FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CONDITIONAL LETTER OF MAP REVISION REQUEST

For

New River
Aqua Fria River to Bethany Home Road
FCD 95-15

TECHNICAL DATA NOTEBOOK

MAY, 1998

Simons, Li & Associates, Inc.

Federal Emergency Management Agency

Washington, D.C. 20472

NOV 04 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 98-09-1026R

The Honorable Don Stapley
Chairperson, Maricopa County
Board of Supervisors
301 Jefferson Street
Phoenix, Arizona 85003

Community: Maricopa County, Arizona
Community No.: 040037

104

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Flood Control District of MC Library
Please Return to
2801 W. Durango
Phoenix, AZ 85009

Dear Mr. Stapley:

This responds to a request that the Federal Emergency Management Agency (FEMA) comment on the effects that a proposed project would have on the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for Maricopa County, Arizona and Incorporated Areas (the effective FIRM and FIS report for your community), in accordance with Part 65 of the National Flood Insurance Program (NFIP) regulations. In a letter dated August 7, 1998, Hasan Mushtaq, Ph.D., P.E., Engineering Division, Flood Control District of Maricopa County, requested that FEMA evaluate the effects that proposed construction of the Camelback Ranch Levee-North and the Glendale Airport Levee along the New River from the confluence of the Agua Fria River to Bethany Home Road and along the Agua Fria River from Camelback Road to approximately 2,500 feet upstream of the confluence of the New River would have on the flood hazard information shown on the effective FIRM and FIS report.

All data required to complete our review of this request for a Conditional Letter of Map Revision (CLOMR) were submitted with letters from Dr. Mushtaq.

We have completed our review of the submitted data and the flood data used to prepare the effective FIRM for your community. We believe that, if the proposed project is constructed as shown on the plans entitled "Camelback Ranch Levee-North, Glendale Airport Levee, Preliminary 90% Submittal," prepared by Daniel, Mann, Johnson, & Mendenhall, dated July 31, 1998, and "Flood Control District of Maricopa County, New River Conditional Letter of Map Revision," prepared by Simons, Li & Associates, Inc., dated April 1998, and the data listed below are received, a revision to the FIRM and FIS report would be warranted.

Because this request also affects the Cities of Phoenix and Glendale, separate CLOMRs for those communities were issued on the same date as this CLOMR.

As a result of the proposed project, the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) will be contained within the constructed levees along the New River from the confluence of the Agua Fria River to Bethany Home Road. A proposed conditions hydraulic analysis for the Agua Fria River was not submitted for this request; therefore, the effects of the proposed levees on the Agua Fria River were not reviewed at this time.

Upon completion of the project, your community may submit the data listed below and request that we make a final determination on revising the effective FIS report and FIRM.

- Detailed application and certification forms must be used for requesting final revisions to the maps. Therefore, when the map revision request for the area covered by this letter is submitted, Form 1, entitled "Revision Requester and Community Official Form," must be included. (A copy of this form is enclosed.)

- The detailed application and certification forms listed below may be required if as-built conditions differ from the preliminary plans. If required, please submit new forms (copies of which are enclosed) or annotated copies of the previously submitted forms showing the revised information.

  Form 4, entitled "Riverine Hydraulic Analysis Form"

  Form 5, entitled "Riverine/Coastal Mapping Form"

  Form 6, entitled "Channelization Form"

  Form 8, entitled "Levee/Floodwall System Form"

- Effective October 1, 1996, FEMA revised the fee schedule for reviewing and processing requests for conditional and final modifications to published flood information and maps. FEMA established flat review and processing fees for most types of requests. Effective March 10, 1997, FEMA modified the fee schedule that became effective on October 1. In accordance with this schedule, the fee for your map revision request will be $2,300 and must be received before we can begin processing your request. Payment of this fee shall be made in the form of a check or money order, made payable in U.S. funds to the National Flood Insurance Program, or by credit card. The payment must be forwarded to the following address:

  Federal Emergency Management Agency
  Fee-Collection System Administrator
  P.O. Box 3173
  Merrifield, VA 22116-3173

- As-built plans, certified by a registered professional engineer, of all proposed project elements

- Community acknowledgment of the map revision request

- Certification that all fill placed in the currently effective base floodplain and below the proposed base flood elevation (BFE) is compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test method issued by the American Society for Testing and Materials (ASTM Standard D-698) or an acceptable equivalent method for all areas to be removed from the base floodplain

- A copy of the public notice distributed by your community stating your community's intent to revise the floodway, or a statement by your community that it has notified all affected property owners and affected adjacent jurisdictions

- A letter stating that your community will adopt and enforce the modified floodway, OR, if the State has jurisdiction over either the floodway or its adoption by your community, a copy of your community's letter to the appropriate State agency notifying it of the floodway modification and a copy of the letter from that agency stating its approval of the modification

- An officially adopted maintenance and operation plan for the proposed levees. This plan, which may be in the form of a written statement from the community Chief Executive Officer, an ordinance, or other legislation, must describe the nature of the maintenance activities, the frequency with which they will be performed, and the title of the local community official who will be responsible for ensuring that the maintenance activities are accomplished.

- The proposed conditions hydraulic analysis of the New River begins approximately 800 feet upstream of the effective hydraulic model. Please extend the proposed conditions hydraulic analysis approximately 800 feet downstream to begin the analysis where the effective model begins. According to a Letter of Map Revision (LOMR) issued on August 5, 1997 (Case No. 97-09-246P), the starting water-surface elevation (WSEL) should be 1,027.5 feet. If the revised hydraulic analysis for the Agua Fria River results in a change in the BFE at the confluence of the New River, the corresponding BFE should be used as the starting WSEL.

- Please submit a revised hydraulic analysis for the Agua Fria River that shows the effects of the proposed levees. Please ensure that the revised BFEs tie into the BFEs established in LOMRs dated August 5, 1997, and April 16, 1998, and that the levees meet the requirements of Section 65.10 of the NFIP regulations.

- The BFEs along the Agua Fria River are higher than the Glendale Airport outlet channel invert; therefore, backwater flow will occur. It is not clear from a review of Sheets 21 and 22 of 23 of the above-referenced plans entitled "Camelback Ranch Levee-North, Glendale Airport Levee, Preliminary 90% Submittal," how far this backwater will flow along the channel. The channel does not have an apparent terminus of sufficient ground elevation. Please submit information to show the extent of the channel and the backwater effects from the Agua Fria River.

- Hydraulic analyses, for as-built conditions, of the base flood and regulatory floodway if they differ from the proposed conditions models

After receiving appropriate documentation to show that the project has been completed, FEMA will initiate a revision to the FIRM and FIS report. Because the BFEs would change as a result of the project, a 90-day appeal period would be initiated, during which community officials and interested persons may appeal the revised BFEs based on scientific or technical data.

The basis of this CLOMR is, in whole or in part, a channel-modification project. NFIP regulations, as cited in Paragraph 60.3(b)(7), require that communities assure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management regulations. Consequently, the ultimate responsibility for maintenance of the modified channel rests with your community.

This CLOMR is based on minimum floodplain management criteria established under the NFIP. Your community is responsible for approving all floodplain development, and for ensuring all necessary permits required by Federal or State law have been received. State, county, and community officials, based on

knowledge of local conditions and in the interest of safety, may set higher standards for construction in the Special Flood Hazard Area. If the State, county, or community has adopted more restrictive or comprehensive floodplain management criteria, these criteria take precedence over the minimum NFIP criteria.

If you have any questions regarding floodplain management regulations for your community or the NFIP in general, please contact the Consultation Coordination Officer (CCO) for your community. Information on the CCO for your community may be obtained by contacting the Director, Mitigation Division of FEMA in San Francisco, California, at (415) 923-7177. If you have any technical questions regarding this CLOMR, please contact Mr. Max Yuan of our staff in Washington, DC, either by telephone at (202) 646-3843 or by facsimile at (202) 646-4596.

Sincerely,

Max H. Yuan, P.E., Project Engineer
Hazards Study Branch
Mitigation Directorate

For: Matthew B. Miller, P.E., Chief
Hazards Study Branch
Mitigation Directorate

Enclosure(s)

cc: The Honorable Don Stapley
Chairperson, Maricopa County
Board of Supervisors

The Honorable Skip Rimsza
Mayor, City of Phoenix

Ms. Terri Miller
State Coordinator, NFIP
Arizona Department of Water Resources

Hasan Mushtaq, Ph.D., P.E.
Engineering Division
Flood Control District of Maricopa County

Mr. Ray Acuña, P.E.
Floodplain Manager
City of Phoenix

Mr. Grant Anderson, P.E.
City Engineer
City of Glendale

CONDITIONAL LETTER OF MAP REVISION REQUEST

for

NEW RIVER
Agua Fria River to Bethany Home Road

TECHNICAL DATA NOTEBOOK

Prepared for:

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
2801 West Durango
Phoenix, Arizona 85009

Submitted to:

DANIEL, MANN, JOHNSON, & MENDENHALL
2777 East Camelback, Suite 200
Phoenix, Arizona 85016

Prepared by:

SIMONS, LI & ASSOCIATES, INC.
4600 South Mill Avenue, Suite 200
Tempe, Arizona 85282
(602) 491-1393

MAY, 1998

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Registered Professional Engineer (Civil)
CERTIFICATE NO. 28660
BART S. BERGENDAHL
Date Signed 5-18-99
ARIZONA, U.S.A.

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Appendix G:	Preliminary Construction Plans (Bound Separately)
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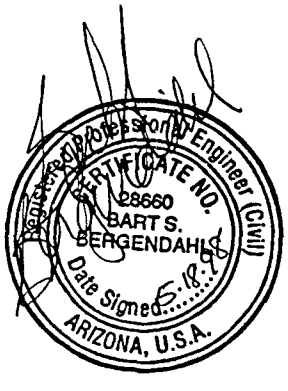


CONDITIONAL LETTER OF
MAP REVISION REQUEST

for

NEW RIVER
Agua Fria River to Bethany Home Road

TECHNICAL DATA NOTEBOOK

SECTION 1: INTRODUCTION

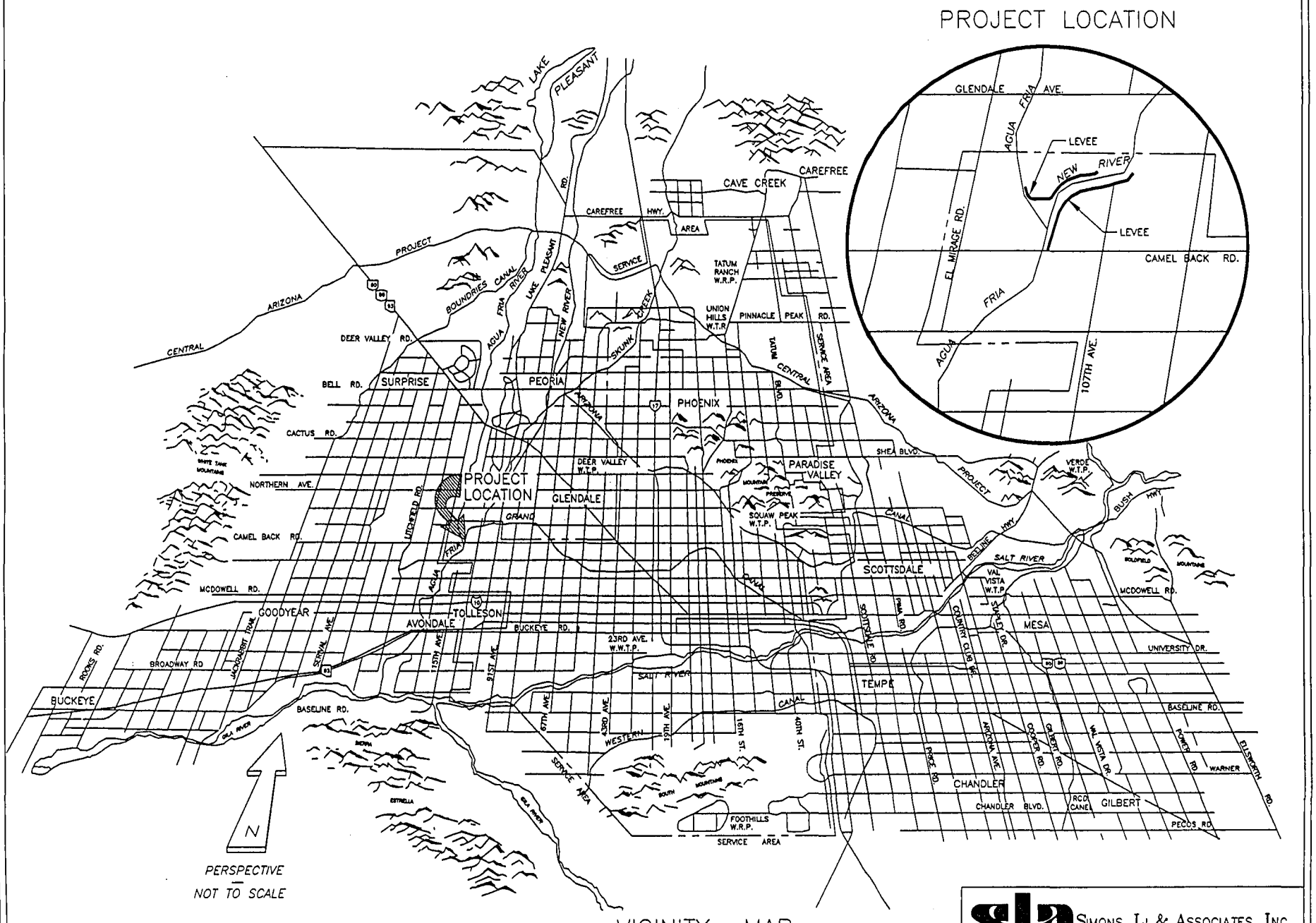
This Technical Data Notebook (TDN) documents the hydraulic analysis conducted in support of a request for a Conditional Letter of Map Revision (CLOMR) for the New River from its confluence with the Agua Fria River to just upstream of the Bethany Home Road alignment. The CLOMR request is required due to proposed levee construction on both sides of the New River which will alter the floodplain/floodway boundaries and hydraulic characteristics. The purpose of the project to remove property from the base floodplain allowing airport expansion and the construction of a water reclamation facility on the west, and residential development on the east side of the river.

The proposed levee project is located in Section 18, of Township 2N, Range 1E, between the communities of Phoenix and Glendale in Maricopa County, Arizona. The east-bank levee (identified as the Camelback Ranch Levee - North on the project plans) is located on property owned by the Flood Control District of Maricopa County (FCDMC). The west-bank levee (identified as the Glendale Levee on the project plans) is on property owned by the City of Glendale, immediately adjacent to the Glendale Municipal Airport. Long-term maintenance will be provided by the respective owners.

The east-bank levee begins on the upstream side of Camelback Road, extends upstream along the channel, and ties into the existing soil cement levee just upstream of the Bethany Home Road alignment. The west-bank levee begins at the confluence with the Agua Fria River, southwest of the Glendale Airport, extends south, around the airport, and ties into the existing gabion bank protection along the southeast side of the airport. The location of the project and the proposed levee alignments along the river are shown on Figure 1.

The face of the levees will be protected by a nine-foot thick (horizontal) layer of soil cement which extends up to 11.5 feet below thalweg elevation to prevent undermining. The soil cement toe-down elevation was determined by adding the channel scour components of long-term degradation, general scour, low-flow incisement, bedform scour, and a safety factor as computed using the hydraulics generated by a modified Standard Project Flood (SPF) discharge of 71,300 cfs.

The top-of-levee profile was established by providing three feet of freeboard to the higher of the SPF design water surfaces generated from fixed-bed (HEC-2) and moveable-bed (QUASED) models. Since a levee condition will not exist immediately south of the Glendale Airport, due to the placement of engineered fill, one foot of freeboard above the SPF event was provided in that area.



VICINITY MAP

SIMONS, LI & ASSOCIATES, INC.
Water Resources & Civil Engineering Consultants

FIGURE 1

To provide fill material for the area south of the airport and to increase the conveyance capacity of the New River, roughly the eastern half of the river bottom will be channelized. The 30% construction drawings are included as Appendix G to this notebook.

The proposed project will alter the width and elevation of the 100-year floodplain and floodway. Backup calculations and mapping are provided to demonstrate the hydraulic adequacy of the proposed project and its compliance with FEMA regulations.

This CLOMR request was prepared by Simons, Li & Associates, Inc. (SLA) for the Flood Control District of Maricopa County (FCDMC) as part of Contract No. 95-15, "Camelback Ranch Levee Design - North" held by Daniel, Mann, Johnson, & Mendenhall (DMJM).

SECTION 2: ADWR AND FEMA FORMS

2.1 Study Documentation Abstract

The completed study documentation abstract is contained on the following two pages.

STUDY DOCUMENTATION ABSTRACT		INITIAL STUDY	RESTUDY	LOMR	OTHER
New River CLOMR					x
SECTION 1: GENERAL INFORMATION					
1A	COMMUNITY	Maricopa County			
1B	COMMUNITY NUMBER	040037			
1C	COUNTY	Maricopa			
1D	STATE	Arizona			
1E	DATE STUDY ACCEPTED				
1F	STUDY CONTRACTOR CONTRACT(S) ADDRESS PHONE	Simons, Li & Associates, Inc. (SLA) Bart S. Bergendahl, P.E. 4600 South Mill Avenue, Suite 200 Tempe, AZ 85282 (602) 491-1393			
1G	TECH REVIEWER (FEMA) PHONE				
1H	FEMA REGIONAL REVIEWER PHONE				
1I	STATE REVIEWER PHONE	Arizona Department of Water Resources (602) 417-2400			
1J	LOCAL REVIEWER PHONE	Flood Control District of Maricopa County ~~Afshin Ahouraiyan~~ (602) 506-1501			
1K	RIVER OR STREAM NAME	New River			
1L	REACH DESCRIPTION	Agua Fria River to Bethany Home Road			
1K	STUDY TYPE	River Levee/Channelization CLOMR			
SECTION 2: MAPPING INFORMATION					
2A	USGS QUAD SHEET(S)	El Mirage, Arizona, 7.5 Minute USGS QUAD Map			
2B	MAPPING FOR HYDROLOGIC STUDY: TYPE/SOURCE SCALE DATE	N/A			
2C	MAPPING FOR HYDRAULIC STUDY: TYPE/SOURCE SCALE DATE	DTM, Aerial Mapping Company, Inc. 1"=200'; 2-foot contour interval February 26, 1995 flight date			

STUDY DOCUMENTATION ABSTRACT (CON'T).		
SECTION 3: HYDROLOGY N/A		
3A	MODEL OR METHOD USED (including vendor and version description)	Currently effective discharges used.
3B	STORM DURATION	
3C	HYETOGRAPH	
3D	FREQUENCIES DETERMINED	
3E	LIST OF GAGES USED IN FREQUENCY ANALYSIS OR CALIBRATION (Location, Years of Record, Gage Ownership)	
3F	RAINFALL AND REFERENCE	
3G	UNIQUE CONDITIONS AND PROBLEMS	
3H	COORDINATION OF Q'S (Agency, Date, Comments)	
SECTION 4: HYDRAULICS		
4A	MODEL OR METHOD USED (Including Vendor and Version Description)	HEC-2, Version 4.6.2, May 1991 Simons, Li & Associates, Inc. (SLA) 4600 South Mill Avenue, Suite 200 Tempe, AZ 85282
4B	REGIME	Subcritical
4C	FREQUENCIES FOR WHICH PROFILE WERE COMPUTED	100-Year
4D	METHOD OF FLOODWAY CALCULATION	Method 1 (See Attached Report)
4E	UNIQUE CONDITIONS AND PROBLEMS	See Attached Report
ADDITIONAL STUDY INFORMATION		
ITEM		DESCRIPTION/DISCUSSION
Backup Report		Report provides technical appendices including FEMA forms, HEC-2 input and output, and design drawings for the proposed project.

2.2 Application/Certification Forms

The required FEMA application and certification forms (MT-2 Forms 1, 2, 4, 5, 6, and 8) are included as Appendix H to the notebook.

SECTION 3: SURVEY AND MAPPING INFORMATION

3.1 Field Survey Information

The ground control survey and photogrammetry for the project mapping is the same as that used for the recently approved 1996 restudy of the Agua Fria River conducted by Coe & Van Loo Consultants, Inc. (CVL). The survey and photogrammetry was performed by Aerial Mapping Company, Inc. The aerial photography flight date was February 26, 1995.

3.2 Mapping Description

As implied above, the topographic mapping used for the hydraulic analysis conducted for this CLOMR request is the same as that used for the recently approved 1996 restudy of the Agua Fria River conducted by Coe & Van Loo Consultants, Inc. This mapping was also used for the design of the levee/channelization project. The mapping was developed by Aerial Mapping Company, Inc. and provided to SLA by the FCDMC in DTM format. The mapping is based on aerial photography taken on February 26, 1995, and is scaled at 1"=200' with a 2' contour interval.

The FEMA map affected by this project is FIRM No. 04013C 1620 F, revised August 7, 1995.

SECTION 4: HYDROLOGIC ANALYSIS

4.1 Method Description

The 100-year peak discharges from the two effective Flood Insurance Studies (FIS) were used in this CLOMR analysis. A discharge of 39,000 cfs, taken from the 1986 study of the New River by Coe & Van Loo (CVL), is effective between the confluence with the Agua Fria River and approximately Bethany Home Road (Section 24). A discharge of 41,000 cfs, taken from the 1992 LOMR for the New River Channelization project, also by Coe & Van Loo, is effective from approximately Bethany Home Road (Section 44) to Olive Avenue.

The effective studies were provided to SLA by the Flood Control District of Maricopa County. Volume 1 of the published Flood Insurance Study for Maricopa County, Arizona (September 30, 1995) lists 41,000 cfs as the effective discharge for the New River below the confluence with Skunk Creek, which is upstream of Olive Avenue. Table 7 of Section 8 compares these discharges to the SPF discharges used for the project design.

SECTION 5: HYDRAULIC ANALYSIS

5.1 Method Description

The floodplain and floodway water-surface elevations for the project reach were defined using U.S. Army Corps of Engineers HEC-2 Water Surface Profile Model (Version 4.6.2) (3). The two effective HEC-2 models for the New River project reach were provided to SLA by the Flood Control

District. A duplicate effective model was developed for each. The resulting water-surface elevations are compared to the effective elevations in Table 1. (Note: Dotted line in Table 1 represents the break between the two effective models.)

The post-project conditions model was developed for the project reach using the 1995 project mapping and the proposed levee/channelization design developed by DMJM. The project plans are provided in Appendix G. By comparing the topography of the effective work maps with the project mapping, it is evident that the effective models accurately reflected the existing conditions along the New River.

The water-surface elevation at the confluence with the Agua Fria River was used as the starting water surface for the proposed conditions HEC-2 model. The elevation (1029.6 ft.) was obtained from the recently effective 1996 restudy of the Agua Fria River, from the Confluence with the Gila River to the New Waddell Dam, conducted by CVL, Inc. The Agua Fria restudy used updated hydrology which reflects the additional storage available behind the completed New Waddell Dam. This study was also provided to SLA by the Flood Control District of Maricopa County.

5.2 Study Work Maps

A location map that identifies the major features along the proposed project reach of the New River is included in this report as Figure 1. Also, a reduced copy of the study work maps which depicts the proposed floodplain and floodway boundaries for the project reach is included as Figure 2.

5.3 Parameter Estimation

5.3.1 Roughness Coefficients

The Manning's roughness coefficients were chosen considering those used in the effective models, information collection from field surveys, and aerial photographs. An n-value of 0.035 was used for the main channel alluvium and 0.040 was used for the overbank areas in the proposed conditions model. These values are consistent with the effective models.

5.3.2 Expansion and Contraction Coefficients

Coefficients of 0.3 and 0.1 was used to compute expansion and contraction losses, respectively, from channel cross-section to cross-section in the proposed conditions model. These values are consistent with those recommended by the HEC-2 user's manual.

5.4 Cross-Section Description

Topographic mapping from the project DTM was used to obtain complete cross-section information for the proposed channel and overbank areas. Cross-sections were oriented approximately perpendicular to the anticipated flow paths. The cross-sections are numbered consecutively from downstream to upstream beginning at the confluence with the Agua Fria River. The channel baseline uses standard engineering stationing with the distance measured in feet above the

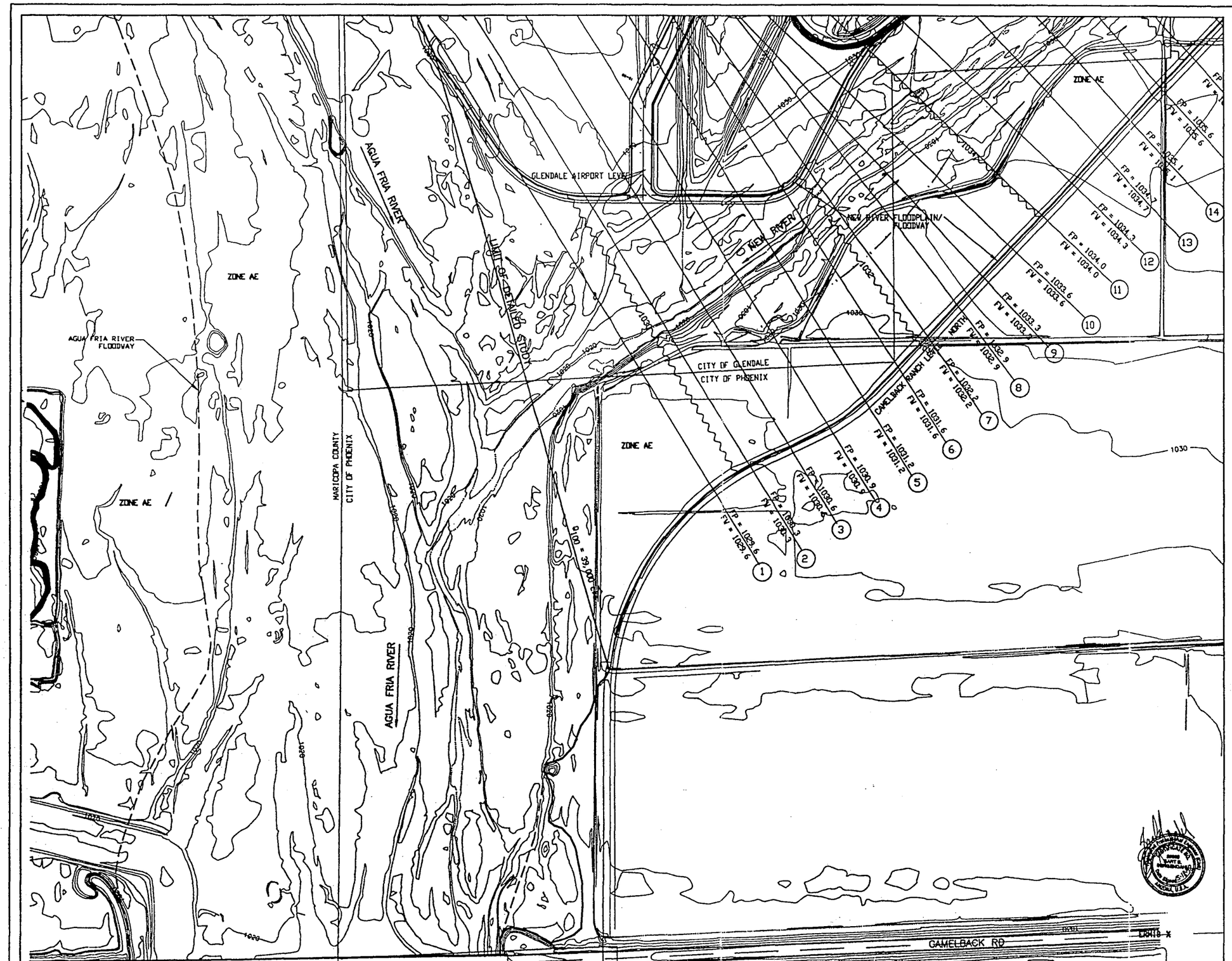
Table 1: Comparison of Water Surface Elevations

HEC-2 Section No.	Effective Floodplain Water Surface Elevation (ft)	Duplicate Effective Floodplain Water Surface Elevation (ft)	Change (ft)	Effective Floodway Water Surface Elevation (ft)	Duplicate Effective Floodway Water Surface Elevation (ft)	Change (ft)
20.00	1032.5	1032.5	0.0	1033.4	1033.4	0.0
26.80	1033.9	1033.9	0.0	1034.5	1034.5	0.0
32.60	1035.3	1035.3	0.0	1036.1	1036.1	0.0
38.00	1037.2	1037.2	0.0	1037.4	1037.4	0.0
45.00	1039.1	1039.1	0.0	1039.1	1039.1	0.0
51.70	1040.2	1040.2	0.0	1040.2	1040.2	0.0
54.00	1040.4	1040.4	0.0	1040.4	1040.4	0.0
44.00	1041.1	1041.1	0.0	1041.1	1041.1	0.0
47.00	1041.3	1041.3	0.0	1041.3	1041.3	0.0
51.50	1042.1	1042.1	0.0	1042.1	1042.1	0.0
55.00	1043.2	1043.2	0.0	1043.2	1043.2	0.0
58.12	1044.9	1044.9	0.0	1044.9	1044.9	0.0

HEC-2 Section No.	Duplicate Effective Floodplain Water Surface Elevation (ft)	Post-Project Floodplain Water Surface Elevation (ft)	Change (ft)	Duplicate Effective Floodway Water Surface Elevation (ft)	Post-Project Floodway Water Surface Elevation (ft)	Change (ft)
20.00	1032.5	1030.9	-1.6	1033.4	1030.9	-2.5
26.80	1033.9	1032.9	-1.0	1034.5	1032.9	-1.6
32.60	1035.3	_(1034.2)	-1.1	1036.1	_(1034.2)	-1.9
38.00	1037.2	_(1034.9)	-2.3	1037.4	_(1034.9)	-2.5
45.00	1039.1	_(1036.4)	-2.7	1039.1	_(1036.4)	-2.7
51.70	1040.2	1038.1	-2.1	1040.2	1038.1	-2.1
54.00	1040.4	1038.6	-1.8	1040.4	1038.6	-1.8
44.00	1041.1	1040.1	-1.0	1041.1	1040.1	-1.0
47.00	1041.3	1040.5	-0.8	1041.3	1040.5	-0.8
51.50	1042.1	1041.8	-0.3	1042.1	1041.8	-0.3
55.00	1043.2	1043.0	-0.2	1043.2	1043.0	-0.2
58.12	1044.9	1044.9	0.0	1044.9	1044.9	0.0

_( ) Value Interpolated

..... Break between effective models



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NEW RIVER

CONDITIONAL LETTER OF MAP REVISION

F.C.D. CONTRACT NO. 95-15

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	14 FP=100 Yr WSE / FV=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1030
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	
SECTION LINE	

ELEVATION REFERENCE MARKS

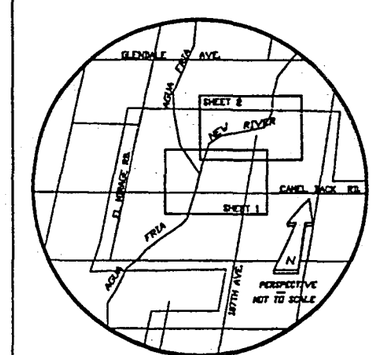
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I. D. NUMBER	ELEV. (FT)	DESCRIPTION/LOCATION
ERM 18	1033.41	COTTON PICKER SPINDLE AT THE CENTERLINE OF CAMELBACK AT APPROXIMATELY 109th AVE
ERM 20	1042.55	1/2" REBAR WITH ALUMINIUM CAP ON THE WEST SIDE OF BERM FOR FENCE AROUND AIRPORT

NOTES

1. CROSS-SECTION STATION 1,000 IS THE HYDRAULIC BASELINE.
2. STARTING WSE AT SECTION 1 = AGUA FRIA RE-STUDY WSE AT SECTION 9.790 (CVL, 1996)

INDEX MAP



200 0' 200 400
SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

SIMONS, LI & ASSOCIATES, INC.
Water Resources & Civil Engineering Consultants

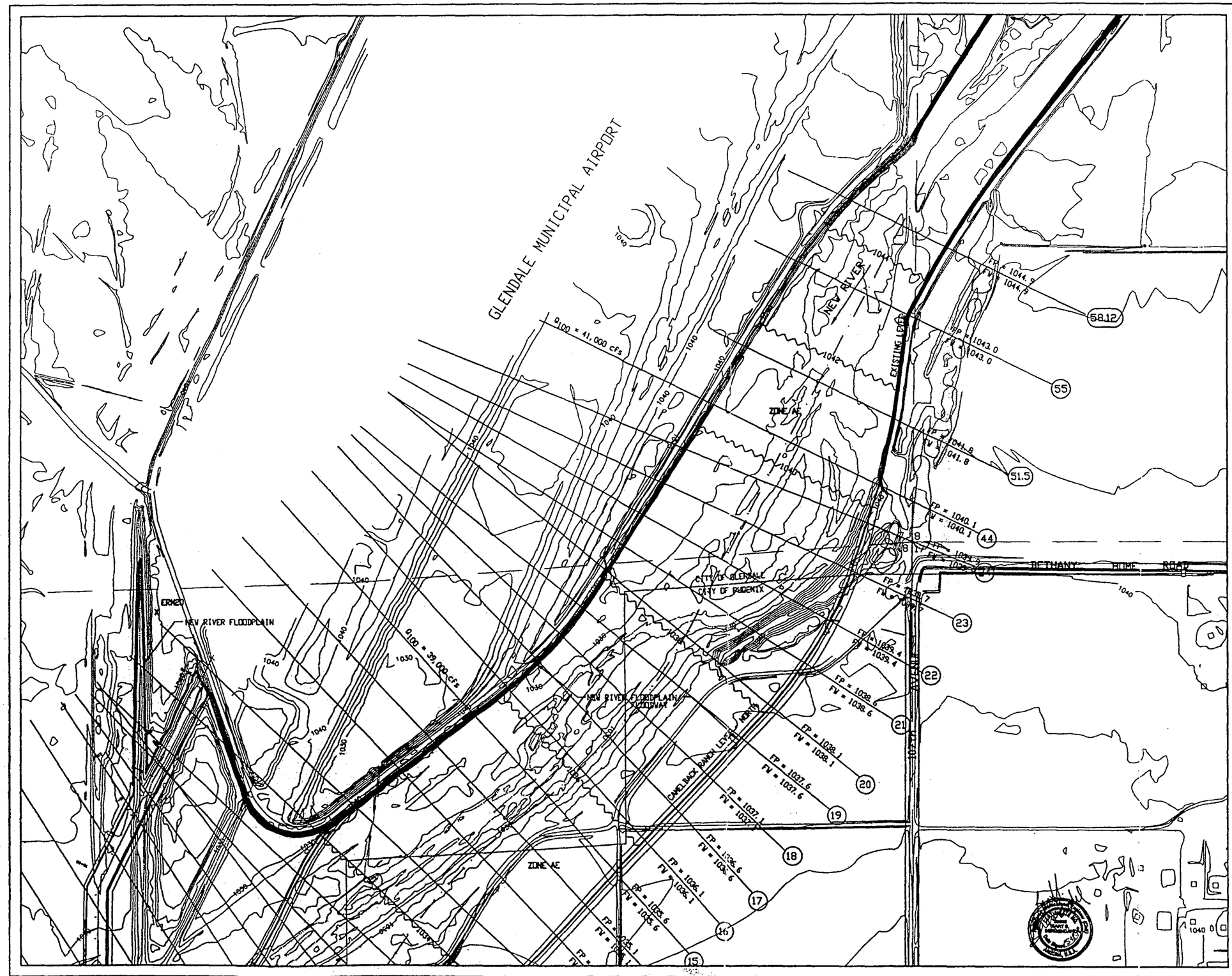
	BY	DATE
DESIGN	IKT	4/98
DESIGN CHK.	BSB	4/98
PLANS	BAL	4/98
PLANS CHK.	BSB	4/98

SUBMITTED BY: Bart Bergendahl, P.E. DATE 4/98

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE
APPROVED BY: DATE
CHIEF ENGINEER AND GENERAL MANAGER
SHEET

Figure 2A



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NEW RIVER

CONDITIONAL LETTER OF MAP REVISION

F.C.D. CONTRACT NO. 95-15

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	(14) FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1030
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	
SECTION LINE	

ELEVATION REFERENCE MARKS

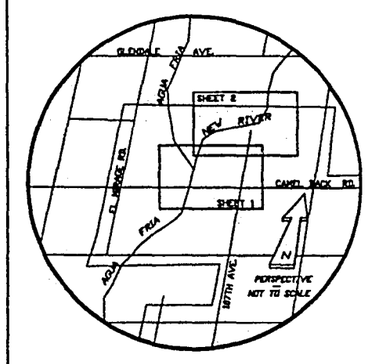
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I.D. NUMBER	ELEV. (FT)	DESCRIPTION/LOCATION
ERM 18	1033.41	COTTON PICKER SPINDLE AT THE CENTERLINE OF CAMELBACK AT APPROXIMATELY 109th AVE
ERM 20	1042.55	1/2" REBAR WITH ALUMINUM CAP ON THE WEST SIDE OF BERM FOR FENCE AROUND AIRPORT

NOTES

1. CROSS-SECTION STATION 1,000 IS THE HYDRAULIC BASELINE.

INDEX MAP



N

200 0' 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

SIMONS, LI & ASSOCIATES, INC.
Water Resources & Civil Engineering Consultants

	BY	DATE
DESIGN	IKT	4/98
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SUBMITTED BY:
Bart Bergendahl, P.E. DATE 4/98

SHEET

Figure 2B

AERIAL MAPPING COMPANY, INC. SURVEYING AND ..... THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY

confluence with the Agua Fria River, beginning at Station 10+00 (ref. work maps). A key to cross-section labeling between the currently effective FIS and the CLOMR mapping is provided in Table 2.

The cross sections are defined by data points oriented left to right, looking downstream. Each data point consists of an elevation and corresponding station number. The intersection of each cross section and the channel baseline is assigned station number 1,000 feet. Each point in the cross section is defined relative to the channel baseline with stations less than 1,000 to the left and greater than 1,000 to the right.

Cross-sections were taken at regular intervals of approximately 200 feet and at significant changes in geometry within the project reach. Locations of cross-sections used in this study are shown on the work maps. Cross-section plots for the proposed conditions model are included in Appendix E.

5.5 Modeling Considerations

The proposed conditions HEC-2 model was developed for subcritical flow profile computations.

5.5.1 Hydraulic Jump/Drop Analysis

No hydraulic jumps or drops occur or are proposed along the project reach of the New River.

5.5.2 Bridges and Culverts

No culverts or bridges exist or are proposed in the project reach of the New River.

5.5.3 Levees and Dikes

The alignment, slope, and elevation of the levees in the proposed project were incorporated into the DTM mapping model. Consequently, their geometry is reflected as ground points in the GR cards of the HEC-2 model. The typical levee section has a 1:1 foreslope and a 3:1 backslope (Ref. Appendix G for project plans).

5.5.4 Islands and Flow Splits

There are no islands or flow splits in the proposed conditions model.

5.5.5 Ineffective Flow Areas

There are no ineffective flow areas associated with the proposed design.

5.5.6 Supercritical Flow

Supercritical flow does not occur in the New River during the 100-year event.

Table 2: Key to Cross-Section Labeling

Hydraulic Baseline Station	CLOMR HEC-2 Section	FIS Cross Section	FIS Letter Designation	CLOMR Letter Designation	East Levee Station (approximate)	West Levee Station (approximate)	Remarks
13+10	1				33+00	15+43	
15+15	2				34+50	18+93	
17+22	3				36+50	21+43	
19+24	4	20.00	A	A	38+50	23+93	
21+25	5				40+80	26+43	
23+21	6				43+00	30+00	
24+90	7				44+80	31+50	
26+70	8	26.80	B	B	46+80	33+00	
28+00	9				48+50	34+00	
29+60	10				50+50	35+20	
31+60	11				52+50	37+00	
		32.60	C				End West Levee Station 38+41
33+60	12			C	54+00		
35+93	13				56+50		
		38.00	D				
37+90	14			D	58+50		
40+00	15				60+50		
41+98	16			E	62+50		
		45.00	E				
43+90	17				64+50		
45+77	18				66+50		
47+75	19				68+80		
49+77	20	51.70	F	F	70+70		
51+67	21	54.00	G	G	73+20		
53+60	22				75+80		
55+62	23				78+20		
57+64	24				80+50		
60+24	25	44.00	H	H	82+52		End East Levee
63+24		47.00	I	I			
71+24		55.00	J	J			
77+86		58.12	K	K			

5.6 Floodway Modeling

The floodway concept is used to define the amount of floodplain encroachment that is considered acceptable for development. The principle is that limited encroachment is likely to have an insignificant effect on all but the severest flood events. A floodway consists of the main channel of a stream plus sufficient overbank area to convey the 100-year flood without increasing flood heights by more than a specified amount. Federal standards limit the increase to one foot above the base flood elevation; however, some jurisdictions have stricter standards. No jurisdiction affected by this project has a stricter standard, therefore, the one-foot maximum will apply. The relationship between the floodway, floodway fringe, and the floodplain is shown in Figure 3.

Normally, the floodway is determined by encroaching on the floodplain to reduce the conveyance by equal amounts on each side. The encroachment is increased gradually until the maximum allowable increase in depth is achieved. For the proposed project, the floodway boundary was set coincident with the floodplain limits which follow the proposed levee alignments. The location of the proposed levee alignments was driven primarily by right-of-way concerns on the east, and the desired configuration for the future Glendale Airport runway extension on the west. The adequacy of the proposed levee alignment was checked against the allowable one-foot maximum rise above the effective base flood elevations, and the severity of the resulting hydraulic parameters. The resulting water-surface elevations are tabulated in Tables 3. The floodway hydraulics at selected cross-sections are summarized in the Floodway Data Table in Section 8.2 of this notebook. A plan-view comparison between the currently effective floodway boundaries and the proposed floodway boundaries is provided in Section 8.3.

5.7 Problems Encountered

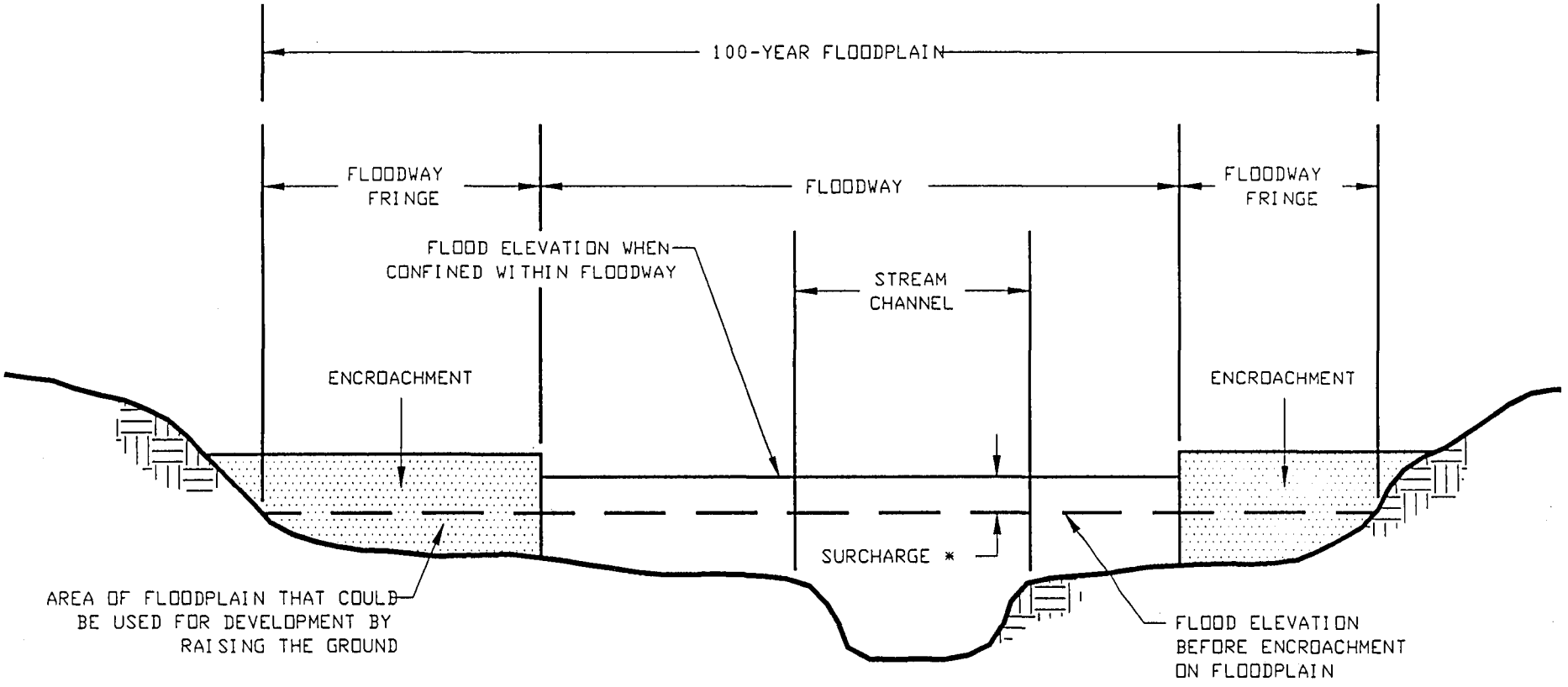
No special problems were encountered during the study.

