISTRIBUTION FOR SECNO=      2.46          CWSEL=   1337.85

 STA=    9852.   10046.
   PER Q=    100.0
    AREA=    405.5
     VEL=      6.9
   DEPTH=      2.3

1
   11SEP02      14:16:56                                                                                    PAGE   70


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
```

```
ECNO 2.560

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.99

3470 ENCROACHMENT STATIONS=     9957.0   10090.0  TYPE=      1  TARGET=      133.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     2.560      5.85   1340.75   1338.49   1340.72   1341.15       .40      2.51       .07 100000.00
    2779.0        .0    2779.0        .0        .0     548.1        .0     122.0      43.9 100000.00
       .54       .00      5.07       .00      .000      .040      .000      .000   1334.90   9957.69
   .002828      350.      500.      580.         2        11         0       .00    132.03  10089.73


FLOW DISTRIBUTION FOR SECNO=      2.56          CWSEL=   1340.75

STA=    9958.   10100.
  PER Q=    100.0
   AREA=    548.1
    VEL=      5.1
  DEPTH=      4.2

*SECNO 2.650

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .53

3470 ENCROACHMENT STATIONS=     9965.0   10038.0  TYPE=      1  TARGET=       73.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1342.00 ELREA=    100000.00

     2.650      5.98   1342.58   1342.03   1342.60   1343.97      1.38      2.42       .39   1342.00
    2779.0        .9    2778.1        .0        .5     294.2        .0     126.8      45.1 100000.00
       .56      1.67      9.44       .00      .045      .040      .000      .000   1336.60   9965.00
   .010131      370.      500.      570.         2        11         0       .00     72.68  10037.68


1
   11SEP02      14:16:56                                                                                    PAGE   71

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      2.65          CWSEL=   1342.58

STA=    9965.    9966.   10041.
  PER Q=        .0    100.0
   AREA=        .5    294.2
    VEL=       1.7      9.4
  DEPTH=        .6      4.1

*SECNO 2.750

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.42

3470 ENCROACHMENT STATIONS=     9971.0   10090.0  TYPE=      1  TARGET=      119.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1346.40 ELREA=    100000.00

     2.750      6.27   1346.97   1345.65   1346.87   1347.58       .61      3.46       .15   1346.40
    2779.0        .4    2778.6        .0        .4     442.8        .0     131.1      46.2 100000.00
       .58      1.08      6.28       .00      .045      .040      .000      .000   1340.70   9971.00
   .005025      460.      500.      520.         3        15         0       .00    118.59  10089.59


 DISTRIBUTION FOR SECNO=      2.75          CWSEL=   1346.97
```

```
STA=    9971.    9972.   10110.
 PER Q=       .0     100.0
  AREA=       .4     442.8
   VEL=      1.1       6.3
 DEPTH=       .6       3.8

*SECNO 2.840

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68

1
   11SEP02      14:16:56                                                                                                PAGE   72


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     9963.0   10060.0  TYPE=      1  TARGET=       97.000
     2.840      6.82   1350.22   1349.71   1350.24   1351.38      1.16      3.58       .22   1349.50
    2779.0       1.1    2777.9        .0        .6     321.3        .0     135.5      47.4   1350.20
       .60      1.85      8.65       .03      .045      .040      .045      .000   1343.40   9963.00
   .010999      500.      500.      500.         2         5         0       .00     97.00  10060.00


FLOW DISTRIBUTION FOR SECNO=      2.84          CWSEL=   1350.22

STA=    9963.    9964.   10059.
 PER Q=       .0     100.0
  AREA=       .6     321.3
   VEL=      1.9       8.6
 DEPTH=       .6       3.4

SECNO 2.940

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.46


3470 ENCROACHMENT STATIONS=     9969.0   10030.0  TYPE=      1  TARGET=       61.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1352.20 ELREA=    100000.00

     2.940      7.30   1354.00   1352.26   1353.80   1355.05      1.05      3.65       .02   1352.20
    2779.0       1.9    2777.1        .0       1.3     338.1        .0     139.3      48.3 100000.00
       .61      1.51      8.21       .00      .045      .040      .000      .000   1346.70   9969.00
   .005190      650.      500.      440.         2        15         0       .00     61.00  10030.00


FLOW DISTRIBUTION FOR SECNO=      2.94          CWSEL=   1354.00

STA=    9969.    9970.   10032.
 PER Q=       .1      99.9
  AREA=      1.3     338.1
   VEL=      1.5       8.2
 DEPTH=      1.8       5.6

*SECNO 3.030
1
   11SEP02      14:16:56                                                                                                PAGE   73


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     9970.0   10056.0  TYPE=      1  TARGET=       86.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     3.030      7.84   1357.24   1355.69   1356.88   1358.29      1.05      3.24       .00 100000.00
    2779.0        .0    2779.0        .0        .0     337.5        .0     143.1      49.2 100000.00
       .63       .00      8.23       .00      .000      .040      .000      .000   1349.40   9970.32
```

```
 .008299      420.      500.      710.        3        12        0       .00     85.68  10056.00

FLOW DISTRIBUTION FOR SECNO=      3.03          CWSEL=   1357.24

STA=    9970.   10056.
  PER Q=    100.0
   AREA=    337.5
    VEL=      8.2
  DEPTH=      3.9

*SECNO 3.130

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.06

3470 ENCROACHMENT STATIONS=     9983.0   10159.0  TYPE=      1  TARGET=      176.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1357.30 ELREA=    100000.00

     3.130      7.47   1359.97   1357.91   1359.81   1360.22       .26      1.78       .16   1357.30
    2779.0        .1    2778.9       .0        .3     684.7        .0     149.0      50.7 100000.00
       .66       .31      4.06       .00      .045      .040      .000      .000   1352.50   9983.00
   .001960      540.      500.      240.         2        18         0       .00    175.28  10158.28

FLOW DISTRIBUTION FOR SECNO=      3.13          CWSEL=   1359.97

STA=    9983.    9983.   10192.
  PER Q=       .0    100.0
   AREA=       .3    684.7
    VEL=       .3      4.1
  DEPTH=      2.7      3.9

1
  11SEP02      14:16:56                                                                                PAGE   74

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 3.220

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .45

3470 ENCROACHMENT STATIONS=     9963.0   10041.0  TYPE=      1  TARGET=       78.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1360.80

     3.220      6.13   1361.23   1360.56   1360.68   1362.48      1.26      1.86       .40 100000.00
    2779.0        .0    2779.0       .0        .0     308.7        .1     154.7      52.1   1360.80
       .68       .00      9.00       .03      .000      .040      .045      .000   1355.10   9963.19
   .009572      650.      500.      400.         3        19         0       .00     77.81  10041.00

FLOW DISTRIBUTION FOR SECNO=      3.22          CWSEL=   1361.23

STA=    9963.   10041.
  PER Q=    100.0
   AREA=    308.7
    VEL=      9.0
  DEPTH=      4.0

*SECNO 3.310

3301 HV CHANGED MORE THAN HVINS

2 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.49
```

```
0 ENCROACHMENT STATIONS=     9968.0   10113.0  TYPE=      1  TARGET=      145.000

495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1364.50

     3.310      5.65   1365.25   1363.90   1365.02   1365.73       .48      3.09       .16 100000.00
    2779.0        .0    2778.9        .1        .0     500.2        .2     159.4      53.4   1364.50
       .70       .00      5.56       .63      .000      .040      .045      .000   1359.60   9968.61
   .004325      600.      500.      300.         4        19         0       .00    144.39  10113.00


1
   11SEP02      14:16:56                                                                                    PAGE   75

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 FLOW DISTRIBUTION FOR SECNO=      3.31          CWSEL=   1365.25

 STA=    9969.   10113.   10113.
   PER Q=    100.0       .0
    AREA=    500.2       .2
     VEL=      5.6       .6
   DEPTH=      3.5       .8

 *SECNO 3.410

 3470 ENCROACHMENT STATIONS=     9925.0   10017.0  TYPE=      1  TARGET=       92.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     3.410      7.51   1367.61   1365.77   1366.64   1368.46       .85      2.58       .15 100000.00
    2779.0        .0    2779.0        .0        .0     374.9        .0     164.4      54.8 100000.00
       .72       .00      7.41       .00      .000      .040      .000      .000   1360.10   9925.82
   .006256      430.      500.      290.         3         5         0       .00     90.90  10016.72


 OW DISTRIBUTION FOR SECNO=      3.41          CWSEL=   1367.61

 STA=    9926.   10057.
   PER Q=    100.0
    AREA=    374.9
     VEL=      7.4
   DEPTH=      4.1

 1490 NH CARD USED
 *SECNO 3.470

 3470 ENCROACHMENT STATIONS=     9817.0   10023.0  TYPE=      1  TARGET=      206.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1370.00 ELREA=    100000.00

     3.470      6.49   1370.29   1369.16   1369.97   1370.75       .46      2.21       .08   1370.00
    2779.0        .0    2779.0        .0        .0     513.1        .0     167.4      55.8 100000.00
       .74       .00      5.42       .00      .000      .047      .000      .000   1363.80   9817.00
   .008778       40.      300.      380.         4        16         0       .00    206.00  10023.00


1
   11SEP02      14:16:56                                                                                    PAGE   76

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 FLOW DISTRIBUTION FOR SECNO=      3.47          CWSEL=   1370.29

 STA=    9817.   10023.
   PER Q=    100.0
    AREA=    513.1
     VEL=      5.4
   DEPTH=      2.5

 0 NH CARD USED
 *SECNO 3.500
```

```
2 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.93

3470 ENCROACHMENT STATIONS=     9883.0   10089.0  TYPE=      1  TARGET=      206.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1370.30 ELREA=    100000.00

     3.500      6.74   1371.34   1369.22   1371.03   1371.59       .25       .80       .04   1370.30
    2779.0     125.2    2653.8        .0      50.5     652.5        .0     170.1      56.7 100000.00
       .75      2.48      4.07       .00      .040      .042      .000      .000   1364.60   9883.00
   .002358       50.      200.      250.         2        18         0       .00    206.00  10089.00


FLOW DISTRIBUTION FOR SECNO=      3.50          CWSEL=   1371.34

STA=    9883.    9912.   10089.
  PER Q=      4.5     95.5
   AREA=     50.5    652.5
    VEL=      2.5      4.1
  DEPTH=      1.8      3.7

1490 NH CARD USED
*SECNO 3.600

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .46

1
   11SEP02      14:16:56                                                                                                PAGE   77


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     9894.0   10048.0  TYPE=      1  TARGET=      154.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1372.60 ELREA=    100000.00

     3.600      5.43   1372.93   1372.72   1372.66   1373.72       .79      1.91       .22   1372.60
    2424.0     590.2    1833.8        .0      90.0     250.7        .0     176.1      58.7 100000.00
       .77      6.56      7.31       .00      .037      .035      .000      .000   1367.50   9894.00
   .008302      470.      500.      500.         2        14         0       .00    154.00  10048.00


FLOW DISTRIBUTION FOR SECNO=      3.60          CWSEL=   1372.93

STA=    9894.    9894.    9903.    9911.    9952.   10048.
  PER Q=       .1     15.1      6.4      2.7     75.6
   AREA=      1.7     36.4     21.7     30.2    250.7
    VEL=      2.0     10.0      7.1      2.2      7.3
  DEPTH=      4.1      4.2      2.7       .7      2.6

*SECNO 3.690
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9973.0   10111.0  TYPE=      1  TARGET=      138.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1377.20

     3.690      5.37   1377.27   1377.27   1377.30   1377.89       .62      2.88       .03 100000.00
    2424.0        .0    2129.4     294.6        .0     322.7      77.8     179.8      60.1   1377.20
       .79       .00      6.60      3.79      .000      .035      .045      .000   1371.90   9973.00
   .004971      380.      500.        0.         0         8         0       .00    138.00  10111.00


FLOW DISTRIBUTION FOR SECNO=      3.69          CWSEL=   1377.27

STA=    9973.   10070.   10087.   10105.   10111.
  PER Q=     87.8       .9      8.0      3.2
   AREA=    322.7     12.1     45.7     20.1
    VEL=      6.6      1.9      4.2      3.9
  DEPTH=      3.3       .7      2.5      3.5
```

```
    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

*SECNO 3.790

3470 ENCROACHMENT STATIONS=     9924.0   10071.0  TYPE=      1  TARGET=      147.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1380.20 ELREA=    100000.00

     3.790      4.98   1380.48   1380.19   1380.34   1381.29       .81      3.32       .08   1380.20
    2424.0        .0    2424.0        .0        .0     335.6        .0     183.8      61.6 100000.00
       .81       .03      7.22       .00      .045      .035      .000      .000   1375.50   9924.00
   .009760      650.      500.      340.         2        15         0       .00    146.81  10070.81

FLOW DISTRIBUTION FOR SECNO=      3.79          CWSEL=   1380.48

STA=    9924.   10079.
  PER Q=    100.0
   AREA=    335.6
    VEL=      7.2
  DEPTH=      2.3

*SECNO 3.880

3470 ENCROACHMENT STATIONS=     9971.0   10094.0  TYPE=      1  TARGET=      123.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1381.20

     3.880      6.58   1384.08   1383.67   1383.72   1385.01       .92      3.68       .04 100000.00
    2424.0        .0    1869.3     554.7        .0     218.3     158.7     188.2      63.3   1381.20
       .83       .00      8.56      3.49      .000      .035      .050      .000   1377.50   9971.60
   .005427      450.      500.      640.         2        11         0       .00    122.39  10094.00

FLOW DISTRIBUTION FOR SECNO=      3.88          CWSEL=   1384.08

STA=    9972.   10017.   10070.   10094.
  PER Q=     77.1     16.8      6.1
   AREA=    218.3    112.1     46.6
    VEL=      8.6      3.6      3.2
  DEPTH=      4.8      2.1      1.9
```

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

1490 NH CARD USED
*SECNO 3.980

3470 ENCROACHMENT STATIONS=     9866.0   10020.0  TYPE=      1  TARGET=      154.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     3.980      4.55   1387.65   1386.96   1386.74   1388.21       .56      3.13       .07 100000.00
    2424.0        .0    2424.0        .0        .0     404.3        .0     192.4      64.7 100000.00
       .85       .00      6.00       .00      .000      .042      .000      .000   1383.10   9866.42
   .007987      590.      500.      330.         1        14         0       .00    153.58  10020.00

FLOW DISTRIBUTION FOR SECNO=      3.98          CWSEL=   1387.65

STA=    9866.   10020.
  PER Q=    100.0
   AREA=    404.3
    VEL=      6.0
  DEPTH=      2.6
```

```
190 NH CARD USED
SECNO 4.070

3470 ENCROACHMENT STATIONS=     9906.0   10130.0  TYPE=      1  TARGET=      224.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1391.60

     4.070      5.90   1391.70   1391.02   1391.56   1392.09       .39      3.84       .03 100000.00
    2424.0        .0    2424.0        .0        .0     483.5        .0     197.5      66.9   1391.60
       .88       .00      5.01       .03      .000      .042      .045      .000   1385.80   9906.59
   .007387      480.      500.      670.         3         8         0       .00    223.41  10130.00


FLOW DISTRIBUTION FOR SECNO=      4.07          CWSEL=   1391.70

STA=    9907.   10130.
  PER Q=    100.0
   AREA=    483.5
    VEL=      5.0
  DEPTH=      2.2

1
   11SEP02      14:16:56                                                                                    PAGE   80


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 4.170

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.64


3470 ENCROACHMENT STATIONS=     9933.0   10182.0  TYPE=      1  TARGET=      249.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     4.170      4.68   1393.98   1392.91   1394.01   1394.23       .25      2.12       .03 100000.00
    2424.0        .0    2424.0        .0        .0     604.5        .0     203.7      69.6 100000.00
       .91       .00      4.01       .00      .000      .035      .000      .000   1389.30   9933.82
   .002743      640.      500.      430.         4        14         0       .00    248.18  10182.00


FLOW DISTRIBUTION FOR SECNO=      4.17          CWSEL=   1393.98

STA=    9934.   10210.
  PER Q=    100.0
   AREA=    604.5
    VEL=      4.0
  DEPTH=      2.4

*SECNO 4.260

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9955.0   10064.0  TYPE=      1  TARGET=      109.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     4.260      4.33   1396.93   1396.93   1396.92   1398.20      1.27      2.63       .41 100000.00
    2424.0        .0    2424.0        .0        .0     267.9        .0     208.7      71.7 100000.00
       .93       .00      9.05       .00      .000      .035      .000      .000   1392.60   9955.05
   .013826      450.      500.      700.         0        11         0       .00    108.95  10064.00


FLOW DISTRIBUTION FOR SECNO=      4.26          CWSEL=   1396.93

1
   11SEP02      14:16:56                                                                                    PAGE   81


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
```

```
STA=    9955.   10116.
  PER Q=    100.0
   AREA=    267.9
    VEL=      9.0
  DEPTH=      2.5

1490 NH CARD USED
*SECNO 4.360

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.85


3470 ENCROACHMENT STATIONS=     9968.0   10252.0  TYPE=      1  TARGET=      284.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     4.360      6.14   1401.64   1400.45   1401.35   1401.83       .19      3.41       .22 100000.00
    2424.0        .0    2424.0        .0        .0     684.7        .0     214.2      73.9 100000.00
       .97       .00      3.54       .00      .000      .048      .000      .000   1395.50   9968.55
   .004057      560.      500.      530.         3        11         0       .00    283.45  10252.00


FLOW DISTRIBUTION FOR SECNO=      4.36          CWSEL=   1401.64

STA=    9969.   10252.
  PER Q=    100.0
   AREA=    684.7
    VEL=      3.5
  DEPTH=      2.4

1490 NH CARD USED
*SECNO 4.450

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .63


3470 ENCROACHMENT STATIONS=     9850.0   10024.0  TYPE=      1  TARGET=      174.000
1
   11SEP02      14:16:56                                                                                                PAGE   82

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=      1403.90 ELREA=    100000.00

     4.450      4.68   1404.48   1403.97   1403.97   1405.04       .56      3.06       .15   1403.90
    2424.0        .5    2423.5        .0        .4     404.5        .0     220.4      76.5 100000.00
       .99      1.17      5.99       .00      .060      .044      .000      .000   1399.80   9850.00
   .010312      630.      500.      360.         3        20         0       .00    174.00  10024.00


FLOW DISTRIBUTION FOR SECNO=      4.45          CWSEL=   1404.48

STA=    9850.    9851.   10024.
  PER Q=       .0    100.0
   AREA=       .4    404.5
    VEL=      1.2      6.0
  DEPTH=       .6      2.3

1490 NH CARD USED
*SECNO 4.550

3470 ENCROACHMENT STATIONS=     9921.0   10047.0  TYPE=      1  TARGET=      126.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1409.30 ELREA=    100000.00

     4.550      5.59   1409.59   1409.38   1409.50   1410.54       .95      5.34       .16   1409.30
    2424.0        .2    2423.8        .0        .2     309.7        .0     224.5      78.3 100000.00
      1.01       .90      7.83       .00      .060      .036      .000      .000   1404.00   9921.00
   .011065      550.      500.      640.         3         8         0       .00    126.00  10047.00
```

```
OW DISTRIBUTION FOR SECNO=      4.55          CWSEL=   1409.59

STA=    9921.    9922.   10047.
  PER Q=        .0    100.0
   AREA=        .2    309.7
    VEL=        .9      7.8
  DEPTH=        .3      2.5

1490 NH CARD USED
*SECNO 4.640
1
   11SEP02      14:16:56                                                                                                PAGE   83

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 =  1.93


3470 ENCROACHMENT STATIONS=     9974.0   10318.0  TYPE=      1  TARGET=      344.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     4.640      4.30   1413.10   1411.65   1412.48   1413.27       .16      2.57       .16 100000.00
    2424.0        .0    2424.0        .0        .0     747.7        .0     230.6      81.0 100000.00
      1.05       .00      3.24       .00      .000      .042      .000      .000   1408.80   9974.00
   .002957      390.      500.      360.         4        11         0       .00    344.00  10318.00


OW DISTRIBUTION FOR SECNO=      4.64          CWSEL=   1413.10

STA=    9974.   10318.
  PER Q=    100.0
   AREA=    747.7
    VEL=      3.2
  DEPTH=      2.2

1490 NH CARD USED
*SECNO 4.730
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9979.0   10351.0  TYPE=      1  TARGET=      372.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     4.730      4.35   1416.25   1416.25   1416.19   1416.81       .56      3.35       .16 100000.00
    2424.0        .0    2424.0        .0        .0     402.5        .0     237.2      85.1 100000.00
      1.08       .00      6.02       .00      .000      .043      .000      .000   1411.90   9979.78
   .027304      500.      500.      410.         0         5         0       .00    371.21  10351.00


FLOW DISTRIBUTION FOR SECNO=      4.73          CWSEL=   1416.25

1
   11SEP02      14:16:56                                                                                                PAGE   84

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


STA=    9980.   10351.
  PER Q=    100.0
   AREA=    402.5
    VEL=      6.0
  DEPTH=      1.1

490 NH CARD USED
```

```
ECNO 4.790

2 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.81

3470 ENCROACHMENT STATIONS=     9932.0   10171.0  TYPE=      1  TARGET=      239.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     4.790      5.40   1420.30   1419.49   1419.78   1420.59       .29      3.72       .05 100000.00
    2163.0        .0    2163.0        .0        .0     501.3        .0     240.3      87.2 100000.00
      1.10       .00      4.31       .00      .000      .046      .000      .000   1414.90   9932.00
   .006659      330.      300.      320.         6         8         0       .00    239.00  10171.00


FLOW DISTRIBUTION FOR SECNO=      4.79          CWSEL=   1420.30

STA=    9932.   10171.
  PER Q=    100.0
   AREA=    501.3
    VEL=      4.3
  DEPTH=      2.1

1490 NH CARD USED
*SECNO 4.920

3470 ENCROACHMENT STATIONS=     9960.0   10230.0  TYPE=      1  TARGET=      270.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1425.40

     4.920      3.64   1426.44   1426.05   1425.83   1426.83       .40      6.20       .04 100000.00
    2163.0        .0    1909.8     253.2        .0     370.2      60.0     247.7      91.2   1425.40
      1.13       .00      5.16      4.22      .000      .045      .050      .000   1422.80   9961.66
   .012688        0.      700.      570.         4        14         0       .00    268.34  10230.00


1
   11SEP02      14:16:56                                                                                PAGE   85

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      4.92          CWSEL=   1426.44

STA=    9962.   10189.   10208.   10230.
  PER Q=     88.3      4.1      7.6
   AREA=    370.2     23.2     36.8
    VEL=      5.2      3.8      4.5
  DEPTH=      1.6      1.2      1.7

1490 NH CARD USED
*SECNO 5.020

3470 ENCROACHMENT STATIONS=     9974.0   10230.0  TYPE=      1  TARGET=      256.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1430.10

     5.020      5.11   1431.41   1430.80   1430.46   1431.71       .30      4.86       .02 100000.00
    2163.0        .0    1816.9     346.1        .0     408.5      85.2     252.9      94.1   1430.10
      1.16       .00      4.45      4.06      .000      .047      .045      .000   1426.30   9974.00
   .008001      510.      500.      420.         5        13         0       .00    256.00  10230.00


FLOW DISTRIBUTION FOR SECNO=      5.02          CWSEL=   1431.41

STA=    9974.   10179.   10230.
  PER Q=     84.0     16.0
   AREA=    408.5     85.2
    VEL=      4.4      4.1
  DEPTH=      2.0      1.7

1490 NH CARD USED
*SECNO 5.070

0 ENCROACHMENT STATIONS=     9931.0   10070.0  TYPE=      1  TARGET=      139.000

95 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00
```

```
  5.070      5.02   1433.82   1433.39   1433.39   1434.51       .69      2.64       .16 100000.00
 2163.0        .0    2163.0        .0        .0     324.5        .0     255.2      95.2 100000.00
   1.17       .00      6.67       .00      .000      .048      .000      .000   1428.80   9931.00
.015053      320.      250.      210.         2        15         0       .00    139.00  10070.00


1
  11SEP02      14:16:56                                                                                PAGE   86

   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 FLOW DISTRIBUTION FOR SECNO=      5.07          CWSEL=   1433.82

 STA=    9931.   10070.
   PER Q=    100.0
    AREA=    324.5
     VEL=      6.7
   DEPTH=      2.3

 1490 NH CARD USED
 *SECNO 5.110

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.49


 3470 ENCROACHMENT STATIONS=     9974.0   10094.0  TYPE=      1  TARGET=      120.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1436.10 ELREA=    100000.00

   5.110      5.34   1436.44   1435.43   1435.83   1436.98       .53      2.43       .03   1436.10
 2163.0        .0    2163.0        .0        .0     368.7        .0     257.2      96.0 100000.00
   1.19       .02      5.87       .00      .080      .044      .000      .000   1431.10   9974.00
.006810      280.      250.      200.         2        15         0       .00    120.00  10094.00


 FLOW DISTRIBUTION FOR SECNO=      5.11          CWSEL=   1436.44

 STA=    9974.   10094.
   PER Q=    100.0
    AREA=    368.7
     VEL=      5.9
   DEPTH=      3.1

 *SECNO 5.210

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     9946.0   10034.0  TYPE=      1  TARGET=       88.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

1
  11SEP02      14:16:56                                                                                PAGE   87

   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


   5.210      5.90   1440.60   1440.14   1440.87   1441.75      1.15      4.53       .25 100000.00
 2163.0        .0    2163.0        .0        .0     251.7        .0     260.7      97.1 100000.00
   1.20       .00      8.59       .00      .000      .040      .000      .000   1434.70   9950.36
.012613      360.      500.      540.         3         5         0       .00     83.25  10033.61


 FLOW DISTRIBUTION FOR SECNO=      5.21          CWSEL=   1440.60

 STA=    9950.   10043.
   PER Q=    100.0
    AREA=    251.7
     VEL=      8.6
   DEPTH=      3.0
```

```
CNO 5.300

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.80

3470 ENCROACHMENT STATIONS=     9952.0   10054.0  TYPE=      1  TARGET=      102.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     5.300      6.72   1444.62   1443.05   1444.56   1445.11       .48      3.22       .13 100000.00
    2163.0        .0    2163.0        .0        .0     388.3        .0     264.4      98.2 100000.00
      1.23       .00      5.57       .00      .000      .040      .000      .000   1437.90   9952.06
   .003906      540.      500.      500.         3        15         0       .00    101.94  10054.00


FLOW DISTRIBUTION FOR SECNO=      5.30          CWSEL=   1444.62

STA=    9952.   10078.
  PER Q=    100.0
   AREA=    388.3
    VEL=      5.6
  DEPTH=      3.8

1
   11SEP02      14:16:56                                                                                    PAGE   88


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 5.400

01 HV CHANGED MORE THAN HVINS

185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9963.0   10085.0  TYPE=      1  TARGET=      122.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     5.400      4.48   1448.08   1448.08   1448.10   1449.17      1.09      3.38       .24 100000.00
    2163.0        .0    2163.0        .0        .0     258.4        .0     268.1      99.5 100000.00
      1.24       .00      8.37       .00      .000      .035      .000      .000   1443.60   9963.32
   .014395      550.      500.      470.         0        14         0       .00    121.58  10084.90


FLOW DISTRIBUTION FOR SECNO=      5.40          CWSEL=   1448.08

STA=    9963.   10107.
  PER Q=    100.0
   AREA=    258.4
    VEL=      8.4
  DEPTH=      2.1

*SECNO 5.490

3470 ENCROACHMENT STATIONS=     9922.0   10050.0  TYPE=      1  TARGET=      128.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     5.490      4.25   1453.75   1453.27   1453.73   1454.48       .73      5.24       .07 100000.00
    2163.0        .0    2163.0        .0        .0     315.1        .0     271.4     100.9 100000.00
      1.26       .00      6.86       .00      .000      .035      .000      .000   1449.50   9922.14
   .007964      460.      500.      580.         3        15         0       .00    127.86  10050.00


FLOW DISTRIBUTION FOR SECNO=      5.49          CWSEL=   1453.75

STA=    9922.   10092.
  PER Q=    100.0
   AREA=    315.1
    VEL=      6.9
  DEPTH=      2.5
```

```
    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


*SECNO 5.590
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9934.0   10042.0  TYPE=      1  TARGET=      108.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     5.590      3.12   1459.82   1459.82   1459.82   1461.00      1.17      5.16       .18 100000.00
    2163.0        .0    2163.0        .0        .0     248.7        .0     274.7     102.2 100000.00
      1.28       .00      8.70       .00      .000      .035      .000      .000   1456.70   9934.32
   .013910      580.      500.      500.         0        19         0       .00    107.52  10041.84


FLOW DISTRIBUTION FOR SECNO=      5.59          CWSEL=   1459.82

STA=    9934.   10084.
  PER Q=    100.0
   AREA=    248.7
    VEL=      8.7
  DEPTH=      2.3

1490 NH CARD USED
*SECNO 5.680

3301 HV CHANGED MORE THAN HVINS


70 ENCROACHMENT STATIONS=     9890.0   10027.0  TYPE=      1  TARGET=      137.000

495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     5.680      5.85   1465.95   1465.21   1465.56   1466.49       .55      5.37       .13 100000.00
    2163.0        .0    2163.0        .0        .0     364.4        .0     278.2     103.6 100000.00
      1.30       .00      5.94       .00      .000      .044      .000      .000   1460.10   9890.00
   .008546      400.      500.      530.         4        14         0       .00    136.96  10026.96


FLOW DISTRIBUTION FOR SECNO=      5.68          CWSEL=   1465.95

STA=    9890.   10027.
  PER Q=    100.0
   AREA=    364.4
    VEL=      5.9
  DEPTH=      2.7

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


1490 NH CARD USED
*SECNO 5.780

3470 ENCROACHMENT STATIONS=     9970.0   10183.0  TYPE=      1  TARGET=      213.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     5.780      6.74   1469.34   1468.37   1469.27   1469.61       .27      3.06       .06 100000.00
    2163.0        .0    2163.0        .0        .0     517.9        .0     283.2     105.7 100000.00
      1.34       .00      4.18       .00      .000      .043      .000      .000   1462.60   9970.35
   .004597      370.      500.      440.         3         6         0       .00    212.64  10183.00


LOW DISTRIBUTION FOR SECNO=      5.78          CWSEL=   1469.34
```

```
=    9970.   10183.
PER Q=     100.0
 AREA=     517.9
  VEL=       4.2
DEPTH=       2.4

1490 NH CARD USED
*SECNO 5.870

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .60


3470 ENCROACHMENT STATIONS=     9941.0   10057.0  TYPE=      1  TARGET=      116.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1472.20 ELREA=    100000.00

     5.870      3.56   1472.56   1472.31   1472.31   1473.47       .91      3.60       .26   1472.20
    2163.0        .0    2163.0        .0        .1     282.7        .0     287.8     107.5 100000.00
      1.35       .04      7.65       .00      .040      .040      .000      .000   1469.00   9941.00
   .012871      480.      500.      450.         2        19         0       .00    116.00  10057.00


FLOW DISTRIBUTION FOR SECNO=      5.87          CWSEL=   1472.56

1
   11SEP02      14:16:56                                                                                PAGE   91


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=    9941.    9941.   10057.
PER Q=       .0    100.0
 AREA=       .1    282.7
  VEL=       .0      7.7
DEPTH=       .4      2.4

1490 NH CARD USED
*SECNO 5.970

3470 ENCROACHMENT STATIONS=     9945.0   10037.0  TYPE=      1  TARGET=       92.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     5.970      4.78   1477.68   1477.14   1477.20   1478.60       .91      5.13       .00 100000.00
    2163.0        .0    2163.0        .0        .0     281.9        .0     291.1     108.7 100000.00
      1.37       .00      7.67       .00      .000      .037      .000      .000   1472.90   9945.00
   .008363      500.      500.      610.         4        11         0       .00     92.00  10037.00


FLOW DISTRIBUTION FOR SECNO=      5.97          CWSEL=   1477.68

STA=    9945.   10037.
 PER Q=     100.0
  AREA=     281.9
   VEL=       7.7
 DEPTH=       3.1

*SECNO 6.060
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9942.0   10058.0  TYPE=      1  TARGET=      116.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1482.60 ELREA=    100000.00

     6.060      4.55   1482.95   1482.95   1483.16   1484.06      1.11      5.29       .08   1482.60
    2163.0        .2    2162.8        .0        .2     256.0        .0     294.2     109.9 100000.00
      1.39      1.33      8.45       .00      .045      .035      .000      .000   1478.40   9942.00
   .013835      460.      500.      520.         0        12         0       .00    116.00  10058.00


   11SEP02      14:16:56                                                                                PAGE   92
```

```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      6.06          CWSEL=   1482.95

STA=    9942.    9943.   10058.
  PER Q=       .0    100.0
   AREA=       .2    256.0
    VEL=      1.3      8.4
  DEPTH=       .3      2.2

*SECNO 6.160

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.63


3470 ENCROACHMENT STATIONS=     9966.0   10026.0  TYPE=      1  TARGET=       60.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     6.160       7.17   1487.07   1485.88   1486.88   1488.09       1.02       4.01        .02 100000.00
    2163.0         .0    2163.0        .0        .0     266.2         .0      297.2      110.9 100000.00
      1.41        .00      8.12       .00      .000      .035       .000       .000    1479.90   9966.86
   .005232       530.      500.      500.         4        11          0        .00      58.69  10025.55


FLOW DISTRIBUTION FOR SECNO=      6.16          CWSEL=   1487.07

STA=    9967.   10044.
  PER Q=    100.0
   AREA=    266.2
    VEL=      8.1
  DEPTH=      4.5

90 NH CARD USED
ECNO 6.250

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9985.0   10040.0  TYPE=      1  TARGET=       55.000
1
   11SEP02      14:16:56                                                                                          PAGE    93


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=    100000.00 ELREA=    100000.00

     6.250       5.63   1492.93   1492.93   1492.93   1494.79       1.86       4.37        .33 100000.00
    2163.0         .0    2163.0        .0        .0     197.5         .0      299.8      111.6 100000.00
      1.42        .00     10.95       .00      .000      .040       .000       .000    1487.30   9985.00
   .017401       560.      500.      470.         0        15          0        .00      54.10  10039.10


FLOW DISTRIBUTION FOR SECNO=      6.25          CWSEL=   1492.93

STA=    9985.   10040.
  PER Q=    100.0
   AREA=    197.5
    VEL=     10.9
  DEPTH=      3.7

1490 NH CARD USED
*SECNO 6.340

01 HV CHANGED MORE THAN HVINS
```

```
70 ENCROACHMENT STATIONS=     9970.0   10063.0  TYPE=      1  TARGET=       93.000

5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     6.340      7.66   1500.66   1499.76   1500.66   1501.43       .78      6.42       .22 100000.00
    2163.0        .0    2163.0        .0        .0     305.8        .0     302.7     112.4 100000.00
      1.44       .00      7.07       .00      .000      .045      .000      .000   1493.00   9970.31
   .009875      420.      500.      600.         4        18         0       .00     92.69  10063.00


 FLOW DISTRIBUTION FOR SECNO=      6.34          CWSEL=   1500.66

 STA=    9970.   10063.
   PER Q=    100.0
    AREA=    305.8
     VEL=      7.1
   DEPTH=      3.3

1
    11SEP02      14:16:56                                                                                    PAGE   94


     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 6.380

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     9949.0   10033.0  TYPE=      1  TARGET=       84.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     6.380      5.90   1505.90   1505.90   1505.93   1507.31      1.42      2.67       .26 100000.00
    2163.0        .0    2163.0        .0        .0     226.6        .0     303.9     112.8 100000.00
      1.44       .00      9.55       .00      .000      .041      .000      .000   1500.00   9950.17
   .019047       90.      200.      180.         0        19         0       .00     82.47  10032.65


 FLOW DISTRIBUTION FOR SECNO=      6.38          CWSEL=   1505.90

 STA=    9950.   10033.
   PER Q=    100.0
    AREA=    226.6
     VEL=      9.5
   DEPTH=      2.7

1
    11SEP02      14:16:56                                                                                    PAGE   95


                                                                                THIS RUN EXECUTED 11SEP02     14:16:57
 ************************************
  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


 TWIN BUTTES WASH

 SUMMARY PRINTOUT


       SECNO        Q         VCH       CWSEL      SSTA       ENDST       EG       TOPWID

 *       .190   2746.00       9.54    1242.24   9959.86   10065.17   1243.65    105.32
         .190   2746.00       9.53    1242.24   9959.85   10065.18   1243.65    105.33
```

	.280	2746.00	7.94	1247.78	9982.25	10093.97	1248.76	111.72
	.280	2746.00	7.95	1247.78	9982.25	10093.96	1248.76	111.71
	.380	2746.00	5.42	1252.00	9878.71	10135.92	1252.45	257.22
	.380	2746.00	7.14	1252.20	9978.00	10136.00	1252.99	158.00
*	.470	2746.00	8.74	1257.07	9910.13	10045.76	1258.26	135.64
	.470	2746.00	8.38	1257.17	9910.00	10046.00	1258.26	136.00
	.570	2746.00	6.21	1263.54	9891.54	10145.66	1264.12	254.12
	.570	2746.00	7.22	1263.45	9923.00	10115.00	1264.26	192.00
*	.660	2746.00	8.90	1268.43	9926.74	10091.37	1269.62	164.63
	.660	2746.00	8.80	1268.56	9928.00	10030.70	1269.77	102.70
*	.760	2746.00	6.15	1272.93	9965.47	10398.11	1273.40	410.33
	.760	2746.00	7.38	1273.06	9965.10	10189.00	1273.87	223.90
	.850	2746.00	8.35	1275.30	9945.61	10034.75	1276.38	89.14
	.850	2746.00	7.04	1275.94	9932.00	10035.40	1276.71	103.40
*	.950	2746.00	9.35	1280.78	9970.85	10080.36	1282.13	109.51
*	.950	2746.00	9.51	1280.73	9970.93	10079.50	1282.14	108.57
*	1.040	2746.00	6.31	1285.40	9837.97	10228.01	1285.97	390.04
*	1.040	2746.00	6.63	1285.49	9956.00	10081.00	1286.18	125.00
*	1.140	2746.00	7.39	1290.21	9956.54	10179.70	1291.06	223.17
*	1.140	2746.00	7.23	1290.25	9956.13	10180.00	1291.06	223.87

1

11SEP02 14:16:56 PAGE 96

	SECNO	Q	VCH	CWSEL	SSTA	ENDST	EG	TOPWID
*	1.230	2746.00	2.52	1293.40	9988.96	10544.66	1293.50	555.70
*	1.230	2746.00	5.15	1293.78	9988.20	10380.00	1294.04	391.80
	1.330	2746.00	6.31	1295.40	9902.66	10367.63	1295.92	436.94
	1.330	2746.00	4.98	1296.28	9900.00	10153.80	1296.67	253.80
	1.420	2746.00	6.58	1300.18	9757.41	10058.56	1300.82	301.16
	1.420	2746.00	6.50	1300.34	9913.00	10058.00	1301.00	145.00
	1.520	2746.00	3.71	1303.30	9626.80	10028.39	1303.51	401.59
	1.520	2746.00	5.34	1304.10	9845.00	10029.49	1304.54	184.49
*	1.610	2746.00	10.40	1306.44	9973.65	10034.24	1308.13	60.58
	1.610	2746.00	8.57	1307.37	9973.00	10036.00	1308.51	63.00
*	1.700	2746.00	3.55	1310.86	9925.71	10130.49	1311.05	204.78
*	1.700	2746.00	5.18	1310.94	9926.00	10029.00	1311.35	103.00
*	1.800	2746.00	6.39	1312.99	9884.53	10086.91	1313.62	202.38
	1.800	2746.00	5.47	1313.47	9929.00	10090.00	1313.93	161.00
	1.840	2746.00	5.60	1315.11	9967.70	10159.63	1315.57	191.93
	1.840	2746.00	6.42	1315.10	9967.70	10100.00	1315.74	132.30
	1.910	2779.00	4.37	1318.16	9815.65	10044.71	1318.45	229.05
*	1.910	2779.00	4.01	1318.39	9814.19	10045.32	1318.64	231.13
	1.920	2779.00	4.67	1318.29	9800.76	10039.08	1318.63	238.32
	1.920	2779.00	4.31	1318.49	9799.79	10039.58	1318.78	239.79
	1.990	2779.00	5.70	1321.31	9804.64	10034.21	1321.81	229.57
	1.990	2779.00	5.06	1321.59	9804.00	10034.00	1321.98	230.00
	2.080	2779.00	5.71	1324.23	9973.48	10217.15	1324.64	243.67
	2.080	2779.00	5.65	1325.23	9972.26	10140.00	1325.69	167.74
*	2.160	2779.00	6.06	1326.27	9897.98	10236.72	1326.66	338.75
	2.160	2779.00	7.38	1327.31	9964.00	10088.00	1328.07	124.00
	2.270	2779.00	9.06	1330.59	9970.58	10141.17	1331.71	170.60
	2.270	2779.00	9.06	1331.27	9970.00	10029.20	1332.54	59.20
	2.370	2779.00	5.71	1334.48	9924.53	10239.21	1334.96	314.68
	2.370	2779.00	5.35	1334.91	9923.82	10072.00	1335.35	148.18

	2.460	2779.00	6.61	1337.94	9849.18	10025.96	1338.62	176.77
	2.460	2779.00	6.85	1337.85	9851.81	10025.83	1338.58	174.02
*	2.560	2779.00	5.12	1340.72	9958.56	10089.51	1341.13	130.95
*	2.560	2779.00	5.07	1340.75	9957.69	10089.73	1341.15	132.03

1

11SEP02 14:16:56 PAGE 97

	SECNO	Q	VCH	CWSEL	SSTA	ENDST	EG	TOPWID
*	2.650	2779.00	9.16	1342.60	9878.95	10037.70	1343.86	158.75
*	2.650	2779.00	9.44	1342.58	9965.00	10037.68	1343.97	72.68
	2.750	2779.00	6.44	1346.87	9951.83	10088.91	1347.51	137.07
*	2.750	2779.00	6.28	1346.97	9971.00	10089.59	1347.58	118.59
	2.840	2779.00	8.25	1350.24	9959.20	10118.64	1351.26	159.45
*	2.840	2779.00	8.65	1350.22	9963.00	10060.00	1351.38	97.00
*	2.940	2779.00	7.55	1353.80	9871.20	10029.70	1354.60	158.50
*	2.940	2779.00	8.21	1354.00	9969.00	10030.00	1355.05	61.00
*	3.030	2779.00	9.04	1356.88	9971.14	10055.90	1358.15	84.76
	3.030	2779.00	8.23	1357.24	9970.32	10056.00	1358.29	85.68
*	3.130	2779.00	3.48	1359.81	9918.47	10156.81	1359.99	238.34
*	3.130	2779.00	4.06	1359.97	9983.00	10158.28	1360.22	175.28
*	3.220	2779.00	10.41	1360.68	9966.66	10040.45	1362.36	73.79
*	3.220	2779.00	9.00	1361.23	9963.19	10041.00	1362.48	77.81
*	3.310	2779.00	4.34	1365.02	9968.94	10363.29	1365.26	394.35
*	3.310	2779.00	5.56	1365.25	9968.61	10113.00	1365.73	144.39
*	3.410	2779.00	9.35	1366.64	9942.89	10014.10	1368.00	71.21
	3.410	2779.00	7.41	1367.61	9925.82	10016.72	1368.46	90.90
	3.470	2779.00	6.23	1369.97	9819.98	10023.26	1370.58	203.28
	3.470	2779.00	5.42	1370.29	9817.00	10023.00	1370.75	206.00
*	3.500	2779.00	3.02	1371.03	9773.01	10088.82	1371.16	315.82
*	3.500	2779.00	4.07	1371.34	9883.00	10089.00	1371.59	206.00
*	3.600	2424.00	4.91	1372.66	9824.18	10045.81	1373.06	221.63
*	3.600	2424.00	7.31	1372.93	9894.00	10048.00	1373.72	154.00
*	3.690	2424.00	4.14	1377.30	9972.89	10271.03	1377.49	298.13
*	3.690	2424.00	6.60	1377.27	9973.00	10111.00	1377.89	138.00
*	3.790	2424.00	7.27	1380.34	9839.43	10070.20	1381.12	230.77
	3.790	2424.00	7.22	1380.48	9924.00	10070.81	1381.29	146.81
*	3.880	2424.00	6.62	1383.72	9973.56	10262.79	1384.14	289.23
	3.880	2424.00	8.56	1384.08	9971.60	10094.00	1385.01	122.39
*	3.980	2424.00	5.58	1386.74	9867.33	10370.62	1387.12	390.46
	3.980	2424.00	6.00	1387.65	9866.42	10020.00	1388.21	153.58
	4.070	2424.00	5.32	1391.56	9907.11	10129.36	1392.00	222.25
	4.070	2424.00	5.01	1391.70	9906.59	10130.00	1392.09	223.41

1

11SEP02 14:16:56 PAGE 98

	SECNO	Q	VCH	CWSEL	SSTA	ENDST	EG	TOPWID
*	4.170	2424.00	3.96	1394.01	9933.66	10182.42	1394.25	248.76
*	4.170	2424.00	4.01	1393.98	9933.82	10182.00	1394.23	248.18
*	4.260	2424.00	9.11	1396.92	9955.11	10063.92	1398.20	108.81
*	4.260	2424.00	9.05	1396.93	9955.05	10064.00	1398.20	108.95
	4.360	2424.00	4.01	1401.35	9968.76	10252.63	1401.60	283.86
	4.360	2424.00	3.54	1401.64	9968.55	10252.00	1401.83	283.45

	4.450	2424.00	7.50	1403.97	9760.83	10023.52	1404.83	215.75
	4.450	2424.00	5.99	1404.48	9850.00	10024.00	1405.04	174.00
*	4.550	2424.00	7.02	1409.50	9804.05	10144.14	1410.18	340.09
	4.550	2424.00	7.83	1409.59	9921.00	10047.00	1410.54	126.00
*	4.640	2424.00	4.53	1412.48	9975.38	10314.32	1412.80	338.94
*	4.640	2424.00	3.24	1413.10	9974.00	10318.00	1413.27	344.00
*	4.730	2424.00	6.37	1416.19	9979.80	10351.01	1416.82	371.22
*	4.730	2424.00	6.02	1416.25	9979.78	10351.00	1416.81	371.21
	4.790	2163.00	5.72	1419.78	9931.72	10177.10	1420.29	245.38
*	4.790	2163.00	4.31	1420.30	9932.00	10171.00	1420.59	239.00
	4.920	2163.00	5.18	1425.83	9967.82	10292.53	1426.27	297.66
	4.920	2163.00	5.16	1426.44	9961.66	10230.00	1426.83	268.34
*	5.020	2163.00	6.21	1430.46	9977.21	10429.71	1430.90	452.50
	5.020	2163.00	4.45	1431.41	9974.00	10230.00	1431.71	256.00
*	5.070	2163.00	7.13	1433.39	9934.96	10218.46	1434.09	283.50
	5.070	2163.00	6.67	1433.82	9931.00	10070.00	1434.51	139.00
	5.110	2163.00	7.29	1435.83	9975.65	10092.91	1436.66	117.26
*	5.110	2163.00	5.87	1436.44	9974.00	10094.00	1436.98	120.00
	5.210	2163.00	7.88	1440.87	9943.14	10034.15	1441.83	91.02
	5.210	2163.00	8.59	1440.60	9950.36	10033.61	1441.75	83.25
*	5.300	2163.00	5.67	1444.56	9952.20	10053.84	1445.05	101.64
*	5.300	2163.00	5.57	1444.62	9952.06	10054.00	1445.11	101.94
*	5.400	2163.00	8.29	1448.10	9963.27	10084.96	1449.17	121.69
*	5.400	2163.00	8.37	1448.08	9963.32	10084.90	1449.17	121.58
	5.490	2163.00	6.91	1453.73	9922.20	10049.94	1454.47	127.74
	5.490	2163.00	6.86	1453.75	9922.14	10050.00	1454.48	127.86
	5.590	2163.00	8.71	1459.82	9934.33	10041.83	1461.00	107.50
	5.590	2163.00	8.70	1459.82	9934.32	10041.84	1461.00	107.52

1

11SEP02 14:16:56 PAGE 99

	SECNO	Q	VCH	CWSEL	SSTA	ENDST	EG	TOPWID
	5.680	2163.00	6.92	1465.56	9890.16	10026.45	1466.30	136.29
	5.680	2163.00	5.94	1465.95	9890.00	10026.96	1466.49	136.96
	5.780	2163.00	4.31	1469.27	9970.45	10183.01	1469.56	212.56
	5.780	2163.00	4.18	1469.34	9970.35	10183.00	1469.61	212.64
	5.870	2163.00	7.29	1472.31	9911.18	10056.19	1473.09	145.01
*	5.870	2163.00	7.65	1472.56	9941.00	10057.00	1473.47	116.00
	5.970	2163.00	9.07	1477.20	9946.51	10035.86	1478.48	89.35
	5.970	2163.00	7.67	1477.68	9945.00	10037.00	1478.60	92.00
	6.060	2163.00	7.75	1483.16	9940.78	10059.13	1484.09	118.35
*	6.060	2163.00	8.45	1482.95	9942.00	10058.00	1484.06	116.00
	6.160	2163.00	8.46	1486.88	9967.18	10025.30	1487.99	58.13
*	6.160	2163.00	8.12	1487.07	9966.86	10025.55	1488.09	58.69
*	6.250	2163.00	10.95	1492.93	9984.81	10039.10	1494.79	54.29
*	6.250	2163.00	10.95	1492.93	9985.00	10039.10	1494.79	54.10
	6.340	2163.00	7.06	1500.66	9970.30	10063.41	1501.44	93.12
	6.340	2163.00	7.07	1500.66	9970.31	10063.00	1501.43	92.69
*	6.380	2163.00	9.43	1505.93	9949.80	10032.70	1507.31	82.90
*	6.380	2163.00	9.55	1505.90	9950.17	10032.65	1507.31	82.47

1

11SEP02 14:16:56 PAGE 100

```
SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO=        .190  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .190  PROFILE=  2  CRITICAL DEPTH ASSUMED

CAUTION SECNO=        .470  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .470  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=        .660  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .660  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=        .760  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .760  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=        .950  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .950  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=        .950  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .950  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=       1.040  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=       1.040  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=       1.140  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       1.140  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=       1.140  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=       1.230  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       1.230  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=       1.230  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=       1.330  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       1.330  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=       1.330  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       1.610  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       1.700  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=       1.700  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       1.800  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       1.910  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=       2.160  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       2.160  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=       2.460  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       2.560  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=       2.560  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       2.650  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=       2.650  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
   11SEP02      14:16:56                                                                    PAGE  101


WARNING SECNO=       2.750  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       2.840  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       2.940  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=       2.940  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       3.030  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       3.130  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=       3.130  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       3.220  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       3.220  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       3.310  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=       3.310  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       3.410  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=       3.470  PROFILE=  1  WSEL ASSUMED BASED ON MIN DIFF
```

```
 CAUTION SECNO=      3.470  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=      3.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      3.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      3.600  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      3.600  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 WARNING SECNO=      3.600  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      3.690  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      3.690  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      3.690  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      3.690  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 CAUTION SECNO=      3.790  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      3.790  PROFILE=  1  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=      3.880  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      3.980  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      3.980  PROFILE=  1  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=      4.170  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      4.170  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      4.260  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      4.260  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      4.260  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      4.260  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=      4.360  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      4.360  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
   11SEP02      14:16:56                                                          PAGE  102


 CAUTION SECNO=      4.450  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      4.450  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 WARNING SECNO=      4.450  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      4.550  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      4.550  PROFILE=  1  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=      4.640  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      4.640  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      4.730  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      4.730  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      4.730  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      4.730  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=      4.790  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      5.020  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      5.020  PROFILE=  1  MINIMUM SPECIFIC ENERGY

 CAUTION SECNO=      5.070  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      5.070  PROFILE=  1  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=      5.110  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=      5.300  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=      5.300  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      5.400  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      5.400  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      5.400  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      5.400  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 CAUTION SECNO=      5.590  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      5.590  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=      5.590  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      5.590  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=      5.870  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=      6.060  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=      6.060  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 WARNING SECNO=      6.160  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

```
 UTION SECNO=      6.250  PROFILE=  1  CRITICAL DEPTH ASSUMED
 UTION SECNO=      6.250  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     6.250  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     6.250  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     6.380  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     6.380  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     6.380  PROFILE=  2  CRITICAL DEPTH ASSUMED
1
   11SEP02      14:16:56                                                                    PAGE  103


CAUTION SECNO=     6.380  PROFILE=  2  MINIMUM SPECIFIC ENERGY

1
   11SEP02      14:16:56                                                                    PAGE  104


FLOODWAY DATA,   TWIN BUTTES WASH
PROFILE NO.  2
```

STATION	WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.190	105.	288.	9.5	1242.2	1242.2	.0
.280	112.	345.	7.9	1247.8	1247.8	.0
.380	158.	385.	7.1	1252.2	1252.0	.2
.470	136.	328.	8.4	1257.2	1257.1	.1
.570	192.	380.	7.2	1263.4	1263.5	-.1
.660	103.	312.	8.8	1268.5	1268.4	.1
.760	224.	416.	6.6	1273.0	1272.9	.1
.850	103.	390.	7.0	1275.9	1275.3	.6
.950	109.	289.	9.5	1280.8	1280.8	.0
1.040	125.	415.	6.6	1285.5	1285.4	.1
1.140	224.	380.	7.2	1290.2	1290.2	.0
1.230	392.	698.	3.9	1293.8	1293.4	.4
1.330	254.	551.	5.0	1296.3	1295.4	.9
1.420	145.	423.	6.5	1300.4	1300.2	.2
1.520	184.	518.	5.3	1304.1	1303.3	.8
1.610	63.	321.	8.6	1307.3	1306.4	.9
1.700	103.	530.	5.2	1311.0	1310.9	.1
1.800	161.	502.	5.5	1313.5	1313.0	.5
1.840	132.	427.	6.4	1315.1	1315.1	.0
1.910	231.	693.	4.0	1318.4	1318.2	.2
1.920	240.	644.	4.3	1318.5	1318.3	.2
1.990	230.	549.	5.1	1321.6	1321.3	.3
2.080	168.	512.	5.4	1325.2	1324.2	1.0
2.160	124.	411.	6.8	1327.3	1326.3	1.0
2.270	59.	307.	9.1	1331.3	1330.6	.7
2.370	148.	520.	5.3	1334.9	1334.5	.4
2.460	174.	406.	6.9	1337.8	1337.9	-.1
2.560	132.	548.	5.1	1340.7	1340.7	.0
2.650	73.	295.	9.4	1342.6	1342.6	.0
2.750	119.	443.	6.3	1347.0	1346.9	.1
2.840	97.	322.	8.6	1350.2	1350.2	.0
2.940	61.	339.	8.2	1354.0	1353.8	.2
3.030	86.	338.	8.2	1357.3	1356.9	.4
3.130	175.	685.	4.1	1360.0	1359.8	.2
3.220	78.	309.	9.0	1361.2	1360.7	.5
3.310	144.	500.	5.6	1365.2	1365.0	.2
3.410	91.	375.	7.4	1367.6	1366.6	1.0
3.470	206.	513.	5.4	1370.3	1370.0	.3
3.500	206.	703.	4.0	1371.3	1371.0	.3
3.600	154.	341.	7.1	1373.0	1372.7	.3
3.690	138.	401.	6.1	1377.3	1377.3	.0
3.790	147.	336.	7.2	1380.4	1380.3	.1

```
1
   11SEP02      14:16:56                                                                    PAGE  105


 ODWAY DATA,   TWIN BUTTES WASH
 FILE NO.  2
```

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
3.880	122.	377.	6.4	1384.1	1383.7	.4
3.980	154.	404.	6.0	1387.6	1386.7	.9
4.070	223.	483.	5.0	1391.7	1391.6	.1
4.170	248.	604.	4.0	1394.0	1394.0	.0
4.260	109.	268.	9.0	1396.9	1396.9	.0
4.360	283.	685.	3.5	1401.7	1401.4	.3
4.450	174.	405.	6.0	1404.5	1404.0	.5
4.550	126.	310.	7.8	1409.6	1409.5	.1
4.640	344.	748.	3.2	1413.1	1412.5	.6
4.730	371.	402.	6.0	1416.3	1416.2	.1
4.790	239.	501.	4.3	1420.3	1419.8	.5
4.920	268.	430.	5.0	1426.4	1425.8	.6
5.020	256.	494.	4.4	1431.5	1430.5	1.0
5.070	139.	325.	6.7	1433.8	1433.4	.4
5.110	120.	369.	5.9	1436.4	1435.8	.6
5.210	83.	252.	8.6	1440.6	1440.9	-.3
5.300	102.	388.	5.6	1444.7	1444.6	.1
5.400	122.	258.	8.4	1448.1	1448.1	.0
5.490	128.	315.	6.9	1453.7	1453.7	.0
5.590	108.	249.	8.7	1459.8	1459.8	.0
5.680	137.	364.	5.9	1466.0	1465.6	.4
5.780	213.	518.	4.2	1469.4	1469.3	.1
5.870	116.	283.	7.6	1472.5	1472.3	.2
5.970	92.	282.	7.7	1477.7	1477.2	.5
6.060	116.	256.	8.4	1483.0	1483.2	-.2
6.160	59.	266.	8.1	1487.1	1486.9	.2
6.250	54.	198.	10.9	1492.9	1492.9	.0
6.340	93.	306.	7.1	1500.7	1500.7	.0
6.380	82.	227.	9.5	1505.9	1505.9	.0

Appendix A2
HEC-2 Output for Regulatory FIRM Conditions
Duplicate Effective Model (White Peak Wash)

```
*********************************************
*  HEC-2 WATER SURFACE PROFILES             *
*                                           *
*  Version   4.6.2;  May 1991               *
*                                           *
*  RUN DATE    11SEP02    TIME   14:17:12   *
*********************************************
```

```
****************************************
*  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

11SEP02 14:17:12 PAGE 1

THIS RUN EXECUTED 11SEP02 14:17:12

```
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
```

```
T1 CAP OVERCHUTES - AGUA FRIA FLOODPLAIN STUDY
T2 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
T3      WHITE PEAK WASH            MAY, 1991

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0        3         0         0         0         0         0       721    1372.66

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1        0        -1                                       -1                            15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        43        26         1        53        54         3         4        66       200
  Starting water surface assumed at critical depth
  as critical depth is higher than Twin Buttes Wash depth at confluence
  Starting Q = 721 cfs
  Mannings n = .045 overbanks, .045 for channel from n value report

QT        3                  721       721       721
NC     .045      .045       .045        .1        .3
X1     3.60        29     9808.0    9952.4
X3       10
GR   1388.1    9502.0     1380.7    9585.6    1377.5    9646.0    1381.0    9701.8    1377.2    9760.8
GR   1377.3    9808.0     1370.9    9830.3    1371.0    9851.5    1368.6    9880.2    1368.8    9894.4
GR   1368.7    9903.1     1371.8    9911.2    1372.6    9952.4    1369.4    9978.7    1367.5    9985.9
GR   1368.4   10000.0     1371.2   10023.9    1374.2     10069    1373.7   10097.8    1382.2   10146.6
GR   1382.7   10169.0     1378.3   10230.2    1375.3   10248.7    1370.9   10266.4    1371.6   10277.2
GR   1379.1   10294.0     1380.1   10317.8    1381.1   10369.8    1380.8   10381.4

ET                                     9.1       9.1                                     10000     10075
X1     0.09        28      10000   10082.1                  500       500
X3       10
GR   1383.1    9829.8     1384.3    9884.8    1382.7    9926.9    1377.5    9965.6    1374.2    9990.9
GR   1374.6   10000.0     1370.5   10014.8    1370.5   10021.2    1373.5   10033.0    1374.7   10082.1
GR   1373.9   10145.0     1372.7   10157.4    1369.5   10162.1    1372.9   10172.4    1374.7   10202.4
GR   1385.5   10245.6     1385.2   10294.3    1385.6   10347.1    1388.6   10428.5    1387.6   10510.4
GR   1384.4   10551.2     1379.2   10578.3    1382.7   10618.3    1385.0   10686.6    1388.2   10742.1
GR   1386.7   10757.0     1389.5   10779.2    1389.9   10789.0
```

1

11SEP02 14:17:12 PAGE 2

```
ET                                    9.1       9.1                                        9983      10085
X1     0.19       21     9983.7   10087.6       510       500       500
X3       10
GR   1387.5   9711.8    1386.4    9784.3    1385.1    9817.8    1388.2    9877.1    1383.4    9937.9
GR   1377.5   9960.4    1377.7    9983.7    1372.5    9995.5    1372.4   10000.0    1376.9   10016.9
GR   1374.7  10048.2    1378.3   10087.6    1379.4   10126.1    1380.4   10158.5    1386.8   10211.8
GR   1389.8  10257.3    1390.7   10296.0    1389.1   10369.2    1386.1   10402.5    1387.7   10426.6

GR   1388.4  10455.0

ET                                    9.1       9.1                                        9966      10018
X1     0.28       24     9966.7   10036.5       550       410       500
X3       10
GR   1388.6   9758.6    1385.0    9787.9    1382.9    9803.3    1384.2    9833.4    1385.6    9859.7
GR   1384.5   9897.1    1382.2    9919.9    1379.4    9936.6    1379.1    9966.7    1375.8    9978.8
GR   1375.9   9996.4    1376.3   10000.0    1376.3   10009.0    1386.6   10036.5    1392.3   10072.2
GR   1394.6  10105.5    1394.3   10161.3    1389.9   10211.7    1385.2   10240.2    1390.9   10270.8
GR   1393.1  10324.8    1396.6   10379.6    1392.0   10485.6    1392.3   10485.7

ET                                    9.1       9.1                                        9975      10021
X1     0.38       20     9972.7   10021.3       500       410       500
X3       10
GR   1395.5   9725.2    1394.3    9796.4    1383.6    9831.1    1383.3    9927.1    1382.1    9941.9
GR   1384.4   9972.7    1379.8    9987.7    1380.3   10000.0    1383.7   10021.3    1384.4   10064.3
GR   1387.2  10117.1    1398.1   10161.5    1397.3   10220.6    1396.0   10267.5    1396.9   10304.4
GR   1391.2  10388.2    1393.0   10418.3    1397.2   10456.6    1397.0   10521.6    1396.2   10522.0

ET                                    9.1       9.1                                        9950      10077
X1     0.47       15     9908.5   10076.6       400       620       500
X3       10
GR   1395.7   9728.0    1396.9    9769.4    1396.6    9824.9    1393.8    9869.4    1395.0    9908.5
GR   1391.8   9930.2    1383.8    9967.7    1385.3    9989.1    1384.2   10000.0    1387.2   10076.6
GR   1388.4  10164.6    1389.4   10229.9    1401.5   10278.7    1404.0   10311.4    1404.3   10321.6

ET                                    9.1       9.1                                        9969       9996
X1     0.57       31     9968.0   10026.9       800       140       500
X3       10
GR   1404.2   9464.0    1403.3    9533.4    1404.7    9587.0    1403.9    9623.2    1404.3    9654.6
GR   1402.3   9682.9    1401.2    9701.1    1404.0    9736.3    1403.9    9755.1    1399.4    9775.0
GR   1393.0   9797.2    1392.5    9844.8    1392.1    9918.4    1391.8    9968.0    1387.1    9972.6
GR   1387.2   9978.4    1387.2    9988.5    1391.1    9996.8    1391.4   10000.0    1391.6   10026.9
GR   1390.7  10087.5    1390.7   10150.1    1389.9   10173.9    1392.1   10204.9    1396.7   10224.0
GR   1397.0  10242.6    1395.8   10271.8    1396.6   10295.0    1403.2   10333.2    1404.2   10367.2
GR   1402.0  10385.4

ET                                    9.1       9.1                                        9943      10048
X1     0.66       37     9916.9   10047.6       550       700       500
X3       10
GR   1406.6   9469.6    1406.5    9506.3    1404.7    9565.6    1399.3    9613.8    1399.1    9631.7
GR   1400.6   9654.2    1400.6    9673.3    1397.0    9695.8    1392.1    9714.3    1391.4    9721.9
GR   1393.9   9731.8    1402.2    9764.9    1402.4    9791.1    1403.7    9825.1    1402.4    9842.0
GR   1404.3   9868.8    1400.6    9916.9    1396.6    9942.8    1393.1    9955.5    1395.3    9977.2
GR   1393.1   9989.0    1392.3    9996.7    1392.3   10000.0    1393.8   10006.6    1396.0   10047.6
GR   1394.9  10080.6    1393.5   10088.2    1394.3   10097.0    1396.5   10125.7    1396.7   10166.9
1
    11SEP02      14:17:12                                                                          PAGE     3


GR   1397.9  10231.5    1398.9   10271.1    1402.8   10309.7    1407.9   10339.9    1408.9   10347.9
GR   1409.0  10373.5    1408.5   10381.9

ET                                    9.1       9.1                                        9954      10031
X1     0.76       40     9953.5   10030.7       650       450       500
X3       10
GR   1407.6   9585.1    1407.1    9622.6    1404.2    9658.2    1397.2    9677.9    1396.6    9681.6
GR   1398.1   9690.4    1400.2    9712.2    1404.1    9742.0    1403.8    9780.6    1399.5    9797.3
GR   1406.0   9817.1    1407.4    9841.5    1404.8    9863.1    1400.8    9890.3    1397.8    9906.5
GR   1399.9   9953.5    1394.5    9960.1    1396.2    9976.8    1398.3    9995.5    1399.0   10000.0
GR   1399.3  10030.7    1398.4   10060.0    1399.7   10096.8    1399.3   10111.7    1398.4   10133.0
GR   1403.7  10151.0    1405.2   10162.6    1401.6   10189.9    1400.0   10203.1    1401.7   10221.2
GR   1405.3  10254.3    1407.7   10294.7    1407.9   10336.8    1405.7   10362.8    1409.1   10395.0
GR   1410.5  10428.5    1412.2   10476.3    1414.5   10522.4    1414.7   10562.9    1414.8   10584.7

ET                                    9.1       9.1                                        9956      10029
X1     0.85       28     9931.2   10056.1       950       310       500
X3       10
GR   1419.7   9647.7    1419.0    9671.4    1409.8    9715.4    1408.3    9725.5    1408.2    9731.7
GR   1410.3   9748.1    1411.5    9758.3    1409.9    9763.0    1409.0    9778.7    1405.9    9829.0
GR   1405.9   9844.4    1406.9    9878.0    1402.7    9904.2    1406.2    9917.7    1406.1    9931.2
GR   1400.2  10000.0    1401.2   10020.7    1412.8   10056.1    1410.5   10084.3    1410.4   10095.7
GR   1406.6  10103.9    1408.5   10125.0    1412.1   10156.1    1412.4   10196.3    1412.7   10230.2
```

```
GR   1414.2    10272.9     1415.7    10347.2     1415.3    10364.5

ET                                       9.1         9.1                                    9966      10011
X1     0.95         39     9937.8    10014.8          70       870       500
X3       10
GR   1419.3     9342.3     1417.7     9369.7     1415.6     9381.2    1415.6     9401.9    1403.8     9438.2
GR   1406.1     9459.3     1406.4     9477.9     1412.0     9506.7    1413.9     9528.4    1415.6     9560.4
GR   1419.4     9601.9     1421.0     9641.1     1419.5     9677.3    1413.6     9715.0    1413.2     9730.4
GR   1415.3     9756.8     1416.5     9794.6     1415.7     9843.8    1413.6     9891.6    1410.6     9937.8
GR   1407.6     9966.3     1405.1     9977.3     1403.4     9985.7    1403.4     9998.0    1403.4    10000.0
GR   1409.3    10014.8     1408.0    10025.0     1406.9    10037.4    1413.2    10058.8    1415.6    10081.3
GR   1418.3    10103.3     1419.2    10161.6     1418.0    10188.2    1417.9    10211.0    1421.9    10256.4
GR   1422.6    10297.7     1428.6    10372.1     1428.9    10438.1    1428.1    10460.3

ET                                       9.1         9.1                                    9958      10008
X1     1.04         24     9907.8    10013.1         510       200       500
X3       10
GR   1426.9     9768.8     1427.6     9813.4     1424.2     9864.4    1421.1     9907.8    1415.8     9937.6
GR   1412.1     9959.3     1410.9     9975.4     1407.1     9983.0    1407.5     9995.0    1409.6    10000.0
GR   1413.8    10013.1     1413.3    10060.4     1412.1    10101.1    1411.8    10106.1    1412.4    10125.7
GR   1416.1    10155.5     1419.0    10198.3     1419.8    10244.2    1416.5    10281.0    1418.4    10315.9
GR   1419.2    10362.5     1426.3    10436.9     1428.5    10486.0    1431.1    10544.5

ET                                       9.1         9.1                                    9965      10035
X1     1.14         41     9962.2    10069.6         410       390       500
X3       10
GR   1427.2     9466.7     1428.1     9505.7     1425.8     9529.8    1421.2     9560.3    1418.7     9574.7
GR   1424.2     9590.8     1424.7     9627.4     1425.2     9690.6    1425.4     9732.3    1424.7     9778.7
GR   1423.7     9816.7     1423.0     9849.1     1419.4     9882.5    1415.1     9907.5    1415.0     9922.6
GR   1412.0     9928.9     1416.9     9942.6     1417.0     9962.2    1415.5     9974.0    1411.4     9978.8
GR   1411.4     9984.5     1416.0     9996.4     1415.7    10000.0    1415.1    10015.9    1411.9    10022.0
1
    11SEP02      14:17:12                                                                                PAGE    4


GR   1416.5    10034.2     1435.2    10069.6     1436.6    10108.0    1435.3    10158.3    1432.3    10215.7
GR   1431.1    10269.2     1430.8    10331.7     1430.9    10397.9    1428.3    10447.9    1427.2    10491.5
GR   1430.4    10522.8     1430.7    10564.7     1434.8    10649.3    1436.2    10713.0    1436.8    10790.2
GR   1436.0    10821.4

ET                                       9.1         9.1                                    9974      10012
X1     1.23         33     9960.4    10013.0         490       535       500
X3       10
GR   1431.3     9519.2     1429.8     9552.4     1426.3     9594.1    1425.8     9637.6    1425.2     9665.1
GR   1428.1     9696.4     1432.2     9734.0     1432.9     9774.4    1432.4     9801.8    1432.6     9830.3
GR   1420.6     9871.0     1420.8     9896.7     1420.6     9942.3    1420.7     9953.7    1422.5     9960.4
GR   1421.3     9973.0     1416.3     9987.1     1416.7     9998.8    1417.6    10000.0    1421.3    10013.0
GR   1420.1    10032.0     1420.9    10052.8     1430.4    10078.0    1433.3    10121.7    1435.0    10138.0
GR   1437.5    10185.7     1437.8    10264.4     1435.9    10338.7    1436.2    10409.0    1436.8    10481.3
GR   1436.6    10541.8     1435.3    10604.5     1435.9    10629.1

ET                                       9.1         9.1                                    9973      10053
X1     1.33         24     9973.0    10053.0         700       520       500
X3       10
GR   1439.9     9573.3     1436.6     9612.3     1433.5     9659.2    1433.8     9694.2    1430.4     9745.8
GR   1430.4     9805.3     1428.6     9847.6     1425.1     9869.3    1422.7     9898.8    1423.4     9934.4
GR   1424.7     9973.0     1422.1     9985.2     1419.2    10000.0    1424.5    10019.5    1425.1    10053.0
GR   1424.6    10096.9     1425.7    10134.8     1427.2    10164.6    1431.5    10197.0    1437.1    10231.6
GR   1442.0    10256.5     1444.2    10313.5     1444.1    10412.6    1444.5    10511.6

ET                                       9.1         9.1                                    9960       9999
X1     1.42         20     9943.6    10000.0         565       515       500
X3       10
GR   1445.2     9788.7     1440.3     9841.8     1438.7     9866.2    1438.2     9889.7    1432.5     9917.7
GR   1430.1     9922.7     1432.9     9943.6     1426.1     9967.8    1423.0     9976.6    1423.7     9991.8
GR   1428.9    10000.0     1427.8    10028.4     1426.1    10059.8    1434.5    10089.2    1439.8    10115.5
GR   1457.0    10201.4     1468.2    10263.1     1477.4    10319.1    1479.0    10347.6    1479.0    10357.4
  Change Q at point I - 599 cfs
  Change channel n value to .035

NC      .045       .045       .035
QT         3                   599       599       599
ET                                       9.1         9.1                                    9972      10008
X1     1.48         25     9979.2    10010.4         370       160       300
X3       10
GR   1444.8     9623.9     1445.5     9644.7     1444.4     9666.8    1440.7     9704.8    1439.7     9748.6
GR   1435.7     9808.3     1432.9     9844.8     1431.4     9868.2    1429.6     9906.7    1425.8     9917.3
GR   1429.3     9933.0     1429.5     9961.4     1429.3     9979.2    1426.5     9983.1    1426.3     9996.5
GR   1427.6    10000.0     1430.9    10010.4     1429.7    10026.1    1435.7    10054.0    1437.2    10079.2
GR   1442.2    10124.4     1446.8    10165.5     1471.7    10277.5    1482.1    10333.7    1489.8    10381.3
```

```
ET                                        9.1        9.1                                        9956       10000
X1     1.52        22     9956.7    10000.0        220        270        200
X3       10
GR   1445.0    9725.8     1440.6     9767.4     1432.3     9796.7     1428.8     9809.6     1437.0     9848.4
GR   1438.8    9877.8     1437.7     9910.0     1434.7     9935.9     1430.3     9956.7     1429.9     9964.6
GR   1427.8    9971.7     1427.8     9986.9     1431.3    10000.0     1431.3    10017.1     1436.4    10048.3
GR   1445.4   10092.0     1457.3    10166.0     1468.1    10228.1     1476.0    10265.3     1481.3    10294.4
GR   1481.4   10315.8     1479.3    10331.2
1
   11SEP02      14:17:12                                                                                PAGE     5


ET                                        9.1        9.1                                        9970       10008
X1     1.61        16     9970.2    10024.8        600        380        500
X3       10
GR   1451.3    9908.8     1450.5     9922.0     1440.5     9952.1     1436.5     9970.2     1435.0     9979.5
GR   1433.4    9983.0     1433.5     9996.4     1434.0    10000.0     1441.5    10024.8     1447.1    10046.7
GR   1453.2   10076.1     1455.2    10105.9     1458.6    10122.2     1467.7    10139.4     1465.8    10158.0
GR   1464.8   10168.1

ET                                        9.1        9.1                                        9978       10014
X1     1.70        19     9978.5    10043.7        420        600        500
X3       10
GR   1457.2    9753.7     1454.2     9814.6     1454.4     9842.0     1457.2     9873.9     1454.3     9900.2
GR   1446.7    9951.3     1441.9     9978.5     1438.7     9982.9     1438.5     9990.4     1438.8    10000.0
GR   1440.6   10009.1     1450.1    10043.7     1457.9    10084.1     1460.8    10121.7     1463.5    10143.6
GR   1463.8   10156.5     1473.2    10219.5     1477.5    10248.6     1476.4    10268.3

ET                                        9.1        9.1                                        9996       10020
X1     1.80        19     9996.0    10024.3        440        500        500
X3       10
GR   1459.1    9803.6     1456.2     9821.3     1450.9     9844.5     1450.2     9864.9     1454.2     9883.7
GR   1455.7    9900.9     1454.9     9924.7     1451.8     9947.4     1448.4     9973.0     1447.3     9996.0
GR   1444.0   10000.0     1444.1    10008.9     1444.1    10018.3     1457.6    10024.3     1460.9    10053.4
GR   1464.8   10089.4     1465.7    10122.8     1465.1    10158.4     1464.5    10160.9

ET                                        9.1        9.1                                        9975       10012
X1     1.89        31     9955.6    10021.0        450        500        500
X3       10
GR   1464.5    9481.3     1463.1     9538.2     1459.3     9577.2     1459.2     9601.9     1457.9     9642.8
GR   1456.6    9664.1     1455.0     9670.1     1457.9     9695.0     1461.3     9723.4     1463.7     9757.2
GR   1465.0    9786.8     1464.0     9823.8     1462.7     9870.0     1459.4     9914.8     1456.9     9955.6
GR   1449.2   10000.0     1449.5    10004.3     1458.1    10021.0     1459.1    10045.4     1455.3    10077.1
GR   1452.8   10087.2     1453.8    10108.2     1452.1    10122.6     1454.7    10144.5     1462.2    10196.2
GR   1464.9   10238.7     1464.5    10277.1     1464.5    10294.9     1471.3    10353.2     1475.3    10404.0
GR   1476.5   10415.5

ET                                        9.1        9.1                                        9979       10033

X1     1.97        31     9946.5    10066.9        490        450        400
X3       10
GR   1474.7    9187.2     1473.8     9274.2     1472.9     9390.2     1470.7     9460.6     1470.9     9495.0
GR   1470.9    9552.9     1467.7     9592.8     1466.2     9618.5     1468.6     9656.9     1470.5     9713.2
GR   1470.6    9755.8     1467.3     9806.8     1465.6     9847.5     1465.3     9885.3     1460.9     9907.7
GR   1458.2    9920.4     1459.5     9946.5     1457.9     9977.1     1455.5    10000.0     1454.4    10016.4
GR   1458.9   10039.3     1461.4    10066.9     1461.2    10094.2     1466.5    10134.7     1469.1    10172.0
GR   1468.7   10216.2     1465.4    10265.9     1461.9    10310.5     1460.4    10326.1     1464.6    10362.2
GR   1465.7   10408.3
  Section 1.97 is confluence with West Fork of White Peak Wash
       Q downstream of confluence -  599 cfs
       Q White Peak Wash upstream of confluence - 395 cfs
       Q West Fork of White Peak Wash - 294 cfs
1
   11SEP02      14:17:12                                                                                PAGE     6


QT       3                  395       395       395
ET                                        9.1        9.1                                        9971       10025
X1     1.99        26     9924.3    10032.9         50                   100
X3       10
GR   1475.4    9264.2     1475.3     9341.2     1474.2     9429.2     1471.5     9536.0     1472.1     9605.8
GR   1469.8    9647.0     1469.5     9665.7     1470.2     9695.6     1469.2     9729.6     1468.5     9752.8
GR   1470.4    9785.0     1471.1     9829.1     1468.8     9862.8     1465.2     9892.2     1465.0     9900.4
GR   1464.9    9924.3     1463.0     9943.3     1459.0     9969.5     1455.5    10000.0     1455.8    10009.6
GR   1460.2   10032.9     1461.8    10068.9     1463.1    10127.2     1464.9    10176.7     1467.8    10213.6
GR   1467.4   10238.2

ET                                        9.1        9.1                                        9983       10015
```

```
X1     2.08        22     9942.8    10090.4       460       320       500
GR   1478.5    9290.6    1479.7     9361.5    1477.8    9440.4    1476.7    9534.2    1473.8    9595.6
GR   1475.5    9662.4    1475.7     9724.9    1476.8    9798.6    1474.1    9844.2    1470.1    9882.3
GR   1466.7    9920.2    1468.9     9942.8    1464.5    9976.7    1459.9    9992.9    1459.7   10000.0
GR   1463.2   10018.7    1465.2    10035.0    1467.6   10058.7    1471.8   10090.4    1470.8   10127.1
GR   1471.0   10152.7    1473.8    10180.0

ET                                     9.1       9.1                                    9979     10019
X1     2.18        28     9945.8    10054.9       500       380       500
X3       10
GR   1483.2    9112.4    1482.9     9159.5    1483.0    9225.2    1481.0    9288.6    1479.7    9348.1
GR   1479.1    9400.4    1478.4     9437.8    1480.2    9479.1    1479.2    9536.5    1474.0    9581.4
GR   1471.7    9614.0    1469.7     9645.4    1472.7    9673.7    1472.6    9708.6    1474.1    9731.4
GR   1475.7    9768.9    1476.1     9818.8    1475.4    9871.9    1475.2    9905.4    1478.3    9945.8
GR   1476.3    9961.2    1467.2     9985.7    1467.1    9995.6    1467.1   10000.0    1469.8   10020.8
GR   1470.2   10031.9    1479.4    10054.9    1478.2   10066.5

ET                                     9.1       9.1                                    9990     10036
X1     2.27        34     9987.8    10058.5       440       600       500
X3       10
GR   1483.8    9184.7    1484.4     9238.1    1484.1    9305.6    1481.8    9349.2    1483.6    9410.7
GR   1481.4    9444.1    1476.0     9468.4    1480.2    9487.8    1482.2    9511.8    1478.2    9555.8
GR   1476.3    9591.3    1477.9     9617.3    1480.5    9643.2    1483.0    9684.0    1482.1    9705.0
GR   1480.5    9748.9    1477.3     9779.8    1477.1    9813.7    1477.9    9839.4    1482.5    9877.6
GR   1484.6    9900.2    1481.8     9923.6    1478.9    9959.6    1474.9    9987.8    1470.5   10000.0
GR   1471.3   10000.0    1471.0    10011.1    1473.4   10022.4    1472.7   10030.2    1479.2   10058.5
GR   1481.7   10090.3    1484.7    10129.5    1486.8   10184.2    1486.6   10188.2

ET                                     9.1       9.1                                    9977     10012
X1     2.37        28     9912.0    10022.9       530       530       500
X3       10
GR   1489.9    9483.5    1489.8     9553.5    1488.2    9597.3    1488.9    9640.7    1489.3    9675.2
GR   1491.1    9723.2    1490.1     9781.7    1490.1    9847.3    1489.9    9912.0    1488.2    9943.2
GR   1481.5    9964.4    1477.2     9985.3    1476.5    9989.1    1477.1   10000.0    1477.1   10007.1
GR   1483.3   10022.9    1480.0    10032.2    1476.7   10037.2    1476.9   10042.5    1483.2   10061.6
GR   1486.2   10089.7    1488.6    10123.4    1489.9   10171.7    1492.1   10209.7    1490.7   10257.7
GR   1495.0   10323.2    1495.5    10357.8    1493.9   10397.4
1
    11SEP02      14:17:12                                                                          PAGE     7

ET                                     9.1       9.1                                    9981     10020
X1     2.46        33     9893.8    10024.1       520       235       500
X3       10
GR   1500.4    9196.8    1500.6     9353.4    1498.7    9428.0    1496.4    9505.6    1493.4    9573.5
GR   1488.8    9612.5    1492.4     9649.5    1494.2    9681.5    1494.2    9720.5    1493.8    9783.5
GR   1491.7    9833.5    1490.7     9859.7    1494.3    9893.8    1494.0    9915.3    1491.1    9948.5
GR   1483.8    9982.8    1481.7     9994.4    1481.1   10000.0    1481.1   10008.9    1485.3   10024.1
GR   1486.2   10056.7    1485.7    10119.3    1484.9   10130.1    1487.7   10153.2    1487.7   10167.1
GR   1485.0   10178.5    1490.2    10201.8    1492.5   10234.5    1492.6   10255.7    1489.7   10271.9
GR   1493.6   10287.7    1494.3    10315.1    1493.2   10318.7

ET                                     9.1       9.1                                    9983     10020
X1     2.56        47     9905.2    10113.6       500       400       500
GR   1506.0    9019.8    1506.7     9088.3    1506.0    9166.7    1504.1    9256.2    1501.5    9346.4
GR   1500.3    9414.4    1497.2     9448.6    1497.1    9470.6    1499.4    9502.4    1499.2    9536.5
GR   1498.1    9567.9    1496.2     9588.2    1496.8    9610.5    1497.8    9638.7    1499.4    9674.6
GR   1498.2    9702.9    1499.0     9719.8    1500.2    9763.6    1500.2    9806.8    1497.5    9832.5
GR   1499.0    9864.9    1499.4     9905.2    1496.6    9951.8    1492.8    9976.8    1487.1    9988.5
GR   1486.3    9998.8    1488.0    10000.0    1488.9   10013.4    1490.4   10029.0    1495.8   10054.8
GR   1498.2   10087.8    1500.1    10113.6    1499.5   10143.3    1497.8   10176.6    1493.8   10219.7
GR   1493.5   10237.0    1498.4    10267.0    1499.4   10290.2    1498.3   10339.3    1497.8   10369.3
GR   1498.5   10414.0    1495.9    10464.6    1493.7   10488.4    1498.8   10505.2    1501.9   10544.4
GR   1503.2   10584.6    1503.6    10604.2

ET                                     9.1       9.1                                    9985     10015
X1     2.65        25     9981.7    10016.2       360       580       500
GR   1503.8    9722.0    1504.3     9751.0    1503.6    9781.0    1502.9    9793.6    1503.5    9812.7
GR   1503.6    9836.0    1503.0     9839.4    1503.3    9886.1    1500.9    9918.1    1497.6    9941.4
GR   1495.7    9954.5    1496.2     9981.7    1491.5   10000.0    1491.5   10006.6    1496.1   10016.2
GR   1496.6   10038.5    1500.6    10054.6    1505.1   10078.6    1505.2   10133.3    1505.6   10197.6
GR   1508.2   10285.4    1509.0    10346.2    1512.8   10418.9    1514.9   10494.6    1515.2   10515.0

ET                                     9.1       9.1                                    9991     10025
X1     2.75        24     9990.7    10049.4       560       380       500
X3       10
GR   1512.7    9743.4    1513.1     9787.4    1511.4    9829.1    1508.1    9865.0    1506.4    9886.6
GR   1504.2    9903.1    1503.8     9947.2    1501.0    9974.4    1500.1    9990.7    1496.9   10000.0
GR   1496.9   10009.1    1498.3    10017.1    1500.6   10029.4    1507.6   10049.4    1508.1   10059.9
GR   1506.2   10082.8    1501.8    10116.3    1501.7   10132.4    1504.2   10171.9    1510.1   10199.0
```

```
GR   1509.9    10222.9     1512.8    10257.7      1514.5     10287.4      1516.2     10310.9

ET                                       9.1          9.1                                          9968       10000
X1     2.84         32     9945.5    10000.0        470         540         500
X3       10
GR   1520.5     9594.6     1520.1     9652.3      1518.9      9688.0      1516.5      9720.2      1519.0      9736.4
GR   1520.0     9766.3     1519.0     9795.1      1514.8      9820.6      1515.6      9832.8      1518.3      9845.7
GR   1519.3     9859.5     1517.2     9891.9      1514.1      9922.8      1512.5      9945.5      1509.8      9958.5
GR   1504.4     9977.1     1503.3     9981.6      1505.3      9988.0      1506.8     10000.0      1507.7     10000.0
GR   1507.4    10018.0     1509.9    10029.2      1512.7     10044.2      1514.1     10078.5      1512.0     10096.8
GR   1504.5    10112.2     1506.1    10120.1      1509.2     10131.3      1512.9     10145.7      1514.8     10169.7
GR   1516.7    10213.8     1517.1    10221.3
1
    11SEP02      14:17:12                                                                                          PAGE    8


ET                                       9.1          9.1                                          9985       10015
X1     2.94         26     9959.8    10069.6        590         440         500
X3       10
GR   1528.2     9585.1     1526.5     9650.6      1525.3      9691.5      1527.8      9752.2      1525.4      9811.6
GR   1524.5     9865.1     1520.5     9905.3      1519.4      9932.3      1519.3      9959.8      1517.4      9976.7
GR   1512.1     9993.5     1512.1    10000.0      1512.6     10011.4      1518.4     10021.0      1521.3     10045.6
GR   1525.0    10069.6     1525.3    10090.4      1522.9     10107.1      1521.1     10127.6      1524.8     10146.6
GR   1525.3    10192.1     1524.8    10220.9      1521.4     10246.1      1522.2     10268.9      1523.6     10303.2
GR   1525.7    10331.0
  Q at FCAP is 97 cfs - no change in Q used in input

ET                                       9.1          9.1                                          9981       10017
X1     2.95         14     9968.6    10073.3        150          85         100
GR   1529.0     9668.7     1526.9     9811.8      1524.2      9876.1      1520.7      9937.7      1519.3      9968.6
GR   1512.0     9993.7     1511.5    10000.0      1511.6     10012.0      1516.3     10018.1      1523.1     10059.6
GR   1525.1    10073.3     1525.7    10115.2      1525.6     10145.1      1526.9     10205.8
1
    11SEP02      14:17:12                                                                                          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 1

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

 CCHV=      .100 CEHV=      .300
 *SECNO 3.600

 3265 DIVIDED FLOW


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1377.30 ELREA=      1372.60

      3.600      4.06   1372.66   1371.16   1372.66   1372.69       .03       .00       .00   1377.30
      721.0       .0     318.0     403.0       .0     252.5     247.5       .0       .0   1372.60
        .00       .00      1.26      1.63      .000      .045      .045      .000   1368.60   9824.17
    .000595       0.        0.        0.         0        13         0       .00    241.94  10279.57


 FLOW DISTRIBUTION FOR SECNO=      3.60          CWSEL=   1372.66

 STA=     9824.     9952.     9979.     9986.    10000.    10024.    10046.    10266.    10277.    10280.
   PER Q=     44.1       6.8       8.6      20.8      15.3       1.4        .6       2.1        .1
    AREA=    252.5      43.7      30.3      66.4      68.4      16.0       6.2      15.2       1.3
     VEL=      1.3       1.1       2.1       2.3       1.6        .7        .7       1.0        .5
   DEPTH=      2.0       1.7       4.2       4.7       2.9        .7        .0       1.4        .5

 *SECNO  .090
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
       .090      4.24   1374.74   1374.74       .00   1374.87       .13       .62       .03   1374.60
      721.0       4.1     334.7     382.1       4.2     123.4     127.4       4.3       2.6   1374.70
        .05       .98      2.71      3.00      .045      .045      .045      .000   1370.50   9986.75
    .003983        0.      500.      500.         0        11         0       .00    215.81  10202.56


 LOW DISTRIBUTION FOR SECNO=       .09          CWSEL=   1374.74
```

```
STA=    9987.    9991.   10000.   10082.   10145.   10157.   10162.   10172.   10202.
 PER Q=       .1       .4     46.4      4.6      6.6     10.3     23.7      7.8
  AREA=      1.1      3.1    123.4     27.7     17.9     17.1     36.5     28.2
   VEL=       .9      1.0      2.7      1.2      2.7      4.3      4.7      2.0
 DEPTH=       .3       .3      1.5       .4      1.4      3.6      3.5       .9
```

1

11SEP02 14:17:12 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

*SECNO  .190

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1377.70 ELREA=      1378.30

     .190      4.85   1377.25   1376.43       .00   1377.52       .27      2.61       .04   1377.70
    721.0        .0     721.0        .0        .0     171.9        .0       6.8       4.3   1378.30
      .08       .00      4.20       .00      .000      .045      .000      .000   1372.40   9984.73
  .007130      510.      500.      500.         3        11         0       .00     91.35  10076.08

FLOW DISTRIBUTION FOR SECNO=       .19          CWSEL=   1377.25

STA=    9985.   10088.
 PER Q=    100.0
  AREA=    171.9
   VEL=      4.2
 DEPTH=      1.9

*SECNO  .280

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1379.10 ELREA=      1386.60

     .280      4.03   1379.83   1378.38       .00   1380.11       .28      2.58       .00   1379.10
    721.0      25.4     695.6        .0      18.0     160.6        .0       8.8       5.3   1386.60
      .11      1.41      4.33       .00      .045      .045      .000      .000   1375.80   9934.04
  .003906      550.      500.      410.         2        11         0       .00     84.38  10018.42

FLOW DISTRIBUTION FOR SECNO=       .28          CWSEL=   1379.83

STA=    9934.    9937.    9967.   10037.
 PER Q=       .1      3.5     96.5
  AREA=       .5     17.4    160.6
   VEL=       .7      1.4      4.3
 DEPTH=       .2       .6      3.1

*SECNO  .380

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
```

1

11SEP02 14:17:12 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

3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1384.40 ELREA=      1383.70

     .380      3.50   1383.30   1383.30       .00   1384.34      1.04      3.95       .23   1384.40
    721.0        .0     721.0        .0        .0      88.2        .0      10.3       6.1   1383.70
      .13       .00      8.17       .00      .000      .045      .000      .000   1379.80   9976.28
  .023718      500.      500.      410.         0        12         0       .00     42.52  10018.81

FLOW DISTRIBUTION FOR SECNO=       .38          CWSEL=   1383.30

STA=    9976.   10021.
```

```
  PER Q=     100.0
   AREA=      88.2
    VEL=       8.2
  DEPTH=       2.1

*SECNO  .470

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.89


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1395.00 ELREA=      1387.20

      .470      3.64   1387.44   1386.18       .00   1387.57       .12      3.13       .09   1395.00
     721.0        .0     720.1        .9        .0     255.9       2.2      12.3       7.2   1387.20
       .18       .00      2.81       .43      .000      .045      .045      .000   1383.80   9950.62
   .002839      400.      500.      620.         7        19         0       .00    143.81  10094.43


FLOW DISTRIBUTION FOR SECNO=       .47          CWSEL=   1387.44

STA=    9951.   10077.   10094.
  PER Q=     99.9       .1
   AREA=    255.9      2.2
    VEL=      2.8       .4
  DEPTH=      2.0       .1

1
   11SEP02      14:17:12                                                                                                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


*SECNO  .570

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1391.80 ELREA=      1391.60

      .570      3.60   1390.70   1390.70       .00   1392.12      1.43      3.14       .39   1391.80
     721.0        .0     721.0        .0        .0      75.2        .0      14.2       8.1   1391.60
       .20       .00      9.59       .00      .000      .045      .000      .000   1387.10   9969.08
   .023814      800.      500.      140.         0         5         0       .00     26.86   9995.94


FLOW DISTRIBUTION FOR SECNO=       .57          CWSEL=   1390.70

STA=    9969.   10027.
  PER Q=    100.0
   AREA=     75.2
    VEL=      9.6
  DEPTH=      2.8

*SECNO  .660

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.56


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1400.60 ELREA=      1396.00

      .660      3.77   1396.07   1395.30       .00   1396.20       .12      3.94       .13   1400.60
     721.0        .0     545.8     175.2        .0     185.9      74.9      16.3       9.4   1396.00
       .25       .00      2.94      2.34      .000      .045      .045      .000   1392.30   9944.69
   .003637      550.      500.      700.         9         8         0       .00    175.53  10120.22


FLOW DISTRIBUTION FOR SECNO=       .66          CWSEL=   1396.07

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

STA=    9945.   10048.   10081.   10088.   10097.   10120.
  PER Q=     75.7      4.2      5.9      8.9      5.3
   AREA=    185.9     20.8     14.3     19.2     20.7
    VEL=      2.9      1.5      3.0      3.3      1.8
  DEPTH=      1.8       .6      1.9      2.2       .9

*SECNO  .760

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .48

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1399.90 ELREA=      1399.30

      .760      4.39   1398.89   1398.52       .00   1399.66       .76      3.27       .19   1399.90
     721.0        .0     721.0        .0        .0     102.9        .0      18.4      10.6   1399.30
       .27       .00      7.01       .00      .000      .045      .000      .000   1394.50   9954.73
   .015583      650.      500.      450.         4         8         0       .00     44.59   9999.32

FLOW DISTRIBUTION FOR SECNO=       .76          CWSEL=   1398.89

STA=    9955.   10031.
  PER Q=    100.0
   AREA=    102.9
    VEL=      7.0
  DEPTH=      2.3

*SECNO  .850

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1406.10 ELREA=      1412.80

      .850      3.80   1404.00   1402.99       .00   1404.30       .30      4.60       .05   1406.10
     721.0        .0     721.0        .0        .0     164.8        .0      19.9      11.3   1412.80
       .30       .00      4.38       .00      .000      .045      .000      .000   1400.20   9955.64
   .006065      950.      500.      310.         4        14         0       .00     73.62  10029.26
```