5.8 Calibration

As shown in Table 1, the water-surface elevations of the duplicate effective model agree with the effective model, validating the use HEC-2 computer model, version 4.6.2, for the study.

The water-surface elevation at the confluence with the Agua Fria River was used as the starting water surface for the proposed conditions. This elevation (1029.6 ft.) was obtained from the 1996 restudy of the Agua Fria River, from the Confluence with the Gila River to the New Waddell Dam, by CVL, Inc. Due to the changed hydrology in the Agua Fria River restudy, this water surface is different than that used in the currently effective New River model. Therefore, there is no downstream water-surface convergence. The Agua Fria restudy uses updated hydrology which reflects the additional storage available behind the completed New Waddell Dam.

The water-surface elevations resulting from the proposed conditions model were compared to the currently effective FIS information and are reasonable, considering the nature of the project. The currently effective FIS information used in the evaluation included the published FIRM maps, the profile plots, and the floodway data tables for the study reach.



* SURCHARGE NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE

sla Simons, Li & Associates, Inc.

Floodway Definition Sketch **Figure 3**

Table 3: Post-Project Water Surface Elevations

Hydraulic Baseline Station	HEC-2 Section No.	Floodplain Water Surface Elevation (ft)	Floodway Water Surface Elevation (ft)	Difference (ft)	Remarks
					Begin New River CLOMR
13+10	1.00	1029.6	1029.6	0.0	Q100 = 39,000 cfs
15+15	2.00	1030.3	1030.3	0.0	
17+22	3.00	1030.6	1030.6	0.0	
19+24	4.00	1030.9	1030.9	0.0	
21+25	5.00	1031.2	1031.2	0.0	
23+21	6.00	1031.6	1031.6	0.0	
24+90	7.00	1032.2	1032.2	0.0	
26+70	8.00	1032.9	1032.9	0.0	
28+00	9.00	1033.3	1033.3	0.0	
29+60	10.00	1033.6	1033.6	0.0	
31+60	11.00	1034.0	1034.0	0.0	
					End Glendale Levee
33+60	12.00	1034.3	1034.3	0.0	
35+93	13.00	1034.7	1034.7	0.0	
37+90	14.00	1035.1	1035.1	0.0	
40+00	15.00	1035.6	1035.6	0.0	
41+98	16.00	1036.1	1036.1	0.0	
43+90	17.00	1036.6	1036.6	0.0	
45+77	18.00	1037.1	1037.1	0.0	
47+75	19.00	1037.6	1037.6	0.0	
49+77	20.00	1038.1	1038.1	0.0	
51+67	21.00	1038.6	1038.6	0.0	
53+60	22.00	1039.4	1039.4	0.0	
55+62	23.00	1039.7	1039.7	0.0	
57+64	24.00	1039.9	1039.9	0.0	
60+24	44.00	1040.1	1040.1	0.0	Start CVL 92 LOMR
					Q100 = 41,000 cfs
					End Camelback Levee
63+24	47.00	1040.5	1040.5	0.0	
67+74	51.50	1041.8	1041.8	0.0	
71+24	55.00	1043.0	1043.0	0.0	
77+86	58.12	1044.9	1044.9	0.0	

5.9 Final Results

Table 1 compares the duplicate effective floodplain and floodway water-surface elevations with those of the proposed post-project floodplain and floodway. The proposed water-surface elevations are lower than the effective at all locations within the project limits for both the floodplain and floodway. The changes range from -1.0 to -2.7 feet for the floodplain, and -1.6 to -2.7 feet for the floodway. The proposed water surface converges with the effective water surface at cross-section 58.12.

The top-of-bank elevations were set according to worst-case design criteria for the SPF event. Fixed (HEC-2) and moveable bed (QUASED) hydraulic models were developed to represent existing conditions, proposed levee conditions, and proposed levee conditions with assumed maximum future, in-stream, sand and gravel mining. The worst-case hydraulic condition for water surface (top-of-bank elevation) in the New River resulted from the no-mining condition in the Agua Fria with coincident SPF discharges at the confluence. The resulting base flood freeboard for the post-project floodplain is provided in Table 4. As shown in Table 4, the minimum project freeboard is 4.7 feet at levee locations and 2.8 feet at non-levee locations.

The proposed levee alignment meets the governing FEMA criteria for floodplains and floodways. The effect of the project will be to reduce the 100-year water surface elevations and, therefore, floodplain and floodway widths within the project reach. The resulting change in water surface profile is reasonable considering the flow is being confined by levees, causing acceleration, and the channel is being partially excavated below existing ground. Section 8.3 presents a plan view of the impact of the proposed channelization project on the currently effective floodplain and floodway boundaries, respectively.

HEC-2 input and output listings for the existing and proposed conditions models are presented in Appendix E, along with plots of the channel cross-sections.

SECTION 6: EROSION AND SEDIMENT TRANSPORT ANALYSIS

6.1 Method Description

The face of the levees will be protected with a nine-foot thick (horizontal) layer of soil cement. The soil cement toe-down elevation was determined by adding the channel scour components of long-term degradation, general scour, low-flow incisement, bedform scour, and a safety factor as computed using the Standard Project Flood (SPF) hydraulics. Potential future in-stream mining activities in the Agua Fria River, just below the confluence with the New River, were also included in the transport analysis. Long-term degradation was computed using the 10-year hydraulics. The design discharges used for the Agua Fria River represent the hydrologic conditions prior to the completion of the New Waddell Dam.

Table 4: Freeboard Summary

Camelback Levee Freeboard Summary (East Bank)

Levee Station	Location	100-Year Water Surface Elevation	Levee Crest	Freeboard (ft)
10+00	Lower End	1022.9	1030.0	7.1
15+60	Grade Break	1024.1	1030.1	6.0
20+50	Grade Break	1025.0	1030.7	5.7
22+40	Grade Break	1025.4	1031.7	6.3
30+85	Grade Break	1027.2	1032.9	5.7
36+70	Grade Break	1030.6	1035.5	4.9
48+50	Grade Break	1033.3	1038.9	5.6
50+50	Grade Break	1033.6	1039.2	5.6
52+50	Grade Break	1034.0	1039.8	5.8
54+50	Grade Break	1034.4	1040.1	5.7
57+40	Grade Break	1034.9	1041.2	6.3
64+30	Grade Break	1036.5	1042.8	6.3
66+50	Grade Break	1037.1	1043.0	5.9
73+30	Grade Break	1038.6	1044.5	5.9
80+34	Grade Break	1039.9	1047.0	7.1
82+52	Upper End	1040.1	1044.8	4.7

Note : Shaded WSEL's from effective FIS for Agua Fria River (1996, CVL)

Glendale Levee Freeboard Summary (West Bank)

Levee Station	Location	100-Year Water Surface Elevation	Levee Crest	Freeboard (ft)
9+50	Lower End	1031.5	1036.7	5.2
10+00	Grade Break	1031.3	1036.7	5.4
19+75	Grade Break	1030.6	1035.6	5.0
21+27	PC Station	1030.8	1035.6	4.8
22+12	Grade Break	1030.6	1035.6	5.0
22+43	Grade Break	1030.6	1033.6	3.0
	Start Engineered Fill			
23+70	Grade Break	1030.8	1033.6	2.8
30+00	Grade Break	1031.6	1034.8	3.2
30+40	Grade Break	1031.7	1035.3	3.6
33+00	Grade Break	1032.9	1036.8	3.9
37+00	Grade Break	1034.0	1040.0	6.0
38+40	Upper End	1034.2	1040.0	5.8

Fixed (HEC-2) and moveable bed (QUASED) hydraulic models were developed to represent existing conditions, proposed levee conditions, and proposed levee conditions with assumed maximum future, in-stream, sand and gravel mining. The proposed conditions included a significant amount of channelization in the New River. Each of the above conditions were evaluated with and without coincident flooding at the confluence of the two rivers to identify the worst-case SPF hydraulics for scour and freeboard. The SPF design required three (3) feet of freeboard along the levees and one (1) foot minimum along the bank protection around the south and east side of the Glendale Airport.

The worst-case hydraulic condition for water surface (top-of-bank elevation) in the New River resulted from the no-mining condition in the Agua Fria with coincident SPF discharges at the confluence. The worst-case hydraulic condition for toe-down elevations was generated with the future mining condition and low tailwater in the Agua Fria River (non-coincident peaks).

6.1.1 General Scour

General scour was quantified using the QUASED (QUAsi-dynamic hydraulic and SEDiment routing, 1990) computer program developed by SLA. QUASED sediment transport calculations are performed using the Meyer-Peter, Muller bedload function and Einstein's procedure for integrating suspended load to determine the bed material sediment transport capacity and the change in invert elevation during the SPF event.

6.1.2 Long-Term Degradation

The procedures described by the Bureau of Reclamation (4) were utilized to quantify the long-term degradation component of total potential scour. Long-term degradation was computed using the concepts of equilibrium slope and stream bed armoring.

The dominant discharge was used for the long-term degradation analysis. The dominant discharge is defined as the discharge which, if allowed to flow constantly, would have the same overall channel shaping effect as the natural fluctuating discharges. The dominant discharge is typically between a 5-year and 10-year event for ephemeral channels (6). The hydraulic conditions for the 10-year event were used in determining the long-term degradation response for the project reach of the New River.

6.1.3 Low-Flow Incisement

The large width-depth ratios for the design project reach of the New River require that consideration be given to the development of low-flow channels. There are no rigorous methodologies for the prediction of low-flow channel incisement. A review of existing field conditions and experience from previous projects along the New River indicate a low-flow incisement depth of 1.5 feet is reasonable for the project reach.

6.1.4 Bed-Form Scour

The bed-form scour component was estimated to be one-half of the dune and antidune heights. The dune height was calculated using a relationship developed by Allen (5). The antidune height was calculated using relationships developed by Kennedy (6). The actual type of bed form present in the project reach is a function of the flow regime. Since the flow regime will change with the fluctuating discharges of the design flood hydrograph, both bed forms could occur during the design flood event. The maximum scour depth calculated from the above two relationships was utilized as the bed-form scour component of the total potential scour.

6.1.5 Factor of Safety

A factor of safety was included to account for non-uniform flow distributions typical of alluvial channels. The safety factor was computed as 30% of the general scour, long-term degradation, and bedform scour.

6.1.6 Mining Impacts

The impacts of in-stream sand and gravel mining can be very significant upstream, downstream, as well as, laterally from a mine site. The magnitude of the impacts is primarily dependent upon the dimensions and volume of the pit. The typical downstream response is general degradation, while the response upstream and laterally is generally headcutting.

To evaluate the proposed project conditions with mining, controlled in-stream mining was assumed to take place in the Agua Fria River, between Camelback Road and the confluence with the New River. The upstream and downstream impacts were accounted for by the QUASED sediment routing computer program. The lateral impact was addressed by controlling the location of the mine pit relative to the proposed east levee. To preclude future in-stream sand and gravel mining from impacting the required toe-down for the proposed levee, a minimum setback distance of 100 feet from the levee toe was recommended for a 10-foot mining depth on a 3:1 side slope.

6.2 Parameter Estimation

The sediment gradation data used to model the sediment transport and scour potential of the New River, along the project reach, was developed through field sampling and laboratory testing conducted by ATL, Inc. (9, 10, 11). The relevant gradation information from those reports is reproduced and provided in Appendix F.

6.3 Final Results

Table 5 summarizes the design scour component depths for the SPF discharge. The total scour depths ranged from a maximum of 11.5 feet at Section 6 to a minimum of 2.9 feet at Sections 23 and 24. Long-term degradation was controlled by stream bed armoring. Table 6 summarizes the

Table 5: Scour Component Summary (SPF Hydraulics w/o New Waddell Dam, Proposed Levees)

HEC2 Section No.	General Scour (ft)	LONG-TERM SCOUR		Low Flow Scour (ft)	BED-FORM SCOUR		Factor of Safety (ft)	Standard Toe-Down Depth (ft)	Inv. Elev. (ft)	Standard Toe-Down Elevation (ft)	Maximum WSEL (ft)	Remarks
		Armoring (ft)	Equilibrium (ft)		Dune (ft)	Antidune (ft)						
1	2.2	2.7		1.5	0.5	1.8	2.0	10.2	1019.5	1009.3	1030.7	Q=71300cfs
2	1.0	0.7		1.5	0.6	0.8	0.8	4.8	1019.5	1014.7	1031.8	
3	0.0	0.6		1.5	0.7	0.9	0.5	3.5	1019.5	1016.0	1032.2	
4	0.0	0.8		1.5	0.6	1.1	0.6	4.0	1020.0	1016.0	1032.7 (1)	
5	1.1	1.7		1.5	0.6	1.6	1.3	7.2	1020.5	1013.3	1033.1 (1)	
6	2.3	3.1		1.5	0.6	2.2	2.3	11.5	1020.5	1009.0	1033.6 (1)	
7	2.4	2.7		1.5	0.6	1.9	2.1	10.6	1022.0	1011.4	1034.3	
8	2.3	1.1		1.5	0.6	1.3	1.4	7.6	1023.0	1015.4	1035.3	
9	1.5	0.7		1.5	0.6	1.2	1.0	5.9	1023.0	1017.1	1035.7	
10	1.5	0.6		1.5	0.7	1.1	0.9	5.6	1023.0	1017.4	1036.1	
11	0.0	0.5		1.5	0.7	1.0	0.5	3.5	1023.5	1020.0	1036.6	
12	0.5	0.9		1.5	0.6	1.1	0.8	4.8	1024.5	1019.7	1036.9	
13	1.2	1.4		1.5	0.6	1.4	1.2	6.6	1024.5	1017.9	1037.3	
14	1.3	1.8		1.5	0.6	1.5	1.4	7.6	1025.0	1017.4	1037.8	
15	1.4	1.6		1.5	0.6	1.5	1.4	7.4	1025.0	1017.6	1038.3	
16	1.0	1.3		1.5	0.6	1.6	1.2	6.5	1026.0	1019.5	1038.8	
17	1.5	1.7		1.5	0.6	1.6	1.4	7.8	1027.0	1019.2	1039.3	
18	0.9	1.7		1.5	0.6	1.6	1.3	7.0	1027.5	1020.5	1039.8	
19	0.6	1.7		1.5	0.6	1.6	1.2	6.6	1028.0	1021.4	1040.3	
20	0.8	1.7		1.5	0.6	1.5	1.2	6.8	1028.5	1021.7	1040.9	
21	0.9	1.7		1.5	0.5	1.8	1.3	7.3	1030.0	1022.7	1041.4	
22	0.0	0.3		1.5	0.7	0.8	0.3	3.0	1028.5	1025.5	1042.3	
23	0.0	0.3		1.5	0.7	0.8	0.3	2.9	1029.5	1026.6	1042.6	Q=69000cfs
24	0.0	0.3		1.5	0.7	0.8	0.3	2.9	1028.5	1025.6	1042.8	
25	0.0	0.6		1.5	0.6	1.1	0.5	3.8	1031.0	1027.2	1043.0	

(1) WSEL reflects the QUASED results

Simons, Li & Associates, Inc.
Water Resources & Civil Engineering Consultants

Table 6: Levee Design Recommendations
(SPF Hydraulics w/o New Waddell Dam)

HEC2 Section No.	Minimum Toe-Down Elevation (ft)	30% Plan Toe-Down Elevation (ft)	Maximum WSEL (ft)	Minimum Top of Bank Elevation (ft)
1	1009.3	1009.3	1030.7	1033.7
2	1014.7	1014.1	1031.8	1034.8
3	1016.0	1015.9	1032.2	1035.2
4	1016.0	1016.0	1032.7	1035.7
5	1013.3	1012.7	1033.1	1036.1
6	1009.0	1009.0	1033.6	1036.6
7	1011.4	1009.0	1034.3	1037.3
8	1015.4	1014.5	1035.3	1038.3
9	1017.1	1017.1	1035.7	1038.7
10	1017.4	1017.4	1036.1	1039.1
11	1020.0	1019.4	1036.6	1039.6
12	1019.7	1019.6	1036.9	1039.9
13	1017.9	1017.7	1037.3	1040.3
14	1017.4	1017.1	1037.8	1040.8
15	1017.6	1017.5	1038.3	1041.3
16	1019.5	1018.0	1038.8	1041.8
17	1019.2	1018.6	1039.3	1042.3
18	1020.5	1020.5	1039.8	1042.8
19	1021.4	1021.0	1040.3	1043.3
20	1021.7	1021.4	1040.9	1043.9
21	1022.7	1022.0	1041.4	1044.4
22	1025.5	1024.4	1042.3	1045.3
23	1026.6	1026.5	1042.6	1045.6
24	1025.6	1025.6	1042.8	1045.8
		Tie to existing		
		soil cement levee		

recommended minimum design toe-down, the proposed plan toe-down, and top-of-bank elevations for the proposed project. The proposed plan toe-down elevations are at or below the recommended minimums.

SECTION 7: LEVEE DESIGN

7.1 Stability Analysis

The levee design and stability analyses for the foundation and embankment, were conducted by ATL, Inc. The results of these analyses are documented in three reports which are listed as References 9, 10, and 11. The results are summarized on pages 5 through 8 of FEMA Form 8.

7.2 Interior Drainage

The interior drainage is captured in a detention basin located landward of the east bank levee, just upstream of Camelback Road. The area tributary to the basin is 485 acres. The detention basin was designed to contain the 100-year, 2-hour storm volume. The design is based on a hydrograph routing analysis using the U.S. Army Corps of Engineer's HEC-1 computer model. The analysis indicated a storage volume of 54 acre-feet was required for existing conditions and 68 acre-feet for fully-developed future conditions. The analysis is part of the interior drainage report prepared by DMJM for the residential community planned for the area (15).

An independent hydraulic analysis conducted by DMJM determined a 36-inch outfall pipe would be sufficient to evacuate the basin within a required 36-hour period. The pipe, located at levee station 11+56, will convey 58 cfs with an assumed tailwater elevation in the river equal to the top of the outfall pipe (elev. 1017.0 feet). The outfall pipe will have a headwall and flapgate at the river to prevent water from entering the basin and the interior area during high river stages.

A turn-out structure for irrigation tailwater may be provided through the east levee at station 23+00. If such a structure is provided it will be equipped with a flapgate or control gate, as necessary, to prevent water from entering the basin and the interior area during high river stages.

SECTION 8: DRAFT FIS REPORT DATA

8.1 Summary of Discharges

A summary of the effective FIS discharges used in this CLOMR analysis and a comparison to the project design SPF discharges is presented in Table 7.

Table 7: Hydrology

HEC-2 Cross-Section	Effective FIS 100-Year Discharges (cfs)	Project Design SPF Discharges (cfs)
22	39,000	71,300
23	39,000	69,000
24	39,000	69,000
44	41,000	69,000

8.2 Floodway Data

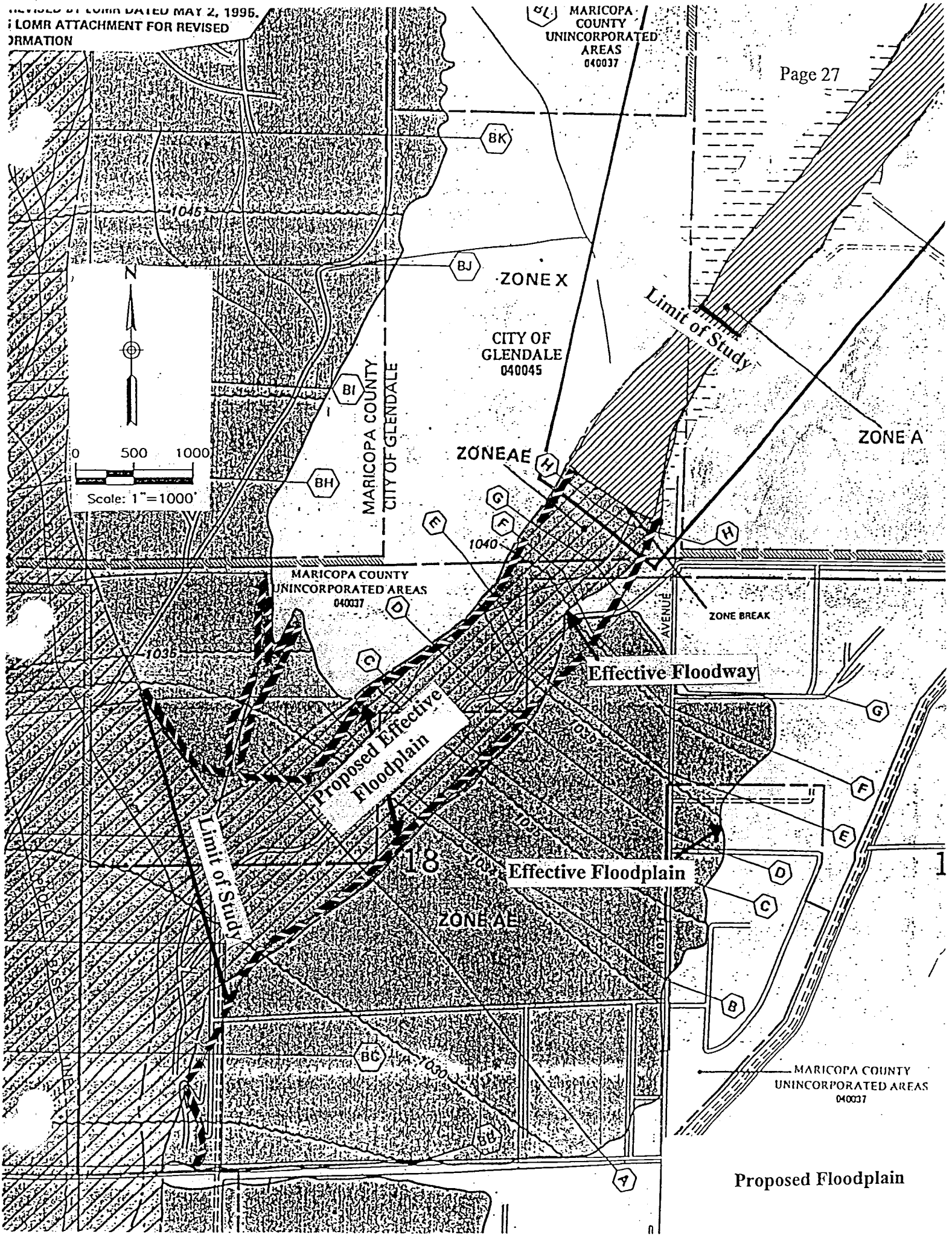
FLOODWAY DATA FOR NEW RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (2)		
Cross Section	Distance (1)	Width (ft)	Section Area (sq ft)	Mean Velocity (fps)	With Floodway (ft)	Without Floodway (ft)	Increase (ft)
A	924	1203	6823	5.7	1030.9	1030.9	0.0
B	1670	979	5899	6.6	1032.9	1032.9	0.0
C	2360	1021	6272	6.2	1034.3	1034.3	0.0
D	2790	920	5594	7.0	1035.1	1035.1	0.0
E	3198	900	5583	7.0	1036.1	1036.1	0.0
F	3977	896	5429	7.2	1038.1	1038.1	0.0
G	4167	904	5045	7.7	1038.6	1038.6	0.0
H	5024	878	6303	6.5	1040.1	1040.1	0.0
I	5324	743	4924	8.3	1040.5	1040.5	0.0
J	6124	469	4107	10.0	1043.0	1043.0	0.0
K	6786	397	4319	9.5	1044.9	1044.9	0.0

(1) Feet Above Confluence With Agua Fria River
(2) 1929 Datum

sla Simons, Li & Associates, Inc.
Water Resources & Civil Engineering Consultants

8.3 Annotated FIRM Maps


REVISED BY LOMR DATED MAY 2, 1995.
LOMR ATTACHMENT FOR REVISED
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MARICOPA COUNTY UNINCORPORATED AREAS 040037
BK
1045
BJ
ZONE X
CITY OF GLENDALE 040045
Limit of Study
ZONE A
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MARICOPA COUNTY
CITY OF GLENDALE
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0 500 1000
Scale: 1"=1000'
BH
ZONE AE
H
G
F
E
1040
MARICOPA COUNTY UNINCORPORATED AREAS 040037
D
ZONE BREAK
AVENUE
1035
C
Effective Floodway
Proposed Effective Floodplain
1038
Limit of Study
18
Effective Floodplain
ZONE AE
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BG
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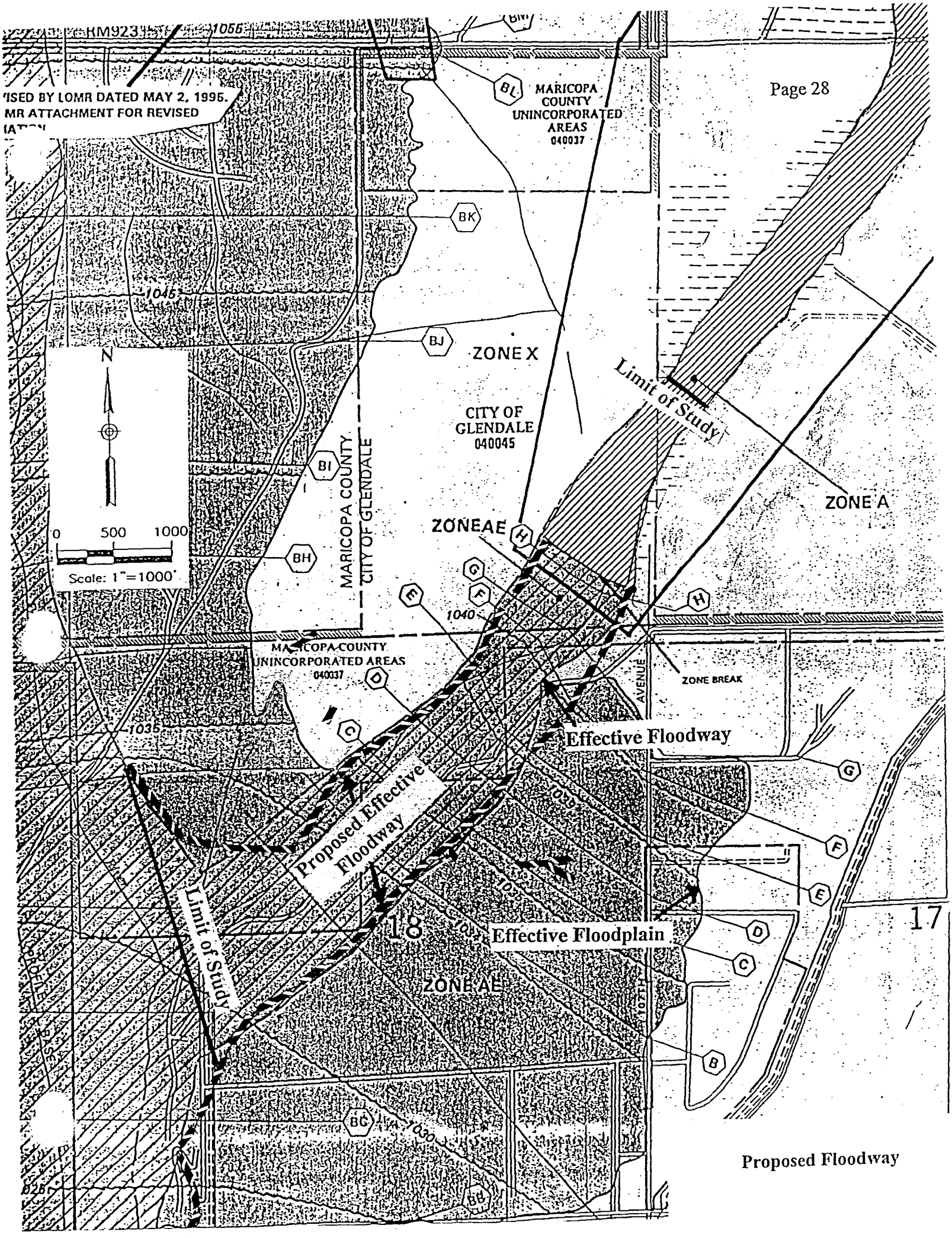
A
MARICOPA COUNTY UNINCORPORATED AREAS 040037
Proposed Floodplain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ISED BY LOMR DATED MAY 2, 1995.
MR ATTACHMENT FOR REVISED
BL
MARICOPA COUNTY UNINCORPORATED AREAS 040037
BK
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CITY OF GLENDALE 040045
Limit of Study
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MARICOPA COUNTY UNINCORPORATED AREAS 040037
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C
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AVENUE
ZONE BREAK
Effective Floodway
Proposed Effective Floodway
Limit of Study
18
Effective Floodplain
ZONE AE
107TH
B
17
BG
1030
BB
Proposed Floodway

8.4 Flood Profiles

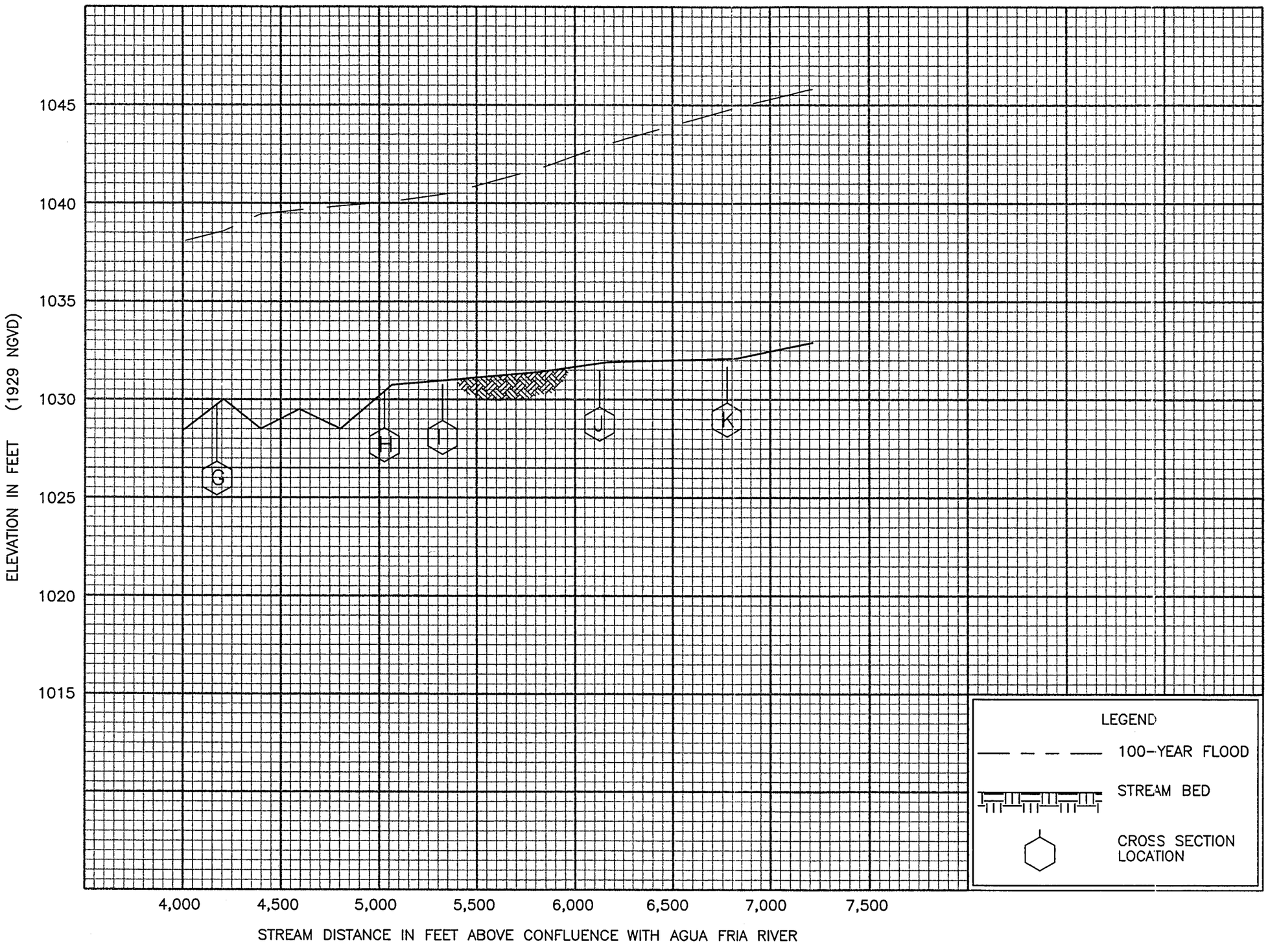
FLOOD PROFILES

NEW RIVER CHANNEL

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
(FLOOD CONTROL DISTRICT)

SHEET 1



FLOOD PROFILES

NEW RIVER CHANNEL

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
(FLOOD CONTROL DISTRICT)

SHEET 2

APPENDIX A

REFERENCES

REFERENCES

1. Federal Emergency Management Agency, "Appeals, Revisions, and Amendments to National Flood Insurance Program Maps, A Guide for Community Officials," FIA - 12, December, 1993.

2. Flood Insurance Study for Maricopa County, Arizona, FEMA, September 30, 1995.

3. HEC-2 Model User's Manual, U.S. Army Corps of Engineers, Version 4.6.2, May 1991.

4. U.S. Department of the Interior, Bureau of Reclamation, "Computing Degradation and Local Scour," Technical Guideline, Denver, Colorado, 1977.

5. Simons, Li & Associates, Inc., "Design Manual for Engineering Analysis of Fluvial Systems," Prepared for the Arizona Department of Water Resources, Tucson, Arizona, March, 1985.

6. Simons, Daryl B. and Fuat Senturk, "Sediment Transport Technology," Water Resources Publications, Ft. Collins, Colorado, 1992.

7. Colorado State University, Civil Engineering Department, "Investigation of Gravel Mining Effects, Salt River Channelization Project at Sky Harbor International Airport," December, 1980.

8. Flood Control District of Maricopa County, "Channel Design Criteria for Major Watercourses," February 3, 1994.

9. ATL, Inc., "Camelback Ranch Levee, Flood Control District of Maricopa County, FCD Project No. 95-15," September 18, 1996.

10. ATL, Inc., "Additional Camelback Ranch Levee Design, Glendale Municipal Airport, FCD Project No. 95-15," February 11, 1998.

11. ATL, Inc., "North Camelback Ranch Levee Design, City of Glendale, West Area WWRF Project, FCD Project No. 95-15," April 7, 1998.

12. Coe & Van Loo Consultants, Inc., "Agua Fria River Floodplain Delineation Re-Study, FCD Contract No. 95-5, September, 1996.

13. Coe & Van Loo Consultants, Inc., "LOMR Submittal Package for the New River Channelization, Bethany Home Road to Olive Avenue, FCD Contract No. 91-05," June 18, 1992.

14. Coe & Van Loo Consultants, Inc., "Hydrology Update, New River below Skunk Creek, Maricopa County, Arizona," November 15, 1986.

15. Daniel, Mann, Johnson & Mendenhall, "Final Interior Drainage Report, Camelback Ranch Levee Design, FCD Contract No. 95-15", April, 1998.

APPENDIX B

GENERAL DOCUMENTATION AND CORRESPONDENCE

Appendix "C'

CAMELBACK RANCH LEVEE DESIGN
HYDRAULIC AND SEDIMENT TRANSPORT ANALYSES

Scope of Work
Simons, Li & Associates, Inc.

Task 1: Data Collection

SLA will collect all available data necessary to perform qualitative and quantitative evaluation of the hydraulic and sediment transport characteristics of both the Agua Fria River and the New River. Data of importance includes previous hydrologic, hydraulic, and sediment transport studies of the nearby reaches; local bed material samples; flood frequency curves; design discharges; historical and current channel topography; bridge design plans; channel improvement design plans; historical mining records; current and future mining plans; and historical aerial photographs.

Task 2: Hydraulic Analysis

2.a: Hydraulics

SLA will analyze the hydraulic characteristics of the study channels in the project vicinity over the full range of potential flood events, up to and including the SPF event. The following potential channel configuration scenarios will be considered: (1) Existing conditions; (2) Existing conditions with the proposed levee; and (3) Scenario 2 with maximum mining conditions assumed in the downstream reach.

Each of the above channel configuration scenarios considering both coincident and non-coincident flooding of the two channels under 2-year through SPF flood conditions will be analyzed, in order to determine the full range of potential depths, velocities, water surface profiles, and energy gradients to be expected along the project reach.

Floodplain analyses will be performed to investigate the following conditions:

(1) Pre-Waddell SPF event
(2) Post-Waddell SPF event with levee
(3) Pre-Waddell 100-year event
(4) Post-Waddell 100-year event with levee

The Post-Waddell 100-year event for existing conditions will be provided by others and furnished to the design team by FCD. A separate line item (2.a.1.) has been included in the cost estimate should it be necessary to perform this work.

Recommended top of bank profiles for the proposed structures will be developed, considering the following hydraulic and channel adjustment components: maximum steady state flow profiles (rigid boundary), maximum quasi-unsteady flow profiles (moveable boundary), long term aggradation allowance, superelevation/impingement allowance, bedform amplitude, and minimum freeboard requirements.

2.b: Sediment Transport/Scour Analysis

This task will include an evaluation of historical trends within the river system. Available topographic data will be used to investigate the historical channel profile changes throughout the vicinity of the project. The available aerial photographs will be compared to document historical planform changes. The magnitudes and trends indicated by the historical data comparison will be documented, and potential impacts to proposed project structures will be identified.

Using steady state analysis procedures, SLA will determine the sediment transport characteristics of the local channel reaches under the channel configuration and hydrologic scenarios described above. The trends associated with each condition assumed will be summarized, and the critical condition(s) controlling structure profile and toe-down identified. The QUASED quasi-unsteady, moveable boundary model (or HEC-6) will be applied for selected critical conditions and the Scenario 3 coincident SPF condition to quantify the potential time-varying channel changes to be expected throughout the passage of the analyzed hydrographs.

For the sediment-transport analysis, SLA will use available information to develop flood frequency curves for the New River and the Agua Fria River in the vicinity of the confluence. Hydrographs representative of floods with 2-, 5-, 10-, 25-, 50-, and 100-year frequency and the Standard Project Flood (SPF) will be developed at three locations: (1) Agua Fria River upstream of the New River confluence; (2) Agua Fria River downstream of the New River confluence; and (3) New River upstream of the Agua Fria River confluence.

Develop recommended toe-down profiles for the proposed structures will be developed, considering the following potential channel adjustment components: long-term degradation, general scour, local scour, low flow incisement and potential bed form development as well as sand and gravel mining considerations. The recommendations will be based on procedures outlined in the Flood Control District's *Channel Design Criteria for Major Watercourses*.

2.c: Sand and Gravel Mining Analysis

SLA will analyze and identify any possible impacts to the soil cement levee from future sand and gravel mining within the project limits. SLA will conduct analyses and recommend the safe allowable set-back for future excavation on either side of the levee based on the toe-down depths proposed for the soil cement levee. A safe distance shall be recommended for the various depths of pits.

2.d: CLOMR Documentation and Application

SLA will prepare the necessary documentation for obtaining a Conditional Letter of Map Revision (CLOMR) for the project. The CLOMR will be prepared, documented, and submitted to the Federal Emergency Management Agency (FEMA) and formatted according to Arizona Department of Water Resources (ADWR) technical guidelines. SLA will prepare all necessary maps, exhibits, floodplain/floodway delineations, hydraulic analyses, figures, illustrations, descriptions, and completed forms as backup support for the CLOMR.

SLA will provide an analysis to document that the system will provide adequate protection from a 100-year flood. The analysis will include 1) demonstration of available freeboard, 2) evidence that all drainage structures that penetrate the levees have been fitted with adequate closure devices to prevent backflow, 3) analysis of the embankment protection to show that the levee will not be subject to erosion, 4) information on stability of the embankment and foundation, 5) an interior drainage analysis of drainage originating on the landward side of the levee, and 6) a settlement analysis to demonstrate the potential for loss of freeboard. Items 4 through 6 will be performed by other members of the project team for inclusion in the CLOMR package.

Task 3: Prepare Concept Design Report

The results of the above studies will be used to demonstrate the adequacy of the proposed measures for confinement of the SPF flood flows. A summary report will be prepared documenting study assumptions, procedures, and results. The summary report will include results of the hydraulic and sediment-transport analyses, and provide recommended bank heights and toe-down depths.

Task 4: Site Visits

Site visits shall be conducted to identify site conditions, verify information collected, and supplement the available data.

Task 5: Coordination

Coordination with DMJM, the geotechnical engineer, and the Flood Control District will be maintained throughout the project. Coordination will include team meetings, phone conversations, meetings with the client, progress reports, etc.

Task 6: Permits and Approvals

SLA will provide technical documentation to assist in the application for a Section 404 permit. This task include manhours for preparation of technical documentation and a coordination meeting with DMJM and the Flood Control District.

Task 7: Design Plan Preparation

SLA will coordinate with DMJM during the plan preparation to provide guidance on geometric considerations of the bank protection system and transitions to the Camelback Road bridge and the upstream levee system as well as the downstream terminus. SLA will review the design plans prepared by DMJM to assure compliance with the design toe-down and top-of-bank elevation recommendations as well as to insure overall consistency with adjacent flood control measures.

CAMELBACK RANCH LEVEE DESIGN
CITY OF GLENDALE PROPOSAL

CHANGE ORDER REQUEST NO. 3

I. INTRODUCTION

The Scope of Work for the Camelback Ranch Levee North Project is being expanded to include an additional 2350 feet of levee adjacent to the Glendale Municipal Airport and channelization of the New River to prevent overtopping of the existing airport levee by the standard project flood (SPF). As seen on the attached plan, the future expansion of the airport to the south will be accommodated on the interior of the additional levee. It is proposed that the additional levee will be constructed of either gabion baskets or soil cement.

The new levee and channelization work will require additional hydraulic, sediment transport, and scour analyses to ensure an adequate design for the proposed improvements on the New River, as well as, the Agua Fria River. These changes also require all mapping analyses conducted for the New River Conditional Letter of Map Revision (CLOMR) be revised to reflect the changes.

A. Design Analysis

Additional hydraulic and sediment transport analyses must be conducted to identify a channel geometry for the New River channel that will be stable and will not produce overtopping along the airport levee during the SPF event. The sediment transport modeling and scour calculations for the New River must be revised to define the design toe-down depths for the SPF event. Also, because the changed hydraulic conditions in the New River will affect the sediment transport to the Agua Fria River, the sediment transport analyses for the Agua Fria River (both with and without mining) must be updated to define new levee toe-down depths for the SPF event.

The new and modified models that must be prepared to allow analysis and re-analysis of hydraulics, sediment transport, and scour in the New River for the two required designs are itemized below:

<u>Hydraulic Models (HEC-2):</u>

1) proposed conditions model for the Agua Fria/New Rivers;
2) proposed conditions model with mining for the Agua Fria/New Rivers;

<u>Sediment Transport Models (QUASED):</u>

3) proposed conditions model for the Agua Fria/New Rivers;
4) proposed conditions model w/mining for the Agua Fria/New Rivers.

B. CLOMR Analysis

The changed hydraulic conditions resulting from the new airport levee and the New River channelization will require additional analyses to define the revised FEMA floodplain and floodway mapping. All existing mapping models must be modified to reflect the changes along the New River and achieve convergence with the effective 100-year water-surface elevations.

One CLOMR submission will be made, but the document will contain an independent request for each flooding source (i.e., the New and Agua Fria Rivers), as required by FEMA.

The mapping models that must be modified to define the geometry of the revised floodplain and floodway, as well as, the associated 100-year hydraulics for the New River are itemized below:

Mapping Models (HEC-2):

5) post-project floodplain for the New River;
6) post-project floodway for the New River.

The level of effort for the CLOMR analysis would be the same if physical changes were being made on one or both banks of the New River. Because work is being done on the west bank for the City of Glendale and on the east bank for the Flood Control District, the cost of the CLOMR analysis for the New River will be shared 50-50 with the Flood Control District.

II. SCOPE OF WORK

Task 2: Hydraulic Analysis

2.a: Hydraulics

Re-analysis of the New River hydraulics is necessary due to the new levee adjacent to the Glendale Municipal Airport and the channelization of the New River. Cross-sections for the hydraulic models will be located and oriented, as required, to properly reflect the changes. Vertical and horizontal encroachments will be identified to establish effective conveyance areas. The analysis will determine water-surface elevations, flow velocities, depths, and other hydraulic parameters necessary to establish the levee top and toe-down elevations for the SPF design.

2.b: Sediment Transport/Scour Analyses

The new hydraulic parameters will be used to generate the sediment transport and scour analyses for the proposed conditions for the SPF discharge. The modified sediment transport models (QUASED) will be run to determine the general scour component. Long-term degradation for both equilibrium slope and armoring processes and bedform scour will be re-analyzed using the new hydraulic parameters. The levee toe-down elevations will be re-calculated to account for the changed scour conditions and design parameters will be provided for the SPF event.

2.d: CLOMR

The FEMA mapping analyses needed to define the floodplain and floodway geometries and associated 100-year hydraulics for the New River will be updated. The mapping models will be revised to reflect the new levee and proposed channelization. Additional cross-sections, which are not part of the effective FEMA models, will be added as necessary. The hydraulic summaries required for the CLOMR documents will be revised to reflect the new velocities, depths, and water-surface elevations. The CLOMR exhibits, including floodplain/floodway maps and water-

surface profiles, will be prepared as required by FEMA and ADWR, and will contain the revised hydraulic, sediment transport, and scour analyses as support for the final mapping.