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

FLOW DISTRIBUTION FOR SECNO=       .85          CWSEL=   1404.00

STA=    9956.   10056.
  PER Q=    100.0
   AREA=    164.8
    VEL=      4.4
  DEPTH=      2.2

*SECNO  .950

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1410.60 ELREA=      1409.30

      .950      4.09   1407.49   1406.62       .00   1408.06       .57      3.67       .08   1410.60
     721.0        .0     721.0        .0        .0     119.1        .0      21.5      12.0   1409.30
       .32       .00      6.05       .00      .000      .045      .000      .000   1403.40   9966.79
   .009080       70.      500.      870.         3        15         0       .00     43.46  10010.25

FLOW DISTRIBUTION FOR SECNO=       .95          CWSEL=   1407.49
```

```
STA=    9967.   10015.
  PER Q=    100.0
   AREA=    119.1
    VEL=      6.1
  DEPTH=      2.7

*SECNO 1.040

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1421.10 ELREA=      1413.80

     1.040      5.11   1412.21   1411.21       .00   1412.73       .53      4.67       .00   1421.10
     721.0        .0     721.0        .0        .0     123.7        .0      22.9      12.5   1413.80
       .35       .00      5.83       .00      .000      .045      .000      .000   1407.10   9958.66
   .009630      510.      500.      200.         3         5         0       .00     49.48  10008.14


FLOW DISTRIBUTION FOR SECNO=      1.04          CWSEL=   1412.21

STA=    9959.   10013.
  PER Q=    100.0
   AREA=    123.7
    VEL=      5.8
  DEPTH=      2.5
```



```
    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


*SECNO 1.140

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1417.00 ELREA=      1435.20

     1.140      5.21   1416.61   1415.66       .00   1416.95       .34      4.20       .02   1417.00
     721.0        .0     721.0        .0        .0     154.5        .0      24.5      13.2   1435.20
       .38       .00      4.67       .00      .000      .045      .000      .000   1411.40   9965.30
   .007386      410.      500.      390.         3         9         0       .00     69.11  10034.40


FLOW DISTRIBUTION FOR SECNO=      1.14          CWSEL=   1416.61

STA=    9965.   10070.
  PER Q=    100.0
   AREA=    154.5
    VEL=      4.7
  DEPTH=      2.2

*SECNO 1.230

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1422.50 ELREA=      1421.30

     1.230      4.60   1420.90   1420.21       .00   1421.63       .73      4.56       .12   1422.50
     721.0        .0     721.0        .0        .0     105.0        .0      26.0      13.8   1421.30
       .40       .00      6.87       .00      .000      .045      .000      .000   1416.30   9974.13
   .011562      490.      500.      535.         2        14         0       .00     37.47  10011.60


FLOW DISTRIBUTION FOR SECNO=      1.23          CWSEL=   1420.90

STA=    9974.   10013.
  PER Q=    100.0
   AREA=    105.0
    VEL=      6.9
  DEPTH=      2.8

*SECNO 1.330

3301 HV CHANGED MORE THAN HVINS
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 =  1.79


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1424.70 ELREA=      1425.10

     1.330      5.54   1424.74   1423.59       .00   1424.89       .14      3.19       .06   1424.70
     721.0     266.7     454.3        .0     113.7     135.7        .0      28.3      15.2   1425.10
       .45      2.34      3.35       .00      .045      .045      .000      .000   1419.20   9873.55
   .003614      700.      500.      520.         4        11         0       .00    160.12  10033.67


FLOW DISTRIBUTION FOR SECNO=      1.33          CWSEL=   1424.74

STA=    9874.    9899.    9934.    9973.   10053.
  PER Q=      7.2     23.8      5.9     63.0
   AREA=     25.9     60.7     27.2    135.7
    VEL=      2.0      2.8      1.6      3.3
  DEPTH=      1.0      1.7       .7      2.2

*SECNO 1.420

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .54


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1432.90 ELREA=      1428.90

     1.420      4.39   1427.39   1426.75       .00   1428.20       .81      3.11       .20   1432.90
     721.0        .0     721.0        .0        .0      99.9        .0      30.4      16.3   1428.90
       .47       .00      7.21       .00      .000      .045      .000      .000   1423.00   9963.22
   .012313      565.      500.      515.         2        14         0       .00     34.39   9997.61


FLOW DISTRIBUTION FOR SECNO=      1.42          CWSEL=   1427.39

STA=    9963.   10000.
  PER Q=    100.0
   AREA=     99.9
    VEL=      7.2
  DEPTH=      2.9

1
   11SEP02      14:17:12                                                                                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


*SECNO 1.480

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.57


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1429.30 ELREA=      1430.90

     1.480      3.68   1429.98   1429.32       .00   1430.23       .24      1.97       .06   1429.30
     599.0     247.4     351.6        .0      90.7      75.6        .0      31.4      16.9   1430.90
       .49      2.73      4.65       .00      .045      .035      .000      .000   1426.30   9898.55
   .003462      370.      300.      160.         3        15         0       .00    108.96  10007.50


FLOW DISTRIBUTION FOR SECNO=      1.48          CWSEL=   1429.98

STA=    9899.    9907.    9917.    9933.    9961.    9979.   10010.
  PER Q=       .2     13.1     22.0      3.7      2.3     58.7
   AREA=      1.6     24.2     38.2     16.5     10.3     75.6
    VEL=       .6      3.2      3.5      1.4      1.4      4.6
  DEPTH=       .2      2.3      2.4       .6       .6      2.7
```

```
SECNO 1.520

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1430.30 ELREA=      1431.30

     1.520      3.03   1430.83   1430.60       .00   1431.44       .61      1.11       .11   1430.30
     599.0      56.6     542.4        .0      18.0      83.1        .0      32.0      17.3   1431.30
       .50      3.14      6.52       .00      .045      .035      .000      .000   1427.80   9802.11
   .009580      220.      200.      270.         3        15         0       .00     61.16   9998.25

FLOW DISTRIBUTION FOR SECNO=      1.52          CWSEL=   1430.83

1
   11SEP02      14:17:12                                                                          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

STA=    9802.    9810.    9819.    9957.   10000.
  PER Q=      4.1      5.2       .1     90.6
   AREA=      7.6      9.8       .7     83.1
    VEL=      3.2      3.2      1.3      6.5
  DEPTH=      1.0      1.0       .0      2.0

*SECNO 1.610

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1436.50 ELREA=      1441.50

     1.610      3.06   1436.46   1436.46       .00   1437.45       .99      5.89       .11   1436.50
     599.0        .0     599.0        .0        .0      75.1        .0      33.0      17.9   1441.50
       .51       .00      7.97       .00      .000      .035      .000      .000   1433.40   9970.36
   .014553      600.      500.      380.         2         5         0       .00     37.82  10008.18

FLOW DISTRIBUTION FOR SECNO=      1.61          CWSEL=   1436.46

STA=    9970.   10025.
  PER Q=    100.0
   AREA=     75.1
    VEL=      8.0
  DEPTH=      2.0

*SECNO 1.700

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1441.90 ELREA=      1450.10

     1.700      3.48   1441.98   1441.48       .00   1442.69       .70      5.21       .03   1441.90
     599.0        .0     599.0        .0        .0      89.0        .0      34.0      18.3   1450.10
       .54       .03      6.73       .00      .045      .035      .000      .000   1438.50   9978.04
   .007816      420.      500.      600.         4         8         0       .00     36.09  10014.13

FLOW DISTRIBUTION FOR SECNO=      1.70          CWSEL=   1441.98

STA=    9978.   10044.
  PER Q=    100.0
   AREA=     89.0
    VEL=      6.7
  DEPTH=      2.5

1
   11SEP02      14:17:12                                                                          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
```

```
*SECNO 1.800

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1447.30 ELREA=      1457.60

     1.800      3.12   1447.12   1447.12       .00   1448.50      1.37      5.31       .20   1447.30
     599.0        .0     599.0        .0        .0      63.7        .0      34.9      18.7   1457.60
       .55       .00      9.40       .00      .000      .035      .000      .000   1444.00   9996.21
   .015234      440.      500.      500.         0        11         0       .00     23.43  10019.64


FLOW DISTRIBUTION FOR SECNO=      1.80          CWSEL=   1447.12

STA=    9996.   10024.
  PER Q=    100.0
   AREA=     63.7
    VEL=      9.4
  DEPTH=      2.7

*SECNO 1.890

3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1456.90 ELREA=      1458.10

     1.890      4.31   1453.51   1453.07       .00   1454.24       .74      5.69       .06   1456.90
     599.0        .0     599.0        .0        .0      87.0        .0      35.7      19.0   1458.10
       .57       .00      6.89       .00      .000      .035      .000      .000   1449.20   9975.16
   .008810      450.      500.      500.         4        11         0       .00     36.92  10012.08


FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1453.51

STA=    9975.   10021.
  PER Q=    100.0
   AREA=     87.0
    VEL=      6.9
  DEPTH=      2.4

1
   11SEP02      14:17:12                                                                                    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


*SECNO 1.970

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1459.50 ELREA=      1461.40

     1.970      3.21   1457.61   1457.43       .00   1458.28       .67      4.02       .01   1459.50
     599.0        .0     599.0        .0        .0      91.5        .0      36.5      19.4   1461.40
       .59       .00      6.54       .00      .000      .035      .000      .000   1454.40   9979.79
   .011598      490.      400.      450.         3        19         0       .00     52.99  10032.78


FLOW DISTRIBUTION FOR SECNO=      1.97          CWSEL=   1457.61

STA=    9980.   10067.
  PER Q=    100.0
   AREA=     91.5
    VEL=      6.5
  DEPTH=      1.7

*SECNO 1.990

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1464.90 ELREA=      1460.20

     1.990      3.27   1458.77   1457.90       .00   1459.01       .24       .69       .04   1464.90
     395.0        .0     395.0        .0        .0      99.9        .0      36.8      19.6   1460.20
       .59       .00      3.96       .00      .000      .035      .000      .000   1455.50   9971.51
   .003849       50.      100.        0.         3        19         0       .00     53.82  10025.33
```

```
LOW DISTRIBUTION FOR SECNO=       1.99          CWSEL=   1458.77

STA=    9972.   10033.
  PER Q=    100.0
   AREA=     99.9
    VEL=      4.0
  DEPTH=      1.9

*SECNO 2.080

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
1
   11SEP02      14:17:12                                                                                                PAGE   21

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3720 CRITICAL DEPTH ASSUMED
     2.080      2.83   1462.53   1462.53       .00   1463.39       .86       3.45       .19   1468.90
     395.0        .0     395.0        .0        .0      53.1        .0       37.6      20.0   1471.80
       .61       .00      7.44       .00      .000      .035      .000       .000   1459.70   9983.63
   .015756      460.      500.      320.         0        15         0        .00     31.51  10015.14

FLOW DISTRIBUTION FOR SECNO=       2.08          CWSEL=   1462.53

STA=    9984.   10090.
  PER Q=    100.0
   AREA=     53.1
    VEL=      7.4
  DEPTH=      1.7

*SECNO 2.180

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1478.30 ELREA=      1479.40

     2.180      2.40   1469.50   1469.31       .00   1470.10       .60       6.68       .03   1478.30
     395.0        .0     395.0        .0        .0      63.4        .0       38.3      20.5   1479.40
       .64       .00      6.23       .00      .000      .035      .000       .000   1467.10   9979.49
   .011486      500.      500.      380.         3        15         0        .00     39.06  10018.55

FLOW DISTRIBUTION FOR SECNO=       2.18          CWSEL=   1469.50

STA=    9979.   10055.
  PER Q=    100.0
   AREA=     63.4
    VEL=      6.2
  DEPTH=      1.6

*SECNO 2.270

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1474.90 ELREA=      1479.20

     2.270      3.51   1474.01   1473.49       .00   1474.38       .37       4.26       .02   1474.90
     395.0        .0     395.0        .0        .0      80.7        .0       39.1      20.9   1479.20
       .66       .00      4.90       .00      .000      .035      .000       .000   1470.50   9990.26
   .006562      440.      500.      600.         5        11         0        .00     45.67  10035.92


1
   11SEP02      14:17:12                                                                                                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

FLOW DISTRIBUTION FOR SECNO=       2.27          CWSEL=   1474.01

TA=    9990.   10059.
  PER Q=    100.0
```

```
   AREA=      80.7
    VEL=       4.9
  DEPTH=       1.8

*SECNO 2.370
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1489.90 ELREA=      1483.30

     2.370      2.41   1478.91   1478.91       .00   1479.71       .81      4.88       .13   1489.90
     395.0        .0     395.0        .0        .0      54.8        .0      39.9      21.4   1483.30
       .68       .00      7.21       .00      .000      .035      .000      .000   1476.50   9977.01
   .016019      530.      500.      530.         0        19         0       .00     34.69  10011.70


FLOW DISTRIBUTION FOR SECNO=      2.37          CWSEL=   1478.91

STA=    9977.   10023.
  PER Q=    100.0
   AREA=     54.8
    VEL=      7.2
  DEPTH=      1.6

*SECNO 2.460

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.58


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1494.30 ELREA=      1485.30

     2.460      3.03   1484.13   1483.57       .00   1484.56       .43      4.81       .04   1494.30
     395.0        .0     395.0        .0        .0      75.3        .0      40.7      21.8   1485.30
       .71       .00      5.24       .00      .000      .035      .000      .000   1481.10   9981.23
   .006414      520.      500.      235.         5         5         0       .00     38.66  10019.88


1
   11SEP02      14:17:12                                                                                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


FLOW DISTRIBUTION FOR SECNO=      2.46          CWSEL=   1484.13

STA=    9981.   10024.
  PER Q=    100.0
   AREA=     75.3
    VEL=      5.2
  DEPTH=      1.9

*SECNO 2.560
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.560      3.26   1489.56   1489.56       .00   1490.34       .78      4.91       .11   1499.40
     395.0        .0     395.0        .0        .0      55.8        .0      41.4      22.3   1500.10
       .73       .00      7.08       .00      .000      .035      .000      .000   1486.30   9983.45
   .016922      500.      500.      400.         0         8         0       .00     36.83  10020.28


FLOW DISTRIBUTION FOR SECNO=      2.56          CWSEL=   1489.56

STA=    9983.   10114.
  PER Q=    100.0
   AREA=     55.8
    VEL=      7.1
  DEPTH=      1.5

*SECNO 2.650

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.51

     2.650      3.67   1495.17   1494.62       .00   1495.75       .58      5.39       .02   1496.20
     395.0        .0     395.0        .0        .0      64.4        .0      42.1      22.6   1496.10
       .75       .00      6.13       .00      .000      .035      .000      .000   1491.50   9985.72
   .007465      360.      500.      580.         5         8         0       .00     28.54  10014.25
```

```
FLOW DISTRIBUTION FOR SECNO=      2.65          CWSEL=   1495.17

STA=    9986.   10016.
  PER Q=    100.0

   AREA=      64.4
    VEL=       6.1
  DEPTH=       2.3

1
   11SEP02      14:17:12                                                                                                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 2.750

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1500.10 ELREA=      1507.60

     2.750      2.80   1499.70   1499.51       .00   1500.40       .70      4.61       .03   1500.10
     395.0        .0     395.0        .0        .0      59.0        .0      42.8      23.0   1507.60
       .77       .00      6.70       .00      .000      .035      .000      .000   1496.90   9991.86
   .011678      560.      500.      380.         3        19         0       .00     32.75  10024.60

FLOW DISTRIBUTION FOR SECNO=      2.75          CWSEL=   1499.70

STA=    9992.   10049.
  PER Q=    100.0
   AREA=      59.0
    VEL=       6.7
  DEPTH=       1.8

*SECNO 2.840
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1512.50 ELREA=      1507.70

     2.840      3.65   1506.95   1506.95       .00   1507.82       .86      6.84       .05   1512.50
     395.0        .0     395.0        .0        .0      52.9        .0      43.5      23.4   1507.70
       .79       .00      7.46       .00      .000      .035      .000      .000   1503.30   9968.31
   .016261      470.      500.      540.         0        11         0       .00     31.69  10000.00

FLOW DISTRIBUTION FOR SECNO=      2.84          CWSEL=   1506.95

STA=    9968.   10000.
  PER Q=    100.0
   AREA=      52.9
    VEL=       7.5
  DEPTH=       1.7

*SECNO 2.940
1
   11SEP02      14:17:12                                                                                                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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1519.30 ELREA=      1525.00

     2.940      2.43   1514.53   1514.47       .00   1515.39       .86      7.57       .00   1519.30
     395.0        .0     395.0        .0        .0      53.1        .0      44.1      23.7   1525.00
       .81       .00      7.43       .00      .000      .035      .000      .000   1512.10   9985.79
   .014132      590.      500.      440.         3        14         0       .00     28.81  10014.60

FLOW DISTRIBUTION FOR SECNO=      2.94          CWSEL=   1514.53

STA=    9986.   10070.
```

```
  PER Q=     100.0
   AREA=      53.1
    VEL=       7.4
  DEPTH=       1.8

*SECNO 2.950

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.73

     2.950      4.15   1515.65   1513.88       .00   1515.86       .21       .41       .06   1519.30
     395.0        .0     395.0        .0        .0     107.0        .0      44.2      23.8   1525.10
       .82       .00      3.69       .00      .000      .035      .000      .000   1511.50   9981.18
   .001901      150.      100.       85.         2         5         0       .00     36.06  10017.24


FLOW DISTRIBUTION FOR SECNO=      2.95          CWSEL=   1515.65

STA=    9981.   10073.
  PER Q=     100.0
   AREA=     107.0
    VEL=       3.7
  DEPTH=       3.0

1
   11SEP02      14:17:12                                                                                PAGE   26


T1 CAP OVERCHUTES - AGUA FRIA FLOODPLAIN STUDY
T2 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY   METHOD 1 ENCROCHEMENT
T3      WHITE PEAK WASH            MAY, 1991

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0        4         0         0         0         0         0       721   1372.93

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15         0        -1                                      -1                            15


1
   11SEP02      14:17:12                                                                                PAGE   27

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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
0

CCHV=     .100 CEHV=     .300
*SECNO 3.600

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1377.30 ELREA=      1372.60

     3.600      4.33   1372.93   1371.16   1372.93   1372.96       .03       .00       .00   1377.30
     721.0        .0     327.9     393.1        .0     287.2     279.0        .0        .0   1372.60
       .00       .00      1.14      1.41      .000      .045      .045      .000   1368.60   9823.23
   .000416        0.        0.        0.         0        16         0       .00    248.63  10280.18


FLOW DISTRIBUTION FOR SECNO=      3.60          CWSEL=   1372.93

STA=    9823.    9952.    9979.    9986.   10000.   10024.   10050.   10266.   10277.   10280.
  PER Q=      45.5      7.3      8.0     19.1     14.9      1.9       .8      2.4       .1
   AREA=     287.2     50.8     32.3     70.2     74.8     22.5      8.3     18.1      2.0
    VEL=       1.1      1.0      1.8      2.0      1.4       .6       .7      1.0       .5
  DEPTH=       2.2      1.9      4.5      5.0      3.1       .9       .0      1.7       .7
```

```
SECNO  .090

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    10000.0   10075.0  TYPE=      1  TARGET=       75.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1374.60 ELREA=    100000.00

      .090      4.05   1374.55   1374.55   1374.74   1375.24       .69       .65       .20   1374.60
     721.0        .0     721.0        .0        .0     108.4        .0       3.9       1.9 100000.00
       .02       .00      6.65       .00      .000      .045      .000      .000   1370.50  10000.17
   .025184        0.      500.      500.         0        10         0       .00     74.83  10075.00


1
   11SEP02      14:17:12                                                                                                PAGE   28

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=       .09          CWSEL=   1374.55

STA=   10000.   10082.
  PER Q=    100.0
   AREA=    108.4
    VEL=      6.7
  DEPTH=      1.4

*SECNO  .190

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.20

3470 ENCROACHMENT STATIONS=     9983.0   10085.0  TYPE=      1  TARGET=      102.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1377.70 ELREA=    100000.00

      .190      5.61   1378.01   1376.43   1377.25   1378.14       .13      2.85       .06   1377.70
     721.0        .1     720.9        .0        .2     246.2        .0       5.9       2.9 100000.00
       .07       .60      2.93       .00      .045      .045      .000      .000   1372.40   9983.00
   .002452      510.      500.      500.         7         5         0       .00    101.52  10084.52

FLOW DISTRIBUTION FOR SECNO=       .19          CWSEL=   1378.01

STA=    9983.    9984.   10088.
  PER Q=       .0    100.0
   AREA=       .2    246.2
    VEL=       .6      2.9
  DEPTH=       .3      2.4

*SECNO  .280

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68

3470 ENCROACHMENT STATIONS=     9966.0   10018.0  TYPE=      1  TARGET=       52.000
1
   11SEP02      14:17:12                                                                                                PAGE   29

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=      1379.10 ELREA=    100000.00
```

```
     .280      3.79   1379.59   1378.38   1379.83   1379.96       .37      1.74       .07   1379.10
    721.0        .4     720.6        .0        .3     148.5        .0       8.2       3.7 100000.00
      .10      1.06      4.85       .00      .045      .045      .000      .000   1375.80   9966.00
  .005346      550.      500.      410.         4        14         0       .00     51.79  10017.79


FLOW DISTRIBUTION FOR SECNO=       .28          CWSEL=   1379.59

STA=    9966.    9967.   10037.
  PER Q=       .1     99.9
   AREA=       .3    148.5
    VEL=      1.1      4.9
  DEPTH=       .5      2.9

*SECNO  .380

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .58


3470 ENCROACHMENT STATIONS=     9975.0   10021.0  TYPE=      1  TARGET=       46.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     .380      3.81   1383.61   1383.28   1383.30   1384.39       .78      4.31       .12 100000.00
    721.0        .0     721.0        .0        .0     101.6        .0       9.6       4.3 100000.00
      .12       .00      7.09       .00      .000      .045      .000      .000   1379.80   9975.29
  .016158      500.      500.      410.         2        11         0       .00     45.43  10020.72


FLOW DISTRIBUTION FOR SECNO=       .38          CWSEL=   1383.61

STA=    9975.   10021.
  PER Q=    100.0
   AREA=    101.6
    VEL=      7.1
  DEPTH=      2.2

1
  11SEP02      14:17:12                                                                                PAGE   30

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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  .470

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.26


3470 ENCROACHMENT STATIONS=     9950.0   10077.0  TYPE=      1  TARGET=      127.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1387.20

     .470      3.57   1387.38   1386.18   1387.44   1387.51       .13      3.05       .06 100000.00
    721.0        .0     721.0        .0        .0     247.3        .1      11.6       5.3   1387.20
      .16       .00      2.92       .02      .000      .045      .045      .000   1383.80   9950.94
  .003177      400.      500.      620.         5        14         0       .00    126.06  10077.00


FLOW DISTRIBUTION FOR SECNO=       .47          CWSEL=   1387.38

STA=    9951.   10077.   10077.
  PER Q=    100.0       .0
   AREA=    247.3       .1
    VEL=      2.9       .0
  DEPTH=      2.0       .2

*SECNO  .570

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
7720 CRITICAL DEPTH ASSUMED
```

```
3470 ENCROACHMENT STATIONS=     9969.0    9996.0  TYPE=      1  TARGET=       27.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .570      3.61   1390.71   1390.71   1390.70   1392.12      1.41      3.40       .38 100000.00
     721.0        .0     721.0        .0        .0      75.6        .0      13.5      6.2 100000.00
       .18       .00      9.54       .00      .000      .045      .000      .000   1387.10   9969.07
   .023464      800.      500.      140.         0         5         0       .00     26.90   9995.97


1
   11SEP02      14:17:12                                                                                    PAGE   31

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 FLOW DISTRIBUTION FOR SECNO=       .57          CWSEL=   1390.71

 STA=    9969.   10027.
   PER Q=    100.0
    AREA=     75.6
     VEL=      9.5
   DEPTH=      2.8

 *SECNO  .660

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.33


 3470 ENCROACHMENT STATIONS=     9943.0   10048.0  TYPE=      1  TARGET=      105.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1396.00

      .660      4.00   1396.30   1395.29   1396.07   1396.49       .18      4.24       .12 100000.00
     721.0        .0     720.9        .1        .0     209.1        .1      15.1       6.9   1396.00
       .22       .00      3.45       .68      .000      .045      .045      .000   1392.30   9943.88
   .004338      550.      500.      700.         8        15         0       .00    104.12  10048.00


 FLOW DISTRIBUTION FOR SECNO=       .66          CWSEL=   1396.30

 STA=    9944.   10048.   10048.
   PER Q=    100.0       .0
    AREA=    209.1       .1
     VEL=      3.4       .7
   DEPTH=      2.0       .3

 *SECNO  .760

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61


 3470 ENCROACHMENT STATIONS=     9954.0   10031.0  TYPE=      1  TARGET=       77.000
1
   11SEP02      14:17:12                                                                                    PAGE   32

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=    100000.00 ELREA=      1399.30

      .760      4.97   1399.47   1398.54   1398.89   1399.89       .42      3.33       .07 100000.00
     721.0        .0     721.0        .0        .0     139.1        .1      17.1       8.0   1399.30
       .25       .00      5.18       .04      .000      .045      .045      .000   1394.50   9954.02
   .011523      650.      500.      450.         5         5         0       .00     76.98  10031.00


 FLOW DISTRIBUTION FOR SECNO=       .76          CWSEL=   1399.47
```

```
STA=    9954.   10031.   10031.
  PER Q=    100.0       .0
   AREA=    139.1       .1
    VEL=      5.2       .0
  DEPTH=      1.8       .2

*SECNO  .850

3470 ENCROACHMENT STATIONS=     9956.0   10029.0  TYPE=      1  TARGET=       73.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .850      3.72   1403.92   1403.00   1404.00   1404.24       .32      4.34       .01 100000.00
     721.0        .0     721.0        .0        .0     158.3        .0      18.8       8.8 100000.00
       .28       .00      4.55       .00      .000      .045      .000      .000   1400.20   9956.67
   .006764      950.      500.      310.         2        11         0       .00     72.32  10028.99


FLOW DISTRIBUTION FOR SECNO=       .85          CWSEL=   1403.92

STA=    9957.   10056.
  PER Q=    100.0
   AREA=    158.3
    VEL=      4.6
  DEPTH=      2.2

*SECNO  .950

3470 ENCROACHMENT STATIONS=     9966.0   10011.0  TYPE=      1  TARGET=       45.000
1
   11SEP02      14:17:12                                                                                                PAGE   33


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=    100000.00 ELREA=    100000.00

      .950      4.15   1407.55   1406.63   1407.49   1408.09       .54      3.79       .07 100000.00
     721.0        .0     721.0        .0        .0     121.8        .0      20.4       9.5 100000.00
       .30       .00      5.92       .00      .000      .045      .000      .000   1403.40   9966.53
   .008547       70.      500.      870.         3        11         0       .00     43.88  10010.41


FLOW DISTRIBUTION FOR SECNO=       .95          CWSEL=   1407.55

STA=    9967.   10015.
  PER Q=    100.0
   AREA=    121.8
    VEL=      5.9
  DEPTH=      2.8

*SECNO 1.040

3470 ENCROACHMENT STATIONS=     9958.0   10008.0  TYPE=      1  TARGET=       50.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.040      5.07   1412.17   1411.20   1412.21   1412.71       .54      4.62       .00 100000.00
     721.0        .0     721.0        .0        .0     121.9        .0      21.8      10.0 100000.00
       .32       .00      5.92       .00      .000      .045      .000      .000   1407.10   9958.87
   .010022      510.      500.      200.         3         5         0       .00     49.13  10008.00


FLOW DISTRIBUTION FOR SECNO=      1.04          CWSEL=   1412.17

STA=    9959.   10013.
  PER Q=    100.0
   AREA=    121.9
    VEL=      5.9
  DEPTH=      2.5

*SECNO 1.140

3470 ENCROACHMENT STATIONS=     9965.0   10035.0  TYPE=      1  TARGET=       70.000
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


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

   1.140      5.23   1416.63   1415.68   1416.61   1416.97       .33      4.23       .02 100000.00
   721.0        .0     721.0       .0        .0     155.5        .0      23.4      10.7 100000.00
     .35       .00      4.64       .00      .000      .045      .000      .000   1411.40   9965.18
 .007242      410.      500.      390.         3        12         0       .00     69.25  10034.43


FLOW DISTRIBUTION FOR SECNO=      1.14          CWSEL=   1416.63

STA=    9965.   10070.
  PER Q=    100.0
   AREA=    155.5
    VEL=      4.6
  DEPTH=      2.2

*SECNO 1.230

3470 ENCROACHMENT STATIONS=     9974.0   10012.0  TYPE=      1  TARGET=       38.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

   1.230      4.59   1420.89   1420.22   1420.90   1421.63       .74      4.54       .12 100000.00
   721.0        .0     721.0       .0        .0     104.4        .0      24.9      11.3 100000.00
     .37       .00      6.90       .00      .000      .045      .000      .000   1416.30   9974.17
 .011723      490.      500.      535.         2        15         0       .00     37.38  10011.55


FLOW DISTRIBUTION FOR SECNO=      1.23          CWSEL=   1420.89

STA=    9974.   10013.
  PER Q=    100.0
   AREA=    104.4
    VEL=      6.9
  DEPTH=      2.8

*SECNO 1.330

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.46

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


3470 ENCROACHMENT STATIONS=     9973.0   10053.0  TYPE=      1  TARGET=       80.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1424.70 ELREA=    100000.00

   1.330      6.10   1425.30   1423.59   1424.74   1425.56       .26      3.89       .05   1424.70
   721.0        .0     721.0       .0        .0     176.3        .0      26.5      12.0 100000.00
     .41       .00      4.09       .00      .000      .045      .000      .000   1419.20   9973.00
 .005531      700.      500.      520.         4        11         0       .00     80.00  10053.00


FLOW DISTRIBUTION FOR SECNO=      1.33          CWSEL=   1425.30

STA=    9973.   10053.
  PER Q=    100.0
   AREA=    176.3
    VEL=      4.1
  DEPTH=      2.2

*SECNO 1.420
```

```
3470 ENCROACHMENT STATIONS=     9960.0    9999.0  TYPE=      1  TARGET=       39.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.420      5.12   1428.12   1426.75   1427.39   1428.62       .50      2.99       .07 100000.00
     721.0        .0     721.0        .0        .0     126.5        .0      28.3      12.7 100000.00
       .43       .00      5.70       .00      .000      .045      .000      .000   1423.00   9960.62
   .006468      565.      500.      515.         3        14         0       .00     38.15   9998.77


 FLOW DISTRIBUTION FOR SECNO=      1.42          CWSEL=   1428.12

 STA=    9961.   10000.
   PER Q=    100.0
    AREA=    126.5
     VEL=      5.7
   DEPTH=      3.3

 *SECNO 1.480
1
    11SEP02      14:17:12                                                                                    PAGE   36

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 3470 ENCROACHMENT STATIONS=     9972.0   10008.0  TYPE=      1  TARGET=       36.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1429.30 ELREA=    100000.00

     1.480      3.78   1430.08   1429.75   1429.98   1430.93       .85      2.20       .10   1429.30
     599.0      12.7     586.3        .0       5.4      78.6        .0      29.0      12.9 100000.00
       .44      2.36      7.46       .00      .045      .035      .000      .000   1426.30   9972.00
   .008613      370.      300.      160.         2        15         0       .00     35.83  10007.83


 FLOW DISTRIBUTION FOR SECNO=      1.48          CWSEL=   1430.08

 STA=    9972.    9979.   10010.
   PER Q=      2.1     97.9
    AREA=      5.4     78.6
     VEL=      2.4      7.5
   DEPTH=       .7      2.7

 *SECNO 1.520

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.52


 3470 ENCROACHMENT STATIONS=     9956.0   10000.0  TYPE=      1  TARGET=       44.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1430.30 ELREA=    100000.00

     1.520      3.88   1431.68   1430.68   1430.83   1432.07       .39      1.09       .05   1430.30
     599.0       1.1     597.9        .0        .9     119.2        .0      29.5      13.1 100000.00
       .45      1.22      5.02       .00      .045      .035      .000      .000   1427.80   9956.00
   .003746      220.      200.      270.         2        15         0       .00     44.00  10000.00


 FLOW DISTRIBUTION FOR SECNO=      1.52          CWSEL=   1431.68

 STA=    9956.    9957.   10000.
   PER Q=       .2     99.8
    AREA=       .9    119.2
     VEL=      1.2      5.0
   DEPTH=      1.3      2.8

1
    11SEP02      14:17:12                                                                                    PAGE   37

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 1.610

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9970.0   10008.0  TYPE=      1  TARGET=       38.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1436.50 ELREA=    100000.00

     1.610      3.05   1436.45   1436.45   1436.46   1437.46      1.01      3.33       .19   1436.50
     599.0        .0     599.0        .0        .0      74.3        .0      30.6      13.6 100000.00
       .47       .00      8.06       .00      .000      .035      .000      .000   1433.40   9970.50
   .014935      600.      500.      380.         0        15         0       .00     37.50  10008.00


FLOW DISTRIBUTION FOR SECNO=      1.61          CWSEL=   1436.45

STA=    9970.   10025.
  PER Q=    100.0
   AREA=     74.3
    VEL=      8.1
  DEPTH=      2.0

*SECNO 1.700

3470 ENCROACHMENT STATIONS=     9978.0   10014.0  TYPE=      1  TARGET=       36.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1441.90 ELREA=    100000.00

     1.700      3.50   1442.00   1441.48   1441.98   1442.70       .70      5.20       .03   1441.90
     599.0        .0     599.0        .0        .0      89.4        .0      31.5      14.0 100000.00
       .49       .03      6.70       .00      .045      .035      .000      .000   1438.50   9978.00
   .007666      420.      500.      600.         4         8         0       .00     36.00  10014.00


FLOW DISTRIBUTION FOR SECNO=      1.70          CWSEL=   1442.00

STA=    9978.    9979.   10044.
  PER Q=       .0    100.0
   AREA=       .0     89.4
    VEL=       .0      6.7
  DEPTH=       .0      2.5

1
   11SEP02      14:17:12                                                                                                PAGE   38

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 1.800

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9996.0   10020.0  TYPE=      1  TARGET=       24.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1447.30 ELREA=    100000.00

     1.800      3.12   1447.12   1447.12   1447.12   1448.50      1.37      5.25       .20   1447.30
     599.0        .0     599.0        .0        .0      63.7        .0      32.4      14.3 100000.00
       .51       .00      9.41       .00      .000      .035      .000      .000   1444.00   9996.22
   .015264      440.      500.      500.         0        11         0       .00     23.42  10019.64


FLOW DISTRIBUTION FOR SECNO=      1.80          CWSEL=   1447.12

STA=    9996.   10024.
  PER Q=    100.0
   AREA=     63.7
    VEL=      9.4
  DEPTH=      2.7

*SECNO 1.890
```

```
3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     9975.0   10012.0  TYPE=      1  TARGET=       37.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.890      4.31   1453.51   1453.07   1453.51   1454.25       .74      5.69       .06 100000.00
     599.0        .0     599.0        .0        .0      86.9        .0      33.3      14.7 100000.00
       .53       .00      6.89       .00      .000      .035      .000      .000   1449.20   9975.16
   .008799      450.      500.      500.         3        11         0       .00     36.83  10012.00


FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1453.51

1
   11SEP02      14:17:12                                                                                    PAGE   39

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=    9975.   10021.
  PER Q=    100.0
   AREA=     86.9
    VEL=      6.9
  DEPTH=      2.4

*SECNO 1.970

3470 ENCROACHMENT STATIONS=     9979.0   10033.0  TYPE=      1  TARGET=       54.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.970      3.21   1457.61   1457.44   1457.61   1458.28       .67      4.03       .01 100000.00
     599.0        .0     599.0        .0        .0      91.4        .0      34.1      15.1 100000.00
       .54       .00      6.55       .00      .000      .035      .000      .000   1454.40   9979.80
   .011625      490.      400.      450.         3        16         0       .00     52.97  10032.77


FLOW DISTRIBUTION FOR SECNO=      1.97          CWSEL=   1457.61

STA=    9980.   10067.
  PER Q=    100.0
   AREA=     91.4
    VEL=      6.6
  DEPTH=      1.7

*SECNO 1.990

3470 ENCROACHMENT STATIONS=     9971.0   10025.0  TYPE=      1  TARGET=       54.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.990      3.27   1458.77   1457.90   1458.77   1459.01       .24       .69       .04 100000.00
     395.0        .0     395.0        .0        .0      99.9        .0      34.3      15.2 100000.00
       .55       .00      3.95       .00      .000      .035      .000      .000   1455.50   9971.50
   .003821       50.      100.        0.         3        19         0       .00     53.50  10025.00


FLOW DISTRIBUTION FOR SECNO=      1.99          CWSEL=   1458.77

1
   11SEP02      14:17:12                                                                                    PAGE   40

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=    9972.   10033.
  PER Q=    100.0
   AREA=     99.9
    VEL=      4.0
  DEPTH=      1.9
```

```
*SECNO 2.080

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9983.0   10015.0  TYPE=      1  TARGET=       32.000
     2.080      2.83   1462.53   1462.53   1462.53   1463.39       .86      3.43       .19 100000.00
     395.0        .0     395.0        .0        .0      53.0        .0      35.2      15.7 100000.00
       .57       .00      7.46       .00      .000      .035      .000      .000   1459.70   9983.64
   .015773      460.      500.      320.         0        15         0       .00     31.36  10015.00


FLOW DISTRIBUTION FOR SECNO=      2.08          CWSEL=   1462.53

STA=    9984.   10090.
  PER Q=    100.0
   AREA=     53.0
    VEL=      7.5
  DEPTH=      1.7

*SECNO 2.180

3470 ENCROACHMENT STATIONS=     9979.0   10019.0  TYPE=      1  TARGET=       40.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     2.180      2.41   1469.51   1469.32   1469.50   1470.11       .60      6.69       .03 100000.00
     395.0        .0     395.0        .0        .0      63.4        .0      35.8      16.1 100000.00
       .59       .00      6.23       .00      .000      .035      .000      .000   1467.10   9979.49
   .011484      500.      500.      380.         3        15         0       .00     39.06  10018.55


1
   11SEP02      14:17:12                                                                                PAGE   41

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      2.18          CWSEL=   1469.51

STA=    9979.   10055.
  PER Q=    100.0
   AREA=     63.4
    VEL=      6.2
  DEPTH=      1.6

*SECNO 2.270

3470 ENCROACHMENT STATIONS=     9990.0   10036.0  TYPE=      1  TARGET=       46.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     2.270      3.51   1474.01   1473.49   1474.01   1474.39       .37      4.26       .02 100000.00
     395.0        .0     395.0        .0        .0      80.7        .0      36.7      16.6 100000.00
       .62       .00      4.90       .00      .000      .035      .000      .000   1470.50   9990.26
   .006561      440.      500.      600.         5        11         0       .00     45.67  10035.92


FLOW DISTRIBUTION FOR SECNO=      2.27          CWSEL=   1474.01

STA=    9990.   10059.
  PER Q=    100.0
   AREA=     80.7
    VEL=      4.9
  DEPTH=      1.8

*SECNO 2.370
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9977.0   10012.0  TYPE=      1  TARGET=       35.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00
```

```
    2.370      2.41   1478.91   1478.91   1478.91   1479.71       .81      4.88       .13 100000.00
    395.0       .0     395.0       .0        .0      54.8        .0      37.4      17.1 100000.00
      .64       .00     7.21       .00      .000      .035      .000      .000   1476.50   9977.01
   .016015     530.     500.      530.         0        19         0       .00     34.69  10011.70


1
   11SEP02      14:17:12                                                                                PAGE   42

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 FLOW DISTRIBUTION FOR SECNO=      2.37          CWSEL=   1478.91

 STA=    9977.   10023.
   PER Q=    100.0
    AREA=     54.8
     VEL=      7.2
   DEPTH=      1.6

 *SECNO 2.460

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.58


 3470 ENCROACHMENT STATIONS=     9981.0   10020.0  TYPE=      1  TARGET=       39.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

    2.460      3.03   1484.13   1483.57   1484.13   1484.56       .43      4.81       .04 100000.00
    395.0       .0     395.0       .0        .0      75.3        .0      38.2      17.5 100000.00
      .67       .00     5.24       .00      .000      .035      .000      .000   1481.10   9981.23
   .006413     520.     500.      235.         4         5         0       .00     38.66  10019.88


 FLOW DISTRIBUTION FOR SECNO=      2.46          CWSEL=   1484.13

 STA=    9981.   10024.
   PER Q=    100.0
    AREA=     75.3
     VEL=      5.2
   DEPTH=      1.9

 *SECNO 2.560
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     9983.0   10020.0  TYPE=      1  TARGET=       37.000
    2.560      3.25   1489.55   1489.55   1489.56   1490.34       .79      4.94       .11 100000.00
    395.0       .0     395.0       .0        .0      55.3        .0      38.9      17.9 100000.00
      .69       .00     7.14       .00      .000      .035      .000      .000   1486.30   9983.47
   .017173     500.     500.      400.         0         8         0       .00     36.53  10020.00


1
   11SEP02      14:17:12                                                                                PAGE   43

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 FLOW DISTRIBUTION FOR SECNO=      2.56          CWSEL=   1489.55

 STA=    9983.   10114.
   PER Q=    100.0
    AREA=     55.3
     VEL=      7.1
   DEPTH=      1.5

 *SECNO 2.650

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.52
```

```
470 ENCROACHMENT STATIONS=     9985.0   10015.0  TYPE=      1  TARGET=       30.000
    2.650      3.68   1495.18   1494.62   1495.17   1495.76       .58      5.40       .02 100000.00
    395.0        .0     395.0        .0        .0      64.6        .0      39.6      18.3 100000.00
      .71       .00      6.11       .00      .000      .035      .000      .000   1491.50   9985.70
  .007416      360.      500.      580.         4         8         0       .00     28.57  10014.27


FLOW DISTRIBUTION FOR SECNO=      2.65          CWSEL=   1495.18

STA=    9986.   10016.
  PER Q=    100.0
   AREA=     64.6
    VEL=      6.1
  DEPTH=      2.3

*SECNO 2.750

3470 ENCROACHMENT STATIONS=     9991.0   10025.0  TYPE=      1  TARGET=       34.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

    2.750      2.80   1499.70   1499.51   1499.70   1500.40       .70      4.60       .03 100000.00
    395.0        .0     395.0        .0        .0      59.0        .0      40.3      18.6 100000.00
      .73       .00      6.70       .00      .000      .035      .000      .000   1496.90   9991.86
  .011698      560.      500.      380.         3        19         0       .00     32.74  10024.59


1
   11SEP02      14:17:12                                                                                                PAGE   44

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      2.75          CWSEL=   1499.70


STA=    9992.   10049.
  PER Q=    100.0
   AREA=     59.0
    VEL=      6.7
  DEPTH=      1.8

*SECNO 2.840
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9968.0   10000.0  TYPE=      1  TARGET=       32.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

    2.840      3.65   1506.95   1506.95   1506.95   1507.82       .86      6.83       .05 100000.00
    395.0        .0     395.0        .0        .0      53.0        .0      41.0      19.0 100000.00
      .75       .00      7.45       .00      .000      .035      .000      .000   1503.30   9968.30
  .016169      470.      500.      540.         0        11         0       .00     31.70  10000.00


FLOW DISTRIBUTION FOR SECNO=      2.84          CWSEL=   1506.95

STA=    9968.   10000.
  PER Q=    100.0
   AREA=     53.0
    VEL=      7.4
  DEPTH=      1.7

*SECNO 2.940

3470 ENCROACHMENT STATIONS=     9985.0   10015.0  TYPE=      1  TARGET=       30.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

    2.940      2.43   1514.53   1514.47   1514.53   1515.39       .86      7.57       .00 100000.00
    395.0        .0     395.0        .0        .0      53.0        .0      41.6      19.4 100000.00
      .77       .00      7.45       .00      .000      .035      .000      .000   1512.10   9985.80
  .014211      590.      500.      440.         3        14         0       .00     28.79  10014.59
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=      2.94          CWSEL=   1514.53

STA=    9986.   10070.
  PER Q=    100.0
   AREA=     53.0
    VEL=      7.4
  DEPTH=      1.8

*SECNO 2.950

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.74

3470 ENCROACHMENT STATIONS=     9981.0   10017.0  TYPE=      1  TARGET=       36.000
     2.950      4.15   1515.65   1513.88   1515.65   1515.86       .21       .41       .06 100000.00
     395.0        .0     395.0        .0        .0     106.9        .0      41.8      19.4 100000.00
       .77       .00      3.69       .00      .000      .035      .000      .000   1511.50   9981.19
   .001896      150.      100.       85.         2         5         0       .00     35.81  10017.00

FLOW DISTRIBUTION FOR SECNO=      2.95          CWSEL=   1515.65

STA=    9981.   10073.
  PER Q=    100.0
   AREA=    106.9
    VEL=      3.7
  DEPTH=      3.0
```



```
                                                                    THIS RUN EXECUTED 11SEP02    14:17:12
************************************
 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

WHITE PEAK WASH

SUMMARY PRINTOUT

      SECNO       Q        VCH      CWSEL      SSTA      ENDST       EG      TOPWID     CUMDS

      3.600    721.00      1.26   1372.66   9824.17  10279.57   1372.69    241.94       .00
      3.600    721.00      1.14   1372.93   9823.23  10280.18   1372.96    248.63       .00

*       .090    721.00      2.71   1374.74   9986.75  10202.56   1374.87    215.81    500.00
*       .090    721.00      6.65   1374.55  10000.17  10075.00   1375.24     74.83    500.00

        .190    721.00      4.20   1377.25   9984.73  10076.08   1377.52     91.35   1000.00
*       .190    721.00      2.93   1378.01   9983.00  10084.52   1378.14    101.52   1000.00

        .280    721.00      4.33   1379.83   9934.04  10018.42   1380.11     84.38   1500.00
*       .280    721.00      4.85   1379.59   9966.00  10017.79   1379.96     51.79   1500.00

*       .380    721.00      8.17   1383.30   9976.28  10018.81   1384.34     42.52   2000.00
*       .380    721.00      7.09   1383.61   9975.29  10020.72   1384.39     45.43   2000.00

*       .470    721.00      2.81   1387.44   9950.62  10094.43   1387.57    143.81   2500.00
```

*	.470	721.00	2.92	1387.38	9950.94	10077.00	1387.51	126.06	2500.00
*	.570	721.00	9.59	1390.70	9969.08	9995.94	1392.12	26.86	3000.00
*	.570	721.00	9.54	1390.71	9969.07	9995.97	1392.12	26.90	3000.00
*	.660	721.00	2.94	1396.07	9944.69	10120.22	1396.20	175.53	3500.00
*	.660	721.00	3.45	1396.30	9943.88	10048.00	1396.49	104.12	3500.00
*	.760	721.00	7.01	1398.89	9954.73	9999.32	1399.66	44.59	4000.00
*	.760	721.00	5.18	1399.47	9954.02	10031.00	1399.89	76.98	4000.00
*	.850	721.00	4.38	1404.00	9955.64	10029.26	1404.30	73.62	4500.00
	.850	721.00	4.55	1403.92	9956.67	10028.99	1404.24	72.32	4500.00
	.950	721.00	6.05	1407.49	9966.79	10010.25	1408.06	43.46	5000.00
	.950	721.00	5.92	1407.55	9966.53	10010.41	1408.09	43.88	5000.00

1

	SECNO	Q	VCH	CWSEL	SSTA	ENDST	EG	TOPWID	CUMDS
	1.040	721.00	5.83	1412.21	9958.66	10008.14	1412.73	49.48	5500.00
	1.040	721.00	5.92	1412.17	9958.87	10008.00	1412.71	49.13	5500.00
	1.140	721.00	4.67	1416.61	9965.30	10034.40	1416.95	69.11	6000.00
	1.140	721.00	4.64	1416.63	9965.18	10034.43	1416.97	69.25	6000.00
	1.230	721.00	6.87	1420.90	9974.13	10011.60	1421.63	37.47	6500.00
	1.230	721.00	6.90	1420.89	9974.17	10011.55	1421.63	37.38	6500.00
*	1.330	721.00	3.35	1424.74	9873.55	10033.67	1424.89	160.12	7000.00
*	1.330	721.00	4.09	1425.30	9973.00	10053.00	1425.56	80.00	7000.00
*	1.420	721.00	7.21	1427.39	9963.22	9997.61	1428.20	34.39	7500.00
	1.420	721.00	5.70	1428.12	9960.62	9998.77	1428.62	38.15	7500.00
*	1.480	599.00	4.65	1429.98	9898.55	10007.50	1430.23	108.96	7800.00
	1.480	599.00	7.46	1430.08	9972.00	10007.83	1430.93	35.83	7800.00
*	1.520	599.00	6.52	1430.83	9802.11	9998.25	1431.44	61.16	8000.00
*	1.520	599.00	5.02	1431.68	9956.00	10000.00	1432.07	44.00	8000.00
	1.610	599.00	7.97	1436.46	9970.36	10008.18	1437.45	37.82	8500.00
*	1.610	599.00	8.06	1436.45	9970.50	10008.00	1437.46	37.50	8500.00
	1.700	599.00	6.73	1441.98	9978.04	10014.13	1442.69	36.09	9000.00
	1.700	599.00	6.70	1442.00	9978.00	10014.00	1442.70	36.00	9000.00
*	1.800	599.00	9.40	1447.12	9996.21	10019.64	1448.50	23.43	9500.00
*	1.800	599.00	9.41	1447.12	9996.22	10019.64	1448.50	23.42	9500.00
	1.890	599.00	6.89	1453.51	9975.16	10012.08	1454.24	36.92	10000.00
	1.890	599.00	6.89	1453.51	9975.16	10012.00	1454.25	36.83	10000.00
	1.970	599.00	6.54	1457.61	9979.79	10032.78	1458.28	52.99	10400.00
	1.970	599.00	6.55	1457.61	9979.80	10032.77	1458.28	52.97	10400.00
	1.990	395.00	3.96	1458.77	9971.51	10025.33	1459.01	53.82	10500.00
	1.990	395.00	3.95	1458.77	9971.50	10025.00	1459.01	53.50	10500.00
*	2.080	395.00	7.44	1462.53	9983.63	10015.14	1463.39	31.51	11000.00
*	2.080	395.00	7.46	1462.53	9983.64	10015.00	1463.39	31.36	11000.00
	2.180	395.00	6.23	1469.50	9979.49	10018.55	1470.10	39.06	11500.00
	2.180	395.00	6.23	1469.51	9979.49	10018.55	1470.11	39.06	11500.00
	2.270	395.00	4.90	1474.01	9990.26	10035.92	1474.38	45.67	12000.00
	2.270	395.00	4.90	1474.01	9990.26	10035.92	1474.39	45.67	12000.00
*	2.370	395.00	7.21	1478.91	9977.01	10011.70	1479.71	34.69	12500.00
*	2.370	395.00	7.21	1478.91	9977.01	10011.70	1479.71	34.69	12500.00

1

	SECNO	Q	VCH	CWSEL	SSTA	ENDST	EG	TOPWID	CUMDS

```
*      2.460    395.00      5.24   1484.13   9981.23  10019.88   1484.56      38.66  13000.00
*      2.460    395.00      5.24   1484.13   9981.23  10019.88   1484.56      38.66  13000.00

*      2.560    395.00      7.08   1489.56   9983.45  10020.28   1490.34      36.83  13500.00
*      2.560    395.00      7.14   1489.55   9983.47  10020.00   1490.34      36.53  13500.00

*      2.650    395.00      6.13   1495.17   9985.72  10014.25   1495.75      28.54  14000.00
*      2.650    395.00      6.11   1495.18   9985.70  10014.27   1495.76      28.57  14000.00

       2.750    395.00      6.70   1499.70   9991.86  10024.60   1500.40      32.75  14500.00
       2.750    395.00      6.70   1499.70   9991.86  10024.59   1500.40      32.74  14500.00

*      2.840    395.00      7.46   1506.95   9968.31  10000.00   1507.82      31.69  15000.00
*      2.840    395.00      7.45   1506.95   9968.30  10000.00   1507.82      31.70  15000.00

       2.940    395.00      7.43   1514.53   9985.79  10014.60   1515.39      28.81  15500.00
       2.940    395.00      7.45   1514.53   9985.80  10014.59   1515.39      28.79  15500.00

*      2.950    395.00      3.69   1515.65   9981.18  10017.24   1515.86      36.06  15600.00
*      2.950    395.00      3.69   1515.65   9981.19  10017.00   1515.86      35.81  15600.00

1
   11SEP02      14:17:12                                                                    PAGE   49


 SUMMARY OF ERRORS AND SPECIAL NOTES


CAUTION SECNO=        .090  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .090  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=        .090  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .090  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=        .190  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=        .280  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=        .380  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .380  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=        .380  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=        .470  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=        .470  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=        .570  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .570  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=        .570  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=        .570  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=        .660  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=        .660  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=        .760  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=        .760  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=        .850  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       1.330  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=       1.330  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       1.420  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       1.480  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=       1.520  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=       1.520  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=       1.610  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       1.610  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=       1.800  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       1.800  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       1.800  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       1.800  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=       2.080  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       2.080  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=       2.080  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=       2.080  PROFILE=  2  MINIMUM SPECIFIC ENERGY
```

```
CAUTION SECNO=      2.370  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.370  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.370  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.370  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      2.460  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      2.460  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      2.560  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.560  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.560  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.560  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      2.650  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      2.650  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      2.840  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.840  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.840  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.840  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      2.950  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      2.950  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```


FLOODWAY DATA, WHITE PEAK WASH
PROFILE NO. 2

	------- FLOODWAY -------			WATER SURFACE ELEVATION		
STATION	WIDTH	SECTION AREA	MEAN VELOCITY	WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
3.600	457.	566.	1.3	1373.0	1372.7	.3
.090	75.	108.	6.7	1374.5	1374.7	-.2
.190	102.	246.	2.9	1378.0	1377.2	.8
.280	52.	149.	4.8	1379.6	1379.8	-.2
.380	45.	102.	7.1	1383.6	1383.3	.3
.470	126.	247.	2.9	1387.3	1387.4	-.1
.570	27.	76.	9.5	1390.7	1390.7	.0
.660	104.	209.	3.4	1396.3	1396.1	.2
.760	77.	139.	5.2	1399.5	1398.9	.6
.850	72.	158.	4.6	1403.9	1404.0	-.1
.950	44.	122.	5.9	1407.6	1407.5	.1
1.040	49.	122.	5.9	1412.2	1412.2	.0
1.140	69.	156.	4.6	1416.6	1416.6	.0
1.230	37.	104.	6.9	1420.9	1420.9	.0
1.330	80.	176.	4.1	1425.3	1424.7	.6
1.420	38.	127.	5.7	1428.1	1427.4	.7
1.480	36.	84.	7.1	1430.1	1430.0	.1
1.520	44.	120.	5.0	1431.6	1430.8	.8
1.610	38.	74.	8.1	1436.5	1436.5	.0
1.700	36.	89.	6.7	1442.0	1442.0	.0
1.800	23.	64.	9.4	1447.1	1447.1	.0
1.890	37.	87.	6.9	1453.5	1453.5	.0
1.970	53.	91.	6.6	1457.6	1457.6	.0
1.990	53.	100.	4.0	1458.8	1458.8	.0
2.080	31.	53.	7.5	1462.5	1462.5	.0
2.180	39.	63.	6.2	1469.5	1469.5	.0
2.270	46.	81.	4.9	1474.0	1474.0	.0
2.370	35.	55.	7.2	1478.9	1478.9	.0
2.460	39.	75.	5.2	1484.1	1484.1	.0
2.560	37.	55.	7.1	1489.6	1489.6	.0
2.650	29.	65.	6.1	1495.2	1495.2	.0
2.750	33.	59.	6.7	1499.7	1499.7	.0
2.840	32.	53.	7.4	1507.0	1507.0	.0
2.940	29.	53.	7.4	1514.5	1514.5	.0
2.950	36.	107.	3.7	1515.6	1515.6	.0

Appendix A3
HEC-2 Output for Post-Project Conditions Model
(Twin Buttes Wash)

```
*******************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
*                                         *
*  RUN DATE    09OCT02    TIME   10:51:24 *
*******************************************
```

```
****************************************
*  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

09OCT02 10:51:24 PAGE 1

THIS RUN EXECUTED 09OCT02 10:51:24

```
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
```

```
T1  CAP OVERCHUTES - AGUA FRIA FLOOD PLAIN STUDY
T2  FOR FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
T3      TWIN BUTTES WASH - Post-Project Condition Model: CAPTBW_P.DAT, Oct. 2002

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         3         0         0        -1         0         0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1         0        -1                                      -1                            15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38        43        26         1        53        54         3         4       200

NC     .045      .045      .035       .1        .3
QT        3                 2746      2746      2746
  Agua Fria River (mile 0.00) - first approximation start at critical depth
  Starting Q from concentration point N  (2746 CFS) - HEC-1 dated May 7, 1991
  NC card used as majority of flow expected to remain in channel
  N values from n-value determination report dated February, 1991
ET                                   9.1       9.1                                        9959      10066
X1     0.19        38    9945.8   10098.5
X3       10
GR   1264.8    9494.5    1262.3    9537.2    1260.8    9594.4    1261.3    9639.3    1258.5    9659.2
GR   1248.4    9684.6    1244.5    9697.1    1244.7    9712.2    1241.0    9714.7    1245.0    9725.6
GR   1244.6    9762.6    1247.8    9780.3    1249.6    9796.2    1249.7    9833.0    1247.2    9857.3
GR   1245.7    9868.9    1245.7    9899.3    1245.8    9926.2    1245.8    9945.8    1243.4    9956.9
GR   1240.8    9963.5    1240.7    9990.2    1240.2   10000.0    1237.4   10042.1    1238.0   10056.4
GR   1245.0   10070.9    1246.7   10098.5    1245.4   10129.1    1246.7   10186.4    1246.6   10229.9
GR   1247.0   10302.0    1247.7   10368.0    1247.7   10427.6    1246.7   10482.4    1248.0   10514.5
GR   1246.5   10532.6    1247.8   10563.7    1248.7   10571.8

ET                                   9.1       9.1                                        9982      10094
X1     0.28        34    9956.6   10097.9       520       340       500
X3       10
GR   1268.3    9144.4    1268.3    9238.2    1267.8    9332.9    1267.3    9434.4    1267.6    9533.8
GR   1265.3    9615.1    1261.4    9669.4    1259.2    9698.1    1260.9    9735.7    1261.3    9777.4
GR   1261.9    9809.2    1263.7    9875.5    1264.0    9930.6    1263.9    9956.6    1244.3    9987.8
GR   1242.8   10000.0    1242.9   10019.0    1245.9   10043.1    1245.4   10070.9    1245.1   10086.5
GR   1249.2   10097.9    1249.9   10174.5    1250.0   10250.0    1249.4   10357.3    1250.0   10438.0
GR   1250.2   10517.2    1248.4   10574.3    1248.7   10594.5    1247.1   10609.3    1249.1   10638.6
GR   1249.8   10682.3    1250.4   10770.8    1251.1   10803.4    1262.7   10834.6
```

1

```
ET                                    9.1       9.1                                        9978      10136
X1     0.38        43     9829.3   10222.6       580       330       500
X3       10

GR   1261.8    9239.4    1261.4    9296.4    1260.6    9387.2    1257.6    9486.2    1256.1    9518.6
GR   1253.7    9552.0    1255.5    9578.0    1255.9    9632.6    1256.3    9665.6    1263.0    9699.5
GR   1266.5    9716.2    1260.2    9739.4    1255.7    9753.3    1256.3    9784.1    1254.9    9799.5
GR   1255.3    9829.3    1253.6    9874.5    1248.7    9887.3    1250.8    9907.2    1250.6    9948.7
GR   1250.4    9993.5    1249.6   10000.0    1249.2   10029.9    1247.0   10048.8    1251.7   10059.9
GR   1251.7   10089.4    1248.9   10104.0    1247.1   10119.0    1252.3   10137.0    1253.0   10174.1
GR   1253.7   10222.6    1252.9   10262.5    1250.7   10287.7    1251.6   10315.8    1251.9   10348.7
GR   1251.9   10397.4    1252.6   10420.6    1259.4   10468.3    1259.8   10489.9    1254.2   10514.3
GR   1262.5   10545.4    1268.0   10579.3    1267.7   10614.7

ET                                    9.1       9.1                                        9910      10046
X1     0.47        38     9869.5   10050.9       380       720       500
X3       10
GR   1262.7    9219.3    1261.8    9271.1    1260.8    9314.8    1259.8    9363.3    1258.7    9404.7
GR   1258.8    9430.9    1257.9    9457.1    1260.1    9474.5    1262.8    9510.5    1263.0    9564.1
GR   1261.7    9678.4    1259.2    9727.0    1257.7    9747.2    1260.0    9784.2    1259.6    9817.8
GR   1259.6    9869.5    1257.6    9907.5    1254.4    9923.5    1256.5    9953.0    1253.9    9986.5
GR   1253.8   10000.0    1253.5   10036.7    1259.1   10050.9    1259.6   10078.4    1257.6   10102.9
GR   1257.1   10133.1    1259.3   10158.3    1257.9   10177.3    1254.5   10184.6    1255.0   10192.2
GR   1259.3   10202.8    1258.8   10227.4    1257.7   10244.1    1254.3   10252.4    1263.0   10280.7
GR   1272.1   10309.3    1272.8   10380.9    1272.6   10411.5

ET                                    9.1       9.1                                        9923      10115
X1     0.57        40     9923.3   10177.1       490       730       500
X3       10
GR   1267.3    9364.5    1267.1    9423.9    1267.1    9500.9    1266.6    9563.0    1267.9    9587.8
GR   1267.8    9643.6    1266.8    9667.1    1268.4    9721.6    1267.3    9767.8    1265.5    9810.7
GR   1266.7    9843.6    1267.0    9873.6    1265.6    9884.0    1260.2    9903.8    1263.4    9923.3
GR   1262.8    9933.8    1259.7    9943.5    1260.7    9963.8    1260.5   10000.0    1259.8   10037.7
GR   1262.9   10052.9    1262.8   10075.5    1263.3   10115.9    1263.8   10177.1    1263.4   10224.1
GR   1264.0   10282.8    1265.5   10320.2    1265.5   10342.2    1266.0   10355.4    1275.2   10383.7
GR   1278.8   10417.9    1278.5   10446.6    1274.5   10463.9    1277.8   10482.4    1279.2   10510.8
GR   1277.7   10547.6    1276.2   10583.1    1278.2   10621.7    1278.4   10666.7    1280.9   10730.1

ET                                    9.1       9.1                                        9928    10030.7
X1     0.66        41     9918.8   10030.7       300       900       500
X3       10
GR   1283.1    8929.8    1274.5    8966.1    1273.8    8994.2    1269.1    9029.6    1268.5    9038.6
GR   1269.0    9084.7    1267.5    9105.6    1263.0    9126.0    1266.8    9164.6    1267.2    9224.7
GR   1267.8    9307.1    1268.5    9370.0    1268.5    9419.5    1268.5    9483.8    1268.5    9555.4
GR   1274.8    9573.0    1273.0    9605.3    1274.7    9616.6    1274.1    9648.9    1268.5    9672.8
GR   1268.6    9714.8    1266.8    9753.3    1267.7    9775.7    1267.7    9839.9    1268.8    9918.8
GR   1266.8    9961.9    1264.5    9978.3    1263.2    9999.4    1263.2   10000.0    1263.5   10017.4
GR   1268.1   10030.7    1267.4   10071.6    1269.2   10106.1    1268.7   10122.5    1270.7   10151.5
GR   1270.8   10211.0    1270.1   10264.2    1271.4   10306.6    1271.8   10330.4    1294.9   10388.1
GR   1301.0   10413.8
1
```



```
ET                                    9.1       9.1                                        9965      10189
X1     0.76        36     9874.5   10078.3       530       430       500
X3       10
GR   1280.4    9251.6    1280.1    9263.5    1280.8    9288.8    1277.3    9320.2    1274.7    9350.9
GR   1279.6    9384.1    1273.7    9412.4    1271.2    9447.0    1269.1    9502.8    1265.2    9531.3
GR   1269.9    9551.8    1269.8    9582.6    1267.3    9629.9    1270.7    9686.8    1271.8    9774.1
GR   1273.5    9874.5    1273.1    9965.0    1265.0    9987.7    1266.8   10000.0    1269.1   10019.7
GR   1271.3   10027.0    1272.8   10078.3    1272.7   10154.3    1270.8   10197.3    1272.8   10233.3
GR   1269.7   10245.6    1272.1   10265.8    1273.6   10288.3    1272.0   10317.8    1271.4   10349.8
GR   1272.5   10383.7    1274.5   10450.3    1275.4   10520.4    1276.0   10578.5    1279.0   10610.6
GR   1300.1   10652.6

ET                                    9.1       9.1                                        9932    10035.4
X1     0.85        23     9930.6   10035.4       530       290       500
X3       10
GR   1287.9    9773.4    1286.3    9811.6    1287.1    9848.3    1281.3    9864.5    1275.8    9890.1
GR   1276.0    9930.6    1274.4    9965.1    1272.7    9986.3    1269.0    9998.9    1267.9   10000.0
GR   1267.3   10021.7    1275.7   10035.4    1275.7   10060.0    1276.6   10119.0    1277.4   10187.5
GR   1276.5   10268.5    1276.6   10330.7    1276.5   10389.2    1278.6   10429.2    1283.6   10457.9
GR   1298.2   10492.6    1304.0   10559.5    1303.9   10560.8
Change channel contraction and expansion values to .2 and .4
```

```
NC      .045       .045       .035        .2         .4
ET                                       9.1        9.1                                          9970       10080
X1      0.95         39     9957.1    10082.8        530        270        500
X3        10                                          10245
GR    1293.3     9330.4     1293.0     9391.2     1292.5     9441.0     1292.5     9499.7     1289.9     9545.2
GR    1288.9     9580.2     1290.7     9616.7     1292.5     9648.5     1292.7     9683.8     1291.5     9731.9
GR    1290.6     9771.9     1289.6     9785.7     1292.2     9837.9     1294.4     9894.5     1292.3     9928.1
GR    1288.4     9957.1     1275.2     9980.9     1276.4    10000.0     1278.9    10043.5     1280.9    10082.8
GR    1281.3    10160.0     1282.1    10245.0     1281.6    10333.6     1278.6    10392.1     1280.1    10438.8
GR    1280.1    10455.6     1285.3    10472.8     1283.6    10489.0     1289.7    10530.1     1299.8    10589.0
GR    1300.1    10608.9     1300.2    10656.2     1298.9    10700.4     1297.5    10733.6     1292.5    10790.3
GR    1299.3    10838.1     1300.5    10888.2     1304.0    10937.1     1304.2    10945.8

ET                                       9.1        9.1                                          9956       10081
X1      1.04         27     9956.9    10081.3        410        700        500
X3        10
GR    1295.0     9313.8     1295.8     9409.0     1295.4     9551.6     1291.1     9603.2     1296.0     9694.8
GR    1293.6     9752.6     1290.8     9818.5     1284.0     9843.0     1284.0     9869.7     1285.2     9912.2
GR    1285.1     9956.9     1280.9     9980.7     1277.8     9998.7     1278.9    10000.0     1282.5    10030.3
GR    1285.0    10081.3     1285.3    10131.6     1285.1    10218.5     1286.3    10257.0     1286.7    10287.2
GR    1287.4    10319.2     1292.7    10357.8     1296.7    10422.3     1292.7    10467.8     1301.9    10512.7
GR    1305.6    10581.4     1305.8    10666.7

NC      .045       .045       .040        .2         .4
  Change channel n value to .040 for wider and less defined channel
  Leave contraction and expansion values to .2 and .4
  NH cards input for stations 1.14 through 1.84
NH        4       .045     9941.1       .040    10025.5       .050    10198.0       .045    10831.0
ET                                       9.1        9.1                                          9956       10180
1
   09OCT02      10:51:24                                                                                    PAGE    4

X1      1.14         30     9941.1    10198.0        560        260        500
X3        10
GR    1301.8     9696.6     1301.7     9765.9     1297.9     9844.9     1296.0     9891.6     1296.8     9915.1
GR    1291.6     9941.1     1289.5     9964.4     1284.3     9980.5     1283.8    10000.0     1283.5    10013.5
GR    1289.7    10025.5     1289.9    10075.4     1289.8    10131.7     1289.6    10172.7     1291.8    10198.0
GR    1291.1    10263.3     1288.0    10301.6     1285.8    10320.3     1288.1    10377.5     1290.0    10404.3
GR    1289.5    10456.1     1290.1    10508.4     1296.1    10538.6     1299.5    10577.9     1301.1    10615.8
GR    1305.2    10667.9     1307.6    10708.5     1308.4    10758.9     1308.5    10817.9     1308.6    10831.0
  Change contraction and expansion values to .3 and .5 - rapid expansion

NC                                        .3         .5
NH        5       .045     9971.6       .040    10025.3       .060    10273.2       .040    10540.3       .045
NH    10792
ET                                       9.1        9.1                                          9975       10380
X1      1.23         33     9971.6    10025.3        530        200        500
X3        10
GR    1326.4     9527.5     1313.8     9613.9     1309.0     9681.1     1304.2     9735.5     1304.5     9769.8
GR    1302.4     9807.4     1298.4     9839.5     1293.9     9855.0     1299.6     9879.8     1299.5     9898.7
GR    1302.0     9932.4     1302.2     9971.6     1287.8    10000.0     1287.7    10011.2     1293.4    10025.3
GR    1292.9    10065.3     1293.0    10136.4     1292.9    10212.4     1293.3    10273.2     1289.7    10331.6
GR    1288.9    10368.6     1286.4    10403.9     1290.0    10439.0     1290.5    10457.6     1291.3    10487.8
GR    1291.7    10522.0     1292.2    10540.3     1296.8    10557.0     1300.6    10591.2     1303.2    10654.7
GR    1308.1    10705.8     1308.2    10756.4     1311.2      10792

NH        7       .045     9870.4        .05     9951.8        .04    10075.3        .06    10153.8       .045
NH    10220        .06    10249.5       .045    10562.9
ET                                       9.1        9.1                                          9900    10153.8
X1      1.33         41     9870.4    10153.8        500        470        500
X3        10
GR    1329.0     9096.0     1322.4     9151.0     1320.1     9183.2     1315.3     9215.8     1311.9     9264.0
GR    1309.6     9313.9     1308.4     9346.4     1308.8     9401.1     1308.0     9443.1     1305.9     9473.6
GR    1309.9     9499.2     1308.2     9573.9     1308.4     9631.2     1308.4     9693.7     1306.9     9747.5
GR    1305.8     9796.8     1305.1     9835.6     1305.2     9870.4     1295.2     9903.3     1294.8     9951.8
GR    1292.4     9964.1     1292.5     9993.1     1292.7    10000.0     1294.0    10035.6     1291.9    10053.8
GR    1295.1    10075.3     1295.1    10153.8     1293.6    10192.5     1295.3      10220     1295.1    10249.5
GR    1293.5    10277.4     1296.4    10301.0     1296.5    10316.4     1293.7    10327.7     1294.0    10351.2
GR    1294.2    10364.1     1309.8    10410.2     1313.7    10435.7     1318.0    10480.6     1321.7    10547.3
GR    1323.0    10562.9

NH        4       .045     9631.4        .06     9913.8        .04    10073.0       .045    10168.3
ET                                       9.1        9.1                                          9913       10058
X1      1.42         31     9913.8    10073.0        520        460        500
X3        10
GR    1327.0     8877.7     1324.0     8926.5       1320     8951.5     1319.3     8980.6     1319.3     9020.9
GR    1315.5     9063.2     1314.9     9100.1     1314.1     9141.5     1313.0     9206.3     1311.7     9276.4
GR    1311.8     9321.7     1310.5     9389.1     1306.6     9452.9     1304.6     9474.6     1308.5     9514.1
GR    1305.6     9547.4     1300.2     9569.1     1301.4     9631.4     1300.7     9706.1     1299.8     9794.6
GR    1299.6     9856.4     1299.3     9913.8     1297.8     9967.5     1296.3    10000.0     1293.3    10021.2
```

```
GR   1299.4    10044.1     1299.8    10057.7      1306.5     10073.0      1318.9     10098.4      1334.8     10139.9
GR   1336.8    10168.3
```



```
NH        5       .045     9606.0        .04      9852.4         .05      9943.0         .04     10074.2         .045
NH    10760
ET                                      9.1          9.1                                          9845        10030
X1     1.52         25     9852.4    10074.2        180          530         500
X3       10
GR   1305.6     9565.4     1305.6     9565.5     1305.6      9565.6     1305.1      9606.0     1301.4      9648.8
GR   1301.7     9697.3     1301.6     9756.6     1300.7      9802.7     1303.1      9852.4     1302.4      9900.5
GR   1302.3     9943.0     1300.7     9976.3     1298.5      9993.8     1297.8     10000.0     1296.9     10019.5
GR   1336.3    10074.2     1337.7    10106.0     1338.8     10167.4     1339.3     10242.6     1338.7     10331.2
GR   1336.8    10405.1     1336.7    10494.0     1336.9     10596.2     1336.6     10755.8     1336.5       10760
  Change channel n value to .045 due to shallower flows

NC      .045       .045       .045
ET                                      9.1          9.1                                          9973        10036
X1     1.61         34     9973.4    10035.5        480          600         500
X3       10
GR   1340.5     9306.5     1336.5     9352.8     1329.6      9385.2     1322.6      9443.0     1318.7      9493.7
GR   1313.9     9552.5     1311.2     9595.2     1310.8      9608.9     1314.3      9643.6     1314.3      9674.6
GR   1316.0     9733.5     1316.7     9803.1     1316.4      9835.9     1312.4      9862.5     1308.1      9897.6
GR   1304.8     9921.7     1306.5     9950.9     1306.6      9973.4     1299.7      9985.3     1300.9     10000.0
GR   1300.9    10014.1     1306.8    10035.5     1305.4     10064.0     1305.2     10095.1     1305.4     10109.9
GR   1309.7    10131.0     1312.8    10165.9     1311.7     10218.3     1309.9     10248.2     1312.8     10299.4
GR   1318.0    10329.4     1331.1    10379.8     1334.3     10416.9     1336.4     10429.0
  increment channel n value to .05

NC      .045       .045        .05
ET                                      9.1          9.1                                          9926        10029
X1     1.70         28     9903.2    10141.8        500          560         500
X3       10
GR   1339.2     9462.0     1336.8     9495.9     1326.5      9555.7     1321.8      9603.8     1318.9      9659.7
GR   1316.9     9766.6     1316.4     9820.9     1317.1      9863.2     1314.2      9903.2     1308.7      9940.2
GR   1306.7     9955.1     1306.7     9977.3     1302.8      9988.4     1303.3     10000.0     1303.1     10017.9
GR   1307.6    10036.7     1307.6    10063.8     1308.3     10091.8     1311.6     10141.8     1311.3     10172.7
GR   1312.6    10204.7     1327.9    10262.0     1333.5     10299.7     1336.9     10346.2     1339.3     10409.7
GR   1339.3    10478.1     1340.6    10573.6     1339.2     10587.2

ET                                      9.1          9.1                                          9929        10090
X1     1.80         27     9929.4    10089.9        430          550         500
X3       10
GR   1347.5     9328.5     1346.8     9378.9     1341.8      9429.4     1335.2      9490.1     1328.9      9538.5
GR   1321.9     9565.6     1319.1     9591.5     1322.8      9618.7     1321.0      9673.7     1321.5      9727.0
GR   1319.4     9790.3     1317.0     9829.2     1317.1      9852.2     1312.9      9885.2     1312.4      9929.4
GR   1309.7     9948.0     1307.8     9965.8     1309.0      9993.3     1309.7     10000.0     1310.0     10025.6
GR   1312.0    10061.3     1313.1    10089.9     1313.6     10112.9     1323.6     10156.8     1328.8     10217.0
GR   1337.6    10281.1     1338.5    10302.1

ET                                      9.1          9.1                                          9967        10100
X1     1.84         23     9967.7    10100.6        220          180         200
X3       10                                                                          1316
GR   1346.2     9477.7     1342.7     9570.6     1340.1      9626.2     1334.3      9672.9     1327.6      9722.2
GR   1324.0     9765.1     1318.5     9810.1     1316.1      9832.7     1314.7      9855.6     1318.0      9900.5
GR   1315.3     9935.5     1314.8     9967.7     1308.6      9977.8     1310.3     10000.0     1312.9     10062.6
GR   1314.7    10100.6     1312.8    10138.7     1313.3     10153.5     1320.8     10178.9     1327.3     10237.2
1
```



```
GR   1333.5    10291.1     1342.1    10347.1     1343.4     10374.3
  Concentration point M - change of Q to 2779 cfs
  Change channel n value to .055 due to salt cedars

NC      .045       .045       .055
QT        3                   2779       2779        2779
ET                                      9.1          9.1                                          9719        10148
X1     1.91         17     9719.8    10148.1        310          350         400
X3       10
GR   1340.4     9477.0     1347.8     9515.3     1344.7      9529.6     1340.3      9592.4     1338.7      9645.1
GR   1337.5     9719.8     1324.9     9775.5     1316.3      9826.7     1315.6      9861.6     1315.5      9922.3
GR   1315.7     9985.5     1315.3    10000.0     1311.4     10028.0     1322.6     10055.7     1333.3     10098.7
GR   1344.8    10147.5     1345.1    10148.1

ET                                      9.1          9.1                                          9714        10102
X1     1.92         12     9714.6    10102.0         30           30          20
X3       10
```

```
GR   1339.8     9486.1     1345.7     9514.1     1338.3     9576.1     1336.5     9714.6     1316.8     9807.8
GR   1316.3     9922.7     1315.2     9994.4     1313.8    10000.0     1311.2    10021.8     1344.1    10102.0
GR   1336.4    10124.0     1337.1    10136.0
  Use NH records from 1.99 to 2.16

NH       4       .045     9786.7       .055     9972.2       .045    10066.4       .045    10622.3
ET                                      9.1        9.1                                     9804      10034
X1    1.99         30     9786.7    10066.4       530       390        380
X3      10
GR   1348.9     9230.9     1339.4     9317.8     1334.6     9351.3     1332.4     9400.7     1330.9     9466.9
GR   1327.2     9542.3     1325.8     9615.7     1325.9     9628.4     1328.6     9663.2     1326.9     9695.4
GR   1327.7     9750.2     1323.8     9786.7     1319.7     9816.3     1319.3     9838.9     1320.4     9888.8
GR   1320.5     9942.7     1320.3     9972.2     1315.3     9980.6     1315.0     9995.8     1314.9    10000.0
GR   1314.8    10010.4     1318.4    10019.8     1319.4    10029.9     1335.6    10066.4     1341.1    10130.1
GR   1344.4    10180.3     1345.9    10253.8     1346.2    10335.7     1347.9    10516.5     1348.3    10622.3
  Change of n value back to .040 above Beardsly Canal crossing
  Change expansion and contraction coefficients to .2 and .4

NC     .045       .045       .040        .2        .4
NH       5       .045     9964.3       .04    10016.8       .05    10107.9       .04    10269.4       .045
NH   10539
ET                                      9.1        9.1                                     9972      10140
X1    2.08         24     9964.3    10063.3       270       540        500
X3      10
GR   1346.4     9443.5     1340.3     9495.1     1331.3     9566.4     1329.7     9619.4     1330.1     9655.4
GR   1330.8     9695.9     1331.7     9784.0     1332.3     9877.6     1331.8     9964.3     1319.1     9979.7
GR   1318.0     9987.5     1318.0    10000.0     1322.8    10016.8     1324.0    10063.3     1323.4    10107.9
GR   1320.1    10139.9     1320.0    10154.1     1322.0    10174.2     1322.0    10204.1     1325.3    10223.4
GR   1341.2    10269.4     1346.0    10355.2     1346.6    10465.8     1348.0      10539

NH       4       .045     9854.5       .05     9964.0       .04    10047.1       .045    10469.8
ET                                      9.1        9.1                                     9964      10088
X1    2.16         28     9964.0    10047.1       790       200        420
X3      10
GR   1353.6     9544.9     1354.7     9557.1     1350.8     9598.7     1341.0     9670.5     1332.6     9742.9
GR   1330.6     9767.0     1330.2     9788.5     1326.8     9804.3     1334.9     9826.1     1335.8     9854.5
GR   1332.1     9874.5     1323.9     9907.5     1324.9     9939.9     1326.2     9964.0     1321.8     9981.5
1
   09OCT02      10:51:24                                                                                    PAGE    7

GR   1322.3    10000.0     1324.0    10024.3     1326.0    10047.1     1324.4    10062.6     1325.2    10110.5
GR   1325.0    10161.4     1323.4    10211.9     1325.4    10233.2     1331.9    10259.6     1339.9    10301.4
GR   1342.5    10337.4     1344.1    10388.8     1347.4    10469.8
  Change right overbank n to .05

NC     .045        .05        .04
ET                                      9.1        9.1                                     9970     10029.2
X1    2.27         28     9942.0    10029.2       650       670        580
X3      10
GR   1359.4     9468.6     1358.9     9532.8     1357.4     9613.8     1355.5     9697.9     1350.6     9771.8
GR   1344.6     9809.3     1342.5     9829.3     1334.0     9850.5     1334.2     9860.2     1332.4     9871.7
GR   1343.9     9893.1     1346.5     9918.3     1345.4     9942.0     1335.0     9966.5     1324.5     9976.2
GR   1324.1     9992.3     1326.1    10000.0     1326.6    10018.3     1329.4    10029.2     1329.6    10060.8
GR   1329.2    10101.4     1329.7    10135.1     1332.4    10153.6     1338.0    10179.6     1341.4    10230.6
GR   1341.0    10268.1     1343.1    10348.2     1344.6    10374.3

ET                                      9.1        9.1                                     9923      10072
X1    2.37         20     9885.1    10071.6       550       190        500
X3      10
GR   1362.6     9487.7     1360.8     9612.3     1359.9     9750.3     1359.9     9837.5     1357.9     9885.1
GR   1329.1     9933.6     1331.6     9951.9     1329.1     9973.5     1330.5     9995.2     1330.3    10000.0
GR   1331.6    10019.0     1332.9    10043.1     1334.3    10071.6     1334.3    10132.4     1333.8    10183.5
GR   1332.9    10223.9     1336.6    10259.6     1345.6    10294.5     1345.4    10314.8     1345.3    10340.0
  Change rt overbank n value to .045

NC     .045       .045        .04
ET                                      9.1        9.1                                     9851      10026
X1    2.46         32     9829.0    10045.8       500       530        500
X3      10
GR   1358.3     9283.4     1354.9     9386.6     1351.7     9456.1     1343.5     9541.4     1344.4     9627.8
GR   1338.0     9682.9     1336.2     9730.6     1335.8     9750.0     1336.0     9782.9     1336.3     9801.8
GR   1338.6     9829.0     1336.7     9886.9     1336.7     9938.4     1336.3     9966.7     1332.4     9985.2
GR   1331.4    10000.0     1331.5    10016.4     1351.3    10045.8     1350.2    10099.6     1347.8    10183.4
GR   1345.0    10261.8     1344.4    10339.9     1343.4    10387.1     1343.6    10449.9     1343.5    10521.1
GR   1342.1    10620.6     1343.1    10747.7     1343.1    10818.0     1346.2    10868.1     1345.5    10923.6
GR   1350.1    10996.4     1350.0    11033.4

ET                                      9.1        9.1                                     9957      10090
X1    2.56         39     9954.7    10100.1       350       580        500
X3      10
```

```
GR   1355.5     9250.5     1345.9     9277.1     1342.2     9294.2     1345.4     9313.4     1346.9     9354.2
GR   1347.1     9403.9     1347.9     9456.0     1349.7     9522.9     1348.2     9570.1     1351.9     9628.0
GR   1350.6     9649.3     1349.5     9668.6     1343.7     9687.1     1338.9     9712.9     1340.8     9766.7
GR   1341.5     9837.2     1341.2     9900.0     1340.9     9954.7     1340.2     9969.6     1334.9     9985.6
GR   1334.9    10000.0     1334.9    10016.7     1335.2    10041.3     1336.9    10069.1     1342.7    10100.1
GR   1346.0    10122.9     1348.3    10161.9     1350.3    10219.6     1350.0    10286.2     1347.3    10322.6
GR   1343.6    10340.4     1348.6    10359.8     1348.1    10378.8     1347.3    10407.7     1351.4    10475.5
GR   1352.7    10581.2     1356.4    10735.9     1358.4    10840.3     1358.6    10874.1
1
   09OCT02      10:51:24                                                                                   PAGE     8

ET                                        9.1         9.1                                        9965       10038
X1     2.65        36      9965.9    10041.1         370         570         500
X3       10
GR   1361.1     9311.9     1360.8     9361.9     1358.7     9395.0     1349.8     9422.0     1346.2     9441.0
GR   1345.9     9473.1     1347.2     9534.4     1347.6     9582.7     1347.5     9632.2     1348.1     9711.0
GR   1348.6     9776.0     1347.0     9833.6     1344.0     9867.2     1341.9     9884.8     1342.3     9936.3
GR   1342.0     9965.9     1337.9     9982.0     1337.6    10000.0     1336.6    10020.7     1343.8    10041.1
GR   1339.8    10060.4     1343.3    10076.7     1344.4    10078.8     1351.2    10101.3     1352.7    10129.5
GR   1349.4    10145.3     1355.8    10201.1     1357.7    10284.3     1359.6    10433.3     1357.5    10515.4
GR   1356.7    10593.4     1355.9    10641.7     1357.7    10735.2     1359.0    10843.0     1361.0    10972.8
GR   1361.9    11028.1

ET                                        9.1         9.1                                        9971       10090
X1     2.75        28      9971.7    10110.1         460         520         500
X3       10
GR   1365.0     9430.5     1364.3     9496.5     1361.1     9561.4     1355.4     9618.0     1353.4     9641.2
GR   1352.9     9714.1     1352.8     9796.5     1354.4     9874.1     1355.0     9919.5     1346.7     9952.5
GR   1346.4     9971.7     1341.0     9979.0     1341.4    10000.0     1340.7    10016.9     1343.5    10024.3
GR   1344.7    10074.7     1350.1    10110.1     1350.7    10135.0     1352.6    10154.1     1350.8    10179.0
GR   1353.8    10224.6     1358.8    10329.5     1356.9    10389.5     1357.8    10447.3     1359.0    10515.3
GR   1362.0    10587.4     1363.5    10670.8     1364.3    10700.0

ET                                        9.1         9.1                                        9963       10060
X1     2.84        40      9963.9    10059.2         500         500         500
X3       10
GR   1367.5     9749.2     1368.8     9858.5     1368.5     9886.6     1361.8     9911.1     1352.8     9943.0
GR   1349.5     9963.9     1348.1     9978.0     1343.4     9989.3     1344.1    10000.0     1344.1    10018.0
GR   1348.4    10029.0     1350.2    10059.2     1348.9    10112.9     1355.4    10140.7     1356.6    10197.3
GR   1354.7    10246.5     1355.0    10278.5     1356.3    10329.7     1360.2    10440.4     1362.2    10522.9
GR   1363.2    10594.0     1359.7    10647.0     1357.0    10669.0     1360.9    10691.4     1360.9    10714.5
GR   1351.2    10754.6     1358.1    10780.4     1358.1    10799.3     1355.1    10821.8     1359.3    10852.6
GR   1357.9    10864.5     1360.7    10895.1     1365.0    10956.2     1366.8    11031.4     1366.2    11123.2
GR   1366.7    11227.7     1365.9    11325.7     1370.7    11420.8     1375.8    11514.9     1374.6    11520.0

ET                                        9.1         9.1                                        9969       10030
X1     2.94        53      9969.7    10031.5         650         440         500
X3       10
GR   1372.1     9409.4     1372.3     9472.4     1371.3     9485.3     1367.1     9526.2     1362.1     9594.7
GR   1359.5     9612.6     1362.1     9639.8     1363.4     9665.2     1361.8     9675.2     1365.5     9713.0
GR   1365.3     9744.0     1362.3     9785.7     1359.9     9832.7     1352.5     9879.4     1352.7     9917.9
GR   1352.2     9969.7     1346.8     9981.6     1346.8     9996.2     1346.7    10000.0     1346.7    10011.4
GR   1354.5    10031.5     1350.1    10050.0     1357.2    10075.2     1362.2    10109.5     1364.5    10146.3
GR   1363.1    10192.4     1364.5    10267.5     1365.1    10335.4     1366.9    10410.1     1365.5    10418.4
GR   1364.8    10512.8     1364.9    10579.3     1363.5    10635.2     1360.8    10675.2     1360.6    10700.8
GR   1362.5    10729.8     1362.8    10771.7     1360.8    10812.6     1360.0    10834.8     1360.0    10846.6
GR   1357.1    10865.1     1364.7    10896.4     1365.5    10920.9     1364.5    10950.2     1362.3    10972.7
GR   1363.4    11007.8     1365.1    11065.9     1367.6    11131.9     1367.8    11198.1     1369.5    11303.9
GR   1370.9    11365.1     1374.9    11455.6     1375.3    11476.2
1
   09OCT02      10:51:24                                                                                   PAGE     9

ET                                        9.1         9.1                                        9970       10056
X1     3.03        49      9939.0    10056.3         420         710         500
X3       10
GR   1373.8     9539.6     1374.9     9576.3     1372.7     9614.1     1370.6     9650.8     1367.4     9697.2
GR   1369.8     9743.4     1370.9     9779.6     1376.1     9820.6     1374.5     9846.8     1369.9     9874.9
GR   1367.3     9907.3     1367.2     9939.0     1366.4     9949.2     1349.4     9988.4     1349.5    10000.0
GR   1349.5    10010.4     1355.9    10025.9     1356.9    10056.3     1352.5    10087.8     1352.4    10097.7
GR   1356.3    10126.8     1354.4    10157.0     1358.0    10180.9     1358.7    10217.5     1357.6    10231.3
GR   1363.4    10281.5     1363.4    10309.5     1363.6    10360.6     1363.2    10386.3     1366.9    10445.4
GR   1368.1    10519.4     1370.3    10664.2     1370.4    10749.2     1371.6    10856.0     1372.0    10943.0
GR   1372.0    11021.7     1371.1    11109.9     1370.2    11156.1     1370.5    11214.2     1371.5    11260.8
GR   1372.6    11317.2     1372.9    11378.8     1371.6    11462.6     1372.1    11515.2     1374.0    11611.6
GR   1374.1    11696.2     1375.3    11781.9     1374.6    11854.8     1376.2    11876.5
Change channel n values to .040 this area
```

```
NC      .045       .045       .040
ET                                        9.1        9.1                                        9983      10159
X1      3.13         40     9983.1    10191.5        540        240        500
X3        10
GR    1376.8     9518.4     1376.3     9602.7     1376.2     9677.6     1372.9     9764.8     1374.6     9808.0
GR    1374.9     9847.8     1371.7     9869.4     1361.6     9901.1     1358.3     9933.0     1357.7     9956.3
GR    1353.1     9969.5     1357.3     9983.1     1352.5     9997.3     1352.5    10000.0     1352.5    10024.1
GR    1356.7    10042.9     1357.2    10093.3     1356.6    10129.6     1359.6    10155.0     1363.7    10191.5
GR    1365.1    10243.2     1363.8    10293.7     1367.4    10329.5     1367.1    10341.3     1366.3    10383.4
GR    1366.4    10426.5     1369.9    10474.5     1371.3    10537.9     1372.4    10573.9     1371.4    10725.2
GR    1372.5    10860.3     1371.8    10940.8     1371.0    11033.4     1370.2    11125.1     1372.8    11205.3
GR    1374.8    11281.1     1375.4    11349.4     1373.0    11390.3     1374.8    11475.3     1377.7    11577.6

ET                                        9.1        9.1                                        9963      10041
X1      3.22         44     9944.4    10040.8        650        400        500
X3        10
GR    1382.6     9361.9     1380.6     9442.8     1378.5     9464.7     1374.2     9490.2     1375.7     9522.0
GR    1378.8     9541.9     1376.3     9586.4     1374.6     9599.8     1378.3     9656.5     1372.9     9732.7
GR    1375.5     9781.7     1374.2     9798.6     1370.7     9823.8     1366.1     9873.0     1364.5     9908.4
GR    1364.2     9944.4     1359.5     9974.1     1355.1     9985.6     1355.4    10000.0     1357.6    10031.6
GR    1360.8    10040.8     1361.1    10088.7     1362.0    10203.4     1362.2    10329.4     1363.0    10398.4
GR    1363.1    10420.0     1372.2    10453.7     1372.0    10477.4     1371.0    10508.5     1375.4    10581.1
GR    1374.5    10663.0     1375.5    10753.0     1372.9    10829.2     1372.2    10910.3     1374.2    10981.9
GR    1371.4    11038.2     1371.7    11078.6     1376.6    11133.0     1376.6    11192.6     1376.5    11247.3
GR    1378.7    11320.1     1380.4    11387.4     1381.0    11464.6     1381.1    11470.9

ET                                        9.1        9.1                                        9968      10113
X1      3.31         31     9965.4    10112.8        600        300        500
X3        10
GR    1386.0     9606.9     1384.9     9664.6     1383.2     9741.7     1382.7     9821.5     1380.8     9873.3
GR    1375.8     9893.0     1367.6     9936.5     1367.5     9965.4     1360.3     9975.7     1359.6    10000.0
GR    1361.3    10036.0     1364.5    10112.8     1364.1    10179.5     1362.9    10266.9     1363.8    10353.5
GR    1367.2    10380.7     1367.6    10396.1     1373.3    10433.1     1374.9    10470.8     1375.2    10521.9
GR    1373.9    10619.7     1373.0    10681.2     1374.7    10734.6     1376.6    10769.4     1373.9    10807.6
GR    1374.5    10845.8     1376.1    10900.4     1377.6    10944.7     1382.9    11069.0     1384.3    11133.3
GR    1384.2    11157.0
1
   09OCT02      10:51:24                                                                                PAGE   10

ET                                        9.1        9.1                                        9925      10017
X1      3.41         30     9890.4    10056.8        430        290        500
X3        10
GR    1375.2     9653.2     1374.0     9692.2     1371.1     9737.1     1373.9     9781.2     1372.1     9814.9
GR    1367.2     9840.6     1364.5     9854.1     1367.6     9871.7     1369.6     9890.4     1366.2     9950.9
GR    1363.6     9960.5     1360.1     9965.9     1360.2     9995.0     1361.7    10000.0     1367.0    10015.1
GR    1373.4    10032.1     1376.0    10056.8     1375.3    10125.8     1375.7    10131.6     1374.3    10209.3
GR    1374.4    10263.3     1376.9    10318.1     1375.6    10348.3     1374.5    10385.8     1374.5    10427.1
GR    1377.6    10489.8     1382.9    10593.8     1384.3    10644.1     1384.6    10694.6     1384.9    10698.4
  NH records used 3.47 to 3.6

NH        5       .045     9608.9       .04     9727.1       .06     9882.9       .04    10036.0       .045
NH    10350
ET                                        9.1        9.1                                        9817      10023
X1      3.47         21     9817.0    10036.0         40        380        300
X3        10
GR    1373.6     9457.0     1372.9     9504.3     1374.1     9562.4     1370.7     9608.9     1364.2     9658.1
GR    1365.3     9673.7     1369.2     9727.1     1370.0     9817.0     1369.4     9882.9     1367.9     9930.2
GR    1367.0     9972.1     1363.8     9988.9     1364.1    10000.0     1363.8    10015.0     1379.5    10036.0
GR    1378.7    10069.3     1380.4    10140.0     1383.8    10220.6     1390.4    10304.2     1392.0    10335.5
GR    1390.9    10350.0

NH        5       .045     9736.6       .04     9911.8       .05     9948.8       .04    10119.5       .045
NH    10638
ET                                        9.1        9.1                                        9883      10089
X1      3.50         23     9911.8    10119.5         50        250        200
X3        10
GR    1374.6     9605.5     1373.7     9647.8     1373.1     9736.6     1369.2     9805.1     1365.4     9844.2
GR    1368.3     9871.2     1370.3     9911.8     1369.3     9948.8     1365.9     9991.6     1365.5    10000.0
GR    1364.6    10026.3     1367.2    10045.5     1368.7    10073.5     1372.3    10097.2     1379.6    10119.5
GR    1380.9    10150.7     1380.6    10205.1     1381.6    10247.7     1383.9    10293.4     1384.6    10361.1
GR    1386.3    10453.0     1390.1    10613.5     1388.1    10638.0
  Confluence with White Peak Wash (CAPWPW.DAT) - Mile 0.00
  Concentration point J - Combined Flow of Twin Buttes and White Peak - 2776 cfs
                        - Flow from White Peak Wash -(node J10) - 721 cfs
                        - Flow from Twin Buttes Wash (node J14) - 2424 cfs
  Change Q to 2424 cfs

ET        3                 2424       2424       2424
NH        6       .045       9808        .04     9851.5       .035     9911.2        .05     9952.4       .035
```

```
NH    10069       .045    10381.4
ET                                    9.1        9.1                                          9894      10048
X1     3.60         29     9952.4   10069.4      470        500        500
X3       10
GR   1388.1     9502.0     1380.7    9585.6   1377.5     9646.0     1381.0     9701.8     1377.2     9760.8
GR   1377.3     9808.0     1370.9    9830.3   1371.0     9851.5     1368.6     9880.2     1368.8     9894.4
GR   1368.7     9903.1     1371.8    9911.2   1372.6     9952.4     1369.4     9978.7     1367.5     9985.9
GR   1368.4    10000.0     1371.2   10023.9   1374.2      10069     1373.7    10097.8     1382.2    10146.6
GR   1382.7    10169.0     1378.3   10230.2   1375.3    10248.7     1370.9    10266.4     1371.6    10277.2
GR   1379.1    10294.0     1380.1   10317.8   1381.1    10369.8     1380.8    10381.4
  change n values to .035 for channel
1
   09OCT02      10:51:24                                                                          PAGE    11


NC     .045       .045       .035
ET                                    9.1        9.1                                          9973      10111
X1     3.69         26     9966.4   10070.0      380                   500
X3       10
GR   1381.1     9490.4     1381.4    9529.0   1379.5     9584.3     1379.1     9613.0     1382.1     9647.7
GR   1382.8     9696.1     1385.4    9750.5   1388.6     9816.0     1387.9     9836.8     1383.1     9892.4
GR   1380.7     9907.1     1382.5    9935.7   1379.6     9966.4     1371.9     9988.1     1371.9    10000.0
GR   1371.9    10008.5     1375.2   10028.2   1373.7    10051.4     1377.2    10070.0     1375.9    10086.8
GR   1373.7    10105.3     1380.0   10124.2   1380.0    10292.0     1384.4    10332.3     1384.1    10385.3
GR   1384.0    10388.0

ET                                    9.1        9.1                                          9924      10071
X1     3.79         30     9924.1   10078.5      650        340        500
X3       10
GR   1387.9     9526.0     1387.8    9583.6   1385.9     9601.1     1383.0     9619.0     1384.4     9642.5
GR   1380.6     9657.2     1384.7    9678.7   1387.2     9717.4     1387.1     9751.8     1387.4     9780.1
GR   1384.1     9804.4     1380.7    9831.7   1379.2     9864.1     1380.2     9924.1     1379.7     9966.4
GR   1375.5     9974.5     1375.6   10000.0   1379.3    10016.7     1378.0    10038.6     1377.3    10056.6
GR   1382.2    10078.5     1384.3   10106.2   1384.1    10141.6     1386.2    10170.8     1383.7    10211.2
GR   1382.1    10273.9     1382.5   10297.6   1382.9    10326.4     1384.2    10376.1     1385.3    10407.4
  Change right overbank n value to .050

NC     .045        .05       .035
ET                                    9.1        9.1                                          9971      10094
X1     3.88         21     9931.0   10017.2      450        640        500
X3       10
GR   1389.6     9598.5     1388.6    9702.6   1390.7     9767.1     1390.6     9807.5     1385.4     9863.6
GR   1391.1     9917.7     1391.5    9931.0   1388.0     9950.5     1383.4     9975.3     1377.5     9982.0
GR   1377.6     9995.8     1378.1   10000.0   1381.2    10017.2     1382.7    10069.7     1381.7    10093.5
GR   1386.0    10109.4     1386.0   10280.0   1387.5    10291.3     1389.6    10319.0     1390.8    10367.0
GR   1390.3    10379.5
  Use NH records 3.98 to 4.45

NH        6       .045     9857.4       .04    9926.4        .05     9972.9       .035    10020.3        .07
NH    10127       .045    10417.5
ET                                    9.1        9.1                                          9866      10020
X1     3.98         28     9857.4   10020.3      590        330        500
X3       10
GR   1394.7     9442.5     1394.8    9463.6   1390.3     9501.3     1384.0     9533.7     1383.1     9544.4
GR   1387.8     9561.2     1394.4    9592.7   1394.9     9621.3     1396.1     9653.0     1395.7     9690.3
GR   1392.9     9708.9     1398.3    9762.1   1399.2     9791.1     1398.4     9819.3     1396.6     9857.4
GR   1383.6     9870.5     1384.7    9887.3   1386.3     9926.4     1385.1     9951.2     1385.7     9972.9
GR   1383.1     9995.1     1383.7   10000.0   1383.9    10010.7     1386.7    10020.3     1390.0    10030.2
GR   1390.0     10379.   0 1394.6   10395.0   1393.7    10417.5

NH        5       .045     9853.5       .05    9978.1       .035    10018.7        .04    10129.9       .045
NH    10516
ET                                    9.1        9.1                                          9906      10130
X1     4.07         27     9853.4   10129.9      480        670        500
X3       10
GR   1411.1     9740.9     1409.4    9771.2   1402.7     9800.4     1397.9     9820.7     1399.3     9853.4
GR   1396.8     9885.2     1390.9    9909.9   1390.0     9928.0     1390.8     9967.6     1390.7     9978.1
GR   1385.8     9990.9     1386.6   10000.0   1387.0    10009.1     1389.7    10018.7     1388.8    10084.4
1
   09OCT02      10:51:24                                                                          PAGE    12


GR   1391.6    10129.9     1392.6   10152.5   1389.8    10187.3     1392.3    10240.5     1393.5    10280.9
GR   1392.1    10313.5     1390.9   10319.7   1395.9    10348.6     1396.5    10372.2     1394.5    10423.2
GR   1396.3    10461.9     1397.8     10516
  Use NC record - .035 channel, .045 left overbank, .050 right overbank

NC     .045       .050       .035
ET                                    9.1        9.1                                          9933      10182
X1     4.17         35     9928.8   10209.7      640        430        500
```

```
X3        10
GR   1419.5     9136.7     1413.9     9212.3     1407.3     9287.4     1406.6     9330.6     1405.1     9390.6
GR   1401.9     9456.9     1398.9     9511.3     1397.7     9539.8     1401.4     9554.6     1398.8     9590.9
GR   1399.3     9619.0     1403.4     9658.5     1404.2     9692.6     1404.0     9725.2     1405.5     9747.1
GR   1397.0     9855.9     1395.7     9895.3     1395.0     9928.8     1390.6     9950.5     1392.6     9964.8
GR   1390.3     9976.1     1390.0    10000.0     1389.3    10006.1     1392.3    10020.7     1391.7    10054.0
GR   1392.1    10123.9     1390.3    10150.9     1392.8    10174.7     1398.3    10209.7     1398.6    10260.0
GR   1397.9    10323.1     1395.8    10381.2     1395.1    10414.0     1398.1    10448.1     1398.3    10505.9

ET                                       9.1         9.1                                        9955       10064
X1     4.26          38     9909.9    10115.8         450         700         500
X3        10
GR   1423.2     8953.4     1420.9     8987.9     1416.4     9042.5     1413.6     9087.2     1411.1     9145.2
GR   1408.6     9196.7     1404.8     9220.3     1406.8     9284.2     1403.6     9311.3     1403.2     9340.1
GR   1404.5     9366.5     1406.5     9399.3     1407.8     9452.4     1408.0     9492.1     1404.4     9528.5
GR   1402.0     9549.1     1400.8     9566.5     1400.5     9611.8     1401.6     9654.5     1401.8     9687.7
GR   1400.1     9741.7     1397.7     9784.5     1395.7     9822.1     1396.8     9859.3     1398.1     9909.9
GR   1397.2     9954.0     1392.6     9972.0     1394.4     9995.3     1394.5    10000.0     1394.4    10048.2
GR   1398.0    10070.7     1400.4    10115.8     1398.5    10142.1     1397.3    10173.8     1398.5    10215.2
GR   1400.7    10242.3     1405.2    10271.1     1405.2    10315.6

NH        4        .045     9963.1       .035    10012.7        .05    10279.2        .045    10495.5
ET                                       9.1         9.1                                        9968       10252
X1     4.36          43     9963.1    10279.2         560         530         500
X3        10
GR   1431.2     8899.4     1427.2     8959.4     1423.2     9000.6     1423.5     9044.5     1418.7     9064.2
GR   1420.9     9095.9     1417.6     9140.8     1416.6     9178.7     1413.9     9231.5     1412.9     9289.2
GR   1411.4     9318.3     1408.8     9345.1     1411.2     9380.8     1407.9     9411.9     1407.0     9430.3
GR   1407.6     9457.7     1404.6     9492.3     1403.2     9522.3     1402.2     9563.1     1401.8     9661.7
GR   1402.0     9684.5     1403.4     9710.6     1402.7     9740.0     1404.3     9778.5     1407.7     9813.7
GR   1409.8     9842.9     1404.2     9904.8     1406.0     9933.9     1408.8     9963.1     1397.1     9972.0
GR   1395.6    10000.0     1395.5    10005.6     1399.1    10012.7     1399.3    10040.2     1400.2    10132.7
GR   1399.3    10245.2     1408.7    10279.2     1407.6    10310.0     1405.7    10343.6     1405.9    10368.8
GR   1406.6    10407.7     1407.2    10463.6     1407.1    10495.5

NH        6        .045     9578.8       .06     9850.7        .05     9953.4        .035     10026        .04
NH    10219        .045    10415.1
ET                                       9.1         9.1                                        9850       10024
X1     4.45          47     9850.7     10026         630         360         500
X3        10
GR   1437.1     8712.9     1430.1     8847.1     1425.2     8920.5     1421.7     8956.3     1415.2     8991.4
GR   1412.3     9024.4     1411.2     9046.5     1416.6     9091.5     1416.3     9115.8     1413.1     9127.2
GR   1417.9     9155.7     1420.5     9194.3     1417.5     9214.0     1415.1     9228.3     1419.6     9259.9
GR   1421.5     9298.1     1422.4     9328.8     1427.7     9391.7     1429.5     9444.7     1430.3     9458.3
GR   1427.5     9491.9     1422.2     9515.4     1416.4     9547.4     1417.1     9578.8     1415.5     9640.6
GR   1413.4     9691.8     1407.4     9736.8     1405.0     9754.5     1402.3     9771.1     1404.2     9792.9
1
   09OCT02      10:51:24                                                                                    PAGE   13


GR   1403.9     9850.7     1402.5     9934.6     1402.4     9953.4     1399.8     9967.9     1399.8     9982.1
GR   1399.9    10000.0     1404.4    10026.0     1403.5    10087.2     1402.2    10156.5     1403.0    10172.7
GR   1412.2      10219     1412.1    10253.7     1408.6    10294.8     1412.2    10321.7     1413.7    10373.3
GR   1413.2    10412.0     1412.6    10415.1
  Use NH records 4.55 to 5.11

NH        6        .045     9773.5       .050     9876.9        .060     9921.7        .035    10018.8        .040
NH    10149        .045      10578
ET                                       9.1         9.1                                        9921       10047
X1     4.55          26     9921.7    10047.1         550         640         500
X3        10
GR   1411.7     9773.3     1411.7     9773.4     1411.7     9773.5     1409.6     9801.6     1408.7     9822.7
GR   1409.3     9876.9     1409.3     9921.7     1407.4     9964.0     1404.5     9983.9     1404.0     9994.1
GR   1404.1    10000.0     1408.2    10018.8     1408.6    10047.1     1408.1    10076.5     1408.9    10116.4
GR   1409.6      10149     1419.0    10179.0     1419.8    10191.9     1417.3    10213.4     1416.0    10261.3
GR   1418.8    10292.4     1416.1    10318.9     1416.8    10341.6     1418.0    10398.1     1417.7    10477.1
GR   1421.0    10578.0

NH        5        .045     9959.7       .035    10118.7        .040    10195.5        .050    10337.8        .045
NH    11170
ET                                       9.1         9.1                                        9974       10318
X1     4.64          53     9959.7    10337.8         390         360         500
X3        10
GR   1438.4     9329.7     1434.7     9392.7     1426.6     9477.2     1422.0     9540.1     1418.5     9596.7
GR   1413.4     9627.3     1412.0     9652.1     1412.9     9698.9     1410.3     9738.6     1413.1     9804.7
GR   1411.8     9841.1     1414.1     9880.4     1419.1     9914.3     1420.5     9941.0     1418.7     9959.7
GR   1408.9     9984.4     1409.3    10000.0     1410.7    10027.6     1408.9    10052.7     1408.8    10098.0
GR   1410.9    10118.7     1412.1    10195.5     1412.2    10288.2     1412.3    10312.1     1414.4    10337.8
GR   1411.6    10371.3     1410.6    10407.4     1416.0    10437.0     1422.8    10459.0     1421.7    10485.6
GR   1416.1    10513.8     1421.2    10540.9     1423.7    10566.5     1420.5    10594.5     1418.9    10646.0
GR   1417.7    10700.2     1419.4    10730.6     1421.7    10759.5     1420.5    10768.2     1416.7    10783.6
```

```
GR   1419.8    10802.1     1420.6    10840.6     1420.6    10891.0     1418.4    10911.6     1416.0    10926.0
GR   1421.6    10948.8     1426.3    10975.5     1427.4    11003.3     1423.4    11043.3     1419.5    11071.0
GR   1425.7    11107.5     1427.3    11140.8     1426.6      11170

NH        5       .045     9948.4       .035     10020       .045    10256.5       .04    10385.6       .045
NH    11305
ET                                      9.1       9.1                                        9979       10351
X1     4.73         64     9948.4    10385.6       500        410       500
X3       10
GR   1444.9     9217.0     1443.2     9259.8    1441.2     9281.9    1440.0     9339.4    1435.6     9412.2
GR   1430.9     9488.4     1427.0     9539.7    1424.8     9603.6    1420.9     9622.5    1415.2     9633.4
GR   1418.1     9645.3     1417.0     9659.9    1415.0     9672.8    1417.2     9686.7    1419.0     9709.2
GR   1418.5     9743.1     1417.3     9772.0    1422.0     9793.1    1423.1     9821.2    1421.3     9843.5
GR   1418.3     9863.4     1422.4     9886.8    1425.8     9928.3    1429.3     9948.4    1429.5     9977.3
GR   1411.9     9980.6     1412.0     9990.5    1412.0    10000.0    1416.0    10020.0    1415.2    10076.0
GR   1415.6    10175.0     1416.0    10256.5    1415.6    10298.1    1413.0    10315.8    1412.5    10326.6
GR   1416.1    10334.1     1415.1    10345.8    1419.8    10368.3    1419.4    10385.6    1413.2    10416.5
GR   1416.0    10426.8     1418.5    10454.1    1419.7    10493.9    1426.0    10537.9    1426.5    10591.0
GR   1426.5    10619.8     1422.9    10639.3    1426.3    10669.6    1425.0    10731.3    1422.7    10741.5
GR   1427.2    10780.2     1426.9    10805.3    1424.3    10855.3    1426.1    10902.9    1423.5    10950.6
GR   1422.3    10981.1     1424.3    11005.4    1426.1    11051.5    1423.8    11089.4    1424.8    11140.1
GR   1428.7    11203.2     1430.7    11242.6    1429.1    11288.4    1430.3      11305
  Confluence with East and West Garambullo Washes (CAPEGW.DAT & CAPWGW.DAT)
1
   09OCT02      10:51:24                                                                          PAGE   14


                          Mile 0.00 for Both
  Concentration point E - Combined Flow of Twin Buttes and Garambullo - 2462 cfs
                        - Flow from East Garambullo Wash -(node E13) - 259 cfs
                        - Flow from West Garambullo Wash -(node E12) - 483 cfs
                        - Flow from Twin Buttes Wash (node DtoE) - 2163 cfs
  Change Q to 2163 cfs

QT        3                 2163       2163       2163
  Channel n value changes from .035 to .040
NH        5       .045     9872.5       .040    10034.7       .050    10189.2       .04    10401.2       .045
NH    11380
ET                                      9.1       9.1                                        9932       10171
X1     4.79         71     9872.5    10189.2       330        320       300
X3       10
GR   1460.0     8959.2     1455.1     9009.5    1451.6     9056.8    1446.1     9123.3    1441.5     9182.6
GR   1439.9     9222.0     1439.9     9253.5    1434.7     9312.8    1429.6     9382.4    1425.8     9442.0
GR   1420.6     9490.4     1422.5     9509.9    1429.2     9535.9    1428.3     9559.2    1425.3     9583.7
GR   1424.1     9605.9     1429.8     9646.7    1431.2     9674.4    1432.9     9707.9    1435.9     9742.0
GR   1436.1     9770.4     1435.2     9791.8    1432.0     9819.9    1434.5     9854.2    1431.6     9872.5
GR   1422.1     9918.8     1418.1     9941.1    1418.5     9960.7    1414.9     9988.2    1415.2    10000.0
GR   1416.1    10022.0     1418.9    10034.7    1419.1    10106.7    1419.9    10189.2    1419.7    10201.1
GR   1417.7    10216.1     1417.7    10229.4    1417.9    10268.9    1418.6    10308.1    1418.3    10328.6
GR   1416.9    10336.4     1418.6    10358.7    1419.8    10378.3    1425.6    10401.2    1424.1    10463.7
GR   1425.8    10514.8     1428.9    10542.0    1429.3    10579.7    1430.4    10611.2    1430.0    10668.9
GR   1429.3    10720.3     1430.6    10780.2    1430.1    10806.8    1431.3    10840.3    1431.4    10876.4
GR   1427.9    10911.4     1425.6    10940.2    1423.5    10958.0    1427.3    10980.8    1427.0    11010.2
GR   1425.3    11033.1     1426.9    11075.0    1425.7    11089.9    1427.0    11115.8    1430.0    11180.4
GR   1432.9    11238.0     1433.4    11290.2    1432.7    11312.1    1435.5    11347.6    1436.3    11373.8
GR   1436.2    11380.0

NH        7       .045     9956.6        .04    10032.3        .05    10138.7       .040    10189.2        .05
NH    10245       .040    10320.8       .045    10360.5
ET                                      9.1       9.1                                        9960       10230
X1     4.92         24     9956.6    10189.2       570        700
X3       10
GR   1440.6     9742.1     1440.3     9767.3    1435.5     9790.7    1430.6     9829.8    1426.9     9863.4
GR   1425.1     9927.3     1426.7     9956.6    1426.2     9966.1    1423.6     9978.3    1423.6    10000.0
GR   1423.7    10018.4     1425.5    10032.3    1426.0    10071.6    1425.2    10138.7    1422.8    10165.8
GR   1422.9    10174.0     1425.4    10189.2    1425.0    10208.0    1424.5    10230.0    1430.0    10246.5
GR   1430.0    10307.0     1436.3    10320.8    1435.6    10351.3    1435.4    10360.5

NH        6       .045     9935.8        .04    10034.6       .050    10179.2       .045    10350.4        .05
NH    10461       .045    10482.2
ET                                      9.1       9.1                                        9974       10230
X1     5.02         21     9935.8    10179.2       510        420       500
X3       10
GR   1444.7     9744.2     1444.7     9770.3    1441.5     9794.3    1439.7     9834.0    1436.1     9874.1
GR   1436.2     9882.6     1439.7     9922.5    1440.3     9935.8    1431.6     9972.6    1426.3     9994.1
GR   1426.4    10000.0     1426.9    10021.8    1429.6    10034.6    1430.4    10087.1    1430.3    10120.8
GR   1430.1    10179.2     1429.5    10227.0    1435.0    10243.5    1435.0    10444.0    1441.5    10461.0
GR   1441.8    10482.2

   09OCT02      10:51:24                                                                          PAGE   15
```

```
NH        7      .045    9907.1      .060    9971.2       .04   10024.3      .045   10070.0      .060
NH    10178       .05   10235.8      .045   10380.1
ET                                    9.1       9.1                                     9931     10070
X1     5.07        31    9907.1   10070.0       320       210       250
X3       10
GR   1441.5    9633.1    1441.1    9659.3    1438.8    9704.3    1433.6    9719.1    1433.6    9728.8
GR   1437.3    9770.6    1438.6    9801.5    1438.7    9839.2    1437.0    9860.0    1435.2    9869.1
GR   1439.8    9890.5    1441.5    9907.1    1433.9    9929.6    1433.1    9938.0    1432.7    9954.6
GR   1432.8    9971.2    1430.4    9984.8    1428.8    9990.2    1428.8   10000.0    1429.1   10014.9
GR   1431.4   10024.3    1432.0   10047.4    1432.9   10070.0    1436.0   10079.3    1436.0   10228.0
GR   1437.7   10235.8    1437.8   10265.2    1439.4   10289.7    1442.5   10325.4    1442.3   10362.1
GR   1441.1   10380.1

NH        7      .045    9864.3       .05    9932.2      .045    9958.8       .08    9974.1       .04
NH    10049       .05   10122.3      .045   10261.8
ET                                    9.1       9.1                                     9974     10094
X1     5.11        26    9974.1   10122.3       280       200       250
X3       10
GR   1451.8    9573.4    1450.9    9611.1    1449.9    9657.3    1448.9    9688.1    1448.6    9739.6
GR   1447.2    9796.3    1446.8    9845.1    1442.2    9864.3    1434.2    9890.0    1434.5    9932.2
GR   1431.4    9945.9    1436.0    9958.8    1436.1    9974.1    1433.5    9989.7    1431.1   10000.0
GR   1431.1   10023.1    1431.7   10028.6    1434.5     10049    1434.4   10063.8    1434.4   10081.0
GR   1439.4   10122.3    1439.6   10150.5    1442.1   10177.6    1441.1   10201.9    1439.3   10241.6
GR   1439.3   10261.8
  Use NC record with .04 for channels and .045 for overbank

NC     .045      .045      .040
ET                                    9.1       9.1                                     9946     10034
X1     5.21        34    9931.2   10042.5       360       540       500
X3       10
GR   1452.9    9515.2    1452.8    9561.6    1451.4    9609.5    1449.9    9658.8    1445.6    9701.9
GR   1438.2    9731.2    1436.3    9741.7    1439.0    9756.7    1441.4    9788.4    1440.5    9822.5
GR   1440.1    9862.7    1440.5    9895.1    1441.3    9931.2    1440.0    9966.9    1438.4    9985.3
GR   1435.7    9995.9    1434.8   10000.0    1434.7   10021.4    1444.9   10042.5    1446.8   10062.6
GR   1445.1   10090.6    1446.0   10127.1    1443.7   10139.1    1446.3   10166.4    1445.9   10220.6
GR   1444.3   10259.9    1445.7   10294.8    1443.1   10318.6    1448.5   10353.8    1447.0   10380.4
GR   1444.5   10432.1    1444.5   10451.0    1449.2   10494.9    1449.9   10524.2

ET                                    9.1       9.1                                     9952     10054
X1     5.30        28    9945.4   10077.5       540       500       500
X3       10
GR   1460.2    9402.8    1458.6    9473.6    1457.3    9526.0    1454.6    9578.3    1452.8    9609.5
GR   1452.0    9669.7    1448.3    9707.9    1443.3    9726.1    1445.9    9743.2    1450.7    9768.1
GR   1455.3    9809.2    1456.4    9834.9    1453.1    9867.1    1449.2    9903.3    1446.8    9921.5
GR   1447.7    9945.4    1439.2    9963.8    1438.9    9975.3    1438.0    9997.5    1437.9   10000.0
GR   1442.4   10012.6    1443.1   10028.5    1441.3   10041.5    1450.8   10077.5    1451.6   10098.4
GR   1455.2   10135.8    1455.6   10180.3    1455.2   10190.4
  Change n values to .035 for channel
1
   09OCT02      10:51:24                                                                          PAGE   16


NC     .045      .045      .035
ET                                    9.1       9.1                                     9963     10085

X1     5.40        38    9955.5   10106.9       550       470       500
X3       10
GR   1472.5    9258.9    1470.3    9335.3    1468.7    9377.8    1470.5    9418.8    1469.0    9468.3
GR   1465.4    9543.4    1466.0    9598.1    1462.4    9618.6    1456.4    9644.9    1456.2    9657.2
GR   1456.2    9667.2    1457.7    9685.8    1464.4    9735.4    1465.3    9761.1    1462.3    9788.3
GR   1458.7    9819.0    1457.8    9833.6    1458.0    9869.6    1458.3    9879.8    1451.4    9916.1
GR   1451.3    9955.5    1443.6    9974.2    1444.3   10000.0    1445.2   10011.2    1446.4   10032.1
GR   1447.6   10063.0    1447.7   10083.8    1455.7   10106.9    1457.1   10122.7    1460.8   10143.3
GR   1461.9   10176.1    1461.1   10215.6    1459.9   10276.1    1455.8   10320.7    1456.7   10336.3
GR   1457.8   10368.7    1465.2   10415.0    1463.9   10438.0

ET                                    9.1       9.1                                     9922     10050
X1     5.49        43    9852.3   10092.0       460       580       500
X3       10
GR   1475.2    9117.2    1474.7    9146.2    1470.7    9180.3    1471.3    9210.4    1471.3    9259.1
GR   1471.0    9295.1    1469.7    9343.8    1467.1    9382.7    1466.9    9413.3    1464.1    9437.0
GR   1462.8    9448.9    1466.1    9485.6    1465.0    9524.0    1464.1    9566.2    1463.8    9598.4
GR   1465.7    9631.5    1465.5    9666.3    1467.3    9709.6    1465.8    9751.7    1464.5    9787.9
GR   1466.0    9814.7    1466.4    9852.3    1464.8    9882.5    1455.5    9916.5    1451.0    9931.0
GR   1451.2    9949.5    1453.7    9970.5    1450.8    9989.3    1449.5    9995.6    1449.7   10000.0
GR   1450.7   10040.2    1456.3   10058.2    1470.1   10092.0    1470.8   10132.3    1472.4   10187.4
GR   1475.0   10229.9    1474.2   10266.9    1473.1   10317.0    1471.6   10377.5    1471.4   10405.5
GR   1474.2   10458.8    1476.2   10511.4    1477.6   10561.6
```

```
ET                                        9.1        9.1                                        9934      10042
X1     5.59        38     9789.6    10083.7        580        500        500
X3       10
GR   1479.5    9219.8     1480.1     9266.8     1479.3     9311.6     1478.8     9354.9     1478.2     9392.8
GR   1474.8    9425.2     1470.6     9436.5     1470.9     9444.6     1476.9     9476.1     1478.7     9499.0
GR   1477.4    9528.3     1473.9     9570.4     1471.5     9600.5     1472.2     9626.1     1474.1     9663.4
GR   1474.1    9702.4     1472.3     9730.2     1476.0     9763.7     1479.8     9789.6     1478.7     9809.0
GR   1475.5    9845.2     1471.9     9883.1     1466.1     9917.1     1459.9     9934.1     1456.9     9942.7
GR   1457.7    9960.0     1457.6     9989.4     1457.5    10000.0     1456.7    10034.0     1476.5    10083.7
GR   1476.3   10117.6     1475.6    10172.9     1475.7    10229.8     1475.5    10292.2     1475.7    10329.3
GR   1478.1   10387.3     1479.3    10444.7     1479.6    10463.3
  Use NH records 5.68 through 5.97

NH       4      .045     9803.6       .05     9968.9      .035    10042.5      .045    10170.5
ET                                        9.1        9.1                                        9890      10027
X1     5.68        37     9803.6    10042.5        400        530        500
X3       10
GR   1480.7    9338.1     1481.4     9384.7     1481.3     9398.5     1477.0     9419.4     1475.1     9431.3
GR   1479.3    9452.7     1481.5     9463.0     1480.8     9479.1     1479.6     9495.3     1480.0     9518.3
GR   1481.9    9543.9     1484.5     9576.4     1483.9     9602.4     1481.2     9629.5     1478.4     9644.7
GR   1482.7    9666.5     1483.3     9684.3     1483.7     9702.0     1482.5     9727.4     1481.8     9751.5
GR   1481.3    9772.1     1481.4     9803.6     1477.3     9830.7     1471.8     9856.8     1466.6     9882.0
GR   1464.3    9900.2     1464.2     9915.4     1464.3     9939.1     1463.7     9968.9     1462.7     9993.7
GR   1460.2   10000.0     1460.1    10019.1     1477.5    10042.5     1480.2    10068.9     1486.7    10114.1
GR   1487.4   10137.4     1487.7    10170.5
1
   09OCT02      10:51:24                                                                                PAGE    17


NH       5      .045     9953.5      .035    10014.9       .05    10143.3       .04    10202.5      .045
NH   10423
ET                                        9.1        9.1                                        9970      10183
X1     5.78        34     9953.5    10202.5        370        440        500
X3       10
GR   1487.1    9422.6     1486.6     9452.4     1486.3     9497.2     1484.1     9549.3     1484.3     9588.6
GR   1481.5    9636.7     1482.6     9670.8     1487.0     9742.3     1489.5     9789.9     1490.4     9827.5
GR   1488.6    9863.5     1486.2     9896.0     1481.5     9918.1     1483.7     9945.7     1482.2     9953.5
GR   1462.6    9979.2     1463.5    10000.0     1463.5    10005.2     1468.4    10014.9     1468.0    10053.7
GR   1467.6   10101.7     1467.6    10145.3     1466.0    10158.5     1465.4    10168.3     1474.4    10202.5
GR   1474.8   10212.6     1467.6    10239.6     1473.1    10266.9     1475.6    10286.6     1482.5    10325.8
GR   1489.0   10352.2     1492.2    10377.8     1491.2    10414.6     1490.5     10423

NH       5      .045     9875.7       .04     9941.2       .07     9954.6      .035    10088.3      .045
NH   10389
ET                                        9.1        9.1                                        9941      10057
X1     5.87        22     9941.2    10088.3        480        450        500
X3       10
GR   1488.4    9875.7     1467.5     9921.8     1470.4     9926.0     1472.2     9941.2     1471.9     9954.6
GR   1469.0    9962.7     1469.2     9983.9     1469.2    10000.0     1470.0    10006.8     1470.4    10013.9
GR   1469.8   10031.3     1470.4    10048.7     1477.7    10077.3     1480.9    10088.3     1480.5    10116.4
GR   1481.3   10143.6     1484.3    10187.5     1483.2    10226.9     1485.4    10258.2     1492.3    10300.2
GR   1497.1   10339.9     1495.8      10389

NH       4      .045     9871.8       .04     9981.7      .035    10062.6      .045    10343.3
ET                                        9.1        9.1                                        9945      10037
X1     5.97        25     9871.8    10062.6        500        610        500
X3       10
GR   1501.4    9786.5     1501.3     9800.6     1498.1     9836.8     1496.5     9871.8     1491.4     9903.6
GR   1479.9    9936.4     1475.9     9951.4     1475.3     9963.8     1475.1     9981.7     1472.9     9988.8
GR   1473.0   10000.0     1473.7    10021.7     1476.7    10034.1     1484.9    10062.6     1485.0    10075.4
GR   1480.4   10100.0     1478.8    10106.8     1483.0    10118.1     1486.2    10140.4     1494.8    10165.7
GR   1499.8   10200.1     1499.2    10228.0     1502.7    10282.4     1504.2    10343.0     1504.7    10343.3
  Use NC record - channel n = .035, overbanks = .045

NC     .045      .045       .035
ET                                        9.1        9.1                                        9942      10058
X1     6.06        19     9942.7    10058.0        460        520        500
X3       10
GR   1505.0    9825.0     1502.8     9863.0     1488.4     9922.6     1482.6     9942.7     1481.4     9960.9
GR   1480.0    9971.9     1479.4     9996.0     1479.1    10000.0     1478.4    10014.9     1481.1    10020.7
GR   1482.7   10058.0     1495.8    10090.6     1497.2    10166.6     1497.3    10218.7     1493.6    10263.9
GR   1495.3   10274.8     1509.2    10330.2     1510.9    10376.7     1511.3    10427.8

ET                                        9.1        9.1                                        9966      10026
X1     6.16        31     9931.5    10043.9        530        500        500
X3       10
GR   1517.0    9404.7     1513.9     9484.7     1511.9     9519.7     1514.6     9554.9     1514.6     9605.3
GR   1513.6    9669.1     1511.9     9732.2     1510.0     9791.7     1509.8     9862.5     1509.5     9904.5
GR   1507.1    9931.5     1485.4     9969.8     1481.1     9997.3     1480.7    10000.0     1479.9    10015.9
```

```
GR   1500.7    10043.9     1503.9    10072.5     1506.7    10126.5     1508.6    10173.0     1507.8    10219.6
GR   1507.7    10266.5     1508.8    10314.4     1504.0    10348.5     1506.7    10368.1     1508.5    10411.9
GR   1510.5    10451.2     1512.0    10475.4     1514.9    10508.5     1516.4    10537.0     1516.6    10584.9
1
   09OCT02      10:51:24                                                                                    PAGE   18


GR   1516.9    10587.7
  Use NH record 6.25 through 6.34

NH        4       .045     9937.0       .035    10022.9        .05    10143.2       .045    10614.6
ET                                       9.1        9.1                                        9985       10040
X1     6.25         25     9937.0    10143.2        560        470        500
X3       10
GR   1523.8     9823.8     1521.5     9885.9     1523.3     9923.3     1522.5     9937.0     1501.7     9982.8
GR   1487.3     9986.1     1487.4    10000.0     1488.0    10009.7     1492.1    10022.9     1489.9    10030.5
GR   1495.5    10046.4     1500.8    10073.4     1502.0    10098.7     1504.1    10124.4     1506.3    10143.2
GR   1511.1    10161.2     1512.8    10223.3     1511.8    10294.0     1512.5    10337.0     1513.2    10390.2
GR   1511.3    10428.0     1513.8    10461.9     1516.7    10496.2     1519.1    10538.2     1519.3    10614.6

NH        4       .045     9952.0       .035       10000       .050    10100.8       .045    10336.4
ET                                       9.1        9.1                                        9970       10063
X1     6.34         25     9952.0    10100.8        420        600        500
X3       10
GR   1526.0     9660.5     1526.8     9728.8     1524.7     9762.1     1517.8     9796.5     1515.3     9814.2
GR   1515.0     9831.5     1511.6     9848.7     1511.0     9851.8     1511.4     9864.2     1511.9     9891.5
GR   1512.0     9929.5     1509.7     9952.0     1493.0     9985.8     1493.2     9998.4     1494.3    10000.0
GR   1499.0    10015.7     1498.5    10047.1     1501.4    10069.0     1508.1    10100.8     1513.5    10138.9
GR   1514.2    10169.3     1516.7    10219.0     1522.0    10257.6     1524.0    10285.7     1523.9    10336.4
  Outlet of Four 72" Concrete Pipes under CAP Canal
  Outflow controlled by stage-storage-discharge relationship at point CCAP
         on upstream side of canal - CCAP flow 2154 cfs

ET                                       9.1        9.1                                        9949       10033
X1     6.38         24     9844.6    10066.5         90        180        200
X3       10
GR   1526.9     9514.5     1528.0     9572.6     1528.0     9596.9     1521.7     9638.4     1519.5     9663.0
GR   1517.8     9692.7     1513.2     9729.6     1512.7     9752.9     1514.3     9802.5     1512.9     9844.6
GR   1508.3     9873.4     1507.6     9911.5     1506.8     9939.9     1504.0     9971.8     1502.7    10000.0
GR   1500.0    10023.7     1508.9    10037.2     1509.2    10055.2     1515.5    10066.5     1516.3    10085.3
GR   1517.1    10123.1     1521.7    10150.5     1524.2    10180.7     1523.5    10259.0
1
   09OCT02      10:51:24                                                                                    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 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV=      .100 CEHV=      .300
*SECNO  .190
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1245.80 ELREA=      1246.70

      .190      4.84   1242.24   1242.24       .00   1243.65      1.41       .00       .00   1245.80
    2746.0        .0    2746.0        .0        .0     287.9        .0        .0        .0   1246.70
      .00       .00      9.54       .00      .000      .035      .000      .000   1237.40   9959.86
   .013431        0.        0.        0.         0        14         0       .00    105.32  10065.17


FLOW DISTRIBUTION FOR SECNO=       .19          CWSEL=   1242.24

STA=    9960.   10099.
  PER Q=    100.0
   AREA=    287.9
    VEL=      9.5
  DEPTH=      2.7

*SECNO  .280

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1263.90 ELREA=      1249.20
```

```
     .280      4.98   1247.78   1247.30       .00   1248.76       .98      5.07       .04   1263.90
   2746.0        .0    2746.0        .0        .0     345.7        .0       3.6       1.2   1249.20
     .02       .00      7.94       .00      .000      .035      .000      .000   1242.80   9982.25
  .007924      520.      500.      340.         3        11         0       .00    111.72  10093.97

FLOW DISTRIBUTION FOR SECNO=        .28          CWSEL=   1247.78

STA=    9982.   10098.
  PER Q=    100.0
   AREA=    345.7
    VEL=      7.9
  DEPTH=      3.1

1
   09OCT02      10:51:24                                                                                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

*SECNO  .380

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1255.30 ELREA=      1253.70

     .380      5.00   1252.00   1251.35       .00   1252.45       .46      3.64       .05   1255.30
   2746.0        .0    2746.0        .0        .0     506.5        .0       8.5       3.4   1253.70
     .04       .00      5.42       .00      .000      .035      .000      .000   1247.00   9878.71
  .006707      580.      500.      330.         3        15         0       .00    257.22  10135.92

FLOW DISTRIBUTION FOR SECNO=        .38          CWSEL=   1252.00

STA=    9879.   10223.
  PER Q=    100.0

   AREA=    506.5
    VEL=      5.4
  DEPTH=      2.0

*SECNO  .470

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1259.60 ELREA=      1259.10

     .470      3.57   1257.07   1257.07       .00   1258.26      1.19      4.68       .22   1259.60
   2746.0        .0    2746.0        .0        .0     314.1        .0      13.2       5.6   1259.10
     .06       .00      8.74       .00      .000      .035      .000      .000   1253.50   9910.13
  .013998      380.      500.      720.         0        19         0       .00    135.64  10045.76

FLOW DISTRIBUTION FOR SECNO=        .47          CWSEL=   1257.07

STA=    9910.   10051.
  PER Q=    100.0
   AREA=    314.1
    VEL=      8.7
  DEPTH=      2.3

1
   09OCT02      10:51:24                                                                                PAGE   21

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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  .570
```

```
3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1263.40 ELREA=      1263.80

      .570      3.84   1263.54   1263.43       .00   1264.12       .57      5.79       .06   1263.40
    2746.0     251.3    2494.7        .0      54.5     401.8        .0      17.7       7.9   1263.80
      .08      4.61      6.21       .00      .045      .035      .000      .000   1259.70   9891.54
   .009768      490.      500.      730.         3        10         0       .00    254.12  10145.66


FLOW DISTRIBUTION FOR SECNO=        .57          CWSEL=   1263.54

STA=    9892.    9904.    9923.   10177.
  PER Q=      3.3      5.8     90.9
   AREA=     20.5     34.0    401.8
    VEL=      4.5      4.7      6.2
  DEPTH=      1.7      1.7      1.8

*SECNO  .660

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1268.80 ELREA=      1268.10

      .660      5.23   1268.43   1268.43       .00   1269.62      1.19      5.15       .18   1268.80
    2746.0        .0    2648.7      97.3        .0     297.5      38.1      22.2      10.5   1268.10
      .10       .00      8.90      2.55      .000      .035      .045      .000   1263.20   9926.74
   .010961      300.      500.      900.         0        15         0       .00    164.63  10091.37


FLOW DISTRIBUTION FOR SECNO=        .66          CWSEL=   1268.43

STA=    9927.   10031.   10072.   10091.
  PER Q=     96.5      2.7       .8
   AREA=    297.5     27.9     10.2
    VEL=      8.9      2.7      2.2
  DEPTH=      2.9       .7       .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


*SECNO  .760

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1273.50 ELREA=      1272.80

      .760      7.93   1272.93   1272.93       .00   1273.40       .47      3.48       .07   1273.50
    2746.0        .0    2078.2     667.8        .0     338.1     256.4      27.3      13.5   1272.80
      .12       .00      6.15      2.60      .000      .035      .045      .000   1265.00   9965.47
   .004967      530.      500.      430.         0        17         0       .00    410.33  10398.11


FLOW DISTRIBUTION FOR SECNO=        .76          CWSEL=   1272.93

STA=    9965.   10078.   10154.   10197.   10233.   10246.   10266.   10278.   10318.   10350.   10384.   10398.
  PER Q=     75.7       .4      4.8      3.8      2.4      5.6       .2       .4      3.8      2.8       .1
   AREA=    338.1     13.9     50.9     40.8     20.7     41.1      5.2      8.0     39.4     33.3      3.1
    VEL=      6.1       .7      2.6      2.5      3.2      3.7      1.3      1.4      2.7      2.3       .8
  DEPTH=      3.0       .2      1.2      1.1      1.7      2.0       .4       .2      1.2      1.0       .2

*SECNO  .850

3301 HV CHANGED MORE THAN HVINS
```

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1276.00 ELREA=      1275.70

      .850      8.00   1275.30   1274.27       .00   1276.38      1.08      2.80       .18   1276.00
    2746.0        .0    2746.0        .0        .0     329.1        .0      32.0      15.6   1275.70
       .14       .00      8.35       .00      .000      .035      .000      .000   1267.30   9945.61
   .007112      530.      500.      290.         2        12         0       .00     89.14  10034.75


 FLOW DISTRIBUTION FOR SECNO=       .85          CWSEL=   1275.30

1
   09OCT02      10:51:24                                                                                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


 STA=    9946.   10035.
   PER Q=    100.0
    AREA=    329.1
     VEL=      8.3
   DEPTH=      3.7

 CCHV=     .200 CEHV=     .400
 *SECNO  .950
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=          .0   10245.0  TYPE=      1  TARGET=    10245.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1288.40 ELREA=      1280.90

      .950      5.58   1280.78   1280.78       .00   1282.13      1.36      4.74       .11   1288.40
    2746.0        .0    2746.0        .0        .0     293.6        .0      35.6      16.8   1280.90
       .15       .00      9.35       .00      .000      .035      .000      .000   1275.20   9970.85
   .013281      530.      500.      270.         0        15         0       .00    109.51  10080.36


 FLOW DISTRIBUTION FOR SECNO=       .95          CWSEL=   1280.78

 STA=    9971.   10083.
   PER Q=    100.0
    AREA=    293.6
     VEL=      9.4
   DEPTH=      2.7

 *SECNO 1.040

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.68

     1.040      7.60   1285.40   1284.46       .00   1285.97       .58      3.68       .16   1285.10
    2746.0     187.3    2533.7      25.0      85.7     401.3      30.9      40.2      19.8   1285.00
       .18      2.19      6.31       .81      .045      .035      .045      .000   1277.80   9837.97
   .004704      410.      500.      700.         3        14         0       .00    390.04  10228.01


1
   09OCT02      10:51:24                                                                                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


 FLOW DISTRIBUTION FOR SECNO=      1.04          CWSEL=   1285.40

 STA=    9838.    9843.    9870.    9912.    9957.   10081.   10132.   10219.   10228.
   PER Q=      .2       3.8      2.4       .4     92.3       .4       .5       .0
    AREA=     3.5      37.3     33.9     11.0    401.3     12.4     17.1      1.4
     VEL=     1.7       2.8      1.9       .9      6.3       .9       .8       .6
   DEPTH=      .7       1.4       .8       .2      3.2       .2       .2       .1
```

```
CHV=      .200 CEHV=      .400
1490 NH CARD USED
*SECNO 1.140
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1291.60 ELREA=      1291.80

     1.140      6.71   1290.21   1290.21       .00   1291.06       .85      2.96       .11   1291.60
    2746.0        .0    2746.0        .0        .0     371.6        .0      45.3      23.0   1291.80
       .20       .00      7.39       .00      .000      .025      .000      .000   1283.50   9956.54
   .007654      560.      500.      260.         0        13         0       .00    223.17  10179.70


FLOW DISTRIBUTION FOR SECNO=      1.14          CWSEL=   1290.21

STA=    9957.   10026.   10198.
  PER Q=      96.7      3.3
   AREA=     308.0     63.6
    VEL=       8.6      1.4
  DEPTH=       4.5       .4

CCHV=      .300 CEHV=      .500
1490 NH CARD USED
*SECNO 1.230

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1302.20 ELREA=      1293.40

1
   09OCT02      10:51:24                                                                                    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


     1.230      5.70   1293.40   1293.40       .00   1293.50       .10       .72       .23   1302.20
    2746.0        .0     338.4    2407.6        .0     134.4     970.9      50.5      25.7   1293.40
       .24       .00      2.52      2.48      .000      .040      .040      .000   1287.70   9988.96
   .000876      530.      500.      200.         0        15         0       .00    555.70  10544.66


FLOW DISTRIBUTION FOR SECNO=      1.23          CWSEL=   1293.40

STA=    9989.   10025.   10332.   10369.   10404.   10439.   10458.   10488.   10522.   10545.
  PER Q=      12.3      8.2     15.6     26.0     21.9      5.0      5.6      4.0      1.4
   AREA=     134.4    205.5    151.7    203.0    182.5     58.6     75.5     65.0     29.2
    VEL=       2.5      1.1      2.8      3.5      3.3      2.4      2.0      1.7      1.3
  DEPTH=       3.7       .7      4.1      5.8      5.2      3.2      2.5      1.9      1.3

1490 NH CARD USED
*SECNO 1.330

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1305.20 ELREA=      1295.10

     1.330      3.50   1295.40   1295.40       .00   1295.92       .52      1.05       .21   1305.20
    2746.0        .0    2064.9     681.1        .0     327.3     178.3      59.3      31.2   1295.10
       .26       .00      6.31      3.82      .000      .031      .045      .000   1291.90   9902.66
   .011846      500.      500.      470.         0        16         0       .00    436.94  10367.63


FLOW DISTRIBUTION FOR SECNO=      1.33          CWSEL=   1295.40

STA=    9903.    9952.   10075.   10154.   10193.   10220.   10277.   10351.   10368.
  PER Q=       1.2     73.0      1.0      5.5      3.3      4.4      8.9      2.8
   AREA=      19.2    284.8     23.2     40.5     26.0     36.3     56.7     18.8
    VEL=       1.7      7.0      1.2      3.7      3.5      3.4      4.3      4.1
  DEPTH=        .4      2.3       .3      1.0       .9       .6       .8      1.1
```

```
1490 NH CARD USED
*SECNO 1.420
1
   09OCT02      10:51:24                                                                                                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


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1299.30 ELREA=      1306.50

     1.420      6.88   1300.18   1299.76       .00   1300.82       .64       4.85       .06   1299.30
    2746.0     121.7    2624.3        .0      78.4     398.8        .0       64.9      35.4   1306.50
       .28      1.55      6.58       .00      .060      .040      .000       .000   1293.30   9757.41
   .008210      520.      500.      460.         4        17         0        .00    301.16  10058.56


FLOW DISTRIBUTION FOR SECNO=      1.42          CWSEL=   1300.18

STA=    9757.    9795.    9856.    9914.   10073.
  PER Q=       .2       1.5       2.8      95.6
   AREA=      7.0      29.6      41.8     398.8
    VEL=       .7       1.4       1.8       6.6
  DEPTH=       .2        .5        .7       2.8

1490 NH CARD USED
*SECNO 1.520

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1303.10 ELREA=      1336.30

     1.520      6.40   1303.30   1303.15       .00   1303.51       .21       2.56       .13   1303.10
    2746.0    1379.2    1366.8        .0     372.7     368.2        .0       70.2      38.0   1336.30
       .31      3.70      3.71       .00      .040      .045      .000       .000   1296.90   9626.80
   .004851      180.      500.      530.         3        19         0        .00    401.59  10028.39


FLOW DISTRIBUTION FOR SECNO=      1.52          CWSEL=   1303.30

STA=    9627.    9649.    9697.    9757.    9803.    9852.   10074.
  PER Q=      1.9     11.6     12.9     15.6      8.2     49.8
   AREA=     20.9     85.0     98.0     99.2     69.7    368.2
    VEL=      2.5      3.8      3.6      4.3      3.2      3.7
  DEPTH=      1.0      1.8      1.7      2.2      1.4      2.1

*SECNO 1.610

3301 HV CHANGED MORE THAN HVINS

1
   09OCT02      10:51:24                                                                                                PAGE   27

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 =   .57


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1306.60 ELREA=      1306.80

     1.610      6.74   1306.44   1306.01       .00   1308.13      1.68       3.88       .73   1306.60
    2746.0        .0    2746.0        .0        .0     264.0        .0       75.9      40.6   1306.80
       .33       .00     10.40       .00      .000      .045      .000       .000   1299.70   9973.65
   .014754      480.      500.      600.         2         8         0        .00     60.58  10034.24


FLOW DISTRIBUTION FOR SECNO=      1.61          CWSEL=   1306.44

STA=    9974.   10036.
  PER Q=    100.0
   AREA=    264.0
    VEL=     10.4
```

```
 DEPTH=      4.4

*SECNO 1.700

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.45


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1314.20 ELREA=      1311.60

     1.700      8.06   1310.86   1308.30       .00   1311.05       .20      2.48       .45   1314.20
    2746.0        .0    2746.0        .0        .0     772.4        .0      81.8      42.1   1311.60
       .37       .00      3.55       .00      .000      .050      .000      .000   1302.80   9925.71
   .002462      500.      500.      560.         2        15         0       .00    204.78  10130.49


FLOW DISTRIBUTION FOR SECNO=      1.70          CWSEL=   1310.86

STA=    9926.   10142.
  PER Q=    100.0
   AREA=    772.4
    VEL=      3.6
  DEPTH=      3.8

1
   09OCT02      10:51:24                                                                                PAGE   28


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 1.800

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .45


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1312.40 ELREA=      1313.10

     1.800      5.19   1312.99   1312.24       .00   1313.62       .63      2.35       .22   1312.40
    2746.0      26.2    2719.8        .0      14.8     425.6        .0      88.8      44.4   1313.10
       .39      1.77      6.39       .00      .045      .050      .000      .000   1307.80   9884.53
   .012333      430.      500.      550.         3        11         0       .00    202.38  10086.91


FLOW DISTRIBUTION FOR SECNO=      1.80          CWSEL=   1312.99

STA=    9885.    9929.   10090.
  PER Q=      1.0      99.0
   AREA=     14.8     425.6
    VEL=      1.8       6.4
  DEPTH=       .3       2.7

*SECNO 1.840

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1316.00 ELREA=      1314.70

     1.840      6.51   1315.11   1314.10       .00   1315.57       .46      1.89       .05   1314.80
    2746.0        .0    2407.0     339.0        .0     429.5      87.8      91.0      45.3   1314.70
       .40       .00      5.60      3.86      .000      .050      .045      .000   1308.60   9967.70
   .007582      220.      200.      180.         3         8         0       .00    191.93  10159.63


FLOW DISTRIBUTION FOR SECNO=      1.84          CWSEL=   1315.11

STA=    9968.   10101.   10139.   10154.   10160.
  PER Q=     87.7      6.7      5.2       .5
   AREA=    429.5     51.8     30.5      5.5
    VEL=      5.6      3.5      4.7      2.6
  DEPTH=      3.2      1.4      2.1       .9

*SECNO 1.910
1
   09OCT02      10:51:24                                                                                PAGE   29


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
```

```
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=      1337.50 ELREA=      1345.10

     1.910      6.76   1318.16   1316.96       .00   1318.45       .30       2.84       .05   1337.50
    2779.0        .0    2779.0        .0        .0     636.4        .0       96.2      47.2   1345.10
       .42       .00      4.37       .00      .000      .055      .000       .000   1311.40   9815.65
   .006757      310.      400.      350.         3         9         0        .00    229.05  10044.71


FLOW DISTRIBUTION FOR SECNO=      1.91          CWSEL=   1318.16

STA=    9816.   10148.
  PER Q=    100.0
   AREA=    636.4
    VEL=      4.4
  DEPTH=      2.8

*SECNO 1.920

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1336.50 ELREA=      1344.10

     1.920      7.09   1318.29   1317.29       .00   1318.63       .34        .15       .02   1336.50
    2779.0        .0    2779.0        .0        .0     595.7        .0       96.5      47.3   1344.10
       .42       .00      4.67       .00      .000      .055      .000       .000   1311.20   9800.76
   .008883       30.       20.       30.         2         9         0        .00    238.32  10039.08


FLOW DISTRIBUTION FOR SECNO=      1.92          CWSEL=   1318.29

STA=    9801.   10102.
  PER Q=    100.0
   AREA=    595.7
    VEL=      4.7
  DEPTH=      2.5

1490 NH CARD USED
*SECNO 1.990

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1323.80 ELREA=      1335.60

     1.990      6.51   1321.31   1320.77       .00   1321.81       .51       3.10       .08   1323.80
    2779.0        .0    2779.0        .0        .0     487.1        .0      101.2      49.4   1335.60
       .44       .00      5.70       .00      .000      .037      .000       .000   1314.80   9804.64
   .007532      530.      380.      390.         2         9         0        .00    229.57  10034.21


1
   09OCT02      10:51:24                                                                                    PAGE   30

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      1.99          CWSEL=   1321.31

STA=    9805.    9972.   10066.
  PER Q=     18.5     81.5
   AREA=    197.1    290.0
    VEL=      2.6      7.8
  DEPTH=      1.2      4.7

CCHV=     .200 CEHV=     .400
1490 NH CARD USED
*SECNO 2.080

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1331.80 ELREA=      1324.00

     2.080      6.23   1324.23   1324.01       .00   1324.64       .41       2.81       .02   1331.80
    2779.0        .0    1376.9    1402.1        .0     241.2     308.8      107.3      52.2   1324.00
       .47       .00      5.71      4.54      .000      .032      .040       .000   1318.00   9973.48
   .004196      270.      500.      540.         2        18         0        .00    243.67  10217.15
```

```
FLOW DISTRIBUTION FOR SECNO=      2.08          CWSEL=   1324.23

STA=    9973.   10017.   10063.   10108.   10140.   10154.   10174.   10204.   10217.
  PER Q=     47.2      2.4      1.1     12.6     13.3     12.3      9.9      1.3
   AREA=    202.5     38.7     23.7     79.4     59.4     65.0     66.7     14.6
    VEL=      6.5      1.7      1.3      4.4      6.2      5.2      4.1      2.6
  DEPTH=      4.7       .8       .5      2.5      4.2      3.2      2.2      1.1

1490 NH CARD USED
*SECNO 2.160
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.160      4.47   1326.27   1326.27       .00   1326.66       .39      1.84       .00   1326.20
    2779.0     297.9    1346.3    1134.8      89.0     222.3     291.8     111.7      54.4   1326.00
       .49      3.35      6.06      3.89      .050      .040      .045      .000   1321.80   9897.98
   .007237      790.      420.      200.         0        16         0       .00    338.75  10236.72


FLOW DISTRIBUTION FOR SECNO=      2.16          CWSEL=   1326.27

1
   09OCT02      10:51:24                                                                                PAGE   31

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=    9898.    9940.    9964.   10047.   10111.   10161.   10212.   10233.   10237.
  PER Q=      9.5      1.3     48.4     10.9      6.7     17.1      6.1       .1
   AREA=     71.8     17.3    222.3     86.8     59.4    104.4     39.8      1.5
    VEL=      3.7      2.0      6.1      3.5      3.1      4.6      4.2      1.6
  DEPTH=      1.7       .7      2.7      1.4      1.2      2.1      1.9       .4

*SECNO 2.270

3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1345.40 ELREA=      1329.40

     2.270      6.49   1330.59   1330.55       .00   1331.71      1.12      4.76       .29   1345.40
    2779.0        .0    2412.9     366.1        .0     266.3     123.5     118.9      58.1   1329.40
       .51       .00      9.06      2.96      .000      .040      .050      .000   1324.10   9970.58
   .008503      650.      580.      670.         2        18         0       .00    170.60  10141.17


FLOW DISTRIBUTION FOR SECNO=      2.27          CWSEL=   1330.59

STA=    9971.   10029.   10061.   10101.   10135.   10141.
  PER Q=     86.8      3.6      5.3      4.1       .2
   AREA=    266.3     34.3     48.2     38.3      2.7
    VEL=      9.1      2.9      3.1      3.0      1.6
  DEPTH=      4.5      1.1      1.2      1.1       .4

*SECNO 2.370

3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1357.90 ELREA=      1334.30

     2.370      5.38   1334.48   1333.43       .00   1334.96       .48      3.12       .13   1357.90
    2779.0        .0    2612.4     166.6        .0     457.2      91.8     123.5      59.9   1334.30
       .53       .00      5.71      1.82      .000      .040      .050      .000   1329.10   9924.53
   .005306      550.      500.      190.         2        20         0       .00    314.68  10239.21


1
   09OCT02      10:51:24                                                                                PAGE   32

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      2.37          CWSEL=   1334.48
```

```
STA=    9925.   10072.   10132.   10184.   10224.   10239.
  PER Q=     94.0       .3      1.0      3.9       .8
   AREA=    457.2     11.4     22.3     45.9     12.1
    VEL=      5.7       .7      1.2      2.4      1.8
  DEPTH=      3.1       .2       .4      1.1       .8

*SECNO 2.460

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1338.60 ELREA=      1351.30

     2.460      6.54   1337.94   1337.44       .00   1338.62       .68      3.58       .08   1338.60
    2779.0        .0    2779.0        .0        .0     420.7        .0     129.1      62.8   1351.30
       .56       .00      6.61       .00      .000      .040      .000      .000   1331.40   9849.18
   .010136      500.      500.      530.         2         8         0       .00    176.77  10025.96


FLOW DISTRIBUTION FOR SECNO=      2.46          CWSEL=   1337.94

STA=    9849.   10046.
  PER Q=    100.0
   AREA=    420.7
    VEL=      6.6
  DEPTH=      2.4

*SECNO 2.560

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.87


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1340.90 ELREA=      1342.70

     2.560      5.82   1340.72   1338.49       .00   1341.13       .41      2.46       .05   1340.90
    2779.0        .0    2779.0        .0        .0     542.7        .0     134.6      64.6   1342.70
       .58       .00      5.12       .00      .000      .040      .000      .000   1334.90   9958.56
   .002890      350.      500.      580.         3        11         0       .00    130.95  10089.51


FLOW DISTRIBUTION FOR SECNO=      2.56          CWSEL=   1340.72


   09OCT02      10:51:24                                                                              PAGE   33

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=    9959.   10100.
  PER Q=    100.0
   AREA=    542.7
    VEL=      5.1
  DEPTH=      4.1

*SECNO 2.650

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .55


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1342.00 ELREA=      1343.80

     2.650      6.00   1342.60   1342.51       .00   1343.86      1.27      2.39       .34   1342.00
    2779.0      80.3    2698.7        .0      41.0     294.7        .0     139.6      66.1   1343.80
       .60      1.96      9.16       .00      .045      .040      .000      .000   1336.60   9878.95
   .009515      370.      500.      570.         3         5         0       .00    158.75  10037.70


FLOW DISTRIBUTION FOR SECNO=      2.65          CWSEL=   1342.60

STA=    9879.    9885.    9936.    9966.   10041.
  PER Q=       .1      1.9       .9     97.1
   AREA=      2.0     25.7     13.3    294.7
    VEL=      1.6      2.0      1.9      9.2
  DEPTH=       .3       .5       .4      4.1

*SECNO 2.750
```

```
3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1346.40 ELREA=      1350.10

     2.750      6.17   1346.87   1345.65       .00   1347.51       .64      3.53       .12   1346.40
    2779.0       6.9    2772.1        .0       6.1     430.6        .0     144.0      67.7   1350.10
       .62      1.12      6.44       .00      .045      .040      .000      .000   1340.70   9951.83
   .005448      460.      500.      520.         3        15         0       .00    137.07  10088.91


1
   09OCT02      10:51:24                                                                                    PAGE   34

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      2.75          CWSEL=   1346.87

STA=    9952.    9972.   10110.
  PER Q=       .2     99.8
   AREA=      6.1    430.6
    VEL=      1.1      6.4
  DEPTH=       .3      3.7

*SECNO 2.840
     2.840      6.84   1350.24   1349.73       .00   1351.26      1.02      3.60       .15   1349.50
    2779.0       2.9    2670.6     105.4       1.7     323.6      41.1     148.6      69.4   1350.20
       .64      1.69      8.25      2.57      .045      .040      .045      .000   1343.40   9959.20
   .009930      500.      500.      500.         2         5         0       .00    159.45  10118.64


FLOW DISTRIBUTION FOR SECNO=      2.84          CWSEL=   1350.24

STA=    9959.    9964.   10059.   10113.   10119.
  PER Q=       .1     96.1      3.4       .3
   AREA=      1.7    323.6     37.2      3.9
    VEL=      1.7      8.3      2.6      2.5
  DEPTH=       .4      3.4       .7       .7

*SECNO 2.940

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.47


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1352.20 ELREA=      1354.50

     2.940      7.10   1353.80   1352.96       .00   1354.60       .80      3.29       .04   1352.20
    2779.0     316.0    2463.0        .0     121.5     326.1        .0     153.5      71.4   1354.50
       .66      2.60      7.55       .00      .045      .040      .000      .000   1346.70   9871.20
   .004569      650.      500.      440.         2        11         0       .00    158.50  10029.70


FLOW DISTRIBUTION FOR SECNO=      2.94          CWSEL=   1353.80

STA=    9871.    9879.    9918.    9970.   10032.
  PER Q=       .3      4.2      6.9     88.6
   AREA=      5.3     46.2     69.9    326.1
    VEL=      1.7      2.5      2.7      7.6
  DEPTH=       .7      1.2      1.4      5.4

1
   09OCT02      10:51:24                                                                                    PAGE   35

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 3.030

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64
```

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1367.20 ELREA=      1356.90

     3.030      7.48   1356.88   1355.68       .00   1358.15      1.27      3.36       .19   1367.20
    2779.0        .0    2779.0        .0        .0     307.4        .0     157.7      72.7   1356.90
       .67       .00      9.04       .00      .000      .040      .000      .000   1349.40   9971.14
   .011103      420.      500.      710.         1        13         0       .00     84.76  10055.90


FLOW DISTRIBUTION FOR SECNO=      3.03          CWSEL=   1356.88

STA=    9971.   10056.
  PER Q=    100.0
   AREA=    307.4
    VEL=      9.0
  DEPTH=      3.6

*SECNO 3.130

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.72


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1357.30 ELREA=      1363.70

     3.130      7.31   1359.81   1357.63       .00   1359.99       .18      1.62       .22   1357.30
    2779.0     499.2    2279.8        .0     173.7     655.8        .0     164.3      74.6   1363.70
       .71      2.87      3.48       .00      .045      .040      .000      .000   1352.50   9918.47
   .001506      540.      500.      240.         2        18         0       .00    238.34  10156.81


FLOW DISTRIBUTION FOR SECNO=      3.13          CWSEL=   1359.81

STA=    9918.    9933.    9956.    9970.    9983.   10192.
  PER Q=       .4      2.9      6.9      7.7     82.0
   AREA=     10.9     42.0     58.1     62.6    655.8
    VEL=      1.1      1.9      3.3      3.4      3.5
  DEPTH=       .8      1.8      4.4      4.6      3.8


   09OCT02      10:51:24                                                                                    PAGE   36


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 3.220

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .32


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1364.20 ELREA=      1360.80

     3.220      5.58   1360.68   1360.55       .00   1362.36      1.68      1.77       .60   1364.20
    2779.0        .0    2779.0        .0        .0     267.0        .0     170.9      76.5   1360.80
       .73       .00     10.41       .00      .000      .040      .000      .000   1355.10   9966.66
   .014518      650.      500.      400.         4        16         0       .00     73.79  10040.45


FLOW DISTRIBUTION FOR SECNO=      3.22          CWSEL=   1360.68

STA=    9967.   10041.
  PER Q=    100.0
   AREA=    267.0
    VEL=     10.4
  DEPTH=      3.6

*SECNO 3.310

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.24
```

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1367.50 ELREA=      1364.50

     3.310      5.42   1365.02   1364.51       .00   1365.26       .23      2.61       .29   1367.50
    2779.0        .0    2027.5     751.5        .0     467.0     332.4     176.2      78.6   1364.50
       .76       .00      4.34      2.26      .000      .040      .045      .000   1359.60   9968.94
   .002883      600.      500.      300.         4        14         0       .00    394.35  10363.29


 FLOW DISTRIBUTION FOR SECNO=      3.31          CWSEL=   1365.02

1
   09OCT02      10:51:24                                                                              PAGE   37


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 STA=    9969.   10113.   10180.   10267.   10354.   10363.
   PER Q=     73.0      2.5     11.3     13.0       .3
    AREA=    467.0     48.3    133.2    144.9      6.0
     VEL=      4.3      1.4      2.3      2.5      1.3
   DEPTH=      3.2       .7      1.5      1.7       .6

 *SECNO 3.410

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .54


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1369.60 ELREA=      1376.00

     3.410      6.54   1366.64   1365.76       .00   1368.00      1.36      2.29       .45   1369.60
    2779.0        .0    2779.0        .0        .0     297.1        .0     181.7      80.7   1376.00
       .78       .00      9.35       .00      .000      .040      .000      .000   1360.10   9942.89
   .009876      430.      500.      290.         3         8         0       .00     71.21  10014.10


 FLOW DISTRIBUTION FOR SECNO=      3.41          CWSEL=   1366.64


 STA=    9943.   10057.
   PER Q=    100.0
    AREA=    297.1
     VEL=      9.4
   DEPTH=      4.2

 1490 NH CARD USED
 *SECNO 3.470

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3710 WSEL ASSUMED BASED ON MIN DIFF

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1370.00 ELREA=      1379.50

     3.470      6.17   1369.97   1369.24       .00   1370.58       .60      3.46       .23   1370.00
    2779.0        .0    2779.0        .0        .0     445.8        .0     184.3      81.6   1379.50
       .79       .00      6.23       .00      .000      .047      .000      .000   1363.80   9819.98
   .013602       40.      300.      380.        20        10         0       .00    203.28  10023.26


1
   09OCT02      10:51:24                                                                              PAGE   38


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 FLOW DISTRIBUTION FOR SECNO=      3.47          CWSEL=   1369.97

 STA=    9820.   10036.
```

```
  PER Q=    100.0
   AREA=    445.8
    VEL=      6.2
  DEPTH=      2.2

1490 NH CARD USED
*SECNO 3.500

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.40


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1370.30 ELREA=      1379.60

     3.500      6.43   1371.03   1369.22       .00   1371.16       .13       .49       .09   1370.30
    2779.0     980.1    1798.9        .0     358.0     596.5        .0     186.9      82.6   1379.60
       .81      2.74      3.02       .00      .040      .038      .000      .000   1364.60   9773.01
   .001176       50.       200.      250.         3        16         0       .00    315.82  10088.82


FLOW DISTRIBUTION FOR SECNO=      3.50          CWSEL=   1371.03

STA=    9773.    9805.    9844.    9871.    9912.    9949.   10097.
  PER Q=      1.3     16.0     13.4      4.6      1.9     62.8
   AREA=     29.3    145.7    112.8     70.1     45.4    551.1
    VEL=      1.2      3.1      3.3      1.8      1.2      3.2
  DEPTH=       .9      3.7      4.2      1.7      1.2      3.9

1490 NH CARD USED
*SECNO 3.600
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1372.60 ELREA=      1374.20

     3.600      5.16   1372.66   1372.66       .00   1373.06       .40       .94       .11   1372.60
    2424.0    1321.3    1102.7        .0     252.1     224.5        .0     194.9      85.6   1374.20
       .83      5.24      4.91       .00      .036      .035      .000      .000   1367.50   9824.18
   .004198      470.       500.      500.         0        17         0       .00    221.63  10045.81


   09OCT02      10:51:24                                                                                PAGE   39

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=      3.60          CWSEL=   1372.66

STA=    9824.    9830.    9852.    9880.    9894.    9903.    9911.    9952.   10069.
  PER Q=       .5      5.1     18.7     16.0      9.6      3.8       .9     45.5
   AREA=      5.4     36.2     82.0     56.2     34.0     19.5     18.8    224.5
    VEL=      2.2      3.4      5.5      6.9      6.8      4.7      1.1      4.9
  DEPTH=       .9      1.7      2.9      4.0      3.9      2.4       .5      2.4

*SECNO 3.690
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1379.60 ELREA=      1377.20

     3.690      5.35   1377.25   1377.25       .00   1377.89       .64      2.03       .09   1379.60
    2424.0        .0    2144.6     279.4        .0     320.9      76.0     199.1      87.2   1377.20
       .85       .00      6.68      3.68      .000      .035      .045      .000   1371.90   9973.02
   .005136      380.       500.        0.         0        11         0       .00    142.93  10115.95


FLOW DISTRIBUTION FOR SECNO=      3.69          CWSEL=   1377.25

STA=    9973.   10070.   10087.   10105.   10116.
  PER Q=     88.5       .9      8.0      2.6
   AREA=    320.9     11.8     45.3     18.9
    VEL=      6.7      1.9      4.3      3.4
  DEPTH=      3.3       .7      2.5      1.8

*SECNO 3.790

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1380.20 ELREA=      1382.20
```

```
     3.790      4.97   1380.47   1380.35       .00   1381.14       .67      3.24       .01   1380.20
    2424.0     159.2    2264.8        .0      63.9     334.6        .0     203.6      89.5   1382.20
       .87      2.49      6.77       .00      .045      .035      .000      .000   1375.50   9836.61
   .008605      650.      500.      340.         2        10         0       .00    234.17  10070.78


 FLOW DISTRIBUTION FOR SECNO=      3.79          CWSEL=   1380.47

1
   09OCT02      10:51:24                                                                                PAGE   40


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV

    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 STA=    9837.    9864.    9924.   10079.
   PER Q=      1.6      4.9     93.4
    AREA=     17.5     46.4    334.6
     VEL=      2.3      2.6      6.8
   DEPTH=       .6       .8      2.3

 *SECNO 3.880

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1391.50 ELREA=      1381.20

     3.880      6.44   1383.94   1383.65       .00   1384.94      1.00      3.66       .13   1391.50
    2424.0        .0    1885.7     538.3        .0     211.5     154.7     208.2      91.6   1381.20
       .89       .00      8.92      3.48      .000      .035      .050      .000   1377.50   9972.42
   .005997      450.      500.      640.         2        14         0       .00    129.35  10101.76


 FLOW DISTRIBUTION FOR SECNO=      3.88          CWSEL=   1383.94

 STA=    9972.   10017.   10070.   10094.   10102.
   PER Q=     77.8     15.6      5.7       .9
    AREA=    211.5    104.2     41.3      9.2
     VEL=      8.9      3.6      3.3      2.4
   DEPTH=      4.7      2.0      1.7      1.1

 1490 NH CARD USED
 *SECNO 3.980

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1396.60 ELREA=      1386.70

     3.980      4.49   1387.59   1386.96       .00   1388.17       .58      3.15       .08   1396.60
    2424.0        .0    2422.8      1.2        .0     396.5      1.2     212.3      93.1   1386.70
       .91       .00      6.11      1.02      .000      .038      .070      .000   1383.10   9866.47
   .007180      590.      500.      330.         2        14         0       .00    156.51  10022.98


 FLOW DISTRIBUTION FOR SECNO=      3.98          CWSEL=   1387.59

 STA=    9866.    9926.    9973.   10020.   10023.
   PER Q=     34.4     15.8     49.8       .1
    AREA=    147.8     94.6    154.1      1.2
     VEL=      5.6      4.0      7.8      1.0
   DEPTH=      2.5      2.0      3.3       .4

1
   09OCT02      10:51:24                                                                                PAGE   41


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 4.070

 3265 DIVIDED FLOW

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 710 WSEL ASSUMED BASED ON MIN DIFF
```

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1399.30 ELREA=      1391.60

     4.070      5.80   1391.60   1390.96       .00   1391.96       .36      3.70       .23   1399.30
    2424.0        .0    2275.0     149.0        .0     463.5      57.3     217.7      95.8   1391.60
       .94       .00      4.91      2.60      .000      .042      .045      .000   1385.80   9906.97
   .007469      480.      500.      670.        20        11         0       .00    291.33  10323.75


FLOW DISTRIBUTION FOR SECNO=      4.07          CWSEL=   1391.60

STA=    9907.   10130.   10187.   10226.   10320.   10324.
  PER Q=     93.9      2.2      3.8       .1       .1
   AREA=    463.5     20.2     34.5      1.3      1.4
    VEL=      4.9      2.7      2.7      1.4      1.4
  DEPTH=      2.1       .4       .9       .0       .4

*SECNO 4.170

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.59


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1395.00 ELREA=      1398.30

     4.170      4.63   1393.93   1392.92       .00   1394.19       .26      2.21       .02   1395.00
    2424.0        .0    2424.0        .0        .0     591.7        .0     224.1      98.8   1398.30
       .98       .00      4.10       .00      .000      .035      .000      .000   1389.30   9934.07
   .002938      640.      500.      430.         3        14         0       .00    247.83  10181.90


FLOW DISTRIBUTION FOR SECNO=      4.17          CWSEL=   1393.93

STA=    9934.   10210.
  PER Q=    100.0
   AREA=    591.7
    VEL=      4.1
  DEPTH=      2.4

1
   09OCT02      10:51:24                                                                                    PAGE   42


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 4.260

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1398.10 ELREA=      1400.40

     4.260      4.39   1396.99   1396.99       .00   1398.20      1.21      2.69       .38   1398.10
    2424.0        .0    2424.0        .0        .0     274.4        .0     229.0     100.9   1400.40
       .99       .00      8.83       .00      .000      .035      .000      .000   1392.60   9954.82
   .012862      450.      500.      700.         0        10         0       .00    109.57  10064.39


FLOW DISTRIBUTION FOR SECNO=      4.26          CWSEL=   1396.99

STA=    9955.   10116.
  PER Q=    100.0
   AREA=    274.4
    VEL=      8.8
  DEPTH=      2.5

1490 NH CARD USED
*SECNO 4.360

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.84


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1408.80 ELREA=      1408.70
```

```
     4.360      5.82   1401.32   1400.54       .00   1401.57       .26      3.18       .19   1408.80
    2424.0        .0    2424.0        .0        .0     593.7        .0     234.0     103.2   1408.70
      1.03       .00      4.08       .00      .000      .036      .000      .000   1395.50   9968.79
   .003784      560.      500.      530.         3         8         0       .00    283.71  10252.50


FLOW DISTRIBUTION FOR SECNO=      4.36          CWSEL=   1401.32

1
   09OCT02      10:51:24                                                                                PAGE   43


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


STA=    9969.   10013.   10279.
  PER Q=     59.9     40.1
   AREA=    206.7    387.0
    VEL=      7.0      2.5
  DEPTH=      4.7      1.6

1490 NH CARD USED
*SECNO 4.450

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1403.90 ELREA=      1404.40

     4.450      4.15   1403.95   1403.94       .00   1404.82       .87      3.00       .24   1403.90
    2424.0      55.1    2368.9        .0      24.6     313.8        .0     239.4     106.1   1404.40
      1.05      2.24      7.55       .00      .060      .030      .000      .000   1399.80   9760.90
   .010868      630.      500.      360.         2        16         0       .00    213.45  10023.46


FLOW DISTRIBUTION FOR SECNO=      4.45          CWSEL=   1403.95

STA=    9761.    9771.    9790.    9851.    9953.   10026.
  PER Q=       .8       1.5       .0     10.9     86.8
   AREA=      8.5      15.8       .3     92.1    221.7
    VEL=      2.3       2.3       .2      2.9      9.5
  DEPTH=       .8        .8       .0       .9      3.2

1490 NH CARD USED
*SECNO 4.550
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     4.550      5.45   1409.45   1409.45       .00   1410.18       .72      4.89       .03   1409.30
    2424.0      54.2    2113.0     256.8      38.2     293.4      77.7     243.8     109.5   1408.60
      1.07      1.42      7.20      3.30      .051      .034      .040      .000   1404.00   9805.01
   .008576      550.      500.      640.         0        15         0       .00    337.21  10142.22


1
   09OCT02      10:51:24                                                                                PAGE   44


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=      4.55          CWSEL=   1409.45

STA=    9805.    9823.    9877.    9922.   10019.   10047.   10077.   10116.   10142.
  PER Q=       .4       1.7       .2     82.8      4.4      4.9      5.2       .4
   AREA=      6.7      24.6      6.9    263.6     29.8     32.5     38.1      7.2
    VEL=      1.4       1.6       .7      7.6      3.6      3.7      3.3      1.5
  DEPTH=       .4        .5       .2      2.7      1.1      1.1      1.0       .3

1490 NH CARD USED
```

```
*SECNO 4.640

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.57

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1418.70 ELREA=      1414.40

     4.640      3.71   1412.51   1411.65       .00   1412.82       .31      2.56       .08   1418.70
    2424.0        .0    2424.0        .0        .0     545.7        .0     249.2     113.1   1414.40
      1.10       .00      4.44       .00      .000      .027      .000      .000   1408.80   9975.30
   .003496      390.      500.      360.         3        11         0       .00    339.39  10314.69


FLOW DISTRIBUTION FOR SECNO=      4.64          CWSEL=   1412.51

STA=    9975.   10119.   10196.   10338.
  PER Q=     91.5      7.1      1.4
   AREA=    428.0     77.7     40.0
    VEL=      5.2      2.2       .8
  DEPTH=      3.0      1.0       .3

1490 NH CARD USED
*SECNO 4.730
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1429.30 ELREA=      1419.40

     4.730      4.29   1416.19   1416.19       .00   1416.82       .63      3.28       .13   1429.30
    2424.0        .0    2424.0        .0        .0     381.3        .0     254.5     117.1   1419.40
      1.12       .00      6.36       .00      .000      .030      .000      .000   1411.90   9979.79
   .016499      500.      500.      410.         0        11         0       .00    371.22  10351.02


1
   09OCT02      10:51:24                                                                                PAGE   45

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      4.73          CWSEL=   1416.19


STA=    9980.   10020.   10257.   10368.
  PER Q=     58.0     17.9     24.0
   AREA=    127.3    143.1    110.8
    VEL=     11.0      3.0      5.3
  DEPTH=      3.2       .6      1.2

1490 NH CARD USED
*SECNO 4.790

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1431.60 ELREA=      1419.90

     4.790      4.88   1419.78   1419.45       .00   1420.29       .51      3.45       .02   1431.60
    2163.0        .0    2163.0        .0        .0     377.3        .0     257.1     119.3   1419.90
      1.13       .00      5.73       .00      .000      .031      .000      .000   1414.90   9931.73
   .008185      330.      300.      320.         4        11         0       .00    245.13  10176.86


FLOW DISTRIBUTION FOR SECNO=      4.79          CWSEL=   1419.78

STA=    9932.   10035.   10189.
  PER Q=     93.2      6.8
   AREA=    297.2     80.1
    VEL=      6.8      1.8
  DEPTH=      2.9       .6

1490 NH CARD USED
*SECNO 4.920

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1426.70 ELREA=      1425.40

     4.920      3.49   1426.29   1426.14       .00   1426.77       .49      6.48       .00   1426.70
    2163.0        .0    1945.3     217.7        .0     336.3      58.9     263.2     123.3   1425.40
      1.17       .00      5.79      3.70      .000      .035      .050      .000   1422.80   9964.52
   .010765        0.      700.      570.         3        18         0       .00    270.83  10235.35
```

```
FLOW DISTRIBUTION FOR SECNO=       4.92          CWSEL=   1426.29

1
   09OCT02      10:51:24                                                                                                PAGE   46

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

STA=    9965.   10032.   10139.   10189.   10208.   10230.   10235.
  PER Q=     43.7      7.0     39.2      3.1      6.4       .6
   AREA=    147.0     66.8    122.5     20.4     33.7      4.8
    VEL=      6.4      2.3      6.9      3.3      4.1      2.8
  DEPTH=      2.2       .6      2.4      1.1      1.5       .9

1490 NH CARD USED
*SECNO 5.020

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1440.30 ELREA=      1430.10

     5.020      4.76   1431.06   1430.80       .00   1431.55       .49      4.77       .00   1440.30
    2163.0        .0    1939.8     223.2        .0     333.2      63.2     267.6     126.3   1430.10
      1.19       .00      5.82      3.53      .000      .033      .045      .000   1426.30   9974.84
   .008795      510.      500.      420.         3        15         0       .00    256.80  10231.64

FLOW DISTRIBUTION FOR SECNO=       5.02          CWSEL=   1431.06

STA=    9975.   10035.   10179.   10227.   10232.
  PER Q=     74.5     15.2      9.9       .4
   AREA=    205.1    128.0     59.6      3.6
    VEL=      7.9      2.6      3.6      2.5
  DEPTH=      3.4       .9      1.2       .8

1490 NH CARD USED
*SECNO 5.070

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1441.50 ELREA=      1432.90

     5.070      4.61   1433.41   1433.39       .00   1434.42      1.01      2.67       .21   1441.50
    2163.0        .0    2162.6        .4        .0     267.6        .4     269.5     127.4   1432.90
      1.20       .00      8.08      1.11      .000      .033      .060      .000   1428.80   9934.75
   .013442      320.      250.      210.         2        11         0       .00    136.78  10071.53

FLOW DISTRIBUTION FOR SECNO=       5.07          CWSEL=   1433.41

1
   09OCT02      10:51:24                                                                                                PAGE   47

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

STA=    9935.    9971.   10024.   10070.   10072.
  PER Q=      1.8     85.1     13.2       .0
   AREA=     19.9    186.5     61.2       .4
    VEL=      1.9      9.9      4.6      1.1
  DEPTH=       .5      3.5      1.3       .3

1490 NH CARD USED
*SECNO 5.110

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1436.10 ELREA=      1439.40
```

```
     5.110      5.00   1436.10   1435.42       .00   1436.43       .33      1.79       .78   1436.10
    2163.0     534.5    1628.5        .0     154.5     327.6        .0     271.7     128.4   1439.40
      1.22      3.46      4.97       .00      .047      .038      .000      .000   1431.10   9883.90
   .004329      280.      250.      200.        20        10         0       .00    211.15  10095.04


FLOW DISTRIBUTION FOR SECNO=      5.11          CWSEL=   1436.10

STA=    9884.    9932.    9946.    9959.    9974.   10049.   10122.
  PER Q=     10.2      9.2      5.4       .0     67.8      7.5
   AREA=     79.7     43.2     31.0       .8    262.0     65.6
    VEL=      2.8      4.6      3.7       .2      5.6      2.5
  DEPTH=      1.6      3.2      2.4       .1      3.5      1.4

*SECNO 5.210

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1441.30 ELREA=      1444.90

     5.210      5.43   1440.13   1440.13       .00   1441.69      1.56      3.66       .49   1441.30
    2163.0        .0    2163.0        .0        .0     215.9        .0     275.5     129.9   1444.90
      1.23       .00     10.02       .00      .000      .040      .000      .000   1434.70   9963.23
   .016562      360.      500.      540.         0         8         0       .00     69.41  10032.64


1
   09OCT02      10:51:24                                                                                PAGE   48

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      5.21          CWSEL=   1440.13

STA=    9963.   10043.
  PER Q=    100.0
   AREA=    215.9
    VEL=     10.0
  DEPTH=      3.1

*SECNO 5.300

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.17


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1447.70 ELREA=      1450.80

     5.300      6.86   1444.76   1443.05       .00   1445.20       .45      3.29       .22   1447.70
    2163.0        .0    2163.0        .0        .0     402.6        .0     279.0     130.9   1450.80
      1.26       .00      5.37       .00      .000      .040      .000      .000   1437.90   9951.76
   .003506      540.      500.      500.         4        11         0       .00    102.87  10054.62


FLOW DISTRIBUTION FOR SECNO=      5.30          CWSEL=   1444.76

STA=    9952.   10078.
  PER Q=    100.0
   AREA=    402.6
    VEL=      5.4
  DEPTH=      3.9

*SECNO 5.400

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1451.30 ELREA=      1455.70
```

```
 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

  5.400      4.47   1448.07   1448.07       .00   1449.17      1.10      3.15       .26   1451.30
 2163.0        .0    2163.0        .0        .0     257.5        .0     282.8     132.1   1455.70
   1.27       .00      8.40       .00      .000      .035      .000      .000   1443.60   9963.34
.014545      550.      500.      470.         0        14         0       .00    121.54  10084.88

FLOW DISTRIBUTION FOR SECNO=      5.40          CWSEL=   1448.07

STA=    9963.   10107.
  PER Q=    100.0
   AREA=    257.5
    VEL=      8.4
  DEPTH=      2.1

*SECNO 5.490

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1466.40 ELREA=      1470.10

  5.490      4.25   1453.75   1453.27       .00   1454.48       .73      5.24       .07   1466.40
 2163.0        .0    2163.0        .0        .0     315.8        .0     286.1     133.6   1470.10
   1.29       .00      6.85       .00      .000      .035      .000      .000   1449.50   9922.13
.007913      460.      500.      580.         4        15         0       .00    127.89  10050.02

FLOW DISTRIBUTION FOR SECNO=      5.49          CWSEL=   1453.75

STA=    9922.   10092.
  PER Q=    100.0
   AREA=    315.8
    VEL=      6.8
  DEPTH=      2.5

*SECNO 5.590
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1479.80 ELREA=      1476.50

  5.590      3.12   1459.82   1459.82       .00   1461.00      1.18      5.15       .18   1479.80
 2163.0        .0    2163.0        .0        .0     248.3        .0     289.3     134.9   1476.50
   1.31       .00      8.71       .00      .000      .035      .000      .000   1456.70   9934.33
.013983      580.      500.      500.         0        19         0       .00    107.50  10041.83
```

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

FLOW DISTRIBUTION FOR SECNO=      5.59          CWSEL=   1459.82

STA=    9934.   10084.
  PER Q=    100.0
   AREA=    248.3
    VEL=      8.7
  DEPTH=      2.3

1490 NH CARD USED
*SECNO 5.680

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1481.40 ELREA=      1477.50

  5.680      5.46   1465.56   1465.21       .00   1466.30       .74      5.22       .09   1481.40
 2163.0        .0    2163.0        .0        .0     312.8        .0     292.6     136.3   1477.50
   1.33       .00      6.92       .00      .000      .033      .000      .000   1460.10   9890.16
.008084      400.      500.      530.         3        14         0       .00    136.30  10026.46
```

```
FLOW DISTRIBUTION FOR SECNO=      5.68          CWSEL=   1465.56

STA=    9890.    9969.   10043.
  PER Q=     15.6     84.4
   AREA=    104.4    208.3
    VEL=      3.2      8.8
  DEPTH=      1.3      3.6

1490 NH CARD USED
*SECNO 5.780

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1482.20 ELREA=      1474.40

     5.780      6.67   1469.27   1468.29       .00   1469.56       .29      3.17       .09   1482.20
    2163.0        .0    2163.0        .0        .0     502.0        .0     297.2     138.3   1474.40
      1.36       .00      4.31       .00      .000      .043      .000      .000   1462.60   9970.45
   .005096      370.      500.      440.         4         8         0       .00    212.56  10183.01


FLOW DISTRIBUTION FOR SECNO=      5.78          CWSEL=   1469.27

1
   09OCT02      10:51:24                                                                                PAGE   51


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV

    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=    9970.   10203.
  PER Q=    100.0
   AREA=    502.0
    VEL=      4.3
  DEPTH=      2.4

1490 NH CARD USED
*SECNO 5.870

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1472.20 ELREA=      1480.90

     5.870      3.31   1472.31   1472.24       .00   1473.09       .78      3.33       .20   1472.20
    2163.0     307.1    1855.9        .0      55.1     254.5        .0     301.9     140.4   1480.90
      1.38      5.58      7.29       .00      .040      .033      .000      .000   1469.00   9911.18
   .009157      480.      500.      450.         2        19         0       .00    145.01  10056.19


FLOW DISTRIBUTION FOR SECNO=      5.87          CWSEL=   1472.31

STA=    9911.    9922.    9926.    9941.    9955.   10077.
  PER Q=      7.1      4.6      2.5       .1     85.7
   AREA=     25.5     14.1     15.4      3.5    250.9
    VEL=      6.0      7.0      3.6       .8      7.4
  DEPTH=      2.4      3.4      1.0       .3      2.5

1490 NH CARD USED
*SECNO 5.970

3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1496.50 ELREA=      1484.90

     5.970      4.30   1477.20   1477.15       .00   1478.48      1.28      5.19       .20   1496.50
    2163.0        .0    2163.0        .0        .0     238.3        .0     305.0     141.7   1484.90
      1.40       .00      9.08       .00      .000      .034      .000      .000   1472.90   9946.51
   .011883      500.      500.      610.         2        11         0       .00     89.35  10035.85


FLOW DISTRIBUTION FOR SECNO=      5.97          CWSEL=   1477.20

1
   09OCT02      10:51:24                                                                                PAGE   52


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
```

```
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 STA=    9947.    9982.   10063.
   PER Q=      15.5     84.5
    AREA=      59.0    179.4
     VEL=       5.7     10.2
   DEPTH=       1.7      3.3

 *SECNO 6.060
      6.060      4.76   1483.16   1482.92       .00   1484.09       .93      5.53       .07   1482.60
     2163.0        .7    2162.0        .3        .5     279.1        .3     308.0     142.9   1482.70
       1.41      1.39      7.75      1.19      .045      .035      .045      .000   1478.40   9940.78
    .010337      460.      500.      520.         3         8         0       .00    118.35  10059.13

 FLOW DISTRIBUTION FOR SECNO=      6.06          CWSEL=   1483.16

 STA=    9941.    9943.   10058.   10059.
   PER Q=        .0    100.0        .0
    AREA=        .5    279.1        .3
     VEL=       1.4      7.7       1.2
   DEPTH=        .3      2.4        .2

 *SECNO 6.160

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1507.10 ELREA=      1500.70

      6.160      6.98   1486.88   1485.87       .00   1487.99      1.11      3.83       .07   1507.10
     2163.0        .0    2163.0        .0        .0     255.6        .0     311.1     143.9   1500.70
       1.43       .00      8.46       .00      .000      .035      .000      .000   1479.90   9967.18
    .005905      530.      500.      500.         3        11         0       .00     58.13  10025.30

 FLOW DISTRIBUTION FOR SECNO=      6.16          CWSEL=   1486.88

 STA=    9967.   10044.
   PER Q=     100.0
    AREA=     255.6
     VEL=       8.5
   DEPTH=       4.4
```



```
    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

 1490 NH CARD USED
 *SECNO 6.250

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1522.50 ELREA=      1506.30

      6.250      5.63   1492.93   1492.93       .00   1494.79      1.86      4.72       .30   1522.50
     2163.0        .0    2163.0        .0        .0     197.6        .0     313.7     144.6   1506.30
       1.44       .00     10.95       .00      .000      .040      .000      .000   1487.30   9984.81
    .017402      560.      500.      470.         0        15         0       .00     54.29  10039.10

 FLOW DISTRIBUTION FOR SECNO=      6.25          CWSEL=   1492.93

 STA=    9985.   10046.
   PER Q=     100.0
    AREA=     197.6
     VEL=      10.9
   DEPTH=       3.6

 1490 NH CARD USED
 *SECNO 6.340

 3301 HV CHANGED MORE THAN HVINS
```