2.e: New River Channel Modification

SLA will conduct additional hydraulic, sediment transport, and scour analyses to define a stable channelization geometry for approximately 2500 feet of the New River with the intention of eliminating overtopping along the Glendale Airport levee for the SPF event. The analysis will account for future airport expansion and include assessing the aggradation/degradation potential of alternatives using tractive force theory and the sediment gradation information for flows ranging from the 10-year to the SPF. The hydraulic slope, depth, velocity, and geometric parameters will be provided for the recommended design. The performance of the recommended design will be verified using the results of the sediment transport analyses. This task will also include the review, evaluation, and appropriate incorporation of the HEC-2 channelization models provided by the Flood Control District.

Task 3: Report Preparation

A design summary report, which will document the study assumptions, procedures, and results of the additional hydraulic and sediment transport analyses, will be prepared. The report will identify final recommendations for the airport levee design, including top elevation and toe-down depths, the New River channelization, and the required modifications to the levee along the New/Agua Fria Rivers.

Task 4: Site Visits

Additional site visits will be made to examine the geometry and existing conditions around the Glendale Airport and the New River. Areas to be examined include the New River channel and the new levee alignment, terminus, and tie-in point on the existing gabion levee near the Bethany Home Road alignment. The information collected will be used for developing options and design parameters for levee modifications and channel configuration.

Task 5: Coordination

Coordination with DMJM, the geotechnical engineer, and the Flood Control District will be maintained throughout the analysis, re-analysis and design process. Coordination will include team meetings, phone conversations, meeting with the client, progress reports, etc.

Task 7: Design Plan Review

Additional designs must be prepared for the channel modification required for the New River and the new levee along the Glendale Airport. SLA will provide guidance on the development and implementation of these designs and will review the plans to ensure compliance with the recommended geometries, top-of-bank and toe-down elevations, as well as, overall consistency with adjacent features.

CAMELBACK RANCH LEVEE DESIGN
FLOOD CONTROL DISTRICT PROPOSAL

CHANGE ORDER REQUEST NO. 3

I. INTRODUCTION

The changed hydraulic conditions resulting from the Camelback Ranch Levee project will require additional CLOMR analyses to define the revised FEMA floodplain and floodway mapping for the New River. The effective Flood Insurance Study hydraulic models must be modified to reflect the changes along the river and achieve convergence with the effective 100-year water-surface elevations upstream and downstream of the project. The original scope was written with the understanding that one CLOMR document would be required. However, because FEMA requires a CLOMR document for each flooding source, two CLOMR documents - one for the Agua Fria and one for the New River - are necessary. One CLOMR submission will be developed, but the document will contain an independent request for each flooding source.

The level of effort for the CLOMR analysis would be the same if physical changes were being made on one or both banks of the New River. Because work is being done on the west bank for the Glendale airport and on the east bank for the Flood Control District, the cost of the CLOMR analysis for the New River will be shared 50-50 with the City of Glendale.

II. SCOPE OF WORK

Task 2: Hydraulic Analysis

2.d: CLOMR

The FEMA mapping analyses needed to define the floodplain and floodway geometries and associated 100-year hydraulics for the New River will be updated. The mapping models will be revised to reflect the new levee and proposed channelization. Additional cross-sections, which are not part of the effective FEMA models, will be added as necessary. The hydraulic summaries required for the CLOMR documents will be revised to reflect the new velocities, depths, and water-surface elevations. The CLOMR exhibits, including floodplain/floodway maps and water-surface profiles, will be prepared as required by FEMA and ADWR, and will contain the revised hydraulic, sediment transport, and scour analyses as support for the final mapping.

WEST AREA WASTEWATER RECLAMATION FACILITY
CITY OF GLENDALE PROPOSAL

SIMONS, LI & ASSOCIATES
SCOPE OF WORK

I. INTRODUCTION

The City of Glendale is proposing to modify the levee, which will protect the Glendale Municipal Airport as part of the Camelback Ranch Levee Design project, to also provide protection for the proposed West Area Wastewater Reclamation Facility (WWRF). The proposal will realign the levee around the southern end of the airport, and extend it approximately 970 feet to the west and north to the west side of the proposed WWRF. The proposed modifications will impact the hydraulics for the levee design, as well as the CLOMR documentation. Simons, Li & Associates, Inc. (SLA) will adjust and refine the hydraulic models used to evaluate the hydraulics, sediment transport, and scour, as well as the CLOMR documentation, as required, to reflect the proposed changes in levee geometry. The effort required for additional coordination is included in the manhour estimate for hydraulic analysis.

II. SCOPE OF WORK

Task 4: Hydraulic Analysis

4a: HEC-2 Analysis

Add and refine the number of cross-sections and their locations to the base HEC-2 models, as required, to reflect the proposed levee extension and alignment and determine the resulting hydraulics for both the Agua Fria and New Rivers.

4b: Sediment Transport/Scour

Extend the sediment transport model (QUASED) for the Agua Fria River above the confluence with the New River, and revise the existing sediment transport model for the New River, as required, to reflect the proposed levee extension and alignment, and compute general scour. Using the revised hydraulics, compute the bedform scour, potential bend scour, long-term degradation, using both armoring and equilibrium slope approaches, and factor of safety. Calculate minimum toe-down elevations accordingly. The existing sediment information for the Agua Fria River will be used for the new QUASED model.

4d: CLOMR

Revise the floodplain and floodway mapping models to reflect the proposed levee extension and alignment. Additional cross-sections, which are not part of the effective FEMA models, will be added as necessary. The hydraulic summaries required for the CLOMR documents will be revised to reflect the new velocities, depths, and water-surface elevations. The CLOMR exhibits, including floodplain/floodway maps and water-surface profiles, will be extended, and will contain the revised hydraulics to support the final mapping, as required by FEMA and ADWR.

APPENDIX E

HYDRAULIC ANALYSIS SUPPORTING DOCUMENTATION

Summary Table for Armoring (10-year hydraulics)

Reach No.	Velocity (ft/s)	Hydr. Depth (ft)	Energy Slope (ft/ft)	MPM (mm)	CBV (mm)	SHIELD (mm)	YANG (mm)	Sec. Avg. Armor Size (mm)	Percent finer	Armor Depth (ft)
1	9.27	2.63	67.17	62.4	161.6	54.5	172.6	60.0	87.2	2.7
2	4.99	3.06	15.89	17.2	46.8	15.0	50.0	32.3	76.2	0.7
3	4.8	2.96	15.31	16.1	43.3	14.0	46.3	29.9	75.2	0.6
4	5.26	2.78	20.13	19.8	52.0	17.3	55.6	36.2	77.9	0.8
5	6.14	2.78	27.39	27.0	70.9	23.5	75.7	49.3	83.7	1.7
6	6.98	2.90	33.46	34.4	91.6	30.0	97.9	63.5	88.3	3.1
7	6.81	2.85	32.64	32.9	87.2	28.8	93.2	60.5	87.4	2.7
8	5.62	2.96	21.07	22.1	59.4	19.3	63.4	41.1	80.1	1.1
9	5.09	3.22	15.45	17.6	48.7	15.4	52.0	33.4	76.7	0.7
10	4.77	3.37	12.75	15.2	42.8	13.3	45.7	29.2	74.9	0.6
11	4.7	3.42	12.15	14.7	41.5	12.8	44.4	28.4	74.5	0.5
12	5.32	3.15	17.36	19.4	53.2	16.9	56.8	36.6	78.1	0.9
13	5.94	3.02	22.95	24.5	66.3	21.4	70.9	45.8	82.1	1.4
14	6.3	2.91	27	27.8	74.6	24.3	79.7	51.6	84.5	1.8
15	6.13	2.96	24.98	26.2	70.6	22.9	75.5	48.8	83.5	1.6
16	5.9	3.14	21.45	23.9	65.4	20.8	69.9	45.0	81.8	1.3
17	6.2	3.04	24.73	26.6	72.3	23.2	77.2	49.8	83.9	1.7
18	6.26	3.02	25.42	27.2	73.7	23.7	78.7	50.0	84.0	1.7
19	6.36	3.02	26.31	28.1	76.0	24.5	81.2	50.0	84.0	1.7
20	6.4	2.96	27.28	28.6	77.0	24.9	82.3	50.0	84.0	1.7
21	7.59	2.58	46.07	42.1	108.3	36.7	115.7	50.0	84.0	1.7
22	4.02	3.90	7.46	10.3	30.4	9.0	32.5	20.5	72.2	0.3
23	3.62	4.00	5.84	8.3	24.6	7.2	26.3	16.6	71.4	0.3
24	3.78	3.81	6.81	9.2	26.9	8.0	28.7	18.2	71.7	0.3
25	4.91	3.11	15.09	16.6	45.3	14.5	48.4	31.2	75.7	0.6
26	5.79	2.84	23.68	23.8	63.0	20.8	67.3	43.7	81.2	1.2

POST-PROJECT HEC-2 MODEL

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1*****************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
*                                         *
*  RUN DATE    21APR98    TIME   09:35:02 *
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*****************************************
*  U.S. ARMY CORPS OF ENGINEERS           *
*  HYDROLOGIC ENGINEERING CENTER          *
*  609 SECOND STREET, SUITE D             *
*  DAVIS, CALIFORNIA 95616-4687           *
*          (916) 756-1104                 *
*****************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

1

THIS RUN EXECUTED 21APR98 09:35:02

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*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
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T1 NEW RIVER CLOMR STUDY, PHASE II
T1 PREPARED FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
T1 PREPARED BY SIMONS, LI & ASSOCIATES, INC., 03/20/1998
T2 NEW RIVER 100-YEAR FLOW W/NEW WADDEL DAM
T3 PROPOSED FLOODPLAIN CONDITION

	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2	0	0	0	0	0	0	1029.60	0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1	0	-1	0	0	0	-1	0	0	15

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	43	1	8	3	2	26	5	39	53
4	54	42		200					

QT	2	39000	39000							
NC	0.045	0.045	0.035	0.1	0.3					
ET		9.1	9.1						1387.07	3056.23
X1	1	90	1387.07	3056.23						
X3	10									
GR	1028	1277.92	1028.5	1294.83	1029	1358.2	1032	1367.2	1033.5	1371.75
GR	1033.5	1387.07	1031	1392.07	1029	1396.04	1028.5	1461.66	1028	1477.78
GR	1027.5	1492.83	1027.5	1654.93	1028	1675.32	1027.5	1700.49	1024.5	1851.51
GR	1022	1977.37	1021	2027.69	1021	2053.82	1021.5	2080.85	1021.5	2105.82
GR	1021	2107.73	1020	2113.88	1019.5	2117.5	1019.5	2180.57	1020	2203.01
GR	1020.5	2217.95	1021	2230.07	1021.5	2237.03	1021.5	2244.9	1021	2278.36
GR	1021	2284.62	1021.5	2295.03	1022	2306.34	1022.5	2323.18	1023	2351.13
GR	1023.5	2374.01	1024	2378.11	1024.5	2382.75	1025	2388.91	1025.5	2395.95
GR	1026	2403.19	1026.5	2406.16	1027	2406.66	1027.5	2413.97	1028	2422.58
GR	1028.5	2434.52	1028.5	2437.74	1028	2439.95	1027.5	2441.98	1027	2444.23
GR	1026.5	2446.8	1026.5	2450.87	1027	2457.65	1027	2473.46	1026.5	2487.42
GR	1026	2523.34	1026	2575.56	1026.5	2582.49	1027	2587.59	1027.5	2592.49
GR	1028	2596.66	1028.5	2600.96	1029	2604.95	1029	2611.21	1028.5	2648.23
GR	1028.5	2747.55	1028	2757.27	1028	2757.43	1028.5	2767.46	1028.5	2800.36
GR	1029	2870.35	1029	2958.59	1029.5	2974.64	1030	3013.59	1032.5	3024.19
GR	1033	3026.39	1034	3031.07	1035.5	3038.31	1036.5	3043.24	1037	3045.77
GR	1038	3050.96	1039	3056.23	1039	3107.77	1038.5	3113.21	1037.5	3124.25
	1037	3129.92	1036.5	3136.31	1036	3143.02	1035.5	3150.1	1034.5	3165.02

ET		9.1	9.1						1433.95	2868.73

X1	2	90	1433.95	2868.73	203.06	317.7	209.72			
X3	10									
GR	1032	1307.65	1028.5	1335.86	1029	1403.13	1030	1406.15	1030.5	1407.65
GR	1031.5	1410.67	1032	1412.17	1032.5	1413.68	1033.5	1416.68	1034	1418.17
GR	1034	1433.95	1031	1439.89	1030.5	1440.87	1029.5	1442.85	1029	1443.83
GR	1028.5	1523.54	1028	1595.63	1028	1688.32	1026	1789.12	1025.5	1814.3
	1024.5	1864.7	1024	1889.89	1023.5	1915.05	1023	1940.22	1022.5	1965.42
	1022	1990.58	1021.5	2015.72	1021.5	2041.65	1022	2068.67	1022.5	2095.7
GR	1023	2122.72	1023	2148.85	1022.5	2150.93	1022	2152.8	1021	2156.48
GR	1020.5	2158.37	1020	2160.48	1019.5	2162.89	1019.5	2180.39	1020	2209.21
GR	1020.5	2215.19	1021	2227.65	1021.5	2239.66	1022	2251.9	1022	2302.4
GR	1022.5	2329.46	1023	2421.75	1023.5	2499.64	1024	2585.42	1024.5	2604.3
GR	1025	2609.2	1026	2618.74	1026.5	2623.11	1027	2638.47	1027.5	2651.97
GR	1027.5	2776.34	1027.5	2800.56	1028.5	2824.08	1029	2835.95	1029	2845.12
GR	1029.5	2846.3	1030	2847.49	1031	2849.85	1031.5	2851.04	1035	2859.3
GR	1035.5	2860.47	1036.5	2862.83	1037	2864.01	1039	2868.73	1039	2889.59
GR	1038.5	2891.39	1038	2893.2	1037.5	2895	1037	2896.8	1036.5	2898.61
GR	1036	2900.41	1035.5	2902.21	1035	2904.01	1034.5	2905.81	1034	2907.62
GR	1033.5	2909.42	1033	2911.24	1032.5	2913.07	1032	2914.9	1031.5	2916.74
GR	1031	2918.59	1030.5	2920.44	1030	2922.29	1029	2925.99	1032	2940.81
ET		9.1	9.1						1445.85	2799.58
X1	3	90	1445.85	2799.58	200.53	229.87	206.77			
X3	10									
GR	1032	1308.38	1028.5	1347.72	1029	1349.58	1029.5	1353.66	1030	1416.22
GR	1031.5	1420.76	1033	1425.31	1034.5	1429.85	1034.5	1445.85	1033	1448.87
GR	1031.5	1451.9	1030.5	1453.91	1030	1474.67	1029.5	1475.75	1029	1476.91
GR	1029	1479.5	1029.5	1480.71	1030	1481.78	1030	1561.12	1029.5	1599.01
GR	1029	1636.87	1028.5	1676.79	1028	1702.03	1027	1752.05	1026.5	1777.02
GR	1026	1802.09	1025.5	1826.93	1024.5	1876.44	1024	1901.25	1023.5	1926.16
GR	1022.5	1976.04	1022	2000.95	1022	2026.71	1024	2131.78	1024.5	2158.16
GR	1024.5	2173.5	1023.5	2177.18	1022.5	2180.88	1022	2182.74	1021.5	2187.43
GR	1020.5	2195.2	1020	2198.25	1019.5	2200.72	1019.5	2202.65	1020	2234.93
GR	1020.5	2247.4	1021	2259.09	1021.5	2273.86	1022	2292.16	1022.5	2318.3
GR	1023	2351.85	1023	2378.26	1022.5	2388.37	1022.5	2401.58	1023	2420.53
GR	1023.5	2448.49	1024	2544.06	1024.5	2650.64	1025	2660.41	1025.5	2664.61
GR	1026	2668.76	1026.5	2672.89	1027	2676.99	1027.5	2682.18	1028	2692.15
GR	1028.5	2699.32	1028.5	2710.39	1028	2752.85	1029.5	2756.39	1030	2757.58
GR	1031	2759.94	1033	2764.68	1035.5	2770.59	1036	2771.78	1038.5	2777.69
GR	1039	2778.88	1039	2799.58	1036.5	2808.46	1035.5	2812	1033.5	2819.1
GR	1033	2820.88	1030.5	2829.75	1029	2835.08	1028.5	2836.85	1028.5	2869.23
	1028	2878.98	1028	2892.82	1028.5	2896.87	1029	2900.67	1032.0	2904.49
		9.1	9.1						1444.17	2704.46
X1	4	90	1444.17	2704.46	197.59	229.66	200.44			
X3	10									
GR	1028.5	1349.09	1029	1360.78	1029.5	1371.07	1029.5	1411.42	1030.5	1414.46
GR	1031	1415.99	1032.5	1420.56	1033.5	1423.62	1034	1425.14	1035	1428.2
GR	1035	1444.17	1034	1446.15	1033.5	1447.13	1032	1450.1	1031.5	1451.08
GR	1029.5	1455.04	1029.5	1477.06	1029.5	1641.76	1029	1666.6	1028.5	1691.43
GR	1026.5	1790.79	1025.5	1840.49	1025	1865.35	1024.5	1890.2	1022.5	1989.64
GR	1022.5	2017.35	1023.5	2068.27	1024	2093.74	1024.5	2119.2	1025.5	2170.15

GR	1026	2195.65	1026	2199.35	1025	2204.32	1024.5	2207.6	1024	2211.29
GR	1023.5	2216.01	1023	2220.57	1022.5	2224.66	1022	2228.52	1021.5	2232.21
GR	1021	2235.74	1020.5	2238.82	1020	2269.16	1020	2271.07	1020.5	2279.51
GR	1021	2290.81	1021.5	2310.25	1022	2322.35	1022	2341.9	1022.5	2347.76
GR	1023	2354.27	1023.5	2362.5	1024	2468.29	1024.5	2500.4	1024.5	2504.99
GR	1024	2510.56	1023.5	2517.64	1023.5	2542.25	1024	2549.87	1024.5	2573.8
GR	1024.5	2615.36	1025	2617.23	1025.5	2619.12	1025.5	2619.96	1025	2621.99
GR	1024.5	2635.91	1024.5	2640.52	1025.5	2642.88	1026	2644.07	1027.5	2647.61
GR	1028	2648.8	1029.5	2652.34	1030	2653.53	1032	2658.25	1032.5	2659.44
GR	1034	2662.98	1034.5	2664.17	1036	2667.71	1036.5	2668.9	1038	2672.44
GR	1038.5	2673.63	1039	2674.81	1039	2704.46	1038.5	2717.2	1038	2729.31
GR	1037.5	2741.33	1037	2753.29	1036.5	2766.4	1036	2783.94	1035.5	2802.01
ET		9.1	9.1						1461.11	2550.34
X1	5	90	1461.11	2550.34	204.87	256.82	204.57			
X3	10									
GR	1029	1368.86	1029.5	1379.31	1030	1396.05	1030.5	1429.91	1031	1431.41
GR	1031.5	1432.92	1032	1434.42	1034	1440.46	1034.5	1441.99	1035.5	1445.03
GR	1035.5	1461.11	1034.5	1463.13	1033.5	1465.17	1033	1466.18	1030.5	1471.28
GR	1030	1603.32	1029.5	1658.56	1028.5	1708.54	1027.5	1758.54	1027	1783.55
GR	1025.5	1858.55	1025	1883.56	1023.5	1958.56	1023	1983.57	1023	2011.47
	1023.5	2036.47	1024	2061.48	1024.5	2086.48	1025	2111.49	1026.5	2186.52
	1026.5	2198.92	1026	2200.55	1025.5	2202.3	1025	2204.17	1024.5	2206.11
GR	1024	2208.04	1023.5	2209.97	1023	2211.91	1023	2212.44	1023.5	2216.78
GR	1024	2221.13	1024.5	2225.49	1025	2229.86	1025	2249.7	1023	2255.82
GR	1022.5	2257.36	1022	2258.89	1021.5	2260.43	1021	2261.97	1020.5	2263.52
GR	1020.5	2299.49	1021	2304.98	1021.5	2314.9	1022	2333.23	1022.5	2353.09
GR	1022.5	2382.36	1023	2391.01	1023.5	2406.07	1024	2438.47	1024.5	2464.6

GR	1025	2469.79	1025	2506.83	1024.5	2510.7	1024	2514.85	1024.5	2516.03
GR	1025	2517.21	1025.5	2518.4	1026.5	2520.76	1027	2521.95	1028.5	2525.49
GR	1029	2526.68	1030	2529.04	1030.5	2530.23	1031	2531.41	1031.5	2532.59
GR	1032	2533.78	1032.5	2534.96	1033	2536.14	1033.5	2537.33	1034	2538.51
GR	1034.5	2539.69	1035	2540.88	1036.5	2544.42	1037	2545.61	1037.5	2546.79
GR	1038	2547.97	1038.5	2549.16	1039	2550.34	1039	2608.57	1038.5	2646.86
		9.1	9.1						1504.60	2465.18
X1	6	90	1504.6	2465.18	210	200	200			
X3	10									
GR	1031	1472.81	1032	1475.89	1033	1478.97	1033.5	1480.51	1034.5	1483.59
GR	1035.5	1486.67	1035.5	1504.6	1035	1505.63	1034.5	1506.65	1034	1507.68
GR	1033.5	1508.71	1032	1511.8	1031.5	1512.82	1031	1513.85	1030.5	1623
GR	1030	1657.26	1029.5	1682.48	1029	1707.71	1028.5	1732.93	1028	1758.16
GR	1027.5	1783.41	1027	1808.66	1026.5	1833.92	1026	1859.22	1025.5	1884.54
GR	1025	1909.84	1024.5	1935.17	1024	1960.53	1023.5	1985.9	1023.5	2016.33
GR	1024	2041.22	1024.5	2066.04	1025.5	2115.64	1026.5	2165.26	1027.5	2214.88
GR	1027.5	2240.35	1027	2243.75	1026.5	2247.37	1026	2258.25	1025.5	2261.78
GR	1025	2264.83	1024.5	2270.34	1024	2276.6	1023.5	2281.68	1023	2282.29
GR	1022.5	2282.9	1022	2283.51	1021.5	2284.11	1021	2284.72	1020.5	2285.33
GR	1020.5	2339.15	1021	2343.47	1021.5	2347.04	1022	2368.44	1022.5	2374.59
GR	1022.5	2391.66	1023	2399.27	1023.5	2403.3	1024	2421.89	1024	2429.81
GR	1023.5	2431.87	1023.5	2434.29	1024.5	2436.27	1025	2437.25	1025.5	2438.24
GR	1026	2439.22	1026.5	2440.21	1027	2441.2	1027.5	2442.18	1028	2443.17
GR	1028.5	2444.16	1029	2445.14	1029.5	2446.13	1030	2447.12	1030.5	2448.1
GR	1031	2449.09	1031.5	2450.07	1032	2451.07	1032.5	2452.08	1033	2453.08

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GR	1033.5	2454.09	1035	2457.12	1035.5	2458.12	1036	2459.13	1036.5	2460.14
GR	1037	2461.15	1037.5	2462.15	1038	2463.16	1038.5	2464.17	1039	2465.18
ET		9.1	9.1						1513.27	2481.27
X1	7	90	1513.27	2481.27	193.09	150.18	169.55			
X3	10									
GR	1032.5	1498.27	1032	1499.23	1031.5	1499.59	1031.5	1499.9	1032.5	1502.68
GR	1033	1504.12	1033.5	1505.65	1034	1507.17	1034.5	1508.7	1035	1510.22
GR	1035.5	1511.75	1036	1513.27	1036	1529.99	1034.5	1533.05	1034	1534.07
GR	1033.5	1535.08	1032.5	1537.12	1032	1538.14	1031.5	1630.61	1031	1642.19
GR	1030.5	1653.84	1030	1677.28	1029.5	1702.72	1029	1728.16	1028.5	1753.6
	1028	1779.03	1026.5	1855.35	1026	1880.81	1025.5	1906.28	1025	1931.76
	1024.5	1957.26	1024	1982.77	1024	2022.94	1024.5	2047.77	1025	2072.59
	1025.5	2097.4	1026	2122.14	1026.5	2146.84	1027	2171.57	1028	2221.11
GR	1028.5	2245.87	1028.5	2246.42	1028	2250.45	1027.5	2254.5	1026	2266.68
GR	1025.5	2270.74	1025	2276.99	1024.5	2289.64	1024	2295.67	1023.5	2300.28
GR	1023.5	2314.68	1024	2316.85	1024	2319.1	1023.5	2319.64	1023	2319.78
GR	1022.5	2326.68	1022	2362.15	1022	2364.03	1022.5	2384.33	1023	2402.5
GR	1023.5	2411.1	1023.5	2418.74	1023.5	2446.78	1024	2447.87	1024.5	2448.98
GR	1025	2450.09	1025.5	2451.21	1026	2452.32	1026.5	2453.44	1027	2454.55
GR	1027.5	2455.67	1028	2456.78	1028.5	2457.9	1029.5	2460.12	1030	2461.24
GR	1030.5	2462.35	1031	2463.46	1031.5	2464.58	1032	2465.69	1032.5	2466.81
GR	1033.5	2469.03	1034	2470.15	1035	2472.37	1035.5	2473.49	1036	2474.6
GR	1037	2476.82	1037.5	2477.94	1038	2479.05	1038.5	2480.16	1039	2481.27
ET		9.1	9.1						1525.08	2540.42
X1	8	90	1525.08	2540.42	201.71	180.49	180.15			
X3	10									
GR	1032.5	1512.97	1033	1514.48	1033.5	1516	1034	1517.51	1034.5	1519.03
GR	1035.5	1522.05	1036	1523.57	1036.5	1525.08	1036.5	1540.7	1036	1541.71
GR	1035	1543.73	1034.5	1544.74	1033.5	1546.76	1033	1547.77	1032.5	1548.78
GR	1032	1549.79	1032	1598.75	1031.5	1622.28	1031	1648	1030.5	1673.73
GR	1030	1699.46	1029.5	1725.2	1029	1750.93	1028.5	1776.66	1028	1802.41
GR	1027.5	1828.17	1027	1853.95	1026.5	1879.74	1026	1905.53	1025.5	1931.33
GR	1025	1957.13	1024.5	1982.93	1024.5	2029.58	1025	2054.37	1025.5	2079.16
GR	1026	2103.96	1026.5	2128.75	1027	2153.57	1027.5	2178.39	1028	2203.24
GR	1028.5	2228.08	1028.5	2250.31	1028	2258.68	1027.5	2263.58	1027	2266.54
GR	1026.5	2269.57	1026	2272.64	1025.5	2278.45	1025	2291.81	1024.5	2297.6
GR	1024	2304.17	1023.5	2311.3	1023	2348.13	1023	2391.8	1023	2416.59
GR	1023	2428.72	1023.5	2432.81	1024	2436.91	1024.5	2441	1025	2462.63
GR	1025.5	2465.78	1025.5	2501.37	1025.5	2510.46	1026	2511.57	1026.5	2512.68
GR	1027	2513.79	1027.5	2514.9	1028	2516.01	1028.5	2517.12	1029	2518.23
GR	1029.5	2519.34	1030	2520.45	1030.5	2521.56	1031	2522.67	1031.5	2523.78
GR	1032	2524.89	1032.5	2526	1033	2527.1	1033.5	2528.21	1034	2529.32
GR	1034.5	2530.43	1035	2531.54	1035.5	2532.65	1036	2533.76	1036.5	2534.87
GR	1037	2535.98	1037.5	2537.09	1038	2538.2	1038.5	2539.31	1039	2540.42
		9.1	9.1						1520.29	2549.59
	9	90	1520.29	2549.59	178.06	86.8	130.98			
X3	10									
GR	1033	1508.28	1034	1511.28	1034.5	1512.78	1035	1514.28	1035.5	1515.78
GR	1036	1517.29	1036.5	1518.79	1037	1520.29	1037	1535.67	1036.5	1536.68
GR	1036	1537.68	1035.5	1538.68	1035	1539.68	1034.5	1540.68	1034	1541.68
GR	1033.5	1542.69	1033	1543.69	1032.5	1587.02	1032	1612.53	1031.5	1638.03

GR	1031	1663.53	1030.5	1689.03	1030	1714.54	1029.5	1740.04	1029	1765.55
GR	1028.5	1791.07	1028	1816.59	1027.5	1842.15	1027	1867.78	1026.5	1893.42
	1026	1919.05	1025.5	1944.69	1025	1970.32	1024.5	1995.96	1024.5	2011.42
	1025	2036.21	1025.5	2061.01	1026	2085.8	1026.5	2110.6	1027	2135.39
GR	1027.5	2160.18	1028	2184.96	1028.5	2209.74	1028.5	2210.13	1028	2215.67
GR	1027.5	2218.01	1027	2220.5	1026.5	2223.03	1026	2225.57	1026	2227.51
GR	1026	2240.99	1025.5	2251	1025	2258.34	1024.5	2265.92	1024	2273.17
GR	1023.5	2319.69	1023	2390.65	1023	2398.82	1023.5	2402.68	1024	2406.52
GR	1024.5	2417.07	1025	2437.55	1025.5	2445.61	1026	2521.88	1026.5	2522.95
GR	1027	2524.01	1027.5	2525.08	1028	2526.14	1028.5	2527.21	1029	2528.27
GR	1029.5	2529.34	1030	2530.41	1030.5	2531.47	1031	2532.54	1031.5	2533.6
GR	1032	2534.67	1032.5	2535.73	1033	2536.8	1033.5	2537.86	1034	2538.93
GR	1034.5	2540	1035	2541.06	1035.5	2542.13	1036	2543.19	1036.5	2544.26
GR	1037	2545.32	1037.5	2546.39	1038	2547.46	1038.5	2548.52	1039	2549.59
ET		9.1	9.1						1505.00	2571.90
X1	10	90	1505	2571.9	184.54	130.29	162.52			
X3	10									
GR	1033.5	1493	1035	1497.5	1035.5	1499	1036	1500.5	1036.5	1502
GR	1037	1503.5	1037.5	1505	1037.5	1521.26	1037	1522.26	1036.5	1523.26
GR	1036	1524.26	1035.5	1525.26	1035	1526.26	1034.5	1527.26	1034	1528.26
GR	1033.5	1529.26	1033	1583.69	1032.5	1609.27	1032	1634.86	1031.5	1660.45
GR	1031	1686.04	1030.5	1711.62	1030	1737.21	1029.5	1762.83	1029	1788.47
GR	1028.5	1814.11	1028	1839.8	1027.5	1865.57	1027	1891.35	1026.5	1917.12
GR	1026	1942.9	1025.5	1968.67	1025	1994.45	1025	2021.49	1025.5	2046.29
GR	1026	2071.09	1026.5	2095.88	1027	2120.68	1027.5	2145.48	1028	2170.28
GR	1028	2177.72	1027.5	2181.74	1027	2185.76	1026.5	2189.77	1026	2195.56
GR	1025.5	2203.46	1025	2209.77	1024.5	2215.91	1024	2222.24	1024	2228.2
GR	1024	2274.22	1023.5	2280.72	1023	2363.53	1023	2369.87	1023.5	2388.7
GR	1024	2391.19	1024.5	2393.71	1025	2396.3	1025.5	2402.08	1026	2433.55
GR	1026.5	2475.72	1027	2508.79	1027	2539.04	1026.5	2541.85	1026.5	2545.79
GR	1027	2546.84	1027.5	2547.88	1028	2548.93	1028.5	2549.97	1029	2551.01
GR	1029.5	2552.06	1030	2553.1	1030.5	2554.15	1031	2555.19	1031.5	2556.24
GR	1032	2557.28	1032.5	2558.32	1033	2559.37	1033.5	2560.41	1034	2561.46
GR	1034.5	2562.5	1035	2563.55	1035.5	2564.59	1036	2565.63	1036.5	2566.68
GR	1037	2567.72	1037.5	2568.76	1038	2569.81	1038.5	2570.85	1039	2571.9
		9.1	9.1						1474.85	2585.94
	11	90	1474.85	2585.94	201.64	212.25	206.89			
X3	10									
GR	1034	1462.85	1034.5	1464.35	1035	1465.85	1036	1468.85	1036.5	1470.35
GR	1037	1471.85	1038	1474.85	1038	1492.2	1037.5	1493.2	1036	1496.2
GR	1035	1498.2	1034.5	1499.2	1034	1500.2	1033.5	1585.62	1033	1611.43
GR	1032.5	1637.11	1032	1662.8	1031.5	1688.46	1031	1714.09	1030.5	1739.73
GR	1030	1765.38	1029.5	1791.03	1029	1816.69	1028.5	1842.33	1028	1867.94
GR	1027.5	1893.55	1027	1919.15	1026.5	1944.74	1026	1970.34	1025.5	1995.93
GR	1025.5	2024.07	1026	2048.91	1026.5	2073.72	1027	2098.53	1027	2120.64
GR	1026.5	2123.62	1026	2127.02	1025.5	2130.34	1025	2140.05	1024.5	2149.35
GR	1024	2203.23	1024	2229.38	1024	2249.3	1024	2285.1	1024.5	2290.39
GR	1024.5	2291.71	1024	2298.45	1023.5	2305.15	1023.5	2309.08	1024	2315.55
GR	1024.5	2320.05	1024.5	2323.23	1024	2330.36	1024	2331.92	1024.5	2336.96
GR	1025	2341.98	1025.5	2361.52	1026	2382.34	1026.5	2438.73	1026.5	2460.57
GR	1026	2464.1	1026	2475.2	1026.5	2482.73	1027	2501.43	1027.5	2510.64
GR	1028	2517.37	1028	2542.95	1028	2563.82	1028.5	2564.83	1029	2565.83

GR	1029.5	2566.84	1030	2567.85	1030.5	2568.85	1031	2569.86	1031.5	2570.86
GR	1032	2571.87	1032.5	2572.87	1033	2573.88	1033.5	2574.88	1034	2575.89
GR	1034.5	2576.89	1035	2577.9	1035.5	2578.9	1036	2579.91	1036.5	2580.91
GR	1037	2581.92	1037.5	2582.92	1038	2583.93	1038.5	2584.93	1039	2585.94
ET		9.1	9.1						1465.27	2583.35
X1	12	90	1465.27	2583.35	200	200	200			
X3	10									
GR	1035.0	1360.95	1035	1437.23	1037.5	1444.73	1039	1449.23	1039	1465.27
GR	1035	1473.27	1034.5	1501.95	1034	1583.67	1033.5	1608.79	1033	1633.9
GR	1032	1684.12	1031.5	1709.22	1030	1784.55	1029.5	1809.65	1027.5	1910.09
GR	1027	1935.19	1026.5	1960.3	1026	1985.41	1026	2014.37	1026.5	2039.42
GR	1026.5	2056.69	1026	2058.87	1025.5	2071.36	1025	2084.07	1024.5	2097.47
GR	1024.5	2138.7	1025	2142.78	1025	2149.59	1024.5	2174.11	1024.5	2219.2
GR	1025	2221.77	1025.5	2224.32	1026	2229.07	1026.5	2242.16	1026.5	2282.42
	1026.5	2290.04	1027	2306.81	1027	2352.34	1026.5	2366.82	1026.5	2371.93
	1027	2378.07	1027	2399.06	1026.5	2402.88	1026.5	2409.94	1027	2414.42
GR	1027	2419.8	1026.5	2437.63	1026.5	2453.09	1027	2464.78	1027.5	2490.31
GR	1028	2522.48	1028.5	2538.46	1029	2539.56	1029.5	2540.68	1030	2541.81
GR	1030.5	2542.96	1031	2544.22	1031.5	2545.67	1032	2547.74	1032.5	2549.47
GR	1033	2551	1033.5	2552.46	1034	2553.83	1034.5	2555.13	1035	2556.43
GR	1035.5	2557.72	1036	2559.02	1036.5	2560.29	1037	2561.52	1037.5	2562.61

GR	1038	2563.63	1039	2565.65	1039	2583.35	1038.5	2587.63	1038	2592.03
GR	1037.5	2596.43	1037	2600.83	1036.5	2605.19	1036	2609.54	1035.5	2613.82
GR	1035	2617.42	1034.5	2620.36	1034	2622.42	1033	2626.64	1032.5	2628.75
GR	1032	2630.85	1031.5	2632.96	1031	2635.06	1030.5	2637.16	1035	2639.28
ET		9.1	9.1						1450.23	2541.66
	13	90	1450.23	2541.66	190.98	274.46	225.57			
	10									
GR	1035	1337	1035.5	1436.72	1038.5	1445.72	1039	1447.22	1039.5	1448.73
GR	1040	1450.23	1040	1466.45	1039.5	1467.45	1039	1468.46	1038	1470.46
GR	1037.5	1471.47	1036	1474.47	1035.5	1475.48	1035	1562.86	1034.5	1588.3
GR	1033.5	1638.34	1033	1663.37	1032	1713.41	1031.5	1738.44	1029.5	1838.52
GR	1028	1913.55	1026.5	1988.55	1026.5	2038.55	1026	2044.87	1025.5	2050.62
GR	1025	2055.51	1025	2092.93	1024.5	2170.18	1024.5	2191.4	1025	2196.27
GR	1025.5	2202.12	1026	2212.79	1026.5	2222.54	1027	2246.06	1027	2286.05
GR	1027.5	2292.37	1028	2311.78	1028.5	2337.36	1028.5	2358.04	1028	2368.13
GR	1027.5	2371.93	1027.5	2378.7	1028	2385.11	1028	2470.5	1028.5	2482.22
GR	1029	2492.72	1029.5	2500.15	1030	2503.03	1030.5	2505.09	1031	2506.94
GR	1031.5	2508.39	1032	2509.66	1033	2511.86	1033.5	2512.97	1035.5	2517.37
GR	1036	2518.48	1036.5	2519.62	1037	2520.83	1037.5	2522.09	1038	2523.44
GR	1038.5	2524.81	1039	2526.2	1039.5	2527.6	1040.5	2530.42	1041	2532.26
GR	1041.5	2535.4	1041.5	2541.66	1041.5	2555.28	1041	2557.3	1040.5	2560.7
GR	1040	2563.37	1039.5	2565.13	1039	2566.79	1038.5	2568.44	1038	2570.1
GR	1037.5	2571.78	1037	2573.54	1036.5	2575.4	1036	2577.47	1035.5	2579.65
GR	1034.5	2584.03	1033.5	2588.39	1033	2590.54	1032.5	2592.64	1031.5	2596.84
GR	1031	2598.96	1030.5	2601.11	1030	2603.3	1029.5	2605.48	1035	2612.14

1

ET		9.1	9.1						1488.24	2523.99
X1	14	90	1488.24	2523.99	204.26	204.4	203.59			
X3	10									
GR	1036	1359.88	1036.5	1457.73	1039	1465.23	1039.5	1466.74	1041	1471.24
GR	1041	1488.24	1039.5	1491.24	1039	1492.25	1038	1494.25	1037.5	1495.26
GR	1036.5	1497.26	1036	1537.28	1035.5	1569.8	1035	1594.6	1034.5	1619.42
GR	1034	1644.26	1033.5	1669.09	1033	1693.91	1032.5	1718.7	1031.5	1768.26
GR	1031	1793.04	1030.5	1817.83	1030	1842.63	1029.5	1867.44	1029	1892.28
GR	1028.5	1917.12	1027.5	1966.82	1027	1991.66	1026.5	2014.97	1026.5	2019.09
GR	1027	2019.9	1027	2020.24	1026.5	2023.8	1026	2027.36	1025.5	2030.92
	1025.5	2039.78	1026	2044.44	1026	2053.95	1025.5	2066	1025	2073.76
	1025	2109.29	1025.5	2165.95	1026	2171.12	1026.5	2187.08	1027	2207.82
	1027.5	2236.48	1028	2273.26	1028.5	2306.07	1028.5	2349.8	1028	2361.5
GR	1028	2374.78	1028.5	2395.93	1029	2428.89	1029.5	2457.2	1030	2491.79
GR	1030.5	2493.4	1031	2495	1031.5	2496.6	1032	2498.2	1032.5	2499.81
GR	1033	2501.41	1033.5	2503.01	1034	2504.62	1034.5	2506.23	1035	2507.83
GR	1036	2511.05	1037	2514.27	1037.5	2515.88	1039.5	2522.36	1040	2523.99
GR	1040	2548.43	1039.5	2550.52	1038.5	2554.82	1038	2556.97	1037.5	2559.13
GR	1037	2561.28	1036.5	2563.44	1036	2565.59	1035	2569.91	1034.5	2572.06
GR	1034	2574.22	1033.5	2576.38	1033	2578.53	1032.5	2580.69	1032	2582.85
GR	1031.5	2585	1031	2587.16	1030.5	2589.31	1030	2591.75	1036.0	2594.36
ET		9.1	9.1						1514.58	2544.38
X1	15	90	1514.58	2544.38	209.27	229.7	207.93			
X3	10									
GR	1036	1398	1036	1406.18	1036.5	1409.41	1037	1422.94	1037.5	1484.26
GR	1038	1486.25	1038.5	1487.76	1040	1492.26	1040.5	1493.77	1041.5	1496.77
GR	1042	1498.28	1042.5	1500.78	1042.5	1514.58	1042	1515.9	1041	1517.9
GR	1040.5	1518.91	1039.5	1520.91	1039	1521.92	1038	1523.92	1037.5	1533.46
GR	1037	1555.27	1036.5	1562.34	1036	1564.6	1034.5	1639.27	1033.5	1689.05
GR	1033	1713.95	1031	1813.51	1030.5	1838.41	1030	1863.29	1029.5	1888.18
GR	1028	1962.82	1027.5	1987.69	1027.5	2032.23	1027	2043.67	1026.5	2054.95
GR	1026	2058.25	1025.5	2061.57	1025	2093.29	1025	2100.72	1025.5	2128.34
GR	1026	2161.9	1026.5	2170.34	1027	2178.83	1027.5	2188.9	1028	2198.13
GR	1028.5	2212.39	1028.5	2264.68	1028	2272.71	1028	2278.53	1028.5	2292.11
GR	1028.5	2360.3	1029	2376.15	1029.5	2400.14	1029.5	2457.82	1030	2489.49
GR	1030.5	2490.56	1031	2491.77	1031.5	2493.1	1032	2495.27	1032.5	2497.52
GR	1033	2499.14	1033.5	2500.64	1034	2502.13	1034.5	2503.54	1035.5	2506.2
GR	1036	2507.52	1037	2510.18	1037.5	2511.5	1038.5	2514.16	1039	2515.48
GR	1040	2518.14	1040	2544.38	1039.5	2547.8	1039	2550.79	1038.5	2553.82
GR	1038	2556.83	1037.5	2559.82	1037	2562.78	1036.5	2565.69	1035.5	2571.49
GR	1035	2574.39	1034.5	2577.3	1034	2580.22	1033.5	2583.12	1033	2586
GR	1032.5	2588.89	1032	2591.79	1031.5	2594.69	1031	2597.84	1036.0	2602.96
ET		9.1	9.1						1513.51	2541.31
X1	16	90	1513.51	2541.31	205.1	195.34	201.34			
	10									
	1037.0	1424	1036.5	1428.23	1037	1493.98	1037.5	1495.48	1038	1496.99
GR	1039.5	1501.49	1040	1503	1041.5	1507.5	1042	1509.01	1043.5	1513.51
GR	1043.5	1528.86	1042.5	1530.86	1042	1531.87	1041.5	1532.87	1041	1533.88
GR	1040	1535.88	1039.5	1536.89	1038.5	1538.89	1038	1539.9	1037.5	1540.9
GR	1037	1551.36	1036.5	1575.29	1036	1599.2	1035.5	1623.1	1035	1647.01
GR	1033	1742.61	1032.5	1766.47	1031.5	1814.13	1031	1837.95	1030.5	1861.76