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1509.70 ELREA=      1508.10

     6.340      7.66   1500.66   1499.76       .00   1501.44       .77      6.43       .22   1509.70
    2163.0        .0    2163.0        .0        .0     306.3        .0     316.6     145.4   1508.10
      1.46       .00      7.06       .00      .000      .045      .000      .000   1493.00   9970.30
   .009885      420.      500.      600.         4        18         0       .00     93.12  10063.41


FLOW DISTRIBUTION FOR SECNO=      6.34          CWSEL=   1500.66

STA=    9970.   10069.
  PER Q=    100.0
   AREA=    306.3
    VEL=      7.1
  DEPTH=      3.3

1
   09OCT02      10:51:24                                                                                PAGE   54


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 6.380


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1512.90 ELREA=      1515.50

     6.380      5.93   1505.93   1505.93       .00   1507.31      1.38      2.63       .24   1512.90
    2163.0        .0    2163.0        .0        .0     229.3        .0     317.8     145.8   1515.50
      1.47       .00      9.43       .00      .000      .041      .000      .000   1500.00   9949.80
   .018414       90.      200.      180.         0        16         0       .00     82.90  10032.70


FLOW DISTRIBUTION FOR SECNO=      6.38          CWSEL=   1505.93

STA=    9950.   10037.
  PER Q=    100.0
   AREA=    229.3
    VEL=      9.4
  DEPTH=      2.8

1
   09OCT02      10:51:24                                                                                PAGE   55


T1  CAP OVERCHUTES - AGUA FRIA FLOOD PLAIN STUDY
T2  FOR FLOOD CONTROL DISTRICT OF MARICOPA COUNTY -METHOD 1 ENCROCHEMENT
T3      TWIN BUTTES WASH                March, 1991

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0        4         0         0        -1         0         0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15         0        -1                                      -1                            15



1
   09OCT02      10:51:24                                                                                PAGE   56


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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=     .100 CEHV=     .300
*SECNO  .190
2096 WSEL NOT GIVEN, AVG OF MAX, MIN USED
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9959.0   10066.0  TYPE=      1  TARGET=      107.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .190      4.84   1242.24   1242.24   1242.24   1243.65      1.41       .00       .00 100000.00
    2746.0        .0    2746.0        .0        .0     288.1        .0        .0        .0 100000.00
      .00       .00      9.53       .00      .000      .035      .000      .000   1237.40   9959.85
   .013399        0.        0.        0.         0        53         0       .00    105.33  10065.18


FLOW DISTRIBUTION FOR SECNO=       .19          CWSEL=   1242.24

STA=    9960.   10099.
  PER Q=    100.0
   AREA=    288.1
    VEL=      9.5
  DEPTH=      2.7

*SECNO  .280

3470 ENCROACHMENT STATIONS=     9982.0   10094.0  TYPE=      1  TARGET=      112.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .280      4.98   1247.78   1247.30   1247.78   1248.76       .98      5.07       .04 100000.00
    2746.0        .0    2746.0        .0        .0     345.5        .0       3.6       1.2 100000.00
      .02       .00      7.95       .00      .000      .035      .000      .000   1242.80   9982.25
   .007941      520.      500.      340.         3        11         0       .00    111.71  10093.96


FLOW DISTRIBUTION FOR SECNO=       .28          CWSEL=   1247.78

1
   09OCT02      10:51:24                                                                                    PAGE   57

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


STA=    9982.   10098.
  PER Q=    100.0
   AREA=    345.5
    VEL=      7.9
  DEPTH=      3.1

*SECNO  .380

3470 ENCROACHMENT STATIONS=     9978.0   10136.0  TYPE=      1  TARGET=      158.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .380      5.20   1252.20   1251.91   1252.00   1252.99       .79      4.21       .02 100000.00
    2746.0        .0    2746.0        .0        .0     384.7        .0       7.8       2.8 100000.00
      .04       .00      7.14       .00      .000      .035      .000      .000   1247.00   9978.00
   .008927      580.      500.      330.         3         6         0       .00    158.00  10136.00


FLOW DISTRIBUTION FOR SECNO=       .38          CWSEL=   1252.20

STA=    9978.   10223.
  PER Q=    100.0
   AREA=    384.7
    VEL=      7.1
  DEPTH=      2.4

*SECNO  .470

3470 ENCROACHMENT STATIONS=     9910.0   10046.0  TYPE=      1  TARGET=      136.000
```

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .470      3.67   1257.17   1257.07   1257.07   1258.26      1.09      5.19       .09 100000.00
    2746.0        .0    2746.0        .0        .0     327.7        .0      11.9       4.5 100000.00
       .05       .00      8.38       .00      .000      .035      .000      .000   1253.50   9910.00
   .012204      380.      500.      720.         2        19         0       .00    136.00  10046.00


 FLOW DISTRIBUTION FOR SECNO=       .47          CWSEL=   1257.17

1
   09OCT02      10:51:24                                                                                PAGE   58

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 STA=    9910.   10051.
   PER Q=    100.0
    AREA=    327.7
     VEL=      8.4
   DEPTH=      2.4

 *SECNO  .570

 3470 ENCROACHMENT STATIONS=     9923.0   10115.0  TYPE=      1  TARGET=      192.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1263.40 ELREA=    100000.00

      .570      3.75   1263.45   1263.31   1263.54   1264.26       .81      5.97       .03   1263.40
    2746.0        .0    2746.0        .0        .0     380.3        .0      16.0       6.4 100000.00
       .07       .04      7.22       .00      .045      .035      .000      .000   1259.70   9923.00
   .011680      490.      500.      730.         3         8         0       .00    192.00  10115.00


 FLOW DISTRIBUTION FOR SECNO=       .57          CWSEL=   1263.45

 STA=    9923.   10177.
   PER Q=    100.0
    AREA=    380.3
     VEL=      7.2
   DEPTH=      2.0

 *SECNO  .660

 3470 ENCROACHMENT STATIONS=     9928.0   10030.7  TYPE=      1  TARGET=      102.700

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .660      5.36   1268.56   1268.32   1268.43   1269.77      1.20      5.39       .12 100000.00
    2746.0        .0    2746.0        .0        .0     312.1        .0      20.0       8.1 100000.00
       .09       .00      8.80       .00      .000      .035      .000      .000   1263.20   9928.00
   .009971      300.      500.      900.         3        11         0       .00    102.70  10030.70


 FLOW DISTRIBUTION FOR SECNO=       .66          CWSEL=   1268.56

1
   09OCT02      10:51:24                                                                                PAGE   59

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 STA=    9928.   10031.
   PER Q=    100.0
    AREA=    312.1
     VEL=      8.8
   DEPTH=      3.0

 *SECNO  .760

 3470 ENCROACHMENT STATIONS=     9965.0   10189.0  TYPE=      1  TARGET=      224.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1272.80
```

```
      .760      8.06   1273.06   1272.57   1272.93   1273.87       .81      4.06       .04 100000.00
    2746.0        .0    2604.3     141.7        .0     352.9      63.1      24.1       9.8   1272.80
      .11       .00      7.38      2.25      .000      .035      .045      .000   1265.00   9965.10
   .006790      530.      500.      430.         3        12         0       .00    223.90  10189.00


 FLOW DISTRIBUTION FOR SECNO=       .76          CWSEL=   1273.06

 STA=    9965.   10078.   10154.   10189.
   PER Q=     94.8      1.1      4.1
    AREA=    352.9     23.9     39.2
     VEL=      7.4      1.3      2.8
   DEPTH=      3.1       .3      1.1

 *SECNO  .850

 3470 ENCROACHMENT STATIONS=     9932.0   10035.4  TYPE=      1  TARGET=      103.400

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .850      8.64   1275.94   1274.24   1275.30   1276.71       .77      2.84       .00 100000.00
    2746.0        .0    2746.0        .0        .0     390.0        .0      28.6      11.5 100000.00
      .13       .00      7.04       .00      .000      .035      .000      .000   1267.30   9932.00
   .004908      530.      500.      290.         3        11         0       .00    103.40  10035.40


 FLOW DISTRIBUTION FOR SECNO=       .85          CWSEL=   1275.94

1
   09OCT02      10:51:24                                                                                PAGE   60


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 STA=    9932.   10035.
   PER Q=    100.0
    AREA=    390.0
     VEL=      7.0
   DEPTH=      3.8

 CCHV=     .200 CEHV=     .400
 *SECNO  .950

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=         .0   10245.0  TYPE=      1  TARGET=    10245.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1288.40 ELREA=      1280.90

      .950      5.53   1280.73   1280.73   1280.78   1282.14      1.40      3.86       .25   1288.40
    2746.0        .0    2746.0        .0        .0     288.8        .0      32.5      12.7   1280.90
      .14       .00      9.51       .00      .000      .035      .000      .000   1275.20   9970.93
   .013869      530.      500.      270.         0        14         0       .00    108.57  10079.50


 FLOW DISTRIBUTION FOR SECNO=       .95          CWSEL=   1280.73

 STA=    9971.   10083.
   PER Q=    100.0
    AREA=    288.8
     VEL=      9.5
   DEPTH=      2.7

 *SECNO 1.040

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.67

 3470 ENCROACHMENT STATIONS=     9956.0   10081.0  TYPE=      1  TARGET=      125.000
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


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1285.10 ELREA=    100000.00

     1.040       7.69    1285.49    1284.49    1285.40    1286.18        .68       3.90        .14    1285.10
    2746.0         .4     2745.6         .0         .4      414.2         .0       36.5       14.0  100000.00
       .16        .99       6.63        .00       .045       .035       .000       .000    1277.80    9956.00
   .004983       410.       500.       700.          3         11          0        .00     125.00   10081.00


FLOW DISTRIBUTION FOR SECNO=      1.04          CWSEL=   1285.49

STA=    9956.    9957.   10081.
  PER Q=        .0     100.0
   AREA=        .4     414.2
    VEL=       1.0       6.6
  DEPTH=        .4       3.3

CCHV=     .200 CEHV=     .400
1490 NH CARD USED
*SECNO 1.140

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .44


3470 ENCROACHMENT STATIONS=     9956.0   10180.0  TYPE=      1  TARGET=      224.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.140       6.75    1290.25    1290.20    1290.21    1291.06        .81       4.83        .05  100000.00
    2746.0         .0     2746.0         .0         .0      379.8         .0       41.0       16.0  100000.00
       .18        .00       7.23        .00       .000       .047       .000       .000    1283.50    9956.13
   .026156       560.       500.       260.          2         13          0        .00     223.87   10180.00


FLOW DISTRIBUTION FOR SECNO=      1.14          CWSEL=   1290.25

STA=    9956.   10180.
  PER Q=    100.0
   AREA=    379.8
    VEL=      7.2
  DEPTH=      1.7

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


CCHV=     .300 CEHV=     .500
1490 NH CARD USED
*SECNO 1.230

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.81


3470 ENCROACHMENT STATIONS=     9975.0   10380.0  TYPE=      1  TARGET=      405.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1293.40

     1.230       6.08    1293.78    1293.41    1293.40    1294.04        .26       2.82        .17  100000.00
    2746.0         .0      764.7     1981.3         .0      148.5      549.1       45.3       18.3    1293.40
       .21        .00       5.15       3.61       .000       .040       .042       .000    1287.70    9988.20
   .003303       530.       500.       200.          4         12          0        .00     391.80   10380.00
```

```
FLOW DISTRIBUTION FOR SECNO=      1.23          CWSEL=   1293.78

STA=    9988.   10025.   10065.   10136.   10212.   10273.   10332.   10369.   10380.
  PER Q=     27.8      1.0      2.7      2.9      1.7     18.0     35.1     10.8
   AREA=    148.5     25.4     59.3     63.4     41.6    133.4    165.9     60.3
    VEL=      5.1      1.1      1.3      1.3      1.1      3.7      5.8      4.9
  DEPTH=      4.0       .6       .8       .8       .7      2.3      4.5      5.3

1490 NH CARD USED
*SECNO 1.330


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59


3470 ENCROACHMENT STATIONS=     9900.0   10153.8  TYPE=      1  TARGET=      253.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.330      4.38   1296.28   1295.69   1295.40   1296.67       .39      2.56       .06 100000.00
    2746.0        .0    2746.0       .0        .0     551.1        .0      52.3      21.9 100000.00
       .24       .00      4.98       .00      .000      .049      .000      .000   1291.90   9900.00
   .009566      500.      500.      470.         5        16         0       .00    253.80  10153.80


1
   09OCT02      10:51:24                                                                                PAGE    63


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV

    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      1.33          CWSEL=   1296.28

STA=    9900.   10154.
  PER Q=    100.0
   AREA=    551.1
    VEL=      5.0
  DEPTH=      2.2

1490 NH CARD USED
*SECNO 1.420

3470 ENCROACHMENT STATIONS=     9913.0   10058.0  TYPE=      1  TARGET=      145.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1299.30 ELREA=    100000.00

     1.420      7.04   1300.34   1299.58   1300.18   1301.00       .66      4.19       .14   1299.30
    2746.0       1.0    2745.0       .0        .8     422.2        .0      57.9      24.2 100000.00
       .26      1.26      6.50       .00      .060      .040      .000      .000   1293.30   9913.00
   .007415      520.      500.      460.         4        14         0       .00    145.00  10058.00


FLOW DISTRIBUTION FOR SECNO=      1.42          CWSEL=   1300.34

STA=    9913.    9914.   10058.
  PER Q=       .0    100.0
   AREA=       .8    422.2
    VEL=      1.3      6.5
  DEPTH=      1.0      2.9

1490 NH CARD USED
*SECNO 1.520

3470 ENCROACHMENT STATIONS=     9845.0   10030.0  TYPE=      1  TARGET=      185.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1303.10 ELREA=    100000.00

     1.520      7.20   1304.10   1303.10   1303.30   1304.54       .44      3.48       .06   1303.10
    2746.0      26.2    2719.8       .0       8.7     509.0        .0      63.3      26.1 100000.00
       .28      3.00      5.34       .00      .040      .045      .000      .000   1296.90   9845.00
   .006584      180.      500.      530.         3         9         0       .00    184.49  10029.49


   09OCT02      10:51:24                                                                                PAGE    64
```

```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      1.52          CWSEL=   1304.10

STA=    9845.    9852.   10030.
  PER Q=      1.0     99.0
   AREA=      8.7    509.0
    VEL=      3.0      5.3
  DEPTH=      1.2      2.9

*SECNO 1.610

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9973.0   10036.0  TYPE=      1  TARGET=       63.000
     1.610      7.67   1307.37   1306.01   1306.44   1308.51      1.14      3.62       .35   1306.60
    2746.0        .4    2745.3        .4        .3     320.4        .3      68.1      27.5   1306.80
       .30      1.21      8.57      1.22      .045      .045      .045      .000   1299.70   9973.00
   .007989      480.      500.      600.         2        11         0       .00     63.00  10036.00


FLOW DISTRIBUTION FOR SECNO=      1.61          CWSEL=   1307.37

STA=    9973.    9973.   10036.   10036.
  PER Q=       .0    100.0       .0
   AREA=       .3    320.4       .3
    VEL=      1.2      8.6      1.2
  DEPTH=       .8      5.2       .6

*SECNO 1.700

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.47


3470 ENCROACHMENT STATIONS=     9926.0   10029.0  TYPE=      1  TARGET=      103.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.700      8.14   1310.94   1308.17   1310.86   1311.35       .42      2.63       .22 100000.00
    2746.0        .0    2746.0        .0        .0     529.7        .0      73.0      28.4 100000.00
       .33       .00      5.18       .00      .000      .050      .000      .000   1302.80   9926.00
   .003722      500.      500.      560.         2        19         0       .00    103.00  10029.00


1
   09OCT02      10:51:24                                                                                PAGE    65

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      1.70          CWSEL=   1310.94

STA=    9926.   10142.
  PER Q=    100.0
   AREA=    529.7
    VEL=      5.2
  DEPTH=      5.1

*SECNO 1.800

3470 ENCROACHMENT STATIONS=     9929.0   10090.0  TYPE=      1  TARGET=      161.000
     1.800      5.67   1313.47   1312.25   1312.99   1313.93       .47      2.55       .02   1312.40
    2746.0        .5    2745.5        .0        .4     501.6        .0      78.9      29.9   1313.10
       .35      1.25      5.47       .03      .045      .050      .045      .000   1307.80   9929.00
   .007448      430.      500.      550.         2        11         0       .00    161.00  10090.00
```

```
FLOW DISTRIBUTION FOR SECNO=      1.80          CWSEL=   1313.47

STA=    9929.    9929.   10090.
  PER Q=        .0    100.0
   AREA=        .4    501.6
    VEL=       1.3      5.5
  DEPTH=       1.1      3.1

*SECNO 1.840

3470 ENCROACHMENT STATIONS=     9967.0   10100.0  TYPE=      1  TARGET=      133.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1316.00 ELREA=    100000.00

     1.840      6.50   1315.10   1314.13   1315.11   1315.74       .64      1.72       .09   1314.80
    2746.0        .0    2746.0        .0        .0     427.4        .0      81.0      30.6 100000.00
       .36       .00      6.42       .00      .000      .050      .000      .000   1308.60   9967.70
   .010014      220.      200.      180.         2         8         0       .00    132.30  10100.00


FLOW DISTRIBUTION FOR SECNO=      1.84          CWSEL=   1315.10

STA=    9968.   10101.
  PER Q=    100.0
   AREA=    427.4
    VEL=      6.4
  DEPTH=      3.2

1
   09OCT02      10:51:24                                                                                                PAGE   66


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 1.910

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.41

3470 ENCROACHMENT STATIONS=     9719.0   10148.0  TYPE=      1  TARGET=      429.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1337.50 ELREA=    100000.00

     1.910      6.99   1318.39   1316.97   1318.16   1318.64       .25      2.79       .12   1337.50
    2779.0        .0    2779.0        .0        .0     692.9        .0      86.2      32.3 100000.00
       .39       .00      4.01       .00      .000      .055      .000      .000   1311.40   9814.19
   .005150      310.      400.      350.         2         9         0       .00    231.13  10045.32


FLOW DISTRIBUTION FOR SECNO=      1.91          CWSEL=   1318.39

STA=    9814.   10148.
  PER Q=    100.0
   AREA=    692.9
    VEL=      4.0
  DEPTH=      3.0

*SECNO 1.920

3470 ENCROACHMENT STATIONS=     9714.0   10102.0  TYPE=      1  TARGET=      388.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1336.50 ELREA=    100000.00

     1.920      7.29   1318.49   1317.29   1318.29   1318.78       .29       .12       .02   1336.50
    2779.0        .0    2779.0        .0        .0     644.5        .0      86.5      32.4 100000.00
       .39       .00      4.31       .00      .000      .055      .000      .000   1311.20   9799.79
   .006890       30.       20.       30.         2        12         0       .00    239.79  10039.58


FLOW DISTRIBUTION FOR SECNO=      1.92          CWSEL=   1318.49

STA=    9800.   10102.
  PER Q=    100.0
   AREA=    644.5
    VEL=      4.3
  DEPTH=      2.7
```

```
    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


1490 NH CARD USED
*SECNO 1.990

3470 ENCROACHMENT STATIONS=     9804.0   10034.0  TYPE=      1  TARGET=      230.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.990      6.79   1321.59   1320.87   1321.31   1321.98       .40      3.15       .05 100000.00
    2779.0       .0    2779.0       .0        .0     548.9        .0      91.7      34.4 100000.00
       .41      .00      5.06       .00      .000      .052      .000      .000   1314.80   9804.00
   .010148     530.      380.      390.         3        10         0       .00    230.00  10034.00


FLOW DISTRIBUTION FOR SECNO=      1.99          CWSEL=   1321.59

STA=    9804.   10034.
  PER Q=    100.0
   AREA=    548.9
    VEL=      5.1
  DEPTH=      2.4

CCHV=     .200 CEHV=     .400
1490 NH CARD USED
*SECNO 2.080

3470 ENCROACHMENT STATIONS=     9972.0   10140.0  TYPE=      1  TARGET=      168.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1324.00

     2.080      7.23   1325.23   1324.24   1324.23   1325.69       .46      3.69       .03 100000.00
    2779.0       .0    1876.6     902.4        .0     332.0     180.5      97.9      36.8   1324.00
       .44      .00      5.65      5.00      .000      .045      .042      .000   1318.00   9972.26
   .005471     270.      500.      540.         2        10         0       .00    167.74  10140.00


FLOW DISTRIBUTION FOR SECNO=      2.08          CWSEL=   1325.23

STA=    9972.   10063.   10108.   10140.   10140.
  PER Q=     67.5      7.2     25.3       .0
   AREA=    332.0     68.5    111.5       .5
    VEL=      5.7      2.9      6.3       .6
  DEPTH=      3.6      1.5      3.5      5.1
```

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


1490 NH CARD USED
*SECNO 2.160

3470 ENCROACHMENT STATIONS=     9964.0   10088.0  TYPE=      1  TARGET=      124.000
     2.160      5.51   1327.31   1326.56   1326.27   1328.07       .76      2.26       .12   1326.20
    2779.0       .0    2283.4     495.6        .0     309.2     101.3     101.6      37.9   1326.00
       .45      .00      7.38      4.89      .000      .040      .045      .000   1321.80   9964.00
   .007053     790.      420.      200.         3        23         0       .00    124.00  10088.00


FLOW DISTRIBUTION FOR SECNO=      2.16          CWSEL=   1327.31

STA=    9964.   10047.   10063.   10088.
  PER Q=     82.2      5.4     12.5
   AREA=    309.2     32.7     68.6
    VEL=      7.4      4.5      5.1
  DEPTH=      3.7      2.1      2.7
```

```
*SECNO 2.270

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     9970.0   10029.2  TYPE=      1  TARGET=       59.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     2.270      7.17   1331.27   1330.13   1330.59   1332.54      1.27      4.26       .20 100000.00
    2779.0        .0    2779.0        .0        .0     306.8        .0     106.5      39.1 100000.00
       .47       .00      9.06       .00      .000      .040      .000      .000   1324.10   9970.00
   .007459      650.      580.      670.         0         8         0       .00     59.20  10029.20

FLOW DISTRIBUTION FOR SECNO=      2.27          CWSEL=   1331.27

STA=    9970.   10029.
  PER Q=    100.0
   AREA=    306.8
    VEL=      9.1
  DEPTH=      5.2
```



```
    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

*SECNO 2.370

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     9923.0   10072.0  TYPE=      1  TARGET=      149.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1334.30

     2.370      5.81   1334.91   1333.43   1334.48   1335.35       .44      2.65       .17 100000.00
    2779.0        .0    2778.8        .2        .0     519.4        .2     111.2      40.3   1334.30
       .50       .00      5.35       .72      .000      .040      .050      .000   1329.10   9923.82
   .003953      550.      500.      190.         3        14         0       .00    148.18  10072.00

FLOW DISTRIBUTION FOR SECNO=      2.37          CWSEL=   1334.91

STA=    9924.   10072.   10072.
  PER Q=    100.0       .0
   AREA=    519.4       .2
    VEL=      5.3       .7
  DEPTH=      3.5       .6

*SECNO 2.460

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .59

3470 ENCROACHMENT STATIONS=     9851.0   10026.0  TYPE=      1  TARGET=      175.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     2.460      6.45   1337.85   1337.39   1337.94   1338.58       .73      3.11       .11 100000.00
    2779.0        .0    2779.0        .0        .0     405.5        .0     116.5      42.2 100000.00
       .52       .00      6.85       .00      .000      .040      .000      .000   1331.40   9851.81
   .011217      500.      500.      530.         1         8         0       .00    174.02  10025.83

FLOW DISTRIBUTION FOR SECNO=      2.46          CWSEL=   1337.85

STA=    9852.   10046.
  PER Q=    100.0
   AREA=    405.5
    VEL=      6.9
  DEPTH=      2.3
```

```
    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

*SECNO 2.560

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.99

3470 ENCROACHMENT STATIONS=     9957.0   10090.0  TYPE=      1  TARGET=      133.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     2.560       5.85   1340.75   1338.49   1340.72   1341.15       .40       2.51       .07 100000.00
    2779.0         .0    2779.0        .0        .0     548.1        .0      122.0      43.9 100000.00
       .54        .00      5.07       .00      .000      .040      .000       .000   1334.90   9957.69
   .002828       350.      500.      580.         2        11         0        .00    132.03  10089.73

FLOW DISTRIBUTION FOR SECNO=      2.56          CWSEL=   1340.75

STA=    9958.   10100.
  PER Q=    100.0
   AREA=    548.1
    VEL=      5.1
  DEPTH=      4.2

*SECNO 2.650

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .53

3470 ENCROACHMENT STATIONS=     9965.0   10038.0  TYPE=      1  TARGET=       73.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1342.00 ELREA=    100000.00

     2.650       5.98   1342.58   1342.03   1342.60   1343.97      1.38       2.42       .39   1342.00
    2779.0         .9    2778.1        .0        .5     294.2        .0      126.8      45.1 100000.00
       .56       1.67      9.44       .00      .045      .040      .000       .000   1336.60   9965.00
   .010131       370.      500.      570.         2        11         0        .00     72.68  10037.68
```



```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      2.65          CWSEL=   1342.58

STA=    9965.    9966.   10041.
  PER Q=       .0    100.0
   AREA=       .5    294.2
    VEL=      1.7      9.4
  DEPTH=       .6      4.1

*SECNO 2.750

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.42

3470 ENCROACHMENT STATIONS=     9971.0   10090.0  TYPE=      1  TARGET=      119.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1346.40 ELREA=    100000.00

     2.750       6.27   1346.97   1345.65   1346.87   1347.58       .61       3.46       .15   1346.40
    2779.0         .4    2778.6        .0        .4     442.8        .0      131.1      46.2 100000.00
```

```
      .58      1.08      6.28       .00      .045      .040      .000      .000   1340.70   9971.00
   .005025     460.      500.      520.         3        15         0       .00    118.59  10089.59

FLOW DISTRIBUTION FOR SECNO=      2.75          CWSEL=   1346.97

STA=    9971.    9972.   10110.
  PER Q=        .0     100.0
   AREA=        .4     442.8
    VEL=       1.1       6.3
  DEPTH=        .6       3.8

*SECNO 2.840

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68

1
   09OCT02      10:51:24                                                                                PAGE   72

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3470 ENCROACHMENT STATIONS=     9963.0   10060.0  TYPE=      1  TARGET=       97.000
     2.840      6.82   1350.22   1349.71   1350.24   1351.38      1.16      3.58       .22   1349.50
    2779.0       1.1    2777.9        .0        .6     321.3        .0     135.5      47.4   1350.20
       .60      1.85      8.65       .03      .045      .040      .045      .000   1343.40   9963.00
   .010999      500.      500.      500.         2         5         0       .00     97.00  10060.00

FLOW DISTRIBUTION FOR SECNO=      2.84          CWSEL=   1350.22

STA=    9963.    9964.   10059.
  PER Q=        .0     100.0
   AREA=        .6     321.3
    VEL=       1.9       8.6
  DEPTH=        .6       3.4

*SECNO 2.940

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.46

3470 ENCROACHMENT STATIONS=     9969.0   10030.0  TYPE=      1  TARGET=       61.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1352.20 ELREA=    100000.00

     2.940      7.30   1354.00   1352.26   1353.80   1355.05      1.05      3.65       .02   1352.20
    2779.0       1.9    2777.1        .0       1.3     338.1        .0     139.3      48.3 100000.00
       .61      1.51      8.21       .00      .045      .040      .000      .000   1346.70   9969.00
   .005190      650.      500.      440.         2        15         0       .00     61.00  10030.00

FLOW DISTRIBUTION FOR SECNO=      2.94          CWSEL=   1354.00

STA=    9969.    9970.   10032.
  PER Q=        .1      99.9
   AREA=       1.3     338.1
    VEL=       1.5       8.2
  DEPTH=       1.8       5.6

*SECNO 3.030
1
   09OCT02      10:51:24                                                                                PAGE   73

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3470 ENCROACHMENT STATIONS=     9970.0   10056.0  TYPE=      1  TARGET=       86.000
```

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     3.030      7.84   1357.24   1355.69   1356.88   1358.29      1.05      3.24       .00 100000.00
    2779.0        .0    2779.0        .0        .0     337.5        .0     143.1      49.2 100000.00
       .63       .00      8.23       .00      .000      .040      .000      .000   1349.40   9970.32
   .008299      420.      500.      710.         3        12         0       .00     85.68  10056.00


FLOW DISTRIBUTION FOR SECNO=      3.03          CWSEL=   1357.24

STA=    9970.   10056.
  PER Q=    100.0
   AREA=    337.5
    VEL=      8.2
  DEPTH=      3.9

*SECNO 3.130

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.06


3470 ENCROACHMENT STATIONS=     9983.0   10159.0  TYPE=      1  TARGET=      176.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1357.30 ELREA=    100000.00

     3.130      7.47   1359.97   1357.91   1359.81   1360.22       .26      1.78       .16   1357.30
    2779.0        .1    2778.9        .0        .3     684.7        .0     149.0      50.7 100000.00
       .66       .31      4.06       .00      .045      .040      .000      .000   1352.50   9983.00
   .001960      540.      500.      240.         2        18         0       .00    175.28  10158.28


FLOW DISTRIBUTION FOR SECNO=      3.13          CWSEL=   1359.97

STA=    9983.    9983.   10192.
  PER Q=       .0    100.0
   AREA=       .3    684.7
    VEL=       .3      4.1
  DEPTH=      2.7      3.9

1
   09OCT02      10:51:24                                                                                    PAGE   74


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 3.220

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .45


3470 ENCROACHMENT STATIONS=     9963.0   10041.0  TYPE=      1  TARGET=       78.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1360.80

     3.220      6.13   1361.23   1360.56   1360.68   1362.48      1.26      1.86       .40 100000.00
    2779.0        .0    2779.0        .0        .0     308.7        .1     154.7      52.1   1360.80
       .68       .00      9.00       .03      .000      .040      .045      .000   1355.10   9963.19
   .009572      650.      500.      400.         3        19         0       .00     77.81  10041.00


FLOW DISTRIBUTION FOR SECNO=      3.22          CWSEL=   1361.23


STA=    9963.   10041.
  PER Q=    100.0
   AREA=    308.7
    VEL=      9.0
  DEPTH=      4.0

*SECNO 3.310
```

```
3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.49

3470 ENCROACHMENT STATIONS=     9968.0   10113.0  TYPE=      1  TARGET=      145.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1364.50

     3.310      5.65   1365.25   1363.90   1365.02   1365.73       .48      3.09       .16 100000.00
    2779.0        .0    2778.9        .1        .0     500.2        .2     159.4      53.4   1364.50
       .70       .00      5.56       .63      .000      .040      .045      .000   1359.60   9968.61
   .004325      600.      500.      300.         4        19         0       .00    144.39  10113.00


1
   09OCT02      10:51:24                                                                                PAGE   75

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      3.31          CWSEL=   1365.25

STA=    9969.   10113.   10113.
  PER Q=    100.0       .0
   AREA=    500.2       .2
    VEL=      5.6       .6
  DEPTH=      3.5       .8

*SECNO 3.410

3470 ENCROACHMENT STATIONS=     9925.0   10017.0  TYPE=      1  TARGET=       92.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     3.410      7.51   1367.61   1365.77   1366.64   1368.46       .85      2.58       .15 100000.00
    2779.0        .0    2779.0        .0        .0     374.9        .0     164.4      54.8 100000.00
       .72       .00      7.41       .00      .000      .040      .000      .000   1360.10   9925.82
   .006256      430.      500.      290.         3         5         0       .00     90.90  10016.72


FLOW DISTRIBUTION FOR SECNO=      3.41          CWSEL=   1367.61

STA=    9926.   10057.
  PER Q=    100.0
   AREA=    374.9
    VEL=      7.4
  DEPTH=      4.1

1490 NH CARD USED
*SECNO 3.470

3470 ENCROACHMENT STATIONS=     9817.0   10023.0  TYPE=      1  TARGET=      206.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1370.00 ELREA=    100000.00

     3.470      6.49   1370.29   1369.16   1369.97   1370.75       .46      2.21       .08   1370.00
    2779.0        .0    2779.0        .0        .0     513.1        .0     167.4      55.8 100000.00
       .74       .00      5.42       .00      .000      .047      .000      .000   1363.80   9817.00
   .008778       40.      300.      380.         4        16         0       .00    206.00  10023.00


1
   09OCT02      10:51:24                                                                                PAGE   76

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      3.47          CWSEL=   1370.29

STA=    9817.   10023.
```

```
  PER Q=     100.0
   AREA=     513.1
    VEL=       5.4
  DEPTH=       2.5

1490 NH CARD USED
*SECNO 3.500

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.93


3470 ENCROACHMENT STATIONS=     9883.0   10089.0  TYPE=      1  TARGET=      206.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1370.30 ELREA=    100000.00

     3.500      6.74   1371.34   1369.22   1371.03   1371.59       .25       .80       .04   1370.30
    2779.0     125.2    2653.8        .0      50.5     652.5        .0     170.1      56.7 100000.00
       .75      2.48      4.07       .00      .040      .042      .000      .000   1364.60   9883.00
   .002358       50.      200.      250.         2        18         0       .00    206.00  10089.00


FLOW DISTRIBUTION FOR SECNO=      3.50          CWSEL=   1371.34

STA=    9883.    9912.   10089.
  PER Q=      4.5     95.5
   AREA=     50.5    652.5
    VEL=      2.5      4.1
  DEPTH=      1.8      3.7

1490 NH CARD USED
*SECNO 3.600

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .46

1
   09OCT02      10:51:24                                                                                                PAGE   77


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     9894.0   10048.0  TYPE=      1  TARGET=      154.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1372.60 ELREA=    100000.00

     3.600      5.43   1372.93   1372.72   1372.66   1373.72       .79      1.91       .22   1372.60
    2424.0     590.2    1833.8        .0      90.0     250.7        .0     176.1      58.7 100000.00
       .77      6.56      7.31       .00      .037      .035      .000      .000   1367.50   9894.00
   .008302      470.      500.      500.         2        14         0       .00    154.00  10048.00


FLOW DISTRIBUTION FOR SECNO=      3.60          CWSEL=   1372.93

STA=    9894.    9894.    9903.    9911.    9952.   10048.
  PER Q=       .1     15.1      6.4      2.7     75.6
   AREA=      1.7     36.4     21.7     30.2    250.7
    VEL=      2.0     10.0      7.1      2.2      7.3
  DEPTH=      4.1      4.2      2.7       .7      2.6

*SECNO 3.690
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9973.0   10111.0  TYPE=      1  TARGET=      138.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1377.20

     3.690      5.37   1377.27   1377.27   1377.25   1377.91       .63      2.91       .03 100000.00
    2424.0        .0    2150.8     273.2        .0     323.1      72.9     179.8      60.1   1377.20
       .79       .00      6.66      3.75      .000      .035      .045      .000   1371.90   9973.00
   .005047      380.      500.        0.         0         8         0       .00    138.00  10111.00


FLOW DISTRIBUTION FOR SECNO=      3.69          CWSEL=   1377.27
```

```
STA=    9973.   10070.   10087.   10105.   10111.
  PER Q=     88.7       .9      8.1      2.3
   AREA=    323.1     12.2     45.8     15.0
    VEL=      6.7      1.9      4.3      3.7
  DEPTH=      3.3       .7      2.5      2.6
```



```
    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

*SECNO 3.790

3470 ENCROACHMENT STATIONS=     9924.0   10071.0  TYPE=      1  TARGET=      147.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1380.20 ELREA=    100000.00

     3.790      4.99   1380.49   1380.19   1380.47   1381.29       .80      3.32       .06   1380.20
    2424.0        .0    2424.0        .0        .0     338.4        .0     183.8      61.6 100000.00
       .81       .03      7.16       .00      .045      .035      .000      .000   1375.50   9924.00
   .009506      650.      500.      340.         2        15         0       .00    146.89  10070.89

FLOW DISTRIBUTION FOR SECNO=      3.79          CWSEL=   1380.49

STA=    9924.   10079.
  PER Q=    100.0
   AREA=    338.4
    VEL=      7.2
  DEPTH=      2.3

*SECNO 3.880

3470 ENCROACHMENT STATIONS=     9971.0   10094.0  TYPE=      1  TARGET=      123.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1381.20

     3.880      6.57   1384.07   1383.67   1383.94   1385.00       .93      3.65       .05 100000.00
    2424.0        .0    1870.3     553.7        .0     217.6     156.9     188.2      63.3   1381.20
       .83       .00      8.60      3.53      .000      .035      .050      .000   1377.50   9971.69
   .005480      450.      500.      640.         2        11         0       .00    122.31  10094.00

FLOW DISTRIBUTION FOR SECNO=      3.88          CWSEL=   1384.07

STA=    9972.   10017.   10070.   10094.   10094.
  PER Q=     77.2     16.7      6.1       .1
   AREA=    217.6    111.3     44.5      1.1
    VEL=      8.6      3.6      3.3      1.2
  DEPTH=      4.8      2.1      1.9      2.3
```



```
    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

1490 NH CARD USED
*SECNO 3.980

3470 ENCROACHMENT STATIONS=     9866.0   10020.0  TYPE=      1  TARGET=      154.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     3.980      4.56   1387.66   1386.96   1387.59   1388.21       .55      3.14       .07 100000.00
    2424.0        .0    2424.0        .0        .0     405.6        .0     192.4      64.7 100000.00
       .85       .00      5.98       .00      .000      .042      .000      .000   1383.10   9866.41
   .007904      590.      500.      330.         2        14         0       .00    153.59  10020.00

FLOW DISTRIBUTION FOR SECNO=      3.98          CWSEL=   1387.66
```

```
STA=    9866.   10020.
  PER Q=    100.0
   AREA=    405.6
    VEL=      6.0
  DEPTH=      2.6

1490 NH CARD USED
*SECNO 4.070

3470 ENCROACHMENT STATIONS=     9906.0   10130.0  TYPE=      1  TARGET=      224.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1391.60

     4.070      5.89   1391.69   1391.02   1391.60   1392.08       .39      3.84       .03 100000.00
    2424.0        .0    2424.0        .0        .0     482.0        .0     197.5      66.9   1391.60
       .88       .00      5.03       .03      .000      .042      .045      .000   1385.80   9906.62
   .007461      480.      500.      670.         3         8         0       .00    223.38  10130.00


FLOW DISTRIBUTION FOR SECNO=      4.07          CWSEL=   1391.69

STA=    9907.   10130.
  PER Q=    100.0
   AREA=    482.0
    VEL=      5.0
  DEPTH=      2.2

1
   09OCT02      10:51:24                                                                                                PAGE   80


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 4.170

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.65


3470 ENCROACHMENT STATIONS=     9933.0   10182.0  TYPE=      1  TARGET=      249.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     4.170      4.68   1393.98   1392.91   1393.93   1394.23       .25      2.12       .03 100000.00
    2424.0        .0    2424.0        .0        .0     604.8        .0     203.7      69.6 100000.00
       .91       .00      4.01       .00      .000      .035      .000      .000   1389.30   9933.81
   .002737      640.      500.      430.         4        14         0       .00    248.19  10182.00


FLOW DISTRIBUTION FOR SECNO=      4.17          CWSEL=   1393.98

STA=    9934.   10210.
  PER Q=    100.0
   AREA=    604.8
    VEL=      4.0
  DEPTH=      2.4

*SECNO 4.260

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9955.0   10064.0  TYPE=      1  TARGET=      109.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     4.260      4.33   1396.93   1396.93   1396.99   1398.20      1.27      2.62       .41 100000.00
    2424.0        .0    2424.0        .0        .0     268.0        .0     208.7      71.7 100000.00
       .93       .00      9.05       .00      .000      .035      .000      .000   1392.60   9955.05
   .013808      450.      500.      700.         0        11         0       .00    108.95  10064.00


FLOW DISTRIBUTION FOR SECNO=      4.26          CWSEL=   1396.93

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


STA=    9955.   10116.
  PER Q=    100.0
   AREA=    268.0
    VEL=      9.0
  DEPTH=      2.5

1490 NH CARD USED
*SECNO 4.360

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.84


3470 ENCROACHMENT STATIONS=     9968.0   10252.0  TYPE=      1  TARGET=      284.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     4.360      6.14   1401.64   1400.45   1401.32   1401.83       .19      3.41       .22 100000.00
    2424.0        .0    2424.0       .0        .0     684.6        .0     214.2      73.9 100000.00
       .97       .00      3.54       .00      .000      .048      .000      .000   1395.50   9968.55
   .004059      560.      500.      530.         3        11         0       .00    283.45  10252.00


FLOW DISTRIBUTION FOR SECNO=      4.36          CWSEL=   1401.64

STA=    9969.   10252.
  PER Q=    100.0
   AREA=    684.6
    VEL=      3.5
  DEPTH=      2.4

1490 NH CARD USED
*SECNO 4.450

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .63


3470 ENCROACHMENT STATIONS=     9850.0   10024.0  TYPE=      1  TARGET=      174.000
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


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1403.90 ELREA=    100000.00

     4.450      4.68   1404.48   1404.01   1403.95   1405.04       .56      3.06       .14   1403.90
    2424.0        .5    2423.5       .0        .4     404.6        .0     220.4      76.5 100000.00
       .99      1.17      5.99       .00      .060      .044      .000      .000   1399.80   9850.00
   .010310      630.      500.      360.         3        18         0       .00    174.00  10024.00


FLOW DISTRIBUTION FOR SECNO=      4.45          CWSEL=   1404.48


STA=    9850.    9851.   10024.
  PER Q=       .0    100.0
   AREA=       .4    404.6
    VEL=      1.2      6.0
  DEPTH=       .6      2.3

1490 NH CARD USED
*SECNO 4.550

3470 ENCROACHMENT STATIONS=     9921.0   10047.0  TYPE=      1  TARGET=      126.000
```

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1409.30 ELREA=    100000.00

     4.550      5.59   1409.59   1409.38   1409.45   1410.54       .95      5.34       .16   1409.30
    2424.0        .2    2423.8        .0        .2     309.6        .0     224.5      78.3 100000.00
      1.01       .90      7.83       .00      .060      .036      .000      .000   1404.00   9921.00
   .011067      550.      500.      640.         3         8         0       .00    126.00  10047.00


FLOW DISTRIBUTION FOR SECNO=      4.55          CWSEL=   1409.59

STA=    9921.    9922.   10047.
  PER Q=        .0    100.0
   AREA=        .2    309.6
    VEL=        .9      7.8
  DEPTH=        .3      2.5

1490 NH CARD USED
*SECNO 4.640
1
   09OCT02      10:51:24                                                                          PAGE    83

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 =  1.93


3470 ENCROACHMENT STATIONS=     9974.0   10318.0  TYPE=      1  TARGET=      344.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     4.640      4.30   1413.10   1411.65   1412.51   1413.27       .16      2.57       .16 100000.00
    2424.0        .0    2424.0        .0        .0     747.7        .0     230.6      81.0 100000.00
      1.05       .00      3.24       .00      .000      .042      .000      .000   1408.80   9974.00
   .002957      390.      500.      360.         4        11         0       .00    344.00  10318.00


FLOW DISTRIBUTION FOR SECNO=      4.64          CWSEL=   1413.10

STA=    9974.   10318.
  PER Q=    100.0
   AREA=    747.7
    VEL=      3.2
  DEPTH=      2.2

1490 NH CARD USED
*SECNO 4.730
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9979.0   10351.0  TYPE=      1  TARGET=      372.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     4.730      4.35   1416.25   1416.25   1416.19   1416.81       .56      3.35       .16 100000.00
    2424.0        .0    2424.0        .0        .0     402.4        .0     237.2      85.1 100000.00
      1.08       .00      6.02       .00      .000      .043      .000      .000   1411.90   9979.78
   .027314      500.      500.      410.         0         5         0       .00    371.21  10351.00


FLOW DISTRIBUTION FOR SECNO=      4.73          CWSEL=   1416.25

1
   09OCT02      10:51:24                                                                          PAGE    84

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
```

```
STA=    9980.   10351.
 PER Q=    100.0
  AREA=    402.4
   VEL=      6.0
 DEPTH=      1.1

1490 NH CARD USED
*SECNO 4.790

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.81


3470 ENCROACHMENT STATIONS=     9932.0   10171.0  TYPE=      1  TARGET=      239.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     4.790      5.40   1420.30   1419.49   1419.78   1420.59       .29      3.72       .05 100000.00
    2163.0        .0    2163.0        .0        .0     501.4        .0     240.3      87.2 100000.00
      1.10       .00      4.31       .00      .000      .046      .000      .000   1414.90   9932.00
   .006657      330.      300.      320.         6         8         0       .00    239.00  10171.00


FLOW DISTRIBUTION FOR SECNO=      4.79          CWSEL=   1420.30

STA=    9932.   10171.
 PER Q=    100.0
  AREA=    501.4
   VEL=      4.3
 DEPTH=      2.1

1490 NH CARD USED
*SECNO 4.920

3470 ENCROACHMENT STATIONS=     9960.0   10230.0  TYPE=      1  TARGET=      270.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1425.40

     4.920      3.64   1426.44   1426.05   1426.29   1426.83       .40      6.20       .04 100000.00
    2163.0        .0    1908.1     254.9        .0     370.1      60.2     247.7      91.2   1425.40
      1.13       .00      5.16      4.23      .000      .045      .050      .000   1422.80   9961.68
   .012687        0.      700.      570.         4        14         0       .00    268.32  10230.00


1
   09OCT02      10:51:24                                                                                PAGE   85

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      4.92          CWSEL=   1426.44

STA=    9962.   10189.   10208.   10230.
 PER Q=     88.2      4.1      7.7
  AREA=    370.1     23.2     37.0
   VEL=      5.2      3.8      4.5
 DEPTH=      1.6      1.2      1.7

1490 NH CARD USED
*SECNO 5.020

3470 ENCROACHMENT STATIONS=     9974.0   10230.0  TYPE=      1  TARGET=      256.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1430.10

     5.020      5.12   1431.42   1430.84   1431.06   1431.72       .30      4.87       .02 100000.00
    2163.0        .0    1832.8     330.2        .0     410.2      81.9     252.9      94.1   1430.10
      1.16       .00      4.47      4.03      .000      .047      .045      .000   1426.30   9974.00
   .008028      510.      500.      420.         5        13         0       .00    256.00  10230.00


FLOW DISTRIBUTION FOR SECNO=      5.02          CWSEL=   1431.42

STA=    9974.   10179.   10227.   10230.
 PER Q=     84.7     14.7       .6
  AREA=    410.2     77.6      4.3
   VEL=      4.5      4.1      3.0
 DEPTH=      2.0      1.6      1.4
```

```
1490 NH CARD USED
*SECNO 5.070

3470 ENCROACHMENT STATIONS=     9931.0   10070.0  TYPE=      1  TARGET=      139.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     5.070      5.03   1433.83   1433.39   1433.41   1434.52       .69      2.64       .15 100000.00
    2163.0        .0    2163.0        .0        .0     325.5        .0     255.2      95.2 100000.00
      1.17       .00      6.64       .00      .000      .048      .000      .000   1428.80   9931.00
   .014899      320.      250.      210.         2        15         0       .00    139.00  10070.00


1
   09OCT02      10:51:24                                                                                PAGE   86

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      5.07          CWSEL=   1433.83

STA=    9931.   10070.
  PER Q=    100.0
   AREA=    325.5
    VEL=      6.6
  DEPTH=      2.3

1490 NH CARD USED
*SECNO 5.110

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.48

3470 ENCROACHMENT STATIONS=     9974.0   10094.0  TYPE=      1  TARGET=      120.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1436.10 ELREA=    100000.00

     5.110      5.34   1436.44   1435.43   1436.10   1436.98       .54      2.43       .03   1436.10
    2163.0        .0    2163.0        .0        .0     368.2        .0     257.2      96.0 100000.00
      1.19       .02      5.87       .00      .080      .044      .000      .000   1431.10   9974.00
   .006838      280.      250.      200.         2        15         0       .00    120.00  10094.00


FLOW DISTRIBUTION FOR SECNO=      5.11          CWSEL=   1436.44

STA=    9974.   10094.
  PER Q=    100.0
   AREA=    368.2
    VEL=      5.9
  DEPTH=      3.1

*SECNO 5.210

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     9946.0   10034.0  TYPE=      1  TARGET=       88.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

1
   09OCT02      10:51:24                                                                                PAGE   87

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


     5.210      5.91   1440.61   1440.14   1440.13   1441.75      1.14      4.53       .24 100000.00
    2163.0        .0    2163.0        .0        .0     252.0        .0     260.7      97.1 100000.00
      1.20       .00      8.58       .00      .000      .040      .000      .000   1434.70   9950.24
   .012579      360.      500.      540.         3         5         0       .00     83.38  10033.62
```

```
FLOW DISTRIBUTION FOR SECNO=      5.21          CWSEL=   1440.61

STA=    9950.   10043.
  PER Q=    100.0
   AREA=    252.0
    VEL=      8.6
  DEPTH=      3.0

*SECNO 5.300

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.79


3470 ENCROACHMENT STATIONS=     9952.0   10054.0  TYPE=      1  TARGET=      102.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     5.300      6.72   1444.62   1443.05   1444.76   1445.11       .48      3.22       .13 100000.00
    2163.0        .0    2163.0       .0        .0     388.2        .0     264.4      98.2 100000.00
      1.23       .00      5.57       .00      .000      .040      .000      .000   1437.90   9952.06
   .003910      540.      500.      500.         3        15         0       .00    101.94  10054.00


FLOW DISTRIBUTION FOR SECNO=      5.30          CWSEL=   1444.62

STA=    9952.   10078.
  PER Q=    100.0
   AREA=    388.2
    VEL=      5.6
  DEPTH=      3.8
```



```
    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


*SECNO 5.400

3301 HV CHANGED MORE THAN HVINS


7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9963.0   10085.0  TYPE=      1  TARGET=      122.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     5.400      4.48   1448.08   1448.08   1448.07   1449.17      1.09      3.38       .24 100000.00
    2163.0        .0    2163.0       .0        .0     258.4        .0     268.1      99.5 100000.00
      1.24       .00      8.37       .00      .000      .035      .000      .000   1443.60   9963.32
   .014384      550.      500.      470.         0        14         0       .00    121.58  10084.90


FLOW DISTRIBUTION FOR SECNO=      5.40          CWSEL=   1448.08

STA=    9963.   10107.
  PER Q=    100.0

   AREA=    258.4
    VEL=      8.4
  DEPTH=      2.1

*SECNO 5.490

3470 ENCROACHMENT STATIONS=     9922.0   10050.0  TYPE=      1  TARGET=      128.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     5.490      4.25   1453.75   1453.27   1453.75   1454.48       .73      5.24       .07 100000.00
    2163.0        .0    2163.0       .0        .0     315.1        .0     271.4     100.9 100000.00
      1.26       .00      6.86       .00      .000      .035      .000      .000   1449.50   9922.14
```

```
   .007968      460.      500.      580.        3        15        0       .00    127.85  10050.00

FLOW DISTRIBUTION FOR SECNO=      5.49          CWSEL=   1453.75

STA=    9922.   10092.
  PER Q=    100.0
   AREA=    315.1
    VEL=      6.9
  DEPTH=      2.5

1
   09OCT02      10:51:24                                                                          PAGE   89

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 5.590
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9934.0   10042.0  TYPE=      1  TARGET=      108.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     5.590      3.12   1459.82   1459.82   1459.82   1461.00      1.18      5.17       .18 100000.00
    2163.0        .0    2163.0        .0        .0     248.4        .0     274.6     102.2 100000.00
      1.28       .00      8.71       .00      .000      .035      .000      .000   1456.70   9934.33
   .013955      580.      500.      500.         0        19         0       .00    107.50  10041.83

FLOW DISTRIBUTION FOR SECNO=      5.59          CWSEL=   1459.82

STA=    9934.   10084.
  PER Q=    100.0
   AREA=    248.4
    VEL=      8.7
  DEPTH=      2.3

1490 NH CARD USED
*SECNO 5.680

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     9890.0   10027.0  TYPE=      1  TARGET=      137.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     5.680      5.85   1465.95   1465.21   1465.56   1466.50       .55      5.37       .13 100000.00
    2163.0        .0    2163.0        .0        .0     364.7        .0     278.2     103.7 100000.00
      1.30       .00      5.93       .00      .000      .044      .000      .000   1460.10   9890.00
   .008526      400.      500.      530.         4        14         0       .00    136.96  10026.96

FLOW DISTRIBUTION FOR SECNO=      5.68          CWSEL=   1465.95

STA=    9890.   10027.
  PER Q=    100.0
   AREA=    364.7
    VEL=      5.9
  DEPTH=      2.7

1
   09OCT02      10:51:24                                                                          PAGE   90

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 5.780

3470 ENCROACHMENT STATIONS=     9970.0   10183.0  TYPE=      1  TARGET=      213.000
```

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     5.780      6.74   1469.34   1468.37   1469.27   1469.61       .27      3.06       .06 100000.00
    2163.0        .0    2163.0        .0        .0     517.8        .0     283.2     105.7 100000.00
      1.34       .00      4.18       .00      .000      .043      .000      .000   1462.60   9970.36
   .004601      370.      500.      440.         3         6         0       .00    212.64  10183.00


FLOW DISTRIBUTION FOR SECNO=      5.78          CWSEL=   1469.34

STA=    9970.   10183.
  PER Q=    100.0
   AREA=    517.8
    VEL=      4.2
  DEPTH=      2.4

1490 NH CARD USED
*SECNO 5.870

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .60


3470 ENCROACHMENT STATIONS=     9941.0   10057.0  TYPE=      1  TARGET=      116.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1472.20 ELREA=    100000.00

     5.870      3.56   1472.56   1472.31   1472.31   1473.47       .91      3.60       .26   1472.20
    2163.0        .0    2163.0        .0        .1     282.8        .0     287.8     107.5 100000.00
      1.35       .04      7.65       .00      .040      .040      .000      .000   1469.00   9941.00
   .012856      480.      500.      450.         2        19         0       .00    116.00  10057.00


FLOW DISTRIBUTION FOR SECNO=      5.87          CWSEL=   1472.56

1
   09OCT02      10:51:24                                                                                PAGE   91

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=    9941.    9941.   10057.
  PER Q=       .0     100.0
   AREA=       .1     282.8
    VEL=       .0       7.6
  DEPTH=       .4       2.4

1490 NH CARD USED
*SECNO 5.970

3470 ENCROACHMENT STATIONS=     9945.0   10037.0  TYPE=      1  TARGET=       92.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     5.970      4.78   1477.68   1477.14   1477.20   1478.60       .91      5.13       .00 100000.00
    2163.0        .0    2163.0        .0        .0     281.9        .0     291.1     108.7 100000.00

      1.37       .00      7.67       .00      .000      .037      .000      .000   1472.90   9945.00
   .008368      500.      500.      610.         4        11         0       .00     92.00  10037.00


FLOW DISTRIBUTION FOR SECNO=      5.97          CWSEL=   1477.68

STA=    9945.   10037.
  PER Q=    100.0
   AREA=    281.9
    VEL=      7.7
  DEPTH=      3.1

*SECNO 6.060
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9942.0   10058.0  TYPE=      1  TARGET=      116.000
```

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1482.60 ELREA=    100000.00

     6.060      4.55   1482.95   1482.95   1483.16   1484.06      1.11      5.30       .08   1482.60
    2163.0        .2    2162.8        .0        .2     256.0        .0     294.1     109.9 100000.00
      1.39      1.33      8.45       .00      .045      .035      .000      .000   1478.40   9942.00
   .013843      460.      500.      520.         0        12         0       .00    116.00  10058.00


1
   09OCT02      10:51:24                                                                                PAGE   92

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      6.06          CWSEL=   1482.95

STA=    9942.    9943.   10058.
  PER Q=       .0    100.0
   AREA=       .2    256.0
    VEL=      1.3      8.4
  DEPTH=       .3      2.2

*SECNO 6.160

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.63


3470 ENCROACHMENT STATIONS=     9966.0   10026.0  TYPE=      1  TARGET=       60.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     6.160      7.17   1487.07   1485.88   1486.88   1488.09      1.02      4.01       .02 100000.00
    2163.0        .0    2163.0        .0        .0     266.3        .0     297.1     110.9 100000.00
      1.41       .00      8.12       .00      .000      .035      .000      .000   1479.90   9966.86
   .005231      530.      500.      500.         4        11         0       .00     58.69  10025.55


FLOW DISTRIBUTION FOR SECNO=      6.16          CWSEL=   1487.07

STA=    9967.   10044.
  PER Q=    100.0
   AREA=    266.3
    VEL=      8.1
  DEPTH=      4.5

1490 NH CARD USED
*SECNO 6.250

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9985.0   10040.0  TYPE=      1  TARGET=       55.000
1
   09OCT02      10:51:24                                                                                PAGE   93

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=    100000.00 ELREA=    100000.00

     6.250      5.63   1492.93   1492.93   1492.93   1494.79      1.86      4.36       .33 100000.00
    2163.0        .0    2163.0        .0        .0     197.5        .0     299.8     111.6 100000.00
      1.42       .00     10.95       .00      .000      .040      .000      .000   1487.30   9985.00
   .017401      560.      500.      470.         0        15         0       .00     54.10  10039.10


FLOW DISTRIBUTION FOR SECNO=      6.25          CWSEL=   1492.93

STA=    9985.   10040.
```

```
  PER Q=     100.0
   AREA=     197.5
    VEL=      10.9
  DEPTH=       3.7

1490 NH CARD USED
*SECNO 6.340

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9970.0   10063.0  TYPE=      1  TARGET=       93.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     6.340      7.66   1500.66   1499.76   1500.66   1501.43       .78      6.42       .22 100000.00
    2163.0        .0    2163.0        .0        .0     305.8        .0     302.7     112.4 100000.00
      1.44       .00      7.07       .00      .000      .045      .000      .000   1493.00   9970.31
   .009875      420.      500.      600.         4        18         0       .00     92.69  10063.00


FLOW DISTRIBUTION FOR SECNO=      6.34          CWSEL=   1500.66

STA=    9970.   10063.
  PER Q=     100.0
   AREA=     305.8
    VEL=       7.1
  DEPTH=       3.3

1
   09OCT02      10:51:24                                                                                                PAGE   94


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 6.380

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9949.0   10033.0  TYPE=      1  TARGET=       84.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     6.380      5.90   1505.90   1505.90   1505.93   1507.31      1.42      2.67       .26 100000.00
    2163.0        .0    2163.0        .0        .0     226.6        .0     303.9     112.8 100000.00
      1.44       .00      9.55       .00      .000      .041      .000      .000   1500.00   9950.17
   .019047       90.      200.      180.         0        19         0       .00     82.47  10032.65


FLOW DISTRIBUTION FOR SECNO=      6.38          CWSEL=   1505.90

STA=    9950.   10033.
  PER Q=     100.0
   AREA=     226.6
    VEL=       9.5
  DEPTH=       2.7

1
   09OCT02      10:51:24                                                                                                PAGE   95


                                                                                THIS RUN EXECUTED 09OCT02     10:51:24
*************************************
 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
```

TWIN BUTTES WASH - Post-

SUMMARY PRINTOUT

	SECNO	Q	VCH	CWSEL	SSTA	ENDST	EG	TOPWID
*	.190	2746.00	9.54	1242.24	9959.86	10065.17	1243.65	105.32
*	.190	2746.00	9.53	1242.24	9959.85	10065.18	1243.65	105.33
	.280	2746.00	7.94	1247.78	9982.25	10093.97	1248.76	111.72
	.280	2746.00	7.95	1247.78	9982.25	10093.96	1248.76	111.71
	.380	2746.00	5.42	1252.00	9878.71	10135.92	1252.45	257.22
	.380	2746.00	7.14	1252.20	9978.00	10136.00	1252.99	158.00
*	.470	2746.00	8.74	1257.07	9910.13	10045.76	1258.26	135.64
	.470	2746.00	8.38	1257.17	9910.00	10046.00	1258.26	136.00
	.570	2746.00	6.21	1263.54	9891.54	10145.66	1264.12	254.12
	.570	2746.00	7.22	1263.45	9923.00	10115.00	1264.26	192.00
*	.660	2746.00	8.90	1268.43	9926.74	10091.37	1269.62	164.63
	.660	2746.00	8.80	1268.56	9928.00	10030.70	1269.77	102.70
*	.760	2746.00	6.15	1272.93	9965.47	10398.11	1273.40	410.33
	.760	2746.00	7.38	1273.06	9965.10	10189.00	1273.87	223.90
	.850	2746.00	8.35	1275.30	9945.61	10034.75	1276.38	89.14
	.850	2746.00	7.04	1275.94	9932.00	10035.40	1276.71	103.40
*	.950	2746.00	9.35	1280.78	9970.85	10080.36	1282.13	109.51
*	.950	2746.00	9.51	1280.73	9970.93	10079.50	1282.14	108.57
*	1.040	2746.00	6.31	1285.40	9837.97	10228.01	1285.97	390.04
*	1.040	2746.00	6.63	1285.49	9956.00	10081.00	1286.18	125.00
*	1.140	2746.00	7.39	1290.21	9956.54	10179.70	1291.06	223.17
*	1.140	2746.00	7.23	1290.25	9956.13	10180.00	1291.06	223.87

	SECNO	Q	VCH	CWSEL	SSTA	ENDST	EG	TOPWID
*	1.230	2746.00	2.52	1293.40	9988.96	10544.66	1293.50	555.70
*	1.230	2746.00	5.15	1293.78	9988.20	10380.00	1294.04	391.80
*	1.330	2746.00	6.31	1295.40	9902.66	10367.63	1295.92	436.94
*	1.330	2746.00	4.98	1296.28	9900.00	10153.80	1296.67	253.80
	1.420	2746.00	6.58	1300.18	9757.41	10058.56	1300.82	301.16
	1.420	2746.00	6.50	1300.34	9913.00	10058.00	1301.00	145.00
	1.520	2746.00	3.71	1303.30	9626.80	10028.39	1303.51	401.59
	1.520	2746.00	5.34	1304.10	9845.00	10029.49	1304.54	184.49
*	1.610	2746.00	10.40	1306.44	9973.65	10034.24	1308.13	60.58
	1.610	2746.00	8.57	1307.37	9973.00	10036.00	1308.51	63.00
*	1.700	2746.00	3.55	1310.86	9925.71	10130.49	1311.05	204.78
*	1.700	2746.00	5.18	1310.94	9926.00	10029.00	1311.35	103.00
*	1.800	2746.00	6.39	1312.99	9884.53	10086.91	1313.62	202.38
	1.800	2746.00	5.47	1313.47	9929.00	10090.00	1313.93	161.00
	1.840	2746.00	5.60	1315.11	9967.70	10159.63	1315.57	191.93
	1.840	2746.00	6.42	1315.10	9967.70	10100.00	1315.74	132.30
	1.910	2779.00	4.37	1318.16	9815.65	10044.71	1318.45	229.05
*	1.910	2779.00	4.01	1318.39	9814.19	10045.32	1318.64	231.13
	1.920	2779.00	4.67	1318.29	9800.76	10039.08	1318.63	238.32
	1.920	2779.00	4.31	1318.49	9799.79	10039.58	1318.78	239.79
	1.990	2779.00	5.70	1321.31	9804.64	10034.21	1321.81	229.57
	1.990	2779.00	5.06	1321.59	9804.00	10034.00	1321.98	230.00
	2.080	2779.00	5.71	1324.23	9973.48	10217.15	1324.64	243.67
	2.080	2779.00	5.65	1325.23	9972.26	10140.00	1325.69	167.74

*	2.160	2779.00	6.06	1326.27	9897.98	10236.72	1326.66	338.75
	2.160	2779.00	7.38	1327.31	9964.00	10088.00	1328.07	124.00
	2.270	2779.00	9.06	1330.59	9970.58	10141.17	1331.71	170.60
	2.270	2779.00	9.06	1331.27	9970.00	10029.20	1332.54	59.20
	2.370	2779.00	5.71	1334.48	9924.53	10239.21	1334.96	314.68
	2.370	2779.00	5.35	1334.91	9923.82	10072.00	1335.35	148.18
	2.460	2779.00	6.61	1337.94	9849.18	10025.96	1338.62	176.77
*	2.460	2779.00	6.85	1337.85	9851.81	10025.83	1338.58	174.02
*	2.560	2779.00	5.12	1340.72	9958.56	10089.51	1341.13	130.95
*	2.560	2779.00	5.07	1340.75	9957.69	10089.73	1341.15	132.03

1

	SECNO	Q	VCH	CWSEL	SSTA	ENDST	EG	TOPWID
*	2.650	2779.00	9.16	1342.60	9878.95	10037.70	1343.86	158.75
*	2.650	2779.00	9.44	1342.58	9965.00	10037.68	1343.97	72.68
	2.750	2779.00	6.44	1346.87	9951.83	10088.91	1347.51	137.07
*	2.750	2779.00	6.28	1346.97	9971.00	10089.59	1347.58	118.59
	2.840	2779.00	8.25	1350.24	9959.20	10118.64	1351.26	159.45
*	2.840	2779.00	8.65	1350.22	9963.00	10060.00	1351.38	97.00
*	2.940	2779.00	7.55	1353.80	9871.20	10029.70	1354.60	158.50
*	2.940	2779.00	8.21	1354.00	9969.00	10030.00	1355.05	61.00
*	3.030	2779.00	9.04	1356.88	9971.14	10055.90	1358.15	84.76
	3.030	2779.00	8.23	1357.24	9970.32	10056.00	1358.29	85.68
*	3.130	2779.00	3.48	1359.81	9918.47	10156.81	1359.99	238.34
*	3.130	2779.00	4.06	1359.97	9983.00	10158.28	1360.22	175.28
*	3.220	2779.00	10.41	1360.68	9966.66	10040.45	1362.36	73.79
*	3.220	2779.00	9.00	1361.23	9963.19	10041.00	1362.48	77.81
*	3.310	2779.00	4.34	1365.02	9968.94	10363.29	1365.26	394.35
*	3.310	2779.00	5.56	1365.25	9968.61	10113.00	1365.73	144.39
*	3.410	2779.00	9.35	1366.64	9942.89	10014.10	1368.00	71.21
	3.410	2779.00	7.41	1367.61	9925.82	10016.72	1368.46	90.90
*	3.470	2779.00	6.23	1369.97	9819.98	10023.26	1370.58	203.28
	3.470	2779.00	5.42	1370.29	9817.00	10023.00	1370.75	206.00
*	3.500	2779.00	3.02	1371.03	9773.01	10088.82	1371.16	315.82
*	3.500	2779.00	4.07	1371.34	9883.00	10089.00	1371.59	206.00
*	3.600	2424.00	4.91	1372.66	9824.18	10045.81	1373.06	221.63
*	3.600	2424.00	7.31	1372.93	9894.00	10048.00	1373.72	154.00
*	3.690	2424.00	6.68	1377.25	9973.02	10115.95	1377.89	142.93
*	3.690	2424.00	6.66	1377.27	9973.00	10111.00	1377.91	138.00
	3.790	2424.00	6.77	1380.47	9836.61	10070.78	1381.14	234.17
	3.790	2424.00	7.16	1380.49	9924.00	10070.89	1381.29	146.89
	3.880	2424.00	8.92	1383.94	9972.42	10101.76	1384.94	129.35
	3.880	2424.00	8.60	1384.07	9971.69	10094.00	1385.00	122.31
	3.980	2424.00	6.11	1387.59	9866.47	10022.98	1388.17	156.51
	3.980	2424.00	5.98	1387.66	9866.41	10020.00	1388.21	153.59
*	4.070	2424.00	4.91	1391.60	9906.97	10323.75	1391.96	291.33
	4.070	2424.00	5.03	1391.69	9906.62	10130.00	1392.08	223.38

1

	SECNO	Q	VCH	CWSEL	SSTA	ENDST	EG	TOPWID
*	4.170	2424.00	4.10	1393.93	9934.07	10181.90	1394.19	247.83
*	4.170	2424.00	4.01	1393.98	9933.81	10182.00	1394.23	248.19

*	4.260	2424.00	8.83	1396.99	9954.82	10064.39	1398.20	109.57
*	4.260	2424.00	9.05	1396.93	9955.05	10064.00	1398.20	108.95
*	4.360	2424.00	4.08	1401.32	9968.79	10252.50	1401.57	283.71
*	4.360	2424.00	3.54	1401.64	9968.55	10252.00	1401.83	283.45
*	4.450	2424.00	7.55	1403.95	9760.90	10023.46	1404.82	213.45
*	4.450	2424.00	5.99	1404.48	9850.00	10024.00	1405.04	174.00
*	4.550	2424.00	7.20	1409.45	9805.01	10142.22	1410.18	337.21
	4.550	2424.00	7.83	1409.59	9921.00	10047.00	1410.54	126.00
*	4.640	2424.00	4.44	1412.51	9975.30	10314.69	1412.82	339.39
*	4.640	2424.00	3.24	1413.10	9974.00	10318.00	1413.27	344.00
*	4.730	2424.00	6.36	1416.19	9979.79	10351.02	1416.82	371.22
*	4.730	2424.00	6.02	1416.25	9979.78	10351.00	1416.81	371.21
	4.790	2163.00	5.73	1419.78	9931.73	10176.86	1420.29	245.13
*	4.790	2163.00	4.31	1420.30	9932.00	10171.00	1420.59	239.00
	4.920	2163.00	5.79	1426.29	9964.52	10235.35	1426.77	270.83
	4.920	2163.00	5.16	1426.44	9961.68	10230.00	1426.83	268.32
	5.020	2163.00	5.82	1431.06	9974.84	10231.64	1431.55	256.80
	5.020	2163.00	4.47	1431.42	9974.00	10230.00	1431.72	256.00
	5.070	2163.00	8.08	1433.41	9934.75	10071.53	1434.42	136.78
	5.070	2163.00	6.64	1433.83	9931.00	10070.00	1434.52	139.00
*	5.110	2163.00	4.97	1436.10	9883.90	10095.04	1436.43	211.15
*	5.110	2163.00	5.87	1436.44	9974.00	10094.00	1436.98	120.00
*	5.210	2163.00	10.02	1440.13	9963.23	10032.64	1441.69	69.41
	5.210	2163.00	8.58	1440.61	9950.24	10033.62	1441.75	83.38
*	5.300	2163.00	5.37	1444.76	9951.76	10054.62	1445.20	102.87
*	5.300	2163.00	5.57	1444.62	9952.06	10054.00	1445.11	101.94
*	5.400	2163.00	8.40	1448.07	9963.34	10084.88	1449.17	121.54
*	5.400	2163.00	8.37	1448.08	9963.32	10084.90	1449.17	121.58
	5.490	2163.00	6.85	1453.75	9922.13	10050.02	1454.48	127.89
	5.490	2163.00	6.86	1453.75	9922.14	10050.00	1454.48	127.85
*	5.590	2163.00	8.71	1459.82	9934.33	10041.83	1461.00	107.50
*	5.590	2163.00	8.71	1459.82	9934.33	10041.83	1461.00	107.50

1

09OCT02 10:51:24 PAGE 99

SECNO	Q	VCH	CWSEL	SSTA	ENDST	EG	TOPWID
5.680	2163.00	6.92	1465.56	9890.16	10026.46	1466.30	136.30
5.680	2163.00	5.93	1465.95	9890.00	10026.96	1466.50	136.96
5.780	2163.00	4.31	1469.27	9970.45	10183.01	1469.56	212.56
5.780	2163.00	4.18	1469.34	9970.36	10183.00	1469.61	212.64
5.870	2163.00	7.29	1472.31	9911.18	10056.19	1473.09	145.01
* 5.870	2163.00	7.65	1472.56	9941.00	10057.00	1473.47	116.00
5.970	2163.00	9.08	1477.20	9946.51	10035.85	1478.48	89.35
5.970	2163.00	7.67	1477.68	9945.00	10037.00	1478.60	92.00
6.060	2163.00	7.75	1483.16	9940.78	10059.13	1484.09	118.35
* 6.060	2163.00	8.45	1482.95	9942.00	10058.00	1484.06	116.00
6.160	2163.00	8.46	1486.88	9967.18	10025.30	1487.99	58.13
* 6.160	2163.00	8.12	1487.07	9966.86	10025.55	1488.09	58.69
* 6.250	2163.00	10.95	1492.93	9984.81	10039.10	1494.79	54.29
* 6.250	2163.00	10.95	1492.93	9985.00	10039.10	1494.79	54.10
6.340	2163.00	7.06	1500.66	9970.30	10063.41	1501.44	93.12
6.340	2163.00	7.07	1500.66	9970.31	10063.00	1501.43	92.69
* 6.380	2163.00	9.43	1505.93	9949.80	10032.70	1507.31	82.90
* 6.380	2163.00	9.55	1505.90	9950.17	10032.65	1507.31	82.47

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      .190  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .190  PROFILE=  2  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      .470  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .470  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .660  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .660  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .760  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .760  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      .950  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .950  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .950  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .950  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     1.040  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     1.040  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     1.140  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.140  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=     1.140  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     1.230  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.230  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=     1.230  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     1.330  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.330  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=     1.330  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.610  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.700  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     1.700  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.800  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.910  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     2.160  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.160  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     2.460  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     2.560  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     2.560  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     2.650  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     2.650  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
```



```
WARNING SECNO=     2.750  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     2.840  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     2.940  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     2.940  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     3.030  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     3.130  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     3.130  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     3.220  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     3.220  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

```
WARNING SECNO=      3.310  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.310  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      3.410  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      3.470  PROFILE=  1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=      3.470  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      3.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      3.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      3.600  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.600  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=      3.600  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      3.690  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.690  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      3.690  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      3.690  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      4.070  PROFILE=  1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=      4.070  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      4.170  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.170  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      4.260  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      4.260  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      4.260  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      4.260  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      4.360  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.360  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      4.450  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.450  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      4.550  PROFILE=  1  CRITICAL DEPTH ASSUMED
1
   09OCT02      10:51:24                                                    PAGE  102

CAUTION SECNO=      4.550  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      4.640  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      4.640  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      4.730  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      4.730  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      4.730  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      4.730  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      4.790  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      5.110  PROFILE=  1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=      5.110  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=      5.110  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      5.210  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      5.210  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      5.300  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      5.300  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      5.400  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      5.400  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      5.400  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      5.400  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      5.590  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      5.590  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      5.590  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      5.590  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      5.870  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      6.060  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      6.060  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      6.160  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

```
CAUTION SECNO=      6.250  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      6.250  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      6.250  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      6.250  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      6.380  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      6.380  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      6.380  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      6.380  PROFILE=  2  MINIMUM SPECIFIC ENERGY
```


FLOODWAY DATA, TWIN BUTTES WASH - Post-
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.190	105.	288.	9.5	1242.2	1242.2	.0
.280	112.	345.	7.9	1247.8	1247.8	.0
.380	158.	385.	7.1	1252.2	1252.0	.2
.470	136.	328.	8.4	1257.2	1257.1	.1
.570	192.	380.	7.2	1263.4	1263.5	-.1
.660	103.	312.	8.8	1268.5	1268.4	.1
.760	224.	416.	6.6	1273.0	1272.9	.1
.850	103.	390.	7.0	1275.9	1275.3	.6
.950	109.	289.	9.5	1280.8	1280.8	.0
1.040	125.	415.	6.6	1285.5	1285.4	.1
1.140	224.	380.	7.2	1290.2	1290.2	.0
1.230	392.	698.	3.9	1293.8	1293.4	.4
1.330	254.	551.	5.0	1296.3	1295.4	.9
1.420	145.	423.	6.5	1300.4	1300.2	.2
1.520	184.	518.	5.3	1304.1	1303.3	.8
1.610	63.	321.	8.6	1307.3	1306.4	.9
1.700	103.	530.	5.2	1311.0	1310.9	.1
1.800	161.	502.	5.5	1313.5	1313.0	.5
1.840	132.	427.	6.4	1315.1	1315.1	.0
1.910	231.	693.	4.0	1318.4	1318.2	.2
1.920	240.	644.	4.3	1318.5	1318.3	.2
1.990	230.	549.	5.1	1321.6	1321.3	.3
2.080	168.	512.	5.4	1325.2	1324.2	1.0
2.160	124.	411.	6.8	1327.3	1326.3	1.0
2.270	59.	307.	9.1	1331.3	1330.6	.7
2.370	148.	520.	5.3	1334.9	1334.5	.4
2.460	174.	406.	6.9	1337.8	1337.9	-.1
2.560	132.	548.	5.1	1340.7	1340.7	.0
2.650	73.	295.	9.4	1342.6	1342.6	.0
2.750	119.	443.	6.3	1347.0	1346.9	.1
2.840	97.	322.	8.6	1350.2	1350.2	.0
2.940	61.	339.	8.2	1354.0	1353.8	.2
3.030	86.	338.	8.2	1357.3	1356.9	.4
3.130	175.	685.	4.1	1360.0	1359.8	.2
3.220	78.	309.	9.0	1361.2	1360.7	.5
3.310	144.	500.	5.6	1365.2	1365.0	.2
3.410	91.	375.	7.4	1367.6	1366.6	1.0
3.470	206.	513.	5.4	1370.3	1370.0	.3
3.500	206.	703.	4.0	1371.3	1371.0	.3
3.600	154.	341.	7.1	1373.0	1372.7	.3
3.690	138.	396.	6.1	1377.3	1377.3	.0
3.790	147.	338.	7.2	1380.5	1380.5	.0

FLOODWAY DATA, TWIN BUTTES WASH - Post-
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
3.880	122.	374.	6.5	1384.0	1383.9	.1

3.980	154.	406.	6.0	1387.7	1387.6	.1
4.070	223.	482.	5.0	1391.7	1391.6	.1
4.170	248.	605.	4.0	1394.0	1393.9	.1
4.260	109.	268.	9.0	1396.9	1397.0	-.1
4.360	283.	685.	3.5	1401.6	1401.3	.3
4.450	174.	405.	6.0	1404.5	1404.0	.5
4.550	126.	310.	7.8	1409.6	1409.5	.1
4.640	344.	748.	3.2	1413.1	1412.5	.6
4.730	371.	402.	6.0	1416.3	1416.2	.1
4.790	239.	501.	4.3	1420.3	1419.8	.5
4.920	268.	430.	5.0	1426.4	1426.3	.1
5.020	256.	492.	4.4	1431.5	1431.1	.4
5.070	139.	326.	6.6	1433.8	1433.4	.4
5.110	120.	368.	5.9	1436.4	1436.1	.3
5.210	83.	252.	8.6	1440.6	1440.1	.5
5.300	102.	388.	5.6	1444.7	1444.8	-.1
5.400	122.	258.	8.4	1448.1	1448.1	.0
5.490	128.	315.	6.9	1453.8	1453.8	.0
5.590	108.	248.	8.7	1459.8	1459.8	.0
5.680	137.	365.	5.9	1466.0	1465.6	.4
5.780	213.	518.	4.2	1469.4	1469.3	.1
5.870	116.	283.	7.6	1472.5	1472.3	.2
5.970	92.	282.	7.7	1477.7	1477.2	.5
6.060	116.	256.	8.4	1483.0	1483.2	-.2
6.160	59.	266.	8.1	1487.1	1486.9	.2
6.250	54.	198.	10.9	1492.9	1492.9	.0
6.340	93.	306.	7.1	1500.7	1500.7	.0
6.380	82.	227.	9.5	1505.9	1505.9	.0

Appendix A4
HEC-2 Output for Post-Project Conditions Model (White Peak Wash)

```
*********************************************
*  HEC-2 WATER SURFACE PROFILES             *
*                                           *
*  Version   4.6.2;  May 1991               *
*                                           *
*  RUN DATE    09OCT02    TIME   09:54:17   *
*********************************************
```

```
****************************************
*  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

09OCT02 09:54:17 PAGE 1

THIS RUN EXECUTED 09OCT02 09:54:17

```
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
```

```
T1 CAP OVERCHUTES - AGUA FRIA FLOODPLAIN STUDY
T2 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
T3       WHITE PEAK WASH - Post-Project Condition Model: CAPWPW_P.DAT, Oct. 2002

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        3        0        0        0        0        0       721   1372.66

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      1        0       -1                                   -1                         15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38       43       26        1       53       54        3        4       66      200
  Starting water surface assumed at critical depth
  as critical depth is higher than Twin Buttes Wash depth at confluence
  Starting Q = 721 cfs
  Mannings n = .045 overbanks, .045 for channel from n value report

QT       3                721      721      721
NC    .045      .045     .045       .1       .3
X1    3.60        29   9808.0   9952.4
X3      10
GR  1388.1    9502.0   1380.7   9585.6   1377.5   9646.0   1381.0   9701.8   1377.2   9760.8
GR  1377.3    9808.0   1370.9   9830.3   1371.0   9851.5   1368.6   9880.2   1368.8   9894.4
GR  1368.7    9903.1   1371.8   9911.2   1372.6   9952.4   1369.4   9978.7   1367.5   9985.9
GR  1368.4   10000.0   1371.2  10023.9   1374.2     10069   1373.7  10097.8   1382.2  10146.6
GR  1382.7   10169.0   1378.3  10230.2   1375.3  10248.7   1370.9  10266.4   1371.6  10277.2
GR  1379.1   10294.0   1380.1  10317.8   1381.1  10369.8   1380.8  10381.4

ET                                9.1       9.1                                10000    10075
X1    0.09        25    10000  10082.1                500      500
X3      10
GR  1383.1    9829.8   1384.3   9884.8   1382.7   9926.9   1377.5   9965.6   1374.2   9990.9
GR  1374.6   10000.0   1370.5  10014.8   1370.5  10021.2   1373.5  10033.0   1374.7  10082.1
GR  1380.0   10098.0   1380.0  10224.0   1385.5  10245.6   1385.2  10294.3   1385.6  10347.1
GR  1388.6   10428.5   1387.6  10510.4   1384.4  10551.2   1379.2  10578.3   1382.7  10618.3
GR  1385.0   10686.6   1388.2  10742.1   1386.7  10757.0   1389.5  10779.2   1389.9  10789.0

ET                                9.1       9.1                                 9983    10085
X1    0.19        21    9983.7  10087.6    510      500      500
X3      10
GR  1387.5    9711.8   1386.4   9784.3   1385.1   9817.8   1388.2   9877.1   1383.4   9937.9
GR  1377.5    9960.4   1377.7   9983.7   1372.5   9995.5   1372.4  10000.0   1376.9  10016.9
```

```
GR   1374.7    10048.2     1378.3    10087.6     1379.4    10126.1     1380.4    10158.5     1386.8    10211.8
```



```
GR   1389.8    10257.3     1390.7    10296.0     1389.1    10369.2     1386.1    10402.5     1387.7    10426.6
GR   1388.4    10455.0

ET                                     9.1         9.1                                        9966      10018
X1     0.28         24     9966.7    10036.5       550       410       500
X3       10
GR   1388.6     9758.6     1385.0     9787.9     1382.9     9803.3     1384.2     9833.4     1385.6     9859.7
GR   1384.5     9897.1     1382.2     9919.9     1379.4     9936.6     1379.1     9966.7     1375.8     9978.8
GR   1375.9     9996.4     1376.3    10000.0     1376.3    10009.0     1386.6    10036.5     1392.3    10072.2
GR   1394.6    10105.5     1394.3    10161.3     1389.9    10211.7     1385.2    10240.2     1390.9    10270.8
GR   1393.1    10324.8     1396.6    10379.6     1392.0    10485.6     1392.3    10485.7

ET                                     9.1         9.1                                        9975      10021
X1     0.38         20     9972.7    10021.3       500       410       500
X3       10
GR   1395.5     9725.2     1394.3     9796.4     1383.6     9831.1     1383.3     9927.1     1382.1     9941.9
GR   1384.4     9972.7     1379.8     9987.7     1380.3    10000.0     1383.7    10021.3     1384.4    10064.3
GR   1387.2    10117.1     1398.1    10161.5     1397.3    10220.6     1396.0    10267.5     1396.9    10304.4
GR   1391.2    10388.2     1393.0    10418.3     1397.2    10456.6     1397.0    10521.6     1396.2    10522.0

ET                                     9.1         9.1                                        9950      10077
X1     0.47         15     9908.5    10076.6       400       620       500
X3       10
GR   1395.7     9728.0     1396.9     9769.4     1396.6     9824.9     1393.8     9869.4     1395.0     9908.5
GR   1391.8     9930.2     1383.8     9967.7     1385.3     9989.1     1384.2    10000.0     1387.2    10076.6
GR   1388.4    10164.6     1389.4    10229.9     1401.5    10278.7     1404.0    10311.4     1404.3    10321.6

ET                                     9.1         9.1                                        9969       9996
X1     0.57         31     9968.0    10026.9       800       140       500
X3       10
GR   1404.2     9464.0     1403.3     9533.4     1404.7     9587.0     1403.9     9623.2     1404.3     9654.6
GR   1402.3     9682.9     1401.2     9701.1     1404.0     9736.3     1403.9     9755.1     1399.4     9775.0
GR   1393.0     9797.2     1392.5     9844.8     1392.1     9918.4     1391.8     9968.0     1387.1     9972.6
GR   1387.2     9978.4     1387.2     9988.5     1391.1     9996.8     1391.4    10000.0     1391.6    10026.9
GR   1390.7    10087.5     1390.7    10150.1     1389.9    10173.9     1392.1    10204.9     1396.7    10224.0
GR   1397.0    10242.6     1395.8    10271.8     1396.6    10295.0     1403.2    10333.2     1404.2    10367.2
GR   1402.0    10385.4

ET                                     9.1         9.1                                        9943      10048
X1     0.66         32     9916.9    10047.6       550       700       500
X3       10
GR   1406.6     9469.6     1406.5     9506.3     1404.7     9565.6     1399.3     9613.8     1399.1     9631.7
GR   1400.6     9654.2     1400.6     9673.3     1397.0     9695.8     1392.1     9714.3     1391.4     9721.9
GR   1393.9     9731.8     1402.2     9764.9     1402.4     9791.1     1403.7     9825.1     1402.4     9842.0
GR   1404.3     9868.8     1400.6     9916.9     1396.6     9942.8     1393.1     9955.5     1395.3     9977.2
GR   1393.1     9989.0     1392.3     9996.7     1392.3    10000.0     1393.8    10006.6     1396.0    10047.6
GR   1400.0    10059.0     1400.0    10280.0     1402.8    10309.7     1407.9    10339.9     1408.9    10347.9
GR   1409.0    10373.5     1408.5    10381.9
```

1


```
ET                                     9.1         9.1                                        9954      10031
X1     0.76         37     9953.5    10030.7       650       450       500
X3       10
GR   1407.6     9585.1     1407.1     9622.6     1404.2     9658.2     1397.2     9677.9     1396.6     9681.6
GR   1398.1     9690.4     1400.2     9712.2     1404.1     9742.0     1403.8     9780.6     1399.5     9797.3
GR   1406.0     9817.1     1407.4     9841.5     1404.8     9863.1     1400.8     9890.3     1397.8     9906.5
GR   1399.9     9953.5     1394.5     9960.1     1396.2     9976.8     1398.3     9995.5     1399.0    10000.0
GR   1399.3    10030.7     1403.0    10041.8     1403.7    10151.0     1405.2    10162.6     1401.6    10189.9
GR   1400.0    10203.1     1401.7    10221.2     1405.3    10254.3     1407.7    10294.7     1407.9    10336.8
GR   1405.7    10362.8     1409.1    10395.0     1410.5    10428.5     1412.2    10476.3     1414.5    10522.4
GR   1414.7    10562.9     1414.8    10584.7

ET                                     9.1         9.1                                        9956      10029
X1     0.85         28     9931.2    10056.1       950       310       500
X3       10
GR   1419.7     9647.7     1419.0     9671.4     1409.8     9715.4     1408.3     9725.5     1408.2     9731.7
GR   1410.3     9748.1     1411.5     9758.3     1409.9     9763.0     1409.0     9778.7     1405.9     9829.0
GR   1405.9     9844.4     1406.9     9878.0     1402.7     9904.2     1406.2     9917.7     1406.1     9931.2
GR   1400.2    10000.0     1401.2    10020.7     1412.8    10056.1     1410.5    10084.3     1410.4    10095.7
GR   1406.6    10103.9     1408.5    10125.0     1412.1    10156.1     1412.4    10196.3     1412.7    10230.2
GR   1414.2    10272.9     1415.7    10347.2     1415.3    10364.5
```

```
ET                                  9.1       9.1                                   9966      10011
X1     0.95        39     9937.8  10014.8        70       870       500
X3       10
GR   1419.3    9342.3    1417.7   9369.7    1415.6    9381.2    1415.6    9401.9    1403.8    9438.2
GR   1406.1    9459.3    1406.4   9477.9    1412.0    9506.7    1413.9    9528.4    1415.6    9560.4
GR   1419.4    9601.9    1421.0   9641.1    1419.5    9677.3    1413.6    9715.0    1413.2    9730.4
GR   1415.3    9756.8    1416.5   9794.6    1415.7    9843.8    1413.6    9891.6    1410.6    9937.8
GR   1407.6    9966.3    1405.1   9977.3    1403.4    9985.7    1403.4    9998.0    1403.4   10000.0
GR   1409.3   10014.8    1408.0  10025.0    1406.9   10037.4    1413.2   10058.8    1415.6   10081.3
GR   1418.3   10103.3    1419.2  10161.6    1418.0   10188.2    1417.9   10211.0    1421.9   10256.4
GR   1422.6   10297.7    1428.6  10372.1    1428.9   10438.1    1428.1   10460.3

ET                                  9.1       9.1                                   9958      10008
X1     1.04        24     9907.8  10013.1       510       200       500
X3       10
GR   1426.9    9768.8    1427.6   9813.4    1424.2    9864.4    1421.1    9907.8    1415.8    9937.6
GR   1412.1    9959.3    1410.9   9975.4    1407.1    9983.0    1407.5    9995.0    1409.6   10000.0
GR   1413.8   10013.1    1413.3  10060.4    1412.1   10101.1    1411.8   10106.1    1412.4   10125.7
GR   1416.1   10155.5    1419.0  10198.3    1419.8   10244.2    1416.5   10281.0    1418.4   10315.9
GR   1419.2   10362.5    1426.3  10436.9    1428.5   10486.0    1431.1   10544.5

ET                                  9.1       9.1                                   9965      10035
X1     1.14        41     9962.2  10069.6       410       390       500
X3       10
GR   1427.2    9466.7    1428.1   9505.7    1425.8    9529.8    1421.2    9560.3    1418.7    9574.7
GR   1424.2    9590.8    1424.7   9627.4    1425.2    9690.6    1425.4    9732.3    1424.7    9778.7
GR   1423.7    9816.7    1423.0   9849.1    1419.4    9882.5    1415.1    9907.5    1415.0    9922.6
GR   1412.0    9928.9    1416.9   9942.6    1417.0    9962.2    1415.5    9974.0    1411.4    9978.8
GR   1411.4    9984.5    1416.0   9996.4    1415.7   10000.0    1415.1   10015.9    1411.9   10022.0
GR   1416.5   10034.2    1435.2  10069.6    1436.6   10108.0    1435.3   10158.3    1432.3   10215.7
GR   1431.1   10269.2    1430.8  10331.7    1430.9   10397.9    1428.3   10447.9    1427.2   10491.5
1
   09OCT02      09:54:17                                                                                PAGE     4


GR   1430.4   10522.8    1430.7  10564.7    1434.8   10649.3    1436.2   10713.0    1436.8   10790.2
GR   1436.0   10821.4

ET                                  9.1       9.1                                   9974      10012
X1     1.23        33     9960.4  10013.0       490       535       500
X3       10
GR   1431.3    9519.2    1429.8   9552.4    1426.3    9594.1    1425.8    9637.6    1425.2    9665.1
GR   1428.1    9696.4    1432.2   9734.0    1432.9    9774.4    1432.4    9801.8    1432.6    9830.3
GR   1420.6    9871.0    1420.8   9896.7    1420.6    9942.3    1420.7    9953.7    1422.5    9960.4
GR   1421.3    9973.0    1416.3   9987.1    1416.7    9998.8    1417.6   10000.0    1421.3   10013.0
GR   1420.1   10032.0    1420.9  10052.8    1430.4   10078.0    1433.3   10121.7    1435.0   10138.0
GR   1437.5   10185.7    1437.8  10264.4    1435.9   10338.7    1436.2   10409.0    1436.8   10481.3
GR   1436.6   10541.8    1435.3  10604.5    1435.9   10629.1

ET                                  9.1       9.1                                   9973      10053
X1     1.33        24     9973.0  10053.0       700       520       500
X3       10
GR   1439.9    9573.3    1436.6   9612.3    1433.5    9659.2    1433.8    9694.2    1430.4    9745.8
GR   1430.4    9805.3    1428.6   9847.6    1425.1    9869.3    1422.7    9898.8    1423.4    9934.4
GR   1424.7    9973.0    1422.1   9985.2    1419.2   10000.0    1424.5   10019.5    1425.1   10053.0
GR   1424.6   10096.9    1425.7  10134.8    1427.2   10164.6    1431.5   10197.0    1437.1   10231.6
GR   1442.0   10256.5    1444.2  10313.5    1444.1   10412.6    1444.5   10511.6

ET                                  9.1       9.1                                   9960       9999
X1     1.42        20     9943.6  10000.0       565       515       500
X3       10
GR   1445.2    9788.7    1440.3   9841.8    1438.7    9866.2    1438.2    9889.7    1432.5    9917.7
GR   1430.1    9922.7    1432.9   9943.6    1426.1    9967.8    1423.0    9976.6    1423.7    9991.8
GR   1428.9   10000.0    1427.8  10028.4    1426.1   10059.8    1434.5   10089.2    1439.8   10115.5
GR   1457.0   10201.4    1468.2  10263.1    1477.4   10319.1    1479.0   10347.6    1479.0   10357.4
  Change Q at point I - 599 cfs
  Change channel n value to .035

NC      .045       .045       .035
QT        3                   599       599       599
ET                                  9.1       9.1                                   9972      10008
X1     1.48        25     9979.2  10010.4       370       160       300
X3       10
GR   1444.8    9623.9    1445.5   9644.7    1444.4    9666.8    1440.7    9704.8    1439.7    9748.6
GR   1435.7    9808.3    1432.9   9844.8    1431.4    9868.2    1429.6    9906.7    1425.8    9917.3
GR   1429.3    9933.0    1429.5   9961.4    1429.3    9979.2    1426.5    9983.1    1426.3    9996.5
GR   1427.6   10000.0    1430.9  10010.4    1429.7   10026.1    1435.7   10054.0    1437.2   10079.2
GR   1442.2   10124.4    1446.8  10165.5    1471.7   10277.5    1482.1   10333.7    1489.8   10381.3

ET                                  9.1       9.1                                   9956      10000
X1     1.52        22     9956.7  10000.0       220       270       200
```