GR	1030	1885.58	1029.5	1909.39	1029	1933.21	1028	1980.83	1028	2011.38
	1027.5	2013.27	1027.5	2039.72	1027	2055.76	1026.5	2062.86	1026	2070.05
	1026	2072.7	1026.5	2081.48	1026.5	2086.81	1026	2088.54	1026	2120.01
	1026.5	2124.43	1027	2133.2	1027.5	2146.85	1028	2160.02	1028	2225.95
GR	1028	2263.08	1028.5	2272.47	1029	2291.97	1029	2308.1	1028.5	2311.16
GR	1028	2314.19	1028	2339.67	1028.5	2343.18	1029	2346.82	1029.5	2440.83
GR	1030	2474.2	1030.5	2475.27	1031	2476.36	1031.5	2477.46	1032	2478.59
GR	1032.5	2479.87	1033	2481.27	1033.5	2482.8	1034	2484.73	1034.5	2487.33
GR	1035	2489.62	1035.5	2491.47	1036	2493.32	1036.5	2495.39	1037	2497.48
GR	1037.5	2499.54	1038	2501.55	1038.5	2503.53	1039	2505.47	1039.5	2507.38
GR	1040	2509.25	1040	2541.31	1039.5	2556.13	1039	2563.5	1038.5	2569.46
GR	1038	2575.54	1037.5	2581.59	1037	2587.58	1036.5	2593.52	1037	2599.43
ET		9.1	9.1						1525.52	2529.54
X1	17	90	1525.52	2529.54	200	200	200			
X3	10									
GR	1037.5	1415.51	1038	1418.13	1038.5	1420.91	1038.5	1422.59	1038	1422.99
GR	1037.5	1423.33	1037.5	1427.47	1038	1427.96	1038.5	1428.98	1038.5	1441.53
GR	1038.5	1508.99	1039.5	1511.99	1040	1513.5	1041.5	1518	1042	1519.51
GR	1043.5	1524.01	1044	1525.52	1044	1541.66	1043.5	1542.66	1043	1543.67
GR	1041	1547.67	1040.5	1548.68	1038.5	1552.68	1038	1553.69	1037.5	1563.63
GR	1037	1586.77	1036.5	1610.06	1036	1633.52	1035.5	1656.9	1035	1680.31
GR	1034.5	1703.76	1033.5	1750.58	1033	1774.02	1032.5	1797.49	1032	1820.93
GR	1030.5	1891.07	1030	1914.63	1029.5	1938.54	1028.5	1986.42	1028.5	2036.52
GR	1028	2055.85	1027.5	2064.04	1027	2067.38	1027	2075.7	1027.5	2086.86
GR	1027.5	2121.56	1028	2127.04	1028	2217.24	1028.5	2223.83	1028.5	2262.67
GR	1028	2268.99	1028	2273.11	1028.5	2280.16	1029	2287.06	1029	2287.48
GR	1028.5	2289.97	1028	2302.22	1028	2327.84	1028.5	2332.34	1029	2336.92
GR	1029.5	2348.63	1030	2388.94	1030.5	2473.08	1031	2474.66	1031.5	2476.23
GR	1032	2477.81	1032.5	2479.39	1033	2480.96	1034	2484.12	1034.5	2485.69
GR	1035	2487.27	1035.5	2488.84	1036.5	2492	1037	2493.57	1037.5	2495.13
GR	1038	2496.68	1038.5	2498.22	1039	2499.74	1039.5	2501.25	1040	2502.74
GR	1040	2529.54	1039.5	2532.51	1039.5	2539.64	1040	2548.44	1040.5	2557.69
GR	1040.5	2603.05	1040	2614.05	1039.5	2621.9	1039	2630.17	1038.5	2639.46
ET		9.1	9.1						1533.12	2516.23
X1	18	90	1533.12	2516.23	213.29	152.74	195.19			
	10									
	1037.5	1399.71	1038	1499.27	1041	1508.27	1044	1517.27	1044	1533.12
GR	1044	1533.73	1040.5	1540.73	1039.5	1542.73	1039	1543.73	1038.5	1544.73
GR	1038	1547.17	1037.5	1558.24	1037	1583.41	1036.5	1608.57	1036	1633.74
GR	1035.5	1658.9	1035	1684.04	1034.5	1709.15	1034	1734.19	1033.5	1759.21
GR	1033	1784.25	1032.5	1809.32	1032	1834.41	1031.5	1859.47	1031	1884.45
GR	1030.5	1909.39	1030	1934.31	1029.5	1959.23	1029	1984.14	1029	2019.43
GR	1029	2033.72	1028.5	2040.56	1028	2047.48	1027.5	2054.42	1027.5	2056.94
GR	1028	2066.14	1028.5	2077.82	1028.5	2085.89	1028.5	2134.78	1029	2147.47
GR	1029.5	2155.76	1029.5	2156.63	1029	2171.4	1028.5	2178.99	1028	2183.35
GR	1028	2222.71	1028	2288.28	1028	2288.29	1028	2294.05	1028.5	2299.29
GR	1028.5	2315.37	1028.5	2320.18	1029	2328.23	1029.5	2333.03	1030	2341.83
GR	1030.5	2359.74	1031	2388.18	1031.5	2462.42	1032	2463.59	1032.5	2464.81
GR	1033	2466.08	1033.5	2467.4	1034	2468.78	1034.5	2470.2	1035	2471.8
GR	1035.5	2473.49	1036	2475.17	1036.5	2476.86	1037	2478.54	1037.5	2480.23
GR	1038	2481.92	1038.5	2483.6	1039	2485.29	1039.5	2486.97	1040	2489.05
GR	1040.5	2491.92	1040.5	2516.23	1040	2518.17	1039.5	2521.22	1039	2524.26

GR	1038.5	2527.28	1038.5	2557.04	1039	2567.49	1039.5	2573.92	1040	2581.27
GR	1040.5	2592.28	1041	2603.18	1041	2634.36	1040.5	2645.97	1040	2656.54
ET		9.1	9.1						1506.36	2489.17
X1	19	90	1506.36	2489.17	229.09	162.22	199.96			
X3	10									
GR	1038	1374.38	1038.5	1472.94	1039	1474.45	1039.5	1475.95	1040	1477.46
GR	1040.5	1478.96	1041	1480.47	1041.5	1481.97	1042	1483.48	1043	1486.48
GR	1043.5	1487.99	1044	1489.49	1044	1506.36	1043.5	1507.36	1043	1508.37
GR	1042	1510.37	1041.5	1511.37	1041	1512.38	1040	1514.38	1039.5	1515.39
GR	1038.5	1517.39	1038	1565.33	1037.5	1589.83	1036	1663.3	1035.5	1687.8
GR	1035	1712.29	1034.5	1736.79	1034	1761.28	1033.5	1785.78	1033	1810.29
GR	1032.5	1834.79	1032	1859.3	1031	1908.3	1030.5	1932.82	1030	1957.38
GR	1029.5	1981.97	1029.5	2035.47	1029	2038.14	1029	2071.18	1028.5	2080.87
GR	1028.5	2096.62	1028.5	2101.62	1029	2123.25	1029	2149.64	1028.5	2161.67
	1028	2168.89	1028	2220.05	1028	2250.85	1028.5	2255.4	1029	2259.94
	1029.5	2269.35	1029.5	2296.68	1030	2303.55	1030.5	2310.36	1031	2329.01
GR	1031.5	2345.29	1031.5	2400.55	1031.5	2451.53	1032	2453.19	1032.5	2454.86
GR	1035.5	2464.82	1036	2466.48	1036.5	2468.13	1037.5	2471.45	1038	2473.1
GR	1038.5	2474.76	1039.5	2478.06	1040	2479.71	1040.5	2481.35	1041	2483.27
GR	1041	2487.16	1041	2489.17	1041	2505.64	1040.5	2508.45	1040	2511.31
GR	1039.5	2514.42	1039	2517.86	1038.5	2521.07	1038	2524.55	1037.5	2528.08

GR	1037.5	2534.48	1038	2549.77	1038.5	2563.27	1039	2579.02	1039.5	2591.93
GR	1040	2601.24	1040.5	2609.64	1041	2618.56	1041.5	2628.05	1041.5	2633.13
ET		9.1	9.1						1474.87	2507.08
X1	20	90	1474.87	2507.08	200.47	202.9	199.13			
X3	10									
	1038	1379.07	1038.5	1441.16	1041	1448.66	1041.5	1450.17	1042	1451.67
	1042.5	1453.18	1043	1454.68	1043.5	1456.19	1044	1457.69	1044	1474.87
GR	1043	1476.87	1042.5	1477.88	1041	1480.88	1040.5	1481.89	1039.5	1483.89
GR	1039	1484.89	1038.5	1485.9	1038.5	1558.74	1038	1583.81	1037.5	1608.87
GR	1037	1633.96	1036.5	1659.09	1036	1684.31	1035.5	1709.67	1035	1735
GR	1034.5	1760.32	1034	1785.6	1033.5	1810.89	1033	1836.1	1032.5	1861.4
GR	1032	1886.82	1031.5	1912.31	1031	1937.84	1030.5	1963.38	1030	1988.92
GR	1030	2028.5	1029.5	2034.52	1029	2040.34	1028.5	2051.4	1028.5	2140.88
GR	1029	2154.76	1029.5	2172.29	1029.5	2240.32	1029.5	2249.56	1030	2255.28
GR	1030	2261.33	1030.5	2272.42	1031	2287.03	1031.5	2308.1	1032	2382.58
GR	1032	2419.74	1031.5	2441.45	1031.5	2454.13	1032	2456.66	1032.5	2458.23
GR	1033	2463.78	1033.5	2464.98	1034	2466.15	1034.5	2467.31	1035	2468.48
GR	1035.5	2469.62	1036	2470.78	1036.5	2471.91	1037	2473	1038	2475.16
GR	1038.5	2476.25	1040	2479.49	1040.5	2480.57	1041	2481.65	1041.5	2482.73
GR	1041.5	2507.08	1041	2510.73	1040.5	2514.32	1040	2517.64	1039.5	2520.33
GR	1038.5	2525.43	1038	2528.01	1037.5	2530.6	1037	2533.23	1037	2539.82
GR	1037.5	2555.92	1038	2571.58	1038.5	2582.29	1039	2589.78	1039.5	2599.9
GR	1040	2610.07	1040.5	2620.25	1041	2631.51	1041.5	2643.63	1042	2656.96
ET		9.1	9.1						1437.04	2483.82
X1	21	90	1437.04	2483.82	251.66	137.09	194.33			
X3	10									
GR	1038	1365.48	1038.5	1366.14	1039	1366.84	1039.5	1367.6	1040	1368.3
GR	1040.5	1380.47	1040.5	1410.03	1041	1411.55	1041.5	1413.07	1043	1417.6
GR	1043.5	1419.1	1044	1420.61	1044.5	1422.11	1044.5	1437.04	1044	1437.09
GR	1043.5	1437.13	1042.5	1437.23	1042	1437.27	1041	1437.37	1040	1437.49

1

GR	1039.5	1464.3	1039	1511.65	1038.5	1552.52	1038	1575.87	1037.5	1578.47
GR	1037	1582	1037	1586.71	1037.5	1589.12	1038	1590.72	1038	1601.01
GR	1037.5	1626.35	1037	1651.68	1036.5	1677	1036	1702.32	1035.5	1727.64
GR	1035	1752.98	1034.5	1778.31	1033.5	1828.95	1033	1854.26	1032.5	1879.58
GR	1031.5	1930.26	1031	1955.6	1030.5	1980.94	1030	2079.8	1030	2202.37
	1030.5	2206.37	1031	2218.45	1031.5	2241.5	1032	2264.04	1032.5	2301.68
	1033	2416.54	1033	2432.1	1033.5	2433.73	1034	2435.36	1034.5	2437
	1035	2438.65	1036	2441.97	1036.5	2443.64	1037	2445.32	1038	2448.7
GR	1038.5	2450.4	1039	2452.09	1039.5	2453.78	1040	2455.48	1040.5	2457.17
GR	1041	2458.86	1041.5	2460.56	1042	2462.25	1042	2483.82	1041.5	2487.11
GR	1041	2490.22	1040.5	2493.23	1040	2496.2	1039	2502.22	1038.5	2505.23
GR	1038	2508.24	1037.5	2511.25	1037	2514.28	1036.5	2517.33	1036.5	2517.92
GR	1037	2541.11	1037.5	2552.73	1038	2562.34	1038.5	2570.4	1039	2579.06
GR	1039.5	2590.03	1040	2599.9	1040.5	2609.9	1041	2623.42	1041.5	2634.89
ET		9.1	9.1						1392.40	2438.85
X1	22	80	1392.40	2438.85	230	160	190			
X3	10									
GR	1040.5	1271.22	1040.5	1286.91	1040	1314.9	1039.5	1339.01	1040	1379.01
GR	1040.5	1380.51	1041	1382	1041.5	1383.49	1042	1384.98	1042.5	1386.47
GR	1043	1387.95	1043.5	1389.43	1044	1390.92	1044.5	1392.4	1044	1408.78
GR	1043.5	1409.78	1043	1410.78	1042.5	1411.79	1042	1412.79	1041.5	1413.79
GR	1041	1414.8	1040.5	1415.8	1040	1416.81	1039.5	1417.82	1039.5	1420.34
GR	1039.5	1442.56	1039	1444.49	1038.5	1446.41	1038	1448.34	1037.5	1450.14
GR	1037	1451.74	1036.5	1453.18	1036	1454.96	1035.5	1463.01	1035.5	1604.93
GR	1035	1607.23	1034.5	1609.78	1034	1612.43	1033.5	1615.17	1033	1617.73
GR	1032.5	1620.33	1032	1622.98	1031	1628.75	1030.5	1655.87	1030	1675.64
GR	1029.5	1680.02	1029	1684.46	1028.5	1703.01	1028.5	1711.29	1029	1716.16
GR	1029.5	1717.13	1030	1717.9	1030.5	1718.67	1030.5	1984.66	1030	2057.3
GR	1029.5	2068.43	1029.5	2081.63	1030	2092.66	1030.5	2104.25	1031	2166.68
GR	1031.5	2173.97	1032.5	2224.33	1034.5	2402.07	1035	2403.76	1036	2407.14
GR	1037	2410.52	1037.5	2412.22	1038.5	2415.62	1039	2417.34	1040	2420.78
GR	1041.5	2425.97	1042	2427.7	1042.5	2438.85	1042.5	2446.24	1041.5	2452.41
GR	1040.5	2459.6	1040	2463.16	1039.5	2466.66	1039	2470.21	1041.0	2481.26
ET		9.1	9.1						1387.54	2401.08
X1	23	67	1387.54	2401.08	241.22	170.62	197.65			
X3	10									
GR	1040	1263.65	1039	1285.73	1039.5	1313.79	1040	1342.25	1040.5	1359.65
GR	1042	1364.19	1043.5	1368.72	1044.5	1371.73	1044.5	1387.54	1043	1390.52
GR	1041	1394.52	1041	1399.23	1041.5	1427.71	1041.5	1460.51	1041	1464.3
	1040.5	1467.36	1040	1470.36	1039.5	1473.11	1039	1475.63	1038	1479.25
	1037	1482.81	1036.5	1484.55	1036	1486.15	1035.5	1487.81	1035	1489.51
GR	1034	1492.96	1033	1496.61	1032.5	1498.45	1031	1504.04	1031	1567
GR	1030.5	1579.13	1030	1586.34	1029.5	1589.34	1029.5	1604.63	1030	1617.21
GR	1030.5	1630.69	1030.5	1925.7	1030	1936	1030	1941.32	1030.5	1942.21
GR	1031	1942.74	1031	1947.11	1030.5	1994.99	1030.5	2017.81	1031	2022.33
GR	1031.5	2100.31	1032	2147.61	1032.5	2180.75	1033	2222.87	1033.5	2300.59

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GR    1033.5    2347.98      1035    2352.47      1036    2355.52    1036.5    2357.14      1037    2358.84
GR    1037.5     2360.6      1038    2362.66    1038.5    2364.94    1039.5    2369.41      1040    2371.59
GR    1040.5    2373.44      1042    2378.67      1042    2401.08      1040    2415.66    1040.0    2418.74
GR      1039    2420.92      1040    2425.06
1
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ET                 9.1       9.1                                                          1378.56    2360.72
X1       24         59   1378.56    2360.72    242.23     197.47       210
X3       10
GR     1043       1273      1043    1277.75    1042.5    1285.68      1041    1293.28      1040    1298.59
GR     1039    1302.87      1039    1328.19    1039.5    1337.13      1040    1339.28    1041.5     1345.3
GR     1042    1347.79    1042.5    1351.23    1043.5     1359.4      1044    1363.78    1044.5    1369.11
GR   1045.5    1371.37    1045.5    1378.56    1043.5    1412.41      1043    1420.62      1042    1433.43
GR   1041.5    1436.89    1040.5    1441.61    1038.5    1453.56    1035.5    1471.66    1033.5    1483.45
GR     1033    1485.88      1032    1489.41    1031.5    1492.56      1030     1499.8      1030    1502.97
GR     1031    1508.55      1031    1511.86    1028.5    1522.17    1028.5    1526.44      1029    1535.58
GR   1029.5     1544.3    1030.5    1555.88    1031.5    1946.58      1031    1992.86      1031     1993.9
GR   1031.5     1996.7      1032     2017.6    1032.5    2086.84    1032.5    2112.63      1032    2141.35
GR     1032     2180.2    1032.5    2198.63      1033    2228.53    1033.5    2334.62      1035    2338.84
GR     1036    2341.75    1038.5    2349.05    1040.5    2354.89    1042.5    2360.72    1042.5    2391.95
GR   1041.5    2398.83      1041    2402.09    1040.5    2404.73    1043.0    2414.88

QT        2      41000     41000
NC     .045       .045      .035       0.2       0.4
X1    44.00         16    9485.8   10384.1    231.97     289.42     258.6
GR   1044.9     9485.8   1030.75    9514.1   1030.75      9573    1031.5      9575    1032.0      9625
GR   1032.0       9753    1032.0      9815    1034.0      9863    1034.0      9917    1032.0      9988
GR   1031.8      10000    1032.0     10033    1034.0     10233   1035.06     10362    1044.0     10383
GR   1045.1    10384.1

X1    47.00         14       596      1357       300       300       300
GR   1045.0        596    1031.0       624    1031.0       682    1034.0       690    1034.0       740
GR   1034.0        835    1034.0       897    1032.9      1000    1034.0      1099    1034.0      1184
GR   1034.0       1194    1035.6      1336    1044.0      1356    1045.0      1357

X1    51.50         13     760.8    1309.7       450       450       450
GR   1045.7      760.8    1031.4     789.4    1031.4     877.8    1034.0       883    1034.0       907
GR   1034.0        962    1034.0       985    1033.9      1000    1034.0      1042    1035.3      1205
GR   1036.0       1300    1040.0      1304    1045.7    1309.7

      55.0         10       260     741.3       350       350       350
GR    1047        260    1031.9       290    1031.9       450    1036.6      472.    1036.2       500
GR   1036.0        525    1034.6       663    1034.3       716    1035.7       730    1047.0     741.3

X1    58.12         10       758      1163       662       662       662
GR   1049.1        758    1032.1       775    1032.1      1000    1032.1      1009    1036.6      1018
GR   1036.0       1110    1036.0      1126    1038.0      1148    1040.0      1154    1049.0      1163

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


*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV=     .100 CEHV=     .300
*SECNO 1.000

3470 ENCROACHMENT STATIONS=     1387.1    3056.2  TYPE=      1  TARGET=     1669.160

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1033.50 ELREA=    100000.00

     1.000     10.10   1029.60   1027.56       .00   1030.20       .60       .00       .00   1033.50
   39000.0        .0   39000.0        .0        .0    6271.5        .0        .0        .0 100000.00
       .00       .00      6.22       .00      .000      .035      .000      .000   1019.50   1394.85
   .003439        0.        0.        0.         0        12         0       .00   1587.58   2982.43


.LOW DISTRIBUTION FOR SECNO=      1.00          CWSEL=   1029.60

STA=    1395.    3056.
  PER Q=    100.0
   AREA=   6271.5
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   VEL=      6.2
 DEPTH=      4.0

*SECNO 2.000

7702 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.49


3470 ENCROACHMENT STATIONS=     1433.9    2868.7  TYPE=      1  TARGET=     1434.780

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1034.00 ELREA=    100000.00

     2.000     10.77   1030.27   1026.95       .00   1030.68       .41       .46       .02   1034.00
   39000.0        .0   39000.0        .0        .0    7600.5        .0      33.4       7.2 100000.00
       .01       .00      5.13       .00      .000      .035      .000      .000   1019.50   1441.32
   .001543      203.      210.      318.         2        16         0       .00   1406.82   2848.14


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   21APR98      09:35:02                                                                                    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


FLOW DISTRIBUTION FOR SECNO=      2.00          CWSEL=   1030.27

STA=    1441.    2869.
  PER Q=    100.0
   AREA=   7600.5
    VEL=      5.1
  DEPTH=      5.4

*SECNO 3.000

3470 ENCROACHMENT STATIONS=     1445.8    2799.6  TYPE=      1  TARGET=     1353.730

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1034.50 ELREA=    100000.00

     3.000     11.07   1030.57   1027.24       .00   1031.03       .45       .33       .01   1034.50
   39000.0        .0   39000.0        .0        .0    7242.5        .0      68.6      13.6 100000.00
       .02       .00      5.38       .00      .000      .035      .000      .000   1019.50   1453.76
   .001640      201.      207.      230.         2        20         0       .00   1305.18   2758.94


FLOW DISTRIBUTION FOR SECNO=      3.00          CWSEL=   1030.57

STA=    1454.    2800.
  PER Q=    100.0
   AREA=   7242.5
    VEL=      5.4
  DEPTH=      5.5

*SECNO 4.000

3470 ENCROACHMENT STATIONS=     1444.2    2704.5  TYPE=      1  TARGET=     1260.290

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1035.00 ELREA=    100000.00

     4.000     10.88   1030.88   1027.74       .00   1031.39       .51       .34       .02   1035.00
   39000.0        .0   39000.0        .0        .0    6823.4        .0     101.0      19.4 100000.00
       .03       .00      5.72       .00      .000      .035      .000      .000   1020.00   1452.31
   .001797      198.      200.      230.         2        23         0       .00   1203.30   2655.60


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


   .I DISTRIBUTION FOR SECNO=      4.00          CWSEL=   1030.88

STA=    1452.    2704.
  PER Q=    100.0
   AREA=   6823.4
    VEL=      5.7
```

```
  DEPTH=      5.7

*SECNO 5.000

3470 ENCROACHMENT STATIONS=     1461.1    2550.3  TYPE=      1  TARGET=     1089.230

     OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1035.50 ELREA=    100000.00

     5.000     10.68   1031.18   1028.61       .00   1031.88       .70       .44       .06   1035.50
   39000.0        .0   39000.0        .0        .0    5807.4        .0     130.6      24.7 100000.00
       .04       .00      6.72       .00      .000      .035      .000      .000   1020.50   1469.89
   .002607      205.      205.      257.         2        16         0       .00   1061.95   2531.84


FLOW DISTRIBUTION FOR SECNO=      5.00          CWSEL=   1031.18

STA=    1470.    2550.
  PER Q=    100.0
   AREA=   5807.4
    VEL=      6.7
  DEPTH=      5.5

*SECNO 6.000

3470 ENCROACHMENT STATIONS=     1504.6    2465.2  TYPE=      1  TARGET=      960.580

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1035.50 ELREA=    100000.00

     6.000     11.13   1031.63   1029.50       .00   1032.53       .90       .59       .06   1035.50
   39000.0        .0   39000.0        .0        .0    5126.8        .0     155.7      29.3 100000.00
       .05       .00      7.61       .00      .000      .035      .000      .000   1020.50   1512.55
   .003350      210.      200.      200.         0        16         0       .00    937.78   2450.33


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

FLOW DISTRIBUTION FOR SECNO=      6.00          CWSEL=   1031.63

STA=    1513.    2465.
  PER Q=    100.0
   AREA=   5126.8
    VEL=      7.6
  DEPTH=      5.5

*SECNO 7.000

3470 ENCROACHMENT STATIONS=     1513.3    2481.3  TYPE=      1  TARGET=      968.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1036.00 ELREA=    100000.00

     7.000     10.20   1032.20   1030.02       .00   1033.09       .89       .56       .00   1036.00
   39000.0        .0   39000.0        .0        .0    5164.8        .0     175.8      33.0 100000.00
       .05       .00      7.55       .00      .000      .035      .000      .000   1022.00   1537.73
   .003222      193.      170.      150.         2        16         0       .00    928.41   2466.14


FLOW DISTRIBUTION FOR SECNO=      7.00          CWSEL=   1032.20

STA=    1538.    2481.
  PER Q=    100.0
   AREA=   5164.8
    VEL=      7.6
  DEPTH=      5.6

*SECNO 8.000

3470 ENCROACHMENT STATIONS=     1525.1    2540.4  TYPE=      1  TARGET=     1015.340

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1036.50 ELREA=    100000.00

     8.000      9.91   1032.91   1030.12       .00   1033.59       .68       .48       .02   1036.50
   39000.0        .0   39000.0        .0        .0    5899.4        .0     198.7      36.9 100000.00
       .06       .00      6.61       .00      .000      .035      .000      .000   1023.00   1547.95
   .002217      202.      180.      180.         2        19         0       .00    978.95   2526.90
```

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

FLOW DISTRIBUTION FOR SECNO=      8.00          CWSEL=   1032.91

STA=    1548.    2540.
  PER Q=    100.0
   AREA=   5899.4
    VEL=      6.6
  DEPTH=      6.0

*SECNO 9.000

3470 ENCROACHMENT STATIONS=     1520.3    2549.6  TYPE=      1  TARGET=     1029.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1037.00 ELREA=    100000.00

     9.000     10.25   1033.25   1030.14       .00   1033.87       .62       .27       .01   1037.00
   39000.0        .0   39000.0        .0        .0    6174.6        .0     216.8      39.9 100000.00
       .07       .00      6.32       .00      .000      .035      .000      .000   1023.00   1543.20
   .001944      178.      131.       87.         2        19         0       .00    994.12   2537.32


FLOW DISTRIBUTION FOR SECNO=      9.00          CWSEL=   1033.25

STA=    1543.    2550.
  PER Q=    100.0
   AREA=   6174.6
    VEL=      6.3
  DEPTH=      6.2

*SECNO 10.000

3470 ENCROACHMENT STATIONS=     1505.0    2571.9  TYPE=      1  TARGET=     1066.900

     OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1037.50 ELREA=    100000.00

    10.000     10.61   1033.61   1030.22       .00   1034.17       .56       .30       .01   1037.50
   39000.0        .0   39000.0        .0        .0    6481.0        .0     240.4      43.6 100000.00
       .07       .00      6.02       .00      .000      .035      .000      .000   1023.00   1529.05
   .001738      185.      163.      130.         2        19         0       .00   1031.59   2560.63
```



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

FLOW DISTRIBUTION FOR SECNO=     10.00          CWSEL=   1033.61

STA=    1529.    2572.
  PER Q=    100.0
   AREA=   6481.0
    VEL=      6.0
  DEPTH=      6.3

*SECNO 11.000

3470 ENCROACHMENT STATIONS=     1474.8    2585.9  TYPE=      1  TARGET=     1111.090

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1038.00 ELREA=    100000.00

    11.000     10.49   1033.99   1030.45       .00   1034.53       .53       .35       .00   1038.00
   39000.0        .0   39000.0        .0        .0    6648.3        .0     271.6      48.6 100000.00
       .08       .00      5.87       .00      .000      .035      .000      .000   1023.50   1502.26
    001683      202.      207.      212.         0        14         0       .00   1073.60   2575.87


FLOW DISTRIBUTION FOR SECNO=     11.00          CWSEL=   1033.99

STA=    1502.    2586.
  PER Q=    100.0
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   AREA=   6648.3
    VEL=      5.9
  DEPTH=      6.2

*SECNO 12.000

     ENCROACHMENT STATIONS=     1465.3    2583.4  TYPE=      1  TARGET=     1118.080

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1039.00 ELREA=    100000.00

    12.000      9.80   1034.30   1031.06       .00   1034.90       .60       .36       .02   1039.00
   39000.0        .0   39000.0        .0        .0    6271.5        .0     301.3      53.5 100000.00
       .09       .00      6.22       .00      .000      .035      .000      .000   1024.50   1534.07
   .001909      200.      200.      200.         2        14         0       .00   1020.55   2554.62


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

FLOW DISTRIBUTION FOR SECNO=     12.00          CWSEL=   1034.30

STA=    1534.    2583.
  PER Q=    100.0
   AREA=   6271.5
    VEL=      6.2
  DEPTH=      6.1

*SECNO 13.000

3470 ENCROACHMENT STATIONS=     1450.2    2541.7  TYPE=      1  TARGET=     1091.430

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1040.00 ELREA=    100000.00

    13.000     10.20   1034.70   1031.77       .00   1035.39       .70       .46       .03   1040.00
   39000.0        .0   39000.0        .0        .0    5822.0        .0     332.6      58.5 100000.00
       .10       .00      6.70       .00      .000      .035      .000      .000   1024.50   1578.32
   .002184      191.      226.      274.         2        19         0       .00    937.28   2515.60

FLOW DISTRIBUTION FOR SECNO=     13.00          CWSEL=   1034.70

STA=    1578.    2542.
  PER Q=    100.0
   AREA=   5822.0
    VEL=      6.7
  DEPTH=      6.2

*SECNO 14.000

3470 ENCROACHMENT STATIONS=     1488.2    2524.0  TYPE=      1  TARGET=     1035.750

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1041.00 ELREA=    100000.00

    14.000     10.12   1035.12   1032.40       .00   1035.88       .75       .47       .02   1041.00
   39000.0        .0   39000.0        .0        .0    5593.7        .0     359.2      62.9 100000.00
       .11       .00      6.97       .00      .000      .035      .000      .000   1025.00   1588.70
   .002432      204.      204.      204.         1        19         0       .00    919.51   2508.21


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

FLOW DISTRIBUTION FOR SECNO=     14.00          CWSEL=   1035.12

      1589.    2524.
  PER Q=    100.0
   AREA=   5593.7
    VEL=      7.0
  DEPTH=      6.1
```

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*SECNO 15.000

3470 ENCROACHMENT STATIONS=     1514.6    2544.4  TYPE=      1  TARGET=     1029.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1042.50 ELREA=    100000.00

     5.000     10.64   1035.64   1032.90       .00   1036.38       .75       .50       .00   1042.50
   9000.0        .0   39000.0        .0        .0    5621.6        .0     386.0      67.3 100000.00
       .12       .00      6.94       .00      .000      .035      .000      .000   1025.00   1583.10
   .002406      209.      208.      230.         1        15         0       .00    923.44   2506.54


FLOW DISTRIBUTION FOR SECNO=     15.00          CWSEL=   1035.64

STA=    1583.    2544.
  PER Q=    100.0
   AREA=   5621.6
    VEL=      6.9
  DEPTH=      6.1

*SECNO 16.000

3470 ENCROACHMENT STATIONS=     1513.5    2541.3  TYPE=      1  TARGET=     1027.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1043.50 ELREA=    100000.00

    16.000     10.11   1036.11   1033.31       .00   1036.87       .76       .48       .00   1043.50
   39000.0        .0   39000.0        .0        .0    5583.4        .0     411.9      71.5 100000.00
       .13       .00      6.99       .00      .000      .035      .000      .000   1026.00   1593.67
   .002380      205.      201.      195.         1        19         0       .00    900.13   2493.80


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

     DISTRIBUTION FOR SECNO=     16.00          CWSEL=   1036.11

STA=    1594.    2541.
  PER Q=    100.0
   AREA=   5583.4
    VEL=      7.0
  DEPTH=      6.2

*SECNO 17.000

3470 ENCROACHMENT STATIONS=     1525.5    2529.5  TYPE=      1  TARGET=     1004.020

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1044.00 ELREA=    100000.00

    17.000      9.58   1036.58   1033.88       .00   1037.36       .79       .49       .01   1044.00
   39000.0        .0   39000.0        .0        .0    5472.7        .0     437.3      75.6 100000.00
       .13       .00      7.13       .00      .000      .035      .000      .000   1027.00   1606.23
   .002491      200.      200.      200.         1        19         0       .00    886.03   2492.26


FLOW DISTRIBUTION FOR SECNO=     17.00          CWSEL=   1036.58

STA=    1606.    2530.
  PER Q=    100.0
   AREA=   5472.7
    VEL=      7.1
  DEPTH=      6.2

*SECNO 18.000

3470 ENCROACHMENT STATIONS=     1533.1    2516.2  TYPE=      1  TARGET=      983.110

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1044.00 ELREA=    100000.00

    18.000      9.57   1037.07   1034.39       .00   1037.85       .79       .49       .00   1044.00
    9000.0        .0   39000.0        .0        .0    5477.0        .0     461.8      79.6 100000.00
       .14       .00      7.12       .00      .000      .035      .000      .000   1027.50   1580.07
   .002531      213.      195.      153.         2        19         0       .00    898.69   2478.76


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

FLOW DISTRIBUTION FOR SECNO=     18.00          CWSEL=   1037.07

STA=    1580.    2516.
  PER Q=    100.0
   AREA=   5477.0
    VEL=      7.1
  DEPTH=      6.1

*SECNO 19.000

3470 ENCROACHMENT STATIONS=     1506.4    2489.2  TYPE=      1  TARGET=      982.810

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1044.00 ELREA=    100000.00

    19.000      9.56   1037.56   1034.94       .00   1038.37       .81       .51       .01   1044.00
   39000.0        .0   39000.0        .0        .0    5396.0        .0     486.8      83.7 100000.00
       .15       .00      7.23       .00      .000      .035      .000      .000   1028.00   1586.81
   .002605      229.      200.      162.         0        19         0       .00    884.84   2471.65

FLOW DISTRIBUTION FOR SECNO=     19.00          CWSEL=   1037.56

STA=    1587.    2489.
  PER Q=    100.0
   AREA=   5396.0
    VEL=      7.2
  DEPTH=      6.1

*SECNO 20.000

3470 ENCROACHMENT STATIONS=     1474.9    2507.1  TYPE=      1  TARGET=     1032.210

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1044.00 ELREA=    100000.00

    20.000      9.59   1038.09   1035.48       .00   1038.89       .80       .52       .00   1044.00
   39000.0        .0   39000.0        .0        .0    5429.0        .0     511.5      87.7 100000.00
       .16       .00      7.18       .00      .000      .035      .000      .000   1028.50   1579.53
   .002596      200.      199.      203.         1        19         0       .00    895.81   2475.35
```



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

FLOW DISTRIBUTION FOR SECNO=     20.00          CWSEL=   1038.09

STA=    1580.    2507.
  PER Q=    100.0
   AREA=   5429.0
    VEL=      7.2
  DEPTH=      6.1

*SECNO 21.000

3470 ENCROACHMENT STATIONS=     1437.0    2483.8  TYPE=      1  TARGET=     1046.780

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1044.50 ELREA=    100000.00

    21.000      8.58   1038.58   1036.47       .00   1039.50       .93       .57       .04   1044.50
   39000.0        .0   39000.0        .0        .0    5045.5        .0     534.9      91.8 100000.00
       .16       .00      7.73       .00      .000      .035      .000      .000   1030.00   1546.39
   .003355      252.      194.      137.         2        14         0       .00    904.26   2450.65

  J DISTRIBUTION FOR SECNO=     21.00          CWSEL=   1038.58

STA=    1546.    2484.
  PER Q=    100.0
   AREA=   5045.5
    VEL=      7.7
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  DEPTH=      5.6

*SECNO 22.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.72


    ENCROACHMENT STATIONS=     1392.4    2438.9  TYPE=      1  TARGET=     1046.450

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1044.50 ELREA=    100000.00

    22.000     10.94   1039.44   1035.61       .00   1039.90       .46       .35       .05   1044.50
   39000.0        .0   39000.0        .0        .0    7200.6        .0     561.6      95.9 100000.00
       .17       .00      5.42       .00      .000      .035      .000      .000   1028.50   1442.79
   .001137      230.      190.      160.         2        12         0       .00    976.06   2418.85


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


FLOW DISTRIBUTION FOR SECNO=     22.00          CWSEL=   1039.44

STA=    1443.    2439.
  PER Q=    100.0
   AREA=   7200.6
    VEL=      5.4
  DEPTH=      7.4

*SECNO 23.000

3470 ENCROACHMENT STATIONS=     1387.5    2401.1  TYPE=      1  TARGET=     1013.540

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1044.50 ELREA=    100000.00

    23.000     10.16   1039.66   1035.26       .00   1040.10       .44       .21       .00   1044.50
   39000.0        .0   39000.0        .0        .0    7288.5        .0     594.5     100.1 100000.00
       .18       .00      5.35       .00      .000      .035      .000      .000   1029.50   1472.23
   .000977      241.      198.      171.         2        11         0       .00    897.88   2370.11


FLOW DISTRIBUTION FOR SECNO=     23.00          CWSEL=   1039.66

STA=    1472.    2401.
  PER Q=    100.0
   AREA=   7288.5
    VEL=      5.4
  DEPTH=      8.1

*SECNO 24.000

3470 ENCROACHMENT STATIONS=     1378.6    2360.7  TYPE=      1  TARGET=      982.160

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1045.50 ELREA=    100000.00

    24.000     11.36   1039.86   1035.54       .00   1040.31       .45       .21       .00   1045.50
   39000.0        .0   39000.0        .0        .0    7247.8        .0     629.5     104.5 100000.00
       .20       .00      5.38       .00      .000      .035      .000      .000   1028.50   1445.41
   .001010      242.      210.      197.         2        19         0       .00    907.63   2353.03


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


   DISTRIBUTION FOR SECNO=     24.00          CWSEL=   1039.86

STA=    1445.    2361.
  PER Q=    100.0
   AREA=   7247.8
    VEL=      5.4
  DEPTH=      8.0
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```
CCHV=     .200 CEHV=     .400
*SECNO 44.000
    44.000      9.33   1040.08   1036.90       .00   1040.73       .66       .34       .08   1044.90
   41000.0        .0   41000.0        .0        .0    6303.0        .0     669.7     109.8   1045.10
       .21       .00      6.50       .00      .000      .035      .000      .000   1030.75   9495.45
   )01705      232.      259.      289.         2        11         0       .00    878.33  10373.78


FLOW DISTRIBUTION FOR SECNO=     44.00          CWSEL=   1040.08

STA=    9495.   10384.
  PER Q=    100.0
   AREA=   6303.0
    VEL=      6.5
  DEPTH=      7.2

*SECNO 47.000
    47.000      9.50   1040.50   1038.34       .00   1041.58      1.08       .68       .17   1045.00
   41000.0        .0   41000.0        .0        .0    4923.6        .0     708.4     115.3   1045.00
       .22       .00      8.33       .00      .000      .035      .000      .000   1031.00    605.02
   .003109      300.      300.      300.         1        15         0       .00    742.63   1347.65


FLOW DISTRIBUTION FOR SECNO=     47.00          CWSEL=   1040.50

STA=     605.    1357.
  PER Q=    100.0
   AREA=   4923.6
    VEL=      8.3
  DEPTH=      6.6

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


    )O 51.500

3301 HV CHANGED MORE THAN HVINS

    51.500     10.35   1041.75   1039.77       .00   1043.34      1.59      1.56       .20   1045.70
   41000.0        .0   41000.0        .0        .0    4058.0        .0     754.8     122.0   1045.70
       .23       .00     10.10       .00      .000      .035      .000      .000   1031.40    768.70
   .003870      450.      450.      450.         2        15         0       .00    537.05   1305.75


FLOW DISTRIBUTION FOR SECNO=     51.50          CWSEL=   1041.75

STA=     769.    1310.
  PER Q=    100.0
   AREA=   4058.0
    VEL=     10.1
  DEPTH=      7.6

*SECNO 55.000
    55.000     11.11   1043.01   1040.35       .00   1044.56      1.55      1.21       .01   1047.00
   41000.0        .0   41000.0        .0        .0    4106.7        .0     787.6     126.0   1047.00
       .24       .00      9.98       .00      .000      .035      .000      .000   1031.90    267.93
   .003121      350.      350.      350.         2        15         0       .00    469.38    737.31


FLOW DISTRIBUTION FOR SECNO=     55.00          CWSEL=   1043.01

STA=     268.     741.
  PER Q=    100.0
   AREA=   4106.7
    VEL=     10.0
  DEPTH=      8.7

*SECNO 58.120
    58.120     12.78   1044.88   1040.78       .00   1046.28      1.40      1.69       .03   1049.10
    1000.0        .0   41000.0        .0        .0    4319.2        .0     851.6     132.6   1049.00
       .26       .00      9.49       .00      .000      .035      .000      .000   1032.10    762.22
   .002132      662.      662.      662.         2        15         0       .00    396.66   1158.88


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

FLOW DISTRIBUTION FOR SECNO=     58.12          CWSEL=   1044.88

STA=     762.    1163.
  PER Q=    100.0
   AREA=   4319.2
    VEL=      9.5
  DEPTH=     10.9

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T1 NEW RIVER CLOMR STUDY, PHASE II
T1 PREPARED FOR THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
T1 PREPARED BY SIMONS, LI & ASSOCIATES, INC., 03/20/1998
T2 NEW RIVER            100-YEAR FLOW  W/NEW WADDEL DAM
T3 PROPOSED FLOODWAY CONDITION

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         3         0         0         0         0         0         0   1029.60         0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      2         0        -1         0         0         0        -1         0         0         0


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

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV=     .100 CEHV=     .300
*SECNO 1.000

3470 ENCROACHMENT STATIONS=     1387.1    3056.2  TYPE=      1  TARGET=     1669.160

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1033.50 ELREA=    100000.00

     1.000     10.10   1029.60   1027.56   1029.60   1030.20       .60       .00       .00   1033.50
   39000.0        .0   39000.0        .0        .0    6271.5        .0       .0        .0 100000.00
       .00       .00      6.22       .00      .000      .035      .000      .000   1019.50   1394.85
   .003439        0.        0.        0.         0        12         0       .00   1587.58   2982.43


*SECNO 2.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.49


3470 ENCROACHMENT STATIONS=     1433.9    2868.7  TYPE=      1  TARGET=     1434.780

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1034.00 ELREA=    100000.00

     2.000     10.77   1030.27   1026.95   1030.27   1030.68       .41       .46       .02   1034.00
   39000.0        .0   39000.0        .0        .0    7600.5        .0      33.4       7.2 100000.00
       .01       .00      5.13       .00      .000      .035      .000      .000   1019.50   1441.32
   .001543      203.      210.      318.         2        16         0       .00   1406.82   2848.14


*SECNO 3.000

3470 ENCROACHMENT STATIONS=     1445.8    2799.6  TYPE=      1  TARGET=     1353.730

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1034.50 ELREA=    100000.00
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   3.000     11.07   1030.57   1027.24   1030.57   1031.03       .45       .33       .01   1034.50
39000.0        .0   39000.0        .0        .0    7242.5        .0      68.6      13.6 100000.00
     .02       .00      5.38       .00      .000      .035      .000      .000   1019.50   1453.76
 .001640      201.      207.      230.         2        20         0       .00   1305.18   2758.94
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 4.000

3470 ENCROACHMENT STATIONS=     1444.2    2704.5  TYPE=      1  TARGET=     1260.290

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1035.00 ELREA=    100000.00

   4.000     10.88   1030.88   1027.74   1030.88   1031.39       .51       .34       .02   1035.00
39000.0        .0   39000.0        .0        .0    6823.4        .0     101.0      19.4 100000.00
     .03       .00      5.72       .00      .000      .035      .000      .000   1020.00   1452.31
 .001797      198.      200.      230.         2        23         0       .00   1203.30   2655.60

*SECNO 5.000

3470 ENCROACHMENT STATIONS=     1461.1    2550.3  TYPE=      1  TARGET=     1089.230

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1035.50 ELREA=    100000.00

   5.000     10.68   1031.18   1028.61   1031.18   1031.88       .70       .44       .06   1035.50
39000.0        .0   39000.0        .0        .0    5807.4        .0     130.6      24.7 100000.00
     .04       .00      6.72       .00      .000      .035      .000      .000   1020.50   1469.89
 .002607      205.      205.      257.         2        16         0       .00   1061.95   2531.84

*SECNO 6.000

3470 ENCROACHMENT STATIONS=     1504.6    2465.2  TYPE=      1  TARGET=      960.580

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1035.50 ELREA=    100000.00

   6.000     11.13   1031.63   1029.50   1031.63   1032.53       .90       .59       .06   1035.50
39000.0        .0   39000.0        .0        .0    5126.8        .0     155.7      29.3 100000.00
     .05       .00      7.61       .00      .000      .035      .000      .000   1020.50   1512.55
 .003350      210.      200.      200.         0        16         0       .00    937.78   2450.33

*SECNO 7.000

3470 ENCROACHMENT STATIONS=     1513.3    2481.3  TYPE=      1  TARGET=      968.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1036.00 ELREA=    100000.00

   7.000     10.20   1032.20   1030.02   1032.20   1033.09       .89       .56       .00   1036.00
39000.0        .0   39000.0        .0        .0    5164.8        .0     175.8      33.0 100000.00
     .05       .00      7.55       .00      .000      .035      .000      .000   1022.00   1537.73
 .003222      193.      170.      150.         2        16         0       .00    928.41   2466.14
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 8.000

3470 ENCROACHMENT STATIONS=     1525.1    2540.4  TYPE=      1  TARGET=     1015.340

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1036.50 ELREA=    100000.00

   8.000      9.91   1032.91   1030.12   1032.91   1033.59       .68       .48       .02   1036.50
39000.0        .0   39000.0        .0        .0    5899.4        .0     198.7      36.9 100000.00
     .06       .00      6.61       .00      .000      .035      .000      .000   1023.00   1547.95
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   .002217      202.      180.      180.         2        19         0       .00    978.95   2526.90

*SECNO 9.000

3470 ENCROACHMENT STATIONS=     1520.3    2549.6  TYPE=      1  TARGET=     1029.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1037.00 ELREA=    100000.00

     9.000     10.25   1033.25   1030.14   1033.25   1033.87       .62       .27       .01   1037.00
   39000.0        .0   39000.0        .0        .0    6174.6        .0     216.8      39.9 100000.00
       .07       .00      6.32       .00      .000      .035      .000      .000   1023.00   1543.20
   .001944      178.      131.       87.         2        19         0       .00    994.12   2537.32

*SECNO 10.000

3470 ENCROACHMENT STATIONS=     1505.0    2571.9  TYPE=      1  TARGET=     1066.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1037.50 ELREA=    100000.00