```
X3        10
GR    1445.0     9725.8     1440.6     9767.4     1432.3     9796.7     1428.8     9809.6     1437.0     9848.4
GR    1438.8     9877.8     1437.7     9910.0     1434.7     9935.9     1430.3     9956.7     1429.9     9964.6
GR    1427.8     9971.7     1427.8     9986.9     1431.3    10000.0     1431.3    10017.1     1436.4    10048.3
GR    1445.4    10092.0     1457.3    10166.0     1468.1    10228.1     1476.0    10265.3     1481.3    10294.4
GR    1481.4    10315.8     1479.3    10331.2
1
   09OCT02      09:54:17                                                                                    PAGE    5

ET                                          9.1         9.1                                          9970       10008
X1      1.61         16      9970.2    10024.8         600         380         500
X3        10
GR    1451.3     9908.8     1450.5     9922.0     1440.5     9952.1     1436.5     9970.2     1435.0     9979.5
GR    1433.4     9983.0     1433.5     9996.4     1434.0    10000.0     1441.5    10024.8     1447.1    10046.7
GR    1453.2    10076.1     1455.2    10105.9     1458.6    10122.2     1467.7    10139.4     1465.8    10158.0
GR    1464.8    10168.1

ET                                          9.1         9.1                                          9978       10014
X1      1.70         19      9978.5    10043.7         420         600         500
X3        10
GR    1457.2     9753.7     1454.2     9814.6     1454.4     9842.0     1457.2     9873.9     1454.3     9900.2
GR    1446.7     9951.3     1441.9     9978.5     1438.7     9982.9     1438.5     9990.4     1438.8    10000.0
GR    1440.6    10009.1     1450.1    10043.7     1457.9    10084.1     1460.8    10121.7     1463.5    10143.6
GR    1463.8    10156.5     1473.2    10219.5     1477.5    10248.6     1476.4    10268.3

ET                                          9.1         9.1                                          9996       10020
X1      1.80         19      9996.0    10024.3         440         500         500
X3        10
GR    1459.1     9803.6     1456.2     9821.3     1450.9     9844.5     1450.2     9864.9     1454.2     9883.7
GR    1455.7     9900.9     1454.9     9924.7     1451.8     9947.4     1448.4     9973.0     1447.3     9996.0
GR    1444.0    10000.0     1444.1    10008.9     1444.1    10018.3     1457.6    10024.3     1460.9    10053.4
GR    1464.8    10089.4     1465.7    10122.8     1465.1    10158.4     1464.5    10160.9

ET                                          9.1         9.1                                          9975       10012
X1      1.89         31      9955.6    10021.0         450         500         500
X3        10
GR    1464.5     9481.3     1463.1     9538.2     1459.3     9577.2     1459.2     9601.9     1457.9     9642.8
GR    1456.6     9664.1     1455.0     9670.1     1457.9     9695.0     1461.3     9723.4     1463.7     9757.2
GR    1465.0     9786.8     1464.0     9823.8     1462.7     9870.0     1459.4     9914.8     1456.9     9955.6
GR    1449.2    10000.0     1449.5    10004.3     1458.1    10021.0     1459.1    10045.4     1455.3    10077.1
GR    1452.8    10087.2     1453.8    10108.2     1452.1    10122.6     1454.7    10144.5     1462.2    10196.2
GR    1464.9    10238.7     1464.5    10277.1     1464.5    10294.9     1471.3    10353.2     1475.3    10404.0
GR    1476.5    10415.5

ET                                          9.1         9.1                                          9979       10033
X1      1.97         31      9946.5    10066.9         490         450         400
X3        10

GR    1474.7     9187.2     1473.8     9274.2     1472.9     9390.2     1470.7     9460.6     1470.9     9495.0
GR    1470.9     9552.9     1467.7     9592.8     1466.2     9618.5     1468.6     9656.9     1470.5     9713.2
GR    1470.6     9755.8     1467.3     9806.8     1465.6     9847.5     1465.3     9885.3     1460.9     9907.7
GR    1458.2     9920.4     1459.5     9946.5     1457.9     9977.1     1455.5    10000.0     1454.4    10016.4
GR    1458.9    10039.3     1461.4    10066.9     1461.2    10094.2     1466.5    10134.7     1469.1    10172.0
GR    1468.7    10216.2     1465.4    10265.9     1461.9    10310.5     1460.4    10326.1     1464.6    10362.2
GR    1465.7    10408.3
  Section 1.97 is confluence with West Fork of White Peak Wash
      Q downstream of confluence -  599 cfs
      Q White Peak Wash upstream of confluence - 395 cfs
      Q West Fork of White Peak Wash - 294 cfs
1
   09OCT02      09:54:17                                                                                    PAGE    6

QT         3                  395         395         395
ET                                          9.1         9.1                                          9971       10025
X1      1.99         26      9924.3    10032.9          50                     100
X3        10
GR    1475.4     9264.2     1475.3     9341.2     1474.2     9429.2     1471.5     9536.0     1472.1     9605.8
GR    1469.8     9647.0     1469.5     9665.7     1470.2     9695.6     1469.2     9729.6     1468.5     9752.8
GR    1470.4     9785.0     1471.1     9829.1     1468.8     9862.8     1465.2     9892.2     1465.0     9900.4
GR    1464.9     9924.3     1463.0     9943.3     1459.0     9969.5     1455.5    10000.0     1455.8    10009.6
GR    1460.2    10032.9     1461.8    10068.9     1463.1    10127.2     1464.9    10176.7     1467.8    10213.6
GR    1467.4    10238.2

ET                                          9.1         9.1                                          9983       10015
X1      2.08         22      9942.8    10090.4         460         320         500
GR    1478.5     9290.6     1479.7     9361.5     1477.8     9440.4     1476.7     9534.2     1473.8     9595.6
GR    1475.5     9662.4     1475.7     9724.9     1476.8     9798.6     1474.1     9844.2     1470.1     9882.3
```

```
GR   1466.7     9920.2     1468.9     9942.8     1464.5     9976.7     1459.9     9992.9     1459.7    10000.0
GR   1463.2    10018.7     1465.2    10035.0     1467.6    10058.7     1471.8    10090.4     1470.8    10127.1
GR   1471.0    10152.7     1473.8    10180.0

ET                                       9.1        9.1                                        9979       10019
X1      2.18        28     9945.8    10054.9        500        380        500
X3        10
GR   1483.2     9112.4     1482.9     9159.5     1483.0     9225.2     1481.0     9288.6     1479.7     9348.1
GR   1479.1     9400.4     1478.4     9437.8     1480.2     9479.1     1479.2     9536.5     1474.0     9581.4
GR   1471.7     9614.0     1469.7     9645.4     1472.7     9673.7     1472.6     9708.6     1474.1     9731.4
GR   1475.7     9768.9     1476.1     9818.8     1475.4     9871.9     1475.2     9905.4     1478.3     9945.8
GR   1476.3     9961.2     1467.2     9985.7     1467.1     9995.6     1467.1    10000.0     1469.8    10020.8
GR   1470.2    10031.9     1479.4    10054.9     1478.2    10066.5

ET                                       9.1        9.1                                        9990       10036
X1      2.27        34     9987.8    10058.5        440        600        500
X3        10
GR   1483.8     9184.7     1484.4     9238.1     1484.1     9305.6     1481.8     9349.2     1483.6     9410.7
GR   1481.4     9444.1     1476.0     9468.4     1480.2     9487.8     1482.2     9511.8     1478.2     9555.8
GR   1476.3     9591.3     1477.9     9617.3     1480.5     9643.2     1483.0     9684.0     1482.1     9705.0
GR   1480.5     9748.9     1477.3     9779.8     1477.1     9813.7     1477.9     9839.4     1482.5     9877.6
GR   1484.6     9900.2     1481.8     9923.6     1478.9     9959.6     1474.9     9987.8     1470.5    10000.0
GR   1471.3    10000.0     1471.0    10011.1     1473.4    10022.4     1472.7    10030.2     1479.2    10058.5
GR   1481.7    10090.3     1484.7    10129.5     1486.8    10184.2     1486.6    10188.2

ET                                       9.1        9.1                                        9977       10012
X1      2.37        28     9912.0    10022.9        530        530        500
X3        10
GR   1489.9     9483.5     1489.8     9553.5     1488.2     9597.3     1488.9     9640.7     1489.3     9675.2
GR   1491.1     9723.2     1490.1     9781.7     1490.1     9847.3     1489.9     9912.0     1488.2     9943.2
GR   1481.5     9964.4     1477.2     9985.3     1476.5     9989.1     1477.1    10000.0     1477.1    10007.1
GR   1483.3    10022.9     1480.0    10032.2     1476.7    10037.2     1476.9    10042.5     1483.2    10061.6
GR   1486.2    10089.7     1488.6    10123.4     1489.9    10171.7     1492.1    10209.7     1490.7    10257.7
GR   1495.0    10323.2     1495.5    10357.8     1493.9    10397.4
1
    09OCT02      09:54:17                                                                          PAGE     7


ET                                       9.1        9.1                                        9981       10020
X1      2.46        33     9893.8    10024.1        520        235        500
X3        10
GR   1500.4     9196.8     1500.6     9353.4     1498.7     9428.0     1496.4     9505.6     1493.4     9573.5
GR   1488.8     9612.5     1492.4     9649.5     1494.2     9681.5     1494.2     9720.5     1493.8     9783.5
GR   1491.7     9833.5     1490.7     9859.7     1494.3     9893.8     1494.0     9915.3     1491.1     9948.5
GR   1483.8     9982.8     1481.7     9994.4     1481.1    10000.0     1481.1    10008.9     1485.3    10024.1
GR   1486.2    10056.7     1485.7    10119.3     1484.9    10130.1     1487.7    10153.2     1487.7    10167.1
GR   1485.0    10178.5     1490.2    10201.8     1492.5    10234.5     1492.6    10255.7     1489.7    10271.9
GR   1493.6    10287.7     1494.3    10315.1     1493.2    10318.7

ET                                       9.1        9.1                                        9983       10020
X1      2.56        47     9905.2    10113.6        500        400        500
GR   1506.0     9019.8     1506.7     9088.3     1506.0     9166.7     1504.1     9256.2     1501.5     9346.4
GR   1500.3     9414.4     1497.2     9448.6     1497.1     9470.6     1499.4     9502.4     1499.2     9536.5
GR   1498.1     9567.9     1496.2     9588.2     1496.8     9610.5     1497.8     9638.7     1499.4     9674.6
GR   1498.2     9702.9     1499.0     9719.8     1500.2     9763.6     1500.2     9806.8     1497.5     9832.5
GR   1499.0     9864.9     1499.4     9905.2     1496.6     9951.8     1492.8     9976.8     1487.1     9988.5
GR   1486.3     9998.8     1488.0    10000.0     1488.9    10013.4     1490.4    10029.0     1495.8    10054.8
GR   1498.2    10087.8     1500.1    10113.6     1499.5    10143.3     1497.8    10176.6     1493.8    10219.7
GR   1493.5    10237.0     1498.4    10267.0     1499.4    10290.2     1498.3    10339.3     1497.8    10369.3
GR   1498.5    10414.0     1495.9    10464.6     1493.7    10488.4     1498.8    10505.2     1501.9    10544.4
GR   1503.2    10584.6     1503.6    10604.2

ET                                       9.1        9.1                                        9985       10015
X1      2.65        25     9981.7    10016.2        360        580        500
GR   1503.8     9722.0     1504.3     9751.0     1503.6     9781.0     1502.9     9793.6     1503.5     9812.7
GR   1503.6     9836.0     1503.0     9839.4     1503.3     9886.1     1500.9     9918.1     1497.6     9941.4
GR   1495.7     9954.5     1496.2     9981.7     1491.5    10000.0     1491.5    10006.6     1496.1    10016.2
GR   1496.6    10038.5     1500.6    10054.6     1505.1    10078.6     1505.2    10133.3     1505.6    10197.6
GR   1508.2    10285.4     1509.0    10346.2     1512.8    10418.9     1514.9    10494.6     1515.2    10515.0

ET                                       9.1        9.1                                        9991       10025
X1      2.75        24     9990.7    10049.4        560        380        500
X3        10
GR   1512.7     9743.4     1513.1     9787.4     1511.4     9829.1     1508.1     9865.0     1506.4     9886.6
GR   1504.2     9903.1     1503.8     9947.2     1501.0     9974.4     1500.1     9990.7     1496.9    10000.0
GR   1496.9    10009.1     1498.3    10017.1     1500.6    10029.4     1507.6    10049.4     1508.1    10059.9
GR   1506.2    10082.8     1501.8    10116.3     1501.7    10132.4     1504.2    10171.9     1510.1    10199.0
GR   1509.9    10222.9     1512.8    10257.7     1514.5    10287.4     1516.2    10310.9

ET                                       9.1        9.1                                        9968       10000
```

```
X1      2.84        32     9945.5    10000.0       470       540       500
X3        10
GR    1520.5    9594.6     1520.1     9652.3    1518.9    9688.0    1516.5    9720.2    1519.0    9736.4
GR    1520.0    9766.3     1519.0     9795.1    1514.8    9820.6    1515.6    9832.8    1518.3    9845.7
GR    1519.3    9859.5     1517.2     9891.9    1514.1    9922.8    1512.5    9945.5    1509.8    9958.5
GR    1504.4    9977.1     1503.3     9981.6    1505.3    9988.0    1506.8   10000.0    1507.7   10000.0
GR    1507.4   10018.0     1509.9    10029.2    1512.7   10044.2    1514.1   10078.5    1512.0   10096.8
GR    1504.5   10112.2     1506.1    10120.1    1509.2   10131.3    1512.9   10145.7    1514.8   10169.7
GR    1516.7   10213.8     1517.1    10221.3
1
   09OCT02      09:54:17                                                                                PAGE    8


ET                                        9.1       9.1                                         9985     10015
X1      2.94        26     9959.8    10069.6       590       440       500
X3        10
GR    1528.2    9585.1     1526.5     9650.6    1525.3    9691.5    1527.8    9752.2    1525.4    9811.6
GR    1524.5    9865.1     1520.5     9905.3    1519.4    9932.3    1519.3    9959.8    1517.4    9976.7
GR    1512.1    9993.5     1512.1    10000.0    1512.6   10011.4    1518.4   10021.0    1521.3   10045.6
GR    1525.0   10069.6     1525.3    10090.4    1522.9   10107.1    1521.1   10127.6    1524.8   10146.6
GR    1525.3   10192.1     1524.8    10220.9    1521.4   10246.1    1522.2   10268.9    1523.6   10303.2
GR    1525.7   10331.0
  Q at FCAP is 97 cfs - no change in Q used in input

ET                                        9.1       9.1                                         9981     10017
X1      2.95        14     9968.6    10073.3       150        85       100
GR    1529.0    9668.7     1526.9     9811.8    1524.2    9876.1    1520.7    9937.7    1519.3    9968.6
GR    1512.0    9993.7     1511.5    10000.0    1511.6   10012.0    1516.3   10018.1    1523.1   10059.6
GR    1525.1   10073.3     1525.7    10115.2    1525.6   10145.1    1526.9   10205.8
1
   09OCT02      09:54:17                                                                                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 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV=     .100 CEHV=     .300
*SECNO 3.600

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1377.30 ELREA=      1372.60

     3.600      4.06   1372.66   1371.16   1372.66   1372.69       .03       .00       .00   1377.30
     721.0        .0     318.0     403.0        .0     252.5     247.5        .0        .0   1372.60
       .00       .00      1.26      1.63      .000      .045      .045      .000   1368.60   9824.17
   .000595        0.        0.        0.         0        13         0       .00    241.94  10279.57


FLOW DISTRIBUTION FOR SECNO=      3.60          CWSEL=   1372.66

STA=    9824.    9952.    9979.    9986.   10000.   10024.   10046.   10266.   10277.   10280.
  PER Q=     44.1      6.8      8.6     20.8     15.3      1.4       .6      2.1       .1
   AREA=    252.5     43.7     30.3     66.4     68.4     16.0      6.2     15.2      1.3
    VEL=      1.3      1.1      2.1      2.3      1.6       .7       .7      1.0       .5
  DEPTH=      2.0      1.7      4.2      4.7      2.9       .7       .0      1.4       .5

*SECNO  .090

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1374.60 ELREA=      1374.70

      .090      4.10   1374.60   1374.60       .00   1375.23       .63       .88       .18   1374.60
     721.0       4.3     716.7        .0       2.5     112.3        .0       3.5       1.8   1374.70
       .02      1.74      6.38       .00      .045      .045      .000      .000   1370.50   9987.81
   .023418        0.      500.      500.         0         5         0       .00     90.34  10078.15
```

```
   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

FLOW DISTRIBUTION FOR SECNO=       .09          CWSEL=   1374.60

STA=    9988.    9991.   10000.   10082.
  PER Q=       .1       .4     99.4
   AREA=       .6      1.9    112.3
    VEL=      1.7      1.7      6.4
  DEPTH=       .2       .2      1.4

*SECNO  .190

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.06

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1377.70 ELREA=      1378.30

      .190      5.59   1377.99   1376.41       .00   1378.12       .13      2.84       .05   1377.70
     721.0       8.2     712.8        .0       9.5     243.0        .0       5.6       3.1   1378.30
       .07       .86      2.93       .00      .045      .045      .000      .000   1372.40   9958.54
   .002494      510.      500.      500.         7         5         0       .00    125.63  10084.17

FLOW DISTRIBUTION FOR SECNO=       .19          CWSEL=   1377.99

STA=    9959.    9960.    9984.   10088.
  PER Q=       .0      1.1     98.9
   AREA=       .5      9.0    243.0
    VEL=       .6       .9      2.9
  DEPTH=       .2       .4      2.4

*SECNO  .280

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1379.10 ELREA=      1386.60

      .280      3.78   1379.58   1378.38       .00   1379.93       .35      1.75       .07   1379.10
     721.0      11.5     709.5        .0      10.1     147.9        .0       8.0       4.3   1386.60
       .10      1.14      4.80       .00      .045      .045      .000      .000   1375.80   9935.51
   .005250      550.      500.      410.         4        14         0       .00     82.25  10017.76
```

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

FLOW DISTRIBUTION FOR SECNO=       .28          CWSEL=   1379.58

STA=    9936.    9967.   10037.
  PER Q=      1.6     98.4
   AREA=     10.1    147.9
    VEL=      1.1      4.8
  DEPTH=       .3      2.9

*SECNO  .380

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .56

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1384.40 ELREA=      1383.70

      .380      3.78   1383.58   1383.28       .00   1384.38       .80      4.31       .13   1384.40
     721.0        .0     721.0        .0        .0     100.4        .0       9.5       5.0   1383.70
       .12       .00      7.18       .00      .000      .045      .000      .000   1379.80   9975.38
```

```
   .016715      500.      500.      410.        2        11        0       .00     45.17  10020.54

FLOW DISTRIBUTION FOR SECNO=       .38          CWSEL=   1383.58

STA=    9975.   10021.
  PER Q=    100.0
   AREA=    100.4
    VEL=      7.2
  DEPTH=      2.2

*SECNO  .470

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1395.00 ELREA=      1387.20

      .470      3.58   1387.38   1386.18       .00   1387.51       .13      3.06       .07   1395.00
     721.0        .0     720.6        .4        .0     247.9       1.2      11.5       6.1   1387.20
       .17       .00      2.91       .37      .000      .045      .045      .000   1383.80   9950.92
   .003148      400.      500.      620.         5        14         0       .00    138.87  10089.79


1
   09OCT02      09:54:17                                                                                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

FLOW DISTRIBUTION FOR SECNO=       .47          CWSEL=   1387.38

STA=    9951.   10077.   10090.
  PER Q=     99.9       .1
   AREA=    247.9      1.2
    VEL=      2.9       .4
  DEPTH=      2.0       .1

*SECNO  .570

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1391.80 ELREA=      1391.60

      .570      3.61   1390.71   1390.71       .00   1392.12      1.41      3.37       .38   1391.80
     721.0        .0     721.0        .0        .0      75.6        .0      13.3       7.0   1391.60
       .18       .00      9.54       .00      .000      .045      .000      .000   1387.10   9969.07
   .023471      800.      500.      140.         0         5         0       .00     26.90   9995.97

FLOW DISTRIBUTION FOR SECNO=       .57          CWSEL=   1390.71

STA=    9969.   10027.
  PER Q=    100.0
   AREA=     75.6
    VEL=      9.5
  DEPTH=      2.8

*SECNO  .660

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.33

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1400.60 ELREA=      1396.00

   09OCT02      09:54:17                                                                                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

      .660       4.00    1396.30    1395.30        .00    1396.49        .18       4.24        .12    1400.60
     721.0         .0      720.9        .1         .0      209.1         .1       15.0        7.8    1396.00
       .22        .00       3.45       .60       .000       .045       .045       .000    1392.30    9943.88
   .004338       550.       500.      700.          8          8          0        .00     104.59   10048.46

FLOW DISTRIBUTION FOR SECNO=        .66          CWSEL=   1396.30

STA=    9944.   10048.   10048.
  PER Q=    100.0       .0
   AREA=    209.1       .1
    VEL=      3.4       .6
  DEPTH=      2.0       .2

*SECNO  .760

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1399.90 ELREA=      1399.30

      .760       4.97    1399.47    1398.54        .00    1399.89        .42       3.33        .07    1399.90
     721.0         .0      721.0         .0         .0      139.2         .0       17.0        8.8    1399.30
       .25        .00       5.18       .04       .000       .045       .045       .000    1394.50    9954.02
   .011500       650.       500.      450.          6          5          0        .00      77.20   10031.22

FLOW DISTRIBUTION FOR SECNO=        .76          CWSEL=   1399.47

STA=    9954.   10031.   10031.
  PER Q=    100.0       .0
   AREA=    139.2       .0
    VEL=      5.2       .0
  DEPTH=      1.8       .1

*SECNO  .850

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1406.10 ELREA=      1412.80

      .850       3.71    1403.91    1403.00        .00    1404.24        .32       4.34        .01    1406.10
     721.0         .0      721.0         .0         .0      158.2         .0       18.7        9.7    1412.80
       .28        .00       4.56       .00       .000       .045       .000       .000    1400.20    9956.69
   .006779       950.       500.      310.          3         11          0        .00      72.29   10028.98

1
   09OCT02      09:54:17                                                                                    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

FLOW DISTRIBUTION FOR SECNO=        .85          CWSEL=   1403.91

STA=    9957.   10056.
  PER Q=    100.0
   AREA=    158.2
    VEL=      4.6
  DEPTH=      2.2

*SECNO  .950

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1410.60 ELREA=      1409.30

      .950       4.15    1407.55    1406.63        .00    1408.09        .54       3.79        .07    1410.60
     721.0         .0      721.0         .0         .0      121.9         .0       20.3       10.3    1409.30
       .30        .00       5.92       .00       .000       .045       .000       .000    1403.40    9966.52
   .008537        70.       500.      870.          3         11          0        .00      43.89   10010.41
```

```
FLOW DISTRIBUTION FOR SECNO=        .95          CWSEL=   1407.55

STA=    9967.   10015.
  PER Q=    100.0
   AREA=    121.9
    VEL=      5.9
  DEPTH=      2.8

*SECNO 1.040

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1421.10 ELREA=      1413.80

     1.040      5.07   1412.17   1411.20       .00   1412.71       .54      4.62       .00   1421.10
     721.0        .0     721.0        .0        .0     121.9        .0      21.7      10.9   1413.80
       .33       .00      5.92       .00      .000      .045      .000      .000   1407.10   9958.87
   .010024      510.      500.      200.         3         5         0       .00     49.16  10008.03


FLOW DISTRIBUTION FOR SECNO=      1.04          CWSEL=   1412.17

STA=    9959.   10013.
  PER Q=    100.0
   AREA=    121.9
    VEL=      5.9
  DEPTH=      2.5
```



```
    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


*SECNO 1.140

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1417.00 ELREA=      1435.20

     1.140      5.23   1416.63   1415.68       .00   1416.96       .33      4.23       .02   1417.00
     721.0        .0     721.0        .0        .0     155.6        .0      23.3      11.5   1435.20
       .36       .00      4.63       .00      .000      .045      .000      .000   1411.40   9965.16
   .007226      410.      500.      390.         4        12         0       .00     69.27  10034.43


FLOW DISTRIBUTION FOR SECNO=      1.14          CWSEL=   1416.63

STA=    9965.   10070.
  PER Q=    100.0
   AREA=    155.6
    VEL=      4.6
  DEPTH=      2.2

*SECNO 1.230

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1422.50 ELREA=      1421.30

     1.230      4.58   1420.88   1420.21       .00   1421.62       .74      4.54       .12   1422.50
     721.0        .0     721.0        .0        .0     104.3        .0      24.8      12.2   1421.30
       .38       .00      6.91       .00      .000      .045      .000      .000   1416.30   9974.18
   .011765      490.      500.      535.         2        14         0       .00     37.36  10011.53


FLOW DISTRIBUTION FOR SECNO=      1.23          CWSEL=   1420.88

STA=    9974.   10013.
  PER Q=    100.0
   AREA=    104.3
    VEL=      6.9
  DEPTH=      2.8

*SECNO 1.330

3301 HV CHANGED MORE THAN HVINS
```



```
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
```

```
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 =  1.81


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1424.70 ELREA=      1425.10

      1.330      5.55   1424.75   1423.62       .00   1424.89       .14      3.21       .06   1424.70
      721.0     267.4     453.6        .0     114.1     135.9        .0      27.1      13.5   1425.10
        .43      2.34      3.34       .00      .045      .045      .000      .000   1419.20   9873.51
    .003599      700.      500.      520.         4         8         0       .00    160.37  10033.88


 FLOW DISTRIBUTION FOR SECNO=      1.33          CWSEL=   1424.75

 STA=    9874.    9899.    9934.    9973.   10053.
   PER Q=      7.3      23.9      6.0      62.9
    AREA=     26.0      60.8     27.3     135.9
     VEL=      2.0       2.8      1.6       3.3
   DEPTH=      1.0       1.7       .7       2.2

 *SECNO 1.420

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .54


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1432.90 ELREA=      1428.90

      1.420      4.39   1427.39   1426.75       .00   1428.20       .81      3.11       .20   1432.90
      721.0        .0     721.0        .0        .0      99.8        .0      29.2      14.7   1428.90
        .45       .00      7.22       .00      .000      .045      .000      .000   1423.00   9963.24
    .012352      565.      500.      515.         2        14         0       .00     34.37   9997.61


 FLOW DISTRIBUTION FOR SECNO=      1.42          CWSEL=   1427.39

 STA=    9963.   10000.
   PER Q=    100.0
    AREA=     99.8
     VEL=      7.2
   DEPTH=      2.9

1
    09OCT02      09:54:17                                                                                          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


 *SECNO 1.480

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.57


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1429.30 ELREA=      1430.90

      1.480      3.68   1429.98   1429.32       .00   1430.23       .24      1.97       .06   1429.30
      599.0     247.5     351.5        .0      90.8      75.7        .0      30.1      15.3   1430.90
        .47      2.73      4.65       .00      .045      .035      .000      .000   1426.30   9898.53
    .003457      370.      300.      160.         3        15         0       .00    108.98  10007.51


 FLOW DISTRIBUTION FOR SECNO=      1.48          CWSEL=   1429.98

 STA=    9899.    9907.    9917.    9933.    9961.    9979.   10010.
   PER Q=       .2     13.1     22.0      3.7      2.3     58.7
    AREA=      1.6     24.2     38.2     16.5     10.4     75.7
     VEL=       .6      3.2      3.5      1.4      1.4      4.6
```

```
 DEPTH=        .2       2.3       2.4        .6        .6       2.7

*SECNO 1.520

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .60


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1430.30 ELREA=      1431.30

     1.520      3.03   1430.83   1430.59       .00   1431.44       .61      1.11       .11   1430.30
     599.0      56.6     542.4        .0      18.0      83.1        .0      30.8      15.7   1431.30
       .48      3.14      6.52       .00      .045      .035      .000      .000   1427.80   9802.11
   .009582      220.      200.      270.         3        19         0       .00     61.16   9998.25


FLOW DISTRIBUTION FOR SECNO=      1.52          CWSEL=   1430.83

1
   09OCT02      09:54:17                                                                          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


STA=    9802.    9810.    9819.    9957.   10000.
  PER Q=      4.1      5.2       .1     90.6
   AREA=      7.6      9.8       .7     83.1
    VEL=      3.2      3.2      1.3      6.5
  DEPTH=      1.0      1.0       .0      2.0

*SECNO 1.610

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1436.50 ELREA=      1441.50

     1.610      3.06   1436.46   1436.46       .00   1437.45       .99      5.90       .11   1436.50
     599.0        .0     599.0        .0        .0      75.1        .0      31.8      16.3   1441.50
       .49       .00      7.97       .00      .000      .035      .000      .000   1433.40   9970.36
   .014551      600.      500.      380.         2         5         0       .00     37.82  10008.18


FLOW DISTRIBUTION FOR SECNO=      1.61          CWSEL=   1436.46

STA=    9970.   10025.
  PER Q=    100.0
   AREA=     75.1
    VEL=      8.0
  DEPTH=      2.0

*SECNO 1.700

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1441.90 ELREA=      1450.10

     1.700      3.48   1441.98   1441.48       .00   1442.69       .70      5.21       .03   1441.90
     599.0        .0     599.0        .0        .0      89.0        .0      32.8      16.7   1450.10
       .52       .03      6.73       .00      .045      .035      .000      .000   1438.50   9978.04
   .007816      420.      500.      600.         4         8         0       .00     36.09  10014.13


FLOW DISTRIBUTION FOR SECNO=      1.70          CWSEL=   1441.98

STA=    9978.   10044.
  PER Q=    100.0
   AREA=     89.0
    VEL=      6.7
  DEPTH=      2.5

1
   09OCT02      09:54:17                                                                          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
```

```
*SECNO 1.800

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1447.30 ELREA=      1457.60

     1.800      3.12   1447.12   1447.12       .00   1448.50      1.37      5.30       .20   1447.30
     599.0        .0     599.0        .0        .0      63.7        .0      33.6      17.0   1457.60
       .53       .00      9.40       .00      .000      .035      .000      .000   1444.00   9996.21
   .015214      440.      500.      500.         0        11         0       .00     23.43  10019.64


FLOW DISTRIBUTION FOR SECNO=      1.80          CWSEL=   1447.12

STA=    9996.   10024.
  PER Q=    100.0
   AREA=     63.7
    VEL=      9.4
  DEPTH=      2.7

*SECNO 1.890

3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1456.90 ELREA=      1458.10

     1.890      4.31   1453.51   1453.07       .00   1454.24       .74      5.69       .06   1456.90
     599.0        .0     599.0        .0        .0      86.9        .0      34.5      17.4   1458.10
       .55       .00      6.89       .00      .000      .035      .000      .000   1449.20   9975.17
   .008819      450.      500.      500.         4        11         0       .00     36.91  10012.08


FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1453.51

STA=    9975.   10021.
  PER Q=    100.0
   AREA=     86.9
    VEL=      6.9
  DEPTH=      2.4

1
   09OCT02      09:54:17                                                                                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


*SECNO 1.970

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1459.50 ELREA=      1461.40

     1.970      3.21   1457.61   1457.43       .00   1458.28       .66      4.02       .01   1459.50
     599.0        .0     599.0        .0        .0      91.6        .0      35.3      17.8   1461.40
       .57       .00      6.54       .00      .000      .035      .000      .000   1454.40   9979.78
   .011587      490.      400.      450.         3        19         0       .00     53.00  10032.78


FLOW DISTRIBUTION FOR SECNO=      1.97          CWSEL=   1457.61

STA=    9980.   10067.
  PER Q=    100.0
   AREA=     91.6
    VEL=      6.5
  DEPTH=      1.7

*SECNO 1.990

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1464.90 ELREA=      1460.20

     1.990      3.27   1458.77   1457.90       .00   1459.01       .24       .69       .04   1464.90
     395.0        .0     395.0        .0        .0      99.9        .0      35.5      17.9   1460.20
       .57       .00      3.96       .00      .000      .035      .000      .000   1455.50   9971.51
   .003850       50.      100.        0.         3        19         0       .00     53.81  10025.32
```

```
FLOW DISTRIBUTION FOR SECNO=      1.99          CWSEL=   1458.77

STA=    9972.   10033.
  PER Q=    100.0
   AREA=     99.9
    VEL=      4.0
  DEPTH=      1.9

*SECNO 2.080

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
1
   09OCT02      09:54:17                                                                                                PAGE   21

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

3720 CRITICAL DEPTH ASSUMED
     2.080      2.83   1462.53   1462.53        .00   1463.39        .86       3.45        .19   1468.90
     395.0        .0     395.0        .0         .0      53.1         .0       36.4       18.4   1471.80
       .59       .00      7.44       .00       .000      .035       .000       .000    1459.70   9983.63
   .015756      460.      500.      320.          0        15          0        .00      31.51  10015.14

FLOW DISTRIBUTION FOR SECNO=      2.08          CWSEL=   1462.53

STA=    9984.   10090.
  PER Q=    100.0
   AREA=     53.1
    VEL=      7.4
  DEPTH=      1.7

*SECNO 2.180

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1478.30 ELREA=      1479.40

     2.180      2.40   1469.50   1469.31        .00   1470.10        .60       6.68        .03   1478.30
     395.0        .0     395.0        .0         .0      63.4         .0       37.1       18.8   1479.40
       .62       .00      6.23       .00       .000      .035       .000       .000    1467.10   9979.49
   .011486      500.      500.      380.          3        15          0        .00      39.06  10018.55

FLOW DISTRIBUTION FOR SECNO=      2.18          CWSEL=   1469.50

STA=    9979.   10055.
  PER Q=    100.0
   AREA=     63.4
    VEL=      6.2
  DEPTH=      1.6

*SECNO 2.270

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1474.90 ELREA=      1479.20

     2.270      3.51   1474.01   1473.49        .00   1474.38        .37       4.26        .02   1474.90
     395.0        .0     395.0        .0         .0      80.7         .0       37.9       19.3   1479.20
       .64       .00      4.90       .00       .000      .035       .000       .000    1470.50   9990.26
   .006562      440.      500.      600.          5        11          0        .00      45.67  10035.92

1
   09OCT02      09:54:17                                                                                                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

FLOW DISTRIBUTION FOR SECNO=      2.27          CWSEL=   1474.01

STA=    9990.   10059.
```

```
  PER Q=     100.0
   AREA=      80.7
    VEL=       4.9
  DEPTH=       1.8

*SECNO 2.370
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1489.90 ELREA=      1483.30

     2.370      2.41   1478.91   1478.91       .00   1479.71       .81      4.88       .13   1489.90
     395.0        .0     395.0        .0        .0      54.8        .0      38.7      19.8   1483.30
       .66       .00      7.21       .00      .000      .035      .000      .000   1476.50   9977.01
   .016019      530.      500.      530.         0        19         0       .00     34.69  10011.70


FLOW DISTRIBUTION FOR SECNO=      2.37          CWSEL=   1478.91

STA=    9977.   10023.
  PER Q=     100.0
   AREA=      54.8
    VEL=       7.2
  DEPTH=       1.6

*SECNO 2.460

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.58


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1494.30 ELREA=      1485.30

     2.460      3.03   1484.13   1483.57       .00   1484.56       .43      4.81       .04   1494.30
     395.0        .0     395.0        .0        .0      75.3        .0      39.4      20.2   1485.30
       .69       .00      5.24       .00      .000      .035      .000      .000   1481.10   9981.23
   .006414      520.      500.      235.         5         5         0       .00     38.66  10019.88


1
   09OCT02      09:54:17                                                                              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


FLOW DISTRIBUTION FOR SECNO=      2.46          CWSEL=   1484.13

STA=    9981.   10024.
  PER Q=     100.0
   AREA=      75.3
    VEL=       5.2
  DEPTH=       1.9

*SECNO 2.560
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     2.560      3.26   1489.56   1489.56       .00   1490.34       .78      4.91       .11   1499.40
     395.0        .0     395.0        .0        .0      55.8        .0      40.2      20.6   1500.10
       .71       .00      7.08       .00      .000      .035      .000      .000   1486.30   9983.45
   .016922      500.      500.      400.         0         8         0       .00     36.83  10020.28


FLOW DISTRIBUTION FOR SECNO=      2.56          CWSEL=   1489.56

STA=    9983.   10114.
  PER Q=     100.0
   AREA=      55.8
    VEL=       7.1
  DEPTH=       1.5

*SECNO 2.650

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.51

     2.650      3.67   1495.17   1494.62       .00   1495.75       .58      5.39       .02   1496.20
     395.0        .0     395.0        .0        .0      64.4        .0      40.9      21.0   1496.10
       .73       .00      6.13       .00      .000      .035      .000      .000   1491.50   9985.72
   .007465      360.      500.      580.         5         8         0       .00     28.54  10014.25
```

```
FLOW DISTRIBUTION FOR SECNO=      2.65          CWSEL=   1495.17

STA=    9986.   10016.
  PER Q=    100.0
   AREA=     64.4
    VEL=      6.1
  DEPTH=      2.3

1
   09OCT02      09:54:17                                                                                                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 2.750

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1500.10 ELREA=      1507.60

     2.750      2.80   1499.70   1499.51       .00   1500.40       .70       4.61       .03   1500.10
     395.0       .0     395.0        .0        .0      59.0        .0       41.6      21.3   1507.60
       .75      .00      6.70       .00      .000      .035      .000       .000   1496.90   9991.86
   .011678      560.     500.      380.         3        19         0        .00     32.75  10024.60

FLOW DISTRIBUTION FOR SECNO=      2.75          CWSEL=   1499.70

STA=    9992.   10049.
  PER Q=    100.0
   AREA=     59.0
    VEL=      6.7
  DEPTH=      1.8

*SECNO 2.840
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1512.50 ELREA=      1507.70

     2.840      3.65   1506.95   1506.95       .00   1507.82       .86       6.84       .05   1512.50
     395.0       .0     395.0        .0        .0      52.9        .0       42.2      21.7   1507.70
       .77      .00      7.46       .00      .000      .035      .000       .000   1503.30   9968.31
   .016261      470.     500.      540.         0        11         0        .00     31.69  10000.00

FLOW DISTRIBUTION FOR SECNO=      2.84          CWSEL=   1506.95

STA=    9968.   10000.
  PER Q=    100.0
   AREA=     52.9
    VEL=      7.5
  DEPTH=      1.7

*SECNO 2.940
1
   09OCT02      09:54:17                                                                                                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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1519.30 ELREA=      1525.00

     2.940      2.43   1514.53   1514.47       .00   1515.39       .86       7.57       .00   1519.30
     395.0       .0     395.0        .0        .0      53.1        .0       42.8      22.1   1525.00
       .79      .00      7.43       .00      .000      .035      .000       .000   1512.10   9985.79
   .014132      590.     500.      440.         3        14         0        .00     28.81  10014.60

FLOW DISTRIBUTION FOR SECNO=      2.94          CWSEL=   1514.53

STA=    9986.   10070.
```

```
  PER Q=     100.0
   AREA=      53.1
    VEL=       7.4
  DEPTH=       1.8

*SECNO 2.950

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.73

     2.950      4.15   1515.65   1513.88       .00   1515.86       .21       .41       .06   1519.30
     395.0        .0     395.0        .0        .0     107.0        .0      43.0      22.1   1525.10
       .80       .00      3.69       .00      .000      .035      .000      .000   1511.50   9981.18
   .001901      150.      100.       85.         2         5         0       .00     36.06  10017.24


FLOW DISTRIBUTION FOR SECNO=      2.95          CWSEL=   1515.65

STA=    9981.   10073.
  PER Q=     100.0
   AREA=     107.0
    VEL=       3.7
  DEPTH=       3.0

1
   09OCT02      09:54:17                                                                                PAGE   26


T1 CAP OVERCHUTES - AGUA FRIA FLOODPLAIN STUDY
T2 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY   METHOD 1 ENCROCHEMENT
T3      WHITE PEAK WASH            MAY, 1991

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0        4         0         0         0         0         0       721   1372.93

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15         0        -1                                      -1                            15



1
   09OCT02      09:54:17                                                                                PAGE   27

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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
0

CCHV=      .100 CEHV=      .300
*SECNO 3.600

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1377.30 ELREA=      1372.60

     3.600      4.33   1372.93   1371.16   1372.93   1372.96       .03       .00       .00   1377.30
     721.0        .0     327.9     393.1        .0     287.2     279.0        .0        .0   1372.60
       .00       .00      1.14      1.41      .000      .045      .045      .000   1368.60   9823.23
   .000416        0.        0.        0.         0        16         0       .00    248.63  10280.18


FLOW DISTRIBUTION FOR SECNO=      3.60          CWSEL=   1372.93

STA=    9823.    9952.    9979.    9986.   10000.   10024.   10050.   10266.   10277.   10280.
  PER Q=      45.5      7.3      8.0     19.1     14.9      1.9       .8      2.4       .1
   AREA=     287.2     50.8     32.3     70.2     74.8     22.5      8.3     18.1      2.0
    VEL=       1.1      1.0      1.8      2.0      1.4       .6       .7      1.0       .5
  DEPTH=       2.2      1.9      4.5      5.0      3.1       .9       .0      1.7       .7
```

```
*SECNO  .090

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    10000.0   10075.0  TYPE=      1  TARGET=       75.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1374.60 ELREA=    100000.00

      .090      4.05   1374.55   1374.55   1374.60   1375.24       .69       .65       .20   1374.60
     721.0        .0     721.0        .0        .0     108.4        .0       3.9       1.9 100000.00
       .02       .00      6.65       .00      .000      .045      .000      .000   1370.50  10000.17
   .025184        0.      500.      500.         0        10         0       .00     74.83  10075.00


1
   09OCT02      09:54:17                                                                                                PAGE   28

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=       .09          CWSEL=   1374.55

STA=   10000.   10082.
  PER Q=    100.0
   AREA=    108.4
    VEL=      6.7
  DEPTH=      1.4

*SECNO  .190

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.20


3470 ENCROACHMENT STATIONS=     9983.0   10085.0  TYPE=      1  TARGET=      102.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1377.70 ELREA=    100000.00

      .190      5.61   1378.01   1376.43   1377.99   1378.14       .13      2.85       .06   1377.70
     721.0        .1     720.9        .0        .2     246.2        .0       5.9       2.9 100000.00
       .07       .60      2.93       .00      .045      .045      .000      .000   1372.40   9983.00
   .002452      510.      500.      500.         7         5         0       .00    101.52  10084.52


FLOW DISTRIBUTION FOR SECNO=       .19          CWSEL=   1378.01

STA=    9983.    9984.   10088.
  PER Q=       .0    100.0
   AREA=       .2    246.2
    VEL=       .6      2.9
  DEPTH=       .3      2.4

*SECNO  .280

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68


3470 ENCROACHMENT STATIONS=     9966.0   10018.0  TYPE=      1  TARGET=       52.000
1
   09OCT02      09:54:17                                                                                                PAGE   29


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=      1379.10 ELREA=    100000.00
```

```
     .280      3.79   1379.59   1378.38   1379.58   1379.96       .37      1.74       .07   1379.10
    721.0        .4     720.6        .0        .3     148.5        .0       8.2       3.7 100000.00
      .10      1.06      4.85       .00      .045      .045      .000      .000   1375.80   9966.00
  .005346      550.      500.      410.         4        14         0       .00     51.79  10017.79


FLOW DISTRIBUTION FOR SECNO=       .28          CWSEL=   1379.59

STA=    9966.    9967.   10037.
  PER Q=        .1      99.9
   AREA=        .3     148.5
    VEL=       1.1       4.9
  DEPTH=        .5       2.9

*SECNO  .380

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .58


3470 ENCROACHMENT STATIONS=     9975.0   10021.0  TYPE=      1  TARGET=       46.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     .380      3.81   1383.61   1383.28   1383.58   1384.39       .78      4.31       .12 100000.00
    721.0        .0     721.0        .0        .0     101.6        .0       9.6       4.3 100000.00
      .12       .00      7.09       .00      .000      .045      .000      .000   1379.80   9975.29
  .016158      500.      500.      410.         2        11         0       .00     45.43  10020.72


FLOW DISTRIBUTION FOR SECNO=       .38          CWSEL=   1383.61

STA=    9975.   10021.
  PER Q=    100.0
   AREA=    101.6
    VEL=      7.1
  DEPTH=      2.2

1
  09OCT02      09:54:17                                                                          PAGE    30


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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  .470

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.26


3470 ENCROACHMENT STATIONS=     9950.0   10077.0  TYPE=      1  TARGET=      127.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1387.20

     .470      3.57   1387.38   1386.18   1387.38   1387.51       .13      3.05       .06 100000.00
    721.0        .0     721.0        .0        .0     247.3        .1      11.6       5.3   1387.20
      .16       .00      2.92       .02      .000      .045      .045      .000   1383.80   9950.94
  .003177      400.      500.      620.         5        14         0       .00    126.06  10077.00


FLOW DISTRIBUTION FOR SECNO=       .47          CWSEL=   1387.38

STA=    9951.   10077.   10077.
  PER Q=    100.0       .0
   AREA=    247.3       .1
    VEL=      2.9       .0
  DEPTH=      2.0       .2

*SECNO  .570

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
```

```
3470 ENCROACHMENT STATIONS=     9969.0    9996.0  TYPE=      1  TARGET=       27.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .570      3.61   1390.71   1390.71   1390.71   1392.12      1.41      3.40       .38 100000.00
     721.0        .0     721.0        .0        .0      75.6        .0      13.5      6.2 100000.00
       .18       .00      9.54       .00      .000      .045      .000      .000   1387.10   9969.07
   .023464      800.      500.      140.         0         5         0       .00     26.90   9995.97


1
   09OCT02      09:54:17                                                                                PAGE   31

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

FLOW DISTRIBUTION FOR SECNO=       .57          CWSEL=   1390.71

STA=    9969.   10027.
  PER Q=    100.0
   AREA=     75.6
    VEL=      9.5
  DEPTH=      2.8

*SECNO  .660

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.33


3470 ENCROACHMENT STATIONS=     9943.0   10048.0  TYPE=      1  TARGET=      105.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1396.00

      .660      4.00   1396.30   1395.29   1396.30   1396.49       .18      4.24       .12 100000.00
     721.0        .0     721.0        .0        .0     209.1        .1      15.1       6.9   1396.00
       .22       .00      3.45       .02      .000      .045      .045      .000   1392.30   9943.88
   .004339      550.      500.      700.         8        15         0       .00    104.12  10048.00


FLOW DISTRIBUTION FOR SECNO=       .66          CWSEL=   1396.30

STA=    9944.   10048.   10048.
  PER Q=    100.0       .0
   AREA=    209.1       .1
    VEL=      3.4       .0
  DEPTH=      2.0       .2

*SECNO  .760

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61


3470 ENCROACHMENT STATIONS=     9954.0   10031.0  TYPE=      1  TARGET=       77.000
1
   09OCT02      09:54:17                                                                                PAGE   32

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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=    100000.00 ELREA=      1399.30

      .760      4.97   1399.47   1398.54   1399.47   1399.89       .42      3.33       .07 100000.00
     721.0        .0     721.0        .0        .0     139.1        .0      17.1       8.0   1399.30
       .25       .00      5.18       .04      .000      .045      .045      .000   1394.50   9954.02
   .011520      650.      500.      450.         5         5         0       .00     76.98  10031.00


FLOW DISTRIBUTION FOR SECNO=       .76          CWSEL=   1399.47
```

```
STA=    9954.   10031.   10031.
  PER Q=    100.0       .0
   AREA=    139.1       .0
    VEL=      5.2       .0
  DEPTH=      1.8       .1

*SECNO  .850

3470 ENCROACHMENT STATIONS=     9956.0   10029.0  TYPE=      1  TARGET=       73.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

      .850      3.72   1403.92   1402.99   1403.91   1404.24       .32      4.34       .01 100000.00
     721.0        .0     721.0        .0        .0     158.3        .0      18.8       8.8 100000.00
       .28       .00      4.55       .00      .000      .045      .000      .000   1400.20   9956.67
   .006765      950.      500.      310.         2        11         0       .00     72.32  10028.99


FLOW DISTRIBUTION FOR SECNO=       .85          CWSEL=   1403.92

STA=    9957.   10056.
  PER Q=    100.0
   AREA=    158.3
    VEL=      4.6
  DEPTH=      2.2

*SECNO  .950


3470 ENCROACHMENT STATIONS=     9966.0   10011.0  TYPE=      1  TARGET=       45.000
1
   09OCT02      09:54:17                                                                                          PAGE   33


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=    100000.00 ELREA=    100000.00

      .950      4.15   1407.55   1406.63   1407.55   1408.09       .54      3.79       .07 100000.00
     721.0        .0     721.0        .0        .0     121.8        .0      20.4       9.5 100000.00
       .30       .00      5.92       .00      .000      .045      .000      .000   1403.40   9966.53
   .008546       70.      500.      870.         3        11         0       .00     43.88  10010.41


FLOW DISTRIBUTION FOR SECNO=       .95          CWSEL=   1407.55

STA=    9967.   10015.
  PER Q=    100.0
   AREA=    121.8
    VEL=      5.9
  DEPTH=      2.8

*SECNO 1.040

3470 ENCROACHMENT STATIONS=     9958.0   10008.0  TYPE=      1  TARGET=       50.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.040      5.07   1412.17   1411.20   1412.17   1412.71       .54      4.62       .00 100000.00
     721.0        .0     721.0        .0        .0     121.9        .0      21.8      10.0 100000.00
       .32       .00      5.92       .00      .000      .045      .000      .000   1407.10   9958.87
   .010023      510.      500.      200.         3         5         0       .00     49.13  10008.00


FLOW DISTRIBUTION FOR SECNO=      1.04          CWSEL=   1412.17

STA=    9959.   10013.
  PER Q=    100.0

   AREA=    121.9
    VEL=      5.9
  DEPTH=      2.5

*SECNO 1.140
```

```
3470 ENCROACHMENT STATIONS=     9965.0   10035.0  TYPE=      1  TARGET=       70.000

   09OCT02      09:54:17                                                                                    PAGE   34

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=    100000.00 ELREA=    100000.00

     1.140       5.23   1416.63   1415.68   1416.63   1416.97       .33       4.23       .02 100000.00
     721.0        .0     721.0       .0        .0     155.5        .0       23.4      10.7 100000.00
       .35        .00     4.64       .00      .000      .045      .000       .000   1411.40   9965.18
   .007241      410.      500.      390.         3        12         0        .00     69.25  10034.43


FLOW DISTRIBUTION FOR SECNO=      1.14          CWSEL=   1416.63

STA=    9965.   10070.
  PER Q=    100.0
   AREA=    155.5
    VEL=      4.6
  DEPTH=      2.2

*SECNO 1.230

3470 ENCROACHMENT STATIONS=     9974.0   10012.0  TYPE=      1  TARGET=       38.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.230       4.59   1420.89   1420.22   1420.88   1421.63       .74       4.54       .12 100000.00
     721.0        .0     721.0       .0        .0     104.4        .0       24.9      11.3 100000.00
       .37        .00     6.90       .00      .000      .045      .000       .000   1416.30   9974.17
   .011725      490.      500.      535.         2        15         0        .00     37.38  10011.55


FLOW DISTRIBUTION FOR SECNO=      1.23          CWSEL=   1420.89

STA=    9974.   10013.
  PER Q=    100.0
   AREA=    104.4
    VEL=      6.9
  DEPTH=      2.8

*SECNO 1.330

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.46

1
   09OCT02      09:54:17                                                                                    PAGE   35

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     9973.0   10053.0  TYPE=      1  TARGET=       80.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1424.70 ELREA=    100000.00

     1.330       6.10   1425.30   1423.59   1424.75   1425.56       .26       3.89       .05   1424.70
     721.0        .0     721.0       .0        .0     176.3        .0       26.5      12.0 100000.00
       .41        .00     4.09       .00      .000      .045      .000       .000   1419.20   9973.00
   .005530      700.      500.      520.         4        11         0        .00     80.00  10053.00


FLOW DISTRIBUTION FOR SECNO=      1.33          CWSEL=   1425.30

STA=    9973.   10053.
  PER Q=    100.0
   AREA=    176.3
    VEL=      4.1
  DEPTH=      2.2
```

```
*SECNO 1.420

3470 ENCROACHMENT STATIONS=     9960.0    9999.0  TYPE=      1  TARGET=       39.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.420      5.12   1428.12   1426.75   1427.39   1428.62       .50      2.99       .07 100000.00
     721.0       .0     721.0       .0        .0     126.5        .0      28.3      12.7 100000.00
       .43       .00      5.70       .00      .000      .045      .000      .000   1423.00   9960.62
   .006468      565.      500.      515.         3        14         0       .00     38.15   9998.77


FLOW DISTRIBUTION FOR SECNO=      1.42          CWSEL=   1428.12

STA=    9961.   10000.
  PER Q=    100.0
   AREA=    126.5
    VEL=      5.7
  DEPTH=      3.3

*SECNO 1.480
1
   09OCT02      09:54:17                                                                                    PAGE   36

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA

    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     9972.0   10008.0  TYPE=      1  TARGET=       36.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1429.30 ELREA=    100000.00

     1.480      3.78   1430.08   1429.75   1429.98   1430.93       .85      2.20       .10   1429.30
     599.0      12.7     586.3        .0       5.4      78.6        .0      29.0      12.9 100000.00
       .44      2.36      7.46       .00      .045      .035      .000      .000   1426.30   9972.00
   .008613      370.      300.      160.         2        15         0       .00     35.83  10007.83


FLOW DISTRIBUTION FOR SECNO=      1.48          CWSEL=   1430.08


STA=    9972.    9979.   10010.
  PER Q=      2.1     97.9
   AREA=      5.4     78.6
    VEL=      2.4      7.5
  DEPTH=       .7      2.7

*SECNO 1.520

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.52


3470 ENCROACHMENT STATIONS=     9956.0   10000.0  TYPE=      1  TARGET=       44.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1430.30 ELREA=    100000.00

     1.520      3.88   1431.68   1430.68   1430.83   1432.07       .39      1.09       .05   1430.30
     599.0       1.1     597.9        .0        .9     119.2        .0      29.5      13.1 100000.00
       .45      1.22      5.02       .00      .045      .035      .000      .000   1427.80   9956.00
   .003746      220.      200.      270.         2        15         0       .00     44.00  10000.00


FLOW DISTRIBUTION FOR SECNO=      1.52          CWSEL=   1431.68

STA=    9956.    9957.   10000.
  PER Q=       .2     99.8
   AREA=       .9    119.2
    VEL=      1.2      5.0
  DEPTH=      1.3      2.8

1
   09OCT02      09:54:17                                                                                    PAGE   37

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 1.610

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9970.0   10008.0  TYPE=      1  TARGET=       38.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1436.50 ELREA=    100000.00

     1.610      3.05   1436.45   1436.45   1436.46   1437.46      1.01      3.33       .19   1436.50
     599.0        .0     599.0        .0        .0      74.3        .0      30.6      13.6 100000.00
       .47       .00      8.06       .00      .000      .035      .000      .000   1433.40   9970.50
   .014935      600.      500.      380.         0        15         0       .00     37.50  10008.00


FLOW DISTRIBUTION FOR SECNO=      1.61          CWSEL=   1436.45

STA=    9970.   10025.
  PER Q=    100.0
   AREA=     74.3
    VEL=      8.1
  DEPTH=      2.0

*SECNO 1.700

3470 ENCROACHMENT STATIONS=     9978.0   10014.0  TYPE=      1  TARGET=       36.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1441.90 ELREA=    100000.00

     1.700      3.50   1442.00   1441.48   1441.98   1442.70       .70      5.20       .03   1441.90
     599.0        .0     599.0        .0        .0      89.4        .0      31.5      14.0 100000.00
       .49       .03      6.70       .00      .045      .035      .000      .000   1438.50   9978.00
   .007666      420.      500.      600.         4         8         0       .00     36.00  10014.00


FLOW DISTRIBUTION FOR SECNO=      1.70          CWSEL=   1442.00

STA=    9978.    9979.   10044.
  PER Q=       .0    100.0
   AREA=       .0     89.4
    VEL=       .0      6.7
  DEPTH=       .0      2.5

1
   09OCT02      09:54:17                                                                                PAGE    38

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 1.800

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9996.0   10020.0  TYPE=      1  TARGET=       24.000


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1447.30 ELREA=    100000.00

     1.800      3.12   1447.12   1447.12   1447.12   1448.50      1.37      5.25       .20   1447.30
     599.0        .0     599.0        .0        .0      63.7        .0      32.4      14.3 100000.00
       .51       .00      9.41       .00      .000      .035      .000      .000   1444.00   9996.22
   .015264      440.      500.      500.         0        11         0       .00     23.42  10019.64


FLOW DISTRIBUTION FOR SECNO=      1.80          CWSEL=   1447.12

STA=    9996.   10024.
  PER Q=    100.0
```

```
   AREA=      63.7
    VEL=       9.4
  DEPTH=       2.7

*SECNO 1.890

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9975.0   10012.0  TYPE=      1  TARGET=       37.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.890      4.31   1453.51   1453.07   1453.51   1454.25       .74      5.69       .06 100000.00
     599.0        .0     599.0        .0        .0      86.9        .0      33.3      14.7 100000.00
       .53       .00      6.89       .00      .000      .035      .000      .000   1449.20   9975.16
   .008799      450.      500.      500.         3        11         0       .00     36.83  10012.00


FLOW DISTRIBUTION FOR SECNO=      1.89          CWSEL=   1453.51

1
   09OCT02      09:54:17                                                                                    PAGE   39

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


STA=     9975.   10021.
  PER Q=    100.0
   AREA=     86.9
    VEL=      6.9
  DEPTH=      2.4

*SECNO 1.970

3470 ENCROACHMENT STATIONS=     9979.0   10033.0  TYPE=      1  TARGET=       54.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.970      3.21   1457.61   1457.44   1457.61   1458.28       .67      4.03       .01 100000.00
     599.0        .0     599.0        .0        .0      91.4        .0      34.1      15.1 100000.00
       .54       .00      6.55       .00      .000      .035      .000      .000   1454.40   9979.80
   .011625      490.      400.      450.         3        16         0       .00     52.97  10032.77


FLOW DISTRIBUTION FOR SECNO=      1.97          CWSEL=   1457.61

STA=     9980.   10067.
  PER Q=    100.0
   AREA=     91.4
    VEL=      6.6
  DEPTH=      1.7

*SECNO 1.990

3470 ENCROACHMENT STATIONS=     9971.0   10025.0  TYPE=      1  TARGET=       54.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     1.990      3.27   1458.77   1457.90   1458.77   1459.01       .24       .69       .04 100000.00
     395.0        .0     395.0        .0        .0      99.9        .0      34.3      15.2 100000.00
       .55       .00      3.95       .00      .000      .035      .000      .000   1455.50   9971.50
   .003821       50.      100.        0.         3        19         0       .00     53.50  10025.00


FLOW DISTRIBUTION FOR SECNO=      1.99          CWSEL=   1458.77

1
   09OCT02      09:54:17                                                                                    PAGE   40

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
```

```
STA=    9972.   10033.
  PER Q=    100.0
   AREA=     99.9
    VEL=      4.0
  DEPTH=      1.9

*SECNO 2.080

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9983.0   10015.0  TYPE=      1  TARGET=       32.000
     2.080      2.83   1462.53   1462.53   1462.53   1463.39       .86      3.43       .19 100000.00
     395.0        .0     395.0        .0        .0      53.0        .0      35.2      15.7 100000.00
       .57       .00      7.46       .00      .000      .035      .000      .000   1459.70   9983.64
   .015773      460.      500.      320.         0        15         0       .00     31.36  10015.00


FLOW DISTRIBUTION FOR SECNO=      2.08          CWSEL=   1462.53

STA=    9984.   10090.
  PER Q=    100.0
   AREA=     53.0
    VEL=      7.5
  DEPTH=      1.7

*SECNO 2.180

3470 ENCROACHMENT STATIONS=     9979.0   10019.0  TYPE=      1  TARGET=       40.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     2.180      2.41   1469.51   1469.32   1469.50   1470.11       .60      6.69       .03 100000.00
     395.0        .0     395.0        .0        .0      63.4        .0      35.8      16.1 100000.00
       .59       .00      6.23       .00      .000      .035      .000      .000   1467.10   9979.49
   .011484      500.      500.      380.         3        15         0       .00     39.06  10018.55


1
   09OCT02      09:54:17                                                                                PAGE   41

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


FLOW DISTRIBUTION FOR SECNO=      2.18          CWSEL=   1469.51

STA=    9979.   10055.
  PER Q=    100.0
   AREA=     63.4
    VEL=      6.2
  DEPTH=      1.6

*SECNO 2.270

3470 ENCROACHMENT STATIONS=     9990.0   10036.0  TYPE=      1  TARGET=       46.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     2.270      3.51   1474.01   1473.49   1474.01   1474.39       .37      4.26       .02 100000.00
     395.0        .0     395.0        .0        .0      80.7        .0      36.7      16.6 100000.00
       .62       .00      4.90       .00      .000      .035      .000      .000   1470.50   9990.26
   .006561      440.      500.      600.         5        11         0       .00     45.67  10035.92


FLOW DISTRIBUTION FOR SECNO=      2.27          CWSEL=   1474.01

STA=    9990.   10059.
  PER Q=    100.0
   AREA=     80.7
    VEL=      4.9
  DEPTH=      1.8

*SECNO 2.370
7185 MINIMUM SPECIFIC ENERGY
```

```
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9977.0   10012.0  TYPE=      1  TARGET=       35.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     2.370      2.41   1478.91   1478.91   1478.91   1479.71       .81      4.88       .13 100000.00
     395.0        .0     395.0        .0        .0      54.8        .0      37.4      17.1 100000.00
       .64       .00      7.21       .00      .000      .035      .000      .000   1476.50   9977.01
   .016015      530.      500.      530.         0        19         0       .00     34.69  10011.70


1
   09OCT02      09:54:17                                                                                    PAGE   42

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      2.37          CWSEL=   1478.91

STA=    9977.   10023.
  PER Q=    100.0
   AREA=     54.8
    VEL=      7.2
  DEPTH=      1.6

*SECNO 2.460

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.58


3470 ENCROACHMENT STATIONS=     9981.0   10020.0  TYPE=      1  TARGET=       39.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     2.460      3.03   1484.13   1483.57   1484.13   1484.56       .43      4.81       .04 100000.00
     395.0        .0     395.0        .0        .0      75.3        .0      38.2      17.5 100000.00
       .67       .00      5.24       .00      .000      .035      .000      .000   1481.10   9981.23
   .006413      520.      500.      235.         4         5         0       .00     38.66  10019.88


FLOW DISTRIBUTION FOR SECNO=      2.46          CWSEL=   1484.13

STA=    9981.   10024.
  PER Q=    100.0
   AREA=     75.3
    VEL=      5.2
  DEPTH=      1.9

*SECNO 2.560
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9983.0   10020.0  TYPE=      1  TARGET=       37.000
     2.560      3.25   1489.55   1489.55   1489.56   1490.34       .79      4.94       .11 100000.00
     395.0        .0     395.0        .0        .0      55.3        .0      38.9      17.9 100000.00
       .69       .00      7.14       .00      .000      .035      .000      .000   1486.30   9983.47
   .017173      500.      500.      400.         0         8         0       .00     36.53  10020.00


1
   09OCT02      09:54:17                                                                                    PAGE   43

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


FLOW DISTRIBUTION FOR SECNO=      2.56          CWSEL=   1489.55

STA=    9983.   10114.
  PER Q=    100.0
   AREA=     55.3
    VEL=      7.1
  DEPTH=      1.5
```

```
*SECNO 2.650

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.52


3470 ENCROACHMENT STATIONS=     9985.0   10015.0  TYPE=      1  TARGET=       30.000
     2.650      3.68   1495.18   1494.62   1495.17   1495.76       .58      5.40       .02 100000.00
     395.0        .0     395.0        .0        .0      64.6        .0      39.6      18.3 100000.00
       .71       .00      6.11       .00      .000      .035      .000      .000   1491.50   9985.70
   .007416      360.      500.      580.         4         8         0       .00     28.57  10014.27


FLOW DISTRIBUTION FOR SECNO=      2.65          CWSEL=   1495.18

STA=    9986.   10016.
  PER Q=    100.0
   AREA=     64.6
    VEL=      6.1
  DEPTH=      2.3

*SECNO 2.750

3470 ENCROACHMENT STATIONS=     9991.0   10025.0  TYPE=      1  TARGET=       34.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     2.750      2.80   1499.70   1499.51   1499.70   1500.40       .70      4.60       .03 100000.00
     395.0        .0     395.0        .0        .0      59.0        .0      40.3      18.6 100000.00
       .73       .00      6.70       .00      .000      .035      .000      .000   1496.90   9991.86
   .011698      560.      500.      380.         3        19         0       .00     32.74  10024.59


1
   09OCT02      09:54:17                                                                                    PAGE   44

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

FLOW DISTRIBUTION FOR SECNO=      2.75          CWSEL=   1499.70

STA=    9992.   10049.
  PER Q=    100.0
   AREA=     59.0
    VEL=      6.7
  DEPTH=      1.8

*SECNO 2.840
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9968.0   10000.0  TYPE=      1  TARGET=       32.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     2.840      3.65   1506.95   1506.95   1506.95   1507.82       .86      6.83       .05 100000.00
     395.0        .0     395.0        .0        .0      53.0        .0      41.0      19.0 100000.00
       .75       .00      7.45       .00      .000      .035      .000      .000   1503.30   9968.30
   .016169      470.      500.      540.         0        11         0       .00     31.70  10000.00


FLOW DISTRIBUTION FOR SECNO=      2.84          CWSEL=   1506.95

STA=    9968.   10000.
  PER Q=    100.0
   AREA=     53.0
    VEL=      7.4
  DEPTH=      1.7

*SECNO 2.940

3470 ENCROACHMENT STATIONS=     9985.0   10015.0  TYPE=      1  TARGET=       30.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=    100000.00

     2.940      2.43   1514.53   1514.47   1514.53   1515.39       .86      7.57       .00 100000.00
     395.0        .0     395.0        .0        .0      53.0        .0      41.6      19.4 100000.00
```

```
      .77       .00      7.45       .00      .000      .035      .000      .000   1512.10   9985.80
   .014211      590.      500.      440.         3        14         0       .00     28.79  10014.59
```

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

FLOW DISTRIBUTION FOR SECNO=      2.94          CWSEL=   1514.53

STA=    9986.   10070.
  PER Q=    100.0
   AREA=     53.0
    VEL=      7.4
  DEPTH=      1.8

*SECNO 2.950

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.74

3470 ENCROACHMENT STATIONS=     9981.0   10017.0  TYPE=      1  TARGET=       36.000
     2.950      4.15   1515.65   1513.88   1515.65   1515.86       .21       .41       .06 100000.00
     395.0        .0     395.0        .0        .0     106.9        .0      41.8      19.4 100000.00
       .77       .00      3.69       .00      .000      .035      .000      .000   1511.50   9981.19
   .001896      150.      100.       85.         2         5         0       .00     35.81  10017.00

FLOW DISTRIBUTION FOR SECNO=      2.95          CWSEL=   1515.65

STA=    9981.   10073.
  PER Q=    100.0
   AREA=    106.9
    VEL=      3.7
  DEPTH=      3.0
```

1


```
                                                                                THIS RUN EXECUTED 09OCT02     09:54:17
*************************************
 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

 WHITE PEAK WASH - Post-

SUMMARY PRINTOUT

      SECNO       Q        VCH      CWSEL      SSTA      ENDST       EG      TOPWID     CUMDS

      3.600    721.00      1.26   1372.66   9824.17  10279.57   1372.69    241.94       .00
      3.600    721.00      1.14   1372.93   9823.23  10280.18   1372.96    248.63       .00

*       .090    721.00      6.38   1374.60   9987.81  10078.15   1375.23     90.34    500.00
*       .090    721.00      6.65   1374.55  10000.17  10075.00   1375.24     74.83    500.00

*       .190    721.00      2.93   1377.99   9958.54  10084.17   1378.12    125.63   1000.00
*       .190    721.00      2.93   1378.01   9983.00  10084.52   1378.14    101.52   1000.00

*       .280    721.00      4.80   1379.58   9935.51  10017.76   1379.93     82.25   1500.00
*       .280    721.00      4.85   1379.59   9966.00  10017.79   1379.96     51.79   1500.00
```

*	.380	721.00	7.18	1383.58	9975.38	10020.54	1384.38	45.17	2000.00
*	.380	721.00	7.09	1383.61	9975.29	10020.72	1384.39	45.43	2000.00
*	.470	721.00	2.91	1387.38	9950.92	10089.79	1387.51	138.87	2500.00
*	.470	721.00	2.92	1387.38	9950.94	10077.00	1387.51	126.06	2500.00
*	.570	721.00	9.54	1390.71	9969.07	9995.97	1392.12	26.90	3000.00
*	.570	721.00	9.54	1390.71	9969.07	9995.97	1392.12	26.90	3000.00
*	.660	721.00	3.45	1396.30	9943.88	10048.46	1396.49	104.59	3500.00
*	.660	721.00	3.45	1396.30	9943.88	10048.00	1396.49	104.12	3500.00
*	.760	721.00	5.18	1399.47	9954.02	10031.22	1399.89	77.20	4000.00
*	.760	721.00	5.18	1399.47	9954.02	10031.00	1399.89	76.98	4000.00
	.850	721.00	4.56	1403.91	9956.69	10028.98	1404.24	72.29	4500.00
	.850	721.00	4.55	1403.92	9956.67	10028.99	1404.24	72.32	4500.00
	.950	721.00	5.92	1407.55	9966.52	10010.41	1408.09	43.89	5000.00
	.950	721.00	5.92	1407.55	9966.53	10010.41	1408.09	43.88	5000.00

1

	SECNO	Q	VCH	CWSEL	SSTA	ENDST	EG	TOPWID	CUMDS
	1.040	721.00	5.92	1412.17	9958.87	10008.03	1412.71	49.16	5500.00
	1.040	721.00	5.92	1412.17	9958.87	10008.00	1412.71	49.13	5500.00
	1.140	721.00	4.63	1416.63	9965.16	10034.43	1416.96	69.27	6000.00
	1.140	721.00	4.64	1416.63	9965.18	10034.43	1416.97	69.25	6000.00
	1.230	721.00	6.91	1420.88	9974.18	10011.53	1421.62	37.36	6500.00
	1.230	721.00	6.90	1420.89	9974.17	10011.55	1421.63	37.38	6500.00
*	1.330	721.00	3.34	1424.75	9873.51	10033.88	1424.89	160.37	7000.00
*	1.330	721.00	4.09	1425.30	9973.00	10053.00	1425.56	80.00	7000.00
*	1.420	721.00	7.22	1427.39	9963.24	9997.61	1428.20	34.37	7500.00
	1.420	721.00	5.70	1428.12	9960.62	9998.77	1428.62	38.15	7500.00
*	1.480	599.00	4.65	1429.98	9898.53	10007.51	1430.23	108.98	7800.00
	1.480	599.00	7.46	1430.08	9972.00	10007.83	1430.93	35.83	7800.00
*	1.520	599.00	6.52	1430.83	9802.11	9998.25	1431.44	61.16	8000.00
*	1.520	599.00	5.02	1431.68	9956.00	10000.00	1432.07	44.00	8000.00
	1.610	599.00	7.97	1436.46	9970.36	10008.18	1437.45	37.82	8500.00
*	1.610	599.00	8.06	1436.45	9970.50	10008.00	1437.46	37.50	8500.00
	1.700	599.00	6.73	1441.98	9978.04	10014.13	1442.69	36.09	9000.00
	1.700	599.00	6.70	1442.00	9978.00	10014.00	1442.70	36.00	9000.00
*	1.800	599.00	9.40	1447.12	9996.21	10019.64	1448.50	23.43	9500.00
*	1.800	599.00	9.41	1447.12	9996.22	10019.64	1448.50	23.42	9500.00
	1.890	599.00	6.89	1453.51	9975.17	10012.08	1454.24	36.91	10000.00
	1.890	599.00	6.89	1453.51	9975.16	10012.00	1454.25	36.83	10000.00
	1.970	599.00	6.54	1457.61	9979.78	10032.78	1458.28	53.00	10400.00
	1.970	599.00	6.55	1457.61	9979.80	10032.77	1458.28	52.97	10400.00
	1.990	395.00	3.96	1458.77	9971.51	10025.32	1459.01	53.81	10500.00
	1.990	395.00	3.95	1458.77	9971.50	10025.00	1459.01	53.50	10500.00
*	2.080	395.00	7.44	1462.53	9983.63	10015.14	1463.39	31.51	11000.00
*	2.080	395.00	7.46	1462.53	9983.64	10015.00	1463.39	31.36	11000.00
	2.180	395.00	6.23	1469.50	9979.49	10018.55	1470.10	39.06	11500.00
	2.180	395.00	6.23	1469.51	9979.49	10018.55	1470.11	39.06	11500.00
	2.270	395.00	4.90	1474.01	9990.26	10035.92	1474.38	45.67	12000.00
	2.270	395.00	4.90	1474.01	9990.26	10035.92	1474.39	45.67	12000.00
*	2.370	395.00	7.21	1478.91	9977.01	10011.70	1479.71	34.69	12500.00
*	2.370	395.00	7.21	1478.91	9977.01	10011.70	1479.71	34.69	12500.00

	SECNO	Q	VCH	CWSEL	SSTA	ENDST	EG	TOPWID	CUMDS
*	2.460	395.00	5.24	1484.13	9981.23	10019.88	1484.56	38.66	13000.00
*	2.460	395.00	5.24	1484.13	9981.23	10019.88	1484.56	38.66	13000.00
*	2.560	395.00	7.08	1489.56	9983.45	10020.28	1490.34	36.83	13500.00
*	2.560	395.00	7.14	1489.55	9983.47	10020.00	1490.34	36.53	13500.00
*	2.650	395.00	6.13	1495.17	9985.72	10014.25	1495.75	28.54	14000.00
*	2.650	395.00	6.11	1495.18	9985.70	10014.27	1495.76	28.57	14000.00
	2.750	395.00	6.70	1499.70	9991.86	10024.60	1500.40	32.75	14500.00
	2.750	395.00	6.70	1499.70	9991.86	10024.59	1500.40	32.74	14500.00
*	2.840	395.00	7.46	1506.95	9968.31	10000.00	1507.82	31.69	15000.00
*	2.840	395.00	7.45	1506.95	9968.30	10000.00	1507.82	31.70	15000.00
	2.940	395.00	7.43	1514.53	9985.79	10014.60	1515.39	28.81	15500.00
	2.940	395.00	7.45	1514.53	9985.80	10014.59	1515.39	28.79	15500.00
*	2.950	395.00	3.69	1515.65	9981.18	10017.24	1515.86	36.06	15600.00
*	2.950	395.00	3.69	1515.65	9981.19	10017.00	1515.86	35.81	15600.00

1

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      .090  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .090  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .090  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .090  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      .190  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .190  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .280  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .280  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .380  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .380  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .470  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .470  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      .570  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .570  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      .570  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      .570  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      .660  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .660  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .760  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .760  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.330  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     1.330  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.420  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.480  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     1.520  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     1.520  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     1.610  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.610  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     1.800  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.800  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     1.800  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.800  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=     2.080  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     2.080  PROFILE=  1  MINIMUM SPECIFIC ENERGY
```

```
CAUTION SECNO=      2.080  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.080  PROFILE=  2  MINIMUM SPECIFIC ENERGY
1
   09OCT02      09:54:17                                                                    PAGE   50


CAUTION SECNO=      2.370  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.370  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.370  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.370  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      2.460  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      2.460  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      2.560  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.560  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.560  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.560  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      2.650  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      2.650  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      2.840  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.840  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      2.840  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      2.840  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      2.950  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      2.950  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

1
   09OCT02      09:54:17                                                                    PAGE   51


FLOODWAY DATA,     WHITE PEAK WASH - Post-
PROFILE NO.  2
```

STATION	WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
3.600	457.	566.	1.3	1373.0	1372.7	.3
.090	75.	108.	6.7	1374.5	1374.6	-.1
.190	102.	246.	2.9	1378.0	1378.0	.0
.280	52.	149.	4.8	1379.6	1379.6	.0
.380	45.	102.	7.1	1383.6	1383.6	.0
.470	126.	247.	2.9	1387.4	1387.4	.0
.570	27.	76.	9.5	1390.7	1390.7	.0
.660	104.	209.	3.4	1396.3	1396.3	.0
.760	77.	139.	5.2	1399.5	1399.5	.0
.850	72.	158.	4.6	1403.9	1403.9	.0
.950	44.	122.	5.9	1407.5	1407.5	.0
1.040	49.	122.	5.9	1412.2	1412.2	.0
1.140	69.	156.	4.6	1416.6	1416.6	.0
1.230	37.	104.	6.9	1420.9	1420.9	.0
1.330	80.	176.	4.1	1425.3	1424.7	.6
1.420	38.	127.	5.7	1428.1	1427.4	.7
1.480	36.	84.	7.1	1430.1	1430.0	.1
1.520	44.	120.	5.0	1431.6	1430.8	.8
1.610	38.	74.	8.1	1436.5	1436.5	.0
1.700	36.	89.	6.7	1442.0	1442.0	.0
1.800	23.	64.	9.4	1447.1	1447.1	.0
1.890	37.	87.	6.9	1453.5	1453.5	.0
1.970	53.	91.	6.6	1457.6	1457.6	.0
1.990	53.	100.	4.0	1458.8	1458.8	.0
2.080	31.	53.	7.5	1462.5	1462.5	.0
2.180	39.	63.	6.2	1469.5	1469.5	.0
2.270	46.	81.	4.9	1474.0	1474.0	.0
2.370	35.	55.	7.2	1478.9	1478.9	.0
2.460	39.	75.	5.2	1484.1	1484.1	.0
2.560	37.	55.	7.1	1489.6	1489.6	.0
2.650	29.	65.	6.1	1495.2	1495.2	.0
2.750	33.	59.	6.7	1499.7	1499.7	.0
2.840	32.	53.	7.4	1507.0	1507.0	.0
2.940	29.	53.	7.4	1514.5	1514.5	.0
2.950	36.	107.	3.7	1515.6	1515.6	.0

Appendix B

General Documentation & Correspondence

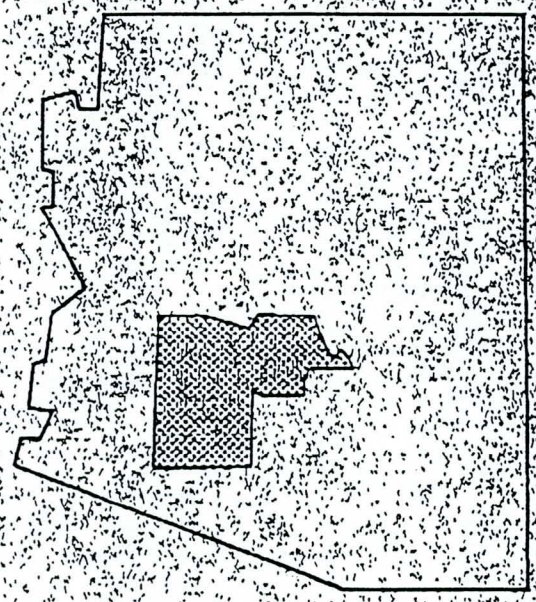
FLOOD INSURANCE STUDY

MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

VOLUME 1 OF 16

040013CV001



COMMUNITY NAME	COMMUNITY NUMBER
AVONDALE, CITY OF	040038
BUCKEYE, TOWN OF	040039
CAREFREE, TOWN OF	040126
CAVE CREEK, TOWN OF	040129
CHANDLER, CITY OF	040040
EL MIRAGE, CITY OF	040041
FOUNTAIN HILLS, TOWN OF	040135
GILA BEND, TOWN OF	040043
GILBERT, TOWN OF	040044
GLENDALE, CITY OF	040045
GOODYEAR, CITY OF	040046
GUADALUPE, TOWN OF	040111
LITCHFIELD PARK, CITY OF	040128
MARICOPA COUNTY	
UNINCORPORATED AREAS	040037
MESA, CITY OF	040048
PARADISE VALLEY, TOWN OF	040049
PEORIA, CITY OF	040050
PHOENIX, CITY OF	040051
QUEEN CREEK, TOWN OF	040132
SCOTTSDALE, CITY OF	040012
SURPRISE, CITY OF	~~040052~~ → 040053
TEMPE, CITY OF	040054
TOLLESON, CITY OF	040055
WICKENBURG, TOWN OF	040056
YOUNGTOWN, TOWN OF	040057

REVISED: JULY 19, 2001

Federal Emergency Management Agency

Table 3. Summary of Discharges (Cont'd)

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (cfs) 10-Year	50-Year	100-Year	500-Year
Southwest Side of Southern Pacific Railroad From Germann Road to confluence of East Maricopa Floodway	--[2]	--[1]	--[1]	313	--[1]
Caterpillar Tank Wash					
Immediately downstream from CAP Canal	1.03	--[1]	--[1]	489	--[1]
At Beardsley Canal	3.03	--[1]	--[1]	1,375	--[1]
At confluence with Agua Fria River	3.36	--[1]	--[1]	1,315	--[1]
Twin Buttes Wash					
Immediately downstream from CAP Canal	3.03	--[1]	--[1]	2,154	--[1]
Above confluence with Garambullo Wash	3.32	--[1]	--[1]	2,163	--[1]
Above confluence with White Peak Wash	4.65	--[1]	--[1]	2,424	--[1]
At Beardsley Canal	8.04	--[1]	--[1]	2,779	--[1]
At confluence with Agua Fria River	8.77	--[1]	--[1]	2,746	--[1]
Garambullo Wash					
At confluence with Twin Buttes Wash	0.99	--[1]	--[1]	651	--[1]
East Garambullo Wash					
Immediately downstream from CAP Canal	0.15	--[1]	--[1]	93	--[1]
At confluence with Garambullo Wash	0.37	--[1]	--[1]	259	--[1]
West Garambullo Wash					
Immediately downstream from CAP Canal	0.12	--[1]	--[1]	94	--[1]
At confluence with Garambullo Wash	0.62	--[1]	--[1]	483	--[1]
White Peak Wash					
Immediately downstream from CAP Canal	0.38	--[1]	--[1]	97	--[1]
Above confluence with West Fork of White Peak Wash	0.69	--[1]	--[1]	395	--[1]
At confluence with Twin Buttes Wash	1.59	--[1]	--[1]	721	--[1]

[1]Not Computed
[2]Not Available

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Twin Buttes Wash								
A	0.189	105	288	9.5	1,242.2	1,242.2	1,242.2	0.0
B	0.284	112	345	7.9	1,247.8	1,247.8	1,247.8	0.0
C	0.378	158	385	7.1	1,252.0	1,252.0	1,252.2	0.2
D	0.473	136	328	8.4	1,257.1	1,257.1	1,257.2	0.1
E	0.568	192	380	7.2	1,263.5	1,263.5	1,263.5	0.0
F	0.662	103	312	8.8	1,268.4	1,268.4	1,268.6	0.2
G	0.757	224	416	6.6	1,272.9	1,272.9	1,273.1	0.2
H	0.852	103	390	7.0	1,275.3	1,275.3	1,275.9	0.6
I	0.947	109	289	9.5	1,280.8	1,280.8	1,280.8	0.0
J	1.041	125	415	6.6	1,285.4	1,285.4	1,285.5	0.1
K	1.136	224	380	7.2	1,290.2	1,290.2	1,290.2	0.0
L	1.231	392	698	3.9	1,293.4	1,293.4	1,293.8	0.4
M	1.323	254	551	5.0	1,295.4	1,295.4	1,296.3	0.9
N	1.420	145	423	6.5	1,300.2	1,300.2	1,300.3	0.1
O	1.515	184	518	5.3	1,303.3	1,303.3	1,304.1	0.8
P	1.609	63	321	8.6	1,306.4	1,306.4	1,307.4	1.0
Q	1.704	103	530	5.2	1,310.9	1,310.9	1,310.9	0.0
R	1.799	161	502	5.5	1,313.0	1,313.0	1,313.5	0.5
S	1.837	132	427	6.4	1,315.1	1,315.1	1,315.1	0.0
T	1.912	231	693	4.0	1,318.2	1,318.2	1,318.4	0.2
U	1.916	240	644	4.3	1,318.3	1,318.3	1,318.5	0.2
V	1.988	230	549	5.1	1,321.3	1,321.3	1,321.6	0.3
W	2.083	168	512	5.4	1,324.2	1,324.2	1,325.2	1.0
X	2.162	124	411	6.8	1,326.3	1,326.3	1,327.3	1.0
Y	2.272	59	307	9.1	1,330.6	1,330.6	1,331.3	0.7
Z	2.367	148	520	5.3	1,334.5	1,334.5	1,334.9	0.4

[1]Miles Above Confluence With Agua Fria River

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Twin Buttes Wash (Cont'd)								
AA	2.462	174	406	6.9	1,337.9	1,337.9	1,337.9	0.0
AB	2.556	132	548	5.1	1,340.7	1,340.7	1,340.8	0.1
BC	2.651	73	295	9.4	1,342.6	1,342.6	1,342.6	0.0
AD	2.746	119	443	6.3	1,346.9	1,346.9	1,347.0	0.1
AE	2.840	97	322	8.6	1,350.2	1,350.2	1,350.2	0.0
AF	2.935	61	339	8.2	1,353.8	1,353.8	1,354.0	0.2
AG	3.030	86	338	8.2	1,356.9	1,356.9	1,357.2	0.3
AH	3.125	175	685	4.1	1,359.8	1,359.8	1,360.0	0.2
AI	3.219	78	309	9.0	1,360.7	1,360.7	1,361.2	0.5
AJ	3.314	144	500	5.6	1,365.0	1,365.0	1,365.3	0.3
AK	3.409	91	375	7.4	1,366.6	1,366.6	1,367.6	1.0
AL	3.466	206	513	5.4	1,370.0	1,370.0	1,370.3	0.3
AM	3.503	206	703	4.0	1,371.0	1,371.0	1,371.3	0.3
AN	3.598	154	341	7.1	1,372.7	1,372.7	1,372.9	0.2
AO	3.693	138	401	6.1	1,377.3	1,377.3	1,377.3	0.0
AP	3.787	147	336	7.2	1,380.3	1,380.3	1,380.5	0.2
AQ	3.882	122	377	6.4	1,383.7	1,383.7	1,384.1	0.4
AR	3.977	154	404	6.0	1,386.7	1,386.7	1,387.7	1.0
AS	4.072	223	483	5.0	1,391.6	1,391.6	1,391.7	0.1
AT	4.166	248	604	4.0	1,394.0	1,394.0	1,394.0	0.0
AU	4.261	109	268	9.0	1,396.9	1,396.9	1,396.9	0.0
AV	4.356	283	685	3.5	1,401.4	1,401.4	1,401.6	0.2
AW	4.450	174	405	6.0	1,404.0	1,404.0	1,404.5	0.5
AX	4.545	126	310	7.8	1,409.5	1,409.5	1,409.6	0.1
AY	4.640	344	748	3.2	1,412.5	1,412.5	1,413.1	0.6
AZ	4.734	371	402	6.0	1,416.2	1,416.2	1,416.2	0.0

[1]Miles Above Confluence With Agua Fria River

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Twin Buttes Wash (Cont'd)								
BA	4.791	239	501	4.3	1,419.8	1,419.8	1,420.3	0.5
BB	4.924	268	430	5.0	1,425.8	1,425.8	1,426.4	0.6
BC	5.018	256	494	4.4	1,430.5	1,430.5	1,431.4	0.9
BD	5.066	139	325	6.7	1,433.4	1,433.4	1,433.8	0.4
BE	5.113	120	369	5.9	1,435.8	1,435.8	1,436.4	0.6
BF	5.208	83	252	8.6	1,440.9	1,440.9	1,440.9	0.0
BG	5.303	102	388	5.6	1,444.6	1,444.6	1,444.6	0.0
BH	5.397	122	258	8.4	1,448.1	1,448.1	1,448.1	0.0
BI	5.492	128	315	6.9	1,453.7	1,453.7	1,453.7	0.0
BJ	5.587	108	249	8.7	1,459.8	1,459.8	1,459.8	0.0
BK	5.681	137	364	5.9	1,465.6	1,465.6	1,465.9	0.3
BL	5.776	213	518	4.2	1,469.3	1,469.3	1,469.3	0.0
BM	5.871	116	283	7.6	1,472.3	1,472.3	1,472.6	0.3
BN	5.965	92	282	7.7	1,477.2	1,477.2	1,477.7	0.5
BO	6.060	116	256	8.4	1,483.2	1,483.2	1,483.2	0.0
BP	6.155	59	266	8.1	1,486.9	1,486.9	1,487.1	0.2
BQ	6.250	54	198	10.9	1,492.9	1,492.9	1,492.9	0.0
BR	6.344	93	306	7.1	1,500.7	1,500.7	1,500.7	0.0
BS	6.383	82	227	9.5	1,505.9	1,505.9	1,505.9	0.0

[1]Miles Above Confluence With Agua Fria River

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
White Peak Wash								
A	0.094	75	108	6.7	1,374.7	1,374.7	1,374.7	0.0
B	0.189	102	246	2.9	1,377.2	1,377.2	1,378.0	0.8
C	0.284	52	149	4.8	1,379.8	1,379.8	1,379.8	0.0
D	0.378	45	102	7.1	1,383.3	1,383.3	1,383.6	0.3
E	0.473	126	247	2.9	1,387.4	1,387.4	1,387.4	0.0
F	0.568	27	76	9.5	1,390.7	1,390.7	1,390.7	0.0
G	0.662	104	209	3.4	1,396.1	1,396.1	1,396.3	0.2
H	0.757	77	139	5.2	1,398.9	1,398.9	1,399.5	0.6
I	0.852	72	159	4.5	1,404.0	1,404.0	1,404.0	0.0
J	0.947	44	122	5.9	1,407.5	1,407.5	1,407.5	0.0
K	1.041	49	122	5.9	1,412.2	1,412.2	1,412.2	0.0
L	1.136	69	155	4.6	1,416.6	1,416.6	1,416.6	0.0
M	1.231	37	104	6.9	1,420.9	1,420.9	1,420.9	0.0
N	1.323	80	176	4.1	1,424.7	1,424.7	1,425.3	0.6
O	1.420	38	127	5.7	1,427.4	1,427.4	1,428.1	0.7
P	1.477	36	84	7.1	1,430.0	1,430.0	1,430.1	0.1
Q	1.515	44	120	5.0	1,430.8	1,430.8	1,431.7	0.9
R	1.609	38	74	8.1	1,436.5	1,436.5	1,436.5	0.0
S	1.704	36	89	6.7	1,442.0	1,442.0	1,442.0	0.0
T	1.799	23	64	9.4	1,447.1	1,447.1	1,447.1	0.0
U	1.893	37	87	6.9	1,453.5	1,453.5	1,453.5	0.0
V	1.988	53	100	4.0	1,458.8	1,458.8	1,458.8	0.0
W	2.083	31	53	7.5	1,462.5	1,462.5	1,462.5	0.0
X	2.178	39	63	6.2	1,469.5	1,469.5	1,469.5	0.0
Y	2.272	46	81	4.9	1,474.0	1,474.0	1,474.0	0.0
Z	2.367	35	55	7.2	1,478.9	1,478.9	1,478.9	0.0

[1]Miles Above Confluence With Twin Buttes Wash

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
White Peak Wash (Cont'd)								
AA	2.462[1]	39	75	5.2	1,484.1	1,484.1	1,484.1	0.0
AB	2.556[1]	37	55	7.1	1,489.6	1,489.6	1,489.6	0.0
AC	2.651[1]	29	65	6.1	1,495.2	1,495.2	1,495.2	0.0
AD	2.746[1]	33	59	6.7	1,499.7	1,499.7	1,499.7	0.0
AF	2.840[1]	32	53	7.4	1,507.0	1,507.0	1,507.0	0.0
AF	2.954[1]	36	107	3.7	1,515.6	1,515.6	1,515.6	0.0
West Fork White Peak Wash								
A	0.094[2]	56	54	5.5	1,464.4	1,464.4	1,464.4	0.0
B	0.189[2]	24	45	6.5	1,471.0	1,471.0	1,471.0	0.0
C	0.284[2]	30	42	6.9	1,479.2	1,479.2	1,479.5	0.3
D	0.378[2]	30	55	5.4	1,485.0	1,485.0	1,485.3	0.3
E	0.473[2]	19	37	7.9	1,494.1	1,494.1	1,494.1	0.0
F	0.568[2]	24	41	7.2	1,501.9	1,501.9	1,501.9	0.0
G	0.662[2]	26	41	7.2	1,512.4	1,512.4	1,512.4	0.0
H	0.738[2]	27	49	6.0	1,517.3	1,517.3	1,517.3	0.0

[1]Miles Above Confluence With Twin Buttes Wash
[2]Miles Above Confluence With White Peak Wash