    10.000     10.61   1033.61   1030.22   1033.61   1034.17       .56       .30       .01   1037.50
   39000.0        .0   39000.0        .0        .0    6481.0        .0     240.4      43.6 100000.00
       .07       .00      6.02       .00      .000      .035      .000      .000   1023.00   1529.05
   .001738      185.      163.      130.         2        19         0       .00   1031.59   2560.63

*SECNO 11.000

3470 ENCROACHMENT STATIONS=     1474.8    2585.9  TYPE=      1  TARGET=     1111.090

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1038.00 ELREA=    100000.00

    11.000     10.49   1033.99   1030.45   1033.99   1034.53       .53       .35       .00   1038.00
   39000.0        .0   39000.0        .0        .0    6648.3        .0     271.6      48.6 100000.00
       .08       .00      5.87       .00      .000      .035      .000      .000   1023.50   1502.26
   .001683      202.      207.      212.         0        14         0       .00   1073.60   2575.87

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

*SECNO 12.000

3470 ENCROACHMENT STATIONS=     1465.3    2583.4  TYPE=      1  TARGET=     1118.080

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1039.00 ELREA=    100000.00

    12.000      9.80   1034.30   1031.06   1034.30   1034.90       .60       .36       .02   1039.00
   39000.0        .0   39000.0        .0        .0    6271.5        .0     301.3      53.5 100000.00
       .09       .00      6.22       .00      .000      .035      .000      .000   1024.50   1534.07
   .001909      200.      200.      200.         2        14         0       .00   1020.55   2554.62

*SECNO 13.000

3470 ENCROACHMENT STATIONS=     1450.2    2541.7  TYPE=      1  TARGET=     1091.430

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1040.00 ELREA=    100000.00

    13.000     10.20   1034.70   1031.77   1034.70   1035.39       .70       .46       .03   1040.00
   39000.0        .0   39000.0        .0        .0    5822.0        .0     332.6      58.5 100000.00
       .10       .00      6.70       .00      .000      .035      .000      .000   1024.50   1578.32
   .002184      191.      226.      274.         2        19         0       .00    937.28   2515.60

*SECNO 14.000

3470 ENCROACHMENT STATIONS=     1488.2    2524.0  TYPE=      1  TARGET=     1035.750

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1041.00 ELREA=    100000.00

    14.000     10.12   1035.12   1032.40   1035.12   1035.88       .75       .47       .02   1041.00
   39000.0        .0   39000.0        .0        .0    5593.7        .0     359.2      62.9 100000.00
       .11       .00      6.97       .00      .000      .035      .000      .000   1025.00   1588.70
   .002432      204.      204.      204.         1        19         0       .00    919.51   2508.21
```

*SECNO 15.000

3470 ENCROACHMENT STATIONS= 1514.6 2544.4 TYPE= 1 TARGET= 1029.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1042.50 ELREA= 100000.00

15.000	10.64	1035.64	1032.90	1035.64	1036.38	.75	.50	.00	1042.50
39000.0	.0	39000.0	.0	.0	5621.6	.0	386.0	67.3	100000.00
.12	.00	6.94	.00	.000	.035	.000	.000	1025.00	1583.10
.002406	209.	208.	230.	1	15	0	.00	923.44	2506.54

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 16.000

3470 ENCROACHMENT STATIONS= 1513.5 2541.3 TYPE= 1 TARGET= 1027.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1043.50 ELREA= 100000.00

16.000	10.11	1036.11	1033.31	1036.11	1036.87	.76	.48	.00	1043.50
39000.0	.0	39000.0	.0	.0	5583.4	.0	411.9	71.5	100000.00
.13	.00	6.99	.00	.000	.035	.000	.000	1026.00	1593.67
.002380	205.	201.	195.	1	19	0	.00	900.13	2493.80

*SECNO 17.000

3470 ENCROACHMENT STATIONS= 1525.5 2529.5 TYPE= 1 TARGET= 1004.020

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1044.00 ELREA= 100000.00

17.000	9.58	1036.58	1033.88	1036.58	1037.36	.79	.49	.01	1044.00
9000.0	.0	39000.0	.0	.0	5472.7	.0	437.3	75.6	100000.00
.13	.00	7.13	.00	.000	.035	.000	.000	1027.00	1606.23
.002491	200.	200.	200.	1	19	0	.00	886.03	2492.26

*SECNO 18.000

3470 ENCROACHMENT STATIONS= 1533.1 2516.2 TYPE= 1 TARGET= 983.110

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1044.00 ELREA= 100000.00

18.000	9.57	1037.07	1034.39	1037.07	1037.85	.79	.49	.00	1044.00
39000.0	.0	39000.0	.0	.0	5477.0	.0	461.8	79.6	100000.00
.14	.00	7.12	.00	.000	.035	.000	.000	1027.50	1580.07
.002531	213.	195.	153.	2	19	0	.00	898.69	2478.76

*SECNO 19.000

3470 ENCROACHMENT STATIONS= 1506.4 2489.2 TYPE= 1 TARGET= 982.810

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1044.00 ELREA= 100000.00

19.000	9.56	1037.56	1034.94	1037.56	1038.37	.81	.51	.01	1044.00
39000.0	.0	39000.0	.0	.0	5396.0	.0	486.8	83.7	100000.00
.15	.00	7.23	.00	.000	.035	.000	.000	1028.00	1586.81
.002605	229.	200.	162.	0	19	0	.00	884.84	2471.65

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

*SECNO 20.000

3470 ENCROACHMENT STATIONS= 1474.9 2507.1 TYPE= 1 TARGET= 1032.210

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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1044.00 ELREA=    100000.00

    20.000      9.59   1038.09   1035.48   1038.09   1038.89       .80       .52       .00   1044.00
   39000.0        .0   39000.0        .0        .0    5429.0        .0     511.5      87.7 100000.00
       .16       .00      7.18       .00      .000      .035      .000      .000   1028.50   1579.53
    002596      200.      199.      203.         1        19         0       .00    895.81   2475.35


*SECNO 21.000

3470 ENCROACHMENT STATIONS=     1437.0    2483.8  TYPE=      1  TARGET=     1046.780

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1044.50 ELREA=    100000.00

    21.000      8.58   1038.58   1036.47   1038.58   1039.50       .93       .57       .04   1044.50
   39000.0        .0   39000.0        .0        .0    5045.5        .0     534.9      91.8 100000.00
       .16       .00      7.73       .00      .000      .035      .000      .000   1030.00   1546.39
   .003355      252.      194.      137.         2        14         0       .00    904.26   2450.65


*SECNO 22.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.72


3470 ENCROACHMENT STATIONS=     1392.4    2438.9  TYPE=      1  TARGET=     1046.450

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1044.50 ELREA=    100000.00

    22.000     10.94   1039.44   1035.61   1039.44   1039.90       .46       .35       .05   1044.50
   39000.0        .0   39000.0        .0        .0    7200.6        .0     561.6      95.9 100000.00
       .17       .00      5.42       .00      .000      .035      .000      .000   1028.50   1442.79
   .001137      230.      190.      160.         2        12         0       .00    976.06   2418.85


*SECNO 23.000

3470 ENCROACHMENT STATIONS=     1387.5    2401.1  TYPE=      1  TARGET=     1013.540
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1044.50 ELREA=    100000.00

    23.000     10.16   1039.66   1035.26   1039.66   1040.10       .44       .21       .00   1044.50
   39000.0        .0   39000.0        .0        .0    7288.5        .0     594.5     100.1 100000.00
       .18       .00      5.35       .00      .000      .035      .000      .000   1029.50   1472.23
   .000977      241.      198.      171.         2        11         0       .00    897.88   2370.11


*SECNO 24.000

3470 ENCROACHMENT STATIONS=     1378.6    2360.7  TYPE=      1  TARGET=      982.160

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1045.50 ELREA=    100000.00

    24.000     11.36   1039.86   1035.54   1039.86   1040.31       .45       .21       .00   1045.50
   39000.0        .0   39000.0        .0        .0    7247.8        .0     629.5     104.5 100000.00
       .20       .00      5.38       .00      .000      .035      .000      .000   1028.50   1445.41
   .001010      242.      210.      197.         2        19         0       .00    907.63   2353.03


CCHV=      .200 CEHV=      .400
*SECNO 44.000
    44.000      9.33   1040.08   1036.90   1040.08   1040.73       .66       .34       .08   1044.90
   41000.0        .0   41000.0        .0        .0    6303.0        .0     669.7     109.8   1045.10
       .21       .00      6.50       .00      .000      .035      .000      .000   1030.75   9495.45
   .001705      232.      259.      289.         2        11         0       .00    878.33  10373.78


 NO 47.000
    47.000      9.50   1040.50   1038.34   1040.50   1041.58      1.08       .68       .17   1045.00
   41000.0        .0   41000.0        .0        .0    4923.6        .0     708.4     115.3   1045.00
       .22       .00      8.33       .00      .000      .035      .000      .000   1031.00    605.02
   .003109      300.      300.      300.         1        15         0       .00    742.63   1347.65
```

*SECNO 51.500

3301 HV CHANGED MORE THAN HVINS

51.500	10.35	1041.75	1039.77	1041.75	1043.34	1.59	1.56	.20	1045.70
1000.0	.0	41000.0	.0	.0	4058.0	.0	754.8	122.0	1045.70
.23	.00	10.10	.00	.000	.035	.000	.000	1031.40	768.70
.003870	450.	450.	450.	2	15	0	.00	537.05	1305.75

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

*SECNO 55.000

55.000	11.11	1043.01	1040.35	1043.01	1044.56	1.55	1.21	.01	1047.00
41000.0	.0	41000.0	.0	.0	4106.7	.0	787.6	126.0	1047.00
.24	.00	9.98	.00	.000	.035	.000	.000	1031.90	267.93
.003121	350.	350.	350.	2	15	0	.00	469.38	737.31

*SECNO 58.120

58.120	12.78	1044.88	1040.78	1044.88	1046.28	1.40	1.69	.03	1049.10
41000.0	.0	41000.0	.0	.0	4319.2	.0	851.6	132.6	1049.00
.26	.00	9.49	.00	.000	.035	.000	.000	1032.10	762.22
.002132	662.	662.	662.	2	15	0	.00	396.66	1158.88

1

THIS RUN EXECUTED 21APR98 09:35:04

****
..C-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

SED FLOODPLAIN CONDITION

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	EG	CRIWS	VCH	10*KS	XLCH	SSTA	TOPWID	ENDST	ELMIN
	1.000	39000.00	1029.60	10.10	1030.20	1027.56	6.22	34.39	.00	1394.85	1587.58	2982.43	1019.50
	1.000	39000.00	1029.60	10.10	1030.20	1027.56	6.22	34.39	.00	1394.85	1587.58	2982.43	1019.50
*	2.000	39000.00	1030.27	10.77	1030.68	1026.95	5.13	15.43	209.72	1441.32	1406.82	2848.14	1019.50
*	2.000	39000.00	1030.27	10.77	1030.68	1026.95	5.13	15.43	209.72	1441.32	1406.82	2848.14	1019.50
	3.000	39000.00	1030.57	11.07	1031.03	1027.24	5.38	16.40	206.77	1453.76	1305.18	2758.94	1019.50
	3.000	39000.00	1030.57	11.07	1031.03	1027.24	5.38	16.40	206.77	1453.76	1305.18	2758.94	1019.50
	4.000	39000.00	1030.88	10.88	1031.39	1027.74	5.72	17.97	200.44	1452.31	1203.30	2655.60	1020.00
	4.000	39000.00	1030.88	10.88	1031.39	1027.74	5.72	17.97	200.44	1452.31	1203.30	2655.60	1020.00
	5.000	39000.00	1031.18	10.68	1031.88	1028.61	6.72	26.07	204.57	1469.89	1061.95	2531.84	1020.50
	5.000	39000.00	1031.18	10.68	1031.88	1028.61	6.72	26.07	204.57	1469.89	1061.95	2531.84	1020.50
	6.000	39000.00	1031.63	11.13	1032.53	1029.50	7.61	33.50	200.00	1512.55	937.78	2450.33	1020.50
	6.000	39000.00	1031.63	11.13	1032.53	1029.50	7.61	33.50	200.00	1512.55	937.78	2450.33	1020.50
	7.000	39000.00	1032.20	10.20	1033.09	1030.02	7.55	32.22	169.55	1537.73	928.41	2466.14	1022.00
	7.000	39000.00	1032.20	10.20	1033.09	1030.02	7.55	32.22	169.55	1537.73	928.41	2466.14	1022.00
	8.000	39000.00	1032.91	9.91	1033.59	1030.12	6.61	22.17	180.15	1547.95	978.95	2526.90	1023.00
	8.000	39000.00	1032.91	9.91	1033.59	1030.12	6.61	22.17	180.15	1547.95	978.95	2526.90	1023.00
	9.000	39000.00	1033.25	10.25	1033.87	1030.14	6.32	19.44	130.98	1543.20	994.12	2537.32	1023.00

9.000	39000.00	1033.25	10.25	1033.87	1030.14	6.32	19.44	130.98	1543.20	994.12	2537.32	1023.00
10.000	39000.00	1033.61	10.61	1034.17	1030.22	6.02	17.38	162.52	1529.05	1031.59	2560.63	1023.00
10.000	39000.00	1033.61	10.61	1034.17	1030.22	6.02	17.38	162.52	1529.05	1031.59	2560.63	1023.00
11.000	39000.00	1033.99	10.49	1034.53	1030.45	5.87	16.83	206.89	1502.26	1073.60	2575.87	1023.50
11.000	39000.00	1033.99	10.49	1034.53	1030.45	5.87	16.83	206.89	1502.26	1073.60	2575.87	1023.50

SECNO	Q	CWSEL	DEPTH	EG	CRIWS	VCH	10*KS	XLCH	SSTA	TOPWID	ENDST	ELMIN
12.000	39000.00	1034.30	9.80	1034.90	1031.06	6.22	19.09	200.00	1534.07	1020.55	2554.62	1024.50
12.000	39000.00	1034.30	9.80	1034.90	1031.06	6.22	19.09	200.00	1534.07	1020.55	2554.62	1024.50
13.000	39000.00	1034.70	10.20	1035.39	1031.77	6.70	21.84	225.57	1578.32	937.28	2515.60	1024.50
13.000	39000.00	1034.70	10.20	1035.39	1031.77	6.70	21.84	225.57	1578.32	937.28	2515.60	1024.50
14.000	39000.00	1035.12	10.12	1035.88	1032.40	6.97	24.32	203.59	1588.70	919.51	2508.21	1025.00
14.000	39000.00	1035.12	10.12	1035.88	1032.40	6.97	24.32	203.59	1588.70	919.51	2508.21	1025.00
15.000	39000.00	1035.64	10.64	1036.38	1032.90	6.94	24.06	207.93	1583.10	923.44	2506.54	1025.00
15.000	39000.00	1035.64	10.64	1036.38	1032.90	6.94	24.06	207.93	1583.10	923.44	2506.54	1025.00
16.000	39000.00	1036.11	10.11	1036.87	1033.31	6.99	23.80	201.34	1593.67	900.13	2493.80	1026.00
16.000	39000.00	1036.11	10.11	1036.87	1033.31	6.99	23.80	201.34	1593.67	900.13	2493.80	1026.00
17.000	39000.00	1036.58	9.58	1037.36	1033.88	7.13	24.91	200.00	1606.23	886.03	2492.26	1027.00
17.000	39000.00	1036.58	9.58	1037.36	1033.88	7.13	24.91	200.00	1606.23	886.03	2492.26	1027.00
18.000	39000.00	1037.07	9.57	1037.85	1034.39	7.12	25.31	195.19	1580.07	898.69	2478.76	1027.50
18.000	39000.00	1037.07	9.57	1037.85	1034.39	7.12	25.31	195.19	1580.07	898.69	2478.76	1027.50
19.000	39000.00	1037.56	9.56	1038.37	1034.94	7.23	26.05	199.96	1586.81	884.84	2471.65	1028.00
19.000	39000.00	1037.56	9.56	1038.37	1034.94	7.23	26.05	199.96	1586.81	884.84	2471.65	1028.00
20.000	39000.00	1038.09	9.59	1038.89	1035.48	7.18	25.96	199.13	1579.53	895.81	2475.35	1028.50
20.000	39000.00	1038.09	9.59	1038.89	1035.48	7.18	25.96	199.13	1579.53	895.81	2475.35	1028.50
21.000	39000.00	1038.58	8.58	1039.50	1036.47	7.73	33.55	194.33	1546.39	904.26	2450.65	1030.00
21.000	39000.00	1038.58	8.58	1039.50	1036.47	7.73	33.55	194.33	1546.39	904.26	2450.65	1030.00
* 22.000	39000.00	1039.44	10.94	1039.90	1035.61	5.42	11.37	190.00	1442.79	976.06	2418.85	1028.50
* 22.000	39000.00	1039.44	10.94	1039.90	1035.61	5.42	11.37	190.00	1442.79	976.06	2418.85	1028.50
23.000	39000.00	1039.66	10.16	1040.10	1035.26	5.35	9.77	197.65	1472.23	897.88	2370.11	1029.50
23.000	39000.00	1039.66	10.16	1040.10	1035.26	5.35	9.77	197.65	1472.23	897.88	2370.11	1029.50
24.000	39000.00	1039.86	11.36	1040.31	1035.54	5.38	10.10	210.00	1445.41	907.63	2353.03	1028.50
24.000	39000.00	1039.86	11.36	1040.31	1035.54	5.38	10.10	210.00	1445.41	907.63	2353.03	1028.50
44.000	41000.00	1040.08	9.33	1040.73	1036.90	6.50	17.05	258.60	9495.45	878.33	10373.78	1030.75
44.000	41000.00	1040.08	9.33	1040.73	1036.90	6.50	17.05	258.60	9495.45	878.33	10373.78	1030.75
47.000	41000.00	1040.50	9.50	1041.58	1038.34	8.33	31.09	300.00	605.02	742.63	1347.65	1031.00
47.000	41000.00	1040.50	9.50	1041.58	1038.34	8.33	31.09	300.00	605.02	742.63	1347.65	1031.00
51.500	41000.00	1041.75	10.35	1043.34	1039.77	10.10	38.70	450.00	768.70	537.05	1305.75	1031.40
51.500	41000.00	1041.75	10.35	1043.34	1039.77	10.10	38.70	450.00	768.70	537.05	1305.75	1031.40
55.000	41000.00	1043.01	11.11	1044.56	1040.35	9.98	31.21	350.00	267.93	469.38	737.31	1031.90
55.000	41000.00	1043.01	11.11	1044.56	1040.35	9.98	31.21	350.00	267.93	469.38	737.31	1031.90

SECNO	Q	CWSEL	DEPTH	EG	CRIWS	VCH	10*KS	XLCH	SSTA	TOPWID	ENDST	ELMIN
58.120	41000.00	1044.88	12.78	1046.28	1040.78	9.49	21.32	662.00	762.22	396.66	1158.88	1032.10
58.120	41000.00	1044.88	12.78	1046.28	1040.78	9.49	21.32	662.00	762.22	396.66	1158.88	1032.10

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 2.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 2.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 22.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 22.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

FLOODWAY DATA, SED FLOODPLAIN CONDITION
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
1.000	1588.	6271.	6.2	1029.6	1029.6	.0
2.000	1407.	7600.	5.1	1030.3	1030.3	.0
3.000	1305.	7242.	5.4	1030.6	1030.6	.0
4.000	1203.	6823.	5.7	1030.9	1030.9	.0
5.000	1062.	5807.	6.7	1031.2	1031.2	.0
6.000	938.	5127.	7.6	1031.6	1031.6	.0
7.000	928.	5165.	7.6	1032.2	1032.2	.0
8.000	979.	5899.	6.6	1032.9	1032.9	.0
9.000	994.	6175.	6.3	1033.2	1033.2	.0
10.000	1032.	6481.	6.0	1033.6	1033.6	.0
11.000	1074.	6648.	5.9	1034.0	1034.0	.0
12.000	1021.	6272.	6.2	1034.3	1034.3	.0
13.000	937.	5822.	6.7	1034.7	1034.7	.0
14.000	920.	5594.	7.0	1035.1	1035.1	.0
15.000	923.	5622.	6.9	1035.6	1035.6	.0
16.000	900.	5583.	7.0	1036.1	1036.1	.0
17.000	886.	5473.	7.1	1036.6	1036.6	.0
18.000	899.	5477.	7.1	1037.1	1037.1	.0
19.000	885.	5396.	7.2	1037.6	1037.6	.0
20.000	896.	5429.	7.2	1038.1	1038.1	.0
21.000	904.	5045.	7.7	1038.6	1038.6	.0
22.000	976.	7201.	5.4	1039.4	1039.4	.0
23.000	898.	7288.	5.4	1039.7	1039.7	.0
24.000	908.	7248.	5.4	1039.9	1039.9	.0
44.000	878.	6303.	6.5	1040.1	1040.1	.0
47.000	743.	4924.	8.3	1040.5	1040.5	.0
51.500	537.	4058.	10.1	1041.8	1041.8	.0
55.000	469.	4107.	10.0	1043.0	1043.0	.0
58.120	397.	4319.	9.5	1044.9	1044.9	.0

1992 LOMR DUPLICATE MODEL

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1*********************************************
 *  HEC-2 WATER SURFACE PROFILES            *
 *                                          *
 *  Version   4.6.2;  May 1991              *
 *                                          *
     N DATE    17APR98    TIME   11:34:54   *
     ******************************************
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*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  HYDROLOGIC ENGINEERING CENTER        *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616-4687         *
*          (916) 756-1104               *
*****************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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THIS RUN EXECUTED 17APR98 11:34:54

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*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************
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T1      NEW RIVER: FLOOD CONTROL DISTRICT CHANNELIZATION PROJECT
T2      NEW RIVER: BETHANY HOME ALIGNMENT TO GRAND AVENUE
T3      10-YEAR EVENT              NRO2B

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        2                                                          1036.06

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      1        0       -1                                  -1                          0

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38       43        1       26        8        4       53       54

NC    .045     .045     .035      0.1      0.3
QT       5    13500    31000    41000    75000    69000
ET    39.0      9.1      9.1      9.1      9.1      9.1                          9585.9   10426.1
            BEGIN ANALYSIS NEAR THE BETHANY HOME ROAD ALIGNMENT.
            WATER SURFACE UTILIZED FOR THIS ANALYSIS IS BASED ON
            EXISTING CONDTIONS OUTPUT DATA WHICH INCLUDES THE
            GLENDALE MUNICIPAL AIRPORT CHANNELIZATION AND SIDEBANK
            PROTECTION.  CROSS SECTION 39.00 ASSUMES EXISTING CONDITIONS
            BOTTOM CONTOURS WITH EXISTING LEFT BANK NATURAL SIDESLOPE.
X1       39       55     9586    10426      270      200      220
GR     1045     5696   1045.6     5736   1045.7     5821     1045     6091     1044     6506
GR     1042     6631     1041     6751     1040     6856   1038.7     6961     1038     7116
GR   1036.8     7206   1037.3     7556   1036.3     7896   1036.4     8191   1036.4     8366
GR   1036.5     8521     1037     8786   1037.7     8991     1038     9271   1039.2     9366
GR     1038     9436     1034     9443   1033.3     9481     1034     9511     1036     9516
GR     1038     9531     1040     9541     1042     9546   1042.5     9566   1042.5     9586
GR     1036     9593     1034     9599     1032     9606     1030     9621     1028     9646
GR     1029     9731     1030     9766     1030     9846     1032     9871     1034     9891
GR   1033.5     9911   1032.5     9950   1031.5     9973   1030.5     9994   1030.2    10000
GR   1030.5    10042   1031.5    10190   1032.5    10341   1032.9   10405.4   1043.2    10426
GR   1044.1    10946   1044.2    11256   1044.5    11511     1045    11571     1046    12881

NC    .045     .045     .035      0.2      0.4
            BEGIN CHANNELIZATION AND SIDEBANK PROTECTION DEGIGN.
            LT CHNL BTM WDTH = 500 FEET - MATCH EXISTING DOWNSTREAM
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            RT CHNL BTM WDTH PER GLENDALE AIRPORT "AS BUILTS" = 362+OR- FEET
X1    44.00       16   9485.8   10384.1      500      500      500
GR   1044.9   9485.8  1030.75    9514.1  1030.75     9573   1031.5     9575   1032.0     9625
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GR   1032.0      9753     1032.0      9815     1034.0      9863     1034.0      9917     1032.0      9988
GR   1031.8     10000     1032.0     10033     1034.0     10233    1035.06     10362     1044.0     10383
GR   1045.1   10384.1

X1     47.00       14       596      1357       300       300       300
     1045.0      596     1031.0       624     1031.0       682     1034.0       690     1034.0       740
     1034.0      835     1034.0       897     1032.9      1000     1034.0      1099     1034.0      1184
GR   1034.0     1194     1035.6      1336     1044.0      1356     1045.0      1357

                LT CHNL BTM WDTH = 225 FT
X1     51.50       13      760.8    1309.7       450       450       450
GR   1045.7    760.8     1031.4      789.4     1031.4     877.8     1034.0       883     1034.0       907
GR   1034.0      962     1034.0       985     1033.9      1000     1034.0      1042     1035.3      1205
GR   1036.0     1300     1040.0      1304     1045.7    1309.7

                STA. 53+12.97 IS P.O.C. OF CURVE TO THE RIGHT
X1     55.0       10       260      741.3       350       350       350
GR     1047      260     1031.9       290     1031.9       450    1036.6      472.     1036.2       500
GR   1036.0      525     1034.6       663     1034.3       716    1035.7       730     1047.0     741.3

                END GLENDALE MUNICIPAL AIRPORT GABION MATTRESS SIDESLOPE
                ALONG NEW RIVER RT BANK, GABION MATRESS TURNS CORNER AND
                CONTINUES NORTHWESTERLY A FEW HUNDRED FEET ALONG THE EAST
                BOUNDARY OF GLENDALE MUNICIPAL AIRPORT.
                MATCH EXISTING GABION MATTRESS-GROUT GABIONS AND CONSTRUCT
                TRANSITION FROM 2:1 TO 1:1 SIDESLOPE IN 75 FT TAPER.
X1     58.12       10       758      1163       662       662       662
GR   1049.1      758     1032.1       775     1032.1      1000     1032.1      1009     1036.6      1018
GR   1036.0     1110     1036.0      1126     1038.0      1148     1040.0      1154     1049.0      1163

                STA. 60+21.80 IS P.O.T.
X1     62.00       14      256.6      703.5       388       388       388
GR   1050.4    256.6     1032.9      291.6     1032.9       412    1038.0       422     1037.5       468
GR   1036.8      500     1036.0       531     1035.3      550.    1036.0       580     1038.0       600
GR   1039.0      627     1032.9       639     1032.9       686    1050.4     703.5

                LT CHNL BTM WDTH = 225 FT.
                RT CHNL BTM WDTH = 230 FT.
X1     66.0       14      257.2      747.8       400       400       400
GR   1051.8    257.2      1034      292.8      1034       397    1036.0       399     1035.6       430
GR   1036.0      470     1038.0       510     1038.0       527    1035.0       531     1035.0       670
     1038.0      676     1034.0       692     1034.0       730    1051.8     747.8

                GRAND DRAIN INLET PER A.D.O.T. PLANS
X1     71.0       16      258.5      746.1       500       500       500
GR   1051.5    258.5     1035.0      291.5      1035       310     1036.       342     1040.0       352
GR     1040      372      1039       420      1036       425      1036       445     1036.0       460
GR   1035.4      470     1035.4       525      1037       535    1035.4       545     1035.4       730
GR   1051.5    746.1
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X1     75.0       13      258.4      746.6       400       400       400
GR   1053.1    258.4     1036.5      291.6     1036.5       395    1036.5       405     1036.5       460
GR   1036.5      465     1036.5       470     1036.5       635      1040       660      1040      690.5
GR   1036.5    697.5     1036.5       730     1053.1     746.6

                GRAND DRAIN LOW FLOW OUTLET PIPE AT LT SIDESLOPE
X1     78.0       24      258.9      746.1      300.      300.      300.
GR   1053.5    258.9     1037.4      291.1     1037.4       320    1037.4       355     1037.4       370
GR   1037.4      390     1037.4       415     1037.4       430    1037.4       460     1037.4       475
GR   1037.4      500     1037.4       528     1037.4     546.8      1039       550      1038       560
GR   1037.4      595     1037.4       606     1037.4     629.8    1038.5       632     1038.0       653
GR   1037.8      680     1037.4       681     1037.4       730    1053.5     746.1

X1     81.0       18       259       745       300       300       300
GR     1054      259      1038       290     1038.0       291    1038.0       320     1038.0       355
GR   1038.0      390     1038.0       400     1038.0       440    1038.0       450     1038.0       460
GR   1038.0      550     1038.0       565     1038.0       588    1040.0       626      1039       634
GR     1038      650      1038       730     1054.0       745

X1     84.0       21     259.5      745.4       300       300       300
GR   1054.5    259.5      1039      290.5      1039       320      1037       325      1037       355
GR     1039      360      1039       375      1039       385      1039       395      1039       415
     1039       450      1039       500      1039       530      1039       625     1039.5       626
     1039.0     639     1039.0       651     1039.0       688    1039.0       690      1039       730
GR   1054.5    745.4

X1     87.0       12     259.8      745.2       300       300       300
GR   1055.0    259.8     1039.8      290.2     1039.8       455    1039.8       470     1039.8       545
GR   1039.8      560     1039.8       610     1039.8       630    1039.8       650     1039.8       680
GR   1039.8      730     1055.0      745.2
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X1     89.0        12       260       745       200       200       200
GR   1055.4       260    1040.4       290    1040.4       320    1040.4     323.2    1042.0       410
GR   1040.4     413.2    1040.4       500    1040.4       620    1040.4       690    1040.4       710
GR   1040.4       730    1055.4       745

             STA. 91+49.71 IS P.O.C. OF CURVE TO THE LEFT
X1     94.0        13     260.4     744.6       500       500       500
GR   1056.4     260.4    1041.8     289.6    1041.8       340    1044.0       344    1042.0       359
GR   1041.9       380    1042.0       405    1041.8       406    1041.8       500    1041.8       640
GR   1041.8       680    1041.8       730    1056.4     744.6

NC     .035      .035      .035       0.3       0.5
X1     97.0        16     260.5     744.5       300       300       300
GR   1057.1     260.5    1042.6     289.5    1042.6       320    1042.6       370    1042.6       380
GR   1042.6       405    1042.6       476    1044.0       479    1043.8       500    1044.0       545
GR   1046.0       555    1042.6       562    1042.6       650    1042.6       675    1042.6       730
GR   1057.1     744.5
1
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NC     .035      .035      .035
             STA. 99+45.00 IS P.O.T.
             LT CHNL BTM WDTH = 157.9 FT.
             RT CHNL BTM WDTH = 157.9 FT.
X1    99.54        5.     325.1     674.9       254.       254.       254.
GR   1063.5     325.1    1043.2    325.15    1043.2       500.    1043.2     674.85    1063.5     674.9

NC    .025      .025      .025       0.3       0.5
             DOWNSTREAM BRIDGE SECTION - GLENDALE AVENUE
X1     99.6        5.     325.1     674.9        6.         6.         6.
X3       10
GR   1063.8     325.1    1046.2    325.15    1046.2       500.    1046.2     674.85    1063.8     674.9

SB     0.9      1.56       2.9       358    349.74        32.     5378.3          0    1046.5    1046.2
             GLENDALE AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS
X1    100.4        5.     325.1     674.9       80.        80.        80.
X2                          1.    1063.4    1065.9                             1.33
       10                                                                    1065.9    1065.9
     1063.6     325.1    1046.5    325.15    1046.5    500.00    1046.5     674.85    1063.6     674.9

NC     .035      .035      .035
             BEGIN CHANNEL BOTTOM TRANSITION
             LT CHNL BTM WDTH = 157.9 FT.
             RT CHNL BTM WDTH = 157.9 FT.
X1   100.90         5     308.15    691.85        50        50        50
GR   1063.6    308.15    1046.6    325.15    1046.6       500    1046.6     674.85    1063.6    691.85

X1    103.0        14      292.0     708.0      260.      260.      260.
GR   1065.4     292.0       1047     328.8      1047       370    1047.0        380    1047.0       382
GR   1047.0       490    1047.0       500    1047.0       553    1047.0        606    1047.0       640
GR   1047.0       657       1047       659      1047    689.6    1065.4      708.0

NC     .035      .035      .035       0.1       0.3
X1    106.0         8     246.4     753.6       300       300       300
GR   1066.4     246.4    1047.6     284.0    1047.6       412    1047.6        500    1047.6       685
GR   1047.6       710    1047.6     734.8    1066.4     753.6

             END CHANNEL BOTTOM TRANSITION
             LT CHNL BTM WDTH = 280 FT.
             RT CHNL BTM WDTH = 280 FT.
X1    109.0        11     201.3     798.7       300       300       300
GR   1066.9     201.3    1048.2     238.7    1048.2       451.4    1050.0        455    1048.2       480
GR   1050.0       503    1051.0       510    1050.0       515    1048.2       518.6    1048.2       780
GR   1066.9     798.7

X1    110.0        12     201.3     798.5       100       100       100
GR   1066.9     201.3    1048.4     238.7    1048.4       432.8    1051        438       1051       485
GR    1047       505    1048.4       515    1048.4       550    1048.4        565    1048.4       734
GR   1048.4       780    1066.9     798.5
1
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     113.0        16     201.8     798.2       300       300       300
GR   1067.2     201.8       1049     238.2      1049       401    1051.3        404    1049.0       435
GR   1049.0       465    1050.0       473    1049.0       475    1049.0        500       1049      535
GR    1049       580    1049.0       595    1049.0       620    1049.0        685    1049.0       780
GR   1067.2     798.2

             BEGIN CHANNEL BOTTOM TRANSITION
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                LT CHNL BTM WDTH = 280 FT.
                RT CHNL BTM WDTH = 280 FT.
X1     116.0        13     202.3     797.7       240       340       300
GR    1067.3     202.3    1049.6     237.7    1049.6     366.2    1054.0       375    1054.0       378
GR    1049.6     386.8    1049.6      500.    1049.6     579.2    1056.0       592    1058.0       603
      1049.6     619.8    1049.6       780    1067.3     797.7

                END CHANNEL BOTTOM TRANSITION
                LT CHNL BTM WDTH = 210 FT.
                RT CHNL BTM WDTH = 230 FT.
X1     120.0        10     273.3     746.7       327       497       400
GR    1067.1     273.3    1050.4     306.7    1050.4       500    1050.4     506.6    1056.7       520
GR    1057.8       600    1056.8       645    1050.4     658.6    1050.4       730    1067.1     746.7

X1     123.0        11     272.2     747.8       342       342       342
GR    1068.8     272.2      1051     307.8      1051       315      1051       370      1051       400
GR    1051.0       500      1051       610      1051       630      1051       680      1051       730
GR    1068.8     747.8

X1     127.0        10       273       747       400       400       400
GR    1068.8       273    1051.8       307    1051.8       345    1051.8       400    1051.8       450
GR    1051.8       500    1051.8       650    1051.8       665    1051.8       730    1068.8       747

X1     131.0        14     273.2     746.8       400       400       400
GR    1069.4     273.2    1052.6     306.8    1052.6       351      1050       356      1052       365
GR      1054       395      1054       430    1052.6       445      1054     497.2    1052.6       500
GR    1052.6       530    1052.6       666    1052.6       730    1069.4     746.8

X1    135.00        12     273.5     746.3       400       400       400
GR    1069.6     273.5    1053.4     306.5    1053.4       330    1058.4       340    1058.2       412
GR    1059.2       412    1053.4     423.6    1053.4       500    1053.4       502    1053.4       680
GR    1053.4       730    1069.9     746.3

X1     138.0        15     274.4     745.6       300       300       300
GR    1069.6     274.4      1054     305.6      1054       350      1059       360      1058       405
GR      1054       413      1054       440      1054       460      1054       475      1054       500
GR      1054       590      1054       615      1054       640      1054       730    1069.6     745.6

X1    141.00        15     273.6     746.4       300       300       300
GR    1071.0     273.6    1054.6     306.3    1054.6     328.8    1058.2       336    1058.7       370
      1054.6     379.4    1054.6       403    1060.0       415    1061.5       435    1060.0       454
      1054.6       474    1054.6       500    1054.6       560    1054.6       730    1071.0     746.4
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                A.D.O.T. CHANNEL INLET LT. BANK, NORTHERN AVENUE CHANNEL
X1     145.0        10     273.4     746.6       400       400       400
GR      1072     273.4    1055.4     306.6    1055.4       320    1055.4       340    1055.4       370
GR    1055.4       505    1055.4       515    1055.4       525    1055.4       730    1077.0     746.6

                BEGIN CHANNEL BOTTOM TRANSITION
                LT CHNL BTM WDTH = 210 FT.
                RT CHNL BTM WDTH = 230 FT.
X1     147.0        13     273.4     746.6       200       200       200
GR    1072.4     273.4    1055.8     306.6    1055.8       340    1055.8       370    1055.8       430
GR    1055.8       440    1055.8       470    1055.8       500    1055.8       505    1055.8       560
GR    1055.8       635    1055.8       730    1072.4     746.6

                CHANNEL BOTTOM TAPERS
                LT CHNL BTM WDTH = 260 FT.
                RT CHNL BTM WDTH = 210 FT.
X1     150.0         6     223.4     726.6       350       260       300
GR      1073     223.4    1056.4     256.6    1056.4       355    1056.4       400    1056.4       710
GR      1073     726.6

                CHANNEL BOTTOM TAPERS
                LT CHNL BTM WDTH = 260 FT.
                RT CHNL BTM WDTH = 170 FT.
X1    155.00        15     224.1     685.9       585       460       500
GR    1073.3     224.1    1057.4     255.9    1057.4     382.8    1065.0       398    1064.0       404
GR    1062.0       412    1061.4       450    1062.0       488    1063.0       500    1064.0       505
GR    1066.0       511    1057.4     528.2    1057.4       600    1057.4       670    1073.3     685.9

NC      .035      .035      .035        .3        .5
                END CHANNEL BOTTOM TRANSITION
                LT CHNL BTM WDTH = 162.5 FT.
                RT CHNL BTM WDTH = 162.5 FT.
X1    158.00         5       319     679.5       360       265       300
GR    1076.5      319.    1058.0     356.0    1058.0       500    1058.0     662.5    1075.0     679.5

                DOWNSTREAM BRIDGE SECTION - NORTHERN AVENUE BRIDGE
X1    159.45        5.       319.      681.       245       245       245
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X3       10                                                                  1077.46     1077.46
GR    1076.8      319.     1058.3      337.5     1058.3       500.     1058.3     662.5      1076.8       681.

SB     1.05       1.56        2.9       388.       325.        28       6034      1.00     1058.46      1058.3
                NORTHERN AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS
     160.25        5.        319.       681.       80.        80.        80.
                                1.    1077.46      1082.                            1.33
X5       10                                                                  1082.00     1082.00
GR    1077.      319.    1058.46      337.5    1058.46       500.    1058.46     662.5      1077.0       681.

                BEGIN CHANNEL BOTTOM TRANSITION
1
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                LT CHNL BTM WDTH = 162.5 FT.
                RT CHNL BTM WDTH = 162.5 FT.
X1    162.0        12       319.3      680.7       175        175        175
GR    1077.0     319.3     1058.8      337.5    1058.8        350     1058.8       400      1058.8       420.
GR    1058.8       440     1058.8       460.    1058.8       480.     1058.8       500      1058.8       600
GR    1058.8     662.5     1077.0      680.7

                END CHANNEL BOTTOM TRANSITION
                LT CHNL BTM WDTH = 300 FT.
                RT CHNL BTM WDTH = 250 FT.
X1    165.00       10       189.2      769.4       300        300        300
GR    1078.8     189.2      1068.      210.8    1068.0       227.8     1068.0       245      1068.0       305
GR    1068.2       370     1059.4      387.6    1059.4        500     1059.4       750      1078.8     769.4

X1    168.0        12        190      768.9       300        300        300
GR    1079.0      190.      1069        210      1069      225.2       1069       243        1068       254
GR    1067.8       278      1068        295    1069.5        380     1060.1     398.8      1060.1       500
GR    1060.1       750     1079.0      768.9

NC     .035      .035       .035         .1        .3
                BEGIN CHANNEL BOTTOM TRANSITION
                LT CHNL BTM WDTH = 300 FT.
                RT CHNL BTM WDTH = 250 FT.
X1    170.0        12       190.8      768.6      200.       200.       200.
GR    1079.2     190.8      1070.      209.2      1070      240.2       1070       260        1069       262
GR    1068.4       295      1068        366     1070.0        377     1060.6     395.8      1060.6       500
      1060.6       750     1079.2      768.6

                END CHNL BTM TRANSITION RT.
                RT CHNL BTM WDTH = 157 FT.
X1    173.0        12       224.1      674.6       300        300        300
GR    1079.0     224.1      1072.      238.1      1072      268.8     1072.0       290        1070       302
GR      1068       312      1068        380      1069        385     1061.4     400.2      1061.4       500
GR    1061.4       657     1079.0      674.6

X1    176.0        12       265.9      674.4       300        300        300
GR    1079.6     265.9      1068.      289.1    1068.0        327      1068.       339        1068       404
GR    1062.2       416     1062.2        450    1062.2        475     1062.2       500      1062.2       550
GR    1062.2       657     1079.6      674.4

                BEGIN CHNL BTM TRANSITION RT.
                RT CHNL BTM WDTH = 157 FT.
X1    177.00        5       279.1      675.1       100        100        100
GR    1080.5     279.1     1062.4        297    1062.4       500.     1062.4       657      1080.5     675.1

                END CHNL BTM TRANSITION LT.
                LT CHNL BTM WDTH = 175 FT.
X1    179.00        5       306.8      726.7       200        200        200
GR    1081.0     306.8     1062.8      343.3    1062.8        500     1062.8     708.5      1081.0     726.7
1
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                END CHNL BTM TRANSITION RT.
                RT CHNL BTM WDTH = 260 FT.
X1    181.0         5       306.7      778.3       200        200        200
GR    1081.6     306.7     1063.3      343.3    1063.3        500     1063.3       760      1081.6     778.3

NC     .035      .035       .035
X1    183.0        12       307.5      777.5       200        200        200
      1081.3     307.5     1063.8      342.5    1063.8      397.6       1073       416        1072       439
      1071.8       492     1071.5        500    1070.0        540     1071.0       599      1063.8     613.4
GR    1063.8       760     1081.3      777.5

X1    188.0        12        307        778      500.       500.       500.
GR    1083.0      307.      1065        343      1065        500     1065.0       513        1073       529
GR    1072.1       530     1072.7        575    1072.0        643     1070.5      660.      1065.0       671
GR    1065.0       760     1083.0        778
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                STA. 192+60.12 IS P.O.C. OF CURVE TO THE RT.
X1    193.0        12      307.2     777.8      500.      500.      500.
GR   1084.0     307.2     1066.2     342.8    1066.2     489.4      1074       505    1072.0       540
GR   1071.4       560     1072.0       585    1074.0       620    1066.2     635.6    1066.2       700
     1066.2       760     1084.0     777.8

                BEGIN CHANNEL BOTTOM TRANSITION LEFT AND RIGHT
                TO MATCH PAST DEIGN CROSS SECTIONS.
X1   197.00        13      307.6     777.4       400       400       400
GR   1084.6     307.6     1067.2     342.4    1067.2     409.4    1074.0       423    1072.0       500
GR   1072.0       610     1074.0       613    1076.0       617    1076.0       627    1075.8       640
GR   1067.2     657.2     1067.2       760    1084.6     777.4

NC     .035      .035       .035       0.3       0.5
X1   199.00        5.      317.5     728.5       200       200      100.
GR   1086.2     317.5     1067.7       336    1067.7       500    1067.7       710.    1086.2     728.5

                DOWNSTREAM BRIDGE SECTION - 99TH AVENUE BRIDGE
X1   201.10        5.      324.5     675.5      210.       210.      210.
X3       10
GR   1086.7     324.5     1068.2       343.    1068.2       500.    1068.2       657.    1086.7     675.5

SB     1.05      1.56        2.9       376.      314.       21.      5763      1.00    1068.4    1068.2
                99TH AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS
X1   201.90        5.      324.5     675.5       80.       80.       80.
X2                            1.    1086.7    1091.8                          1.33
X3       10                                                          1091.80    1091.80
GR   1086.9     324.5     1068.4       343.    1068.4       500.    1068.4       657.    1086.9     675.5

X1   204.00        5.      324.5     675.5      210.       210.      210.
GR   1087.4     324.5     1068.9       343.    1068.9       500.    1068.9       657.    1087.4     675.5
1
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NC     .035      .035       .035       0.3       0.5
X1   209.30        5.       325.      675.      530.       530.      530.                  9.59
GR   1078.6       325.    1060.6       343.    1060.6       500.    1060.6       657.    1078.6       675.

       .035      .035       .035       0.3       0.5
                DOWNSTREAM BRIDGE SECTION - OLIVE AVENUE BRIDGE
X1    212.6        5.      357.4     642.6      330.       330.      330.
X3       10
GR   1089.6     357.4      1071.       376    1071.0       500.    1071.0       624    1089.6     642.6

SB     1.05      1.56        2.9       300.      248       18.5      4481.6      1.00    1071.5    1071.0
                OLIVE AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS
X1    213.5        5.      357.9     642.1       90.       90.       90.
X2                            1.    1089.6     1095.                          1.33
X3       10                                                          1095.00    1095.00
GR   1089.6     357.9     1071.5       376.    1071.5       500.    1071.5       624.    1089.6     642.1

NC     .045      .045       .035       0.1       0.3
X1    213.7       5.0      347.1     652.9      20.0       20.0      20.0
GR   1095.0     347.1     1073.0     369.1    1073.0     500.0    1073.0     630.9    1096.2     652.9

X1    217.5        5.       305.      690.      380.       380.      380.
GR   1096.0       305.    1074.2     326.8    1074.2       500.    1074.2       667.2    1097.0       690.

X1    221.1       5.0      295.0     695.0     360.0      360.0     360.0
GR   1096.6     295.0     1075.3     316.3    1075.3     500.0    1075.3     672.3    1098.0     695.0

X1    227.5        11       245.      755.      640        640       640
GR   1099.0       245.    1077.1     268.0    1077.1     334.0    1077.1       400.    1077.1       466.
GR   1077.1       500.    1077.1       532.    1077.1       598.    1077.1       664.    1077.1       733.
GR   1099.0       755.

X1   233.55        5        270.      730.      580.       580.      580.
GR   1101.7       270.    1079.0     292.7    1079.0       500.    1079.0       707.4    1101.6     730.0

X1   238.66        5        330       670       516        516       516
GR   1103.3       330     1080.6     352.9    1080.6       500     1080.6       646.7    1103.7       670

X1   238.69       5.0      325.0     665.0       3.0       3.0       3.0
     1103.4     325.0     1083.6     344.8    1083.6     500.0    1083.6     644.7    1103.9     665.0

NC    0.035    0.035       .035        .1        .3
X1    242.        5        325       675       331        331       331
GR    1104.      325.    1084.45    344.55    1084.45       500    1084.45     655.45    1104.0       675

X1    247.        5        325       675       500        500       500
GR   1104.5      325.    1085.67    343.83    1085.67       500    1085.67     656.17    1104.5     675.0
```

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      .045     .045     .035       .1       .3
    270.5       46.    9793.   10175.      338.      338.      338.
CI   9955.   1086.5  555.035       1.        1.     -365.
X3     10.                     9750.
GR  1128.2    8815.    1120.    8816.     1120.     9304.    1106.2     9305.     1106.     9360.
GR  1106.3    9400.    1120.    9401.     1120.     9559.    1106.2     9560.    1105.8     9610.
GR  1105.7    9640.    1120.    9641.     1120.     9714.    1105.6     9715.     1106.     9775.
GR   1108.    9793.    1093.    9805.     1093.     9813.     1092.     9820.     1092.     9830.
GR   1092.    9850.    1095.    9863.     1093.     9873.     1089.     9885.     1097.     9895.
GR   1090.    9903.    1089.    9906.     1088.     9943.     1088.     9968.     1087.     9975.
GR   1088.   10012.    1087.   10028.     1086.    10035.    1085.3    10045.     1086.    10055.
GR   1087.   10085.    1089.   10115.     1085.    10132.     1090.    10142.     1091.    10158.
GR   1107.   10175.   1107.6   10192.     1106.    10200.    1107.2    10210.    1107.1    10213.
GR   1110.   10218.

X1   273.5      41.    9750.   10125.      315.      310.      310.
CI   9919.   1087.2  310.035       1.        1.     -375.
X3     10.                     9640.
GR  1108.3    9010.    1120.    9011.     1120.     9239.    1107.8     9240.    1107.1     9270.
GR  1107.5    9315.    1120.    9316.     1120.     9489.    1107.1     9490.    1106.7     9520.
GR  1106.1    9560.    1120.    9561.     1120.     9609.     1109.     9640.     1106.     9640.
GR  1106.1    9700.   1106.8    9730.    1106.6     9750.    1105.2     9760.    1105.2     9770.
GR   1106.    9805.    1105.    9815.     1100.     9825.     1095.     9840.     1092.     9846.
GR   1091.    9860.    1092.    9880.     1091.     9891.     1090.     9896.     1088.     9910.
GR  1087.6    9965.    1088.   10015.    1086.4    10065.     1088.    10083.     1090.    10087.
GR   1095.   10105.    1095.   10113.     1108.    10125.     1106.    10153.     1108.    10160.
GR   1111.   10160.

X1   277.9      39.    9910.   10137.      420.      420.      420.
CI   9927.   1088.3  420.035       1.        1.     -360.
X3     10.
GR  1109.3    9070.   1108.5    9120.    1109.3     9170.     1120.     9171.     1120.     9329.
GR   1109.    9330.   1108.1    9380.     1109.     9400.     1120.     9401.     1120.     9459.
GR   1109.    9460.    1108.    9500.    1107.1     9630.     1106.     9700.     1106.     9780.
GR   1107.    9810.    1106.    9857.     1106.     9858.     1106.     9859.     1106.     9860.
GR  1105.5    9888.   1105.5    9910.     1091.     9925.     1091.     9938.     1092.     9945.
      1091.    9973.    1090.    9976.     1089.     9982.     1088.     9985.     1089.    10005.
      1069.   10015.    1088.   10045.     1089.    10055.     1089.    10080.     1090.    10092.
GR   1090.   10116.   1108.5   10137.    1108.5    10155.     1112.    10155.

X1   281.8      29.    9888.   10117.      410.      410.      410.
CI   9932.   1089.2  410.035       1.        1.     -330.
X3     10.
GR  1113.6    9440.   1110.8    9440.     1110.     9455.     1120.     9456.     1120.     9550.
GR  1109.2    9551.   1108.5    9770.     1109.     9850.     1106.     9868.     1108.     9888.
GR   1092.    9904.   1091.2    9910.     1092.     9917.    1092.6     9965.     1092.    10005.
GR   1091.   10015.    1090.   10020.     1089.    10020.    1087.5    10033.     1089.    10037.
GR   1090.   10040.    1094.   10058.     1095.    10074.     1095.    10082.     1095.    10102.
GR  1109.7   10117.   1109.7   10135.    1109.7    10140.     1113.    10140.
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NC                                 .3       .5
X1    288.     30.0    9873.   10145.      600.      600.      600.
CI   9988.   1092.2  600.035       1.        1.     -274.
X3     10.
X4    1.0     1112.   10145.
GR  1117.    9545.   1114.1    9545.     1114.     9550.    1110.6     9710.     1112.     9790.
GR  1114.    9835.    1113.    9845.     1111.     9855.     1111.     9873.     1098.     9886.
GR  1097.    9907.    1096.    9934.     1095.     9937.     1094.     9978.    1093.7    10017.
GR  1094.   10042.    1095.   10053.     1096.    10065.     1097.    10070.     1097.    10097.
GR  1096.8  10100.    1094.   10103.     1098.    10113.     1099.    10119.     1099.    10133.
GR  1109.5  10143.   1109.5   10158.     1112.    10160.     1112.    10175.     1112.    10200.

X1    290.      6.    9865.   10136.      220.      160.      200.
CI                                                 .01
X3     10.                                        1117.8    1117.8
GR  1117.8    9865.   1108.8    9865.     1093     9865.    1093.3    10136.    1108.8    10136.
GR  1117.8   10136.

      .9      1.56      2.9                271.      10.5     4974.              1093.7    1093.3
...   291.      6.    9865.   10136.       77.       77.       77.
X2                        1.   1114.1    1119.1
X3     10.                                                   1117.8    1117.8
BT      2.    9865.   1118.1   1112.8    10136.    1118.1    1112.8
GR  1116.    9865.   1108.8    9865.     1093.     9865.    1093.7    10136.    1108.8    10136.
GR  1116.   10136.
```

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NC    .035      .035      .035      .1        .3
X1    293.        8.      9870.    10144.     200.      200.      200.
CI   10007.     1094.    200.035      1.        1.     -231.
GR   1115.6     9852.     1115.6    9870.     1094.     9892.     1094.     10123.     1115.     10144.
      1115.    10162.     1119.    10168.    1119.3    10258.

X1    297.        6.      9865.    10150.     400.      400.      400.
CI   10006.    1096.1    400.035      1.        1.     -246.
GR   1116.5     9847.     1116.     9865.     1096.     9885.     1096.     10131.     1115.     10150.
GR   1116.     10190.

X1    302.        6.      9882.    10118.     530.      530.      530.
CI    9999.    1098.2    530.035      1.        1.     -197.
GR    1117.     9830.     1116.     9882.    1098.2     9900.    1098.2     10097.    1119.5    10118.
GR    1119.    10136.

X1    305.        6.      9901.    10110.     280.      280.      280.
CI    9992.    1099.5    280.035      1.        1.     -188.
GR   1118.3     9818.     1116.     9901.    1099.5     9917.    1099.5     10090.    1119.5    10110.
GR   1119.2    10128.

X1   306.75        6.      9911.    10123.     215.      215.      215.
CI    9959.    1100.3    215.035      1.        1.     -289.
GR    1116.     9781.     1116.     9911.    1100.3     9927.    1100.3     10103.    1120.     10123.
GR    1129.    10175.
1
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X1    310.        6.      9852.    10148.     320.      320.      320.
CI    9965.    1101.6    320.035      1.        1.     -330.
GR    1117.     9780.     1116.     9852.    1101.6     9866.    1101.6     10129.    1121.     10148.
GR    1118.    10185.

X1   313.2        6.      9820.    10180.     315.      315.      315.
CI   10000.     1103.    315.035      1.        1.     -330.
GR    1117.     9800.     1117.     9820.     1109.     9834.     1103.     10162.    1121.3    10180.
GR    1121.    10198.

      318.        6.      9820.    10180.     500.      500.      500.
     10000.    1105.1    500.035      1.        1.     -330.
GR    1123.     9800.     1120.     9820.    1105.1     9835.    1105.1     10162.    1123.     10180.
GR    1123.    10198.

X1   320.05        6.      9820.    10180.     290.      290.      290.
CI   10000.     1106.    290.035      1.        1.     -330.
GR    1125.     9800.     1125.     9820.     1106.     9839.     1106.     10161.    1125.     10180.
GR    1125.    10200.

X1    328.        6.      9823.    10173.     640.      640.      640.
CI   10000.    1109.1    640.035      1.        1.     -330.
GR    1127.     9800.     1127.     9823.    1109.1     9838.    1109.1     10162.    1127.     10173.
GR    1127.    10200.

X1    330.        6.      9820.    10180.     175.      175.      175.
CI   10000.    1110.1    175.035      1.        1.     -330.
GR   1127.5     9800.    1127.5     9820.    1110.1     9837.    1110.1     10163.    1127.5    10180.
GR   1127.5    10200.

X1    334.        6.      9820.    10180.     420.      420.      420.
CI   10000.     1112.    420.035      1.        1.     -330.
GR    1129.     9800.     1129.     9820.     1112.     9837.     1112.     10163.    1129.     10180.
GR    1129.    10200.

NC    .045      .045      .035      .2        .4
X1    343.       19.      9870.    10155.     900       900
CI   10025.    1115.7    900.035      1.        1.     -330.
X3     10.
GR    1132.     9861.    1135.2     9870.     1132.     9880.     1122.      9905.    1120.      9915.
GR    1120.     9950.    1119.1     9975.     1120.     9985.     1120.     10015.    1118.     10070.
GR     1116    10090.    1115.7    10100.     1116.    10110.     1118.     10122.    1132.     10147.
GR   1132.5    10155.     1132.    10160.     1132.    10345.     1134.     10365.

X1   344.9        4.      9823.    10178.     110.      260.      190.
                                                         .01
      10.
      1132.     9823.    1116.3     9835.    1116.3    10165.     1132.     10178.
1
   17APR98      11:34:54                                                                                PAGE   13

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

    F 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV=     .100 CEHV=     .300
*SECNO 39.000

3470 ENCROACHMENT STATIONS=     9585.9   10426.1  TYPE=      1  TARGET=      840.199
             BEGIN ANALYSIS NEAR THE BETHANY HOME ROAD ALIGNMENT.
             WATER SURFACE UTILIZED FOR THIS ANALYSIS IS BASED ON
             EXISTING CONDTIONS OUTPUT DATA WHICH INCLUDES THE
             GLENDALE MUNICIPAL AIRPORT CHANNELIZATION AND SIDEBANK
             PROTECTION.  CROSS SECTION 39.00 ASSUMES EXISTING CONDITIONS
             BOTTOM CONTOURS WITH EXISTING LEFT BANK NATURAL SIDESLOPE.
   39.000      8.06   1036.06   1033.00       .00   1036.23       .17       .00       .00   1042.50
  13500.0        .0   13500.0        .0        .0    4052.5        .0        .0        .0   1043.20
      .00       .00      3.33       .00      .000      .035      .000      .000   1028.00   9592.94
  .000732     270.      220.      200.         0        13         0       .00    818.79  10411.72

CCHV=     .200 CEHV=     .400
*SECNO 44.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .66

             BEGIN CHANNELIZATION AND SIDEBANK PROTECTION DEGIGN.
             LT CHNL BTM WDTH = 500 FEET - MATCH EXISTING DOWNSTREAM
             RT CHNL BTM WDTH PER GLENDALE AIRPORT "AS BUILTS" = 362+OR- FEET
   44.000      5.78   1036.53   1034.71       .00   1036.81       .27       .53       .04   1044.90
  13500.0        .0   13500.0        .0        .0    3218.1        .0      41.7       9.7   1045.10
      .03       .00      4.20       .00      .000      .035      .000      .000   1030.75   9502.54
  .001693     500.      500.      500.         2        11         0       .00    862.92  10365.46

*SECNO 47.000
   47.000      6.11   1037.11   1036.01       .00   1037.59       .48       .70       .08   1045.00
  13500.0        .0   13500.0        .0        .0    2437.9        .0      61.2      15.1   1045.00
      .05       .00      5.54       .00      .000      .035      .000      .000   1031.00    611.78
  .003408     300.      300.      300.         2        10         0       .00    727.82   1339.60

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   17APR98      11:34:54                                                                                    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

*SECNO 51.500
             LT CHNL BTM WDTH = 225 FT
   51.500      7.04   1038.44   1036.76       .00   1038.98       .54      1.37       .02   1045.70
  13500.0        .0   13500.0        .0        .0    2295.5        .0      85.7      21.6   1045.70
      .07       .00      5.88       .00      .000      .035      .000      .000   1031.40    775.32
  .002720     450.      450.      450.         2        15         0       .00    527.12   1302.44

*SECNO 55.000
             STA. 53+12.97 IS P.O.C. OF CURVE TO THE RIGHT
   55.000      7.40   1039.30   1037.03       .00   1039.79       .50       .81       .01   1047.00
  13500.0        .0   13500.0        .0        .0    2384.8        .0     104.5      25.6   1047.00
      .09       .00      5.66       .00      .000      .035      .000      .000   1031.90    275.30
  .001993     350.      350.      350.         2        19         0       .00    458.29    733.60

*SECNO 58.120
             END GLENDALE MUNICIPAL AIRPORT GABION MATTRESS SIDESLOPE
             ALONG NEW RIVER RT BANK, GABION MATRESS TURNS CORNER AND
             CONTINUES NORTHWESTERLY A FEW HUNDRED FEET ALONG THE EAST
             BOUNDARY OF GLENDALE MUNICIPAL AIRPORT.
             MATCH EXISTING GABION MATTRESS-GROUT GABIONS AND CONSTRUCT
             TRANSITION FROM 2:1 TO 1:1 SIDESLOPE IN 75 FT TAPER.
   58.120      8.31   1040.41   1037.01       .00   1040.84       .43      1.03       .01   1049.10
  13500.0        .0   13500.0        .0        .0    2566.3        .0     142.1      32.0   1049.00
      .12       .00      5.26       .00      .000      .035      .000      .000   1032.10    766.69
  .001257     662.      662.      662.         2        17         0       .00    387.72   1154.41
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*SECNO 62.000
          STA. 60+21.80 IS P.O.T.
   62.000      8.05   1040.95   1038.33       .00   1041.45       .50       .58       .03   1050.40
  13500.0        .0   13500.0       .0        .0    2374.5        .0     164.1      35.6   1050.40
      .14       .00      5.69       .00      .000      .035      .000      .000   1032.90    275.50
  .001818      388.      388.      388.         2        14         0       .00    418.55    694.05


*SECNO 66.000
          LT CHNL BTM WDTH = 225 FT.
          RT CHNL BTM WDTH = 230 FT.
   66.000      7.69   1041.69   1038.21       .00   1042.02       .33       .53       .03   1051.80
  13500.0        .0   13500.0       .0        .0    2937.1        .0     188.5      39.6   1051.80
      .16       .00      4.60       .00      .000      .035      .000      .000   1034.00    277.42
  .001013      400.      400.      400.         2        11         0       .00    460.27    737.69


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  17APR98      11:34:54                                                                          PAGE   15

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


*SECNO 71.000
          GRAND DRAIN INLET PER A.D.O.T. PLANS
   71.000      7.23   1042.23   1039.00       .00   1042.62       .39       .58       .02   1051.50
  13500.0        .0   13500.0       .0        .0    2709.9        .0     220.9      44.9   1051.50
      .19       .00      4.98       .00      .000      .035      .000      .000   1035.00    277.04
  .001317      500.      500.      500.         2        11         0       .00    459.79    736.83


*SECNO 75.000
   75.000      6.27   1042.77   1039.82       .00   1043.17       .41       .55       .01   1053.10
  13500.0        .0   13500.0       .0        .0    2642.9        .0     245.5      49.1   1053.10
      .21       .00      5.11       .00      .000      .035      .000      .000   1036.50    279.07
   001416      400.      400.      400.         2        11         0       .00    457.20    736.27


*SECNO 78.000
          GRAND DRAIN LOW FLOW OUTLET PIPE AT LT SIDESLOPE
   78.000      5.80   1043.20   1040.60       .00   1043.64       .44       .45       .01   1053.50
  13500.0        .0   13500.0       .0        .0    2538.3        .0     263.3      52.3   1053.50
      .23       .00      5.32       .00      .000      .035      .000      .000   1037.40    279.50
  .001613      300.      300.      300.         2         8         0       .00    456.29    735.80


*SECNO 81.000
   81.000      5.69   1043.69   1041.19       .00   1044.14       .46       .50       .01   1054.00
  13500.0        .0   13500.0       .0        .0    2490.6        .0     280.6      55.4   1054.00
      .25       .00      5.42       .00      .000      .035      .000      .000   1038.00    278.98
  .001716      300.      300.      300.         2        11         0       .00    456.35    735.33


*SECNO 84.000
   84.000      7.21   1044.21   1041.89       .00   1044.70       .49       .55       .01   1054.50
  13500.0        .0   13500.0       .0        .0    2397.9        .0     297.4      58.5   1054.50
      .26       .00      5.63       .00      .000      .035      .000      .000   1037.00    280.08
  .001942      300.      300.      300.         2        15         0       .00    455.10    735.18


*SECNO 87.000
   87.000      5.02   1044.82   1042.87       .00   1045.38       .56       .65       .03   1055.00
  13500.0        .0   13500.0       .0        .0    2244.4        .0     313.4      61.7   1055.00
      .27       .00      6.01       .00      .000      .035      .000      .000   1039.80    280.17
  .002412      300.      300.      300.         2        14         0       .00    454.85    735.02


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  17APR98      11:34:54                                                                          PAGE   16

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


*SECNO 89.000
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   89.000      4.91   1045.31   1043.62       .00   1045.93       .63       .53       .03   1055.40
  13500.0        .0   13500.0       .0        .0    2122.8        .0     323.5      63.8   1055.40
     .28       .00      6.36       .00      .000      .035      .000      .000   1040.40    280.19
 .002906      200.      200.      200.         2        14         0       .00    454.72    734.91


   40 94.000
            STA. 91+49.71 IS P.O.C. OF CURVE TO THE LEFT
   94.000      4.94   1046.74   1044.92       .00   1047.33       .60      1.39       .01   1056.40
  13500.0        .0   13500.0       .0        .0    2180.8        .0     348.2      69.0   1056.40
     .31       .00      6.19       .00      .000      .035      .000      .000   1041.80    279.73
 .002662      500.      500.      500.         2        14         0       .00    455.21    734.94


CCHV=     .300 CEHV=     .500
*SECNO 97.000
   97.000      4.96   1047.56   1045.93       .00   1048.20       .64       .85       .02   1057.10
  13500.0        .0   13500.0       .0        .0    2102.9        .0     362.9      72.1   1057.10
     .32       .00      6.42       .00      .000      .035      .000      .000   1042.60    279.56
 .003013      300.      300.      300.         0        14         0       .00    455.41    734.97


*SECNO 99.540
            STA. 99+45.00 IS P.O.T.
            LT CHNL BTM WDTH = 157.9 FT.
            RT CHNL BTM WDTH = 157.9 FT.
   99.540      5.09   1048.29   1046.79       .00   1049.19       .90       .86       .13   1063.50
  13500.0        .0   13500.0       .0        .0    1777.5        .0     374.2      74.5   1063.50
     .33       .00      7.60       .00      .000      .035      .000      .000   1043.20    325.14
 .003804      254.      254.      254.         0        15         0       .00    349.73    674.86


CCHV=     .300 CEHV=     .500
*SECNO 99.600

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

7105 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1063.80 ELREA=      1063.80
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            DOWNSTREAM BRIDGE SECTION - GLENDALE AVENUE
   99.600      3.58   1049.78   1049.78       .00   1051.59      1.81       .03       .46   1063.80
  13500.0        .0   13500.0       .0        .0    1250.8        .0     374.4      74.5   1063.80
     .33       .00     10.79       .00      .000      .025      .000      .000   1046.20    325.14
 .006193        6.        6.        6.         0        19         0       .00    349.72    674.86


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS    1049.04 , NOT    1049.78 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     .90      1.56      2.90     358.00   349.74     32.00   5378.30       .00   1046.50   1046.20

*SECNO 100.400

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78

CLASS B LOW FLOW

3420 BRIDGE W.S.=    1050.18 BRIDGE VELOCITY=      11.09     CALCULATED CHANNEL AREA=      1169.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                               AREA
      .00   1052.47      .00        0.    13500.      5378.     5370.     1063.40   1065.90        0.


7495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1065.90 ELREA=      1065.90

            GLENDALE AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS
  100.400      5.07   1051.57       .00       .00   1052.47       .90       .88       .00   1063.60
  13500.0        .0   13500.0       .0        .0    1772.3        .0     377.2      75.2   1063.60
     .33       .00      7.62       .00      .000      .025      .000      .000   1046.50    325.14
```

```
   .001960      80.       80.       80.        0         0         0       .00    349.73    674.86


*SECNO 100.900
            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 157.9 FT.
            RT CHNL BTM WDTH = 157.9 FT.
   100.900     5.17   1051.77   1050.16       .00   1052.61       .84       .13       .02   1063.60
   13500.0       .0   13500.0        .0        .0    1835.2        .0     379.3      75.6   1063.60
       .33      .00      7.36       .00      .000      .035      .000      .000   1046.60    319.98
   .003476      50.       50.       50.        0        19         0       .00    360.04    680.02


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   17APR98      11:34:54                                                                                                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


*SECNO 103.000
   103.000     5.78   1052.78   1050.49       .00   1053.40       .62       .72       .07   1065.40
   13500.0       .0   13500.0        .0        .0    2134.6        .0     391.1      77.8   1065.40
       .34      .00      6.32       .00      .000      .035      .000      .000   1047.00    317.24
   .002236     260.      260.      260.         2        14         0       .00    378.13    695.38


CCHV=     .100 CEHV=     .300
*SECNO 106.000
   106.000     5.95   1053.55   1050.61       .00   1053.92       .38       .50       .02   1066.40
   13500.0       .0   13500.0        .0        .0    2733.2        .0     407.9      80.7   1066.40
       .36      .00      4.94       .00      .000      .035      .000      .000   1047.60    272.11
   .001303     300.      300.      300.         2        11         0       .00    468.64    740.75


*SECNO 109.000
            END CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 280 FT.
            RT CHNL BTM WDTH = 280 FT.
   109.000     5.79   1053.99   1051.01       .00   1054.29       .29       .35       .01   1066.90
   13500.0       .0   13500.0        .0        .0    3109.3        .0     428.0      84.2   1066.90
       .38      .00      4.34       .00      .000      .035      .000      .000   1048.20    227.11
   .001073     300.      300.      300.         2        14         0       .00    558.68    785.79


*SECNO 110.000
   110.000     7.09   1054.09   1051.29       .00   1054.41       .32       .11       .01   1066.90
   13500.0       .0   13500.0        .0        .0    2996.2        .0     435.0      85.5   1066.90
       .39      .00      4.51       .00      .000      .035      .000      .000   1047.00    227.19
   .001213     100.      100.      100.         2        19         0       .00    558.50    785.69


*SECNO 113.000
   113.000     5.46   1054.46   1051.75       .00   1054.78       .32       .37       .00   1067.20
   13500.0       .0   13500.0        .0        .0    2957.7        .0     455.5      89.4   1067.20
       .40      .00      4.56       .00      .000      .035      .000      .000   1049.00    227.28
   .001265     300.      300.      300.         2        18         0       .00    558.17    785.46


*SECNO 116.000

3265 DIVIDED FLOW

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   17APR98      11:34:54                                                                                                PAGE   19


            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 280 FT.
            RT CHNL BTM WDTH = 280 FT.
   116.000     5.24   1054.84   1052.46       .00   1055.24       .40       .44       .02   1067.30
   13500.0       .0   13500.0        .0        .0    2675.8        .0     474.9      93.1   1067.30
       .42      .00      5.05       .00      .000      .035      .000      .000   1049.60    227.21
    001698     240.      300.      340.         2        11         0       .00    538.41    785.24


*SECNO 120.000

3265 DIVIDED FLOW
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3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .51

END CHANNEL BOTTOM TRANSITION
LT CHNL BTM WDTH = 210 FT.
RT CHNL BTM WDTH = 230 FT.

120.000	4.94	1055.34	1054.56	.00	1056.73	1.38	1.19	.30	1067.10
13500.0	.0	13500.0	.0	.0	1429.8	.0	493.8	97.0	1067.10
.43	.00	9.44	.00	.000	.035	.000	.000	1050.40	296.81
.006512	327.	400.	497.	2	15	0	.00	307.15	734.94

*SECNO 123.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.28

123.000	6.27	1057.27	1054.14	.00	1057.65	.39	.83	.10	1068.80
13500.0	.0	13500.0	.0	.0	2702.7	.0	510.0	99.9	1068.80
.45	.00	5.00	.00	.000	.035	.000	.000	1051.00	295.28
.001249	342.	342.	342.	2	14	0	.00	440.99	736.26

*SECNO 127.000

127.000	5.98	1057.78	1054.94	.00	1058.20	.43	.54	.01	1068.80
13500.0	.0	13500.0	.0	.0	2578.4	.0	534.2	104.0	1068.80
.47	.00	5.24	.00	.000	.035	.000	.000	1051.80	295.06
.001460	400.	400.	400.	2	8	0	.00	440.91	735.97

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	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 131.000

131.000	8.39	1058.39	1055.91	.00	1058.88	.49	.65	.02	1069.40
13500.0	.0	13500.0	.0	.0	2410.6	.0	557.1	108.0	1069.40
.49	.00	5.60	.00	.000	.035	.000	.000	1050.00	295.22
.001832	400.	400.	400.	2	5	0	.00	440.56	735.79

*SECNO 135.000

3265 DIVIDED FLOW

135.000	5.79	1059.19	1057.07	.00	1059.84	.65	.92	.05	1069.60
13500.0	.0	13500.0	.0	.0	2093.3	.0	577.8	112.1	1069.90
.51	.00	6.45	.00	.000	.035	.000	.000	1053.40	294.70
.002956	400.	400.	400.	2	14	0	.00	441.02	735.72

*SECNO 138.000

138.000	6.06	1060.06	1057.46	.00	1060.56	.50	.71	.01	1069.60
13500.0	.0	13500.0	.0	.0	2384.9	.0	593.2	115.1	1069.60
.52	.00	5.66	.00	.000	.035	.000	.000	1054.00	293.47
.001916	300.	300.	300.	2	14	0	.00	442.59	736.06

*SECNO 141.000

3265 DIVIDED FLOW

141.000	6.04	1060.64	1058.51	.00	1061.26	.62	.67	.04	1071.00
13500.0	.0	13500.0	.0	.0	2134.9	.0	608.8	118.1	1071.00
.54	.00	6.32	.00	.000	.035	.000	.000	1054.60	294.25
.002595	300.	300.	300.	2	14	0	.00	419.48	736.04

*SECNO 145.000

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

A.D.O.T. CHANNEL INLET LT. BANK, NORTHERN AVENUE CHANNEL

145.000	6.20	1061.60	1058.54	.00	1061.99	.39	.71	.02	1072.00

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   13500.0        .0   13500.0        .0        .0    2678.3        .0     630.9     122.1   1077.00
      .56       .00      5.04       .00      .000      .035      .000      .000   1055.40    294.20
  .001288      400.      400.      400.         2        11         0       .00    440.56    734.76


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     APR98      11:34:54                                                                                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 147.000
            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 210 FT.
            RT CHNL BTM WDTH = 230 FT.
  147.000      6.05   1061.85   1058.95       .00   1062.27       .41       .27       .01   1072.40
  13500.0        .0   13500.0        .0        .0    2618.8        .0     643.1     124.1   1072.40
      .57       .00      5.16       .00      .000      .035      .000      .000   1055.80    294.49
  .001390      200.      200.      200.         2         8         0       .00    441.57    736.06


*SECNO 150.000
            CHANNEL BOTTOM TAPERS
            LT CHNL BTM WDTH = 260 FT.
            RT CHNL BTM WDTH = 210 FT.
  150.000      5.90   1062.30   1059.39       .00   1062.68       .38       .41       .00   1073.00
  13500.0        .0   13500.0        .0        .0    2725.7        .0     661.5     127.2   1073.00
      .59       .00      4.95       .00      .000      .035      .000      .000   1056.40    244.81
  .001324      350.      300.      260.         2         8         0       .00    471.09    715.90


*SECNO 155.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .52

            CHANNEL BOTTOM TAPERS
            LT CHNL BTM WDTH = 260 FT.
            RT CHNL BTM WDTH = 170 FT.
  155.000      5.65   1063.05   1061.80       .00   1063.98       .93      1.14       .17   1073.30
  13500.0        .0   13500.0        .0        .0    1740.8        .0     687.1     132.2   1073.30
      .61       .00      7.75       .00      .000      .035      .000      .000   1057.40    244.60
  .004808      585.      500.      460.         2        15         0       .00    400.68    675.65


CCHV=     .300 CEHV=     .500
*SECNO 158.000
1
   17APR98      11:34:54                                                                                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


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.44

            END CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 162.5 FT.
            RT CHNL BTM WDTH = 162.5 FT.
  158.000      6.30   1064.30   1061.89       .00   1065.02       .71       .97       .07   1076.50
  13500.0        .0   13500.0        .0        .0    1991.9        .0     700.0     134.7   1075.00
      .62       .00      6.78       .00      .000      .035      .000      .000   1058.00    343.39
  .002314      360.      300.      265.         2        14         0       .00    325.41    668.80


 SECNO 159.450

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1077.46 ELREA=      1077.46

            DOWNSTREAM BRIDGE SECTION - NORTHERN AVENUE BRIDGE
  159.450      6.67   1064.97   1062.04       .00   1065.54       .58       .49       .04   1076.80
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   13500.0        .0   13500.0        .0        .0    2211.0        .0     711.8     136.6   1076.80
      .63       .00      6.11       .00      .000      .035      .000      .000   1058.30    330.83
  .001729      245.      245.      245.         2        14         0       .00    338.33    669.17


    AL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    1.05      1.56      2.90     388.00   325.00     28.00    6034.00    1.00     1058.46   1058.30

*SECNO 160.250
CLASS A LOW FLOW

3420 BRIDGE W.S.=    1064.90 BRIDGE VELOCITY=       6.83     CALCULATED CHANNEL AREA=      1953.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                               AREA
      .00   1065.69      .14         0.    13500.     6034.     6004.     1077.46   1082.00         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1082.00 ELREA=      1082.00

            NORTHERN AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS
  160.250      6.64   1065.10       .00       .00   1065.69       .58       .14       .00   1077.00
  13500.0        .0   13500.0        .0        .0    2202.7        .0     715.8     137.2   1077.00
      .63       .00      6.13       .00      .000      .035      .000      .000   1058.46    330.87
  .001751       80.       80.       80.         0         0         0       .00    338.26    669.13


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  17APR98      11:34:54                                                                                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


  NO 162.000
            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 162.5 FT.
            RT CHNL BTM WDTH = 162.5 FT.
  162.000      6.61   1065.41   1062.55       .00   1066.00       .59       .31       .00   1077.00
  13500.0        .0   13500.0        .0        .0    2190.7        .0     724.7     138.6   1077.00
      .64       .00      6.16       .00      .000      .035      .000      .000   1058.80    330.89
  .001782      175.      175.      175.         0        11         0       .00    338.21    669.11


*SECNO 165.000
            END CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 300 FT.
            RT CHNL BTM WDTH = 250 FT.
  165.000      6.64   1066.04   1062.88       .00   1066.51       .46       .47       .04   1078.80
  13500.0        .0   13500.0        .0        .0    2473.9        .0     740.7     141.0   1078.80
      .66       .00      5.46       .00      .000      .035      .000      .000   1059.40    374.31
  .001391      300.      300.      300.         2        11         0       .00    382.33    756.64


*SECNO 168.000
  168.000      6.37   1066.47   1063.65       .00   1067.00       .54       .46       .04   1079.00
  13500.0        .0   13500.0        .0        .0    2297.1        .0     757.1     143.6   1079.00
      .67       .00      5.88       .00      .000      .035      .000      .000   1060.10    386.06
  .001706      300.      300.      300.         2        11         0       .00    370.30    756.37


CCHV=     .100 CEHV=     .300
*SECNO 170.000
            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 300 FT.
            RT CHNL BTM WDTH = 250 FT.
  170.000      6.21   1066.81   1064.13       .00   1067.36       .56       .35       .01   1079.20
  13500.0        .0   13500.0        .0        .0    2256.3        .0     767.6     145.3   1079.20
      .68       .00      5.98       .00      .000      .035      .000      .000   1060.60    383.39
  .001827      200.      200.      200.         2        11         0       .00    372.82    756.21


*SECNO 173.000

3301 HV CHANGED MORE THAN HVINS

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


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64

            END CHNL BTM TRANSITION RT.
            RT CHNL BTM WDTH = 157 FT.
  173.000     5.76   1067.16   1065.76       .00   1068.37      1.21       .81       .20   1079.00
  13500.0       .0   13500.0       .0        .0    1530.1        .0     780.6     147.6   1079.00
      .69      .00      8.82       .00      .000      .035      .000      .000   1061.40    388.67
  .004440     300.      300.      300.         2        19         0       .00    274.09    662.76


*SECNO 176.000
  176.000     6.59   1068.79   1066.75       .00   1069.72       .93      1.32       .03   1079.60
  13500.0       .0   13500.0       .0        .0    1743.3        .0     791.9     149.8   1079.60
      .70      .00      7.74       .00      .000      .035      .000      .000   1062.20    287.53
  .004369     300.      300.      300.         2        11         0       .00    376.05    663.58


*SECNO 177.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.98

            BEGIN CHNL BTM TRANSITION RT.
            RT CHNL BTM WDTH = 157 FT.
  177.000     7.16   1069.56   1065.90       .00   1069.97       .41       .20       .05   1080.50
  13500.0       .0   13500.0       .0        .0    2629.1        .0     796.9     150.7   1080.50
      .70      .00      5.13       .00      .000      .035      .000      .000   1062.40    289.92
  .001110     100.      100.      100.         2        11         0       .00    374.24    664.16


 NO 179.000
            END CHNL BTM TRANSITION LT.
            LT CHNL BTM WDTH = 175 FT.
  179.000     6.99   1069.79   1066.27       .00   1070.20       .41       .23       .00   1081.00
  13500.0       .0   13500.0       .0        .0    2624.8        .0     809.0     152.4   1081.00
      .72      .00      5.14       .00      .000      .035      .000      .000   1062.80    329.29
  .001158     200.      200.      200.         2        11         0       .00    386.20    715.49


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


*SECNO 181.000
            END CHNL BTM TRANSITION RT.
            RT CHNL BTM WDTH = 260 FT.
  181.000     6.78   1070.08   1066.47       .00   1070.42       .34       .21       .01   1081.60
  13500.0       .0   13500.0       .0        .0    2893.8        .0     821.7     154.3   1081.60
      .73      .00      4.67       .00      .000      .035      .000      .000   1063.30    329.74
  .000984     200.      200.      200.         2        14         0       .00    437.04    766.78


*SECNO 183.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


 2 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .37

  183.000     5.70   1069.50   1068.82       .00   1071.27      1.77       .42       .43   1081.30
  13500.0       .0   13500.0       .0        .0    1263.9        .0     831.2     155.9   1081.30
      .73      .00     10.68       .00      .000      .035      .000      .000   1063.80    331.10
  .007216     200.      200.      200.         2        15         0       .00    241.61    765.70
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*SECNO 188.000

3265 DIVIDED FLOW


-  HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78

   188.000      7.71   1072.71   1069.29       .00   1073.26       .56      1.87       .12   1083.00
   13500.0        .0   13500.0       .0        .0    2257.8        .0     851.4     159.8   1083.00
       .76       .00      5.98       .00      .000      .035      .000      .000   1065.00    327.61
   .002289      500.      500.      500.         5        15         0       .00    438.64    767.70


*SECNO 193.000
1
   17APR98      11:34:54                                                                                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


3265 DIVIDED FLOW

            STA. 192+60.12 IS P.O.C. OF CURVE TO THE RT.
   193.000      7.59   1073.79   1070.36       .00   1074.28       .49      1.01       .01   1084.00
   13500.0        .0   13500.0       .0        .0    2412.7        .0     878.2     164.8   1084.00
       .78       .00      5.60       .00      .000      .035      .000      .000   1066.20    327.60
   .001800      500.      500.      500.         2        11         0       .00    432.18    767.60


*SECNO 197.000

   - DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .67

            BEGIN CHANNEL BOTTOM TRANSITION LEFT AND RIGHT
            TO MATCH PAST DEIGN CROSS SECTIONS.
   197.000      7.40   1074.60   1073.09       .00   1075.41       .81      1.03       .10   1084.60
   13500.0        .0   13500.0       .0        .0    1863.6        .0     897.9     168.6   1084.60
       .80       .00      7.24       .00      .000      .035      .000      .000   1067.20    327.59
   .003999      400.      400.      400.         1        15         0       .00    411.62    767.40


CCHV=     .300 CEHV=     .500
*SECNO 199.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.22

   199.000      7.68   1075.38   1071.11       .00   1075.71       .33       .15       .15   1086.20
   13500.0        .0   13500.0       .0        .0    2932.2        .0     903.4     169.6   1086.20
       .80       .00      4.60       .00      .000      .035      .000      .000   1067.70    328.32
   .000814      200.      100.      200.         2        14         0       .00    389.36    717.68


*SECNO 201.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1086.70 ELREA=      1086.70

            DOWNSTREAM BRIDGE SECTION - 99TH AVENUE BRIDGE
   201.100      7.31   1075.51   1072.03       .00   1076.02       .51       .22       .09   1086.70
   13500.0        .0   13500.0       .0        .0    2348.1        .0     916.1     171.3   1086.70
       .81       .00      5.75       .00      .000      .035      .000      .000   1068.20    335.69
   .001365      210.      210.      210.         2         8         0       .00    328.62    664.31