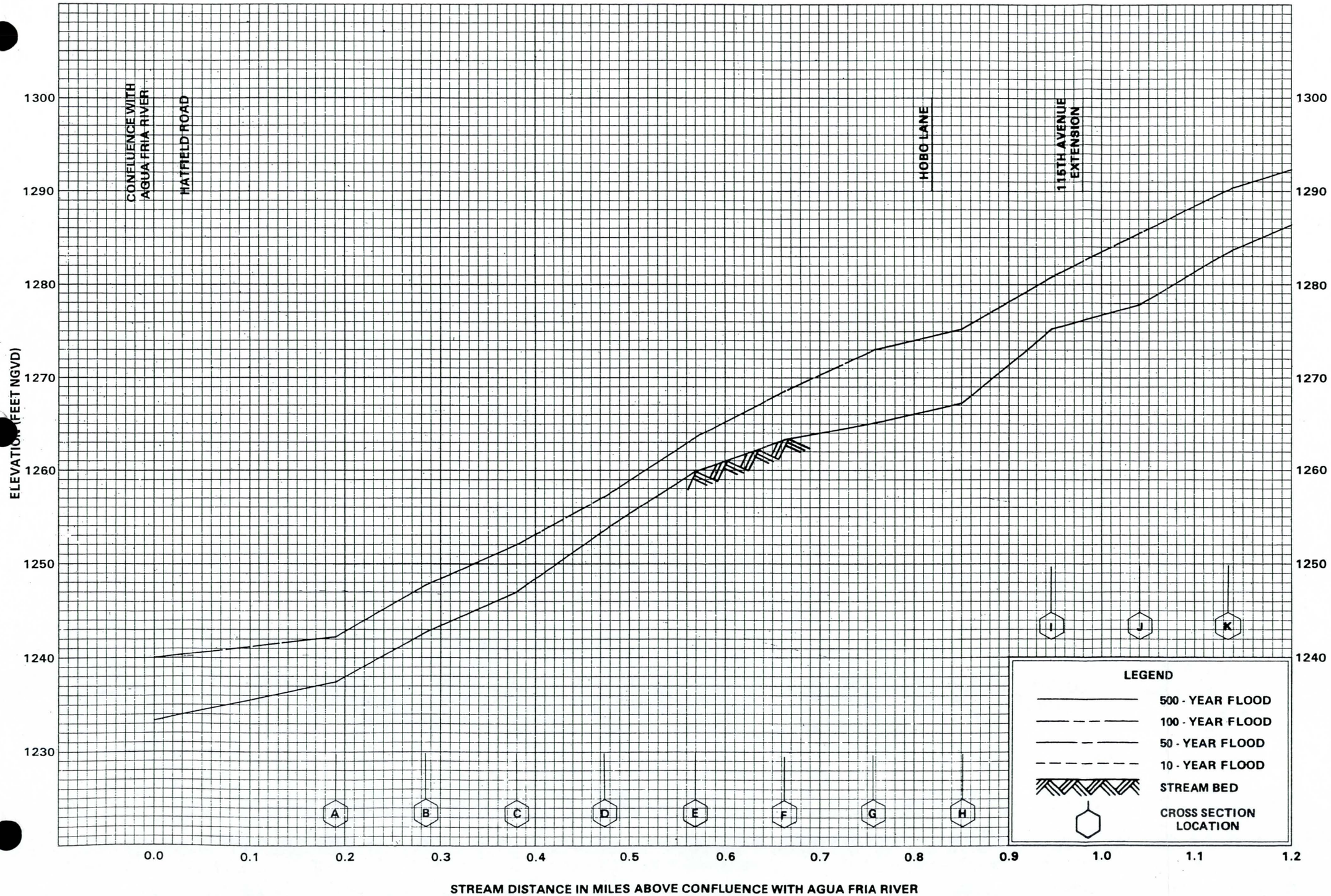
TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ AND INCORPORATED AREAS

FLOODWAY DATA

WHITE PEAK WASH-WEST FORK WHITE PEAK WASH



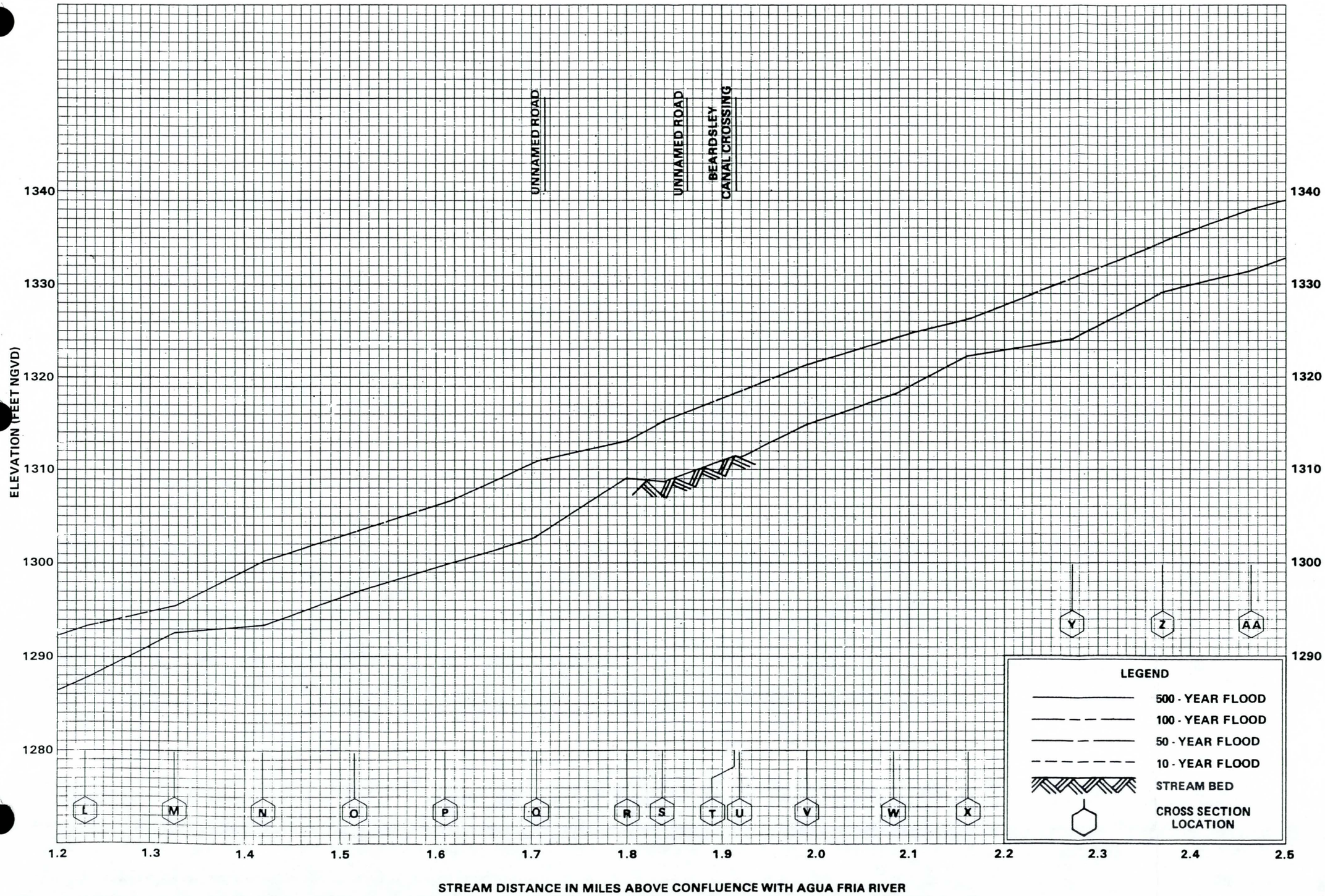
FLOOD PROFILES

TWIN BUTTES WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

538P



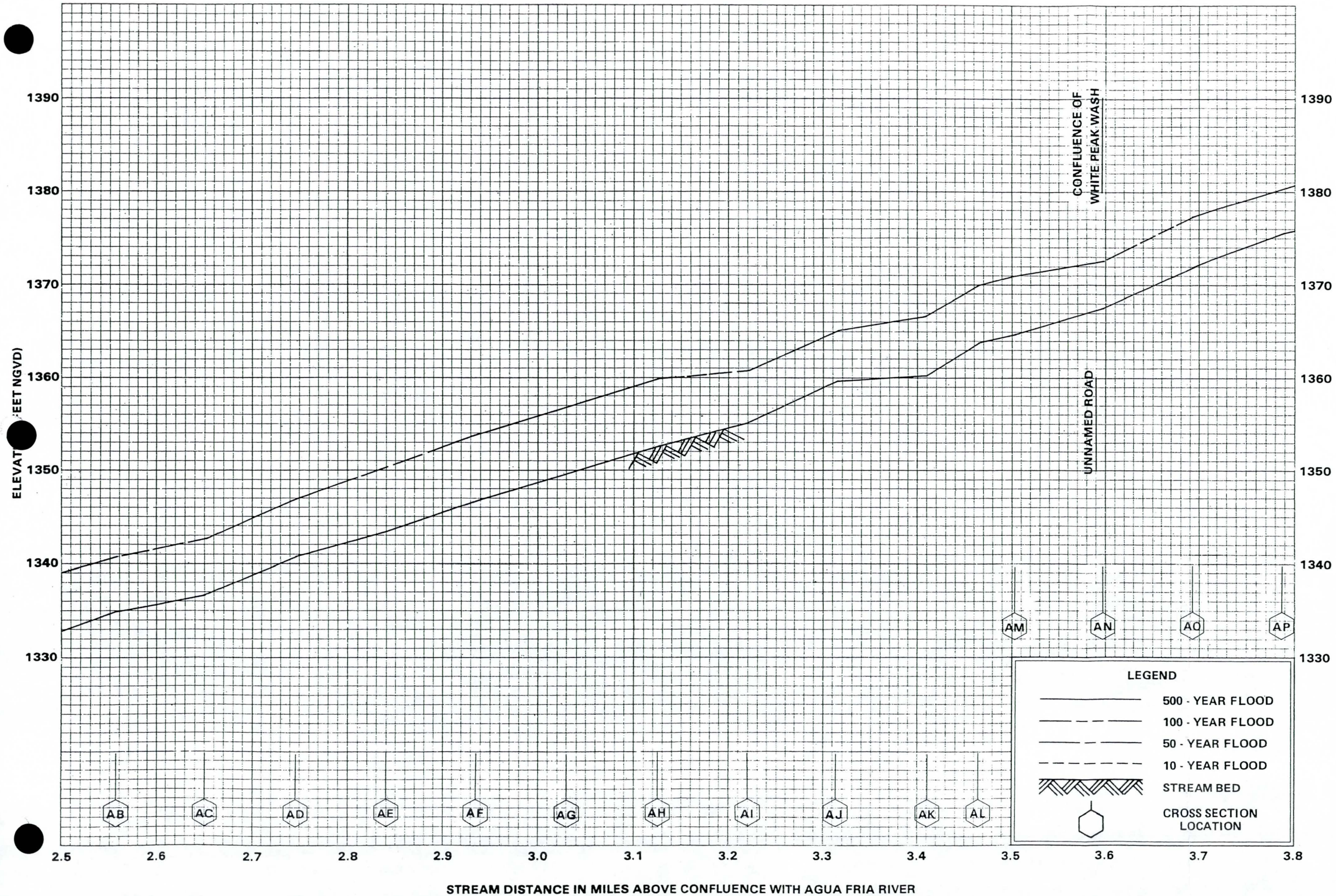
FLOOD PROFILES

TWIN BUTTES WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

539P

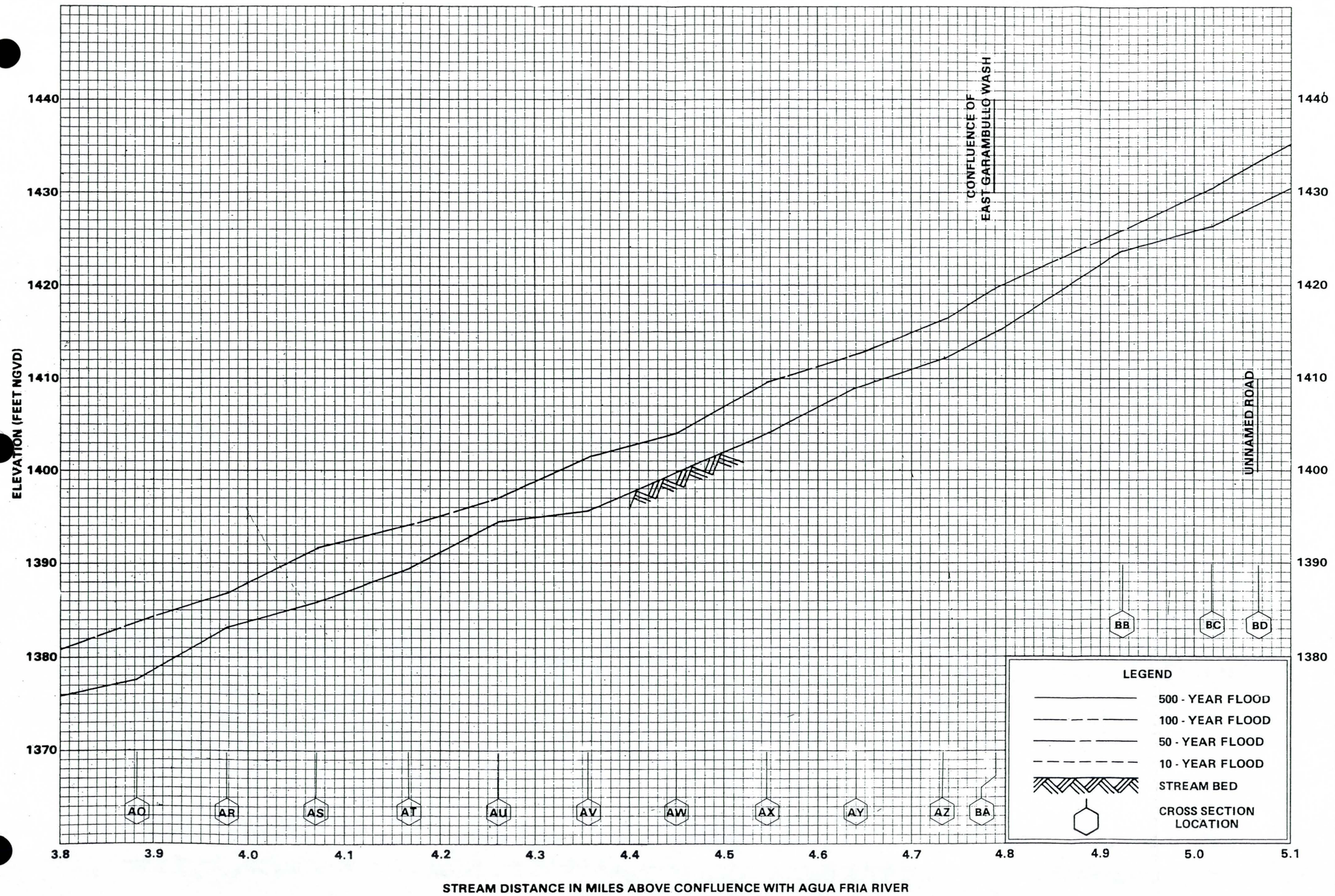


FLOOD PROFILES

TWIN BUTTES WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

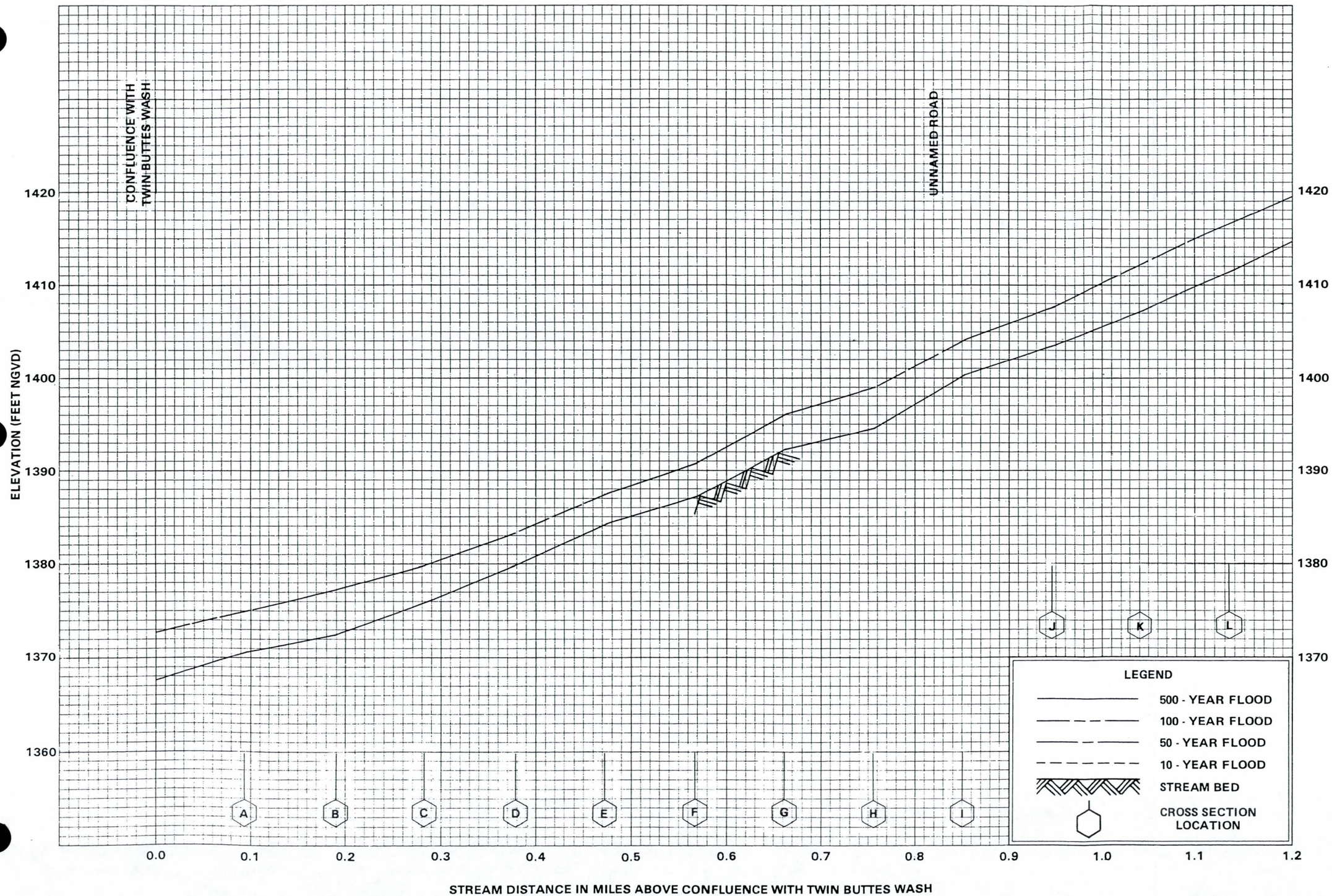


FLOOD PROFILES

TWIN BUTTES WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS



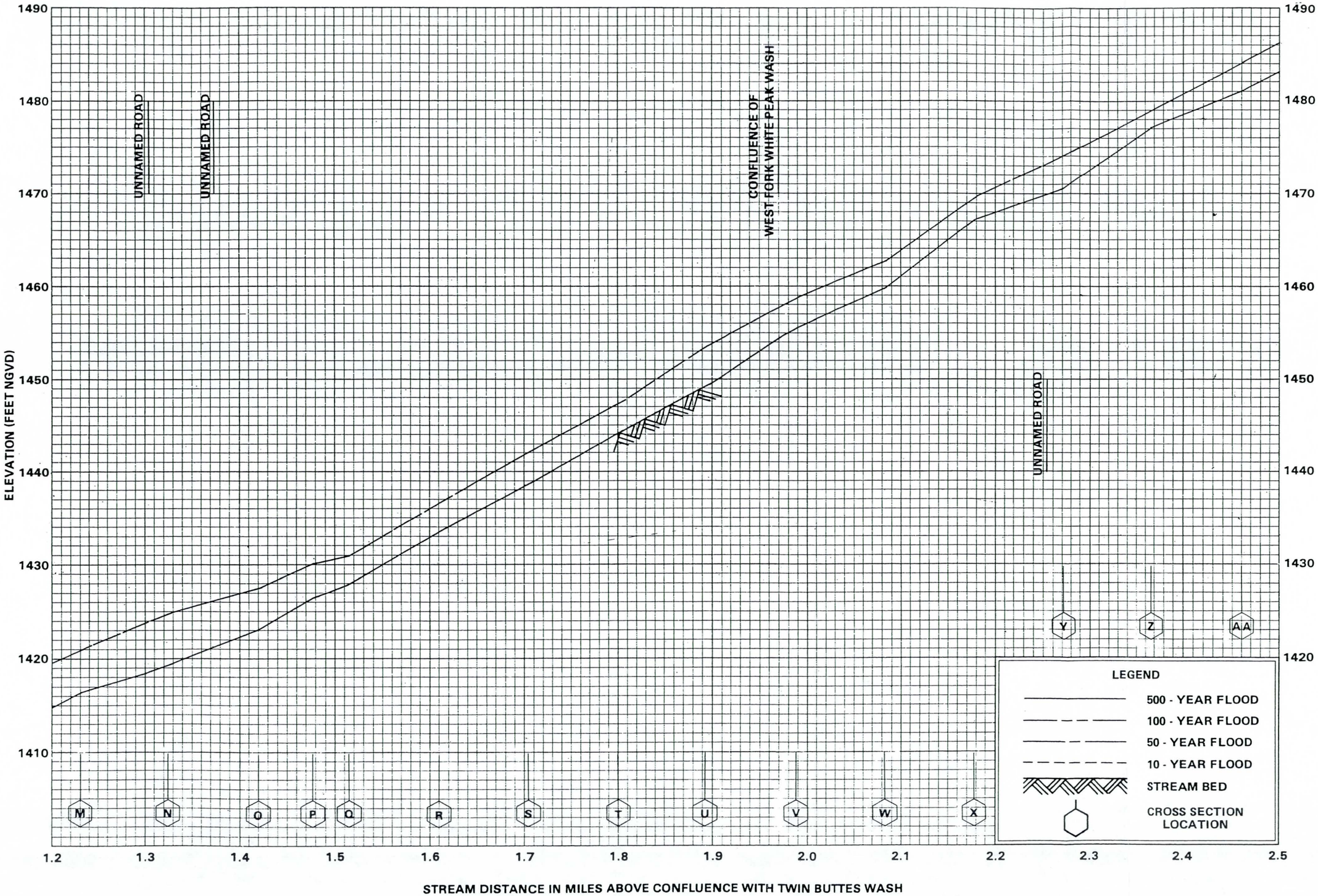
FLOOD PROFILES

WHITE PEAK WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

551P



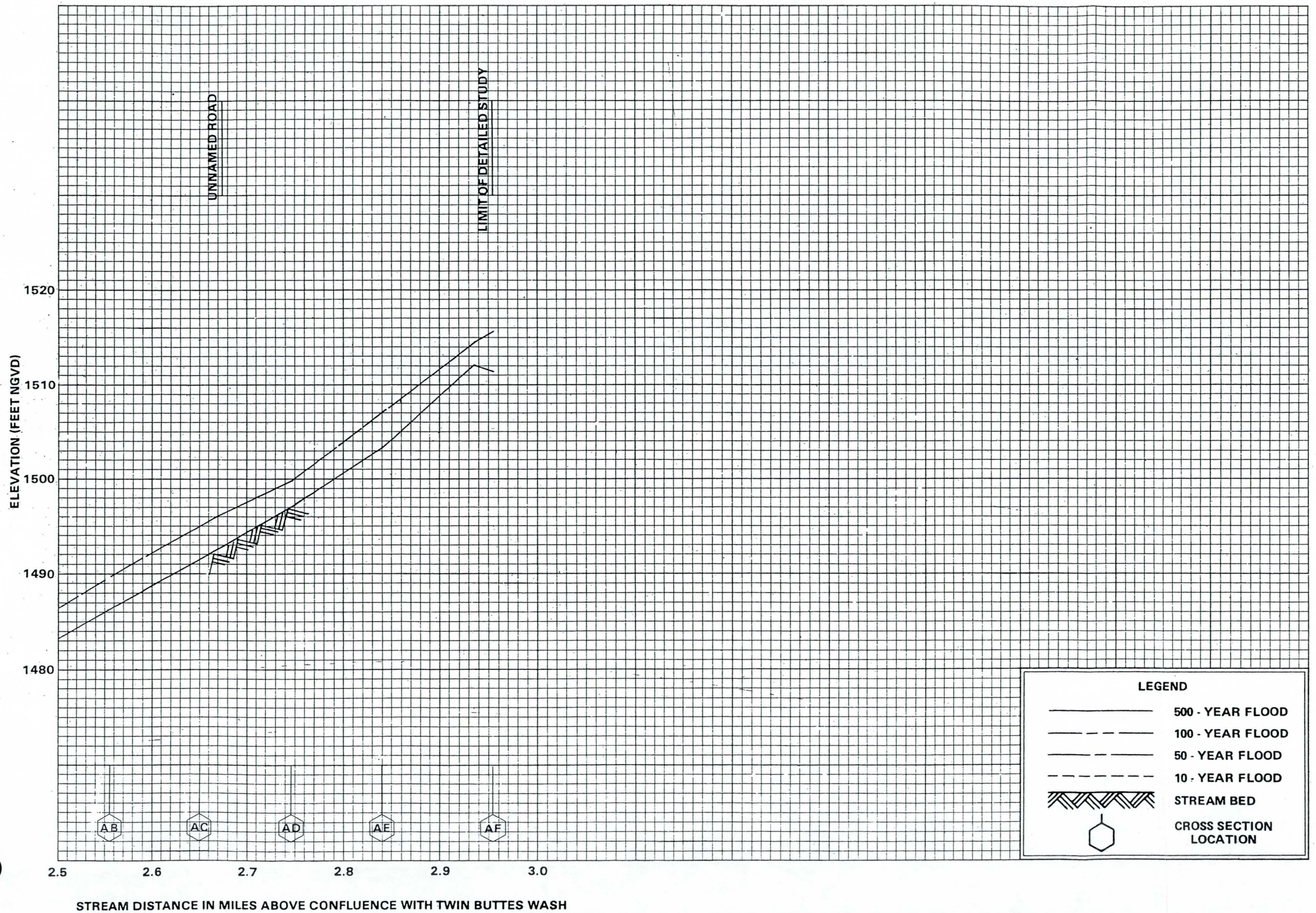
FLOOD PROFILES

WHITE PEAK WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

552P



FLOOD PROFILES

WHITE PEAK WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

553P

Appendix C

Scour Computation Sheets

Local Scour Computation Sheet

Reference: US Department of the Interior Bureau of Reclamation, January 1984 Computing Degradation and Local Scour.

Application: Natural channel for restrictions and bends (Type A) and bankline structures (Type B). Examples - siphon crossing or any buried pipeline, stability study of a natural bank, waterway for one-span bridge, abutments to bridge, bank slope protection such as riprap, spur dikes, groins, pumping plants, and canal headworks.

Equations:

1. USBR (Abbott, 1963): Ds = K*(Q/B)^0.24 (0.5 mm <D50<0.7 mm)
2. Neill (1973): Ds = Z1*Df = Z1*Di*(Qf/Qi)^m
3. Lacey (1930): Ds = Z2*Dm = Z2*0.47*(Q/f)^(1/3)
4. Blench (1969): Ds = Z3*Dfo = Z3*Qf^(2/3)/Fbo^(1/3)
5. Competent Vel: Ds = Dm*(Vm/Vc - 1)

Where:
K = 2.45; Q = design flow (cfs); B = channel width (ft);
Z1 = Neill Eq. factor; Z2 = Lacey Eq. factor;
Z3 = Blench Eq. factor, Z1, Z2, and Z3 from Table 7 (p.36);
Di = average depth at bankfull flow (Qb) (ft);
Qf = Q/B (cfs/ft); Qi = Qb/B (cfs/ft);
m = 0.67 for sand to 0.85 for coarse gravel;
f = 1.76*D50^0.5, D50 (mm);
Fbo = zero bed factor from Figure 9 (p.35);
Dm = mean flow depth (ft), Vm = mean velocity (fps);
Vc = competent mean velocity (fps) from Table 8 (p.38).

Channel

		√ Qb
X - 4.92	5.16	254.9
5.02	4.47	303.2
5.07	6.64	0

Channel	overbank
depth	√
3.64	4.23
5.12	4.03
5.03	0

Project Name: Lakeland Village **Location:** Site A

Input Data:

Q =	2163	cfs	B =	255	ft
Z1 =	0.6		Z2 =	0.5	
Z3 =	0.6		Di =	1	ft
Qb =	1082	cfs	D50 =	4.8	mm
Dm =	1.51	ft	Vm =	6.01	fps
Vc =	2	fps	Fbo =	3	
m =	0.67		D85 =	30	mm

Results:

1. USBR (Abbott, 1963):	Ds =	N/A	ft
2. Neill (1973):	Ds =	0.95	ft
3. Lacey (1930):	Ds =	1.94	ft
4. Blench (1969):	Ds =	1.73	ft
5. Competent Vel:	Ds =	3.03	ft
Average Scour Depth	=	1.91	ft

Recommended Toedown Depth = 1.3 Scour Depth = 2.5 ft

Local Scour Computation Sheet

Reference: US Department of the Interior Bureau of Reclamation, January 1984 Computing Degradation and Local Scour.

Application: Natural channel for restrictions and bends (Type A) and bankline structures (Type B). Examples - siphon crossing or any buried pipeline, stability study of a natural bank, waterway for one-span bridge, abutments to bridge, bank slope protection such as riprap, spur dikes, groins, pumping plants, and canal headworks.

Equations:

1. USBR (Abbott, 1963): Ds = K*(Q/B)^0.24 (0.5 mm <D50<0.7 mm)
2. Neill (1973): Ds = Z1*Df = Z1*Di*(Qf/Qi)^m
3. Lacey (1930): Ds = Z2*Dm = Z2*0.47*(Q/f)^(1/3)
4. Blench (1969): Ds = Z3*Dfo = Z3*Qf^(2/3)/Fbo^(1/3)
5. Competent Vel: Ds = Dm*(Vm/Vc - 1)

Where:
K = 2.45; Q = design flow (cfs); B = channel width (ft);
Z1 = Neill Eq. factor; Z2 = Lacey Eq. factor;
Z3 = Blench Eq. factor, Z1, Z2, and Z3 from Table 7 (p.36);
Di = average depth at bankfull flow (Qb) (ft);
Qf = Q/B (cfs/ft); Qi = Qb/B (cfs/ft);
m = 0.67 for sand to 0.85 for coarse gravel;
f = 1.76*D50^0.5, D50 (mm);
Fbo = zero bed factor from Figure 9 (p.35);
Dm = mean flow depth (ft), Vm = mean velocity (fps);
Vc = competent mean velocity (fps) from Table 8 (p.38).

Project Name: Lakeland Village **Location:** Site B

Input Data:

Q =	2746	cfs	B =	103	ft
Z1 =	0.6		Z2 =	0.5	
Z3 =	0.6		Di =	2	ft
Qb =	1373	cfs	D50 =	7	mm
Dm =	3.03	ft	Vm =	8.84	fps
Vc =	2	fps	Fbo =	3	
m =	0.67		D85 =	29	mm

721 cfs

Results:

1. USBR (Abbott, 1963):	Ds =	N/A	ft
2. Neill (1973):	Ds =	1.91	ft
3. Lacey (1930):	Ds =	1.97	ft
4. Blench (1969):	Ds =	3.71	ft
5. Competent Vel:	Ds =	10.36	ft
Average Scour Depth	=	4.49	ft

Recommended Toedown Depth = 1.3 Scour Depth = 5.8 ft

Mike Lopez

Local Scour Computation Sheet

Reference: US Department of the Interior Bureau of Reclamation, January 1984 Computing Degradation and Local Scour.

Application: Natural channel for restrictions and bends (Type A) and bankline structures (Type B). Examples - siphon crossing or any buried pipeline, stability study of a natural bank, waterway for one-span bridge, abutments to bridge, bank slope protection such as riprap, spur dikes, groins, pumping plants, and canal headworks.

Equations:

1. USBR (Abbott, 1963): Ds = K*(Q/B)^0.24 (0.5 mm <D50<0.7 mm)
2. Neill (1973): Ds = Z1*Df = Z1*Di*(Qf/Qi)^m
3. Lacey (1930): Ds = Z2*Dm = Z2*0.47*(Q/f)^(1/3)
4. Blench (1969): Ds = Z3*Dfo = Z3*Qf^(2/3)/Fbo^(1/3)
5. Competent Vel: Ds = Dm*(Vm/Vc - 1)

Where:
K = 2.45; Q = design flow (cfs); B = channel width (ft);
Z1 = Neill Eq. factor; Z2 = Lacey Eq. factor;
Z3 = Blench Eq. factor, Z1, Z2, and Z3 from Table 7 (p.36);
Di = average depth at bankfull flow (Qb) (ft);
Qf = Q/B (cfs/ft); Qi = Qb/B (cfs/ft);
m = 0.67 for sand to 0.85 for coarse gravel;
f = 1.76*D50^0.5, D50 (mm);
Fbo = zero bed factor from Figure 9 (p.35);
Dm = mean flow depth (ft), Vm = mean velocity (fps);
Vc = competent mean velocity (fps) from Table 8 (p.38).

Channel	Q	overbank depth	Overbank
	6		3.53
	553.7	6.51	0
3.88 8.68	0	4.56	0
3.98 5.98	0	5.87	
4.07 5.03			

Project Name: Lakeland Village **Location:** Site D

Input Data:

Q =	2424	cfs	B =	154	ft
Z1 =	0.6		Z2 =	0.5	
Z3 =	0.6		Di =	1.8	ft
Qb =	1212	cfs	D50 =	3	mm
Dm =	2.71	ft	Vm =	5.82	fps
Vc =	2	fps	Fbo =	3	
m =	0.67		D85 =	12	mm

Results:

1. USBR (Abbott, 1963):	Ds =	N/A	ft
2. Neill (1973):	Ds =	1.72	ft
3. Lacey (1930):	Ds =	2.18	ft
4. Blench (1969):	Ds =	2.61	ft
5. Competent Vel:	Ds =	5.18	ft
Average Scour Depth	=	2.92	ft

Recommended Toedown Depth = 1.3 Scour Depth = 3.8 ft

Local Scour Computation Sheet

Reference: US Department of the Interior Bureau of Reclamation, January 1984 Computing Degradation and Local Scour.

Application: Natural channel for restrictions and bends (Type A) and bankline structures (Type B). Examples - siphon crossing or any buried pipeline, stability study of a natural bank, waterway for one-span bridge, abutments to bridge, bank slope protection such as riprap, spur dikes, groins, pumping plants, and canal headworks.

Equations:

1. USBR (Abbott, 1963): Ds = K*(Q/B)^0.24 (0.5 mm <D50<0.7 mm)
2. Neill (1973): Ds = Z1*Df = Z1*Di*(Qf/Qi)^m
3. Lacey (1930): Ds = Z2*Dm = Z2*0.47*(Q/f)^(1/3)
4. Blench (1969): Ds = Z3*Dfo = Z3*Qf^(2/3)/Fbo^(1/3)
5. Competent Vel: Ds = Dm*(Vm/Vc - 1)

Where:
K = 2.45; Q = design flow (cfs); B = channel width (ft);
Z1 = Neill Eq. factor; Z2 = Lacey Eq. factor;
Z3 = Blench Eq. factor, Z1, Z2, and Z3 from Table 7 (p.36);
Di = average depth at bankfull flow (Qb) (ft);
Qf = Q/B (cfs/ft); Qi = Qb/B (cfs/ft);
m = 0.67 for sand to 0.85 for coarse gravel;
f = 1.76*D50^0.5, D50 (mm);
Fbo = zero bed factor from Figure 9 (p.35);
Dm = mean flow depth (ft), Vm = mean velocity (fps);
Vc = competent mean velocity (fps) from Table 8 (p.38).

Project Name: Lakeland Village **Location:** Site F

Input Data:

Q =	2424	cfs	B =	135	ft
Z1 =	0.6		Z2 =	0.5	
Z3 =	0.6		Di =	2.11	ft
Qb =	1212	cfs	D50 =	3	mm
Dm =	3.17	ft	Vm =	7.99	fps
Vc =	2	fps	Fbo =	3	
m =	0.67		D85 =	12	mm

Results:

1. USBR (Abbott, 1963):	Ds =	N/A	ft
2. Neill (1973):	Ds =	2.01	ft
3. Lacey (1930):	Ds =	2.18	ft
4. Blench (1969):	Ds =	2.85	ft
5. Competent Vel:	Ds =	9.49	ft
Average Scour Depth	=	4.13	ft

Recommended Toedown Depth = 1.3 Scour Depth = 5.4 ft

Local Scour Computation Sheet

Reference: US Department of the Interior Bureau of Reclamation, January 1984 Computing Degradation and Local Scour.

Application: Natural channel for restrictions and bends (Type A) and bankline structures (Type B). Examples - siphon crossing or any buried pipeline, stability study of a natural bank, waterway for one-span bridge, abutments to bridge, bank slope protection such as riprap, spur dikes, groins, pumping plants, and canal headworks.

Equations:

1. USBR (Abbott, 1963): Ds = K*(Q/B)^0.24 (0.5 mm <D50<0.7 mm)
2. Neill (1973): Ds = Z1*Df = Z1*Di*(Qf/Qi)^m
3. Lacey (1930): Ds = Z2*Dm = Z2*0.47*(Q/f)^(1/3)
4. Blench (1969): Ds = Z3*Dfo = Z3*Qf^(2/3)/Fbo^(1/3)
5. Competent Vel: Ds = Dm*(Vm/Vc - 1)

Where:
K = 2.45; Q = design flow (cfs); B = channel width (ft);
Z1 = Neill Eq. factor; Z2 = Lacey Eq. factor;
Z3 = Blench Eq. factor, Z1, Z2, and Z3 from Table 7 (p.36);
Di = average depth at bankfull flow (Qb) (ft);
Qf = Q/B (cfs/ft); Qi = Qb/B (cfs/ft);
m = 0.67 for sand to 0.85 for coarse gravel;
f = 1.76*D50^0.5, D50 (mm);
Fbo = zero bed factor from Figure 9 (p.35);
Dm = mean flow depth (ft), Vm = mean velocity (fps);
Vc = competent mean velocity (fps) from Table 8 (p.38).

Project Name: Lakeland Village **Location:** Site G

Input Data:

Q =	721	cfs	B =	101.3	ft
Z1 =	0.6		Z2 =	0.5	
Z3 =	0.6		Di =	1.6	ft
Qb =	361	cfs	D50 =	3	mm
Dm =	2.41	ft	Vm =	2.96	fps
Vc =	2	fps	Fbo =	3	
m =	0.85		D85 =	12	mm

Results:

1. USBR (Abbott, 1963):	Ds =	N/A	ft
2. Neill (1973):	Ds =	1.73	ft
3. Lacey (1930):	Ds =	1.45	ft
4. Blench (1969):	Ds =	1.54	ft
5. Competent Vel:	Ds =	1.16	ft
Average Scour Depth	=	1.47	ft

Recommended Toedown Depth = 1.3 Scour Depth = 1.9 ft

245 ©80 VTI
011595

PARTICLE SIZE DISTRIBUTION CHART

Type of Material: GP-SP

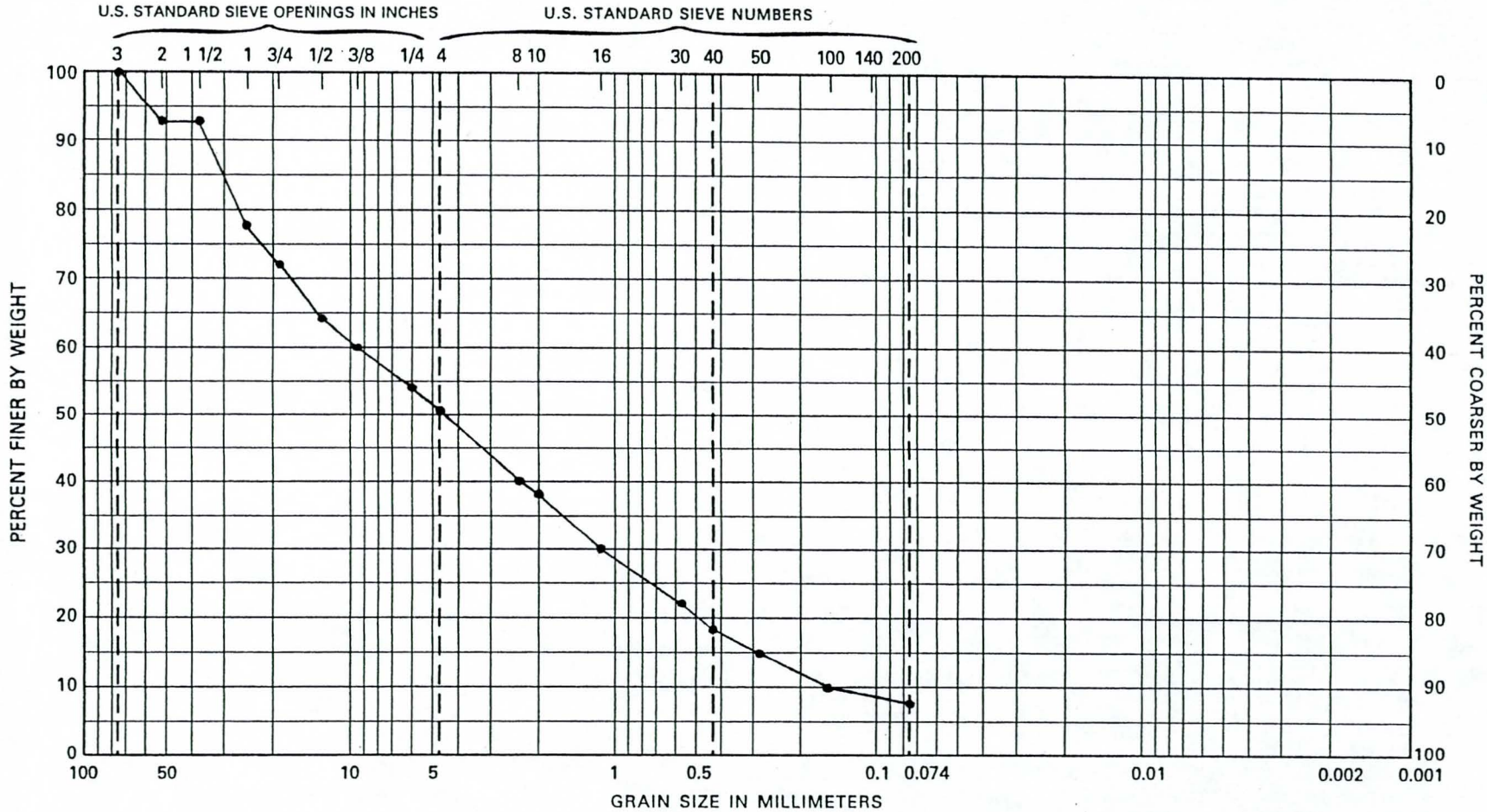
Job No. 7121JZ331

Source of Material: SBH T-05 / BS-1

Event / Invoice No.

Test Procedure

Responsible Technician: J. BELLAMY Date Reviewed By Date



A

UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	SILT OR CLAY	
AASHTO	GRAVEL		COARSE SAND	FINE SAND	SILT	CLAY

PARTICLE SIZE, PERCENT PASSING							ATTERBERG LIMITS	
2 IN. 93	1 IN. 77	1/2 IN. 64	NO. 10 38	NO. 30 22	NO. 100 10	0.05 MM	LIQUID LIMIT	P.I. NP
1 1/2 IN. 93	3/4 IN. 72	NO. 4 51	NO. 16 30	NO. 50 15	NO. 200 7	0.002 MM	PLASTIC LIMIT	SP.GR.

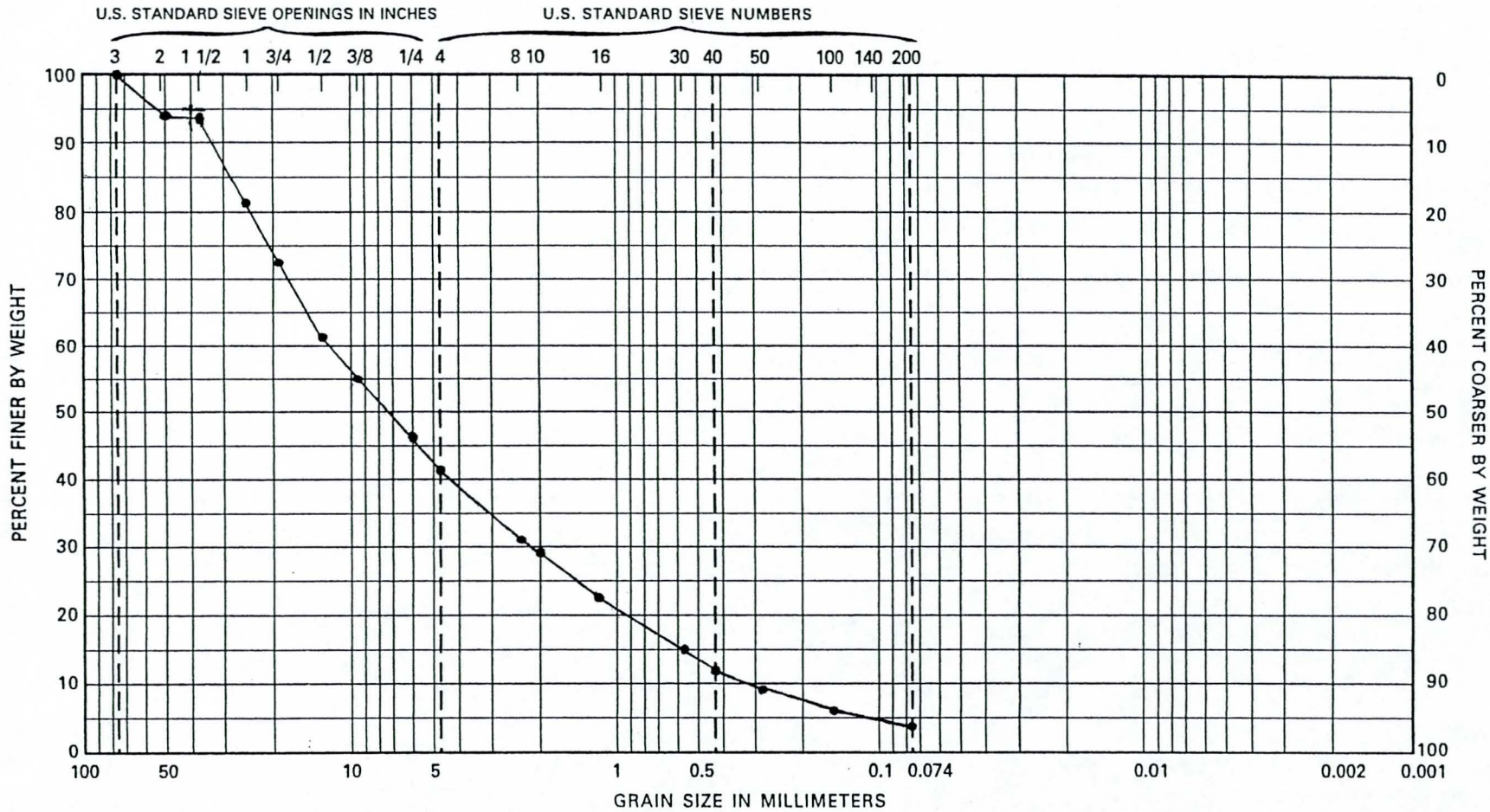
245 ©80 VTI
011595

PARTICLE SIZE DISTRIBUTION CHART

Type of Material: GW - SW Job No. 21215I331

Source of Material: SBH S-12 / BS-1 Event / Invoice No.

Test Procedure Responsible Technician: J. BELLAMY Date Reviewed By Date



B

UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	SILT OR CLAY	
AASHTO	GRAVEL		COARSE SAND	FINE SAND	SILT	CLAY

PARTICLE SIZE, PERCENT PASSING							ATTERBERG LIMITS	
2 IN. 94	1 IN. 81	1/2 IN. 61	NO. 10 23	NO. 30 12	NO. 100 6	0.05 MM	LIQUID LIMIT	P.I. NP
1 1/2 IN. 94	3/4 IN. 73	NO. 4 42	NO. 16 15	NO. 50 9	NO. 200 4	0.002 MM	PLASTIC LIMIT	SP.GR.

245 ©80 WTI
011595

PARTICLE SIZE DISTRIBUTION CHART

Type of Material: SM - SP

Job No. 212151331

Source of Material: SBH S-02 / BS-1

Event / Invoice No.

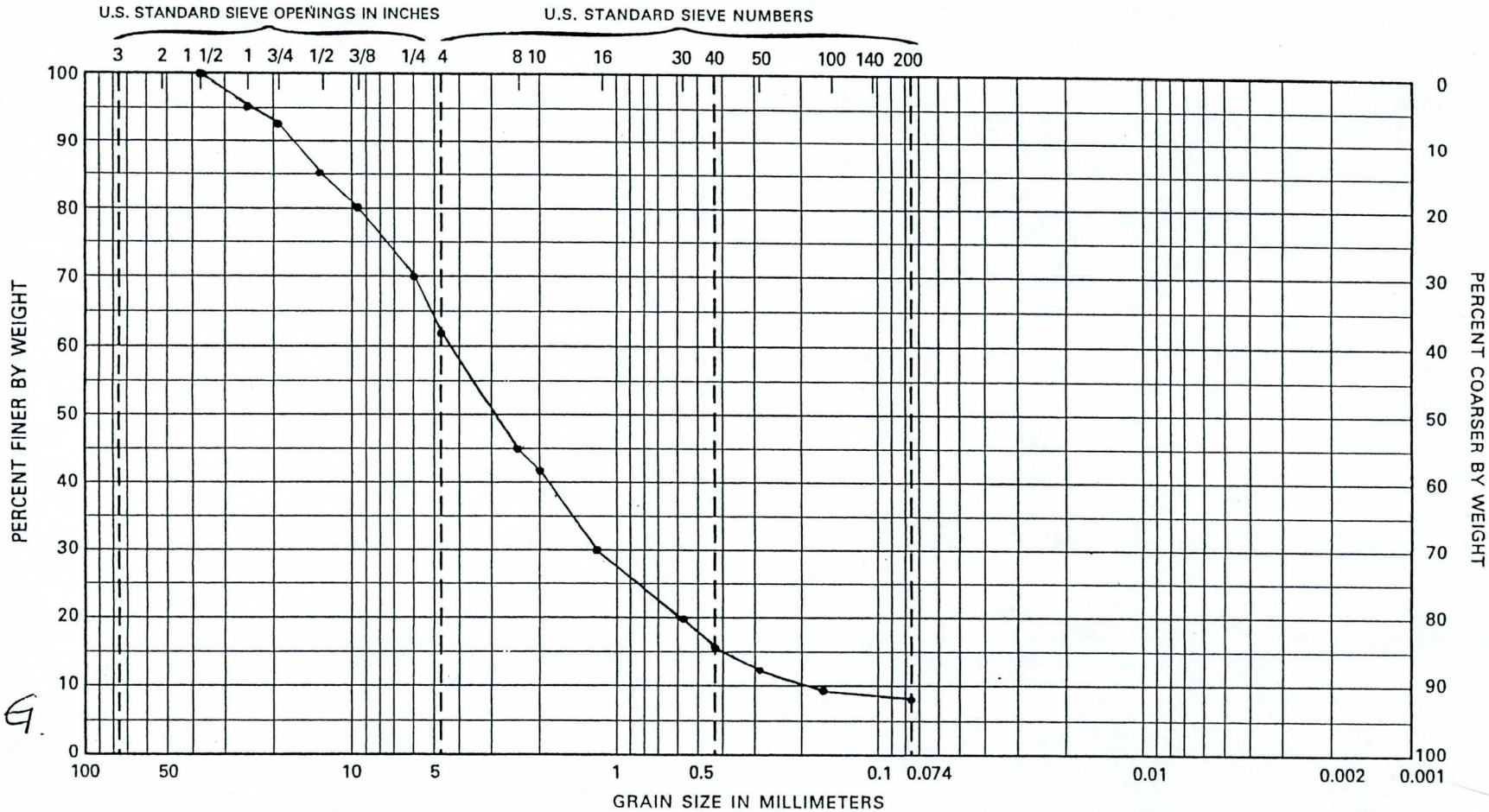
Test Procedure

Responsible Technician: J. BALLAMY

Date

Reviewed By

Date



D. F. G.

UNIFIED	GRAVEL	COARSE SAND	MEDIUM SAND	FINE SAND	SILT OR CLAY	
AASHTO	GRAVEL		COARSE SAND	FINE SAND	SILT	CLAY

PARTICLE SIZE, PERCENT PASSING							ATTERBERG LIMITS	
2 IN. 100	1 IN. 95	1/2 IN. 85	NO. 10 42	NO. 30 20	NO. 100 9	0.05 MM	LIQUID LIMIT	P.I. NP
1 1/2 IN. 100	3/4 IN. 93	NO. 4 63	NO. 16 30	NO. 50 13	NO. 200 8	0.002 MM	PLASTIC LIMIT	SP.GR.

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Max Chl Dpth	Hydr Depth
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(ft)	(ft)
Reach-1	0.19	2746.00	1237.40	1242.26	1242.25	1243.65	0.013012	9.44	290.82	109.74	1.00	4.86	2.76
Reach-1	0.19	2746.00	1237.40	1242.26	1242.25	1243.65	0.013002	9.44	290.88	105.45	1.00	4.86	2.76
Reach-1	0.28	2746.00	1242.80	1247.76	1247.32	1248.76	0.008130	8.01	342.94	127.41	0.80	4.96	3.07
Reach-1	0.28	2746.00	1242.80	1247.76	1247.32	1248.76	0.008129	8.01	342.96	111.61	0.80	4.96	3.07
Reach-1	0.38	2746.00	1247.00	1252.00	1251.42	1252.45	0.006562	5.39	509.90	385.32	0.67	5.00	1.98
Reach-1	0.38	2746.00	1247.00	1252.21	1251.86	1253.00	0.008765	7.10	386.90	158.00	0.80	5.21	2.45
Reach-1	0.47	2746.00	1253.50	1257.09	1257.09	1258.26	0.013668	8.68	316.46	170.00	1.00	3.59	2.33
Reach-1	0.47	2746.00	1253.50	1257.16	1257.09	1258.27	0.012403	8.42	326.09	135.99	0.96	3.66	2.40
Reach-1	0.57	2746.00	1259.70	1263.81	1263.81	1264.23	0.006998	5.30	545.38	373.31	0.69	4.11	1.46
Reach-1	0.57	2746.00	1259.70	1263.46	1263.31	1264.26	0.011495	7.18	382.21	192.00	0.90	3.76	1.99
Reach-1	0.66	2746.00	1263.20	1268.51	1268.51	1269.62	0.010131	8.62	348.44	817.49	0.89	5.51	2.08
Reach-1	0.66	2746.00	1263.20	1268.56	1268.34	1269.77	0.010117	8.84	310.71	102.70	0.90	5.36	3.03
Reach-1	0.76	2746.00	1265.00	1272.87	1272.46	1273.45	0.006007	6.68	570.48	819.95	0.69	7.87	1.40
Reach-1	0.76	2746.00	1265.00	1273.08	1272.46	1273.90	0.006765	7.39	420.01	223.95	0.74	8.08	1.88
Reach-1	0.85	2746.00	1267.30	1275.54	1274.27	1276.49	0.006216	7.83	350.70	94.61	0.72	8.24	3.71
Reach-1	0.85	2746.00	1267.30	1275.95	1274.27	1276.72	0.004843	7.01	391.66	103.40	0.63	8.65	3.79
Reach-1	0.95	2746.00	1275.20	1280.90	1280.90	1282.14	0.011756	8.93	307.51	112.42	0.95	5.70	2.74
Reach-1	0.95	2746.00	1275.20	1280.90	1280.90	1282.14	0.011399	8.93	307.46	109.38	0.94	5.70	2.81
Reach-1	1.04	2746.00	1277.80	1285.35	1284.54	1285.98	0.005144	6.54	499.14	388.33	0.65	7.55	1.29
Reach-1	1.04	2746.00	1277.80	1285.38	1284.53	1286.12	0.005608	6.87	399.91	125.00	0.67	7.58	3.20
Reach-1	1.14	2746.00	1283.50	1289.13	1289.13	1291.17	0.015344	11.46	239.62	163.13	1.00	5.63	4.07
Reach-1	1.14	2746.00	1283.50	1289.15	1289.15	1291.17	0.015124	11.40	240.84	58.94	0.99	5.65	4.09
Reach-1	1.23	2746.00	1287.70	1293.41	1293.41	1293.50	0.001056	2.77	1109.08	555.74	0.25	7.01	2.00
Reach-1	1.23	2746.00	1287.70	1293.85	1293.41	1294.10	0.003282	5.17	721.92	391.92	0.45	6.15	1.84
Reach-1	1.33	2746.00	1291.90	1295.39	1295.39	1295.92	0.012180	6.39	501.20	436.75	0.99	3.49	1.15
Reach-1	1.33	2746.00	1291.90	1296.07	1295.64	1296.54	0.007544	5.53	496.68	253.35	0.70	4.17	1.96
Reach-1	1.42	2746.00	1293.30	1300.20	1299.73	1300.84	0.008077	6.55	482.54	302.94	0.69	6.90	1.59
Reach-1	1.42	2746.00	1293.30	1300.13	1299.63	1300.89	0.009461	7.00	392.89	145.00	0.75	6.83	2.71
Reach-1	1.52	2746.00	1296.90	1303.31	1303.10	1303.52	0.004885	3.74	744.74	401.71	0.45	6.41	1.85
Reach-1	1.52	2746.00	1296.90	1304.22	1303.20	1304.62	0.005759	5.13	539.40	184.66	0.52	7.32	2.92
Reach-1	1.61	2746.00	1299.70	1306.47	1306.03	1308.14	0.014624	10.37	264.81	174.30	0.87	6.77	4.37
Reach-1	1.61	2746.00	1299.70	1307.28	1306.02	1308.46	0.008427	8.71	315.90	63.00	0.68	7.58	5.01
Reach-1	1.7	2746.00	1302.80	1310.86	1308.33	1311.05	0.002457	3.55	773.05	204.85	0.32	8.06	3.77
Reach-1	1.7	2746.00	1302.80	1310.95	1308.19	1311.36	0.003691	5.17	531.13	103.00	0.40	8.15	5.16
Reach-1	1.8	2746.00	1307.80	1312.99	1312.27	1313.62	0.012312	6.39	440.78	202.44	0.68	5.19	2.18
Reach-1	1.8	2746.00	1307.80	1313.46	1312.40	1313.93	0.007422	5.47	502.64	161.00	0.54	5.66	3.12
Reach-1	1.84	2746.00	1308.60	1315.11	1314.13	1315.57	0.007647	5.63	517.33	224.12	0.55	6.51	2.70
Reach-1	1.84	2746.00	1308.60	1315.09	1314.13	1315.73	0.010066	6.43	426.79	133.00	0.63	6.49	3.23
Reach-1	1.91	2779.00	1311.40	1318.16	1316.97	1318.46	0.006710	4.36	637.78	229.11	0.46	6.76	2.78
Reach-1	1.91	2779.00	1311.40	1318.40	1316.95	1318.65	0.005160	4.01	692.55	231.11	0.41	7.00	3.00
Reach-1	1.92	2779.00	1311.20	1318.30	1317.36	1318.63	0.008793	4.65	597.58	238.38	0.52	7.10	2.51
Reach-1	1.92	2779.00	1311.20	1318.50	1317.36	1318.79	0.006825	4.30	646.42	239.84	0.46	7.30	2.70
Reach-1	1.99	2779.00	1314.80	1321.31	1320.82	1321.82	0.007582	5.72	485.76	229.52	0.69	6.51	2.12
Reach-1	1.99	2779.00	1314.80	1321.22	1320.82	1321.78	0.008310	5.96	465.95	228.69	0.74	6.42	2.04
Reach-1	2.08	2779.00	1318.00	1324.27	1324.01	1324.68	0.004261	5.76	559.14	243.94	0.62	6.27	2.29
Reach-1	2.08	2779.00	1318.00	1324.78	1324.31	1325.48	0.006342	7.25	436.66	167.19	0.71	6.78	2.61
Reach-1	2.16	2779.00	1321.80	1326.22	1326.03	1326.65	0.008253	6.39	587.16	338.36	0.69	4.42	1.74
Reach-1	2.16	2779.00	1321.80	1327.28	1326.61	1328.06	0.007309	7.47	406.11	124.00	0.69	5.48	3.28
Reach-1	2.27	2779.00	1324.10	1330.69	1330.53	1331.73	0.007676	8.73	408.19	171.43	0.71	6.59	2.38
Reach-1	2.27	2779.00	1324.10	1331.30	1330.15	1332.56	0.007354	9.02	308.24	59.20	0.70	7.20	5.21
Reach-1	2.37	2779.00	1329.10	1334.44	1333.44	1334.96	0.005803	5.91	533.28	314.12	0.60	5.34	1.70
Reach-1	2.37	2779.00	1329.10	1334.91	1333.44	1335.35	0.003949	5.35	519.85	148.18	0.50	5.81	3.51
Reach-1	2.46	2779.00	1331.40	1338.01	1337.45	1338.65	0.009376	6.42	432.73	318.06	0.73	6.61	2.42
Reach-1	2.46	2779.00	1331.40	1337.85	1337.45	1338.58	0.011225	6.85	405.44	174.00	0.79	6.45	2.33

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Max Chl Dpth	Hydr Depth
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(ft)	(ft)
Reach-1	2.56	2779.00	1334.90	1340.69	1338.49	1341.10	0.002933	5.15	539.19	190.58	0.45	5.79	4.14
Reach-1	2.56	2779.00	1334.90	1340.76	1338.49	1341.16	0.002833	5.07	547.72	131.96	0.44	5.86	4.15
Reach-1	2.65	2779.00	1336.60	1342.60	1342.51	1343.87	0.009531	9.16	335.47	185.25	0.80	6.00	2.11
Reach-1	2.65	2779.00	1336.60	1342.59	1342.07	1343.98	0.010142	9.44	294.69	72.67	0.82	5.99	4.05
Reach-1	2.75	2779.00	1340.70	1346.87	1345.68	1347.51	0.005428	6.43	437.36	137.12	0.59	6.17	3.19
Reach-1	2.75	2779.00	1340.70	1346.98	1345.68	1347.59	0.005008	6.27	443.70	118.62	0.57	6.28	3.74
Reach-1	2.84	2779.00	1343.40	1350.24	1349.71	1351.26	0.009983	8.27	365.66	159.40	0.79	6.84	2.29
Reach-1	2.84	2779.00	1343.40	1350.22	1349.72	1351.38	0.011015	8.65	321.77	97.00	0.83	6.82	3.32
Reach-1	2.94	2779.00	1346.70	1353.81	1352.33	1354.60	0.004559	7.55	448.63	187.30	0.57	7.11	2.83
Reach-1	2.94	2779.00	1346.70	1354.00	1352.29	1355.05	0.005182	8.21	339.57	61.00	0.61	7.30	5.57
Reach-1	3.03	2779.00	1349.40	1356.88	1355.66	1358.15	0.011134	9.06	306.89	201.59	0.84	7.48	3.63
Reach-1	3.03	2779.00	1349.40	1357.24	1355.67	1358.29	0.008320	8.24	337.26	85.67	0.73	7.84	3.94
Reach-1	3.13	2779.00	1352.50	1359.84	1357.59	1360.02	0.001540	3.53	838.86	239.07	0.32	7.34	3.51
Reach-1	3.13	2779.00	1352.50	1359.97	1357.86	1360.23	0.001958	4.06	685.28	175.30	0.36	7.47	3.91
Reach-1	3.22	2779.00	1355.10	1360.75	1360.59	1362.37	0.013758	10.21	272.31	74.45	0.94	5.65	3.66
Reach-1	3.22	2779.00	1355.10	1361.23	1360.59	1362.49	0.009579	9.00	308.70	77.81	0.80	6.13	3.97
Reach-1	3.31	2779.00	1359.60	1365.02	1363.91	1365.27	0.002966	4.40	799.65	394.35	0.43	5.42	2.03
Reach-1	3.31	2779.00	1359.60	1365.26	1363.91	1365.74	0.004317	5.55	500.62	144.39	0.53	5.66	3.47
Reach-1	3.41	2779.00	1360.10	1366.70	1365.77	1368.03	0.009682	9.25	300.47	95.65	0.80	6.60	4.16
Reach-1	3.41	2779.00	1360.10	1367.61	1365.77	1368.46	0.006263	7.42	374.71	90.86	0.64	7.51	4.12
Reach-1	3.47	2779.00	1363.80	1370.00	1369.16	1370.59	0.006788	6.16	451.31	409.04	0.73	6.20	2.19
Reach-1	3.47	2779.00	1363.80	1369.92	1369.16	1370.55	0.007455	6.40	434.44	196.79	0.76	6.12	2.21
Reach-1	3.5	2779.00	1364.60	1370.99	1369.24	1371.13	0.001336	3.20	942.43	314.90	0.31	6.39	2.99
Reach-1	3.5	2779.00	1364.60	1371.11	1369.24	1371.40	0.002432	4.39	654.47	206.00	0.42	6.51	3.18
Reach-1	3.6	2424.00	1367.50	1372.61	1372.61	1373.03	0.004573	5.08	465.47	240.62	0.58	5.11	2.11
Reach-1	3.6	2424.00	1367.50	1372.83	1372.68	1373.71	0.010123	7.86	324.42	154.00	0.87	5.33	2.11
Reach-1	3.69	2424.00	1371.90	1376.57	1376.57	1377.96	0.012778	9.44	256.84	269.29	0.99	4.67	2.80
Reach-1	3.69	2424.00	1371.90	1377.07	1376.55	1378.06	0.007786	7.99	303.25	135.06	0.79	5.17	3.17
Reach-1	3.79	2424.00	1375.50	1381.03	1380.30	1381.41	0.003829	5.17	533.10	248.14	0.54	5.53	2.15
Reach-1	3.79	2424.00	1375.50	1380.88	1380.24	1381.47	0.005745	6.15	394.13	147.00	0.66	5.38	2.68
Reach-1	3.88	2424.00	1377.50	1383.29	1383.29	1384.03	0.005885	8.41	503.90	284.10	0.71	5.79	1.77
Reach-1	3.88	2424.00	1377.50	1383.78	1383.67	1384.94	0.006978	9.52	339.30	120.72	0.78	6.28	2.81
Reach-1	3.98	2424.00	1383.10	1386.81	1386.71	1387.15	0.008367	5.39	553.41	442.58	0.71	3.71	1.37
Reach-1	3.98	2424.00	1383.10	1387.73	1386.97	1388.25	0.006224	5.82	416.57	153.66	0.62	4.63	2.71
Reach-1	4.07	2424.00	1385.80	1391.22	1391.02	1391.85	0.008858	6.37	380.66	266.72	0.84	5.42	1.77
Reach-1	4.07	2424.00	1385.80	1391.27	1391.01	1391.87	0.008343	6.21	390.06	216.11	0.82	5.47	1.80
Reach-1	4.17	2424.00	1389.30	1393.97	1392.93	1394.22	0.002798	4.03	600.88	248.25	0.46	4.67	2.42
Reach-1	4.17	2424.00	1389.30	1393.95	1392.93	1394.21	0.002858	4.06	596.91	248.03	0.46	4.65	2.41
Reach-1	4.26	2424.00	1392.60	1396.97	1396.97	1398.20	0.013238	8.92	271.77	176.81	1.00	4.37	2.49
Reach-1	4.26	2424.00	1392.60	1396.97	1396.97	1398.20	0.013118	8.90	272.26	109.00	0.99	4.37	2.50
Reach-1	4.36	2424.00	1395.50	1401.33	1400.52	1401.59	0.003737	4.06	596.69	283.75	0.49	5.83	2.10
Reach-1	4.36	2424.00	1395.50	1401.33	1400.51	1401.58	0.003751	4.07	595.58	283.21	0.49	5.82	2.10
Reach-1	4.45	2424.00	1399.80	1403.97	1403.97	1404.83	0.010726	7.51	340.59	337.99	0.98	4.17	1.58
Reach-1	4.45	2424.00	1399.80	1403.97	1403.97	1404.89	0.011234	7.68	315.65	173.52	1.00	4.17	1.82
Reach-1	4.55	2424.00	1404.00	1409.45	1409.45	1410.19	0.008825	7.30	407.52	336.84	0.84	5.45	1.21
Reach-1	4.55	2424.00	1404.00	1409.47	1409.39	1410.52	0.011080	8.21	295.40	126.00	0.94	5.47	2.34
Reach-1	4.64	2424.00	1408.80	1412.53	1411.66	1412.83	0.003408	4.39	552.08	554.08	0.61	3.73	1.63
Reach-1	4.64	2424.00	1408.80	1412.76	1411.66	1412.99	0.002517	3.85	630.00	343.04	0.50	3.96	1.84
Reach-1	4.73	2424.00	1411.90	1416.27	1416.27	1416.81	0.013881	5.91	410.32	422.77	0.99	4.37	1.10
Reach-1	4.73	2424.00	1411.90	1416.26	1416.26	1416.81	0.014178	5.96	406.55	371.22	1.00	4.36	1.10
Reach-1	4.79	2163.00	1414.90	1419.90	1419.90	1420.05	0.002720	3.31	712.96	447.63	0.46	5.00	1.59
Reach-1	4.79	2163.00	1414.90	1419.69	1419.52	1420.26	0.009278	6.09	355.12	235.09	0.87	4.79	1.51
Reach-1	4.92	2163.00	1422.80	1425.54	1425.54	1426.21	0.017155	6.54	329.86	272.15	1.01	2.94	1.33

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Max Chl Dpth	Hydr Depth
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(ft)	(ft)
Reach-1	4.92	2163.00	1422.80	1426.37	1426.11	1426.82	0.009529	5.50	413.50	267.15	0.77	3.57	1.55
Reach-1	5.02	2163.00	1426.30	1430.66	1430.50	1430.95	0.006534	4.99	552.15	453.88	0.78	4.36	1.22
Reach-1	5.02	2163.00	1426.30	1430.99	1430.84	1431.51	0.009440	6.01	384.94	254.93	0.84	4.69	1.51
Reach-1	5.07	2163.00	1428.80	1433.40	1433.40	1434.09	0.010396	7.10	377.14	283.64	0.89	4.60	1.33
Reach-1	5.07	2163.00	1428.80	1433.44	1433.41	1434.42	0.012987	7.96	271.72	135.57	0.99	4.64	2.00
Reach-1	5.11	2163.00	1431.10	1435.83	1435.45	1436.66	0.009991	7.32	295.65	190.69	0.81	4.73	2.52
Reach-1	5.11	2163.00	1431.10	1436.18	1435.45	1436.82	0.006994	6.42	337.14	120.00	0.67	5.08	2.81
Reach-1	5.21	2163.00	1434.70	1440.88	1440.13	1441.83	0.010506	7.84	275.89	256.50	0.80	6.18	3.02
Reach-1	5.21	2163.00	1434.70	1440.53	1440.13	1441.73	0.013218	8.81	245.57	81.06	0.89	5.83	3.03
Reach-1	5.3	2163.00	1437.90	1444.55	1443.06	1445.05	0.004148	5.68	380.86	114.38	0.52	6.65	3.75
Reach-1	5.3	2163.00	1437.90	1444.65	1443.06	1445.12	0.003840	5.54	390.46	101.99	0.50	6.75	3.83
Reach-1	5.4	2163.00	1443.60	1448.09	1448.09	1449.17	0.014128	8.32	259.89	121.64	1.00	4.49	2.14
Reach-1	5.4	2163.00	1443.60	1448.10	1448.10	1449.17	0.014030	8.30	260.46	121.67	1.00	4.50	2.14
Reach-1	5.49	2163.00	1449.50	1453.74	1453.28	1454.48	0.008084	6.90	313.66	127.78	0.78	4.24	2.45
Reach-1	5.49	2163.00	1449.50	1453.73	1453.28	1454.47	0.008125	6.91	313.16	127.76	0.78	4.23	2.45
Reach-1	5.59	2163.00	1456.70	1459.84	1459.84	1461.00	0.013571	8.63	250.64	107.62	1.00	3.14	2.33
Reach-1	5.59	2163.00	1456.70	1459.84	1459.84	1461.00	0.013580	8.63	250.59	107.61	1.00	3.14	2.33
Reach-1	5.68	2163.00	1460.10	1465.55	1465.21	1466.30	0.008298	6.99	309.62	136.08	0.82	5.45	2.28
Reach-1	5.68	2163.00	1460.10	1465.55	1465.22	1466.30	0.008286	6.98	309.79	136.09	0.82	5.45	2.28
Reach-1	5.78	2163.00	1462.60	1469.33	1468.32	1469.61	0.005107	4.20	515.40	227.99	0.48	6.73	2.42
Reach-1	5.78	2163.00	1462.60	1469.33	1468.32	1469.61	0.005110	4.20	515.16	212.63	0.48	6.73	2.42
Reach-1	5.87	2163.00	1469.00	1472.35	1472.21	1473.11	0.008959	7.26	314.49	145.22	0.85	4.85	2.17
Reach-1	5.87	2163.00	1469.00	1472.45	1472.32	1473.44	0.010500	8.02	269.71	115.71	0.93	3.44	2.33
Reach-1	5.97	2163.00	1472.90	1477.19	1477.16	1478.48	0.012025	9.11	237.36	89.27	0.98	4.29	2.66
Reach-1	5.97	2163.00	1472.90	1477.41	1477.16	1478.51	0.009628	8.43	256.69	90.82	0.88	4.51	2.83
Reach-1	6.06	2163.00	1478.40	1483.16	1482.95	1484.09	0.010213	7.72	280.93	118.41	0.87	4.76	2.37
Reach-1	6.06	2163.00	1478.40	1483.00	1482.96	1484.06	0.012917	8.27	261.59	116.00	0.97	4.60	2.26
Reach-1	6.16	2163.00	1479.90	1486.87	1485.89	1487.99	0.005953	8.48	254.95	58.09	0.71	6.97	4.39
Reach-1	6.16	2163.00	1479.90	1487.01	1485.89	1488.06	0.005426	8.22	263.02	58.52	0.68	7.11	4.49
Reach-1	6.25	2163.00	1487.30	1492.97	1492.97	1494.79	0.016878	10.83	199.66	54.41	1.00	5.67	3.67
Reach-1	6.25	2163.00	1487.30	1492.97	1492.97	1494.79	0.016874	10.83	199.66	54.21	0.99	5.67	3.68
Reach-1	6.34	2163.00	1493.00	1500.64	1499.80	1501.42	0.010108	7.12	303.92	92.88	0.69	7.64	3.27
Reach-1	6.34	2163.00	1493.00	1500.63	1499.81	1501.42	0.010102	7.12	303.68	92.65	0.69	7.63	3.28
Reach-1	6.38	2163.00	1500.00	1505.92	1505.92	1507.31	0.017995	9.46	228.70	82.81	1.00	5.92	2.76
Reach-1	6.38	2163.00	1500.00	1505.94	1505.94	1507.31	0.017736	9.41	229.78	82.97	1.00	5.94	2.77

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Max Chl Dpth	Hydr Depth
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(ft)	(ft)
Reach-1	0.06 = 3.60	721.00	1368.60	1372.61	1371.17	1372.64	0.000762	1.40	487.86	240.70	0.18	5.11	2.03
Reach-1	0.06 = 3.60	721.00	1368.60	1372.83	1371.17	1372.86	0.000558	1.29	541.40	246.15	0.16	5.33	2.20
Reach-1	0.09	721.00	1370.50	1374.60	1374.60	1375.23	0.023534	6.40	114.50	201.04	0.94	5.10	1.27
Reach-1	0.09	721.00	1370.50	1374.60	1374.60	1375.25	0.022609	6.43	112.10	75.00	0.93	4.10	1.49
Reach-1	0.19	721.00	1372.40	1377.99	1376.45	1378.12	0.002492	2.93	252.54	125.64	0.33	5.59	2.01
Reach-1	0.19	721.00	1372.40	1378.00	1376.44	1378.13	0.002523	2.96	244.08	101.27	0.33	5.60	2.41
Reach-1	0.28	721.00	1375.80	1379.58	1378.39	1379.94	0.005245	4.79	158.12	82.26	0.50	3.78	1.92
Reach-1	0.28	721.00	1375.80	1379.60	1378.39	1379.97	0.005295	4.84	149.36	51.82	0.50	3.80	2.88
Reach-1	0.38	721.00	1379.80	1383.58	1383.31	1384.38	0.016728	7.18	100.36	169.01	0.85	3.78	2.22
Reach-1	0.38	721.00	1379.80	1383.60	1383.30	1384.39	0.016295	7.11	101.34	45.37	0.84	3.80	2.23
Reach-1	0.47	721.00	1383.80	1387.38	1386.19	1387.51	0.003149	2.91	249.11	138.87	0.36	3.58	1.79
Reach-1	0.47	721.00	1383.80	1387.38	1386.20	1387.51	0.003174	2.91	247.47	126.06	0.37	3.58	1.96
Reach-1	0.57	721.00	1387.10	1390.73	1390.73	1392.12	0.023013	9.47	76.13	127.08	0.99	3.63	2.82
Reach-1	0.57	721.00	1387.10	1390.71	1390.71	1392.12	0.023519	9.54	75.55	26.90	1.00	3.61	2.81
Reach-1	0.66	721.00	1392.30	1396.10	1395.32	1396.22	0.003745	3.00	263.97	217.18	0.39	4.70	1.50
Reach-1	0.66	721.00	1392.30	1396.30	1395.30	1396.49	0.004335	3.45	209.26	104.13	0.43	4.00	2.01
Reach-1	0.76	721.00	1394.50	1398.94	1398.55	1399.67	0.014697	6.86	105.06	150.63	0.79	4.44	2.34
Reach-1	0.76	721.00	1394.50	1399.47	1398.53	1399.89	0.011526	5.18	139.17	76.98	0.68	4.97	1.81
Reach-1	0.85	721.00	1400.20	1403.98	1403.00	1404.29	0.006226	4.42	163.22	86.26	0.52	3.78	2.23
Reach-1	0.85	721.00	1400.20	1403.92	1403.00	1404.24	0.006767	4.55	158.33	72.32	0.54	3.72	2.19
Reach-1	0.95	721.00	1403.40	1407.50	1406.63	1408.06	0.008957	6.02	119.75	109.13	0.64	4.10	2.75
Reach-1	0.95	721.00	1403.40	1407.55	1406.63	1408.09	0.008542	5.92	121.84	43.89	0.63	4.15	2.78
Reach-1	1.04	721.00	1407.10	1412.20	1411.20	1412.73	0.009731	5.85	123.23	70.88	0.65	5.10	2.49
Reach-1	1.04	721.00	1407.10	1412.17	1411.20	1412.72	0.010037	5.92	121.82	49.12	0.66	5.07	2.48
Reach-1	1.14	721.00	1411.40	1416.61	1415.68	1416.95	0.007321	4.65	154.94	112.27	0.55	5.21	2.24
Reach-1	1.14	721.00	1411.40	1416.63	1415.68	1416.96	0.007202	4.63	155.81	69.30	0.54	5.23	2.25
Reach-1	1.23	721.00	1416.30	1420.89	1420.22	1421.63	0.011663	6.89	104.66	154.96	0.73	4.59	2.80
Reach-1	1.23	721.00	1416.30	1420.88	1420.22	1421.62	0.011808	6.92	104.18	37.34	0.73	4.58	2.79
Reach-1	1.33	721.00	1419.20	1424.79	1423.60	1424.93	0.003681	3.35	254.64	185.08	0.40	5.59	1.57
Reach-1	1.33	721.00	1419.20	1425.31	1423.60	1425.57	0.005517	4.09	176.47	80.00	0.48	6.11	2.21
Reach-1	1.42	721.00	1423.00	1427.44	1426.75	1428.22	0.011758	7.09	101.65	63.96	0.73	4.43	2.93
Reach-1	1.42	721.00	1423.00	1428.12	1426.75	1428.62	0.006473	5.70	126.50	38.15	0.55	5.12	3.32
Reach-1	1.48	599.00	1426.30	1430.04	1429.30	1430.31	0.003864	4.96	172.87	116.44	0.53	4.24	1.57
Reach-1	1.48	599.00	1426.30	1430.08	1429.77	1430.93	0.008629	7.47	83.88	35.82	0.79	3.78	2.34
Reach-1	1.52	599.00	1427.80	1430.95	1430.60	1431.49	0.007920	6.12	108.48	63.15	0.74	3.15	1.72
Reach-1	1.52	599.00	1427.80	1431.68	1430.70	1432.07	0.003734	5.01	120.23	44.00	0.53	3.88	2.73
Reach-1	1.61	599.00	1433.40	1436.50	1436.50	1437.46	0.013998	7.86	76.22	38.08	0.98	3.10	2.00
Reach-1	1.61	599.00	1433.40	1436.50	1436.50	1437.46	0.013907	7.86	76.21	37.81	0.98	3.10	2.02
Reach-1	1.7	599.00	1438.50	1441.96	1441.48	1442.68	0.008005	6.79	88.28	35.91	0.76	3.46	2.46
Reach-1	1.7	599.00	1438.50	1441.96	1441.49	1442.68	0.008039	6.80	88.12	35.82	0.76	3.46	2.46
Reach-1	1.8	599.00	1444.00	1447.30	1447.30	1448.51	0.012595	8.82	67.94	23.77	0.92	3.30	2.86
Reach-1	1.8	599.00	1444.00	1447.30	1447.30	1448.51	0.012596	8.82	67.94	23.72	0.92	3.30	2.86
Reach-1	1.89	599.00	1449.20	1453.38	1453.08	1454.20	0.010208	7.28	82.31	72.07	0.85	4.18	2.29
Reach-1	1.89	599.00	1449.20	1453.38	1453.08	1454.20	0.010215	7.28	82.29	35.93	0.85	4.18	2.29
Reach-1	1.97	599.00	1454.40	1457.70	1457.44	1458.31	0.010214	6.24	95.95	54.20	0.83	3.30	1.77
Reach-1	1.97	599.00	1454.40	1457.70	1457.44	1458.31	0.010197	6.25	95.87	53.99	0.83	3.30	1.78
Reach-1	1.99	395.00	1455.50	1458.76	1457.91	1459.00	0.003926	3.98	99.14	53.63	0.52	3.26	1.85
Reach-1	1.99	395.00	1455.50	1458.75	1457.92	1459.00	0.003919	3.99	99.03	53.36	0.52	3.25	1.86
Reach-1	2.08	395.00	1459.70	1462.55	1462.55	1463.39	0.015454	7.39	53.45	31.62	1.00	2.85	1.69
Reach-1	2.08	395.00	1459.70	1462.54	1462.54	1463.39	0.015479	7.41	53.29	31.40	1.00	2.84	1.70
Reach-1	2.18	395.00	1467.10	1469.50	1469.32	1470.11	0.011695	6.27	63.03	38.95	0.87	2.40	1.62
Reach-1	2.18	395.00	1467.10	1469.50	1469.32	1470.11	0.011675	6.26	63.07	38.96	0.87	2.40	1.62
Reach-1	2.27	395.00	1470.50	1474.02	1473.50	1474.39	0.006480	4.87	81.03	45.72	0.65	3.52	1.77
Reach-1	2.27	395.00	1470.50	1474.02	1473.52	1474.39	0.006487	4.88	81.01	45.71	0.65	3.52	1.77

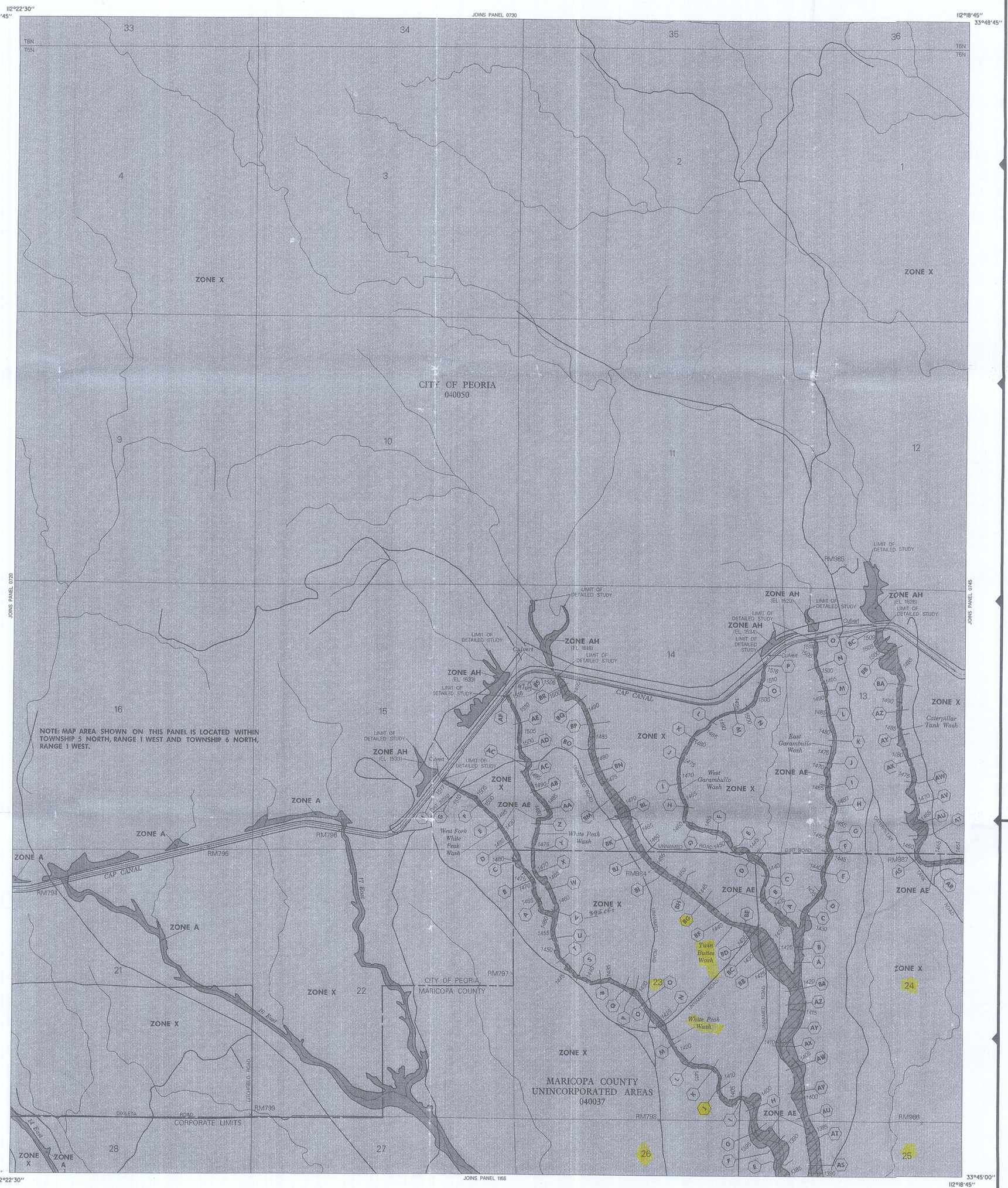
HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl	Max Chl Dpth	Hydr Depth
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)		(ft)	(ft)
Reach-1	2.37	395.00	1476.50	1478.93	1478.93	1479.71	0.015468	7.12	55.48	49.65	0.99	2.43	1.59
Reach-1	2.37	395.00	1476.50	1478.92	1478.92	1479.71	0.015628	7.15	55.25	34.73	1.00	2.42	1.59
Reach-1	2.46	395.00	1481.10	1484.12	1483.56	1484.55	0.006547	5.28	74.77	38.54	0.67	3.02	1.94
Reach-1	2.46	395.00	1481.10	1484.13	1483.56	1484.56	0.006507	5.27	74.93	38.57	0.67	3.02	1.94
Reach-1	2.56	395.00	1486.30	1489.57	1489.57	1490.34	0.016611	7.04	56.14	36.96	1.01	3.27	1.52
Reach-1	2.56	395.00	1486.30	1489.56	1489.56	1490.34	0.016703	7.08	55.83	36.56	1.01	3.26	1.53
Reach-1	2.65	395.00	1491.50	1495.16		1495.75	0.007547	6.15	64.18	28.48	0.72	3.66	2.25
Reach-1	2.65	395.00	1491.50	1495.16		1495.75	0.007521	6.15	64.27	28.50	0.72	3.66	2.25
Reach-1	2.75	395.00	1496.90	1499.71	1499.52	1500.40	0.011577	6.67	59.19	32.79	0.88	2.81	1.80
Reach-1	2.75	395.00	1496.90	1499.71	1499.53	1500.40	0.011618	6.68	59.11	32.77	0.88	2.81	1.80
Reach-1	2.84	395.00	1503.30	1506.97	1506.97	1507.82	0.015736	7.38	53.53	47.86	1.00	3.67	1.69
Reach-1	2.84	395.00	1503.30	1506.98	1506.98	1507.82	0.015559	7.35	53.73	31.77	1.00	3.68	1.69
Reach-1	2.94	395.00	1512.10	1514.51	1514.48	1515.39	0.014551	7.51	52.61	28.72	0.98	2.41	1.83
Reach-1	2.94	395.00	1512.10	1514.51	1514.48	1515.39	0.014698	7.53	52.42	28.69	0.98	2.41	1.83
Reach-1	2.95	395.00	1511.50	1515.65	1513.89	1515.86	0.001881	3.68	107.39	36.12	0.38	4.15	2.97
Reach-1	2.95	395.00	1511.50	1515.65	1513.89	1515.86	0.001874	3.68	107.37	35.86	0.37	4.15	2.99

Exhibit A Existing Floodplain Maps

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
RM794	1528.60	Brass disk at CAP station 375 + 50.00, 125 feet south of centerline on right-of-way.
RM795	1539.49	Brass disk at CAP station 407 + 07.79, 125 feet south of centerline on right-of-way.
RM796	1527.62	Brass disk at CAP station 433 + 00.00, 125 feet south of centerline on right-of-way.
RM797	1517.30	Rebar at PP-1013 near quarter corner of sections 22 and 23.
RM798	1433.75	Rebar at PP-1503.
RM799	1454.56	Brass cap on steel post at PP-1505 sections 21, 22, 27, and 28.
RM984	1476.60	Set +-inch rebar with aluminum cap stamped 90-504, 300 feet south of the north quarter corner of section 23, T5N, R1W, point lies 100 feet q east of Old Dirt Road to White Peak mine.
RM985	1571.89	Set +-inch rebar with aluminum cap stamped 90-828, located 1200 feet q east and 500 feet q north of the southwest corner of section 12, T5N, R1W.
RM986	1421.31	Set +-inch rebar with aluminum cap stamped 90-827, located 100 feet q east and 200 feet q south of the north quarter corner of section 25, T5N, R1W.
RM987	1477.82	FD +-inch with plastic cap stamped LS# 18214, assumed north quarter corner of section 24, T5N, R1W, approximately 50 feet east of Caterpillar Tank Road.



LEGEND

To obtain more detailed information in areas where Base Flood Elevations (BFEs)and /or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations and therefore may not exactly reflect the flood elevation data presented in the FIS. BFEs shown on the FIRM are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and /or floodplain management.

ERM elevations listed on this map were obtained and/or developed to establish vertical control for determination of flood elevations and floodplain boundaries portrayed on this map. Users should be aware that these ERM elevations may have changed since the publication of this map. To obtain up-to-date elevaton information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Coastal BFE's shown on this map may apply only landward of 0.0' NGVD. Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and /or floodplain management purposes when they are higher than the elevations shown on this FIRM.

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE A99 To be protected from 100-year flood by Federal flood protection system under construction ; no base flood elevations determined.

ZONE V Coastal flood with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X Areas determined to be outside 500-year floodplain.

ZONE D Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.

RM7 × — Elevation Reference Mark

● M2 — River Mile

97°07'30", 32°22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFE's, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, A1-A30, AH, AO, A99, V, VE and V1-V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and /or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:
SEPTEMBER 4, 1991, DECEMBER 3, 1993

Map revised July 19, 2001 to update corporate limits, to change base flood elevations, to add base flood elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 740 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
PEORIA, CITY OF	040050	0740	G
MARICOPA COUNTY UNINCORPORATED AREAS	040037	0740	G

Exhibit A
Existing Floodplain Map

MAP NUMBER
04013C0740 G

MAP REVISED:
JULY 19, 2001

Federal Emergency Management Agency

ELEVATION REFERENCE MARKS

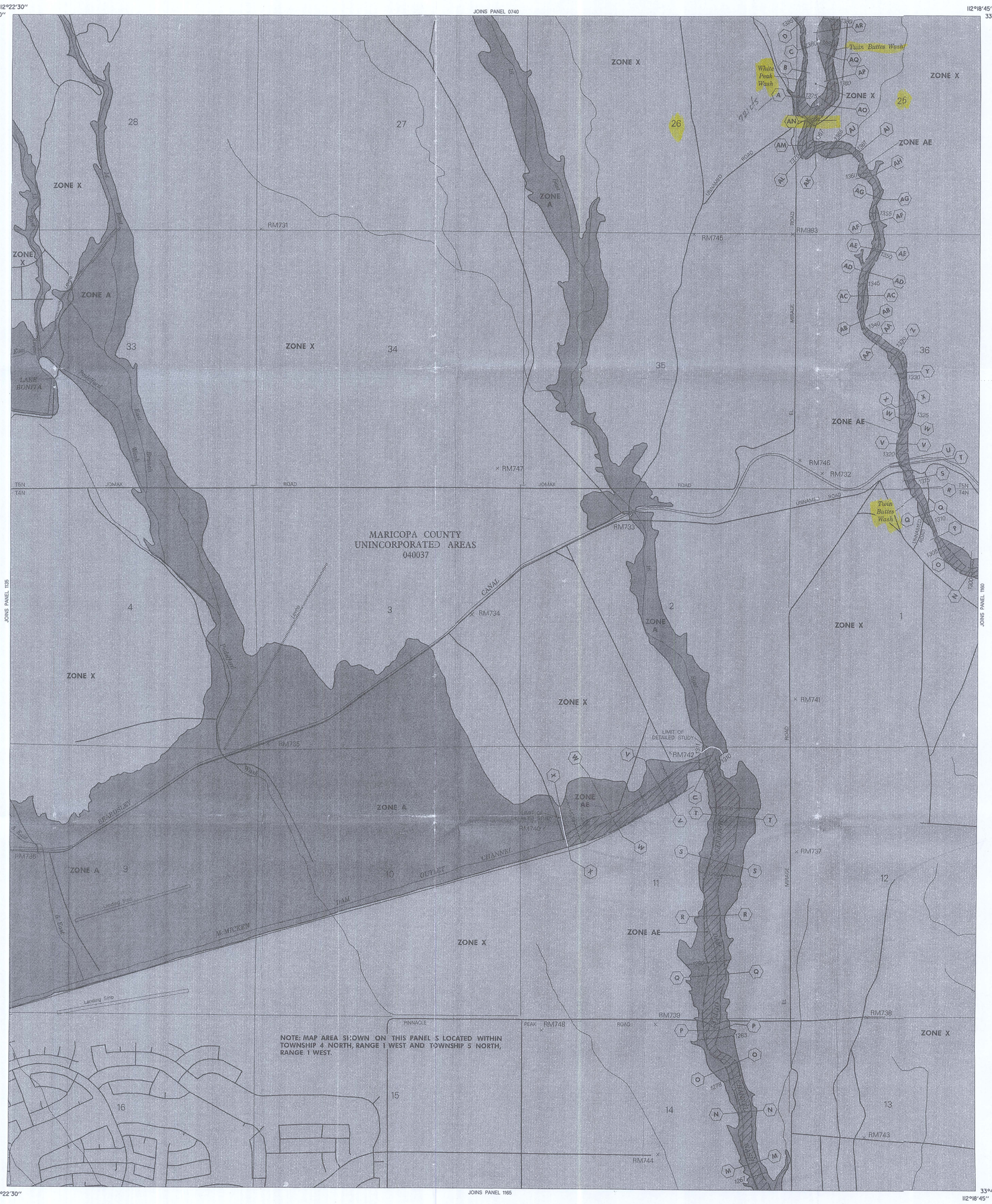
REFERENCE MARK	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
RM731	1446.38	Brass disk, corner of sections 27, 28, 33, and 34.
RM732	1346.17	Approximately 7 miles northwest along U.S. Highways 60, 70, and 89 and State Highway 93 from the post office at El Mirage, thence 6.05 miles northeast along Canal Road, which parallels the southeast side of the Beardsley Canal, in section 36, T5N, R1W, on the west bank of a wash crossed by a large metal pipe aqueduct, 36 feet southwest of the junction of the aqueduct and the west concrete funnel in the canal, 150 feet north of the centerline of the road, set in the top of the west end of a short wingwall on the southeast side of the funnel, and at the junction of the concrete and rock canal lining and formed concrete funnel, stamped J 266 1948.
RM733	1344.17	Approximately 7 miles northwest along U.S. Highways 60, 70, and 89 and State Highway 93 from the post office at El Mirage, thence 5.05 miles northeast along Canal Road, in section 2, T4N, R1W, 115 feet north of the centerline of the road, set in the top of the south end of the west concrete headwall of a concrete siphon, and approximately 12 feet above the level of the wash, stamped B 266 1948.
RM734	1340.15	Approximately 7 miles northwest along U.S. Highways 60, 70, and 89 and State Highway 93 from the post office at El Mirage, thence 4.32 miles northeast along Canal Road, which parallels the southeast side of the Beardsley Canal, in section 3, T4N, R1W, 31 feet southeast of the centerline of the road, 3 feet northeast of a telephone pole, in line with a row of poles, 2.6 feet southwest of a 4- by 4-foot wooden witness post, approximately 3 feet below the level of the road, and set in the top of a concrete post, stamped A 266 1948.
RM735	1339.73	Approximately 7 miles northwest along U.S. Highways 60, 70, and 89 and State Highway 93 from the post office at El Mirage, thence 3.3 miles northeast along Canal Road, which parallels the southeast side of the centerline of a wash, 30 feet southeast of the centerline of the road, 10 feet southwest of a telephone pole, in line with a row of poles, 1.4 feet northeast of a metal witness post, and on the top of a -inch copper-coated rod driven to a depth of 8 feet and encased in a 5-inch iron pipe that projects 12 inches, stamped O 366 1967.
RM736	1340.76	Approximately 7 miles northwest along U.S. Highways 60, 70, and 89 and State Highway 93 from the post office at El Mirage, thence 2.45 miles northeast along Canal Road, which parallels the southeast side of the Beardsley Canal, in section 9, T4N, R1W, 120 feet north of the centerline of the road, set in the top of a 45x angle in the old concrete retaining wall at the west end of a concrete siphon, and 8 feet southwest of the south end of the headwall of the siphon, stamped W 265 1948.
RM737	1306.48	Rebar at PP-1024 near quarter corner of sections 11 and 12.
RM738	1289.97	Rebar at PP-1016 near quarter corner of sections 12 and 13.
RM739	1288.17	Rebar at PP-1017 near quarter corner of sections 11 and 14.
RM740	1311.92	Rebar at PP-1003.
RM741	1323.74	Rebar at PP-1015 near corner of sections 1, 2, 11, and 12.
RM742	1314.21	Rebar at PP-1004, near quarter corner of sections 2 and 11.
RM743	1280.29	Rebar at PP-1025.
RM744	1271.98	Rebar at PP-1026 near center of section 14.
RM745	1384.10	Rebar at PP-1504 near quarter corner of sections 26 and 35.
RM746	1347.02	Rebar at PP-1005.
RM747	1437.60	Rebar at PP-1006.
RM748	1292.84	Rebar at PP-1002.
RM983	1378.41	Found GLO brass cap marked northeast corner section 35, T5N, R1W.