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   7APR98       11:34:54                                                                                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
```

SPECIAL BRIDGE

XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.05	1.56	2.90	376.00	314.00	21.00	5763.00	1.00	1068.40	1068.20

*SECNO 201.900
CLASS A LOW FLOW

3420 BRIDGE W.S.= 1075.52 BRIDGE VELOCITY= 6.23 CALCULATED CHANNEL AREA= 2136.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1076.12	.08	0.	13500.	5763.	5697.	1086.70	1091.80	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1091.80 ELREA= 1091.80

99TH AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS

201.900	7.19	1075.59	.00	.00	1076.12	.53	.10	.00	1086.90
13500.0	.0	13500.0	.0	.0	2308.9	.0	920.4	171.9	1086.90
.82	.00	5.85	.00	.000	.035	.000	.000	1068.40	335.81
.001442	80.	80.	80.	0	0	0	.00	328.38	664.19

*SECNO 204.000

204.000	6.99	1075.89	1072.73	.00	1076.45	.56	.32	.02	1087.40
13500.0	.0	13500.0	.0	.0	2241.6	.0	931.3	173.5	1087.40
.83	.00	6.02	.00	.000	.035	.000	.000	1068.90	336.02
.001588	210.	210.	210.	0	11	0	.00	327.97	663.98

CCHV= .300 CEHV= .500
*SECNO 209.300

209.300	6.59	1076.78	1074.02	.00	1077.41	.63	.92	.04	1088.19
13500.0	.0	13500.0	.0	.0	2112.6	.0	957.8	177.5	1088.19
.85	.00	6.39	.00	.000	.035	.000	.000	1070.19	336.41
.001926	530.	530.	530.	2	11	0	.00	327.18	663.59

CCHV= .300 CEHV= .500
*SECNO 212.600

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	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= 1089.60 ELREA= 1089.60

DOWNSTREAM BRIDGE SECTION - OLIVE AVENUE BRIDGE

212.600	6.39	1077.39	1075.47	.00	1078.46	1.07	.83	.22	1089.60
13500.0	.0	13500.0	.0	.0	1625.8	.0	972.0	179.7	1089.60
.86	.00	8.30	.00	.000	.035	.000	.000	1071.00	369.61
.003423	330.	330.	330.	2	14	0	.00	260.78	630.39

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.05	1.56	2.90	300.00	248.00	18.50	4481.60	1.00	1071.50	1071.00

*SECNO 213.500
CLASS A LOW FLOW

3420 BRIDGE W.S.= 1077.31 BRIDGE VELOCITY= 9.45 CALCULATED CHANNEL AREA= 1368.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1078.86	.35	0.	13500.	4482.	4482.	1089.60	1095.00	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1095.00 ELREA= 1095.00

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   213.500      6.24   1077.74      .00      .00   1078.86      1.12      .40      .00   1089.60
   13500.0       .0   13500.0       .0       .0    1586.6        .0    975.3    180.2   1089.60
       .86      .00      8.51      .00     .000      .035      .000     .000  1071.50    369.76
   .003706      90.       90.      90.        0         0         0      .00   260.48    630.24


 =      .100 CEHV=      .300
*SECNO 213.700

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   213.700      4.32   1077.32   1077.32      .00   1079.46      2.15      .12      .31   1095.00
   13500.0       .0   13500.0       .0       .0    1148.1        .0    975.9    180.4   1096.20
       .86      .00     11.76      .00     .000      .035      .000     .000  1073.00    364.78
   .011345      20.       20.      20.        0        19         0      .00   270.21    634.99


1
   17APR98      11:34:54                                                                          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


*SECNO 217.500

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.43

   217.500      6.29   1080.49   1077.84      .00   1081.08       .60      1.46      .16   1096.00
   13500.0       .0   13500.0       .0       .0    2179.3        .0    990.4    183.1   1097.00
       .88      .00      6.19      .00     .000      .035      .000     .000  1074.20    320.51
   .001916     380.      380.     380.        3        11         0      .00   352.97    673.49


 ECNO 221.100
   221.100      5.90   1081.20   1078.83      .00   1081.82       .62       .73      .01   1096.60
   13500.0       .0   13500.0       .0       .0    2138.1        .0   1008.3    186.1   1098.00
       .90      .00      6.31      .00     .000      .035      .000     .000  1075.30    310.39
   .002153     360.      360.     360.        2        11         0      .00   367.82    678.21


*SECNO 227.500
   227.500      5.50   1082.60   1080.06      .00   1083.02       .42      1.18      .02   1099.00
   13500.0       .0   13500.0       .0       .0    2587.4        .0   1043.0    192.3   1099.00
       .93      .00      5.22      .00     .000      .035      .000     .000  1077.10    262.23
   .001601     640.      640.     640.        2         8         0      .00   476.30    738.52


*SECNO 233.550

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

   233.550      4.69   1083.69   1082.20      .00   1084.42       .73      1.31      .09   1101.70
   13500.0       .0   13500.0       .0       .0    1965.3        .0   1073.3    198.2   1101.60
       .95      .00      6.87      .00     .000      .035      .000     .000  1079.00    288.01
   .003429     580.      580.     580.        0        11         0      .00   424.07    712.09


*SECNO 238.660

3301 HV CHANGED MORE THAN HVINS

   238.660      4.94   1085.54   1084.61      .00   1086.84      1.29      2.25      .17   1103.30
   13500.0       .0   13500.0       .0       .0    1478.5        .0   1093.7    202.6   1103.70
       .97      .00      9.13      .00     .000      .035      .000     .000  1080.60    347.91
   .005707     516.      516.     516.        2        11         0      .00   303.78    651.69


   7APR98      11:34:54                                                                          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
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    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 238.690

3301 HV CHANGED MORE THAN HVINS

3720 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   238.690      3.95   1087.55   1087.55       .00   1089.51      1.97       .02       .20   1103.40
   13500.0        .0   13500.0       .0        .0    1198.7        .0    1093.8     202.6   1103.90
       .97       .00     11.26       .00      .000      .035      .000      .000   1083.60    340.85
   .011644        3.        3.        3.         0        15         0       .00    307.79    648.65

CCHV=     .100 CEHV=     .300
*SECNO 242.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.09

   242.000      6.02   1090.47   1088.31       .00   1091.25       .78      1.61       .12   1104.00
   13500.0        .0   13500.0       .0        .0    1907.0        .0    1105.6     205.0   1104.00
       .98       .00      7.08       .00      .000      .035      .000      .000   1084.45    338.53
   .002658      331.      331.      331.         3         8         0       .00    322.93    661.47

*SECNO 247.000
   247.000      6.12   1091.79   1089.51       .00   1092.54       .75      1.29       .00   1104.50
   13500.0        .0   13500.0       .0        .0    1946.7        .0    1127.7     208.7   1104.50
      1.00       .00      6.93       .00      .000      .035      .000      .000   1085.67    337.72
   .002499      500.      500.      500.         2        14         0       .00    324.57    662.28

CCHV=     .100 CEHV=     .300
*SECNO 270.500
CHIMP CLSTA=    9955.00 CELCH=    1086.50 BW=     365.00 STCHL=    9753.15 STCHR=   10175.00
EXCAVATION DATA
AEX=    1319.1SQ-FT     VEXR=        .0K*CU-YD     VEXT=        .0K*CU-YD

3470 ENCROACHMENT STATIONS=     9750.0   10218.0  TYPE=      1  TARGET=    -9750.000
1
   17APR98      11:34:54                                                                          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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=     1105.85 ELREA=     1107.00

   270.500      6.61   1093.11   1089.97       .00   1093.58       .47      1.02       .03   1105.85
   13500.0        .0   13500.0       .0        .0    2458.0        .0    1155.8     213.2   1107.00
      1.03       .00      5.49       .00      .000      .035      .000      .000   1086.50   9765.89
   .001404      338.      555.      338.         2        11         0       .00    378.23  10144.11

*SECNO 273.500
CHIMP CLSTA=    9919.00 CELCH=    1087.20 BW=     375.00 STCHL=    9712.31 STCHR=   10127.15
EXCAVATION DATA
AEX=    2554.4SQ-FT     VEXR=      22.2K*CU-YD     VEXT=      22.2K*CU-YD

3470 ENCROACHMENT STATIONS=     9640.0   10160.0  TYPE=      1  TARGET=    -9640.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=     1106.39 ELREA=     1107.85

   273.500      6.36   1093.56   1090.60       .00   1094.04       .48       .45       .00   1106.39
   13500.0        .0   13500.0       .0        .0    2422.9        .0    1173.1     215.9   1107.85
      1.05       .00      5.57       .00      .000      .035      .000      .000   1087.20   9725.15
   .001523      315.      310.      310.         2        11         0       .00    387.71  10112.85

*SECNO 277.900
CHIMP CLSTA=    9927.00 CELCH=    1088.30 BW=     360.00 STCHL=    9729.30 STCHR=   10137.00
EXCAVATION DATA
AEX=    2900.7SQ-FT     VEXR=      42.4K*CU-YD     VEXT=      64.7K*CU-YD
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1106.00 ELREA=      1108.50

   277.900      5.92   1094.22   1091.80       .00   1094.82       .60       .75       .04   1106.00
   13500.0        .0   13500.0       .0        .0    2165.8        .0    1195.3     219.6   1108.50
      1.06       .00      6.23       .00      .000      .035      .000      .000   1088.30   9741.08
    )02093      420.      420.      420.         2        11         0       .00    371.84  10112.92


*SECNO 281.800
CHIMP CLSTA=    9932.00 CELCH=    1089.20 BW=     330.00 STCHL=    9747.63 STCHR=   10117.50
1
   17APR98      11:34:54                                                                                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


EXCAVATION DATA
AEX=    3280.4SQ-FT      VEXR=      46.9K*CU-YD      VEXT=      111.6K*CU-YD


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1108.57 ELREA=      1109.70

   281.800      5.88   1095.08   1092.90       .00   1095.80       .73       .95       .04   1108.57
   13500.0        .0   13500.0       .0        .0    1974.3        .0    1214.7     222.9   1109.70
      1.08       .00      6.84       .00      .000      .035      .000      .000   1089.20   9761.12
   .002550      410.      410.      410.         2        14         0       .00    341.76  10102.88


CCHV=     .300 CEHV=     .500
*SECNO 288.000
CHIMP CLSTA=    9988.00 CELCH=    1092.20 BW=     274.00 STCHL=    9829.45 STCHR=   10145.00
EXCAVATION DATA
AEX=    1602.9SQ-FT      VEXR=      54.3K*CU-YD      VEXT=      165.9K*CU-YD


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .60


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1113.75 ELREA=      1112.00

   288.000      4.85   1097.05   1096.40       .00   1098.59      1.54      2.38       .41   1113.75
   13500.0        .0   13500.0       .0        .0    1353.5        .0    1237.7     227.2   1112.00
      1.10       .00      9.97       .00      .000      .035      .000      .000   1092.20   9846.15
   .006991      600.      600.      600.         2        15         0       .00    283.71  10129.85


*SECNO 290.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1117.80 ELREA=      1117.80

   290.000      5.54   1098.54   1097.39       .00   1099.86      1.32      1.21       .07   1117.80
   13500.0        .0   13500.0       .0        .0    1462.2        .0    1244.1     228.5   1117.80
      1.10       .00      9.23       .00      .000      .035      .000      .000   1093.00   9865.00
   .005256      220.      200.      160.         3        11         0       .00    271.00  10136.00


1
   17APR98      11:34:54                                                                                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


SPECIAL BRIDGE

    XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     .90       1.56       2.90        .00     271.00      10.50    4974.00       .00    1093.70    1093.30

*SECNO 291.000
CLASS A LOW FLOW

3420 BRIDGE W.S.=    1098.41 BRIDGE VELOCITY=      10.56     CALCULATED CHANNEL AREA=      1227.
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EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1100.10	.26	0.	13500.	4974.	5314.	1114.10	1119.10	0.

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1117.80 ELREA= 1117.80

291.000	5.80	1098.80	.00	.00	1100.10	1.30	.23	.00	1116.00
13500.0	.0	13500.0	.0	.0	1477.6	.0	1246.7	229.0	1116.00
1.11	.00	9.14	.00	.000	.035	.000	.000	1093.00	9865.00
.005077	77.	77.	77.	0	0	0	.00	271.00	10136.00

CCHV= .100 CEHV= .300
*SECNO 293.000
CHIMP CLSTA= 10007.00 CELCH= 1094.00 BW= 231.00 STCHL= 9869.90 STCHR= 10144.00
EXCAVATION DATA
AEX= -4.0SQ-FT VEXR= 5.9K*CU-YD VEXT= 171.8K*CU-YD

293.000	5.70	1099.70	1098.69	.00	1101.26	1.55	1.08	.08	1115.60
13500.0	.0	13500.0	.0	.0	1350.3	.0	1253.2	230.2	1115.00
1.11	.00	10.00	.00	.000	.035	.000	.000	1094.00	9885.79
.005763	200.	200.	200.	2	15	0	.00	242.41	10128.21

*SECNO 297.000
CHIMP CLSTA= 10006.00 CELCH= 1096.10 BW= 246.00 STCHL= 9863.04 STCHR= 10150.00
EXCAVATION DATA
AEX= -26.4SQ-FT VEXR= -.2K*CU-YD VEXT= 171.6K*CU-YD

297.000	5.94	1102.04	1100.59	.00	1103.30	1.27	2.02	.03	1116.05
13500.0	.0	13500.0	.0	.0	1495.7	.0	1266.3	232.4	1115.00
1.12	.00	9.03	.00	.000	.035	.000	.000	1096.10	9877.06
.004448	400.	400.	400.	2	15	0	.00	257.87	10134.94

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

*SECNO 302.000
CHIMP CLSTA= 9999.00 CELCH= 1098.20 BW= 197.00 STCHL= 9882.00 STCHR= 10118.78
EXCAVATION DATA
AEX= 3.1SQ-FT VEXR= -.2K*CU-YD VEXT= 171.3K*CU-YD

3301 HV CHANGED MORE THAN HVINS

302.000	6.20	1104.40	1103.40	.00	1106.18	1.78	2.72	.16	1116.00
13500.0	.0	13500.0	.0	.0	1259.4	.0	1283.0	235.3	1119.48
1.14	.00	10.72	.00	.000	.035	.000	.000	1098.20	9894.30
.006009	530.	530.	530.	2	11	0	.00	209.40	10103.70

*SECNO 305.000
CHIMP CLSTA= 9992.00 CELCH= 1099.50 BW= 188.00 STCHL= 9880.94 STCHR= 10110.00
EXCAVATION DATA
AEX= 244.7SQ-FT VEXR= 1.3K*CU-YD VEXT= 172.6K*CU-YD

305.000	6.55	1106.05	1104.86	.00	1107.79	1.74	1.61	.00	1116.56
13500.0	.0	13500.0	.0	.0	1274.7	.0	1291.2	236.6	1119.50
1.15	.00	10.59	.00	.000	.035	.000	.000	1099.50	9891.45
.005497	280.	280.	280.	3	11	0	.00	201.10	10092.55

*SECNO 306.750
CHIMP CLSTA= 9959.00 CELCH= 1100.30 BW= 289.00 STCHL= 9798.80 STCHR= 10123.24
EXCAVATION DATA
AEX= 1770.8SQ-FT VEXR= 8.0K*CU-YD VEXT= 180.6K*CU-YD

3301 HV CHANGED MORE THAN HVINS

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

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   306.750      7.59   1107.89   1104.34       .00   1108.45       .56       .54       .12   1116.00
   13500.0        .0   13500.0       .0        .0    2252.1        .0    1299.9     237.9   1120.04
      1.16       .00      5.99       .00      .000      .035      .000      .000   1100.30   9806.91
   .001420      215.      215.      215.         2        14         0       .00    304.19  10111.09
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 310.000
CHIMP CLSTA=    9965.00 CELCH=    1101.60 BW=     330.00 STCHL=    9784.66 STCHR=   10149.29
EXCAVATION DATA
AEX=    1007.5SQ-FT     VEXR=      16.5K*CU-YD     VEXT=      197.1K*CU-YD

   310.000      6.79   1108.39   1105.31       .00   1108.93       .54       .48       .00   1116.94
   13500.0        .0   13500.0       .0        .0    2287.8        .0    1316.6     240.2   1120.90
      1.17       .00      5.90       .00      .000      .035      .000      .000   1101.60   9793.21
   .001576      320.      320.      320.         2        11         0       .00    343.59  10136.79

*SECNO 313.200
CHIMP CLSTA=   10000.00 CELCH=    1103.00 BW=     330.00 STCHL=    9820.00 STCHR=   10183.25
EXCAVATION DATA
AEX=    1069.6SQ-FT     VEXR=      12.1K*CU-YD     VEXT=      209.2K*CU-YD

   313.200      5.88   1108.88   1106.71       .00   1109.61       .73       .62       .06   1117.00
   13500.0        .0   13500.0       .0        .0    1975.6        .0    1332.0     242.7   1121.25
      1.18       .00      6.83       .00      .000      .035      .000      .000   1103.00   9829.12
   .002545      315.      315.      315.         2        11         0       .00    341.76  10170.88

*SECNO 318.000
CHIMP CLSTA=   10000.00 CELCH=    1105.10 BW=     330.00 STCHL=    9820.00 STCHR=   10182.90
EXCAVATION DATA
        52.1SQ-FT     VEXR=      10.4K*CU-YD     VEXT=      219.6K*CU-YD

   318.000      5.19   1110.29   1108.80       .00   1111.22       .94      1.55       .06   1120.00
   13500.0        .0   13500.0       .0        .0    1738.4        .0    1353.3     246.6   1123.00
      1.20       .00      7.77       .00      .000      .035      .000      .000   1105.10   9829.81
   .003868      500.      500.      500.         2        14         0       .00    340.37  10170.19

*SECNO 320.050
CHIMP CLSTA=   10000.00 CELCH=    1106.00 BW=     330.00 STCHL=    9816.00 STCHR=   10184.00
EXCAVATION DATA
AEX=     152.0SQ-FT     VEXR=       1.1K*CU-YD     VEXT=      220.7K*CU-YD

   320.050      5.41   1111.41   1109.72       .00   1112.27       .86      1.04       .01   1125.00
   13500.0        .0   13500.0       .0        .0    1816.4        .0    1365.1     248.9   1125.00
      1.21       .00      7.43       .00      .000      .035      .000      .000   1106.00   9829.58
   .003350      290.      290.      290.         2        15         0       .00    340.83  10170.42
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 328.000
CHIMP CLSTA=   10000.00 CELCH=    1109.10 BW=     330.00 STCHL=    9817.10 STCHR=   10182.90
EXCAVATION DATA
AEX=     195.1SQ-FT     VEXR=       4.1K*CU-YD     VEXT=      224.8K*CU-YD

   328.000      4.76   1113.86   1112.81       .00   1114.97      1.11      2.63       .08   1127.00
   13500.0        .0   13500.0       .0        .0    1593.4        .0    1390.2     253.9   1127.00
      1.23       .00      8.47       .00      .000      .035      .000      .000   1109.10   9830.24
   .005138      640.      640.      640.         2        14         0       .00    339.52  10169.76

*SECNO 330.000
CHIMP CLSTA=   10000.00 CELCH=    1110.10 BW=     330.00 STCHL=    9817.60 STCHR=   10182.40
EXCAVATION DATA
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AEX=      76.6SQ-FT     VEXR=        .9K*CU-YD     VEXT=      225.7K*CU-YD

   330.000      4.66   1114.76   1113.80       .00   1115.92      1.16       .93       .01   1127.50
   13500.0        .0   13500.0        .0        .0    1558.9        .0    1396.5     255.3   1127.50
      1.24       .00      8.66       .00      .000      .035      .000      .000   1110.10   9830.34
   .005530      175.      175.      175.         2        15         0       .00    339.32  10169.66


*SECNO 334.000
CHIMP CLSTA=   10000.00 CELCH=    1112.00 BW=     330.00 STCHL=    9818.00 STCHR=   10182.00
EXCAVATION DATA
AEX=      68.0SQ-FT     VEXR=       1.1K*CU-YD     VEXT=      226.8K*CU-YD

   334.000      4.99   1116.99   1115.70       .00   1118.00      1.01      2.06       .02   1129.00
   13500.0        .0   13500.0        .0        .0    1672.4        .0    1412.1     258.5   1129.00
      1.25       .00      8.07       .00      .000      .035      .000      .000   1112.00   9830.01
   .004391      420.      420.      420.         1        15         0       .00    339.98  10169.99


CCHV=     .200 CEHV=     .400
*SECNO 343.000
CHIMP CLSTA=   10025.00 CELCH=    1115.70 BW=     329.00 STCHL=    9861.00 STCHR=   10206.30
EXCAVATION DATA
AEX=    2385.5SQ-FT     VEXR=      40.9K*CU-YD     VEXT=      267.7K*CU-YD


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1132.00 ELREA=      1132.00

   343.000      5.14   1120.84   1119.42       .00   1121.82       .98      3.81       .01   1132.00
   13500.0        .0   13500.0        .0        .0    1703.1        .0    1447.0     265.5   1132.00
      1.28       .00      7.93       .00      .000      .035      .000      .000   1115.70   9861.00
   .004083      900.      900.      900.         2        15         0       .00    334.14  10195.14


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


*SECNO 344.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1132.00 ELREA=      1132.00

   344.900      5.37   1121.67   1120.02       .00   1122.55       .88       .71       .02   1132.00
   13500.0        .0   13500.0        .0        .0    1795.5        .0    1454.6     267.0   1132.00
      1.29       .00      7.52       .00      .000      .035      .000      .000   1116.30   9830.89
   .003455      110.      190.      260.         2        15         0       .00    338.55  10169.45


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T1      NEW RIVER: FLOOD CONTROL DISTRICT CHANNELIZATION PROJECT
T2      NEW RIVER: BETHANY HOME ALIGNMENT TO GRAND AVE.
T3      50-YEAR EVENT              NRO2B

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0        3                                                                   1039.39

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2         0        -1                                      -1                            0

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


*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0
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CCHV=     .100 CEHV=     .300
*SECNO 39.000

3470 ENCROACHMENT STATIONS=     9585.9   10426.1  TYPE=      1  TARGET=      840.199
            BEGIN ANALYSIS NEAR THE BETHANY HOME ROAD ALIGNMENT.
            WATER SURFACE UTILIZED FOR THIS ANALYSIS IS BASED ON
            EXISTING CONDTIONS OUTPUT DATA WHICH INCLUDES THE
            GLENDALE MUNICIPAL AIRPORT CHANNELIZATION AND SIDEBANK
            PROTECTION.  CROSS SECTION 39.00 ASSUMES EXISTING CONDITIONS
            BOTTOM CONTOURS WITH EXISTING LEFT BANK NATURAL SIDESLOPE.
   39.000     11.39   1039.39   1034.59   1036.06   1039.71       .32       .00       .00   1042.50
  31000.0        .0   31000.0        .0        .0    6796.1        .0        .0        .0   1043.20
      .00       .00      4.56       .00      .000      .035      .000      .000   1028.00   9589.35
  .000703      270.      220.      200.         0        13         0       .00    829.03  10418.38


CCHV=     .200 CEHV=     .400
*SECNO 44.000
            BEGIN CHANNELIZATION AND SIDEBANK PROTECTION DEGIGN.
            LT CHNL BTM WDTH = 500 FEET - MATCH EXISTING DOWNSTREAM
            RT CHNL BTM WDTH PER GLENDALE AIRPORT "AS BUILTS" = 362+OR- FEET
   44.000      9.03   1039.78   1036.19   1036.53   1040.19       .41       .44       .03   1044.90
  31000.0        .0   31000.0        .0        .0    6040.1        .0      73.7       9.8   1045.10
      .03       .00      5.13       .00      .000      .035      .000      .000   1030.75   9496.05
  .001121      500.      500.      500.         2        14         0       .00    877.03  10373.08


*SECNO 47.000
   47.000      9.06   1040.06   1037.55   1037.11   1040.76       .71       .46       .12   1045.00
  31000.0        .0   31000.0        .0        .0    4596.3        .0     110.3      15.4   1045.00
      .04       .00      6.74       .00      .000      .035      .000      .000   1031.00    605.90
  .002227      300.      300.      300.         0        19         0       .00    740.69   1346.59


*SECNO 51.500
            LT CHNL BTM WDTH = 225 FT
   51.500      9.59   1040.99   1038.80   1038.44   1042.11      1.12      1.18       .17   1045.70
  31000.0        .0   31000.0        .0        .0    3650.0        .0     152.9      22.0   1045.70
      .05       .00      8.49       .00      .000      .035      .000      .000   1031.40    770.22
  .003129      450.      450.      450.         2        15         0       .00    534.77   1304.99


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


*SECNO 55.000
            STA. 53+12.97 IS P.O.C. OF CURVE TO THE RIGHT
   55.000     10.09   1041.99   1039.28   1039.30   1043.12      1.13      1.01       .00   1047.00
  31000.0        .0   31000.0        .0        .0    3630.4        .0     182.1      26.0   1047.00
      .07       .00      8.54       .00      .000      .035      .000      .000   1031.90    269.95
  .002663      350.      350.      350.         2        15         0       .00    466.34    736.29


*SECNO 58.120
            END GLENDALE MUNICIPAL AIRPORT GABION MATTRESS SIDESLOPE
            ALONG NEW RIVER RT BANK, GABION MATRESS TURNS CORNER AND
            CONTINUES NORTHWESTERLY A FEW HUNDRED FEET ALONG THE EAST
            BOUNDARY OF GLENDALE MUNICIPAL AIRPORT.
            MATCH EXISTING GABION MATTRESS-GROUT GABIONS AND CONSTRUCT
            TRANSITION FROM 2:1 TO 1:1 SIDESLOPE IN 75 FT TAPER.
   58.120     11.46   1043.56   1039.60   1040.41   1044.60      1.03      1.46       .02   1049.10
  31000.0        .0   31000.0        .0        .0    3799.0        .0     238.6      32.5   1049.00
      .09       .00      8.16       .00      .000      .035      .000      .000   1032.10    763.54
  .001847      662.      662.      662.         2        15         0       .00    394.03   1157.56


*SECNO 62.000
            STA. 60+21.80 IS P.O.T.
   62.000     11.43   1044.33   1040.78   1040.95   1045.36      1.03       .76       .00   1050.40
   1000.0        .0   31000.0        .0        .0    3804.6        .0     272.5      36.2   1050.40
      .10       .00      8.15       .00      .000      .035      .000      .000   1032.90    268.75
  .002068      388.      388.      388.         2        19         0       .00    428.68    697.43


*SECNO 66.000
            LT CHNL BTM WDTH = 225 FT.
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            RT CHNL BTM WDTH = 230 FT.
   66.000     11.35   1045.35   1040.48   1041.69   1046.04       .69       .62       .07   1051.80
  31000.0        .0   31000.0       .0       .0    4643.0        .0     311.2      40.3   1051.80
     .12       .00      6.68       .00      .000      .035      .000      .000   1034.00    270.09
 .001206      400.      400.      400.         2        11         0       .00    471.26    741.35


 NO 71.000
            GRAND DRAIN INLET PER A.D.O.T. PLANS
   71.000     10.96   1045.96   1041.53   1042.23   1046.72       .76       .65       .03   1051.50
  31000.0        .0   31000.0       .0       .0    4445.5        .0     363.4      45.7   1051.50
     .14       .00      6.97       .00      .000      .035      .000      .000   1035.00    269.58
 .001386      500.      500.      500.         2        11         0       .00    470.98    740.56


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


*SECNO 75.000
   75.000     10.01   1046.51   1042.18   1042.77   1047.29       .78       .57       .01   1053.10
  31000.0        .0   31000.0       .0       .0    4376.8        .0     403.9      50.0   1053.10
     .15       .00      7.08       .00      .000      .035      .000      .000   1036.50    271.58
 .001445      400.      400.      400.         2        11         0       .00    468.44    740.01


*SECNO 78.000
            GRAND DRAIN LOW FLOW OUTLET PIPE AT LT SIDESLOPE
   78.000      9.54   1046.94   1042.85   1043.20   1047.76       .82       .45       .02   1053.50
  31000.0        .0   31000.0       .0       .0    4265.2        .0     433.7      53.2   1053.50
     .16       .00      7.27       .00      .000      .035      .000      .000   1037.40    272.03
 .001568      300.      300.      300.         0        11         0       .00    467.51    739.54


*SECNO 81.000
   81.000      9.41   1047.41   1043.45   1043.69   1048.25       .84       .48       .01   1054.00
  31000.0        .0   31000.0       .0       .0    4203.8        .0     462.8      56.5   1054.00
     .18       .00      7.37       .00      .000      .035      .000      .000   1038.00    271.79
 .001641      300.      300.      300.         1        11         0       .00    467.02    738.81


*SECNO 84.000
   84.000     10.89   1047.89   1044.16   1044.21   1048.78       .89       .51       .02   1054.50
  31000.0        .0   31000.0       .0       .0    4090.2        .0     491.4      59.7   1054.50
     .19       .00      7.58       .00      .000      .035      .000      .000   1037.00    272.73
 .001794      300.      300.      300.         0        15         0       .00    466.10    738.83


*SECNO 87.000
   87.000      8.62   1048.42   1045.12   1044.82   1049.40       .98       .58       .04   1055.00
  31000.0        .0   31000.0       .0       .0    3898.7        .0     518.9      62.9   1055.00
     .20       .00      7.95       .00      .000      .035      .000      .000   1039.80    272.98
 .002096      300.      300.      300.         1        11         0       .00    465.64    738.61


*SECNO 89.000
   89.000      8.41   1048.81   1045.87   1045.31   1049.89      1.07       .45       .04   1055.40
  31000.0        .0   31000.0       .0       .0    3733.0        .0     536.4      65.0   1055.40
     .20       .00      8.30       .00      .000      .035      .000      .000   1040.40    273.19
 .002421      200.      200.      200.         0        14         0       .00    465.22    738.41


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


 NO 94.000
            STA. 91+49.71 IS P.O.C. OF CURVE TO THE LEFT
   94.000      8.23   1050.03   1047.17   1046.74   1051.12      1.09      1.23       .01   1056.40
  31000.0        .0   31000.0       .0       .0    3697.5        .0     579.1      70.4   1056.40
     .22       .00      8.38       .00      .000      .035      .000      .000   1041.80    273.14
 .002500      500.      500.      500.         2        14         0       .00    465.10    738.23
```

```
CCHV=     .300 CEHV=     .500
*SECNO 97.000
   97.000      8.19   1050.79   1048.18   1047.56   1051.95      1.16       .79       .04   1057.10
  31000.0        .0   31000.0        .0        .0    3579.2        .0     604.1      73.6   1057.10
     .23       .00      8.66       .00      .000      .035      .000      .000   1042.60    273.14
  .02790      300.      300.      300.         1        14         0       .00    465.04    738.18


*SECNO 99.540

3301 HV CHANGED MORE THAN HVINS

            STA. 99+45.00 IS P.O.T.
            LT CHNL BTM WDTH = 157.9 FT.
            RT CHNL BTM WDTH = 157.9 FT.
   99.540      8.11   1051.31   1049.43   1048.29   1053.17      1.85       .87       .34   1063.50
  31000.0        .0   31000.0        .0        .0    2837.6        .0     622.8      75.9   1063.50
     .24       .00     10.92       .00      .000      .035      .000      .000   1043.20    325.13
 .004313      254.      254.      254.         2        15         0       .00    349.74    674.87


CCHV=     .300 CEHV=     .500
*SECNO 99.600

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1063.80 ELREA=      1063.80

            DOWNSTREAM BRIDGE SECTION - GLENDALE AVENUE
   99.600      6.23   1052.43   1052.43   1049.78   1055.57      3.15       .03       .65   1063.80
  31000.0        .0   31000.0        .0        .0    2177.8        .0     623.2      76.0   1063.80
     .24       .00     14.23       .00      .000      .025      .000      .000   1046.20    325.13
 .005244        6.        6.        6.         0        15         0       .00    349.74    674.87


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  17APR98      11:34:54                                                                                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


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS    1051.15 , NOT    1052.43 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     .90      1.56       2.90      358.00     349.74     32.00     5378.30       .00    1046.50    1046.20

*SECNO 100.400

3301 HV CHANGED MORE THAN HVINS


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

CLASS B LOW FLOW

3420 BRIDGE W.S.=    1053.01 BRIDGE VELOCITY=      14.64     CALCULATED CHANNEL AREA=      2070.

 EGPRS      EGLWC      H3         QWEIR      QLOW       BAREA      TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                     AREA
     .00    1056.89     .00          0.     31000.      5378.      5370.      1063.40    1065.90         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1065.90 ELREA=      1065.90

            GLENDALE AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS
     0.400      8.82   1055.32       .00   1051.57   1056.89      1.57      1.32       .00   1063.60
  31000.0        .0   31000.0        .0        .0    3084.8        .0     628.0      76.6   1063.60
     .24       .00     10.05       .00      .000      .025      .000      .000   1046.50    325.12
 .001674       80.       80.       80.         0         0         0       .00    349.75    674.88
```

```
*SECNO 100.900
            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 157.9 FT.
            RT CHNL BTM WDTH = 157.9 FT.
   100.900      9.01   1055.61   1052.79   1051.77   1057.04      1.43       .11       .04   1063.60
   31000.0        .0   31000.0       .0        .0   3232.3        .0     631.6      77.0   1063.60
       .24       .00      9.59       .00      .000      .035      .000      .000   1046.60    316.14
   002889       50.       50.       50.         2        19         0       .00    367.72    683.86


1
   17APR98      11:34:54                                                                                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


*SECNO 103.000
   103.000      9.62   1056.62   1053.05   1052.78   1057.77      1.14       .64       .09   1065.40
   31000.0        .0   31000.0       .0        .0   3613.3        .0     652.1      79.3   1065.40
       .25       .00      8.58       .00      .000      .035      .000      .000   1047.00    309.54
   .002141      260.      260.      260.         2        14         0       .00    389.69    699.23


CCHV=     .100 CEHV=     .300
*SECNO 106.000
   106.000     10.00   1057.60   1052.83   1053.55   1058.29       .69       .47       .05   1066.40
   31000.0        .0   31000.0       .0        .0   4657.4        .0     680.5      82.3   1066.40
       .26       .00      6.66       .00      .000      .035      .000      .000   1047.60    264.00
   .001212      300.      300.      300.         2        11         0       .00    480.80    744.80


*SECNO 109.000
            END CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 280 FT.
            RT CHNL BTM WDTH = 280 FT.
   109.000      9.91   1058.11   1052.99   1053.99   1058.62       .51       .31       .02   1066.90
   31000.0        .0   31000.0       .0        .0   5432.5        .0     715.3      85.9   1066.90
       .28       .00      5.71       .00      .000      .035      .000      .000   1048.20    218.89
   100912      300.      300.      300.         1        11         0       .00    571.02    789.91


*SECNO 110.000
   110.000     11.19   1058.19   1053.26   1054.09   1058.72       .53       .09       .01   1066.90
   31000.0        .0   31000.0       .0        .0   5310.7        .0     727.6      87.2   1066.90
       .28       .00      5.84       .00      .000      .035      .000      .000   1047.00    218.91
   .000983      100.      100.      100.         2        14         0       .00    570.88    789.79


*SECNO 113.000
   113.000      9.48   1058.48   1053.72   1054.46   1059.03       .55       .30       .01   1067.20
   31000.0        .0   31000.0       .0        .0   5224.2        .0     763.9      91.2   1067.20
       .30       .00      5.93       .00      .000      .035      .000      .000   1049.00    219.25
   .001036      300.      300.      300.         0        14         0       .00    570.23    789.48


*SECNO 116.000
            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 280 FT.
            RT CHNL BTM WDTH = 280 FT.
1
   17APR98      11:34:54                                                                                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


   116.000      9.17   1058.77   1054.54   1054.84   1059.40       .63       .35       .03   1067.30
   31000.0        .0   31000.0       .0        .0   4858.5        .0     798.6      95.1   1067.30
       .31       .00      6.38       .00      .000      .035      .000      .000   1049.60    219.35
   .001332      240.      300.      340.         0        11         0       .00    569.83    789.18


*SECNO 120.000

3301 HV CHANGED MORE THAN HVINS
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3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .45

END CHANNEL BOTTOM TRANSITION
LT CHNL BTM WDTH = 210 FT.
RT CHNL BTM WDTH = 230 FT.

120.000	8.43	1058.83	1057.98	1055.34	1060.83	1.99	1.01	.41	1067.10
1000.0	.0	31000.0	.0	.0	2735.5	.0	833.5	99.8	1067.10
.32	.00	11.33	.00	.000	.035	.000	.000	1050.40	289.82
.006554	327.	400.	497.	2	15	0	.00	448.62	738.44

*SECNO 123.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.20

123.000	10.05	1061.05	1056.46	1057.27	1061.82	.77	.88	.12	1068.80
31000.0	.0	31000.0	.0	.0	4395.6	.0	861.5	103.3	1068.80
.33	.00	7.05	.00	.000	.035	.000	.000	1051.00	287.70
.001356	342.	342.	342.	2	14	0	.00	452.36	740.05

*SECNO 127.000

127.000	9.79	1061.59	1057.25	1057.78	1062.40	.81	.57	.01	1068.80
31000.0	.0	31000.0	.0	.0	4281.4	.0	901.3	107.5	1068.80
.35	.00	7.24	.00	.000	.035	.000	.000	1051.80	287.44
.001480	400.	400.	400.	2	11	0	.00	452.35	739.78

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

*SECNO 131.000

131.000	12.17	1062.17	1058.22	1058.39	1063.06	.89	.64	.02	1069.40
31000.0	.0	31000.0	.0	.0	4096.0	.0	939.8	111.6	1069.40
.36	.00	7.57	.00	.000	.035	.000	.000	1050.00	287.67
.001719	400.	400.	400.	1	15	0	.00	451.89	739.56

*SECNO 135.000

135.000	9.45	1062.85	1059.78	1059.19	1063.92	1.08	.80	.06	1069.60
31000.0	.0	31000.0	.0	.0	3723.9	.0	975.7	115.8	1069.90
.37	.00	8.32	.00	.000	.035	.000	.000	1053.40	287.26
.002377	400.	400.	400.	2	11	0	.00	452.07	739.33

*SECNO 138.000

138.000	9.63	1063.63	1059.99	1060.06	1064.57	.94	.64	.01	1069.60
31000.0	.0	31000.0	.0	.0	3983.0	.0	1002.2	118.9	1069.60
.39	.00	7.78	.00	.000	.035	.000	.000	1054.00	286.34
.001899	300.	300.	300.	2	14	0	.00	453.29	739.63

*SECNO 141.000

141.000	9.57	1064.17	1061.13	1060.64	1065.26	1.09	.64	.04	1071.00
31000.0	.0	31000.0	.0	.0	3701.8	.0	1028.7	122.0	1071.00
.40	.00	8.37	.00	.000	.035	.000	.000	1054.60	287.22
.002428	300.	300.	300.	2	14	0	.00	452.35	739.57

*SECNO 145.000

A.D.O.T. CHANNEL INLET LT. BANK, NORTHERN AVENUE CHANNEL

145.000	9.82	1065.22	1060.86	1061.60	1066.03	.81	.74	.03	1072.00
31000.0	.0	31000.0	.0	.0	4290.2	.0	1065.4	126.1	1077.00
.41	.00	7.23	.00	.000	.035	.000	.000	1055.40	286.96
.001465	400.	400.	400.	2	11	0	.00	450.58	737.55

*SECNO 147.000

BEGIN CHANNEL BOTTOM TRANSITION
LT CHNL BTM WDTH = 210 FT.
RT CHNL BTM WDTH = 230 FT.

147.000	9.70	1065.50	1061.25	1061.85	1066.33	.83	.30	.00	1072.40
31000.0	.0	31000.0	.0	.0	4249.7	.0	1085.0	128.2	1072.40
.42	.00	7.29	.00	.000	.035	.000	.000	1055.80	287.19

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   .001517      200.      200.      200.         2        11         0       .00    452.51    739.70


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   17APR98      11:34:54                                                                                                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


*SECNO 150.000
            CHANNEL BOTTOM TAPERS
            LT CHNL BTM WDTH = 260 FT.
            RT CHNL BTM WDTH = 210 FT.
   150.000      9.64   1066.04   1061.61   1062.30   1066.77       .73       .43       .01   1073.00
   31000.0        .0   31000.0        .0        .0    4508.1        .0    1115.1     131.4   1073.00
       .43       .00      6.88       .00      .000      .035      .000      .000   1056.40    237.33
   .001355      350.      300.      260.         2        11         0       .00    482.31    719.64


*SECNO 155.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61

            CHANNEL BOTTOM TAPERS
            LT CHNL BTM WDTH = 260 FT.
            RT CHNL BTM WDTH = 170 FT.
   155.000      9.21   1066.61   1064.47   1063.05   1068.01      1.41      1.04       .20   1073.30
   31000.0        .0   31000.0        .0        .0    3257.1        .0    1159.7     136.7   1073.30
       .45       .00      9.52       .00      .000      .035      .000      .000   1057.40    237.48
   .003614      585.      500.      460.         2        15         0       .00    441.72    679.21


CCHV=     .300 CEHV=     .500
*SECNO 158.000
            END CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 162.5 FT.
            RT CHNL BTM WDTH = 162.5 FT.
   158.000      9.51   1067.51   1064.73   1064.30   1069.11      1.60      1.00       .10   1076.50
   31000.0        .0   31000.0        .0        .0    3050.3        .0    1181.4     139.4   1075.00
       .45       .00     10.16       .00      .000      .035      .000      .000   1058.00    336.98
   .003088      360.      300.      265.         2        15         0       .00    335.03    672.01


*SECNO 159.450

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1077.46 ELREA=      1077.46

            DOWNSTREAM BRIDGE SECTION - NORTHERN AVENUE BRIDGE
   159.450     10.29   1068.59   1064.80   1064.97   1069.84      1.25       .63       .11   1076.80
   31000.0        .0   31000.0        .0        .0    3451.4        .0    1199.7     141.3   1076.80
       .46       .00      8.98       .00      .000      .035      .000      .000   1058.30    327.21
   .002149      245.      245.      245.         2        14         0       .00    345.59    672.79


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   17APR98      11:34:54                                                                                                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


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.56      2.90    388.00    325.00     28.00   6034.00      1.00   1058.46   1058.30

    NO 160.250
    S A LOW FLOW

3420 BRIDGE W.S.=     1068.31 BRIDGE VELOCITY=      10.17     CALCULATED CHANNEL AREA=      3023.

 EGPRS      EGLWC      H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                             AREA
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      .00   1070.16       .37        0.    31000.     6034.     6004.     1077.46   1082.00        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1082.00 ELREA=      1082.00

            NORTHERN AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS
   60.250     10.50   1068.96       .00   1065.10   1070.16      1.20       .32       .00   1077.00
  31000.0        .0   31000.0        .0        .0    3523.1       .0    1206.1     142.0   1077.00
      .46       .00      8.80       .00      .000      .035      .000      .000   1058.46    327.02
  .002011       80.       80.       80.         0         0         0       .00    345.96    672.98


*SECNO 162.000
            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 162.5 FT.
            RT CHNL BTM WDTH = 162.5 FT.
  162.000     10.52   1069.32   1065.29   1065.41   1070.52      1.20       .35       .00   1077.00
  31000.0        .0   31000.0        .0        .0    3531.6       .0    1220.3     143.4   1077.00
      .47       .00      8.78       .00      .000      .035      .000      .000   1058.80    326.97
  .001996      175.      175.      175.         0        14         0       .00    346.05    673.03


*SECNO 165.000
            END CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 300 FT.
            RT CHNL BTM WDTH = 250 FT.
  165.000     11.08   1070.48   1065.45   1066.04   1071.19       .71       .52       .15   1078.80
  31000.0        .0   31000.0        .0        .0    4591.2       .0    1248.3     146.5   1078.80
      .48       .00      6.75       .00      .000      .035      .000      .000   1059.40    205.83
  .001539      300.      300.      300.         2        11         0       .00    555.25    761.08


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   17APR98      11:34:54                                                                                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


*SECNO 168.000
  168.000     10.84   1070.94   1066.26   1066.47   1071.72       .78       .50       .03   1079.00
  31000.0        .0   31000.0        .0        .0    4387.5       .0    1279.2     150.3   1079.00
      .49       .00      7.07       .00      .000      .035      .000      .000   1060.10    206.12
  .001788      300.      300.      300.         2        11         0       .00    554.72    760.84


CCHV=      .100 CEHV=      .300
*SECNO 170.000
            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 300 FT.
            RT CHNL BTM WDTH = 250 FT.
  170.000     10.70   1071.30   1066.73   1066.81   1072.08       .78       .36       .00   1079.20
  31000.0        .0   31000.0        .0        .0    4360.3       .0    1299.3     152.8   1079.20
      .50       .00      7.11       .00      .000      .035      .000      .000   1060.60    206.61
  .001823      200.      200.      200.         2        11         0       .00    554.09    760.70


*SECNO 173.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .70

            END CHNL BTM TRANSITION RT.
            RT CHNL BTM WDTH = 157 FT.
  173.000     10.05   1071.45   1069.22   1067.16   1073.10      1.65       .76       .26   1079.00
  31000.0        .0   31000.0        .0        .0    3007.1       .0    1324.6     156.0   1079.00
      .51       .00     10.31       .00      .000      .035      .000      .000   1061.40    293.29
  .003740      300.      300.      300.         2        19         0       .00    373.76    667.05


*SECNO 176.000
   76.000     10.52   1072.72   1070.07   1068.79   1074.13      1.41      1.01       .02   1079.60
  31000.0        .0   31000.0        .0        .0    3247.6       .0    1346.2     158.6   1079.60
      .52       .00      9.55       .00      .000      .035      .000      .000   1062.20    279.66
  .003042      300.      300.      300.         2        15         0       .00    387.87    667.52


*SECNO 177.000
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	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 = 1.50

BEGIN CHNL BTM TRANSITION RT.
RT CHNL BTM WDTH = 157 FT.

177.000	11.10	1073.50	1068.49	1069.56	1074.38	.88	.20	.05	1080.50
31000.0	.0	31000.0	.0	.0	4120.2	.0	1354.6	159.5	1080.50
.52	.00	7.52	.00	.000	.035	.000	.000	1062.40	286.02
.001361	100.	100.	100.	2	11	0	.00	382.09	668.10

*SECNO 179.000
END CHNL BTM TRANSITION LT.
LT CHNL BTM WDTH = 175 FT.

179.000	11.01	1073.81	1068.80	1069.79	1074.65	.84	.27	.00	1081.00
31000.0	.0	31000.0	.0	.0	4202.5	.0	1373.7	161.3	1081.00
.53	.00	7.38	.00	.000	.035	.000	.000	1062.80	321.22
.001335	200.	200.	200.	2	11	0	.00	398.29	719.51

*SECNO 181.000
END CHNL BTM TRANSITION RT.
RT CHNL BTM WDTH = 260 FT.

181.000	10.94	1074.24	1068.81	1070.08	1074.91	.66	.24	.02	1081.60
31000.0	.0	31000.0	.0	.0	4739.7	.0	1394.3	163.3	1081.60
.54	.00	6.54	.00	.000	.035	.000	.000	1063.30	321.41
.001048	200.	200.	200.	2	8	0	.00	449.53	770.94

NO 183.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .42

183.000	10.02	1073.82	1072.72	1069.50	1075.68	1.86	.41	.36	1081.30
31000.0	.0	31000.0	.0	.0	2832.3	.0	1411.6	165.3	1081.30
.54	.00	10.95	.00	.000	.035	.000	.000	1063.80	322.46
.005854	200.	200.	200.	3	15	0	.00	447.56	770.02

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	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 188.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.70

188.000	11.40	1076.40	1072.89	1072.71	1077.38	.98	1.61	.09	1083.00
31000.0	.0	31000.0	.0	.0	3905.9	.0	1450.3	170.5	1083.00
.56	.00	7.94	.00	.000	.035	.000	.000	1065.00	320.21
.002030	500.	500.	500.	2	15	0	.00	451.19	771.40

NO 193.000
STA. 192+60.12 IS P.O.C. OF CURVE TO THE RT.

193.000	11.23	1077.43	1073.60	1073.79	1078.34	.92	.96	.01	1084.00
31000.0	.0	31000.0	.0	.0	4030.1	.0	1495.9	175.7	1084.00
.58	.00	7.69	.00	.000	.035	.000	.000	1066.20	320.34
.001828	500.	500.	500.	2	14	0	.00	450.90	771.23

```
*SECNO 197.000
            BEGIN CHANNEL BOTTOM TRANSITION LEFT AND RIGHT
            TO MATCH PAST DEIGN CROSS SECTIONS.
   197.000     10.92   1078.12   1075.70   1074.60   1079.41      1.30       .95       .11   1084.60
    000.0        .0   31000.0       .0        .0    3393.0        .0    1529.9     179.8   1084.60
       .59       .00      9.14      .00      .000      .035      .000      .000   1067.20    320.57
   .003245     400.      400.      400.         2        15         0       .00    450.35    770.92


CCHV=     .300 CEHV=     .500
*SECNO 199.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.64

   199.000     11.26   1078.96   1073.62   1075.38   1079.75       .79       .19       .15   1086.20
   31000.0        .0   31000.0       .0        .0    4337.6        .0    1538.8     180.8   1086.20
       .59       .00      7.15      .00      .000      .035      .000      .000   1067.70    324.74
   .001203     200.      100.      200.         2        11         0       .00    396.52    721.26


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


*SECNO 201.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1086.70 ELREA=      1086.70

            DOWNSTREAM BRIDGE SECTION - 99TH AVENUE BRIDGE
   201.100     10.87   1079.07   1074.87   1075.51   1080.27      1.20       .31       .20   1086.70
   31000.0        .0   31000.0       .0        .0    3531.4        .0    1557.8     182.5   1086.70
       .60       .00      8.78      .00      .000      .035      .000      .000   1068.20    332.13
   .001921     210.      210.      210.         2        11         0       .00    335.74    667.87


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.56      2.90    376.00    314.00     21.00   5763.00      1.00   1068.40   1068.20

*SECNO 201.900
CLASS A LOW FLOW

3420 BRIDGE W.S.=     1078.93 BRIDGE VELOCITY=       9.61     CALCULATED CHANNEL AREA=      3195.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                               AREA
       .00   1080.51      .25        0.    31000.     5763.     5697.     1086.70   1091.80        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1091.80 ELREA=      1091.80

            99TH AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS
   201.900     10.92   1079.32       .00   1075.59   1080.51      1.18       .24       .00   1086.90
   31000.0        .0   31000.0       .0        .0    3549.0        .0    1564.3     183.1   1086.90
       .60       .00      8.73      .00      .000      .035      .000      .000   1068.40    332.08
   .001891      80.       80.       80.         0         0         0       .00    335.84    667.92


*SECNO 204.000
   204.000     10.81   1079.71   1075.54   1075.89   1080.92      1.21       .40       .01   1087.40
   31000.0        .0   31000.0       .0        .0    3515.5        .0    1581.3     184.8   1087.40
       .61       .00      8.82      .00      .000      .035      .000      .000   1068.90    332.18
   .001949     210.      210.      210.         0        14         0       .00    335.65    667.82


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   17APR98      11:34:54                                                                                PAGE   53