LEGEND

To obtain more detailed information in areas where Base Flood Elevations (BFEs)and /or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations and therefore may not exactly reflect the flood elevation data presented in the FIS. BFEs shown on the FIRM are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and /or floodplain management.

ERM elevations listed on this map were obtained and/or developed to establish vertical control for determination of flood elevations and floodplain boundaries portrayed on this map. Users should be aware that these ERM elevations may have changed since the publication of this map. To obtain up-to-date elevation information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Coastal BFE's shown on this map may apply only landward of 0.0' NGVD. Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and /or floodplain management purposes when they are higher than the elevations shown on this FIRM.



LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE A99 To be protected from 100-year flood by Federal flood protection system under construction ; no base flood elevations determined.

ZONE V Coastal flood with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X Areas determined to be outside 500-year floodplain.

ZONE D Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.

(EL 987) — Cross Section Line

RM7 — Elevation Reference Mark

M2 — River Mile

97°07'30", 32°22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFE's, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, A1-A30, AH, AO, A99, V, VE and V1-V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 120 inch.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and /or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:
SEPTEMBER 4, 1991, DECEMBER 3, 1993

Map revised July 19, 2001 to update corporate limits, to change base flood elevations, to add base flood elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1155 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1155	G

Exhibit A
Existing Floodplain Map

MAP NUMBER
04013C1155 G

MAP REVISED:
JULY 19, 2001

Federal Emergency Management Agency

Exhibit B Proposed Improvement Plans

Exhibit C Study Work Maps

MATCH SHEET 4

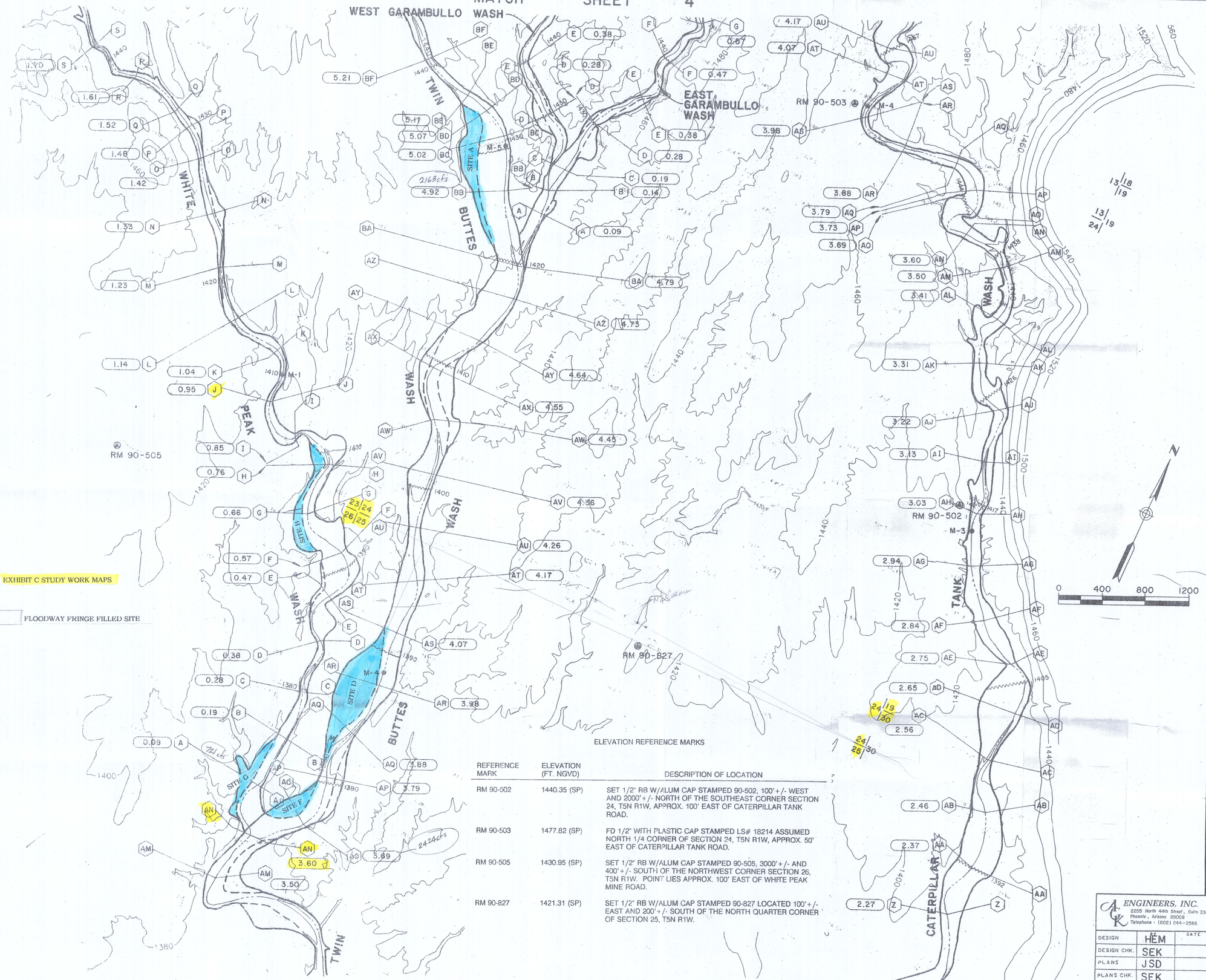
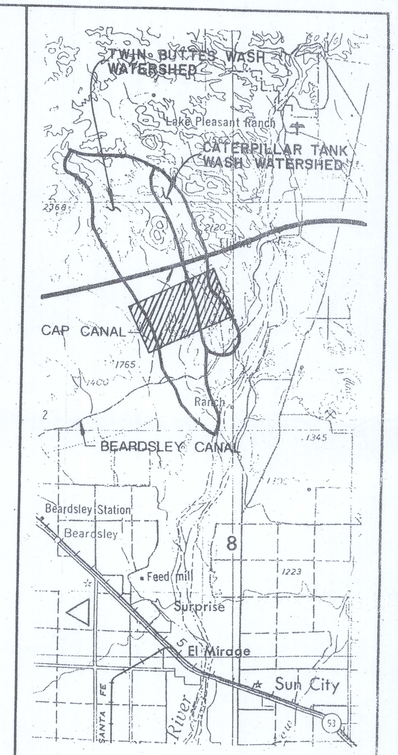


EXHIBIT C STUDY WORK MAPS

FLOODWAY FRINGE FILLED SITE

MATCH SHEET 2



LEGEND

- 100 - YEAR FLOOD LIMITS
- FLOODWAY LIMITS
- BASE FLOOD ELEVATION
- 20 + 00 — STATIONING IN RIVER FEET UPSTREAM FROM AGUA FRIA RIVER
- ● M - 1 — STATIONING IN RIVER MILE
- (C)—(C) — CROSS - SECTION NUMBER
- ⊕ RM 90-513 — REFERENCE MARK
- CONTROL LINE
- (1.52) — CROSS - SECTION STATIONING

NOTES :

THIS FLOOD INSURANCE STUDY WORK MAP HAS BEEN PREPARED IN ACCORDANCE WITH FEDERAL EMERGENCY MANAGEMENT AGENCY (F E M A) GUIDELINES

THE STUDY HAS BEEN APPROVED BY F E M A MAP BASED ON 1" = 400' TOPOGRAPHIC MAPPING PREPARED BY AERIAL MAPPING COMPANY, INC. FROM PHOTOGRAPHS TAKEN ON SEPTEMBER 13, 1990

ELEVATIONS BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929

5/20/91

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM 90-502	1440.35 (SP)	SET 1/2" RB W/ALUM CAP STAMPED 90-502, 100'+/- WEST AND 2000'+/- NORTH OF THE SOUTHEAST CORNER SECTION 24, T5N R1W, APPROX. 100' EAST OF CATERPILLAR TANK ROAD.
RM 90-503	1477.82 (SP)	FD 1/2" WITH PLASTIC CAP STAMPED LS# 18214 ASSUMED NORTH 1/4 CORNER OF SECTION 24, T5N R1W, APPROX. 50' EAST OF CATERPILLAR TANK ROAD.
RM 90-505	1430.95 (SP)	SET 1/2" RB W/ALUM CAP STAMPED 90-505, 3000'+/- AND 400'+/- SOUTH OF THE NORTHWEST CORNER SECTION 26, T5N R1W. POINT LIES APPROX. 100' EAST OF WHITE PEAK MINE ROAD.
RM 90-827	1421.31 (SP)	SET 1/2" RB W/ALUM CAP STAMPED 90-827 LOCATED 100'+/- EAST AND 200'+/- SOUTH OF THE NORTH QUARTER CORNER OF SECTION 25, T5N R1W.

ACK ENGINEERS, INC.
2255 North 44th Street, Suite 330
Phoenix, Arizona 85008
Telephone : (602) 244-2566

		DATE
DESIGN	HEM	
DESIGN CHK.	SEK	
PLANS	JSD	
PLANS CHK.	SEK	

SUBMITTED BY: DATE 6/26/91

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CAP OVERCHUTES FCD 90-09

AGUA FRIA FLOODPLAIN DELINEATION

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER & GENERAL MANAGER

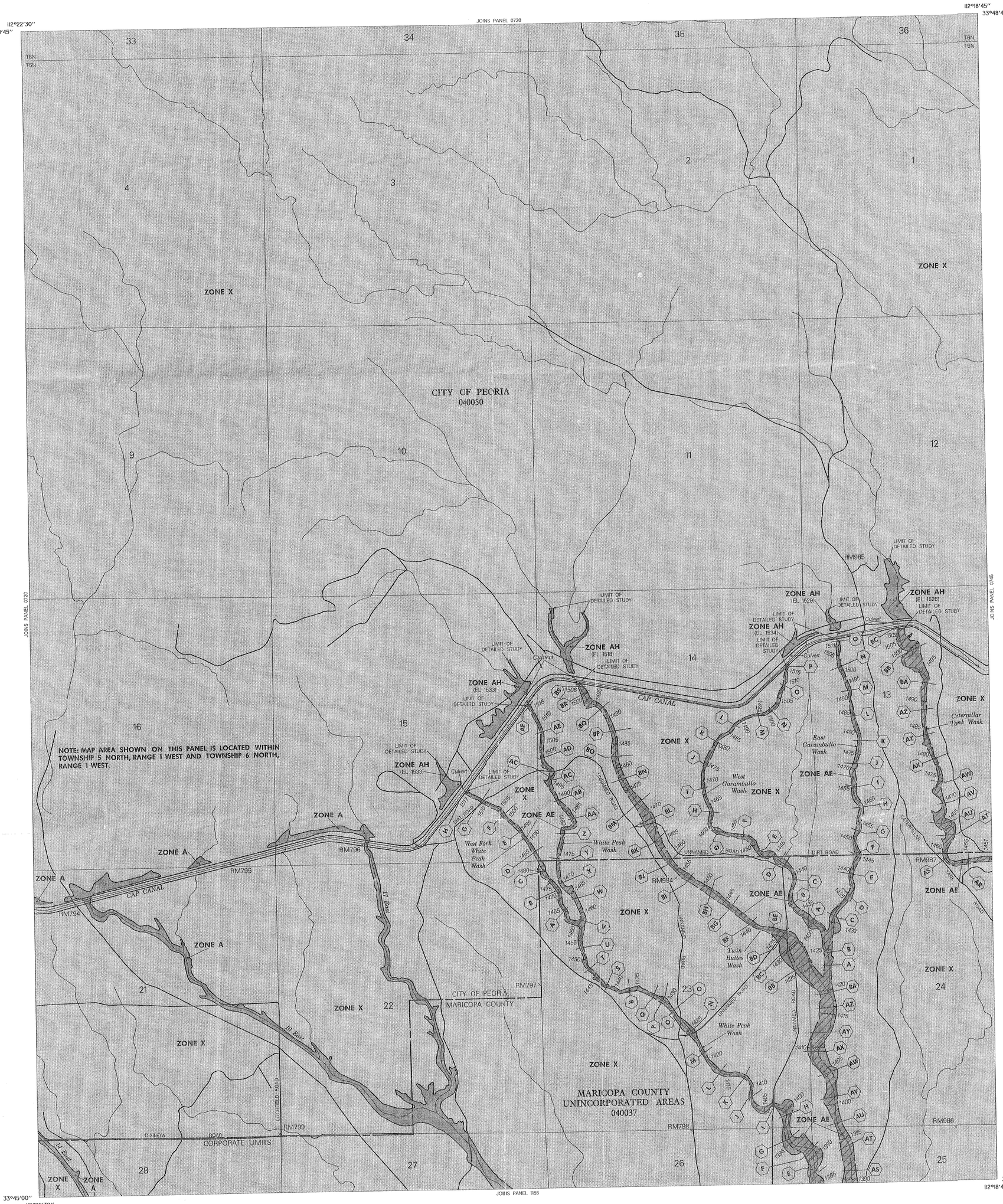
SHEET 3 OF 4

Exhibit D Annotated FIRM Panels

A B C D E F G

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION [FEET NGVD]	DESCRIPTION OF LOCATION
RM794	1528.60	Brass disk at CAP station 375 + 50.00, 125 feet south of centerline on right-of-way.
RM795	1539.49	Brass disk at CAP station 407 + 07.79, 125 feet south of centerline on right-of-way.
RM796	1527.62	Brass disk at CAP station 433 + 00.00, 125 feet south of centerline on right-of-way.
RM797	1517.30	Rebar at PP-1013 near quarter corner of sections 22 and 23.
RM798	1433.75	Rebar at PP-1503.
RM799	1454.56	Brass cap on steel post at PP-1505 sections 21, 22, 27, and 28.
RM984	1476.60	Set 4-inch rebar with aluminum cap stamped 90-504, 300 feet south of the north quarter corner of section 23, T5N, R1W, point lies 100 feet q east of Old Dirt Road to White Peak mine.
RM985	1571.89	Set 4-inch rebar with aluminum cap stamped 90-828, located 1200 feet q east and 500 feet q north of the southwest corner of section 12, T5N, R1W.
RM986	1421.31	Set 4-inch rebar with aluminum cap stamped 90-827, located 100 feet q east and 200 feet q south of the north quarter corner of section 25, T5N, R1W.
RM987	1477.82	FD 4-inch with plastic cap stamped LS# 18214, assumed north quarter corner of section 24, T5N, R1W, approximately 50 feet east of Caterpillar Tank Road.



LEGEND

To obtain more detailed information in areas where Base Flood Elevations (BFEs)and /or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations and therefore may not exactly reflect the flood elevation data presented in the FIS. BFEs shown on the FIRM are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and /or floodplain management.

ERM elevations listed on this map were obtained and/or developed to establish vertical control for determination of flood elevations and floodplain boundaries portrayed on this map. Users should be aware that these ERM elevations may have changed since the publication of this map. To obtain up-to-date elevaton information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Coastal BFE's shown on this map may apply only landward of 0.0' NGVD. Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and /or floodplain management purposes when they are higher than the elevations shown on this FIRM.

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE A99 To be protected from 100-year flood by Federal flood protection system under construction ; no base flood elevations determined.

ZONE V Coastal flood with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X Areas determined to be outside 500-year floodplain.

ZONE D Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 — Identified 1990 — Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.

(D)—(D) — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.

RM7 × — Elevation Reference Mark

● M2 — River Mile

97°07'30", 32°22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFE's, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, A1-A30, AH, AO, A99, V, VE and V1-V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and /or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (P.L. 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:
SEPTEMBER 4, 1991, DECEMBER 3, 1993

Map revised July 19, 2001 to update corporate limits, to change base flood elevations, to add base flood elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

N

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 740 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
PEORIA, CITY OF	040059	0740	G
MARICOPA COUNTY UNINCORPORATED AREAS	040037	0740	G

Exhibit D
Annotated FIRM Panel

MAP NUMBER
04013C0740 G

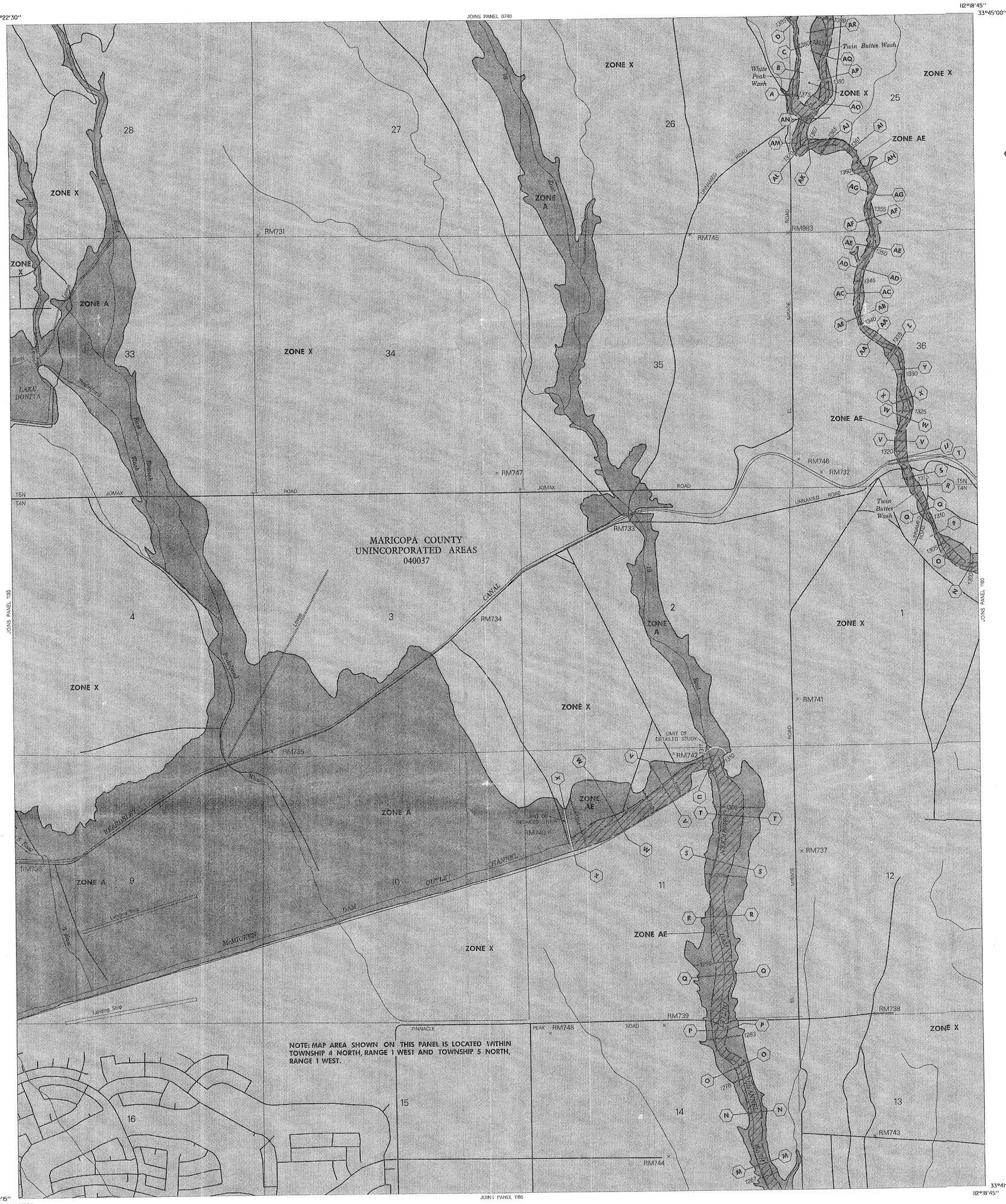
MAP REVISED:
JULY 19, 2001

Federal Emergency Management Agency

AREA TO BE REMOVED FROM ZONE AE

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
RM731	1446.38	Brass disk, corner of sections 27, 28, 33, and 34.
RM732	1346.17	Approximately 7 miles northwest along U.S. Highways 60, 70, and 89 and State Highway 93 from the post office at El Mirage, thence 6.05 miles northeast along Canal Road, which parallels the southeast side of the Beardsley Canal, in section 36, T5N, R1W, on the west bank of a wash crossed by a large metal pipe aqueduct, 36 feet southwest of the junction of the aqueduct and the west concrete funnel in the canal, 150 feet north of the centerline of the road, set in the top of the west end of a short wingwall on the southeast side of the funnel, and at the junction of the concrete and rock canal lining and formed concrete funnel, stamped J 266 1948.
RM733	1344.17	Approximately 7 miles northwest along U.S. Highways 60, 70, and 89 and State Highway 93 from the post office at El Mirage, thence 5.05 miles northeast along Canal Road, in section 2, T4N, R1W, 115 feet north of the centerline of the road, set in the top of the south end of the west concrete headwall of a concrete siphon, and approximately 12 feet above the level of the wash, stamped B 266 1948.
RM734	1340.15	Approximately 7 miles northwest along U.S. Highways 60, 70, and 89 and State Highway 93 from the post office at El Mirage, thence 4.32 miles northeast along Canal Road, which parallels the southeast side of the Beardsley Canal, in section 3, T4N, R1W, 31 feet southeast of the centerline of the road, 3 feet northeast of a telephone pole, in line with a row of poles, 2.6 feet southwest of a 4- by 4-foot wooden witness post, approximately 3 feet below the level of the road, and set in the top of a concrete post, stamped A 266 1948.
RM735	1339.73	Approximately 7 miles northwest along U.S. Highways 60, 70, and 89 and State Highway 93 from the post office at El Mirage, thence 3.3 miles northeast along Canal Road, which parallels the southeast side of the centerline of a wash, 30 feet southeast of the centerline of the road, 10 feet southwest of a telephone pole, in line with a row of poles, 1.4 feet northeast of a metal witness post, and on the top of a -inch copper-coated rod driven to a depth of 8 feet and encased in a 5-inch iron pipe that projects 12 inches, stamped O 366 1967.
RM736	1340.76	Approximately 7 miles northwest along U.S. Highways 60, 70, and 89 and State Highway 93 from the post office at El Mirage, thence 2.45 miles northeast along Canal Road, which parallels the southeast side of the Beardsley Canal, in section 9, T4N, R1W, 120 feet north of the centerline of the road, set in the top of a 45x angle in the old concrete retaining wall at the west end of a concrete siphon, and 8 feet southwest of the south end of the headwall of the siphon, stamped W 265 1948.
RM737	1306.48	Rebar at PP-1024 near quarter corner of sections 11 and 12.
RM738	1289.97	Rebar at PP-1016 near quarter corner of sections 12 and 13.
RM739	1288.17	Rebar at PP-1017 near quarter corner of sections 11 and 14.
RM740	1311.92	Rebar at PP-1003.
RM741	1323.74	Rebar at PP-1015 near corner of sections 1, 2, 11, and 12.
RM742	1314.21	Rebar at PP-1004, near quarter corner of sections 2 and 11.
RM743	1280.29	Rebar at PP-1025.
RM744	1271.98	Rebar at PP-1026 near center of section 14.
RM745	1384.10	Rebar at PP-1504 near quarter corner of sections 26 and 35.
RM746	1347.02	Rebar at PP-1005.
RM747	1437.60	Rebar at PP-1006.
RM748	1292.84	Rebar at PP-1002.
RM983	1378.41	Found GLO brass cap marked northeast corner section 35, T5N, R1W.



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 4 NORTH, RANGE 1 WEST AND TOWNSHIP 5 NORTH, RANGE 1 WEST.

AREA TO BE REMOVED FROM ZONE AE

LEGEND

To obtain more detailed information in areas where Base Flood Elevations (BFEs)and /or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations and therefore may not exactly reflect the flood elevation data presented in the FIS. BFEs shown on the FIRM are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and /or floodplain management.

ERM elevations listed on this map were obtained and/or developed to establish vertical control for determination of flood elevations and floodplain boundaries portrayed on this map. Users should be aware that these ERM elevations may have changed since the publication of this map. To obtain up-to-date elevaton information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Coastal BFE's shown on this map may apply only landward of 0.0' NGVD. Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and /or floodplain management purposes when they are higher than the elevations shown on this FIRM.

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE A99 To be protected from 100-year flood by Federal flood protection system under construction ; no base flood elevations determined.

ZONE V Coastal flood with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X Areas determined to be outside 500-year floodplain.

ZONE D Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 — Identified 1990 — Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~~~513~~~ Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.

(D)——(D) Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.

RM7 × Elevation Reference Mark

● M2 River Mile

97°07'30", 32°22'30" Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFE's, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, A1-A30, AH, AO, A99, V, VE and V1-V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and /or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:
SEPTEMBER 4, 1991, DECEMBER 3, 1993

Map revised July 19, 2001 to update corporate limits, to change base flood elevations, to add base flood elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1155 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1155	G

Exhibit D
Annotated FIRM Panel

MAP NUMBER
04013C1155 G

MAP REVISED:
JULY 19, 2001

Federal Emergency Management Agency
~~~

TWIN BUTTES WASH & WHITE PEAK WASH IMPROVEMENTS
PHASE I – GRADING AND DRAINAGE PLANS
LOCATED IN A PORTION OF SECTIONS 23, 24, 25 AND 26 T.5N., R.2E.
MARICOPA COUNTY, CITY OF PEORIA, ARIZONA

ENGINEERS NOTES

1. A THOROUGH ATTEMPT HAS BEEN MADE TO SHOW THE LOCATIONS OF ALL UNDERGROUND OBSTRUCTIONS AND UTILITY LINES IN THE WORK AREA. HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO OBSTRUCTIONS AND UTILITY LINES ENCOUNTERED DURING CONSTRUCTION AND SHALL DETERMINE THE EXACT LOCATION OF UTILITIES IN ADVANCE OF TRENCHING. THE ENGINEER AND/ OR DEVELOPER WILL NOT GUARANTEE ANY ELEVATIONS OR LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THESE PLANS.
2. PRIOR TO BIDDING THE WORK, THE CONTRACTOR SHALL THOROUGHLY SATISFY HIMSELF AS TO THE ACTUAL CONDITIONS, REQUIREMENTS OF THE WORK AND EXCESS OR DEFICIENCY IN QUANTITIES, IF ANY. NO CLAIMS SHALL BE MADE AGAINST THE OWNER/DEVELOPER OR ENGINEER FOR ANY EXCESS OR DEFICIENCY THEREIN, ACTUAL OF RELATIVE.
3. THE ENGINEER WILL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES OR SAFETY PRECAUTIONS OR PROGRAMS UTILIZED IN CONNECTION WITH THE WORK, AND WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
4. ANY QUANTITIES SHOWN ARE THE BEST ESTIMATE OF THE ENGINEER. THE SUBCONTRACTOR SHALL MAKE HIS OWN INDEPENDENT ESTIMATE ON QUANTITIES AND BASE HIS BID THEREON.
5. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR COORDINATING THE RELOCATION OF UTILITIES, POWER POLES, ETC.
6. THE CONTRACTOR SHALL MAKE NO CLAIM AGAINST THE OWNER OR THE ENGINEER REGARDING ALLEGED INACCURACY OF CONSTRUCTION STAKES SET BY THE ENGINEER UNLESS ALL SURVEY STAKES SET BY THE ENGINEER ARE MAINTAINED INTACT AND CAN BE VERIFIED AS TO THEIR ORIGIN. IF, IN THE OPINION OF THE ENGINEER, THE STAKES ARE NOT MAINTAINED INTACT AND CANNOT BE VERIFIED AS TO THEIR ORIGIN, ANY REMEDIAL WORK REQUIRED TO CORRECT ANY ITEM OF IMPROPER CONSTRUCTION WORK SHALL BE PERFORMED AT THE SOLE EXPENSE OF THE RESPONSIBLE CONTRACTOR OR SUBCONTRACTOR.
7. NOTHING CONTAINED IN THE CONTRACT DOCUMENTS SHALL CREATE, NOR SHALL BE CONSTRUED TO CREATE, ANY CONTRACTUAL RELATIONSHIP BETWEEN THE ENGINEER AND THE CONTRACTOR OR ANY SUBCONTRACTOR.
8. THE ENGINEER WILL MAKE FIELD AS-BUILT MEASUREMENTS OF THE WORK UPON NOTIFICATION BY THE CLIENT OR HIS REPRESENTATIVE THAT THE PIPE WORK IS COMPLETE AND READY FOR AS-BUILT SURVEY. THE OWNER OR HIS REPRESENTATIVE IS RESPONSIBLE FOR LEAVING TRENCHES OPEN SO THAT ACCURATE AS-BUILTS CAN BE PERFORMED TO COMPLY WITH THE TOWN REQUIREMENTS. IF THE TRENCHES ARE BACKFILLED AND OBSCURED TO THE POINT THAT AS-BUILT MEASUREMENTS CANNOT BE PERFORMED, IT IS THE RESPONSIBILITY OF THE CLIENT OR HIS REPRESENTATIVE TO POT HOLE UTILITY TRENCHES AS NECESSARY TO COMPLETE AS-BUILT SURVEY.
9. AS-BUILT SURVEYS AND SUBMITTALS WILL NOT BE PERFORMED UNTIL ORDERED BY THE CLIENT OR HIS REPRESENTATIVE.
10. ELEVATIONS REFERRED TO HEREIN ARE DESIGN ELEVATIONS ONLY. ANY FIELD DESIGN CHANGES MADE BY THE CLIENT OR HIS REPRESENTATIVE WILL ONLY BE STAKED AFTER RECEIVING A WRITTEN AND SIGNED CHANGE ORDER.
11. THE CONTRACTOR IS TO VERIFY THE LOCATION, ELEVATION, CONDITION, AND PAVEMENT CROSS-SLOPE OF ALL EXISTING SURFACES AT POINTS OF TIE-IN AND MATCHING, PRIOR TO COMMENCEMENT OF GRADING, PAVING, CURB AND GUTTER, OR OTHER SURFACE CONSTRUCTION. SHOULD EXISTING LOCATIONS, ELEVATIONS, CONDITION, OR PAVEMENT CROSS-SLOPE DIFFER FROM THAT SHOWN ON THESE PLANS, RESULTING IN THE DESIGN INTENT REFLECTED ON THE PLANS NOT ABLE TO BE CONSTRUCTED, THE CONTRACTOR SHALL NOTIFY THE OWNER'S AGENT IMMEDIATELY FOR DIRECTION ON HOW TO PROCEED PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR ACCEPTS RESPONSIBILITY FOR ALL COSTS ASSOCIATED WITH CORRECTIVE ACTION IF THESE PROCEDURES ARE NOT FOLLOWED.
12. MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION INCLUDING LATEST REVISION AND CURRENT SUPPLEMENTALS THEREOF PER THE TOWN OF BUCKEYE AND ARIZONA-AMERICAN WATER COMPANY ARE INCORPORATED INTO THESE PLANS IN THEIR ENTIRETY.
13. ALL WORK REQUIRED TO COMPLETE THE CONSTRUCTION COVERED BY THESE PLANS SHALL BE IN ACCORDANCE WITH THE MAG STANDARD SPECIFICATIONS AND DETAILS AND CURRENT SUPPLEMENTS THEREOF PER THE TOWN OF BUCKEYE AND ARIZONA-AMERICAN WATER COMPANY UNLESS SPECIFIED OTHERWISE IN THESE PLANS OR ELSEWHERE IN THE CONTRACT DOCUMENTS. CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH ALL REQUIRED STANDARD SPECIFICATIONS, DETAILS AND SUPPLEMENTS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THESE PLANS.
14. THE CONTRACTOR IS RESPONSIBLE FOR ALL METHODS, SEQUENCING, AND SAFETY USED DURING CONSTRUCTION UNLESS SPECIFICALLY ADDRESSED OTHERWISE IN THESE PLANS OR ELSEWHERE IN THE CONTRACT DOCUMENTS.
15. THE CONTRACTOR IS TO COMPLY WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS APPLICABLE TO THE CONSTRUCTION COVERED BY THESE PLANS.
16. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND COMPLYING WITH ALL PERMITS REQUIRED TO COMPLETE ALL WORK COVERED BY THESE PLANS.
17. THE QUANTITIES AND SITE CONDITIONS DEPICTED IN THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE SUBJECT TO ERROR AND OMISSION. CONTRACTORS SHALL SATISFY THEMSELVES AS TO ACTUAL QUANTITIES AND SITE CONDITIONS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THESE PLANS.
18. A REASONABLE EFFORT HAS BEEN MADE TO SHOW THE LOCATIONS OF EXISTING UNDERGROUND FACILITIES AND UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND/OR FACILITIES CAUSED DURING THEIR CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL CALL 48 HOURS IN ADVANCE FOR BLUE STAKE (602-263-1100) PRIOR TO ANY EXCAVATION.
19. THE CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION OF CONSTRUCTION AFFECTING UTILITIES AND THE COORDINATION OF ANY NECESSARY UTILITY RELOCATION WORK.
20. ALL PAVING, GRADING, EXCAVATION, TRENCHING, PIPE BEDDING, CUT, FILL AND BACKFILL SHALL COMPLY WITH THE RECOMMENDATIONS SET FORTH IN THE SOILS (GEOTECHNICAL) REPORT FOR THIS PROJECT IN ADDITION TO THE REFERENCED REQUIRED SPECIFICATIONS AND DETAILS.
21. THE CONTRACTOR IS TO VERIFY THE LOCATION AND THE ELEVATIONS OF ALL EXISTING UTILITIES AT POINTS OF TIE-IN PRIOR TO COMMENCING ANY NEW CONSTRUCTION. SHOULD ANY LOCATION OR ELEVATION DIFFER FROM THAT SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT THE OWNER'S AGENT.
22. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE WORK WITH WEATHER CONDITIONS, THE PROJECT SITE IS LOCATED IN A FLOOD PRONE AREA AND SUBJECT TO FLOODING AND ITS ASSOCIATED HAZARD.
23. COORDINATION BETWEEN ALL PARTIES IS ESSENTIAL PART OF CONTRACT.
24. CONTRACTOR IS RESPONSIBLE TO COORDINATE UTILITY CROSSINGS AT CULVERT CROSSINGS BEFORE STARTING WORK ON CULVERTS. COORDINATE WITH OWNER REPRESENTATIVE. VERIFY UTILITY LINES AND/ OR CONDUITS ARE IN PLACE BEFORE STARTING CULVERT WORK.
25. EMBANKMENT FILL MATERIAL USED TO ELEVATE STRUCTURES SHALL MEET ARTICAL X, SECTION 1002.7 OF THE FLOODPLAIN REGULATIONS FOR MARICOPA COUNTY

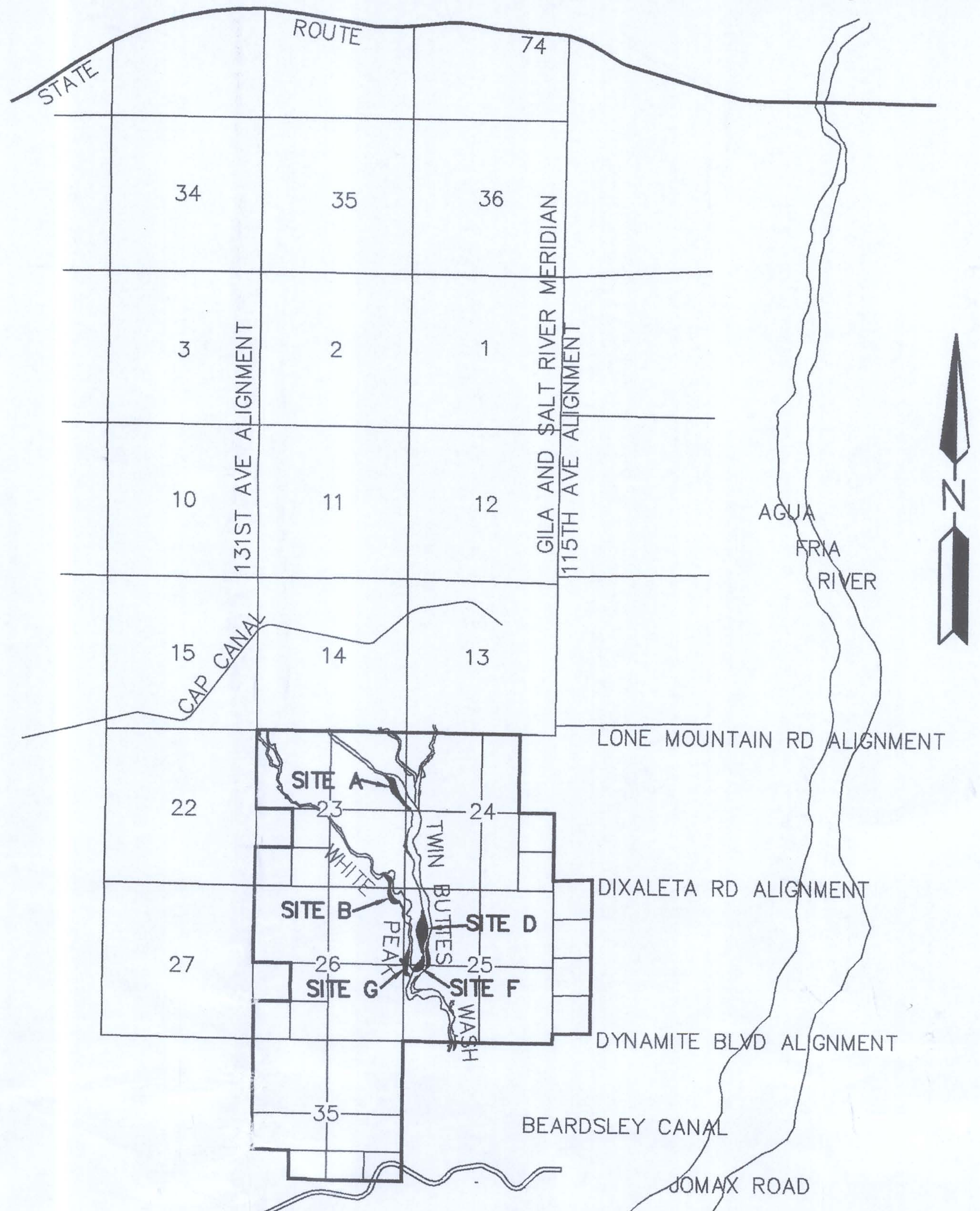
UTILITY NOTES

THESE PLANS HAVE BEEN SUBMITTED TO THE FOLLOWING UTILITY COMPANIES AND THE WORK CONTAINED IN THESE PLANS HAS BEEN APPROVED BY THESE COMPANIES WITHIN THEIR AREA OF INTEREST. THE SIZE AND LOCATIONS, AS SHOWN, OF THE GAS, TELEPHONE AND POWER LINES, AND CONNECTIONS AGREE WITH THE INFORMATION CONTAINED IN THE UTILITY COMPANY RECORDS. WHERE THE WORK TO BE DONE CONFLICTS WITH ANY OF THESE UTILITIES, THE CONFLICTS SHALL BE RESOLVED AS SPECIFIED. CONFLICTS ARISING DURING THE COURSE OF CONSTRUCTION FROM UNFORESEEN CIRCUMSTANCES SHALL BE REPORTED TO THE INTERESTED UTILITY COMPANY AND BE RESOLVED BY THEM AND THE DESIGN ENGINEER.

IN ACCORDANCE WITH AAC R18-4-119, ALL MATERIALS ADDED AFTER JANUARY 1, 1993 WHICH MAY COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NATIONAL SANITATION FOUNDATION STANDARDS 60 AND 61.

THIS SET OF CONSTRUCTION PLANS HAVE BEEN SUBMITTED TO THE FOLLOWING UTILITY COMPANIES FOR REVIEW AND TO DETERMINE ANY POTENTIAL CONFLICTS.

UTILITY COMPANY	COMPANY CONTACT	DATE SUBMITTED
SOUTHWEST GAS CORPORATION	EDWIN LONGWELL	MONTH DATE, 2002
COX COMMUNICATIONS	WALT COOMBS	MONTH DATE, 2002
ARIZONA PUBLIC SERVICE	SCOTT HILDEBRAND	MONTH DATE, 2002
QWEST COMMUNICATIONS	ROBERT ARRIETA	MONTH DATE, 2002



VICINITY MAP
SCALE: 1"=5000'

DESCRIPTION	SHEET NO.
COVER SHEET	1
DETAILS & NOTES	2
HORIZONTAL CONTROL PLAN	3–5
PLAN AND PROFILE SHEETS	6–8

GRADING AND DRAINAGE

1. THE GRADING AND DRAINAGE PLANS MUST BE APPROVED BY THE CITY ENGINEER OR THEIR DESIGNEE. THE CITY ENGINEER'S OFFICE SHALL BE NOTIFIED AT 623-773-7210, 48 HOURS BEFORE ANY ON-SITE CONSTRUCTION BEGINS.
2. A SEPARATE PERMIT IS REQUIRED PRIOR TO ANY ON-SITE GRADING, INCLUDING CUSTOM HOMES.
3. GRADING AND DRAINAGE PLAN APPROVAL INCLUDES:
A. CONSTRUCTION OF ALL SURFACE IMPROVEMENTS SHOWN ON THE APPROVED GRADING AND DRAINAGE PLAN, INCLUDING BUT NOT LIMITED TO, RETENTION AREAS AND/OR OTHER DRAINAGE FACILITIES, DRAINAGE PATTERNS, CHANNELS, WALLS, CURBING, ASPHALT PAVEMENT, BANK PROTECTION AND CHANNELIZATION, AND BUILDING FLOOR ELEVATIONS.
B. CONTRACTOR SHALL PROVIDE MINIMUM SLOPE TO THE BOTTOM IN ALL RETENTION BASINS AT ELEVATIONS AS SHOWN ON THE PLANS. RETENTION BASIN SIDE SLOPES SHALL NOT EXCEED 2:1, AS CONFIRMED THROUGH THE GEOTECHNICAL REPORT, ON PRIVATE PROPERTY AND 6:1 ADJACENT TO PUBLIC RIGHT-OF-WAY UNLESS NOTED OTHERWISE ON PLANS. RETENTION BASINS SHALL NOT EXCEED 3 FEET IN DEPTH WITHOUT WRITTEN APPROVAL FROM THE CITY ENGINEER OR THEIR DESIGNEE.
4. ALL DRAINAGE PROTECTIVE DEVICES SUCH AS SWALES, INTERCEPTOR DITCHES, PIPES, PROTECTIVE BERMS, CONCRETE CHANNELS OR OTHER MEASURES DESIGNED TO PROTECT HOMES OR OTHER IMPROVEMENTS WHETHER EXISTING OR PROPOSED, FROM RUNOFF OR DAMAGE FROM STORM WATER, MUST BE CONSTRUCTED PRIOR TO THE CONSTRUCTION OF ANY IMPROVEMENTS.
5. DRYWELLS MUST BE DRILLED A MINIMUM OF TEN (10) FEET INTO PERMEABLE POROUS STRATA AND PERCOLATION TESTS WILL BE REQUIRED. THE OFF-SITE INSPECTOR MUST BE PRESENT BEFORE BACKFILL OR WALL PIPES ARE PLACED WITHIN ANY DRYWELL. PERCOLATION TESTS MUST BE CONDUCTED BY AN INDEPENDENT LABORATORY AND RESULTS PROVIDED TO THE ENGINEERING DEPARTMENT. ALL DRYWELLS MUST BE REGISTERED WITH ADEQ. COPIES OF DRILLING LOGS AND ADEQ REGISTRATION INFORMATION MUST BE PROVIDED TO THE CITY.
6. ALL FINISH FLOOR ELEVATIONS SHOWN ARE A MINIMUM OF 14-INCHES ABOVE THE POINT OF OUTFALL, OR ONE (1) FOOT ABOVE THE 100-YEAR BASE FLOOD ELEVATION AS SHOWN ON THE APPROVED PLAN.
7. A FEMA ELEVATION CERTIFICATE FOR ALL NEW AND SUBSTANTIALLY IMPROVED CONSTRUCTION IN THE FLOODPLAIN SHALL BE SUBMITTED TO THE ENGINEERING DEPARTMENT PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
8. SOILS COMPACTION TEST RESULTS MUST BE SUBMITTED TO THE CITY ENGINEER'S OFFICE FOR ALL BUILDING PADS THAT HAVE ONE (1) FOOT OR MORE OF FILL MATERIAL INDICATED.
9. STAKING PAD AND/OR FINISH FLOOR ELEVATIONS IS THE RESPONSIBILITY OF THE DEVELOPER AND HIS ENGINEER. NO MINIMUM FINISH FLOOR ELEVATION WILL BE RAISED OR LOWERED WITHOUT APPROVAL OF THE CITY ENGINEER. IN NONCRITICAL AREAS, DEVELOPER'S ENGINEER SHALL SUBMIT CERTIFICATION OF CONSTRUCTED BUILDING PAD ELEVATIONS PRIOR TO REQUEST FOR FINAL INSPECTION. IN CRITICAL DRAINAGE AREAS OR IN THE 100-YEAR FLOODPLAIN, SUBSTITUTE BUILDING FLOOR ELEVATION IN ABOVE NOTE, OR FEMA ELEVATION CERTIFICATE.
10. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND CONFIRMING DEPTH OF ALL EXISTING UTILITY LINES WITHIN PROPOSED RETENTION AND DRAINAGE FACILITY AREAS. IF THE DRAINAGE FACILITIES CANNOT BE CONSTRUCTED PER PLAN AS A RESULT OF CONFLICT WITH UNDERGROUND UTILITIES, THE CONTRACTOR SHOULD CONTACT THE CITY ENGINEER AND THE DESIGN ENGINEER AND REQUEST MODIFICATION OF THE DRAINAGE FACILITY DESIGN.
11. ALL BANK PROTECTION AND CHANNELIZATION MUST BE COMPLETED PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
12. A SEPARATE HAUL PERMIT SHALL BE REQUIRED WHENEVER HAULING IN EXCESS OF 500 CUBIC YARDS OF MATERIAL IN OR OUT OF A SITE. A HAUL ROUTE MUST BE SUBMITTED AND APPROVED BY THE ENGINEERING DEPARTMENT. ADDITIONAL REQUIREMENTS AS SET FORTH BY THE ENGINEERING DEPARTMENT SHALL BE MET.
13. THE DEVELOPER IS RESPONSIBLE TO OBTAIN A NATION POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT IN ACCORDANCE WITH FEDERAL AND STATE REGULATIONS, INCLUDING NOTICE OF INTENT (NOI), NOTICE OF TERMINATION, AND STORM WATER POLLUTION PREVENTION PLAN (SWPPP). A COPY OF THE NOI AND SWPPP SHALL BE AVAILABLE ON THE JOB SITE AT ALL TIMES.
14. ONCE AN EXISTING SHOULDER IS DISTURBED BY THE GRADING OPERATION OR ANY OTHER PHASE OF CONSTRUCTION, THE SHOULDER SHALL BE BARRICADED. SUCH BARRICADING SHALL REMAIN IN PLACE UNTIL FINAL ACCEPTANCE OF THE PROJECT.

OWNER:

SHEA SUNBELT PLEASANT POINT L.L.C.
9051 WEST KELTON SUITE #4
PEORIA, ARIZONA 85382
PHONE: (623) 583-1887

ENGINEER:

WOOD PATEL AND ASSOCIATES
2051 W. NORTHERN AVE., STE. 100
PHOENIX, ARIZONA 85021
CONTACT: JACK MOODY, P.E.
PHONE: (602) 335-8500

BENCHMARK

FIRM PANEL NO. 04013C0740G REFERENCE MARK RM984, REBAR WITH ALUMINUM CAP STAMPED 90-504, 300 FEET SOUTH OF THE NORTH QUARTER CORNER OF SECTION 23, T5N, R1W, POINT LIES 100 FEET EAST OF OLD DIRT ROAD TO WHITE PEAK MINE.
ELEVATION = 1476.60 (NGVD)

APPROVALS

CITY OF PEORIA ______________________ DATE __________
CITY ENGINEER
THE CITY APPROVES THESE PLANS FOR CONCEPT ONLY AND ACCEPTS NO LIABILITY FOR ERRORS AND OMISSIONS.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE "AS-BUILT" INFORMATION SHOWN HEREON WAS OBTAINED UNDER MY DIRECT SUPERVISION AND IS CORRECT AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NAME ______________________ (SEAL)
REGISTRATION NO. ______________________
DATE ______________________
REV'D BY: ______________________
FIELD ENGINEERING

I HEREBY CERTIFY THAT THE "AS-BUILT" MEASUREMENTS SHOWN HEREON WERE MADE UNDER MY SUPERVISION OR AS NOTED AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

REGISTERED PROFESSIONAL ENGINEER ______________________ DATE:

Sign Plans

① WAS Review Paid ??

FLOOD CONTROL DISTRICT
RECEIVED
OCT 18 '02
CH & GM | FINANCE
PIO | LANDS
ADMIN | O & M
REG | P & PM
ENG | FILE
CONTRACTS |
ROUTING
LMT

Registered Professional Engineer (Civil)
CERTIFICATE NO. 34569
SHERRICK HUDSON CAMPBELL
Date Signed
ARIZONA, U.S.A.

PRELIMINARY
NOT
FOR
CONSTRUCTION
OR RECORDING

CALL TWO WORKING DAYS BEFORE YOU DIG
263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

TWIN BUTTES WASH &
WHITE PEAK WASH IMP.
G&D PLAN, PHASE I
COVER SHEET

WOOD/PATEL
CIVIL ENGINEERS
HYDROLOGISTS
LAND SURVEYORS
woodpatel.com

2051 W Northern Ave.
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580

WPA JOB# 021607	DATE: 10/18/02		SCALE: 1" = 100'
DESIGNED: S. CAMPBELL	DRAWN: K.McDOUGALL		APPROVED: J. MOODY

REVISIONS:

SHEET
1 OF 8

EXHIBIT B – PROPOSED IMPROVEMENT PLANS

CITY OF PEORIA GENERAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS. UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION (MAG). CITY OF PEORIA INFRASTRUCTURE GUIDE, PEORIA DETAILS AND CITY OF PHOENIX STANDARD DETAILS WILL CONTINUE TO APPLY WHERE SUCH DETAILS WERE NOT ADOPTED OR INCLUDED BY MAG. ALTERNATE DETAILS AND SPECIFICATIONS MAY BE SUBMITTED FOR REVIEW AND ACCEPTANCE BY THE ENGINEERING DEPARTMENT. IF ACCEPTED, ALTERNATE DETAILS WILL BE SHOWN AS PART OF THE APPROVED PLANS/DETAIL SHEETS.
2. THIS SET OF PLANS HAS BEEN REVIEWED FOR COMPLIANCE WITH CITY REQUIREMENTS PRIOR TO ISSUANCE OF CONSTRUCTION PERMITS. HOWEVER, SUCH REVIEW SHALL NOT PREVENT THE CITY ENGINEER FROM REQUIRING CORRECTION OF ERRORS OR OMISSIONS IN PLANS FOUND TO BE IN VIOLATION OF ANY LAW OR ORDINANCE.
3. APPROVAL BY THE CITY ENGINEER MEANS FOR GENERAL LAYOUT IN RIGHT-OF-WAY ONLY. THIS APPROVAL OF CONSTRUCTION PLANS IS VALID FOR A PERIOD OF NINE (9) MONTHS. CONSTRUCTION PERMITS SHALL BE OBTAINED WITHIN THIS PERIOD OR THE PLANS SHALL BE RESUBMITTED FOR APPROVAL. WORK SHALL ALSO BE CONTINUOUSLY PURSUED IN ORDER TO MAINTAIN A VALID PLAN APPROVAL AND PERMIT. APPROVAL IS ONLY FOR WORK WITHIN THE JURISDICTION OF THE CITY OF PEORIA.
4. THE CITY ENGINEER DOES NOT WARRANT ANY QUANTITIES SHOWN ON THESE PLANS.
5. OFF-SITE PERMITS FOR ANY WORK WITHIN THE RIGHT-OF-WAY AND EASEMENTS, AND ANY GRADING AND DRAINAGE, WHETHER ON-SITE OR OFF-SITE, ARE REQUIRED PRIOR TO ANY WORK BEING COMMENCED. THE BUILDING PERMIT SHALL NOT BE CONSTRUED IN ANY WAY AS PERMISSION TO COMMENCE WORK COVERED BY AN OFF-SITE PERMIT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR/DEVELOPER TO UNDERSTAND THE WORK COVERED BY VARIOUS PERMITS.
6. THE ENGINEERING DEPARTMENT, INSPECTION SECTION, SHALL BE NOTIFIED TWENTY-FOUR (24) HOURS PRIOR TO ANY CONSTRUCTION WORK BY TELEPHONE AT (623)773-7210. ANY WORK CONCEALED WITHOUT INSPECTION SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S/DEVELOPER'S EXPENSE.
7. AN APPROVED SET OF PLANS MUST BE AVAILABLE ON THE JOB SITE AT ALL TIMES. THE CONTRACTOR'S/DEVELOPER'S REPRESENTATIVE SHALL BE ON THE JOB AT ALL TIMES THE WORK IS BEING PURSUED.
8. THE CONTRACTOR/DEVELOPER IS RESPONSIBLE TO PROVIDE EMERGENCY TELEPHONE NUMBERS TO THE CITY OF PEORIA AT TIME OF ISSUANCE OF OFF-SITE/ON-SITE PERMITS AND HAVE PERSONNEL AVAILABLE 24 HOURS A DAY TO RESPOND TO EMERGENCIES. IF THE CITY IS REQUIRED TO RESPOND AND MAKE EMERGENCY REPAIRS ON BEHALF OF THE CONTRACTOR/DEVELOPER, THE CONTRACTOR/DEVELOPER IS RESPONSIBLE TO REIMBURSE THE CITY FOR MAN-HOURS, EQUIPMENT RIGHTS-OF-WAY OR EASEMENTS TO THE CITY OF PEORIA PRIOR TO ISSUANCE OF PERMITS.
9. IT SHALL BE THE RESPONSIBILITY OF THE PERMITTEE TO ARRANGE FOR THE RELOCATION AND RELOCATION COSTS OF ALL UTILITIES, AND SUBMIT A UTILITY RELOCATION SCHEDULE PRIOR TO THE ISSUANCE OF A CONSTRUCTION PERMIT.
10. ALL UNDERGROUND TANKS REQUIRE A PERMIT FROM THE FIRE DEPARTMENT PRIOR TO REMOVAL.
11. THE PROCEDURES AND METHODS USED TO SAMPLE AND TEST MATERIALS WILL BE DETERMINED BY THE ENGINEERING DEPARTMENT. FOR ALL PHASES OF CONSTRUCTION, THE TYPE, SCHEDULING, FREQUENCY AND LOCATION OF ALL MATERIALS TESTING AND SAMPLING SHALL BE DETERMINED BY THE ENGINEERING DEPARTMENT. ALL TEST RESULTS SHALL BE REPORTED DIRECTLY (IN WRITING) TO THE ENGINEERING DEPARTMENT. FOR EACH PHASE OF CONSTRUCTION, TEST RESULTS (IN WRITING) MUST BE RECEIVED FROM THE TESTING LABORATORY, PRIOR TO START OF THE NEXT PHASE OF CONSTRUCTION.
12. THE EXCAVATING CONTRACTOR MUST GIVE LOCATION FOR WASTING EXCESS EXCAVATION AND A LETTER FROM THE OWNER GIVING PERMISSION FOR DUMPING PRIOR TO STARTING ON-SITE CONSTRUCTION. DEVELOPER'S ENGINEER SHALL SUBMIT CERTIFICATION OF CONSTRUCTION BUILDING PAD ELEVATIONS PRIOR TO CITY ACCEPTANCE OF PROJECT.
13. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO VERIFY THE PRESENCE AND LOCATION LOCATION OF ALL EXISTING OVERHEAD AND/OR UNDERGROUND UTILITIES THAT MAY INTERFERE WITH THIS CONSTRUCTION, WHETHER OR NOT SAID UTILITIES ARE SHOWN ON THE CONSTRUCTION PLANS FOR THIS PROJECT AND TO ADEQUATELY PROTECT AND MAINTAIN ANY SUCH UTILITIES.
14. THE ENGINEERING DEPARTMENT DOES NOT ASSUME ANY LIABILITY FOR ERRORS OF LINE AND/OR GRADE ON ANY STAKING WHICH HAS BEEN DISTURBED IN ANY WAY, NOR DOES THE ENGINEER ASSUME ANY LIABILITY FOR ERRORS OF LINE AND/OR GRADE ON ANY STAKING THAT HAS BEEN IN PLACE FOR A PERIOD OF TWENTY-FOUR (24) HOURS OR MORE WITHOUT THE COMMENCEMENT OF THE CONSTRUCTION FOR WHICH IT WAS SET.
15. THE CONTRACTOR SHALL CONTACT BLUE STAKE (263-1100) PRIOR TO CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN CURRENT "BLUE STAKE" MARKINGS THROUGHOUT CONSTRUCTION.
16. THE CONTRACTOR SHALL OBTAIN A FIRE HYDRANT METER FOR CONSTRUCTION FROM THE MANAGEMENT SERVICES DEPARTMENT, CUSTOMER SERVICES. CONTACT CUSTOMER SERVICES AT (623) 773-7160 TO SCHEDULE THE RELOCATION OF THE HYDRANT METERS. CONTRACTORS SHALL NOT RELOCATE HYDRANT METERS THEMSELVES.
17. ALL CONTRACTORS/DEVELOPERS ARE RESPONSIBLE TO CONSTRUCT STABILIZED CONSTRUCTION ENTRANCES IN ORDER TO REDUCE OR ELIMINATE THE TRACKING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS OR STREETS. GRAVEL TRACK-OUT PADS SHALL MEET CURRENT MARICOPA COUNTY STANDARDS.
18. ALL DRAINAGE PROTECTIVE DEVICES SUCH AS SWALES, INTERCEPTION DITCHES, PIPES PROTECTIVE BERMS, CONCRETE CHANNELS OR OTHER MEASURES DESIGNED TO PROTECT IMPROVEMENTS, WHETHER EXISTING OR PROPOSED, FROM RUNOFF OR DAMAGE FROM STORM WATER, MUST BE CONSTRUCTED PRIOR TO THE CONSTRUCTION OF ANY IMPROVEMENTS.
19. TRAFFIC CONTROL SHALL CONFORM WITH THE CITY OF PHOENIX TRAFFIC BARRICADE MANUAL. MUTCD AND THE CITY OF PEORIA INFRASTRUCTURE DEVELOPMENT GUIDELINES.
20. ANY AND ALL OBSTRUCTIONS WITHIN THE RIGHT-OF-WAY AND EASEMENTS SHALL BE REMOVED BEFORE ANY CONSTRUCTION IS COMMENCED.
21. ALL CONTRACTORS/DEVELOPERS ARE RESPONSIBLE TO OBTAIN A NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT IN ACCORDANCE WITH FEDERAL AND STATE REGULATIONS, INCLUDING NOTICE OF INTENT (NOI), NOTICE OF TERMINATION, AND STORM WATER POLLUTION PREVENTION PLAN (SWPPP). A COPY OF THE NOI AND SWPPP SHALL BE AVAILABLE ON THE JOB SITE AT ALL TIMES.

CITY OF PEORIA GENERAL NOTES (CONT)

22. ALL CONTRACTORS/DEVELOPERS ARE RESPONSIBLE TO COMPLY WITH OBTAIN NECESSARY 401 AND 404 PERMITS. A COPY OF THE PERMIT SHALL BE SUBMITTED TO THE CITY PRIOR TO APPROVAL OF THE GRADING AND DRAINAGE PLANS.
23. IT IS THE RESPONSIBILITY OF THE CONTRACTOR/DEVELOPER TO OBTAIN ANY AND ALL OTHER PERMITS AND MEET ANY REQUIREMENTS SET FORTH BY OTHER AGENCIES OR UTILITIES, WHICH HAVE JURISDICTION, AT THE CONTRACTORS/DEVELOPERS EXPENSE, INCLUDING OSHA. CONTRACTOR SHALL MEET OSHA STANDARDS FOR TRENCH SAFETY.
24. AS A REMINDER, MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPARTMENT HAS ASKED THE CITY TO INFORM ALL CONTRACTORS/DEVELOPERS WORKING IN THE CITY OF PEORIA OF THE FOLLOWING:

    PER THE MARICOPA COUNTY AIR POLLUTION CONTROL RULES AND REGULATIONS ON EARTH MOVING EQUIPMENT PERMITS, NO PERSON SHALL CAUSE OR PERMIT THE USE OF ANY POWER OF MECHANICAL EQUIPMENT FOR COMMERCIAL PURPOSES TO CLEAR, EXCAVATE OR LEVEL LAND, INCLUDING BUT NOT LIMITED TO BLASTING, DEMOLITION, ROAD AND STREET CONSTRUCTION, SWIMMING POOL EXCAVATING, TRENCHING, VEGETATION REMOVAL, OR ENGAGE IN ANY OTHER EARTH MOVING ACTIVITIES WITHOUT FIRST OBTAINING A PERMIT FROM THE MARICOPA COUNTY ENVIRONMENTAL SERVICES DEPARTMENT. THE PROPERTY OWNER, LESSEE, DEVELOPER OR PRIME CONTRACTOR WILL BE RESPONSIBLE FOR ACQUIRING THE PERMIT.

    ALSO AS A REMINDER, IF THE ABOVE REFERENCED DEVELOPMENT HAS WORK THAT NEEDS TO BE DONE IN THE MARICOPA COUNTY RIGHTS-OF-WAY, PLEASE OBTAIN ALL PERMITS FROM THE MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION. THE OFF-SITE PERMITS ISSUED BY THE CITY OF PEORIA DO NOT COVER THE MARICOPA COUNTY RIGHTS-OF-WAY

GENERAL INFORMATION
CITY OF PEORIA

NO PERSON, CORPORATION, CONTRACTOR, OR UTILITY SHALL WORK WITHIN THE RIGHT-OF-WAY, ROAD, STREET, OR EASEMENTS GRANTED FOR PUBLIC USE OR ALLEYS WITHOUT SECURING AN OFF-SITE/ON-SITE PERMIT FROM THE ENGINEERING DEPARTMENT.

OFF-SITE/ON-SITE PERMITS ARE REQUIRED FOR THE FOLLOWING:

GRADING/DRAINAGE, EROSION CONTROL, FLOOD CONTROL STRUCTURES, GRADING, HAULING MATERIAL IN EXCESS OF 500 CUBIC YARDS, OILING, GRAVELING OR ANY SURFACING OF ANY STREET, OR ALLEY, WATER SYSTEM, SEWER SYSTEM, STORM DRAIN SYSTEM, TRENCHING, GAS OR ANY OTHER TYPES OF PIPE LINES, DRYWELLS, PAVING, CURB, GUTTER, SIDEWALKS, DRIVEWAYS (CONCRETE), FLOOD IRRIGATION, LANDSCAPE/ IRRIGATION, TRAFFIC SIGNALS, STRIPING, AND SIGNAGE, BANK STABILIZATION AND CHANNELIZATION, STREET LIGHTS, WELL ABANDONMENT, UTILITY LINES SUCH AS ELECTRIC, TELEPHONES, TELEVISION, COMMUNICATIONS AND OTHER FRANCHISED FACILITIES.

THE CITY'S ORDINANCE NO. 98-04 ESTABLISHES CONSTRUCTION WORK HOURS AS FOLLOWS:

PEORIA ORDINANCE No. 98-04 RESTRICTS OUTDOOR CONSTRUCTION TO THE TIME FRAME AS LISTED IN THE FOLLOWING TABLE:

CONSTRUCTION TYPE:	04/02 – 09/29	09/30 – 04/01
CONCRETE WORK	5:00 AM TO 7:00 PM	6:00 AM TO 7:00 PM
OTHER CONSTRUCTION (WITHIN 500 FEET OF RESIDENTIAL AREA)	6:00 AM TO 7:00 PM	7:00 AM TO 7:00 PM
CONSTRUCTION WORK (MORE THAN 500 FEET OF RESIDENTIAL AREA)	5:00 AM TO 7:00 PM	5:00 AM TO 7:00 PM

THIS DOCUMENT ESTABLISHES WORK HOURS IN THE PUBLIC RIGHT-OF-WAY AS FOLLOWS:

NO INTERFERENCE WITH TRAFFIC FLOW ON ARTERIAL STREETS SHALL BE PERMITTED DURING THE HOURS OF 6:00 A.M. TO 8:30 A.M., OR FROM 4:00 P.M. TO 7:00 P.M. UNLESS PRIOR AUTHORIZATION IS OBTAINED IN WRITING BY THE CITY OF PEORIA TRAFFIC ENGINEER OR HIS DESIGNEE.

PRIOR TO ISSUANCE OF OFF-SITE/ON-SITE PERMITS, THE CONTRACTOR/DEVELOPER MUST PROVIDE THE CITY OF PEORIA THE SPECIFIC INFORMATION AND PAYMENT OF FEES LISTED BELOW. ANY PERSON, CORPORATION, CONTRACTOR, OR UTILITY COMPANY WORKING IN THE RIGHT-OF-WAY, ROAD, STREET, OR EASEMENTS GRANTED FOR PUBLIC USE OR ALLEYS WITHOUT SECURING A PERMIT IS SUBJECT TO A FINE IN ACCORDANCE WITH ORDINANCE NO. 01-181.

A. SHOW PROOF OF COUNCIL APPROVAL AND RECORDATION OF FINAL PLAT OR APPROVAL OF SITE PLAN OR MINOR LAND DIVISION.
B. SUBMIT AN EXECUTED COPY OF THE AGREEMENT TO INSTALL IMPROVEMENTS, INSTALL-A OR INSTALL-B. REFER TO ORDINANCE 91-17 OF THE PEORIA CITY CODE, SECTION 11-5-5.
C. PRIOR TO RECORDATION OF THE FINAL PLAT, THE DEVELOPER MUST PROVIDE A FINANCIAL GUARANTEE TO ASSURE COMPLETION OF THE IMPROVEMENTS IN ONE OR MORE OF THE FOLLOWING: PERFORMANCE BOND, ESCROW ACCOUNT, LETTER OF CREDIT, OR THE ALTERNATE METHOD OF ASSURANCE. REFER TO ORDINANCE 91-17 OF THE PEORIA CITY CODE, SECTION 11-5-6 AND 11-5-7.
D. PROVIDE SEVEN (7) SETS OF APPROVED CONSTRUCTION PLANS TO THE CITY OF PEORIA ENGINEERING DEPARTMENT.
E. SUBMIT THREE (3) FULLY EXECUTED COPIES OF THE APS STREET LIGHT WARRANTY AGREEMENT IF STREETLIGHTS ARE INSTALLED BY A CONTRACTOR OTHER THAN APS (APPLICABLE TO DEVELOPMENTS LOCATED WITHIN THE ARIZONA PUBLIC SERVICE AREA). ALL STREETLIGHTS INSTALLED BY THE DEVELOPER/CONTRACTOR MUST COMPLY WITH THE APS STANDARDS AND APPROVED MANUFACTURERS FOR STREET LIGHTS. ALL STREETLIGHTS WITHIN THE SRP SERVICE AREA MUST BE INSTALLED BY SRP.

GENERAL INFORMATION
CITY OF PEORIA, continued

F. PROVIDE A 3.5", 1.44 MB FLOPPY DISK OR CD CONTAINING AN AUTOCAD FILE, THROUGH RELEASE 14, OF THE FINAL PLAT BASE MAP WITH LEGAL DESCRIPTION.
G. SUBMIT ALL MAINTENANCE IMPROVEMENT DISTRICT (MID) AND STREET LIGHT IMPROVEMENT DISTRICT (SLID) DOCUMENTATION LISTED IN THE MID AND SLID POLICIES.
H. THE DEVELOPER MUST PROCESS ANY IMPROVEMENT DISTRICT ASSESSMENT MODIFICATIONS.
I. ALL CONTRACTORS, SUB-CONTRACTORS, AND DEVELOPERS MUST PROVIDE A CERTIFICATE OF INSURANCE NAMING THE CITY AS ADDITIONALLY INSURED. THIS INCLUDES LIABILITY, AUTO, AND WORKER'S COMPENSATION.
J. ALL CONTRACTORS/DEVELOPERS MUST PROVIDE A COPY OF A SIGNED CONTRACT SHOWING QUANTITIES OF MATERIALS AND UNIT PRICES. THE PERMIT FOR WATER, SEWER, PAVING, CONCRETE, TRENCHING, GAS OR OTHER PIPELINES, DRYWELLS, FLOOD IRRIGATION, LANDSCAPE/IRRIGATION, TRAFFIC SIGNALS, STREET LIGHTS, STRIPING, BANK STABILIZATION AND CHANNELIZATION, STORM DRAIN FACILITIES, WELL ABANDONMENT AND UTILITY LINES, IS 3.5% OF THE CONTRACT PRICE PLUS A $15.00 ADMINISTRATION FEE.
K. ALL CONTRACTORS/DEVELOPERS MUST PROVIDE A COPY OF THE SIGNED CONTRACT SHOWING GROSS CUBIC YARDS (CUT & FILL) FOR THE GRADING AND DRAINAGE. THE PERMIT FEE WILL BE BASED UPON CALCULATED TOTAL CUBIC YARDS. A MINIMUM OF $50.00 WILL BE CHARGED FOR CUSTOM HOMES AND $100.00 FOR COMMERCIAL DEVELOPMENT.
L. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN PER THE PHOENIX TRAFFIC BARRICADE MANUAL. BARRICADES MUST BE CONTINUALLY MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT (REFER TO CITY ORDINANCE #01-181). IF ANY PART OF THE TRAFFIC CONTROL PLAN FALLS WITHIN 300' OF A SIGNALIZED INTERSECTION, AN OFF DUTY OFFICER WILL BE REQUIRED FOR TRAFFIC CONTROL. A TRAFFIC CONTROL PLAN (TCP) SHALL BE SUBMITTED TO THE ENGINEERING DEPARTMENT AND ACCEPTED A MINIMUM OF 24-HOURS PRIOR TO CONSTRUCTION. AN ACCEPTED TCP WILL BE STAMPED AND A COPY RETURNED TO THE CONTRACTOR. A COPY OF THE ACCEPTED PLAN MUST REMAIN ON THE JOB SITE AT ALL TIMES.
M. ALL CONTRACTORS, SUB-CONTRACTORS, AND DEVELOPERS MUST OBTAIN A LICENSE TO OPERATE IN THE CITY OF PEORIA AT THE SALES TAX OFFICE. YOU MUST SHOWN RECEIPT UPON OBTAINING A PERMIT, OR PROVIDE A LICENSE NUMBER. FOR MORE INFORMATION PLEASE CONTACT (623) 773-7156.
N. PAY ALL FEES AS IDENTIFIED ON THE CONSTRUCTION PLAN APPROVAL LETTER. SUCH FEES INCLUDE, BUT ARE NOT LIMITED TO: REPAYMENT ZONE CHARGES, IMPROVEMENT DISTRICT ASSESSMENT MODIFICATION CHARGES, FOG SEAL APPLICATION, WATER AND SEWER BUY-IN FEES, PROCESSING ALTERNATE METHOD OF ASSURANCE, PAYMENT TO INCORPORATE PLANS INTO CITY'S CAD SYSTEM, SLID, MID, AND FID FEES, PLAN REVIEW FEES, STREET ADDRESSING FEES, TRAFFIC SIGNAL PARTICIPATION, STRIPING, STREET SIGN AND STREET LIGHT INSTALLATION, AND ALL CITY EXPANSION FEES.
O. THE DEVELOPER/CONTRACTOR MUST PROVIDE 24 HOUR EMERGENCY TELEPHONE AND CELLULAR PHONE NUMBERS.
P. PRIOR TO THE FINAL ACCEPTANCE OF THE ON-SITE/OFF-SITE IMPROVEMENTS, THE CITY REQUIRES THE SUBMISSION OF THE FOLLOWING:

    A. REPRODUCIBLE 24"x 36", 4 MIL PHOTO MYLAR "AS-BUILT" DRAWINGS (NO ORIGINAL INKING OR STICKY BACK PERMITTED), CERTIFIED BY A REGISTERED LAND SURVEYOR OR PROFESSIONAL CIVIL ENGINEER REGISTERED IN THE STATE OF ARIZONA FOR: GRADING AND DRAINAGE, INCLUDING CERTIFICATES OF PAD OR FINISHED FLOOR ELEVATIONS, DRYWELL RIM ELEVATIONS, RETENTION/ DETENTION BASIN BOTTOM ELEVATIONS, AND FLOOD ZONE DETERMINATIONS, WATER, SEWER, PAVING, CURB, GUTTER, SIDEWALK, DRIVEWAYS, STORM DRAIN, LANDSCAPE AND LANDSCAPE IRRIGATION, STREET LIGHTS, BANK STABILIZATION AND CHANNELIZATION, TRAFFIC SIGNALS, STRIPING AND SIGNAGE, AND FLOOD IRRIGATION.
    B. ALL MATERIALS TESTING RESULTS, BAC-T TEST RESULTS. FOR WATERLINES AND VIDEO TAPES FOR SEWER LINES.
    C. COPIES OF DRYWELL DRILLING LOGS, ADEQ CERTIFICATION REGISTRATION, AND DRYWELL PERCOLATION TEST RESULTS.
    D. PROVIDE CAD DRAWING, COMPATIBLE WITH CITY SOFTWARE, OF THE WATER AND SEWER SYSTEMS BASE MAPS WITH AS-BUILT LOCATION OF MAINS AND SERVICES. (AUTOCAD DRAWING FILE, THROUGH RELEASE 14)
    E. ALL EXISTING PERIMETER/ADJACENT DAMAGED CONCRETE (SIDEWALK, CURB, GUTTER, APRON, OR VALLEY GUTTER) SHALL BE REPLACED. ALL EXISTING PERIMETER.ADJACENT CONCRETE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED.
    F. ADDITIONAL TEST RESULTS, CERTIFICATIONS, REGISTRATIONS AND REPORTS AS REQUIRED IN THE "AS-BUILT" REQUIREMENTS SECTION OF THE INFRASTRUCTURE GUIDE.

Registered Professional Engineer (Civil) CERTIFICATE NO. 34569 SHERRICK HUDSON CAMPBELL Date Signed ARIZONA, U.S.A.

PHASE I APPROXIMATE QUANTITIES

AREA	CUT	FILL	NET FILL	GABIONS (LF)	ROCK (TONS)
A	120	11896	11776		
B	17	3616	3599		
D	0	27487	27487		
F	72	2638	2566		
G	54	4361	4307		
TOTAL	263	49998	49735		

NOTES:
1. EARTHWORK QUANTITIES ARE RAW AND DO NOT TAKE INTO ACCOUNT FACTORS FOR SHRINK, SWELL AND PRECOMPACTION LOSSES.
2. CONTRACTOR IS RESPONSIBLE FOR FINAL DETERMINATION OF QUANTITIES FOR ALL ITEMS TO BE BID UPON.

PRELIMINARY
NOT
FOR
CONSTRUCTION
OR RECORDING

TWIN BUTTES WASH & WHITE PEAK WASH IMP.
G&D PLAN, PHASE I
GENERAL NOTES

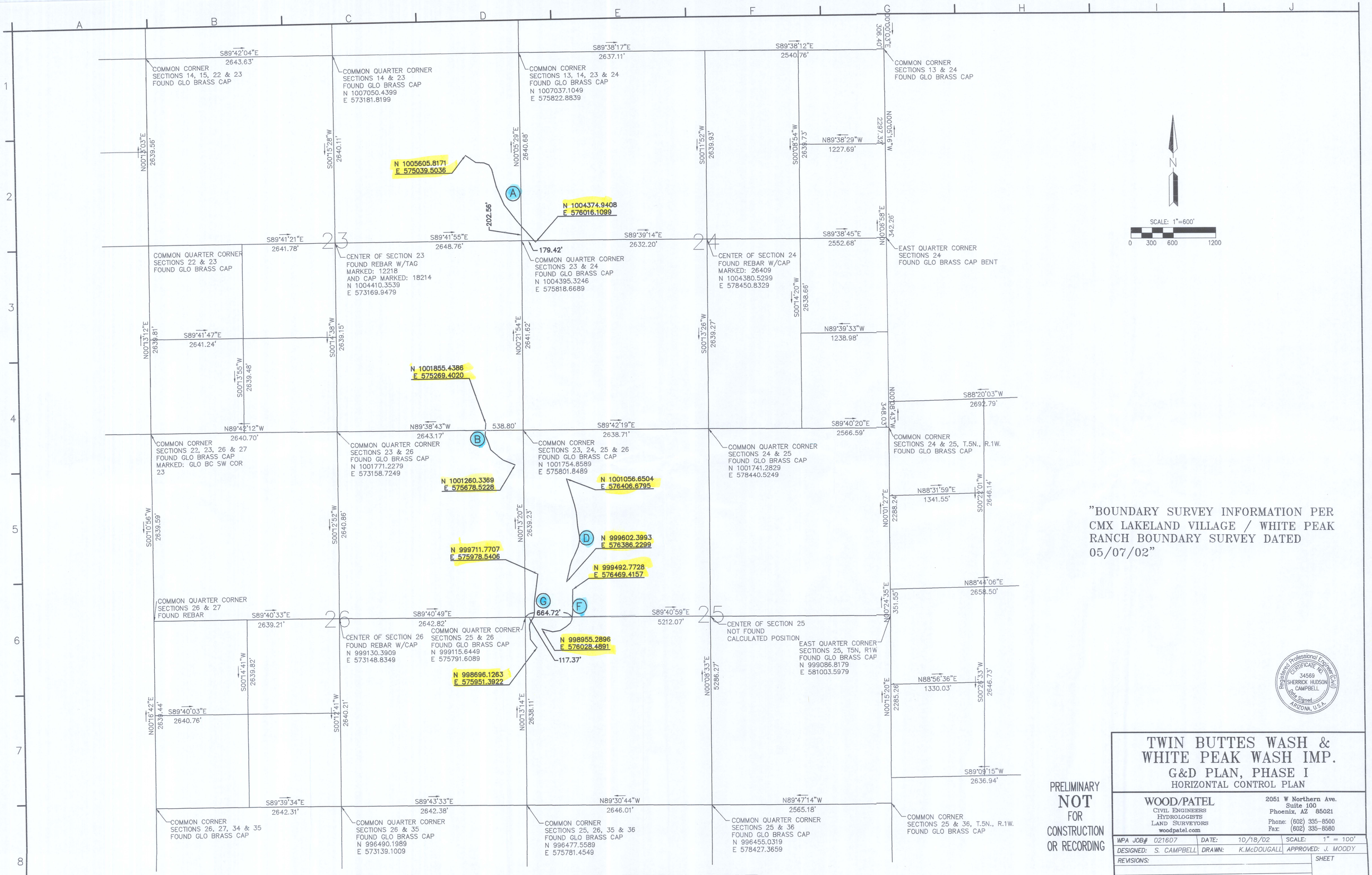
WOOD/PATEL
CIVIL ENGINEERS
HYDROLOGISTS
LAND SURVEYORS
woodpatel.com
2051 W Northern Ave.
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580

WPA JOB# 021607	DATE: 10/18/02	SCALE:
DESIGNED: S. CAMPBELL	DRAWN: K.McDOUGALL	APPROVED: J. MOODY

REVISIONS:

SHEET 2 OF 8

EXHIBIT B – PROPOSED IMPROVEMENT PLANS



"BOUNDARY SURVEY INFORMATION PER CMX LAKELAND VILLAGE / WHITE PEAK RANCH BOUNDARY SURVEY DATED 05/07/02"

SEC. 23, 24 25 & 26, T.5N., R.2E.

PRELIMINARY
NOT
FOR
CONSTRUCTION
OR RECORDING

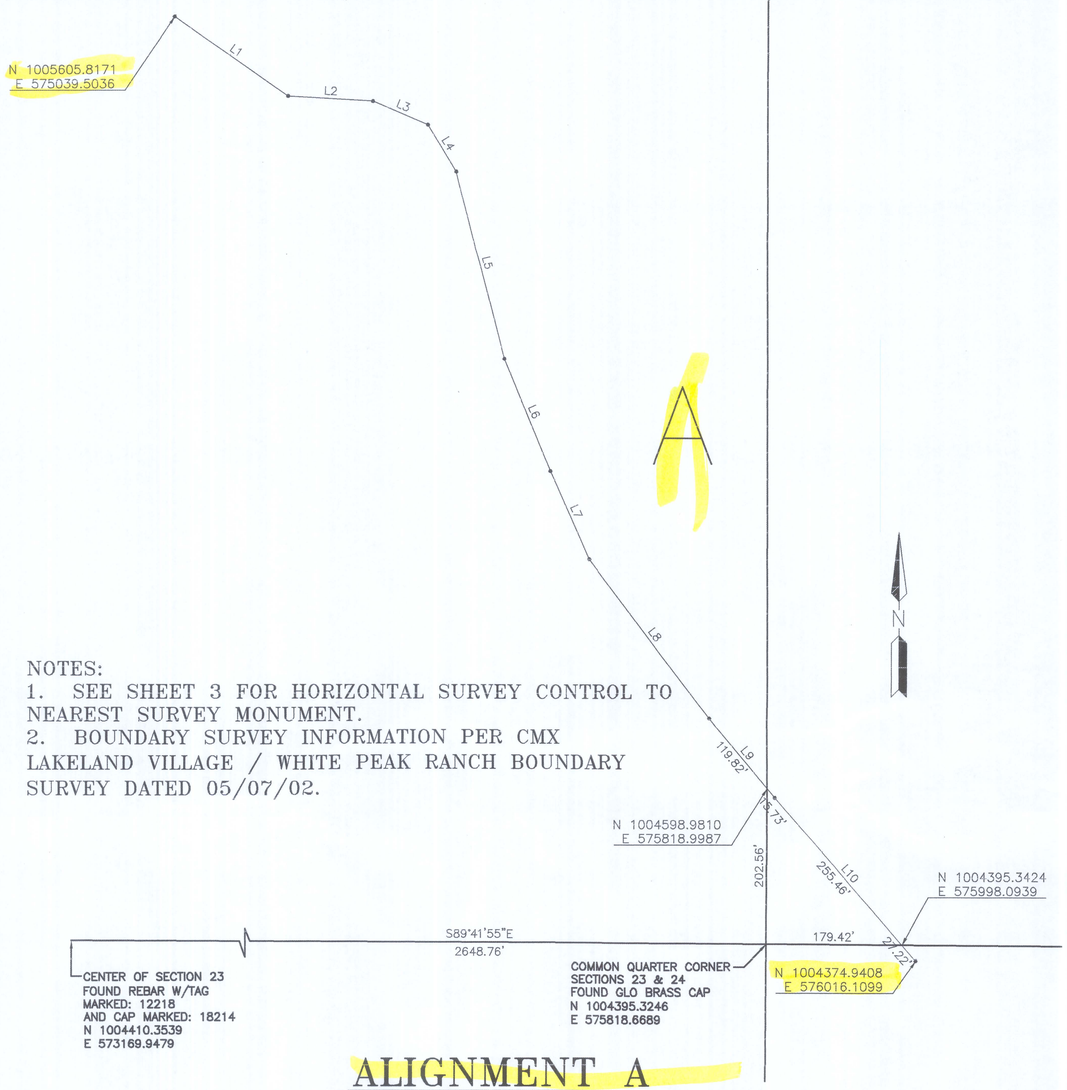
TWIN BUTTES WASH & WHITE PEAK WASH IMP.
G&D PLAN, PHASE I
HORIZONTAL CONTROL PLAN

WOOD/PATEL
CIVIL ENGINEERS
HYDROLOGISTS
LAND SURVEYORS
woodpatel.com

2051 W Northern Ave.
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580

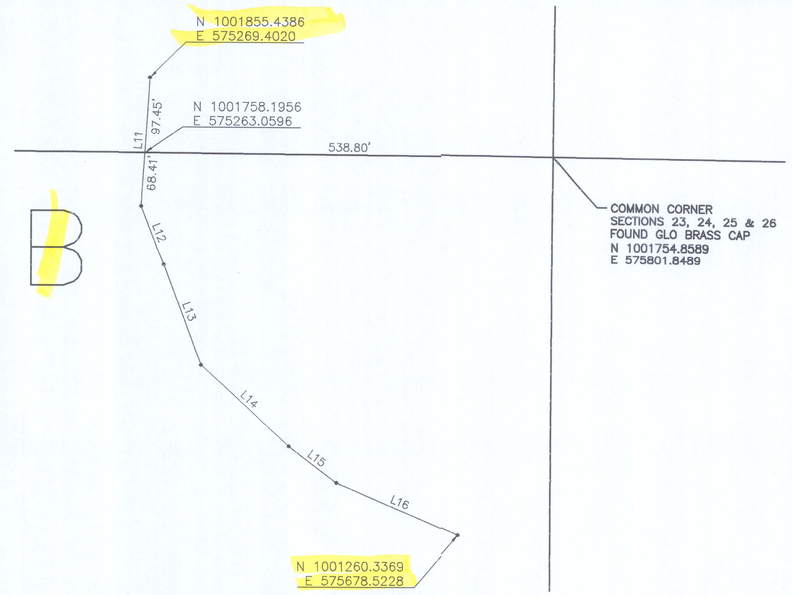
WPA JOB# 021607	DATE: 10/18/02		SCALE: 1" = 100'
DESIGNED: S. CAMPBELL	DRAWN: K.McDOUGALL		APPROVED: J. MOODY
REVISIONS:			SHEET 3 OF 8

EXHIBIT B – PROPOSED IMPROVEMENT PLANS

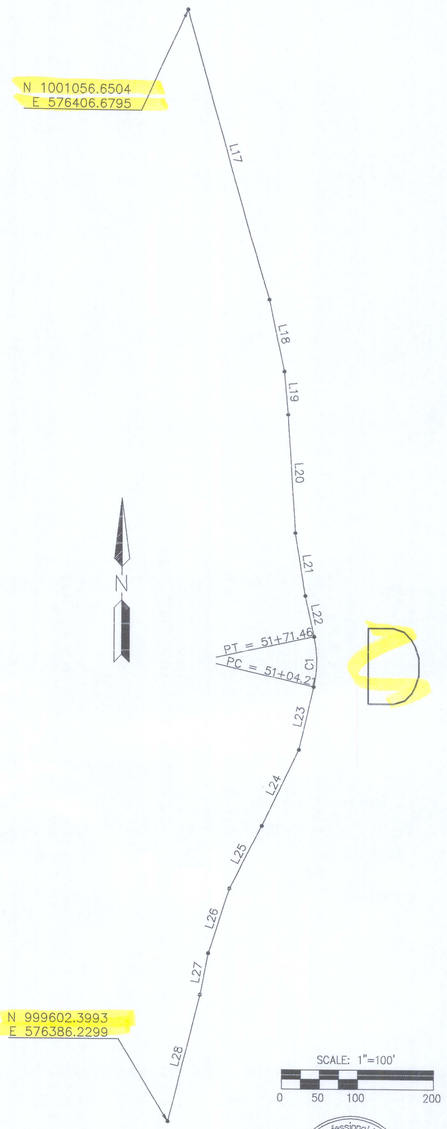


NOTES:
1. SEE SHEET 3 FOR HORIZONTAL SURVEY CONTROL TO NEAREST SURVEY MONUMENT.
2. BOUNDARY SURVEY INFORMATION PER CMX LAKELAND VILLAGE / WHITE PEAK RANCH BOUNDARY SURVEY DATED 05/07/02.

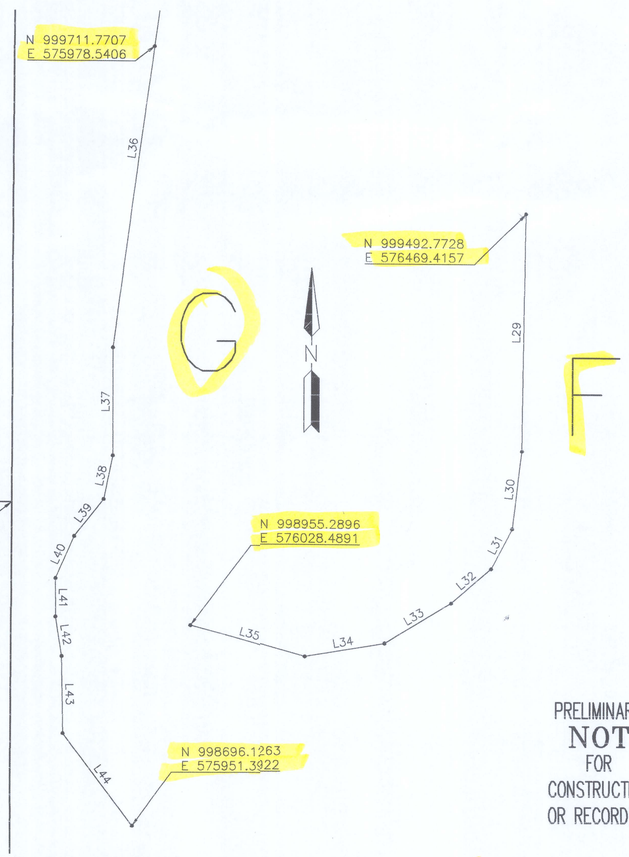
ALIGNMENT A



ALIGNMENT B



ALIGNMENT D



COMMON QUARTER CORNER
SECTIONS 25 & 26
FOUND GLO BRASS CAP
N 999115.6449
E 575791.6089

ALIGNMENTS G & F

LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE
L1	S55°13'08"E	181.34	L23	S13°15'03"W	85.03
L2	S86°25'36"E	111.96	L24	S25°53'04"W	111.39
L3	S67°15'56"E	78.24	L25	S27°25'35"W	92.38
L4	S31°37'42"E	71.03	L26	S17°49'57"W	89.32
L5	S14°26'04"E	253.65	L27	S11°06'30"W	55.01
L6	S22°26'32"E	158.55	L28	S14°02'46"W	171.08
L7	S24°11'47"E	124.95	L29	N00°48'06"E	308.92
L8	S37°24'14"E	260.60	L30	N06°57'31"E	103.21
L9	S39°27'02"E	135.55	L31	N27°39'54"E	59.25
L10	S41°26'48"E	282.68	L32	N49°25'18"E	69.15
L11	N03°43'54"E	165.86	L33	N59°03'24"E	102.06
L12	N21°05'02"W	83.79	L34	N80°32'43"E	106.48
L13	N20°45'25"W	139.26	L35	S74°45'24"E	157.03
L14	N47°44'31"W	156.84	L36	N07°45'20"E	397.87
L15	N53°09'06"W	78.73	L37	N00°00'00"E	140.53
L16	N66°59'27"W	175.28	L38	N11°53'52"E	58.42
L17	S16°12'03"E	393.12	L39	N38°19'48"E	62.41
L18	S12°07'59"E	96.73	L40	N23°56'29"E	60.18
L19	S05°10'37"E	56.00	L41	N00°15'35"W	50.00
L20	S03°40'52"E	155.60	L42	N09°09'19"W	51.62
L21	S09°21'45"E	82.86	L43	N00°59'41"W	99.22
L22	N12°26'10"W	53.99	L44	S37°26'09"E	150.61

CURVE	LENGTH	RADIUS	DELTA	TANGENT
C1	67.25	150.00	25°41'13"	34.20

Registered Professional Engineer (Civil)
CERTIFICATE NO. 34569
SHERRICK HUDSON CAMPBELL
Date Signed
ARIZONA, U.S.A.

PRELIMINARY
NOT
FOR
CONSTRUCTION
OR RECORDING

TWIN BUTTES WASH & WHITE PEAK WASH IMP.
G&D PLAN, PHASE I
HORIZONTAL CONTROL PLAN

WOOD/PATEL
CIVIL ENGINEERS
HYDROLOGISTS
LAND SURVEYORS
woodpatel.com

2051 W Northern Ave.
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580

WPA JOB# 021607	DATE: 10/18/02	SCALE: 1" = 100'	
DESIGNED: S. CAMPBELL	DRAWN: K.McDOUGALL	APPROVED: J. MOODY	
REVISIONS:		SHEET	

SUPPLEMENTAL
EROSION CONTROL SPECIFICATIONS

WORK DESCRIPTION

This work shall consist of furnishing and installing erosion control geotextiles, gabions or other erosion protection material in accordance with the lines, grade, design and dimensions shown in the drawings and as specified here.

Geotextile: The geotextile shall be Maccaferri MacTex MX 275 or approved equal. The geotextile shall be composed of synthetic fibers formed into nonwoven fabric. Fibers used in manufacture of the geotextile shall be composed of long chain polymeric filaments. They shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other , including selvages. These materials shall conform to the requirements of Table "A". The geotextile shall contain stabilizers and/or inhibitors to make the fibers resistant to deterioration resulting from exposure to sunlight or heat. The geotextile shall be free of defects or flaws which significantly affect its physical and/or filtering properties.

TABLE "A"
PHYSICAL REQUIREMENTS–EROSION CONTROL NONWOVEN GEOTEXTILE

Property	Units	Numeric Value	Test Method
Grab Tensile Strength	lb	200	ASTM D 4632
Grab Elongation	%	50	ASTM D 4632
Seam Strength	lb	200	ASTM D 4632
Puncture Strength	lb	130	ASTM D 4833
Mullen Burst Strength	lb/in^2	400	ASTM D 3786
Trapezoid Tear	lb	80	ASTM D 4533
Permittivity	Sec^{-1}	1.4	ASTM D 4491
Ultraviolet Stability %	%	70/500 Hrs	ASTM D 4355
Apparent Opening Size	U.S. Standard Sieve	80	ASTM D 4751

All numerical values represent minimum average roll values (i.e., average of test results from any sampled roll in a lot shall meet or exceed the minimum values) in a weaker principal direction. Lot sampled according to ASTM 4354 "Practice for Sampling of Geosynthetics for Testing".

Conformance of geotextiles to specification property requirements shall be based on ASTM D 4759, "Practice for Determining the Specification Conformance of Geosynthetics". Owner will require a letter from the manufacturer certifying that the geotextiles furnished meet specification requirements.

If field seams are required by owner values apply to both field and factory.

Geotextile Shipment and Storage: The geotextile shall be kept dry and wrapped such that it is protected from the elements during shipping and storage. At no time shall the geotextile be exposed to ultraviolet light for period exceeding fourteen days. The geotextile shall be labeled as per ASTM D4873. "Guide for Identification, Storage, and Handling of Geotextiles". Rolls shall be stored in a manner which protects them from the elements. If stored outdoors, they shall be elevated and protected with a waterproof cover.

Geotextile Placement: The geotextile shall be placed on a smooth graded surface approved by the owner. The geotextile shall be placed in such a manner that will not excessively stretch or tear upon placement of the overlying materials. Care should be taken to place the geotextile in intimate contact with the soil such that no void spaces exist between the underlying soil and the geotextile. Anchoring of the geotextile shall be accomplished through the use of key trenches of aprons at the crest and toe of slope.

Geotextile sheets shall be joined by either seaming or overlapping. All overlaps and seams shall be subject to the approval of the owner. Overlapped sheets shall have a minimum overlap of 3 feet. Overlaps shall be constructed with the upstream sheet placed over the downstream sheet or the upslope sheet placed over the downslope sheet. All overlaps shall be pined on 3–foot centers to hold the overlap in place during Gabion/Mattress placement. Pins are to be 3/16–in. diameter, 18–inches long, steel pins pointed at one end and fitted with a 1.5 inch diameter washer at the other.

Care shall be taken during construction to avoid contamination of the geotextile during construction. Contaminated geotextile shall be removed and replaced at the contractor's expense. Damaged geotextile shall be removed or repaired as directed by the owner. The patch shall extend 3 feet beyond the perimeter of the tear or damage and be pinned on 3–foot centers.

In the event that installation of the Gabion/Mattress and /or Stone demonstrates excessive damage/puncture to the geotextile, in the opinion of the owner. The contractor shall install a two inch gravel blanket between the geotextile and the Gabion/Mattress at the contractor's sole expense.

Granular bedding may be used in lieu of geotextile. Granular bedding shall be 4" thick, 3" minus graded gravel.

Gabion/Mattress Stone: Stone placement shall begin at the Gabion/Mattress toe and proceed up the slope. Stone shall not be dropped onto the geotextile from a height of more than 1 foot unless field trials demonstrate, to the approval of the inspector, that greater drop heights will not damage/puncture the geotextile. Any geotextile damaged during placement of stone shall be replaced as directed by the owner at the contractor's expense. Concrete rubble shall not be allowed as an acceptable substitution for stone. Stone shall conform to Table "B".

TABLE "B"

BOX GABION STONE	GABION MATTRESS STONE
D_{MIN} = 4"	D_{MIN} = 3"
D_{50} = 6"	D_{50} = 4.5"
D_{MAX} = 8"	D_{MAX} = 6"

Box Gabion/Gabion Mattress: Gabions and mattresses shall be fabricated in such a manner that the sides, ends, lid and diaphragms can be assembled at the construction site into rectangular units of the specified sizes. Gabions and mattresses are to be single unit construction, the base, ends and sides either to be woven into a single unit or one edge of these members connected to the base section of the unit in such a manner that strength and flexibility at the point of connection is at least equal to that of the mesh.

Where the length of the gabion or mattress exceeds its horizontal width, the gabion or mattress is to be equally divided by diaphragms, of the same mesh and diameter as the body of the gabions or mattresses, into cells whose length does not exceed the horizontal width. The gabions and mattresses shall be furnished with necessary diaphragms secured in proper position on the base section in such a manner that no additional tying at this juncture will be necessary.

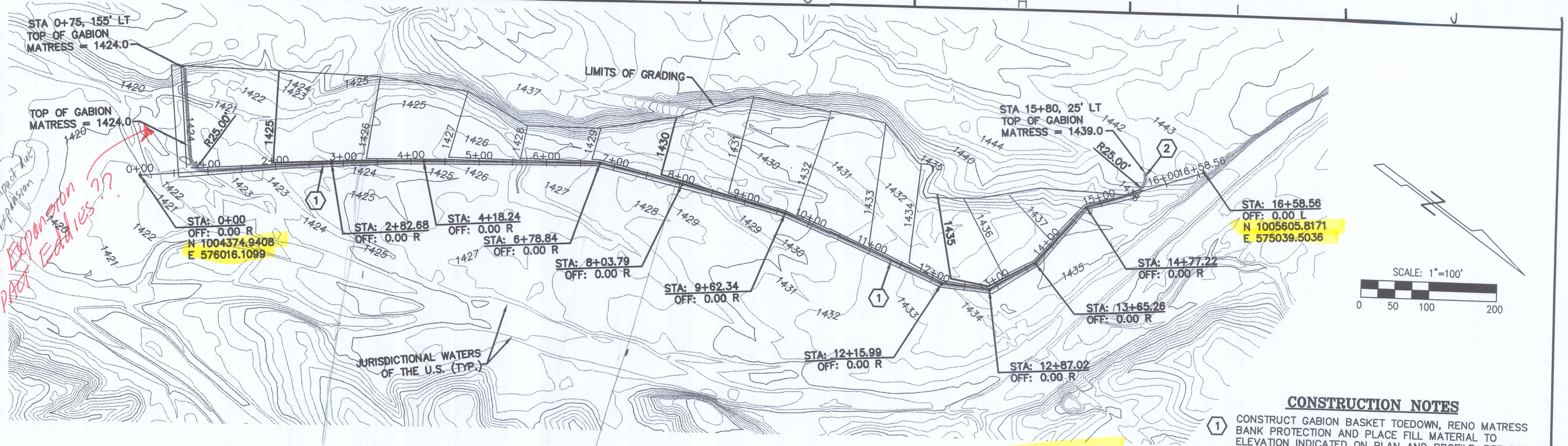
All perimeter edges of gabions and mattresses are to be securely selvedged or bound so that the joints formed by tying the selvages have at least the same length as the body of the mesh.

Gabions and mattress shall conform with the project plan details. Stone shall be placed in close contact in the unit so that maximum fill is obtained. The units may be filled by machine with sufficient hand work to accomplish requirements of this specification.

Three foot high cells shall be filled in three lifts. Two connecting tie wires shall be placed between each lift in each cell. Care shall be taken to protect the vertical panels and diaphragms from being bent during filling operations.

The last lift of stone in each cell shall be level with the top of the gabion or mattress in order to properly close the lid and provide an even surface.

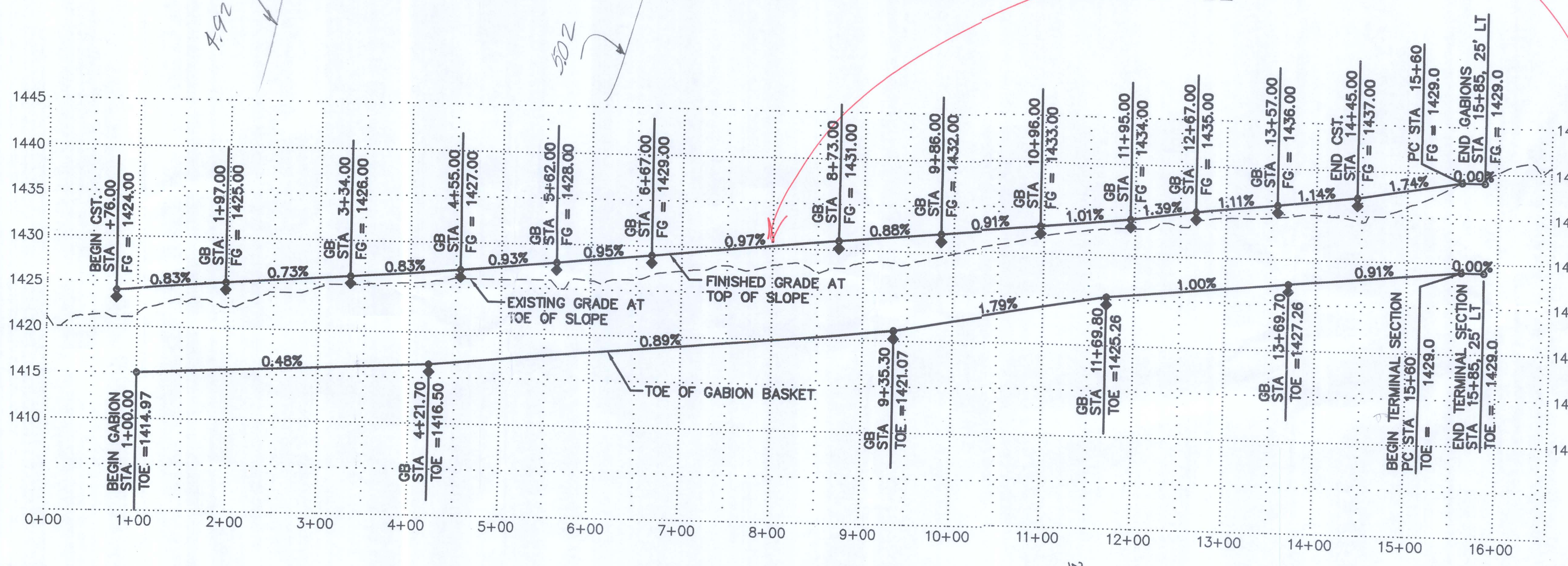
All gabion and mattress units shall be periodically tied or continuously laced together using selvedge wire, each to its neighbor, along all contacting edges, at 6–inch maximum spacing between ties, in order to form continuous connection structure.



CONSTRUCTION NOTES

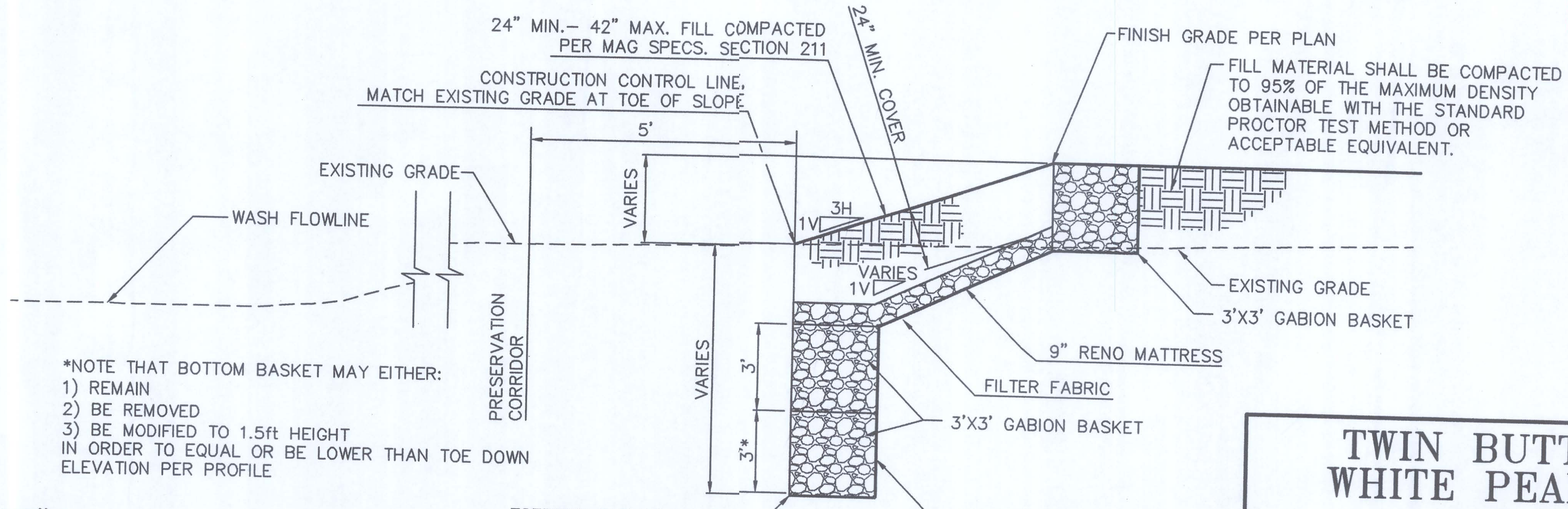
1. CONSTRUCT GABION BASKET TOEDOWN, RENO MATRESS BANK PROTECTION AND PLACE FILL MATERIAL TO ELEVATION INDICATED ON PLAN AND PROFILE, PER DETAIL ON SHEET 5.
2. CONSTRUCT TERMINAL SECTION FOR BANK PROTECTION AND TOEDOWN PER DETAIL ON SHEET 6.

TWIN BUTTES WASH – ALIGNMENT A



1. Show & identify Floodplain/ Floodway Limits Lines
2. Show & identify Crossection locations of FIS Study
3. Verify Top of Bank as HEC Coding does not agree with grading plan Elev..

Reason Top of Bank Coding may be off is that new topo here for Flow line channel may not be same as FIS Study Bottom of channel.



*NOTE THAT BOTTOM BASKET MAY EITHER:
1) REMAIN
2) BE REMOVED
3) BE MODIFIED TO 1.5ft HEIGHT
IN ORDER TO EQUAL OR BE LOWER THAN TOE DOWN ELEVATION PER PROFILE

Box gabions shall be fabricated from zinc coated 8x10 mesh steel wire meeting:

Mesh Opening: Hex Nom 3–1/4" x 4–1/2"
Mesh Wire: 0.120" Nom.Diam., ./sq.ft zinc coating
Selvedge Wire: 0.1535" Nom. Diam., 0.90 ozs./sq.ft. zinc coating
Lacing Wire: 0.0866" Nom. Diam., 0.70 ozs./sq.ft. zinc coating

Box gabions shall be MACCAFERRI gabions or approved equal.

Gabion Mattresses shall be fabricated from zinc coated 8x10 mesh steel wire meeting:

Mesh Opening: Hex Nom 3–1/4" x 4–1/2"
Mesh Wire: 0.120" Nom.Diam., ./sq.ft zinc coating
Selvedge Wire: 0.1535" Nom. Diam., 0.90 ozs./sq.ft. zinc coating
Lacing Wire: 0.0866" Nom. Diam., 0.70 ozs./sq.ft. zinc coating

Gabion mattresses shall be MACCAFERRI Reno Mattresses or approved equal.

TYPICAL BANK PROTECTION AND TOE DOWN DETAIL
N.T.S.

PRELIMINARY
NOT
FOR
CONSTRUCTION
OR RECORDING

Registered Professional Engineer (Civil) CERTIFICATE NO. 34569 SHERRICK HUDSON CAMPBELL Date Signed .... ARIZONA, U.S.A.

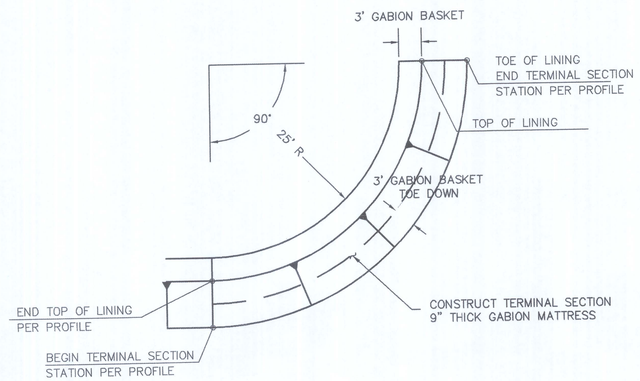
If Basing Study & Elevations on FIS Study then must plot Crossection Locations on Improvement Plans and set top of Bank based on this..

TWIN BUTTES WASH & WHITE PEAK WASH IMP.
G&D PLAN, PHASE I
PLAN AND PROFILE SHEET

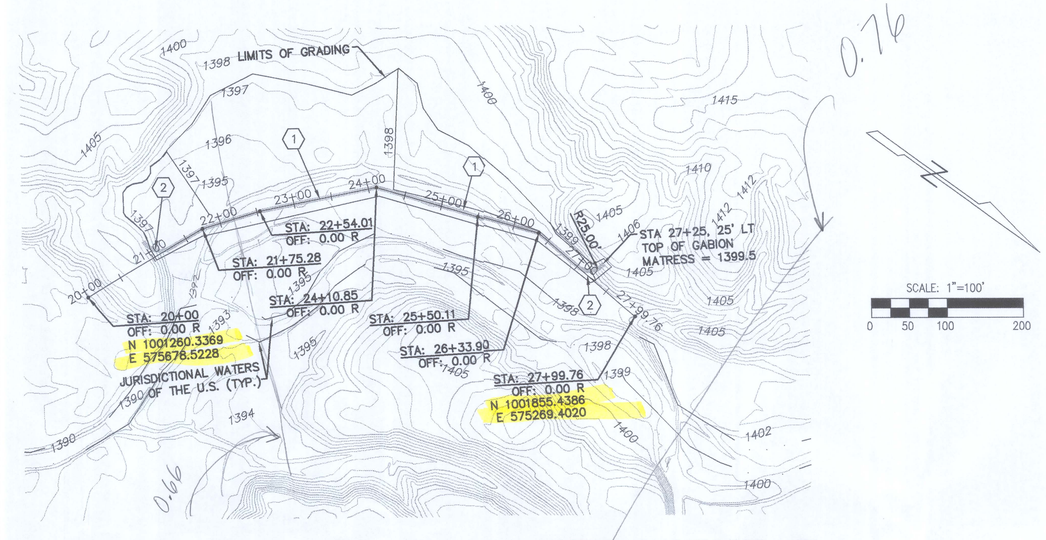
WOOD/PATEL
CIVIL ENGINEERS
HYDROLOGISTS
LAND SURVEYORS
woodpatel.com
2051 W Northern Ave.
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580

WPA JOB#	021607	DATE:	10/18/02	SCALE:	1" = 100'
DESIGNED:	S. CAMPBELL	DRAWN:	K.McDOUGALL	APPROVED:	J. MOODY
REVISIONS:				SHEET	5 OF 8

EXHIBIT B – PROPOSED IMPROVEMENT PLANS



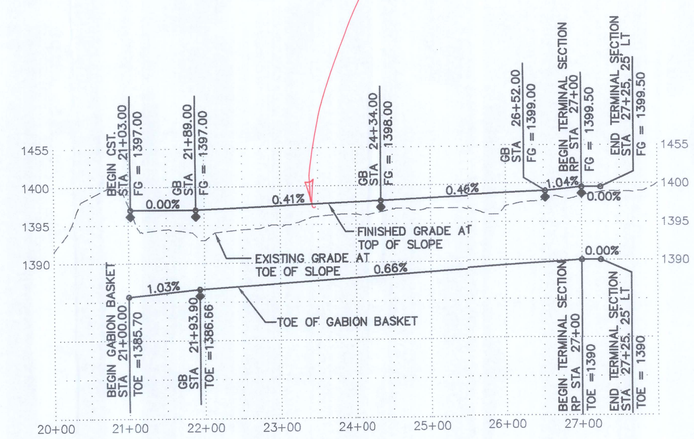
TERMINAL SECTION
N.T.S.



WHITE PEAK WASH – ALIGNMENT B

CONSTRUCTION NOTES

1. CONSTRUCT GABION BASKET TOEDOWN, RENO MATRESS BANK PROTECTION AND PLACE FILL MATERIAL TO ELEVATION INDICATED ON PLAN AND PROFILE, PER DETAIL ON SHEET 5.
2. CONSTRUCT TERMINAL SECTION FOR BANK PROTECTION AND TOEDOWN PER DETAIL ON SHEET 6.



0.76

0.66

1 show & Identify Floodplain Floodway Limits

2 Shown & Identify FIS crosssections

3 Verify Top Bank Elevation as does not correlate with HEC Input data & X-section locations

Registered Professional Engineer (Civil)
CERTIFICATE NO. 34569
SHERROD HUDSON CAMPBELL
Date Signed
ARIZONA, U.S.A.

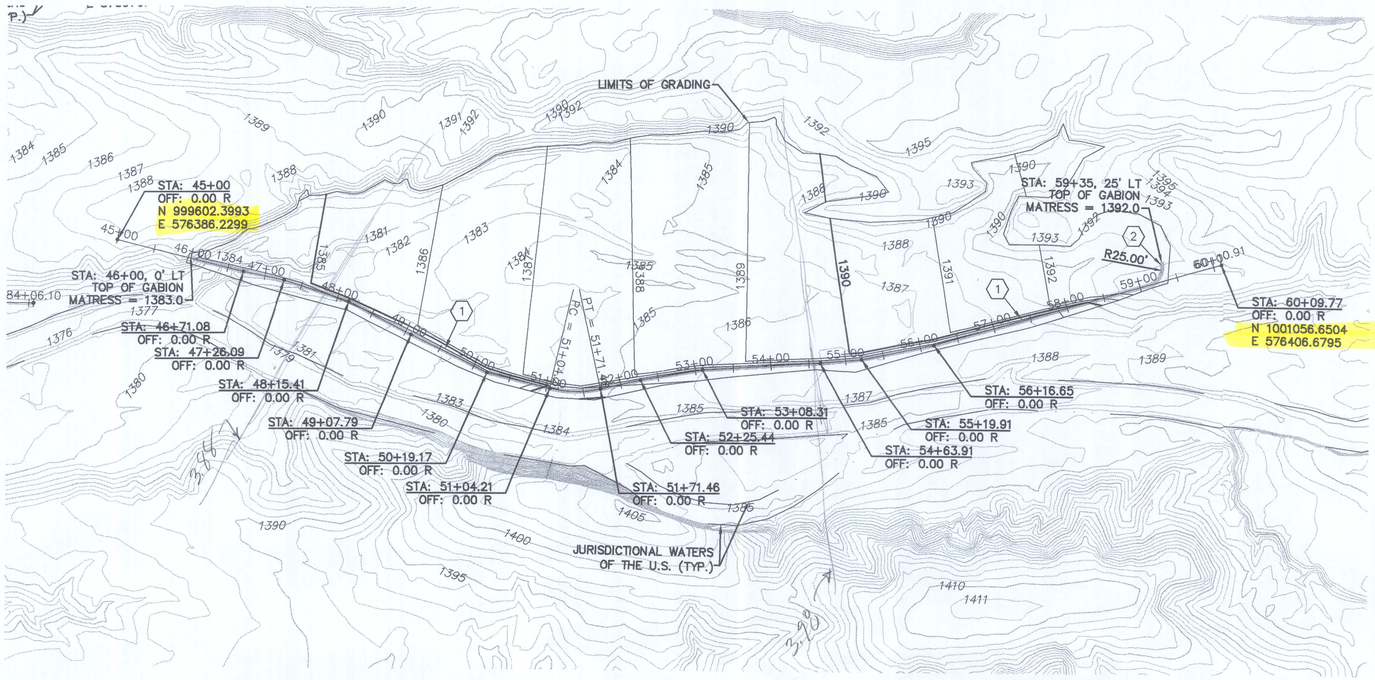
PRELIMINARY
NOT
FOR
CONSTRUCTION
OR RECORDING

TWIN BUTTES WASH &
WHITE PEAK WASH IMP.
G&D PLAN, PHASE I
PLAN AND PROFILE SHEET

WOOD/PATEL
CIVIL ENGINEERS
HYDROLOGISTS
LAND SURVEYORS
woodpatel.com

2051 W Northern Ave.
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580

WPA JOB# 021607	DATE: 10/18/02		SCALE: 1" = 100'
DESIGNED: S. CAMPBELL	DRAWN: K.McDOUGALL		APPROVED: J. MOODY
REVISIONS:			SHEET 6 OF 8



SCALE: 1"=100'

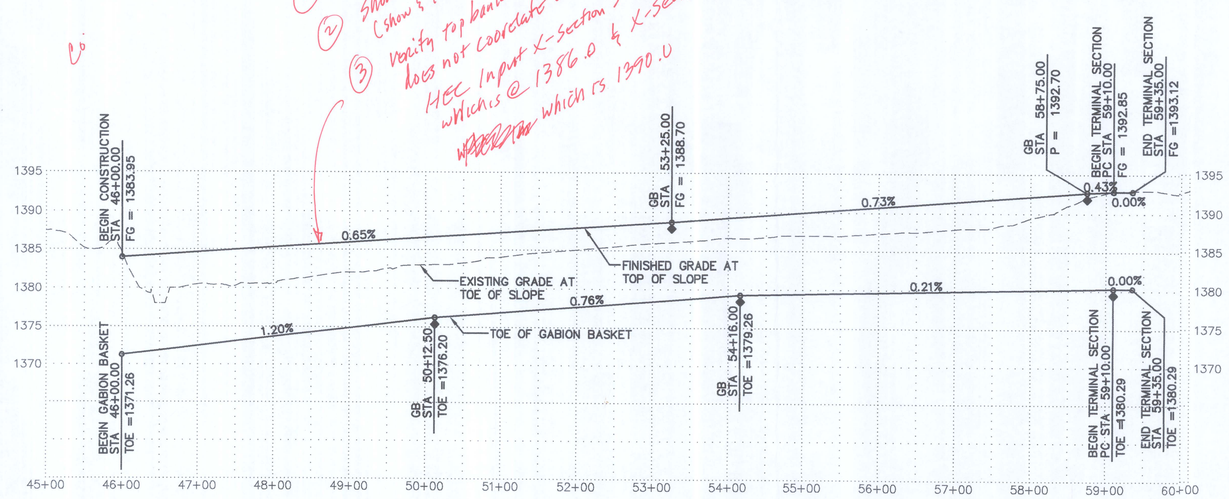
0 50 100 200

CONSTRUCTION NOTES

1. CONSTRUCT GABION BASKET TOEDOWN, RENO MATRESS BANK PROTECTION AND PLACE FILL MATERIAL TO ELEVATION INDICATED ON PLAN AND PROFILE, PER DETAIL ON SHEET 5.
2. CONSTRUCT TERMINAL SECTION FOR BANK PROTECTION AND TOEDOWN PER DETAIL ON SHEET 6.

TWIN BUTTES WASH – ALIGNMENT D

1. Show & identify Floodway
2. Show X-sections (show & identify)
3. Verify top bank-as does not coordinate well with HEC Input X-section 3.88 which is @ 1386.0 & X-section 3.98 which is 1390.0

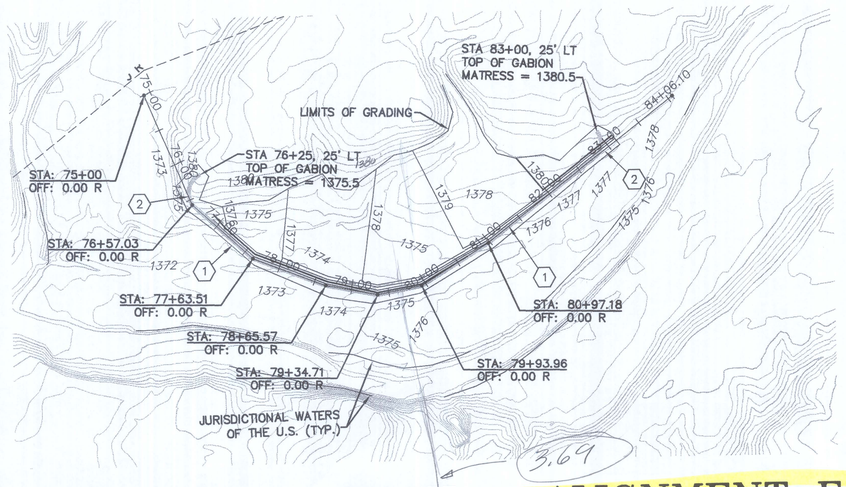


Registered Professional Engineer (Civil)
CERTIFICATE NO. 34569
SHERRICK HUDSON CAMPBELL
Date Signed
ARIZONA, U.S.A.

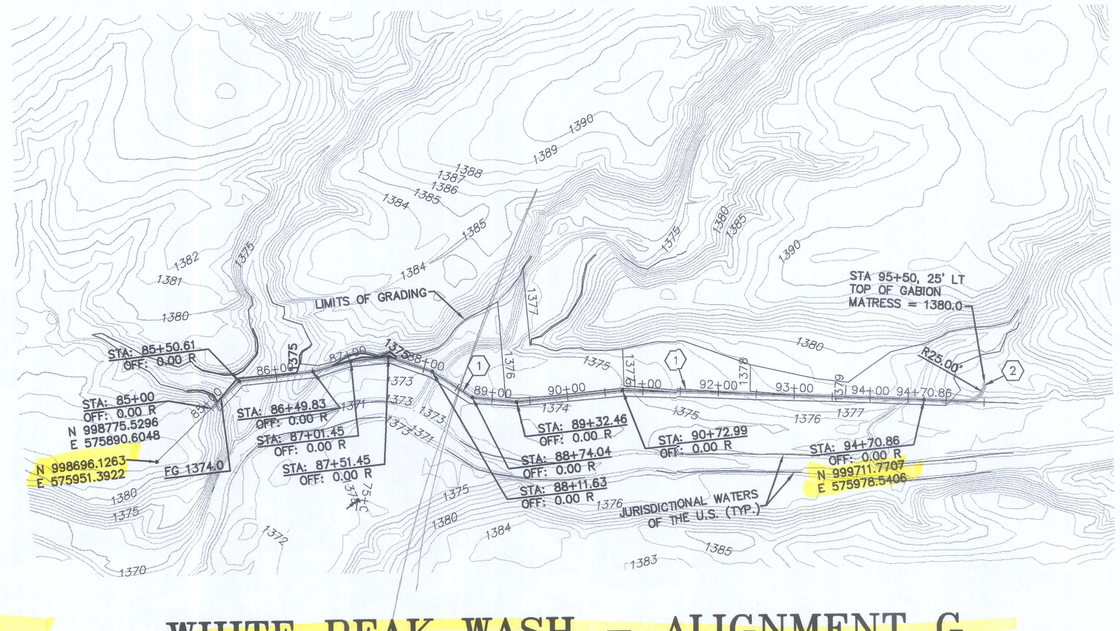
PRELIMINARY
NOT
FOR
CONSTRUCTION
OR RECORDING

TWIN BUTTES WASH & WHITE PEAK WASH IMP. G&D PLAN, PHASE I PLAN AND PROFILE SHEET			
WOOD/PATEL CIVIL ENGINEERS HYDROLOGISTS LAND SURVEYORS woodpatel.com	2051 W Northern Ave. Suite 100 Phoenix, AZ 85021 Phone: (602) 335-8500 Fax: (602) 335-8580		
WPA JOB# 021607	DATE: 10/18/02	SCALE: 1" = 100'	
DESIGNED: S. CAMPBELL	DRAWN: K.McDOUGALL	APPROVED: J. MOODY	
REVISIONS:		SHEET 7 OF 8	

EXHIBIT B – PROPOSED IMPROVEMENT PLANS



TWIN BUTTES WASH – ALIGNMENT F



WHITE PEAK WASH – ALIGNMENT G

CONSTRUCTION NOTES

1. CONSTRUCT GABION BASKET TOEDOWN, RENO MATRESS BANK PROTECTION AND PLACE FILL MATERIAL TO ELEVATION INDICATED ON PLAN AND PROFILE, PER DETAIL ON SHEET 5.
2. CONSTRUCT TERMINAL SECTION FOR BANK PROTECTION AND TOEDOWN PER DETAIL ON SHEET 6.

SCALE: 1"=100'
0 50 100 200

3.69

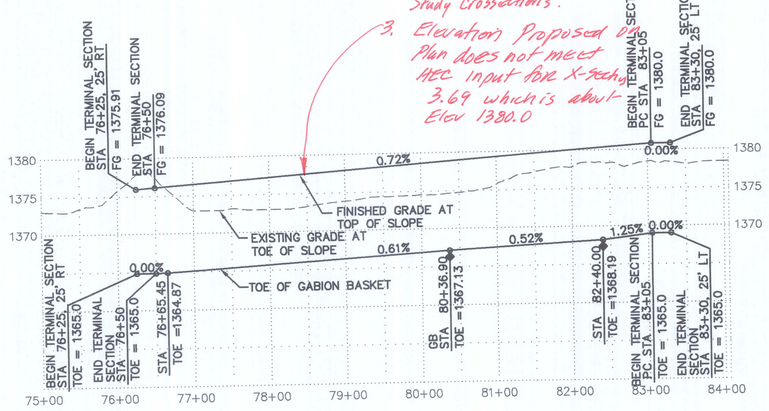
6.2 ÷ 18.9 = 3.1

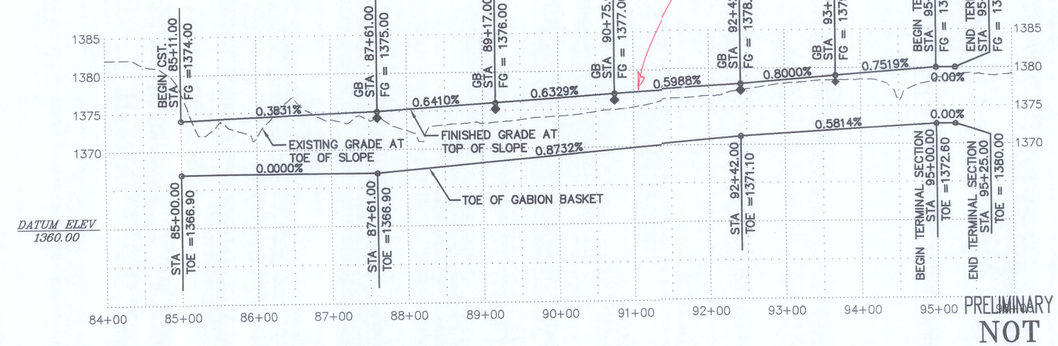
1. Show & Identify Floodplain Limit Line and Floodway Limit Line
2. Show & Identify Flood Insurance Study Crossections.
3. Elevation Proposed on Plan does not meet HEC input for X-section 3.69 which is about Elev 1380.0

0.09

Elevation Without Elevation sets X-section Location

Verify X-section Location & Top of Bank in HEC Run does not agree with this profile Elevation.





Registered Professional Engineer (Civil)
CERTIFICATE NO. 34569
SHERRICK HUDSON CAMPBELL
Date Signed
ARIZONA, U.S.A.

PRELIMINARY
NOT
FOR
CONSTRUCTION
OR RECORDING

TWIN BUTTES WASH & WHITE PEAK WASH IMP.

G&D PLAN, PHASE I

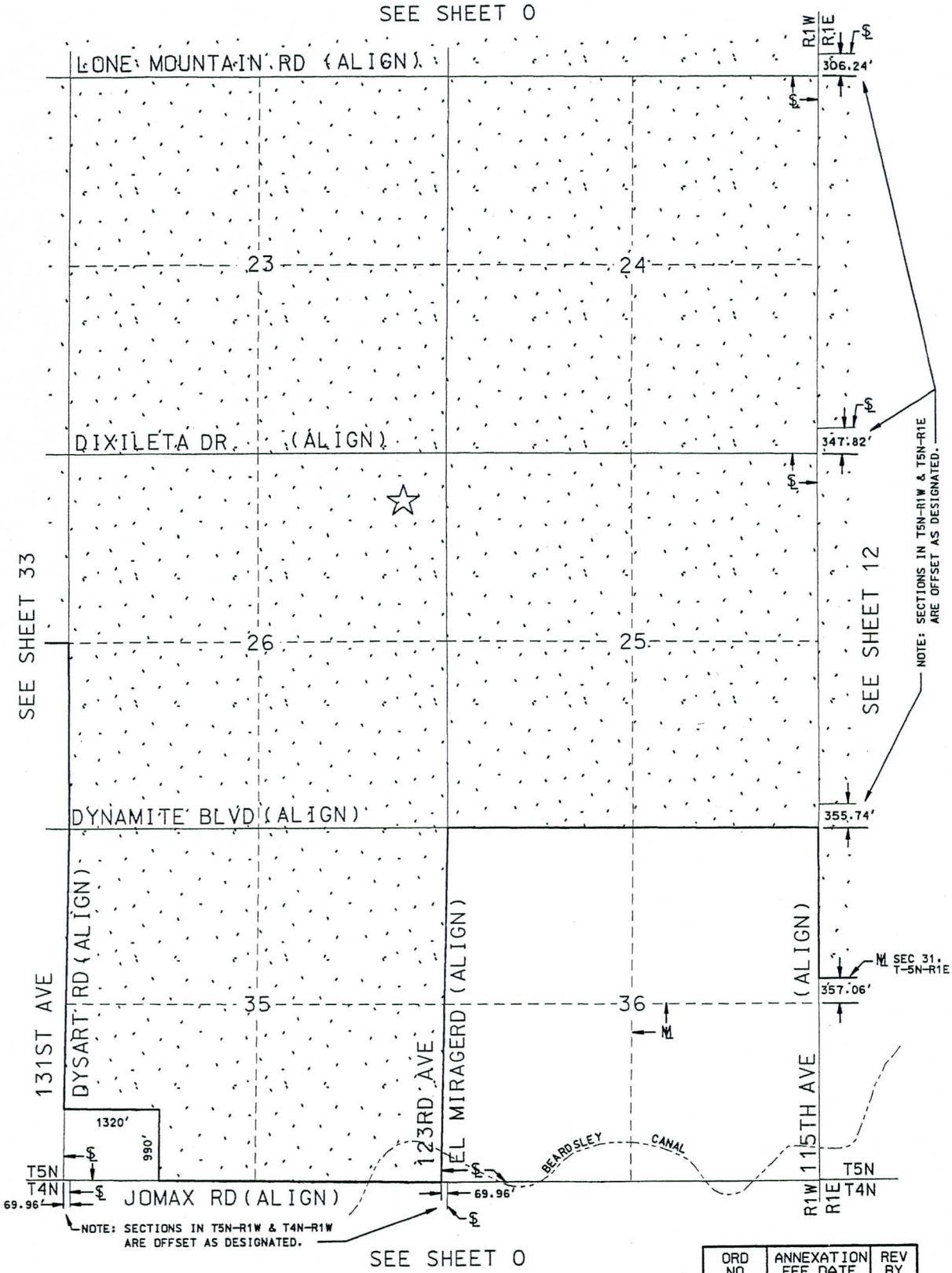
PLAN AND PROFILE SHEET

WOOD/PATEL
CIVIL ENGINEERS
HYDROLOGISTS
LAND SURVEYORS
woodpatel.com

2051 W Northern Ave.
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580

WPA JOB# 021607	DATE: 10/18/02	SCALE: 1" = 100'	
DESIGNED: S. CAMPBELL	DRAWN: K.McDOUGALL	APPROVED: J. MOODY	
REVISIONS:		SHEET 8 OF 8	

EXHIBIT B – PROPOSED IMPROVEMENT PLANS



ORD NO	ANNEXATION EFF DATE	REV BY
01-158	11/02/01	DKG

PEORIA (40)

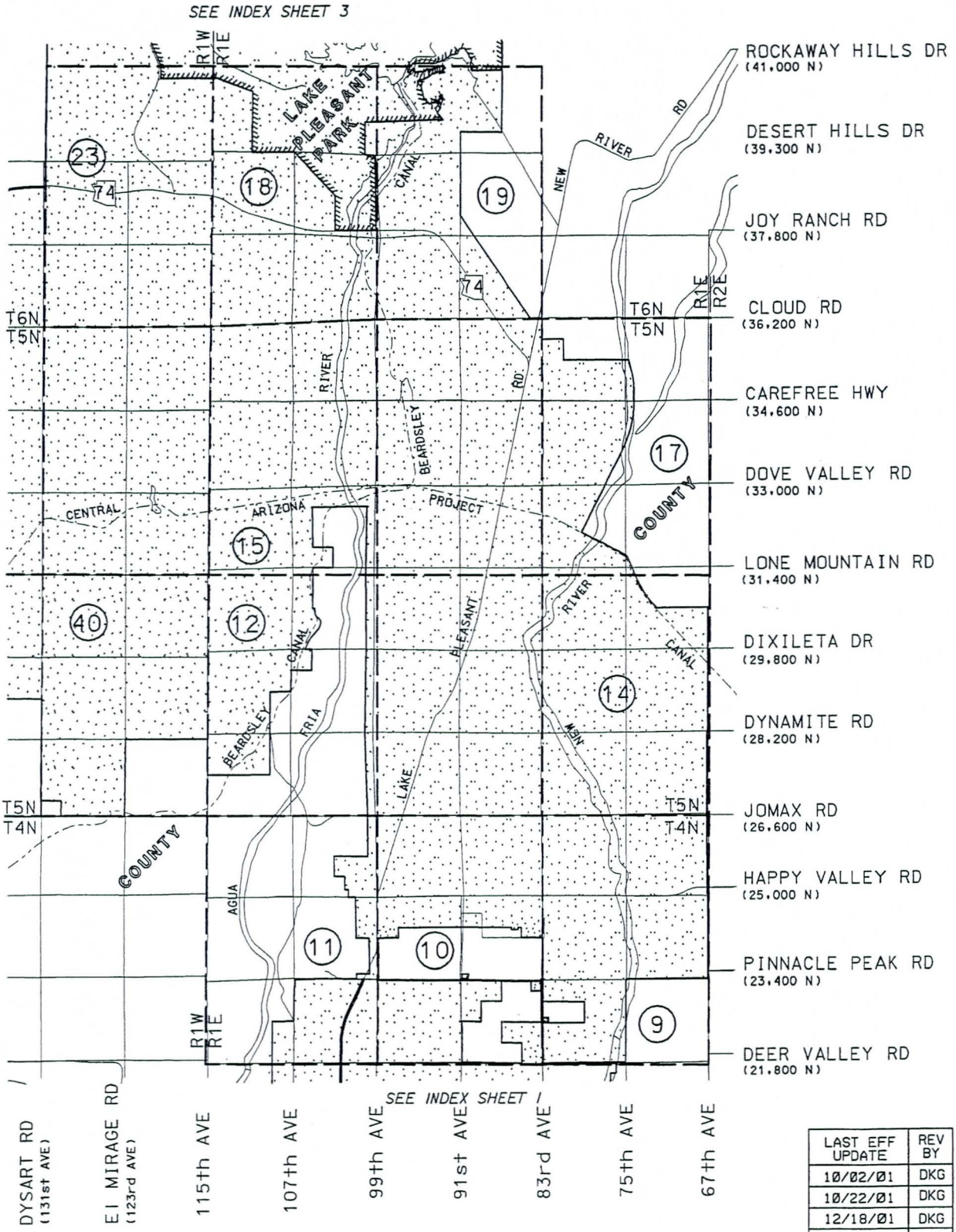
T5N- R1W

THIS CITY LIMIT SHEET IS TO BE USED AS A GUIDE ONLY! MARICOPA COUNTY WILL NOT BE RESPONSIBLE FOR ERRORS OR OMISSIONS THAT MIGHT OCCUR.

- INCORPORATED AREA

PEORIA

INDEX SHEET 2



LAST EFF UPDATE	REV BY
10/02/01	DKG
10/22/01	DKG
12/18/01	DKG
05/29/02	DKG
07/25/02	DKG

THIS CITY LIMIT SHEET IS TO BE USED AS A GUIDE ONLY! MARICOPA COUNTY WILL NOT BE RESPONSIBLE FOR ERRORS OR OMISSIONS THAT MIGHT OCCUR.

- INCORPORATED AREA

WOOD/PATEL

LETTER OF TRANSMITTAL

CIVIL ENGINEERS • HYDROLOGISTS • LAND SURVEYORS • CONSTRUCTION MANAGERS

Date: 10/18/2002

To:	Lynn Thomas	**Project:**	**Vistancia**
	Flood Control District of Maricopa County	**Project No.:**	021607
	2801 West Durango	**Re:**	**Twin Buttes Wash & White Peak Wash**
	Phoenix, AZ 85009		
Phone:	*(602) 506-4779*	**Sent Via:**	Hand Delivery
Fax:	*602-506-4601*		

Copies	Date	Description
1	10/18/02	Twin Buttes Wash & White Peak Wash Improvements Grading & Drainage Plan, Phase 1 – bond prints
1	10/18/02	Twin Buttes Wash & White Peak Wash Improvements Grading & Drainage Plan, Phase 2 – bond prints
1	10/18/02	Twin Buttes Wash & White Peak Wash Improvements Grading & Drainage Plan, Phase 1 – Technical Data Notebook
1	10/18/02	Twin Buttes Wash & White Peak Wash Improvements Grading & Drainage Plan, Phase 2 – Technical Data Notebook

Remarks

Lynn, the attached wash improvements and technical data are for the Twin Buttes Wash and White Peak Wash located in City of Peoria. These are submitted for courtesy review. Please contact us with any questions. Thank you.

FLOOD CONTROL DISTRICT
RECEIVED
OCT 18 '02
CH & GM | FINANCE
PIO | LANDS
ADMIN | O & M
REG | P & PM
ENG | FILE
CONTRACTS
LMT

Copy To:

Signed: Jack Moody, P.E.

Y:\WP\FORMS\Blank forms\Letter of Transmittal - Macro.doc

Wood, Patel & Associates, Inc.
2051 West Northern Avenue, Suite 100 • Phoenix, AZ 85021 • (602) 335-8500 • Fax (602) 335-8580
www.woodpatel.com

TWIN BUTTES WASH IMPROVEMENT
Phase II
City of Peoria, Maricopa County, Arizona

CONDITIONAL LETTER OF MAP REVISION SUBMITTAL TECHNICAL DATA NOTEBOOK

October 2002

WP #021607

Submitted to:

Federal Emergency Management Agency
Hazard Study Branch
Mr. Matthew Miller, Chief
Technical Services Division
500 C Street Southwest
Washington, D.C. 20472
Phone: (202) 646-2746

And:

City of Peoria
8401 W. Monroe Street
Peoria, AZ 85345
Phone: (623) 773-7600

And:

Flood Control District of Maricopa County
2801 West Durango
Phoenix, AZ 85096
Phone: (602) 506-1501

Prepared for:

Shea Sunbelt Pleasant Point L.L.C.
9051 West Kelton Lane
Suite 4
Peoria, AZ 85382
Phone: (623) 583-1887

Prepared by:

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

Engineer **Peer Reviewer**

Joe Roman
Lakeland Village
Wood/Patel

from AGK Engineering June 1991 Study and penciled Elevations

OKAY Better Contour data

Table 1 Summary of Duplicate Effective Modeling Results

Number sections EX ST1
Post Condition Floodway Sections

Wash Name		River Sta	Top Width (ft)	Flow Area (sq ft)	Vel Total (ft/s)	W.S. Elev W/Floodway (ft)	W.S. Elev W/O Floodway (ft)	Elevation Difference (ft)	
		2.94	61	339	8.2	1354.0	1353.8	0.2	
		3.03	86	338	8.2	1357.3	1356.9	0.4	
		3.13	175	685	4.1	1360.0	1359.8	0.2	
		3.22	78	309	9.0	1361.2	1360.7	0.5	
		3.31	144	500	5.6	1365.2	1365.0	0.2	
		3.41	91	375	7.4	1367.6	1366.6	1.0	
Twin Buttes Wash		3.47	206	513	5.4	1370.3	1370.0	0.3	
		3.50	206	703	4.0	1371.3	1371.0	0.3	
Q =	AN	3.60	29 29 154	341	7.1	1372.9 1373.0	1372.7	0.3	0.2'
SITE F	AO	3.69	29 26 138	401	6.1	1377.3	1377.3	0.0	
	AP	3.79	30 30 147	336	7.2	1380.5 1380.4	1380.3	0.1	0.2'
SITE D	AQ	3.88	23 21 122	377	6.4	1384.1	1383.7	0.4	
SITE D	AR	3.98	32 28 154	404	6.0	1387.7 ~~1387.6~~	1386.7	0.9	1.0'
	AS	4.07	27 27 223	483	5.0	1391.7	1391.6	0.1	
	AT	4.17	35 35 248	604	4.0	1394.0	1394.0	0.0	
	AU	4.26	38 38 109	268	9.0	1396.9	1396.9	0.0	
	AV	4.36	43 43 283	685	3.5	1401.6 1401.7	1401.4	0.3	0.2'
	AW	4.45	47 47 174	405	6.0	1404.5	1404.0	0.5	
	AX	4.55	26 26 126	310	7.8	1409.6	1409.5	0.1	
	AY	4.64	53 53 344	748	3.2	1413.1	1412.5	0.6	
	AZ	4.73	64 64 371	402	6.0	1416.2 1416.3	1416.2	0.1	0.0'
	BA	4.79	71 71 239	501	4.3	1420.3	1419.8	0.5	
SITE A	BB	4.92	24 24 268	430	5.0	1426.4	1425.8	0.6	
SITE A	BC	5.02	24 21 256	494	4.4	1431.4 1431.5	1430.5	1.0	0.9'
SITE A	BD	5.07	33 31 139	325	6.7	1433.8	1433.4	0.4	
	BE	5.11	26 26 120	369	5.9	1436.4	1435.8	0.6	
	BF	5.21	34 34 83	252	8.6	1440.9 1440.6	1440.9	-0.3	0.0'
	BG	5.30	28 28 102	388	5.6	1444.6 1444.7	1444.6	0.1	0.0'
	BH	5.40	38 38 122	? 258	8.4	1448.1	1448.1	0.0	
		3.60	29 29 457	566	1.3	1372.9 1373.0	1372.7	0.3	0.2'
SITE G	A	0.09	28 25 75	108	6.7	1374.7 1374.5	1374.7	-0.2	0.0'
	B	0.19	21 21 102	246	2.9	1378.0	1377.2	0.8	
White Peak Wash	C	0.28	24 24 52	149	4.8	1379.8 1379.6	1379.8	-0.2	0.0'
	D	0.38	20 20 45	102	7.1	1383.6	1383.3	0.3	
	E	0.47	15 15 126	247	2.9	1387.4 1387.3	1387.4	-0.1	0.0'
	F	0.57	31 31 27	76	9.5	1390.7	1390.7	0.0	
SITE B	G	0.66	37 32 104	209	3.4	1396.3	1396.1	0.2	
SITE B	H	0.76	40 37 77	139	5.2	1399.5	1398.9	0.6	
	I	0.85	28 28 72	159 158	4.5 4.6	1404.0 1403.9	1404.0	-0.1	0.0'
	J	0.95	39 39 44	122	5.9	1407.5 1407.6	1407.5	0.1	0.0'
	K	1.04	24 24 49	✓ 122	✓ 5.9	✓ 1412.2	✓ 1412.2	✓ 0.0	

3.60

Why doesn't Twin Buttes agree with one in White Peak Wash

SITE "G"

PROPOSED CONDITION

White Peak Wash

```
*********************************************
*  HEC-2 WATER SURFACE PROFILES             *
*                                           *
*  Version   4.6.2;  May 1991               *
*                                           *
*  RUN DATE    09OCT02    TIME   09:54:17   *
*********************************************
```

```
****************************************
*  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

09OCT02 09:54:17 PAGE 1

THIS RUN EXECUTED 09OCT02 09:54:17

```
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
```

```
T1 CAP OVERCHUTES - AGUA FRIA FLOODPLAIN STUDY
T2 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
T3       WHITE PEAK WASH - Post-Project Condition Model: CAPWPW_P.DAT, Oct. 2002

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

       0        3        0        0        0        0        0      721   1372.66

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

       1        0       -1                                  -1                         15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

      38       43       26        1       53       54        3        4       66      200
  Starting water surface assumed at critical depth
  as critical depth is higher than Twin Buttes Wash depth at confluence
  Starting Q = 721 cfs
  Mannings n = .045 overbanks, .045 for channel from n value report

QT        3                 721      721      721
NC     .045      .045      .045       .1       .3
X1     3.60        29    9808.0   9952.4
X3       10
GR   1388.1    9502.0    1380.7   9585.6   1377.5   9646.0   1381.0   9701.8   1377.2   9760.8
GR   1377.3    9808.0    1370.9   9830.3   1371.0   9851.5   1368.6   9880.2   1368.8   9894.4
GR   1368.7    9903.1    1371.8   9911.2   1372.6   9952.4   1369.4   9978.7   1367.5   9985.9
GR   1368.4   10000.0    1371.2  10023.9   1374.2    10069   1373.7  10097.8   1382.2  10146.6
GR   1382.7   10169.0    1378.3  10230.2   1375.3  10248.7   1370.9  10266.4   1371.6  10277.2
GR   1379.1   10294.0    1380.1  10317.8   1381.1  10369.8   1380.8  10381.4

ET                                 9.1       9.1                                10000    10075
X1     0.09        25     10000  10082.1                500      500
X3       10
GR   1383.1    9829.8    1384.3   9884.8   1382.7   9926.9   1377.5   9965.6   1374.2   9990.9
GR   1374.6   10000.0    1370.5  10014.8   1370.5  10021.2   1373.5  10033.0   1374.7  10082.1
GR   1380.0   10098.0    1380.0  10224.0   1385.5  10245.6   1385.2  10294.3   1385.6  10347.1
GR   1388.6   10428.5    1387.6  10510.4   1384.4  10551.2   1379.2  10578.3   1382.7  10618.3
GR   1385.0   10686.6    1388.2  10742.1   1386.7  10757.0   1389.5  10779.2   1389.9  10789.0

ET                                 9.1       9.1                                 9983    10085
X1     0.19        21     9983.7  10087.6    510      500      500
X3       10
GR   1387.5    9711.8    1386.4   9784.3   1385.1   9817.8   1388.2   9877.1   1383.4   9937.9
GR   1377.5    9960.4    1377.7   9983.7   1372.5   9995.5   1372.4  10000.0   1376.9  10016.9
```

OKAY 3:1 slope

Top of Bank does not agree with Plansheet 8 of 8.

SITE "G"

EXISTING CONDITION

```
*******************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
*                                         *
*  RUN DATE    11SEP02    TIME   14:17:12 *
*******************************************
```

```
****************************************
*  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

11SEP02 14:17:12 PAGE 1

THIS RUN EXECUTED 11SEP02 14:17:12

```
*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
```

```
T1 CAP OVERCHUTES - AGUA FRIA FLOODPLAIN STUDY
T2 FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
T3      WHITE PEAK WASH            MAY, 1991

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        3        0        0        0        0        0      721    1372.66

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      1        0       -1                                   -1                         15

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38       43       26        1       53       54        3        4       66      200
  Starting water surface assumed at critical depth
  as critical depth is higher than Twin Buttes Wash depth at confluence
  Starting Q = 721 cfs
  Mannings n = .045 overbanks, .045 for channel from n value report

QT        3                 721      721      721
NC     .045      .045      .045       .1       .3
X1     3.60        29    9808.0   9952.4
X3       10
GR   1388.1    9502.0    1380.7   9585.6   1377.5   9646.0   1381.0   9701.8   1377.2   9760.8
GR   1377.3    9808.0    1370.9   9830.3   1371.0   9851.5   1368.6   9880.2   1368.8   9894.4
GR   1368.7    9903.1    1371.8   9911.2   1372.6   9952.4   1369.4   9978.7   1367.5   9985.9
GR   1368.4   10000.0    1371.2  10023.9   1374.2    10069   1373.7  10097.8   1382.2  10146.6
GR   1382.7   10169.0    1378.3  10230.2   1375.3  10248.7   1370.9  10266.4   1371.6  10277.2
GR   1379.1   10294.0    1380.1  10317.8   1381.1  10369.8   1380.8  10381.4

ET                          9.1       9.1                                       10000    10075
X1     0.09        28     10000  10082.1                500      500
X3       10
GR   1383.1    9829.8    1384.3   9884.8   1382.7   9926.9   1377.5   9965.6   1374.2   9990.9
GR   1374.6   10000.0    1370.5  10014.8   1370.5  10021.2   1373.5  10033.0   1374.7  10082.1
GR   1373.9   10145.0    1372.7  10157.4   1369.5  10162.1   1372.9  10172.4   1374.7  10202.4
GR   1385.5   10245.6    1385.2  10294.3   1385.6  10347.1   1388.6  10428.5   1387.6  10510.4
GR   1384.4   10551.2    1379.2  10578.3   1382.7  10618.3   1385.0  10686.6   1388.2  10742.1
GR   1386.7   10757.0    1389.5  10779.2   1389.9  10789.0
```

1

11SEP02 14:17:12 PAGE 2

SITES "F" & "D" PROPOSED CONDITION

TWIN BUTTES WASH

```
NH    10069      .045    10381.4
NT                                   9.1       9.1                                    9894      10048
X1     3.60        29     9952.4   10069.4     470       500       500
X3       10
GR   1388.1    9502.0     1380.7    9585.6  1377.5    9646.0    1381.0    9701.8    1377.2    9760.8
GR   1377.3    9808.0     1370.9    9830.3  1371.0    9851.5    1368.6    9880.2    1368.8    9894.4
GR   1368.7    9903.1     1371.8    9911.2  1372.6    9952.4    1369.4    9978.7    1367.5    9985.9
GR   1368.4   10000.0     1371.2   10023.9  1374.2     10069    1373.7   10097.8    1382.2   10146.6
GR   1382.7   10169.0     1378.3   10230.2  1375.3   10248.7    1370.9   10266.4    1371.6   10277.2
GR   1379.1   10294.0     1380.1   10317.8  1381.1   10369.8    1380.8   10381.4
  change n values to .035 for channel
1
   09OCT02      10:51:24                                                                                PAGE   11


NC     .045      .045       .035
ET                                   9.1       9.1                                    9973      10111
X1     3.69        26     9966.4   10070.0     380       500
X3       10
GR   1381.1    9490.4     1381.4    9529.0  1379.5    9584.3    1379.1    9613.0    1382.1    9647.7
GR   1382.8    9696.1     1385.4    9750.5  1388.6    9816.0    1387.9    9836.8    1383.1    9892.4
GR   1380.7    9907.1     1382.5    9935.7  1379.6    9966.4    1371.9    9988.1    1371.9   10000.0
GR   1371.9   10008.5     1375.2   10028.2  1373.7   10051.4    1377.2   10070.0    1375.9   10086.8
GR   1373.7   10105.3     1380.0   10124.2  1380.0   10292.0    1384.4   10332.3    1384.1   10385.3
GR   1384.0   10388.0
```

3:1 Slope OKAY

DOES NOT MATCH SHEET 8 of 8 grading Elevation Plans

```
ET                                   9.1       9.1                                    9924      10071
X1     3.79        30     9924.1   10078.5     650       340       500
X3       10
GR   1387.9    9526.0     1387.8    9583.6  1385.9    9601.1    1383.0    9619.0    1384.4    9642.5
GR   1380.6    9657.2     1384.7    9678.7  1387.2    9717.4    1387.1    9751.8    1387.4    9780.1
GR   1384.1    9804.4     1380.7    9831.7  1379.2    9864.1    1380.2    9924.1    1379.7    9966.4
GR   1375.5    9974.5     1375.6   10000.0  1379.3   10016.7    1378.0   10038.6    1377.3   10056.6
GR   1382.2   10078.5     1384.3   10106.2  1384.1   10141.6    1386.2   10170.8    1383.7   10211.2
GR   1382.1   10273.9     1382.5   10297.6  1382.9   10326.4    1384.2   10376.1    1385.3   10407.4
  Change right overbank n value to .050
```

Plans about 2' Low

```
NC     .045       .05       .035
ET                                   9.1       9.1                                    9971      10094
X1     3.88        21     9931.0   10017.2     450       640       500
X3       10
GR   1389.6    9598.5     1388.6    9702.6  1390.7    9767.1    1390.6    9807.5    1385.4    9863.6
GR   1391.1    9917.7     1391.5    9931.0  1388.0    9950.5    1383.4    9975.3    1377.5    9982.0
GR   1377.6    9995.8     1378.1   10000.0  1381.2   10017.2    1382.7   10069.7    1381.7   10093.5
GR   1386.0   10109.4     1386.0   10280.0  1387.5   10291.3    1389.6   10319.0    1390.8   10367.0
GR   1390.3   10379.5
  Use NH records 3.98 to 4.45
```

CHK Coding ? Not on Existing

DOES not match sheet 7 of 8 grading plans based on Elev Station &

```
NH        6      .045     9857.4       .04    9926.4       .05    9972.9      .035   10020.3       .07
NH    10127      .045    10417.5
ET                                   9.1       9.1                                    9866      10020
X1     3.98        28     9857.4   10020.3     590       330       500
X3       10
GR   1394.7    9442.5     1394.8    9463.6  1390.3    9501.3    1384.0    9533.7    1383.1    9544.4
GR   1387.8    9561.2     1394.4    9592.7  1394.9    9621.3    1396.1    9653.0    1395.7    9690.3
GR   1392.9    9708.9     1398.3    9762.1  1399.2    9791.1    1398.4    9819.3    1396.6    9857.4
GR   1383.6    9870.5     1384.7    9887.3  1386.3    9926.4    1385.1    9951.2    1385.7    9972.9
GR   1383.1    9995.1     1383.7   10000.0  1383.9   10010.7    1386.7   10020.3    1390.0   10030.2
GR   1390.0   10379.    0 1394.6   10395.0  1393.7   10417.5

NH        5      .045     9853.5       .05    9978.1      .035   10018.7       .04   10129.9      .045
NH    10516
ET                                   9.1       9.1                                    9906      10130
X1     4.07        27     9853.4   10129.9     480       670       500
X3       10
GR   1411.1    9740.9     1409.4    9771.2  1402.7    9800.4    1397.9    9820.7    1399.3    9853.4
GR   1396.8    9885.2     1390.9    9909.9  1390.0    9928.0    1390.8    9967.6    1390.7    9978.1
GR   1385.8    9990.9     1386.6   10000.0  1387.0   10009.1    1389.7   10018.7    1388.8   10084.4
1
   09OCT02      10:51:24                                                                                PAGE   12


GR   1391.6   10129.9     1392.6   10152.5  1389.8   10187.3    1392.3   10240.5    1393.5   10280.9
GR   1392.1   10313.5     1390.9   10319.7  1395.9   10348.6    1396.5   10372.2    1394.5   10423.2
GR   1396.3   10461.9     1397.8     10516
  Use NC record - .035 channel, .045 left overbank, .050 right overbank

NC     .045      .050       .035
ET                                   9.1       9.1                                    9933      10182
X1     4.17        35     9928.8   10209.7     640       430       500
```


PHASE I

SITES F & D EXISTING CONDITION

```
      10069      .045    10381.4
                                   9.1       9.1                                   9894      10048
        3.60        29    9952.4  10069.4     470       500       500
X3        10
GR    1388.1    9502.0    1380.7    9585.6  1377.5    9646.0    1381.0    9701.8    1377.2    9760.8
GR    1377.3    9808.0    1370.9    9830.3  1371.0    9851.5    1368.6    9880.2    1368.8    9894.4
GR    1368.7    9903.1    1371.8    9911.2  1372.6    9952.4    1369.4    9978.7    1367.5    9985.9
GR    1368.4   10000.0    1371.2   10023.9  1374.2     10069    1373.7   10097.8    1382.2   10146.6
GR    1382.7   10169.0    1378.3   10230.2  1375.3   10248.7    1370.9   10266.4    1371.6   10277.2
GR    1379.1   10294.0    1380.1   10317.8  1381.1   10369.8    1380.8   10381.4
  change n values to .035 for channel
1
   11SEP02      14:16:56                                                                          PAGE    11


NC      .045      .045      .035
ET                                   9.1       9.1                                   9973      10111
X1      3.69        29    9966.4  10070.0     380       500
X3        10
GR    1381.1    9490.4    1381.4    9529.0  1379.5    9584.3    1379.1    9613.0    1382.1    9647.7
GR    1382.8    9696.1    1385.4    9750.5  1388.6    9816.0    1387.9    9836.8    1383.1    9892.4
GR    1380.7    9907.1    1382.5    9935.7  1379.6    9966.4    1371.9    9988.1    1371.9   10000.0
GR    1371.9   10008.5    1375.2   10028.2  1373.7   10051.4    1377.2   10070.0    1375.9   10086.8
GR    1373.7   10105.3    1374.5   10151.0  1375.7   10193.1    1376.9   10224.6    1373.6   10248.4
GR    1378.5   10278.4    1384.4   10332.3  1384.1   10385.3    1384.0   10388.0

ET                                   9.1       9.1                                   9924      10071
X1      3.79        30    9924.1  10078.5     650       340       500
X3        10
GR    1387.9    9526.0    1387.8    9583.6  1385.9    9601.1    1383.0    9619.0    1384.4    9642.5
GR    1380.6    9657.2    1384.7    9678.7  1387.2    9717.4    1387.1    9751.8    1387.4    9780.1
GR    1384.1    9804.4    1380.7    9831.7  1379.2    9864.1    1380.2    9924.1    1379.7    9966.4
GR    1375.5    9974.5    1375.6   10000.0  1379.3   10016.7    1378.0   10038.6    1377.3   10056.6
GR    1382.2   10078.5    1384.3   10106.2  1384.1   10141.6    1386.2   10170.8    1383.7   10211.2
GR    1382.1   10273.9    1382.5   10297.6  1382.9   10326.4    1384.2   10376.1    1385.3   10407.4
  Change right overbank n value to .050

NC      .045       .05      .035
                                   9.1       9.1                                   9971      10094
        3.88        23    9931.0  10017.2     450       640       500
X3        10
GR    1389.6    9598.5    1388.6    9702.6  1390.7    9767.1    1390.6    9807.5    1385.4    9863.6
GR    1391.1    9917.7    1391.5    9931.0  1388.0    9950.5    1383.4    9975.3    1377.5    9982.0
GR    1377.6    9995.8    1378.1   10000.0  1381.2   10017.2    1382.7   10069.7    1381.1   10106.2
GR    1381.9   10134.0    1383.0   10166.3  1381.1   10214.0    1382.4   10252.8    1387.5   10291.3
GR    1389.6   10319.0    1390.8   10367.0  1390.3   10379.5
  Use NH records 3.98 to 4.45

NH        6       .045    9857.4       .04  9926.4       .05    9972.9       .035  10020.3       .07
NH    10127       .045   10417.5
ET                                   9.1       9.1                                   9866      10020
X1      3.98        32    9857.4  10020.3     590       330       500
X3        10
GR    1394.7    9442.5    1394.8    9463.6  1390.3    9501.3    1384.0    9533.7    1383.1    9544.4
GR    1387.8    9561.2    1394.4    9592.7  1394.9    9621.3    1396.1    9653.0    1395.7    9690.3
GR    1392.9    9708.9    1398.3    9762.1  1399.2    9791.1    1398.4    9819.3    1396.6    9857.4
GR    1383.6    9870.5    1384.7    9887.3  1386.3    9926.4    1385.1    9951.2    1385.7    9972.9
GR    1383.1    9995.1    1383.7   10000.0  1383.9   10010.7    1386.7   10020.3    1386.9   10056.0
GR    1387.1     10127    1385.0   10210.6  1385.4   10264.6    1385.9   10347.1    1385.0   10365.2
GR    1394.6   10395.0    1393.7   10417.5

NH        5       .045    9853.5       .05  9978.1       .035  10018.7       .04   10129.9       .045
NH    10516
ET                                   9.1       9.1                                   9906      10130
1
   11SEP02      14:16:56                                                                          PAGE    12


X1      4.07        27    9853.4  10129.9     480       670       500
X3        10
GR    1411.1    9740.9    1409.4    9771.2  1402.7    9800.4    1397.9    9820.7    1399.3    9853.4
GR    1396.8    9885.2    1390.9    9909.9  1390.0    9928.0    1390.8    9967.6    1390.7    9978.1
GR    1385.8    9990.9    1386.6   10000.0  1387.0   10009.1    1389.7   10018.7    1388.8   10084.4
GR    1391.6   10129.9    1392.6   10152.5  1389.8   10187.3    1392.3   10240.5    1393.5   10280.9
GR    1392.1   10313.5    1390.9   10319.7  1395.9   10348.6    1396.5   10372.2    1394.5   10423.2
GR    1396.3   10461.9    1397.8     10516
  Use NC record - .035 channel, .045 left overbank, .050 right overbank

      .045       .050      .035
ET                                   9.1       9.1                                   9933      10182
```

860
87.7
4.3
10109.4
10093.7

SITE "A"

PROPOSED CONDITION

TWIN BUTTES WASH

```
GR    1419.8    10802.1    1420.6    10840.6    1420.6    10891.0    1418.4    10911.6    1416.0    10926.0
GR    1421.6    10948.8    1426.3    10975.5    1427.4    11003.3    1423.4    11043.3    1419.5    11071.0
GR    1425.7    11107.5    1427.3    11140.8    1426.6      11170

NH         5       .045    9948.4       .035     10020       .045   10256.5       .04   10385.6       .045
NH     11305
ET                                       9.1       9.1                                     9979       10351
X1      4.73          64    9948.4    10385.6       500       410      500
X3        10
GR    1444.9     9217.0    1443.2     9259.8    1441.2     9281.9    1440.0     9339.4    1435.6     9412.2
GR    1430.9     9488.4    1427.0     9539.7    1424.8     9603.6    1420.9     9622.5    1415.2     9633.4
GR    1418.1     9645.3    1417.0     9659.9    1415.0     9672.8    1417.2     9686.7    1419.0     9709.2
GR    1418.5     9743.1    1417.3     9772.0    1422.0     9793.1    1423.1     9821.2    1421.3     9843.5
GR    1418.3     9863.4    1422.4     9886.8    1425.8     9928.3    1429.3     9948.4    1429.5     9977.3
GR    1411.9     9980.6    1412.0     9990.5    1412.0    10000.0    1416.0    10020.0    1415.2    10076.0
GR    1415.6    10175.0    1416.0    10256.5    1415.6    10298.1    1413.0    10315.8    1412.5    10326.6
GR    1416.1    10334.1    1415.1    10345.8    1419.8    10368.3    1419.4    10385.6    1413.2    10416.5
GR    1416.0    10426.8    1418.5    10454.1    1419.7    10493.9    1426.0    10537.9    1426.5    10591.0
GR    1426.5    10619.8    1422.9    10639.3    1426.3    10669.6    1425.0    10731.3    1422.7    10741.5
GR    1427.2    10780.2    1426.9    10805.3    1424.3    10855.3    1426.1    10902.9    1423.5    10950.6
GR    1422.3    10981.1    1424.3    11005.4    1426.1    11051.5    1423.8    11089.4    1424.8    11140.1
GR    1428.7    11203.2    1430.7    11242.6    1429.1    11288.4    1430.3      11305
  Confluence with East and West Garambullo Washes (CAPEGW.DAT & CAPWGW.DAT)
1
   09OCT02      10:51:24                                                                              PAGE    14


                          Mile 0.00 for Both
  Concentration point E - Combined Flow of Twin Buttes and Garambullo - 2462 cfs
                        - Flow from East Garambullo Wash -(node E13) - 259 cfs
                        - Flow from West Garambullo Wash -(node E12) - 483 cfs
                        - Flow from Twin Buttes Wash (node DtoE) - 2163 cfs
  Change Q to 2163 cfs

QT         3                  2163       2163       2163
  Channel n value changes from .035 to .040
NH         5       .045    9872.5       .040    10034.7       .050   10189.2       .04   10401.2       .045
NH     11380
ET                                       9.1       9.1                                     9932       10171
X1      4.79          71    9872.5    10189.2       330       320      300
X3        10
GR    1460.0     8959.2    1455.1     9009.5    1451.6     9056.8    1446.1     9123.3    1441.5     9182.6
GR    1439.9     9222.0    1439.9     9253.5    1434.7     9312.8    1429.6     9382.4    1425.8     9442.0
GR    1420.6     9490.4    1422.5     9509.9    1429.2     9535.9    1428.3     9559.2    1425.3     9583.7
GR    1424.1     9605.9    1429.8     9646.7    1431.2     9674.4    1432.9     9707.9    1435.9     9742.0
GR    1436.1     9770.4    1435.2     9791.8    1432.0     9819.9    1434.5     9854.2    1431.6     9872.5
GR    1422.1     9918.8    1418.1     9941.1    1418.5     9960.7    1414.9     9988.2    1415.2    10000.0
GR    1416.1    10022.0    1418.9    10034.7    1419.1    10106.7    1419.9    10189.2    1419.7    10201.1
GR    1417.7    10216.1    1417.7    10229.4    1417.9    10268.9    1418.6    10308.1    1418.3    10328.6
GR    1416.9    10336.4    1418.6    10358.7    1419.8    10378.3    1425.6    10401.2    1424.1    10463.7
GR    1425.8    10514.8    1428.9    10542.0    1429.3    10579.7    1430.4    10611.2    1430.0    10668.9
GR    1429.3    10720.3    1430.6    10780.2    1430.1    10806.8    1431.3    10840.3    1431.4    10876.4
GR    1427.9    10911.4    1425.6    10940.2    1423.5    10958.0    1427.3    10980.8    1427.0    11010.2
GR    1425.3    11033.1    1426.9    11075.0    1425.7    11089.9    1427.0    11115.8    1430.0    11180.4
GR    1432.9    11238.0    1433.4    11290.2    1432.7    11312.1    1435.5    11347.6    1436.3    11373.8
GR    1436.2    11380.0

NH         7       .045    9956.6       .04    10032.3       .05   10138.7      .040   10189.2       .05
NH     10245       .040   10320.8       .045   10360.5
ET                                       9.1       9.1                                     9960       10230
X1      4.92          24    9956.6    10189.2                 570      700
X3        10
GR    1440.6     9742.1    1440.3     9767.3    1435.5     9790.7    1430.6     9829.8    1426.9     9863.4
GR    1425.1     9927.3    1426.7     9956.6    1426.2     9966.1    1423.6     9978.3    1423.6    10000.0
GR    1423.7    10018.4    1425.5    10032.3    1426.0    10071.6    1425.2    10138.7    1422.8    10165.8
GR    1422.9    10174.0    1425.4    10189.2    1425.0    10208.0    1424.5    10230.0    1430.0    10246.5
GR    1430.0    10307.0    1436.3    10320.8    1435.6    10351.3    1435.4    10360.5

NH         6       .045    9935.8       .04    10034.6       .050   10179.2       .045   10350.4       .05
NH     10461       .045   10482.2
ET                                       9.1       9.1                                     9974       10230
X1      5.02          21    9935.8    10179.2       510       420      500
X3        10
GR    1444.7     9744.2    1444.7     9770.3    1441.5     9794.3    1439.7     9834.0    1436.1     9874.1
GR    1436.2     9882.6    1439.7     9922.5    1440.3     9935.8    1431.6     9972.6    1426.3     9994.1
GR    1426.4    10000.0    1426.9    10021.8    1429.6    10034.6    1430.4    10087.1    1430.3    10120.8
GR    1430.1    10179.2    1429.5    10227.0    1435.0    10243.5    1435.0    10444.0    1441.5    10461.0
GR    1441.8    10482.2
```

X-SECTION DOES NOT REFLECT BERM CONSTRUCTION ELEVATION

55

29.5

PHASE I

SITE "A" EXISTING CONDITION

R	1440.6	9742.1	1440.3	9767.3	1435.5	9790.7	1430.6	9829.8	1426.9	9863.4
GR	1425.1	9927.3	1426.7	9956.6	1426.2	9966.1	1423.6	9978.3	1423.6	10000.0
R	1423.7	10018.4	1425.5	10032.3	1426.0	10071.6	1425.2	10138.7	1422.8	10165.8
R	1422.9	10174.0	1425.4	10189.2	1425.0	10208.0	1424.5 1424.2	10230 10245	1422.6	10278.0
GR	1422.6	10283.8	1436.3	10320.8	1435.6	10351.3	1435.4	10360.5		

CODING REVISED

5/30/91 16: 8: 5 PAGE 15

H	6	.045	9935.8	.04	10034.6	.050	10179.2	.045	10350.4	.05
H	10461	.045	10482.2							
ET				9.1	9.1				9974	10230
X1	5.02	24	9935.8	10179.2	510	420	500			
3	10									
R	1444.7	9744.2	1444.7	9770.3	1441.5	9794.3	1439.7	9834.0	1436.1	9874.1
GR	1436.2	9882.6	1439.7	9922.5	1440.3	9935.8	1431.6	9972.6	1426.3	9994.1
R	1426.4	10000.0	1426.9	10021.8	1429.6	10034.6	1430.4	10087.1	1430.3	10120.8
R	1430.1	10179.2	1429.5 1429.0	10222.0 10256.3	1428.7	10301.8	1430.1	10350.4	1429.8	10397.9
GR	1429.3	10419.5	1430.0	10428.4	1441.5	10461	1441.8	10482.2		

CODING REVISED

H	7	.045	9907.1	.060	9971.2	.04	10024.3	.045	10070.0	.060
H	10178	.05	10235.8	.045	10380.1					
ET				9.1	9.1				9931	10070
X1	5.07	33	9907.1	10070.0	320	210	250			
3	10									
R	1441.5	9633.1	1441.1	9659.3	1438.8	9704.3	1433.6	9719.1	1433.6	9728.8
GR	1437.3	9770.6	1438.6	9801.5	1438.7	9839.2	1437.0	9860.0	1435.2	9869.1
R	1439.8	9890.5	1441.5	9907.1	1433.9	9929.6	1433.1	9938.0	1432.7	9954.6
R	1432.8	9971.2	1430.4	9984.8	1428.8	9990.2	1428.8	10000.0	1429.1	10014.9
GR	1431.4	10024.3	1432.0	10047.4	1432.9	10070.0	1432.8	10110.6	1432.8	10178
GR	1431.4	10205.1	1433.5	10219.2	1437.7	10235.8	1437.8	10265.2	1439.4	10289.7
R	1442.5	10325.4	1442.3	10362.1	1441.1	10380.1				
NH	7	.045	9864.3	.05	9932.2	.045	9958.8	.08	9974.1	.04
NH	10049	.05	10122.3	.045	10261.8					
				9.1	9.1				9974	10094
	5.11	26	9974.1	10122.3	280	200	250			
X3	10									
GR	1451.8	9573.4	1450.9	9611.1	1449.9	9657.3	1448.9	9688.1	1448.6	9739.6
	1447.2	9796.3	1446.8	9845.1	1442.2	9864.3	1434.2	9890.0	1434.5	9932.2
	1431.4	9945.9	1436.0	9958.8	1436.1	9974.1	1433.5	9989.7	1431.1	10000.0
GR	1431.1	10023.1	1431.7	10028.6	1434.5	10049	1434.4	10063.8	1434.4	10081.0
	1439.4	10122.3	1439.6	10150.5	1442.1	10177.6	1441.1	10201.9	1439.3	10241.6
	1439.3	10261.8								

Use NC record with .04 for channels and .045 for overbank

	.045	.045	.040							
				9.1	9.1				9946	10034
X1	5.21	34	9931.2	10042.5	360	540	500			
X3	10									
	1452.9	9515.2	1452.8	9561.6	1451.4	9609.5	1449.9	9658.8	1445.6	9701.9
	1438.2	9731.2	1436.3	9741.7	1439.0	9756.7	1441.4	9788.4	1440.5	9822.5
GR	1440.1	9862.7	1440.5	9895.1	1441.3	9931.2	1440.0	9966.9	1438.4	9985.3
	1435.7	9995.9	1434.8	10000.0	1434.7	10021.4	1444.9	10042.5	1446.8	10062.6
	1445.1	10090.6	1446.0	10127.1	1443.7	10139.1	1446.3	10166.4	1445.9	10220.6
GR	1444.3	10259.9	1445.7	10294.8	1443.1	10318.6	1448.5	10353.8	1447.0	10380.4
GR	1444.5	10432.1	1444.5	10451.0	1449.2	10494.9	1449.9	10524.2		

5/30/91 16: 8: 5 PAGE 16

				9.1	9.1				9952	10054
X1	5.30	28	9945.4	10077.5	540	500	500			
X3	10									

SITE "B"

PROPOSED CONDITION

WHITE PEAK WASH

```
GR   1374.7    10048.2    1378.3    10087.6    1379.4    10126.1    1380.4    10158.5    1386.8    10211.8
```



```
GR   1389.8    10257.3    1390.7    10296.0    1389.1    10369.2    1386.1    10402.5    1387.7    10426.6
GR   1388.4    10455.0

ET                                   9.1        9.1                                      9966      10018
X1     0.28        24     9966.7    10036.5     550       410       500
X3       10
GR   1388.6     9758.6    1385.0     9787.9    1382.9     9803.3    1384.2     9833.4    1385.6     9859.7
GR   1384.5     9897.1    1382.2     9919.9    1379.4     9936.6    1379.1     9966.7    1375.8     9978.8
GR   1375.9     9996.4    1376.3    10000.0    1376.3    10009.0    1386.6    10036.5    1392.3    10072.2
GR   1394.6    10105.5    1394.3    10161.3    1389.9    10211.7    1385.2    10240.2    1390.9    10270.8
GR   1393.1    10324.8    1396.6    10379.6    1392.0    10485.6    1392.3    10485.7

ET                                   9.1        9.1                                      9975      10021
X1     0.38        20     9972.7    10021.3     500       410       500
X3       10
GR   1395.5     9725.2    1394.3     9796.4    1383.6     9831.1    1383.3     9927.1    1382.1     9941.9
GR   1384.4     9972.7    1379.8     9987.7    1380.3    10000.0    1383.7    10021.3    1384.4    10064.3
GR   1387.2    10117.1    1398.1    10161.5    1397.3    10220.6    1396.0    10267.5    1396.9    10304.4
GR   1391.2    10388.2    1393.0    10418.3    1397.2    10456.6    1397.0    10521.6    1396.2    10522.0

ET                                   9.1        9.1                                      9950      10077
X1     0.47        15     9908.5    10076.6     400       620       500
X3       10
GR   1395.7     9728.0    1396.9     9769.4    1396.6     9824.9    1393.8     9869.4    1395.0     9908.5
GR   1391.8     9930.2    1383.8     9967.7    1385.3     9989.1    1384.2    10000.0    1387.2    10076.6
GR   1388.4    10164.6    1389.4    10229.9    1401.5    10278.7    1404.0    10311.4    1404.3    10321.6

ET                                   9.1        9.1                                      9969       9996
X1     0.57        31     9968.0    10026.9     800       140       500
X3       10
GR   1404.2     9464.0    1403.3     9533.4    1404.7     9587.0    1403.9     9623.2    1404.3     9654.6
GR   1402.3     9682.9    1401.2     9701.1    1404.0     9736.3    1403.9     9755.1    1399.4     9775.0
GR   1393.0     9797.2    1392.5     9844.8    1392.1     9918.4    1391.8     9968.0    1387.1     9972.6
GR   1387.2     9978.4    1387.2     9988.5    1391.1     9996.8    1391.4    10000.0    1391.6    10026.9
GR   1390.7    10087.5    1390.7    10150.1    1389.9    10173.9    1392.1    10204.9    1396.7    10224.0
GR   1397.0    10242.6    1395.8    10271.8    1396.6    10295.0    1403.2    10333.2    1404.2    10367.2
GR   1402.0    10385.4

ET                                   9.1        9.1                                      9943      10048
X1     0.66        32     9916.9    10047.6     550       700       500
X3       10
GR   1406.6     9469.6    1406.5     9506.3    1404.7     9565.6    1399.3     9613.8    1399.1     9631.7
GR   1400.6     9654.2    1400.6     9673.3    1397.0     9695.8    1392.1     9714.3    1391.4     9721.9
GR   1393.9     9731.8    1402.2     9764.9    1402.4     9791.1    1403.7     9825.1    1402.4     9842.0
GR   1404.3     9868.8    1400.6     9916.9    1396.6     9942.8    1393.1     9955.5    1395.3     9977.2
GR   1393.1     9989.0    1392.3     9996.7    1392.3    10000.0    1393.8    10006.6    1396.0    10047.6
GR   1400.0    10059.0    1400.0    10280.0    1402.8    10309.7    1407.9    10339.9    1408.9    10347.9
GR   1409.0    10373.5    1408.5    10381.9
```

1


```
ET                                   9.1        9.1                                      9954      10031
X1     0.76        37     9953.5    10030.7     650       450       500
X3       10
GR   1407.6     9585.1    1407.1     9622.6    1404.2     9658.2    1397.2     9677.9    1396.6     9681.6
GR   1398.1     9690.4    1400.2     9712.2    1404.1     9742.0    1403.8     9780.6    1399.5     9797.3
GR   1406.0     9817.1    1407.4     9841.5    1404.8     9863.1    1400.8     9890.3    1397.8     9906.5
GR   1399.9     9953.5    1394.5     9960.1    1396.2     9976.8    1398.3     9995.5    1399.0    10000.0
GR   1399.3    10030.7    1403.0    10041.8    1403.7    10151.0    1405.2    10162.6    1401.6    10189.9
GR   1400.0    10203.1    1401.7    10221.2    1405.3    10254.3    1407.7    10294.7    1407.9    10336.8
GR   1405.7    10362.8    1409.1    10395.0    1410.5    10428.5    1412.2    10476.3    1414.5    10522.4
GR   1414.7    10562.9    1414.8    10584.7

ET                                   9.1        9.1                                      9956      10029
X1     0.85        28     9931.2    10056.1     950       310       500
X3       10
GR   1419.7     9647.7    1419.0     9671.4    1409.8     9715.4    1408.3     9725.5    1408.2     9731.7
GR   1410.3     9748.1    1411.5     9758.3    1409.9     9763.0    1409.0     9778.7    1405.9     9829.0
GR   1405.9     9844.4    1406.9     9878.0    1402.7     9904.2    1406.2     9917.7    1406.1     9931.2
GR   1400.2    10000.0    1401.2    10020.7    1412.8    10056.1    1410.5    10084.3    1410.4    10095.7
GR   1406.6    10103.9    1408.5    10125.0    1412.1    10156.1    1412.4    10196.3    1412.7    10230.2
GR   1414.2    10272.9    1415.7    10347.2    1415.3    10364.5
```

SITE "B"

EXISTING CONDITION

```
ET                                    9.1       9.1                                   9983      10085
X1     0.19        21     9983.7   10087.6       510       500       500
X3       10
GR   1387.5    9711.8    1386.4    9784.3    1385.1    9817.8    1388.2    9877.1    1383.4    9937.9
GR   1377.5    9960.4    1377.7    9983.7    1372.5    9995.5    1372.4   10000.0    1376.9   10016.9
GR   1374.7   10048.2    1378.3   10087.6    1379.4   10126.1    1380.4   10158.5    1386.8   10211.8
GR   1389.8   10257.3    1390.7   10296.0    1389.1   10369.2    1386.1   10402.5    1387.7   10426.6

GR   1388.4   10455.0

ET                                    9.1       9.1                                   9966      10018
X1     0.28        24     9966.7   10036.5       550       410       500
X3       10
GR   1388.6    9758.6    1385.0    9787.9    1382.9    9803.3    1384.2    9833.4    1385.6    9859.7
GR   1384.5    9897.1    1382.2    9919.9    1379.4    9936.6    1379.1    9966.7    1375.8    9978.8
GR   1375.9    9996.4    1376.3   10000.0    1376.3   10009.0    1386.6   10036.5    1392.3   10072.2
GR   1394.6   10105.5    1394.3   10161.3    1389.9   10211.7    1385.2   10240.2    1390.9   10270.8
GR   1393.1   10324.8    1396.6   10379.6    1392.0   10485.6    1392.3   10485.7

ET                                    9.1       9.1                                   9975      10021
X1     0.38        20     9972.7   10021.3       500       410       500
X3       10
GR   1395.5    9725.2    1394.3    9796.4    1383.6    9831.1    1383.3    9927.1    1382.1    9941.9
GR   1384.4    9972.7    1379.8    9987.7    1380.3   10000.0    1383.7   10021.3    1384.4   10064.3
GR   1387.2   10117.1    1398.1   10161.5    1397.3   10220.6    1396.0   10267.5    1396.9   10304.4
GR   1391.2   10388.2    1393.0   10418.3    1397.2   10456.6    1397.0   10521.6    1396.2   10522.0

ET                                    9.1       9.1                                   9950      10077
X1     0.47        15     9908.5   10076.6       400       620       500
X3       10
GR   1395.7    9728.0    1396.9    9769.4    1396.6    9824.9    1393.8    9869.4    1395.0    9908.5
GR   1391.8    9930.2    1383.8    9967.7    1385.3    9989.1    1384.2   10000.0    1387.2   10076.6
GR   1388.4   10164.6    1389.4   10229.9    1401.5   10278.7    1404.0   10311.4    1404.3   10321.6

ET                                    9.1       9.1                                   9969       9996
X1     0.57        31     9968.0   10026.9       800       140       500
X3       10
GR   1404.2    9464.0    1403.3    9533.4    1404.7    9587.0    1403.9    9623.2    1404.3    9654.6
GR   1402.3    9682.9    1401.2    9701.1    1404.0    9736.3    1403.9    9755.1    1399.4    9775.0
GR   1393.0    9797.2    1392.5    9844.8    1392.1    9918.4    1391.8    9968.0    1387.1    9972.6
GR   1387.2    9978.4    1387.2    9988.5    1391.1    9996.8    1391.4   10000.0    1391.6   10026.9
GR   1390.7   10087.5    1390.7   10150.1    1389.9   10173.9    1392.1   10204.9    1396.7   10224.0
GR   1397.0   10242.6    1395.8   10271.8    1396.6   10295.0    1403.2   10333.2    1404.2   10367.2
GR   1402.0   10385.4

ET                                    9.1       9.1                                   9943      10048
X1     0.66        37     9916.9   10047.6       550       700       500
X3       10
GR   1406.6    9469.6    1406.5    9506.3    1404.7    9565.6    1399.3    9613.8    1399.1    9631.7
GR   1400.6    9654.2    1400.6    9673.3    1397.0    9695.8    1392.1    9714.3    1391.4    9721.9
GR   1393.9    9731.8    1402.2    9764.9    1402.4    9791.1    1403.7    9825.1    1402.4    9842.0
GR   1404.3    9868.8    1400.6    9916.9    1396.6    9942.8    1393.1    9955.5    1395.3    9977.2
GR   1393.1    9989.0    1392.3    9996.7    1392.3   10000.0    1393.8   10006.6    1396.0   10047.6
GR   1394.9   10080.6    1393.5   10088.2    1394.3   10097.0    1396.5   10125.7    1396.7   10166.9
1
    11SEP02      14:17:12                                                                    PAGE     3

GR   1397.9   10231.5    1398.9   10271.1    1402.8   10309.7    1407.9   10339.9    1408.9   10347.9
GR   1409.0   10373.5    1408.5   10381.9

ET                                    9.1       9.1                                   9954      10031
X1     0.76        40     9953.5   10030.7       650       450       500
X3       10
GR   1407.6    9585.1    1407.1    9622.6    1404.2    9658.2    1397.2    9677.9    1396.6    9681.6
GR   1398.1    9690.4    1400.2    9712.2    1404.1    9742.0    1403.8    9780.6    1399.5    9797.3
GR   1406.0    9817.1    1407.4    9841.5    1404.8    9863.1    1400.8    9890.3    1397.8    9906.5
GR   1399.9    9953.5    1394.5    9960.1    1396.2    9976.8    1398.3    9995.5    1399.0   10000.0
GR   1399.3   10030.7    1398.4   10060.0    1399.7   10096.8    1399.3   10111.7    1398.4   10133.0
GR   1403.7   10151.0    1405.2   10162.6    1401.6   10189.9    1400.0   10203.1    1401.7   10221.2
GR   1405.3   10254.3    1407.7   10294.7    1407.9   10336.8    1405.7   10362.8    1409.1   10395.0
GR   1410.5   10428.5    1412.2   10476.3    1414.5   10522.4    1414.7   10562.9    1414.8   10584.7

ET                                    9.1       9.1                                   9956      10029
X1     0.85        28     9931.2   10056.1       950       310       500
X3       10
GR   1419.7    9647.7    1419.0    9671.4    1409.8    9715.4    1408.3    9725.5    1408.2    9731.7
GR   1410.3    9748.1    1411.5    9758.3    1409.9    9763.0    1409.0    9778.7    1405.9    9829.0
GR   1405.9    9844.4    1406.9    9878.0    1402.7    9904.2    1406.2    9917.7    1406.1    9931.2
GR   1400.2   10000.0    1401.2   10020.7    1412.8   10056.1    1410.5   10084.3    1410.4   10095.7
GR   1406.6   10103.9    1408.5   10125.0    1412.1   10156.1    1412.4   10196.3    1412.7   10230.2
```