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
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    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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
    NO 209.300
   209.300      10.57    1080.76    1076.83    1076.78    1082.03       1.27       1.07        .03    1088.19
   31000.0         .0    31000.0         .0         .0     3430.2         .0     1623.6      188.8    1088.19
       .63        .00       9.04        .00       .000       .035       .000       .000    1070.19     332.43
   .002110       530.       530.       530.          2         14          0        .00     335.14     667.57

CCHV=      .300 CEHV=      .500
*SECNO 212.600

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1089.60 ELREA=      1089.60

            DOWNSTREAM BRIDGE SECTION - OLIVE AVENUE BRIDGE
   212.600      10.24    1081.24    1078.76    1077.39    1083.37       2.14        .91        .43    1089.60
   31000.0         .0    31000.0         .0         .0     2643.4         .0     1646.6      191.1    1089.60
       .63        .00      11.73        .00       .000       .035       .000       .000    1071.00     365.76
   .003768       330.       330.       330.          2         15          0        .00     268.47     634.24


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     1.05       1.56       2.90     300.00     248.00      18.50    4481.60       1.00    1071.50    1071.00

*SECNO 213.500
CLASS A LOW FLOW

3420 BRIDGE W.S.=     1080.62 BRIDGE VELOCITY=       13.85     CALCULATED CHANNEL AREA=       2175.

 EGPRS      EGLWC       H3         QWEIR      QLOW       BAREA    TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                     AREA
      .00   1084.06       .82         0.    31000.       4482.      4482.     1089.60    1095.00         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1095.00 ELREA=      1095.00

            OLIVE AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS
   213.500      10.56    1082.06        .00    1077.74    1084.06       2.00        .69        .00    1089.60
   31000.0         .0    31000.0         .0         .0     2729.1         .0     1652.1      191.7    1089.60
       .64        .00      11.36        .00       .000       .035       .000       .000    1071.50     365.44
   .003402        90.        90.        90.          0          0          0        .00     269.11     634.56


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   17APR98      11:34:54                                                                                    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

CCHV=      .100 CEHV=      .300
*SECNO 213.700

3301 HV CHANGED MORE THAN HVINS

   213.700       8.62    1081.62    1080.51    1077.32    1084.37       2.75        .09        .22    1095.00
   31000.0         .0    31000.0         .0         .0     2329.7         .0     1653.3      191.8    1096.20
       .64        .00      13.31        .00       .000       .035       .000       .000    1073.00     360.48
   .005989        20.        20.        20.          3         15          0        .00     278.60     639.08

*SECNO 217.500

    HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78

   217.500      10.39    1084.59    1080.51    1080.49    1085.71       1.12       1.18        .16    1096.00
   31000.0         .0    31000.0         .0         .0     3648.2         .0     1679.4      194.6    1097.00
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      .65       .00      8.50       .00      .000      .035      .000      .000   1074.20    316.40
   .001893      380.      380.      380.         2        15         0       .00    361.20    677.60


*SECNO 221.100
   221.100     10.00   1085.30   1081.44   1081.20   1086.41      1.11       .70       .00   1096.60
    1000.0        .0   31000.0        .0        .0    3660.6        .0    1709.6     197.7   1098.00
      .66       .00      8.47       .00      .000      .035      .000      .000   1075.30    306.30
   .001970      360.      360.      360.         2        11         0       .00    376.00    682.30


*SECNO 227.500
   227.500      9.65   1086.75   1082.23   1082.60   1087.46       .71      1.01       .04   1099.00
   31000.0        .0   31000.0        .0        .0    4583.3        .0    1770.1     204.0   1099.00
      .69       .00      6.76       .00      .000      .035      .000      .000   1077.10    257.86
   .001297      640.      640.      640.         2        11         0       .00    484.83    742.69


*SECNO 233.550
   233.550      8.45   1087.45   1084.55   1083.69   1088.62      1.17      1.02       .14   1101.70
   31000.0        .0   31000.0        .0        .0    3577.9        .0    1824.5     210.1   1101.60
      .71       .00      8.66       .00      .000      .035      .000      .000   1079.00    284.24
   .002536      580.      580.      580.         2        11         0       .00    431.61    715.86


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   17APR98      11:34:54                                                                          PAGE   55

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 238.660

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .62

    38.660      7.78   1088.38   1087.54   1085.54   1091.09      2.71      2.00       .46   1103.30
   31000.0        .0   31000.0        .0        .0    2346.1        .0    1859.5     214.5   1103.70
      .72       .00     13.21       .00      .000      .035      .000      .000   1080.60    345.05
   .006683      516.      516.      516.         2        15         0       .00    309.49    654.55


*SECNO 238.690

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   238.690      6.85   1090.45   1090.45   1087.55   1093.83      3.38       .02       .20   1103.40
   31000.0        .0   31000.0        .0        .0    2101.0        .0    1859.7     214.5   1103.90
      .72       .00     14.75       .00      .000      .035      .000      .000   1083.60    337.95
   .009793        3.        3.        3.         0        11         0       .00    313.60    651.55


CCHV=     .100 CEHV=     .300
*SECNO 242.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.82

   242.000      9.62   1094.07   1091.15   1090.47   1095.64      1.57      1.63       .18   1104.00
   31000.0        .0   31000.0        .0        .0    3082.6        .0    1879.4     216.9   1104.00
      .73       .00     10.06       .00      .000      .035      .000      .000   1084.45    334.93
   .002945      331.      331.      331.         2         8         0       .00    330.14    665.07


*SECNO 247.000
   247.000      9.91   1095.58   1092.34   1091.79   1097.04      1.46      1.39       .01   1104.50
   31000.0        .0   31000.0        .0        .0    3193.0        .0    1915.4     220.7   1104.50
      .74       .00      9.71       .00      .000      .035      .000      .000   1085.67    333.92
   .002643      500.      500.      500.         3        19         0       .00    332.16    666.08


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


 CCHV=     .100 CEHV=     .300
*SECNO 270.500
CHIMP CLSTA=    9955.00 CELCH=    1086.50 BW=     365.00 STCHL=    9753.15 STCHR=   10175.00
EXCAVATION DATA
AEX=    1319.1SQ-FT     VEXR=        .0K*CU-YD     VEXT=        .0K*CU-YD


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9750.0   10218.0  TYPE=      1  TARGET=    -9750.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1105.85 ELREA=      1107.00

   270.500     10.75   1097.25   1092.52   1093.11   1098.17       .91      1.07       .05   1105.85
   31000.0       .0   31000.0       .0        .0    4041.2        .0    1961.5     225.3   1107.00
       .76       .00      7.67      .00      .000      .035      .000      .000   1086.50   9761.75
   .001469     338.      555.     338.         2        14         0       .00    386.51  10148.25


*SECNO 273.500
CHIMP CLSTA=    9919.00 CELCH=    1087.20 BW=     375.00 STCHL=    9712.31 STCHR=   10127.15
EXCAVATION DATA
AEX=    2554.4SQ-FT     VEXR=      22.2K*CU-YD     VEXT=       22.2K*CU-YD


3470 ENCROACHMENT STATIONS=     9640.0   10160.0  TYPE=      1  TARGET=    -9640.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1106.39 ELREA=      1107.85

   273.500     10.52   1097.72   1093.12   1093.56   1098.63       .91       .46       .00   1106.39
   31000.0       .0   31000.0       .0        .0    4056.3        .0    1990.3     228.1   1107.85
       .77       .00      7.64      .00      .000      .035      .000      .000   1087.20   9720.98
   .001500     315.      310.     310.         2        11         0       .00    396.04  10117.02


*SECNO 277.900
CHIMP CLSTA=    9927.00 CELCH=    1088.30 BW=     360.00 STCHL=    9729.30 STCHR=   10137.00
EXCAVATION DATA
AEX=    2900.7SQ-FT     VEXR=      42.4K*CU-YD     VEXT=       64.7K*CU-YD
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1106.00 ELREA=      1108.50

   277.900     10.00   1098.30   1094.39   1094.22   1099.39      1.09       .71       .05   1106.00
   31000.0       .0   31000.0       .0        .0    3701.8        .0    2027.7     231.8   1108.50
       .79       .00      8.37      .00      .000      .035      .000      .000   1088.30   9737.00
   .001925     420.      420.     420.         2        11         0       .00    380.01  10117.00


*SECNO 281.800
CHIMP CLSTA=    9932.00 CELCH=    1089.20 BW=     330.00 STCHL=    9747.63 STCHR=   10117.50
EXCAVATION DATA
AEX=    3280.4SQ-FT     VEXR=      46.9K*CU-YD     VEXT=      111.6K*CU-YD


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1108.57 ELREA=      1109.70

   281.800      9.81   1099.01   1095.63   1095.08   1100.36      1.34       .89       .08   1108.57
   31000.0       .0   31000.0       .0        .0    3332.2        .0    2060.8     235.3   1109.70
       .80       .00      9.30      .00      .000      .035      .000      .000   1089.20   9757.19
   .002450     410.      410.     410.         0        14         0       .00    349.61  10106.81


CCHV=     .300 CEHV=     .500
*SECNO 288.000
CHIMP CLSTA=    9988.00 CELCH=    1092.20 BW=     274.00 STCHL=    9829.45 STCHR=   10145.00
```

EXCAVATION DATA
AEX= 1602.9SQ-FT VEXR= 54.3K*CU-YD VEXT= 165.9K*CU-YD

3301 HV CHANGED MORE THAN HVINS

WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .63

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1113.75 ELREA= 1112.00

288.000	8.34	1100.54	1099.47	1097.05	1103.23	2.69	2.20	.67	1113.75
31000.0	.0	31000.0	.0	.0	2355.1	.0	2100.0	239.7	1112.00
.81	.00	13.16	.00	.000	.035	.000	.000	1092.20	9842.66
.006085	600.	600.	600.	2	15	0	.00	290.68	10133.34

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

*SECNO 290.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1117.80 ELREA= 1117.80

290.000	8.72	1101.72	1100.53	1098.54	1104.49	2.76	1.22	.04	1117.80
31000.0	.0	31000.0	.0	.0	2323.6	.0	2110.7	241.0	1117.80
.81	.00	13.34	.00	.000	.035	.000	.000	1093.00	9865.00
.006096	220.	200.	160.	2	11	0	.00	271.00	10136.00

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 1099.64 , NOT 1101.72 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.90	1.56	2.90	.00	271.00	10.50	4974.00	.00	1093.70	1093.30

*SECNO 291.000
CLASS B LOW FLOW

3420 BRIDGE W.S.= 1101.11 BRIDGE VELOCITY= 15.65 CALCULATED CHANNEL AREA= 1929.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1105.08	.00	0.	31000.	4974.	5314.	1114.10	1119.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1117.80 ELREA= 1117.80

291.000	9.82	1102.82	.00	1098.80	1105.08	2.27	.60	.00	1116.00
31000.0	.0	31000.0	.0	.0	2565.2	.0	2115.0	241.5	1116.00
.82	.00	12.08	.00	.000	.035	.000	.000	1093.00	9865.00
.004420	77.	77.	77.	0	0	0	.00	271.00	10136.00

CCHV= .100 CEHV= .300
*SECNO 293.000
CHIMP CLSTA= 10007.00 CELCH= 1094.00 BW= 231.00 STCHL= 9869.90 STCHR= 10144.00
EXCAVATION DATA
AEX= -4.0SQ-FT VEXR= 5.9K*CU-YD VEXT= 171.8K*CU-YD

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

3301 HV CHANGED MORE THAN HVINS

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   293.000      9.35   1103.35   1102.11   1099.70   1106.30      2.95      1.01       .20   1115.60
   31000.0        .0   31000.0        .0        .0    2249.7        .0    2126.1     242.6   1115.00
       .82       .00     13.78       .00      .000      .035      .000      .000   1094.00   9882.14
   .005853      200.      200.      200.         2        15         0       .00    249.72  10131.86


    !O 297.000
  .  .? CLSTA=   10006.00 CELCH=    1096.10 BW=     246.00 STCHL=    9863.04 STCHR=   10150.00
EXCAVATION DATA
AEX=      -26.4SQ-FT     VEXR=       -.2K*CU-YD     VEXT=      171.6K*CU-YD


3301 HV CHANGED MORE THAN HVINS

   297.000      9.93   1106.03   1103.92   1102.04   1108.34      2.31      1.98       .06   1116.05
   31000.0        .0   31000.0        .0        .0    2542.1        .0    2148.1     245.0   1115.00
       .83       .00     12.19       .00      .000      .035      .000      .000   1096.10   9873.07
   .004234      400.      400.      400.         3        11         0       .00    265.87  10138.93


*SECNO 302.000
CHIMP CLSTA=    9999.00 CELCH=    1098.20 BW=     197.00 STCHL=    9882.00 STCHR=   10118.78
EXCAVATION DATA
AEX=        3.1SQ-FT     VEXR=       -.2K*CU-YD     VEXT=      171.3K*CU-YD


3301 HV CHANGED MORE THAN HVINS

   302.000      9.72   1107.92   1107.19   1104.40   1111.62      3.70      2.86       .42   1116.00
   31000.0        .0   31000.0        .0        .0    2009.1        .0    2175.8     247.9   1119.48
       .84       .00     15.43       .00      .000      .035      .000      .000   1098.20   9890.78
   .007096      530.      530.      530.         3        11         0       .00    216.44  10107.22


*SECNO 305.000
CHIMP CLSTA=    9992.00 CELCH=    1099.50 BW=     188.00 STCHL=    9880.94 STCHR=   10110.00
EXCAVATION DATA
AEX=      244.7SQ-FT     VEXR=        1.3K*CU-YD     VEXT=      172.6K*CU-YD

   305.000     10.57   1110.07   1108.79   1106.05   1113.45      3.38      1.81       .03   1116.56
   31000.0        .0   31000.0        .0        .0    2099.6        .0    2189.0     249.3   1119.50
       .84       .00     14.76       .00      .000      .035      .000      .000   1099.50   9887.43
    ;05898      280.      280.      280.         3         8         0       .00    209.15  10096.57


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


*SECNO 306.750
CHIMP CLSTA=    9959.00 CELCH=    1100.30 BW=     289.00 STCHL=    9798.80 STCHR=   10123.24
EXCAVATION DATA
AEX=     1770.8SQ-FT     VEXR=        8.0K*CU-YD     VEXT=      180.6K*CU-YD


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.15

   306.750     12.93   1113.23   1107.31   1107.89   1114.21       .98       .51       .24   1116.00
   31000.0        .0   31000.0        .0        .0    3902.6        .0    2203.8     250.6   1120.04
       .85       .00      7.94       .00      .000      .035      .000      .000   1100.30   9801.57
   .001276      215.      215.      215.         3        14         0       .00    314.85  10116.43


*SECNO 310.000
CHIMP CLSTA=    9965.00 CELCH=    1101.60 BW=     330.00 STCHL=    9784.66 STCHR=   10149.29
EXCAVATION DATA
AEX=     1007.5SQ-FT     VEXR=       16.5K*CU-YD     VEXT=      197.1K*CU-YD

    '0.000     12.15   1113.75   1108.03   1108.39   1114.61       .86       .40       .01   1116.94
    ,000.0        .0   31000.0        .0        .0    4158.3        .0    2233.4     253.1   1120.90
       .86       .00      7.45       .00      .000      .035      .000      .000   1101.60   9787.85
   .001200      320.      320.      320.         2         8         0       .00    354.31  10142.15


*SECNO 313.200
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CHIMP CLSTA=   10000.00 CELCH=    1103.00 BW=     330.00 STCHL=    9820.00 STCHR=   10183.25
EXCAVATION DATA
AEX=     1069.6SQ-FT      VEXR=       12.1K*CU-YD      VEXT=       209.2K*CU-YD

   313.200      11.06   1114.06   1109.43   1108.88   1115.11      1.05       .44       .06   1117.00
   31000.0        .0   31000.0       .0        .0    3772.2        .0    2262.1     255.6   1121.25
       .87       .00      8.22       .00      .000      .035      .000      .000   1103.00   9823.94
   .001642      315.      315.      315.         2        11         0       .00    352.12  10176.06


*SECNO 318.000
CHIMP CLSTA=   10000.00 CELCH=    1105.10 BW=     330.00 STCHL=    9820.00 STCHR=   10182.90
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


EXCAVATION DATA
AEX=       52.1SQ-FT      VEXR=       10.4K*CU-YD      VEXT=       219.6K*CU-YD

   318.000       9.74   1114.84   1111.55   1110.29   1116.21      1.36      1.00       .09   1120.00
   31000.0        .0   31000.0       .0        .0    3310.2        .0    2302.7     259.6   1123.00
       .89       .00      9.37       .00      .000      .035      .000      .000   1105.10   9825.26
   .002503      500.      500.      500.         2        11         0       .00    349.49  10174.74


*SECNO 320.050
CHIMP CLSTA=   10000.00 CELCH=    1106.00 BW=     330.00 STCHL=    9816.00 STCHR=   10184.00
EXCAVATION DATA
AEX=      152.0SQ-FT      VEXR=        1.1K*CU-YD      VEXT=       220.7K*CU-YD

   320.050       9.55   1115.55   1112.43   1111.41   1116.97      1.42       .75       .02   1125.00
   31000.0        .0   31000.0       .0        .0    3244.0        .0    2324.6     262.0   1125.00
       .90       .00      9.56       .00      .000      .035      .000      .000   1106.00   9825.45
   .002672      290.      290.      290.         2        14         0       .00    349.11  10174.55


    NO 328.000
CHIMP CLSTA=   10000.00 CELCH=    1109.10 BW=     330.00 STCHL=    9817.10 STCHR=   10182.90
EXCAVATION DATA
AEX=      195.1SQ-FT      VEXR=        4.1K*CU-YD      VEXT=       224.8K*CU-YD

   328.000       8.25   1117.35   1115.53   1113.86   1119.27      1.91      2.15       .15   1127.00
   31000.0        .0   31000.0       .0        .0    2792.0        .0    2368.9     267.1   1127.00
       .91       .00     11.10       .00      .000      .035      .000      .000   1109.10   9826.75
   .004338      640.      640.      640.         2        14         0       .00    346.51  10173.25


*SECNO 330.000
CHIMP CLSTA=   10000.00 CELCH=    1110.10 BW=     330.00 STCHL=    9817.60 STCHR=   10182.40
EXCAVATION DATA
AEX=       76.6SQ-FT      VEXR=         .9K*CU-YD      VEXT=       225.7K*CU-YD

   330.000       7.96   1118.06   1116.53   1114.76   1120.12      2.06       .81       .04   1127.50
   31000.0        .0   31000.0       .0        .0    2688.8        .0    2379.9     268.5   1127.50
       .92       .00     11.53       .00      .000      .035      .000      .000   1110.10   9827.04
   .004911      175.      175.      175.         2        15         0       .00    345.91  10172.96


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


*SECNO 334.000
CHIMP CLSTA=   10000.00 CELCH=    1112.00 BW=     330.00 STCHL=    9818.00 STCHR=   10182.00
EXCAVATION DATA
          68.0SQ-FT      VEXR=        1.1K*CU-YD      VEXT=       226.8K*CU-YD

   334.000       8.15   1120.15   1118.43   1116.99   1122.11      1.97      1.98       .01   1129.00
   31000.0        .0   31000.0       .0        .0    2754.6        .0    2406.1     271.8   1129.00
       .93       .00     11.25       .00      .000      .035      .000      .000   1112.00   9826.85
   .004540      420.      420.      420.         2        15         0       .00    346.29  10173.15
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CCHV=     .200 CEHV=     .400
*SECNO 343.000
CHIMP CLSTA=   10025.00 CELCH=    1115.70 BW=     329.00 STCHL=    9861.00 STCHR=   10206.30
EXCAVATION DATA
AEX=    2385.5SQ-FT     VEXR=      40.9K*CU-YD     VEXT=      267.7K*CU-YD


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1132.00 ELREA=      1132.00

   343.000      8.45   1124.15   1122.16   1120.84   1126.03      1.88      3.90       .02   1132.00
   31000.0       .0   31000.0       .0        .0    2816.9        .0    2463.7     278.9   1132.00
       .95      .00     11.01       .00      .000      .035      .000      .000   1115.70   9861.00
   .004149     900.      900.      900.         2        15         0       .00    337.45  10198.45


*SECNO 344.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1132.00 ELREA=      1132.00

   344.900      8.80   1125.10   1122.74   1121.67   1126.80      1.70       .73       .04   1132.00
   31000.0       .0   31000.0       .0        .0    2966.3        .0    2476.3     280.4   1132.00
       .96      .00     10.45       .00      .000      .035      .000      .000   1116.30   9828.27
   .003534     110.      190.      260.         2        15         0       .00    344.02  10172.29


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T1      NEW RIVER: FLOOD CONTROL DISTRICT CHANNELIZATION PROJECT
T2      NEW RIVER: BETHANY HOME ALIGNMENT TO GRAND AVE.
T3      100-YEAR EVENT              NRO2B

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0       4                                                                   1040.66

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       3       0        -1                                       -1                            0


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


*PROF 3

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV=     .100 CEHV=     .300
*SECNO 39.000

3470 ENCROACHMENT STATIONS=     9585.9   10426.1  TYPE=      1  TARGET=      840.199
             BEGIN ANALYSIS NEAR THE BETHANY HOME ROAD ALIGNMENT.
             WATER SURFACE UTILIZED FOR THIS ANALYSIS IS BASED ON
             EXISTING CONDTIONS OUTPUT DATA WHICH INCLUDES THE
             GLENDALE MUNICIPAL AIRPORT CHANNELIZATION AND SIDEBANK
             PROTECTION.  CROSS SECTION 39.00 ASSUMES EXISTING CONDITIONS
             BOTTOM CONTOURS WITH EXISTING LEFT BANK NATURAL SIDESLOPE.
    39.000     12.66   1040.66   1035.33   1036.06   1041.08       .42       .00       .00   1042.50
   41000.0       .0   41000.0       .0        .0    7851.4        .0       .0        .0   1043.20
       .00      .00      5.22       .00      .000      .035      .000      .000   1028.00   9587.98
   .000765     270.      220.      200.         0        13         0       .00    832.94  10420.92


CCHV=     .200 CEHV=     .400
*SECNO 44.000
             BEGIN CHANNELIZATION AND SIDEBANK PROTECTION DEGIGN.
             LT CHNL BTM WDTH = 500 FEET - MATCH EXISTING DOWNSTREAM
             RT CHNL BTM WDTH PER GLENDALE AIRPORT "AS BUILTS" = 362+OR- FEET
    .4.000     10.32   1041.07   1036.92   1036.53   1041.57       .51       .46       .03   1044.90
   41000.0       .0   41000.0       .0        .0    7176.3        .0      86.2       9.8   1045.10
       .02      .00      5.71       .00      .000      .035      .000      .000   1030.75   9493.46
   .001114     500.      500.      500.         2        11         0       .00    882.65  10376.11
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*SECNO 47.000
   47.000      10.31   1041.31   1038.34   1037.11   1042.16       .85       .45       .14   1045.00
  41000.0        .0   41000.0        .0        .0    5533.1        .0     130.0      15.5   1045.00
      .04       .00      7.41       .00      .000      .035      .000      .000   1031.00    603.38
  .002122      300.      300.      300.         2        19         0       .00    746.21   1349.59


  .NO 51.500

3301 HV CHANGED MORE THAN HVINS

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            LT CHNL BTM WDTH = 225 FT
   51.500      10.73   1042.14   1039.77   1038.44   1043.57      1.44      1.17       .23   1045.70
  41000.0        .0   41000.0        .0        .0    4264.7        .0     180.6      22.1   1045.70
      .05       .00      9.61       .00      .000      .035      .000      .000   1031.40    767.93
  .003291      450.      450.      450.         2        15         0       .00    538.21   1306.14


*SECNO 55.000
            STA. 53+12.97 IS P.O.C. OF CURVE TO THE RIGHT
   55.000      11.29   1043.19   1040.35   1039.30   1044.67      1.49      1.08       .02   1047.00
  41000.0        .0   41000.0        .0        .0    4191.3        .0     214.6      26.1   1047.00
      .06       .00      9.78       .00      .000      .035      .000      .000   1031.90    267.57
  .002921      350.      350.      350.         2        15         0       .00    469.92    737.49


*SECNO 58.120
            END GLENDALE MUNICIPAL AIRPORT GABION MATTRESS SIDESLOPE
            ALONG NEW RIVER RT BANK, GABION MATRESS TURNS CORNER AND
            CONTINUES NORTHWESTERLY A FEW HUNDRED FEET ALONG THE EAST
            BOUNDARY OF GLENDALE MUNICIPAL AIRPORT.
            MATCH EXISTING GABION MATTRESS-GROUT GABIONS AND CONSTRUCT
            TRANSITION FROM 2:1 TO 1:1 SIDESLOPE IN 75 FT TAPER.
   58.120      12.84   1044.94   1040.79   1040.41   1046.32      1.38      1.63       .02   1049.10
  41000.0        .0   41000.0        .0        .0    4342.1        .0     279.4      32.7   1049.00
      .08       .00      9.44       .00      .000      .035      .000      .000   1032.10    762.16
  .002096      662.      662.      662.         2        15         0       .00    396.78   1158.94


  ..CNO 62.000
            STA. 60+21.80 IS P.O.T.
   62.000      12.95   1045.85   1041.92   1040.95   1047.16      1.31       .83       .01   1050.40
  41000.0        .0   41000.0        .0        .0    4462.3        .0     318.6      36.4   1050.40
      .09       .00      9.19       .00      .000      .035      .000      .000   1032.90    265.70
  .002162      388.      388.      388.         2        19         0       .00    433.26    698.95


*SECNO 66.000
            LT CHNL BTM WDTH = 225 FT.
            RT CHNL BTM WDTH = 230 FT.
   66.000      13.01   1047.01   1041.58   1041.69   1047.90       .89       .65       .09   1051.80
  41000.0        .0   41000.0        .0        .0    5430.7        .0     364.1      40.6   1051.80
      .10       .00      7.55       .00      .000      .035      .000      .000   1034.00    266.77
  .001272      400.      400.      400.         2        11         0       .00    476.25    743.02


*SECNO 71.000
            GRAND DRAIN INLET PER A.D.O.T. PLANS
   71.000      12.65   1047.65   1042.62   1042.23   1048.60       .95       .67       .03   1051.50
  41000.0        .0   41000.0        .0        .0    5244.6        .0     425.3      46.1   1051.50
      .12       .00      7.82       .00      .000      .035      .000      .000   1035.00    266.20
  .001421      500.      500.      500.         2        11         0       .00    476.04    742.25


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


  .NO 75.000
   75.000      11.71   1048.21   1043.26   1042.77   1049.18       .97       .58       .01   1053.10
  41000.0        .0   41000.0        .0        .0    5177.0        .0     473.2      50.4   1053.10
      .14       .00      7.92       .00      .000      .035      .000      .000   1036.50    268.18
  .001469      400.      400.      400.         2        11         0       .00    473.53    741.71
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*SECNO 78.000
            GRAND DRAIN LOW FLOW OUTLET PIPE AT LT SIDESLOPE
    78.000     11.24   1048.64   1043.94   1043.20   1049.66      1.02       .46       .02   1053.50
   41000.0        .0   41000.0       .0        .0    5068.0        .0     508.5      53.7   1053.50
       .15       .00      8.09       .00      .000      .035      .000      .000   1037.40    268.61
    001570      300.      300.      300.         0        11         0       .00    472.63    741.24


*SECNO 81.000
    81.000     11.11   1049.11   1044.54   1043.69   1050.15      1.04       .48       .01   1054.00
   41000.0        .0   41000.0       .0        .0    5001.6        .0     543.1      56.9   1054.00
       .16       .00      8.20       .00      .000      .035      .000      .000   1038.00    268.50
   .001636      300.      300.      300.         0        11         0       .00    471.90    740.40


*SECNO 84.000
    84.000     12.59   1049.59   1045.23   1044.21   1050.68      1.09       .51       .02   1054.50
   41000.0        .0   41000.0       .0        .0    4886.9        .0     577.2      60.2   1054.50
       .17       .00      8.39       .00      .000      .035      .000      .000   1037.00    269.33
   .001764      300.      300.      300.         0        19         0       .00    471.19    740.52


*SECNO 87.000
    87.000     10.29   1050.09   1046.21   1044.82   1051.28      1.19       .57       .04   1055.00
   41000.0        .0   41000.0       .0        .0    4686.7        .0     610.2      63.4   1055.00
       .18       .00      8.75       .00      .000      .035      .000      .000   1039.80    269.61
   .002019      300.      300.      300.         0         8         0       .00    470.69    740.30


*SECNO 89.000
    89.000     10.07   1050.47   1046.95   1045.31   1051.75      1.28       .43       .04   1055.40
   41000.0        .0   41000.0       .0        .0    4511.7        .0     631.3      65.6   1055.40
       .18       .00      9.09       .00      .000      .035      .000      .000   1040.40    269.86
   .002291      200.      200.      200.         0        14         0       .00    470.22    740.07


1
   17APR98      11:34:54                                                                          PAGE    67

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 94.000
            STA. 91+49.71 IS P.O.C. OF CURVE TO THE LEFT
    94.000      9.82   1051.62   1048.25   1046.74   1052.94      1.32      1.18       .02   1056.40
   41000.0        .0   41000.0       .0        .0    4438.9        .0     682.6      71.0   1056.40
       .20       .00      9.24       .00      .000      .035      .000      .000   1041.80    269.96
   .002417      500.      500.      500.         2        14         0       .00    469.85    739.82


CCHV=      .300 CEHV=      .500
*SECNO 97.000
    97.000      9.74   1052.34   1049.26   1047.56   1053.75      1.41       .76       .04   1057.10
   41000.0        .0   41000.0       .0        .0    4304.9        .0     712.8      74.2   1057.10
       .21       .00      9.52       .00      .000      .035      .000      .000   1042.60    270.04
   .002680      300.      300.      300.         1        14         0       .00    469.69    739.73


*SECNO 99.540

3301 HV CHANGED MORE THAN HVINS

            STA. 99+45.00 IS P.O.T.
            LT CHNL BTM WDTH = 157.9 FT.
            RT CHNL BTM WDTH = 157.9 FT.
    99.540      9.53   1052.73   1050.70   1048.29   1055.08      2.35       .86       .47   1063.50
   41000.0        .0   41000.0       .0        .0    3334.2        .0     735.0      76.6   1063.50
       .21       .00     12.30       .00      .000      .035      .000      .000   1043.20    325.13
   .004453      254.      254.      254.         2        15         0       .00    349.75    674.87


CCHV=      .300 CEHV=      .500
   ?NO 99.600

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1063.80 ELREA=      1063.80

            DOWNSTREAM BRIDGE SECTION - GLENDALE AVENUE
    99.600      7.50   1053.70   1053.70   1049.78   1057.49      3.79       .03       .72   1063.80
   41000.0        .0   41000.0        .0        .0    2623.1        .0     735.4      76.7   1063.80
       .21       .00     15.63       .00      .000      .025      .000      .000   1046.20    325.13
   004980        6.        6.        6.         0        15         0       .00    349.74    674.87


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   17APR98      11:34:54                                                                                    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


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS     1052.16 , NOT     1053.70 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .90      1.56      2.90    358.00    349.74     32.00   5378.30       .00   1046.50   1046.20

*SECNO 100.400

3301 HV CHANGED MORE THAN HVINS


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

CLASS B LOW FLOW

3420 BRIDGE W.S.=     1054.38 BRIDGE VELOCITY=       16.08     CALCULATED CHANNEL AREA=       2503.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                                 AREA
      .00   1059.02      .00         0.    41000.     5378.     5370.     1063.40   1065.90        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1065.90 ELREA=      1065.90

            GLENDALE AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS
   100.400     10.63   1057.13       .00   1051.57   1059.02      1.89      1.52       .00   1063.60
   41000.0        .0   41000.0        .0        .0    3716.9        .0     741.3      77.3   1063.60
       .21       .00     11.03       .00      .000      .025      .000      .000   1046.50    325.12
   .001594      80.       80.       80.         0         0         0       .00    349.76    674.88


*SECNO 100.900
            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 157.9 FT.
            RT CHNL BTM WDTH = 157.9 FT.
   100.900     10.88   1057.48   1054.05   1051.77   1059.18      1.69       .10       .06   1063.60
   41000.0        .0   41000.0        .0        .0    3925.0        .0     745.6      77.7   1063.60
       .22       .00     10.45       .00      .000      .035      .000      .000   1046.60    314.26
   .002695      50.       50.       50.         2        19         0       .00    371.47    685.74


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   17APR98      11:34:54                                                                                    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 103.000
   103.000     11.50   1058.50   1054.28   1052.78   1059.88      1.38       .61       .09   1065.40
   41000.0        .0   41000.0        .0        .0    4351.3        .0     770.3      80.0   1065.40
       .22       .00      9.42       .00      .000      .035      .000      .000   1047.00    305.78
   002062     260.      260.      260.         2        14         0       .00    395.33    701.11


CCHV=      .100 CEHV=      .300
*SECNO 106.000

3301 HV CHANGED MORE THAN HVINS
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   106.000     11.96   1059.56   1053.89   1053.55   1060.39       .83       .46       .05   1066.40
   41000.0        .0   41000.0        .0        .0    5608.1        .0     804.6      83.0   1066.40
       .23       .00      7.31       .00      .000      .035      .000      .000   1047.60    260.07
   .001163      300.      300.      300.         2        11         0       .00    486.69    746.76


   ,NO 109.000
            END CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 280 FT.
            RT CHNL BTM WDTH = 280 FT.
   109.000     11.91   1060.11   1053.94   1053.99   1060.71       .60       .30       .02   1066.90
   41000.0        .0   41000.0        .0        .0    6582.8        .0     846.6      86.7   1066.90
       .25       .00      6.23       .00      .000      .035      .000      .000   1048.20    214.88
   .000855      300.      300.      300.         2        11         0       .00    577.03    791.91


 *SECNO 110.000
   110.000     13.18   1060.18   1054.20   1054.09   1060.81       .63       .09       .01   1066.90
   41000.0        .0   41000.0        .0        .0    6453.4        .0     861.6      88.0   1066.90
       .25       .00      6.35       .00      .000      .035      .000      .000   1047.00    214.88
   .000913      100.      100.      100.         2        14         0       .00    576.90    791.78


 *SECNO 113.000
   113.000     11.45   1060.45   1054.66   1054.46   1061.10       .65       .28       .01   1067.20
   41000.0        .0   41000.0        .0        .0    6354.5        .0     905.7      92.0   1067.20
       .26       .00      6.45       .00      .000      .035      .000      .000   1049.00    215.31
   .000959      300.      300.      300.         0        14         0       .00    576.14    791.45


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   17APR98      11:34:54                                                                          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


   ⁻NO 116.000
            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 280 FT.
            RT CHNL BTM WDTH = 280 FT.
   116.000     11.11   1060.71   1055.51   1054.84   1061.44       .73       .32       .03   1067.30
   41000.0        .0   41000.0        .0        .0    5968.8        .0     948.1      96.0   1067.30
       .28       .00      6.87       .00      .000      .035      .000      .000   1049.60    215.47
   .001192      240.      300.      340.         1        11         0       .00    575.65    791.12


 *SECNO 120.000

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .49

            END CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 210 FT.
            RT CHNL BTM WDTH = 230 FT.
   120.000     10.22   1060.62   1059.08   1055.34   1062.70      2.08       .86       .40   1067.10
   41000.0        .0   41000.0        .0        .0    3544.2        .0     991.8     100.7   1067.10
       .29       .00     11.57       .00      .000      .035      .000      .000   1050.40    286.24
   .004928      327.      400.      497.         2        15         0       .00    454.00    740.23


 *SECNO 123.000

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.85

   123.000     11.65   1062.65   1057.57   1057.27   1063.64       .99       .83       .11   1068.80
   41000.0        .0   41000.0        .0        .0    5124.4        .0    1025.8     104.3   1068.80
       .30       .00      8.00       .00      .000      .035      .000      .000   1051.00    284.49
   ⁾01447      342.      342.      342.         2        14         0       .00    457.16    741.65


 *SECNO 127.000
   127.000     11.42   1063.22   1058.37   1057.78   1064.25      1.03       .60       .01   1068.80
   41000.0        .0   41000.0        .0        .0    5025.9        .0    1072.4     108.5   1068.80
       .31       .00      8.16       .00      .000      .035      .000      .000   1051.80    284.16
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   .001543      400.      400.      400.         3        11         0       .00    457.26    741.42


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   17APR98      11:34:54                                                                                                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


*SECNO 131.000
   131.000     13.82   1063.82   1059.33   1058.39   1064.93      1.11       .66       .02   1069.40
   41000.0        .0   41000.0       .0        .0    4846.6        .0    1117.8     112.7   1069.40
       .33       .00      8.46       .00      .000      .035      .000      .000   1050.00    284.37
   .001746      400.      400.      400.         0        15         0       .00    456.85    741.22


*SECNO 135.000
   135.000     11.08   1064.48   1060.89   1059.19   1065.79      1.31       .80       .06   1069.60
   41000.0        .0   41000.0       .0        .0    4465.7        .0    1160.5     116.9   1069.90
       .34       .00      9.18       .00      .000      .035      .000      .000   1053.40    283.93
   .002309      400.      400.      400.         0        11         0       .00    457.01    740.94


*SECNO 138.000
   138.000     11.26   1065.26   1061.09   1060.06   1066.43      1.17       .63       .01   1069.60
   41000.0        .0   41000.0       .0        .0    4727.6        .0    1192.2     120.0   1069.60
       .35       .00      8.67       .00      .000      .035      .000      .000   1054.00    283.07
   .001909      300.      300.      300.         2        14         0       .00    458.19    741.26


*SECNO 141.000
   141.000     11.19   1065.79   1062.26   1060.64   1067.11      1.32       .63       .05   1071.00
   41000.0        .0   41000.0       .0        .0    4439.0        .0    1223.7     123.2   1071.00
       .36       .00      9.24       .00      .000      .035      .000      .000   1054.60    283.99
   .002358      300.      300.      300.         2        14         0       .00    457.20    741.19


*SECNO 145.000
            A.D.O.T. CHANNEL INLET LT. BANK, NORTHERN AVENUE CHANNEL
   145.000     11.46   1066.86   1061.98   1061.60   1067.89      1.03       .75       .03   1072.00
   41000.0        .0   41000.0       .0        .0    5036.2        .0    1267.2     127.3   1077.00
       .37       .00      8.14       .00      .000      .035      .000      .000   1055.40    283.67
   .001527      400.      400.      400.         2        11         0       .00    455.14    738.81


*SECNO 147.000
            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 210 FT.
            RT CHNL BTM WDTH = 230 FT.
   147.000     11.36   1067.16   1062.37   1061.85   1068.21      1.04       .31       .00   1072.40
   41000.0        .0   41000.0       .0        .0    5004.6        .0    1290.3     129.4   1072.40
       .38       .00      8.19       .00      .000      .035      .000      .000   1055.80    283.87
   .001566      200.      200.      200.         2        11         0       .00    457.49    741.36


1
   17APR98      11:34:54                                                                                                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


*SECNO 150.000
            CHANNEL BOTTOM TAPERS
            LT CHNL BTM WDTH = 260 FT.
            RT CHNL BTM WDTH = 210 FT.
   150.000     11.34   1067.74   1062.67   1062.30   1068.66       .92       .44       .01   1073.00
   41000.0        .0   41000.0       .0        .0    5335.6        .0    1325.9     132.7   1073.00
       .39       .00      7.68       .00      .000      .035      .000      .000   1056.40    233.92
   .001375      350.      300.      260.         2        11         0       .00    487.43    721.34


*SECNO 155.000

3301 HV CHANGED MORE THAN HVINS
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3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .65

            CHANNEL BOTTOM TAPERS
            LT CHNL BTM WDTH = 260 FT.
            RT CHNL BTM WDTH = 170 FT.
   155.000     10.85   1068.25   1065.62   1063.05   1069.89      1.64      1.01       .22   1073.30
   41000.0       .0   41000.0        .0        .0    3985.6        .0    1379.4     138.1   1073.30
       .40       .00     10.29       .00      .000      .035      .000      .000   1057.40    234.20
   .003282     585.      500.      460.         2        19         0       .00    446.65    680.85


CCHV=     .300 CEHV=     .500
*SECNO 158.000
            END CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 162.5 FT.
            RT CHNL BTM WDTH = 162.5 FT.
   158.000     11.03   1069.03   1066.09   1064.30   1071.08      2.06       .99       .21   1076.50
   41000.0       .0   41000.0        .0        .0    3562.0        .0    1405.4     140.8   1075.00
       .41       .00     11.51       .00      .000      .035      .000      .000   1058.00    333.95
   .003291     360.      300.      265.         2        15         0       .00    339.58    673.53


*SECNO 159.450

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1077.46 ELREA=      1077.46

            DOWNSTREAM BRIDGE SECTION - NORTHERN AVENUE BRIDGE
   159.450     11.99   1070.29   1066.14   1064.97   1071.88      1.60       .66       .14   1076.80
   41000.0       .0   41000.0        .0        .0    4040.8        .0    1426.8     142.7   1076.80
       .41       .00     10.15       .00      .000      .035      .000      .000   1058.30    325.51
   .002263     245.      245.      245.         2        15         0       .00    348.98    674.49


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   17APR98      11:34:54                                                                                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


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.56      2.90    388.00    325.00     28.00   6034.00      1.00   1058.46   1058.30

*SECNO 160.250
CLASS A LOW FLOW

3420 BRIDGE W.S.=     1069.87 BRIDGE VELOCITY=      11.57     CALCULATED CHANNEL AREA=      3518.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                               AREA
       .00   1072.30      .50        0.    41000.     6034.     6004.     1077.46   1082.00        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1082.00 ELREA=      1082.00

            NORTHERN AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS
   160.250     12.33   1070.79       .00   1065.10   1072.30      1.51       .41       .00   1077.00
   41000.0       .0   41000.0        .0        .0    4158.0        .0    1434.3     143.3   1077.00
       .42       .00      9.86       .00      .000      .035      .000      .000   1058.46    325.20
   .002064      80.       80.       80.         0         0         0       .00    349.60    674.80


*SECNO 162.000
            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 162.5 FT.
            RT CHNL BTM WDTH = 162.5 FT.
   162.000     12.36   1071.16   1066.61   1065.41   1072.66      1.50       .36       .00   1077.00
   41000.0       .0   41000.0        .0        .0    4171.8        .0    1451.0     144.7   1077.00
       .42       .00      9.83       .00      .000      .035      .000      .000   1058.80    325.13
   .002043     175.      175.      175.         0        14         0       .00    349.73    674.87


*SECNO 165.000

3301 HV CHANGED MORE THAN HVINS

            END CHANNEL BOTTOM TRANSITION
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            LT CHNL BTM WDTH = 300 FT.
            RT CHNL BTM WDTH = 250 FT.
   165.000     13.17   1072.57   1066.68   1066.04   1073.35       .79       .48       .21   1078.80
   41000.0        .0   41000.0       .0       .0    5758.8        .0    1485.2     147.9   1078.80
       .43       .00      7.12       .00      .000      .035      .000      .000   1059.40    201.65
   .001288      300.      300.      300.         2        11         0       .00    561.53    763.18


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   17APR98      11:34:54                                                                          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 168.000
   168.000     12.84   1072.94   1067.32   1066.47   1073.81       .86       .42       .04   1079.00
   41000.0        .0   41000.0       .0       .0    5504.6        .0    1524.0     151.7   1079.00
       .44       .00      7.45       .00      .000      .035      .000      .000   1060.10    202.11
   .001494      300.      300.      300.         2        11         0       .00    560.73    762.84


 CCHV=     .100 CEHV=     .300
 *SECNO 170.000
            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 300 FT.
            RT CHNL BTM WDTH = 250 FT.
   170.000     12.63   1073.23   1068.31   1066.81   1074.12       .88       .30       .01   1079.20
   41000.0        .0   41000.0       .0       .0    5436.4        .0    1549.1     154.3   1079.20
       .45       .00      7.54       .00      .000      .035      .000      .000   1060.60    202.74
   .001554      200.      200.      200.         1        14         0       .00    559.88    762.63


 *SECNO 173.000

 3301 HV CHANGED MORE THAN HVINS


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

            END CHNL BTM TRANSITION RT.
            RT CHNL BTM WDTH = 157 FT.
   173.000     11.85   1073.25   1070.52   1067.16   1075.10      1.85       .69       .29   1079.00
   41000.0        .0   41000.0       .0       .0    3754.0        .0    1580.8     157.7   1079.00
       .46       .00     10.92       .00      .000      .035      .000      .000   1061.40    235.59
   .003803      300.      300.      300.         2        15         0       .00    433.26    668.85


 *SECNO 176.000
   176.000     12.20   1074.40   1071.30   1068.79   1076.11      1.71      1.00       .01   1079.60
   41000.0        .0   41000.0       .0       .0    3905.2        .0    1607.2     160.6   1079.60
       .47       .00     10.50       .00      .000      .035      .000      .000   1062.20    276.29
   .002938      300.      300.      300.         2        15         0       .00    392.92    669.21


 *SECNO 177.000
1
   17APR98      11:34:54                                                                          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


 3301 HV CHANGED MORE THAN HVINS


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

            BEGIN CHNL BTM TRANSITION RT.
            RT CHNL BTM WDTH = 157 FT.
   177.000     12.83   1075.23   1069.71   1069.56   1076.37      1.14       .20       .06   1080.50
   41000.0        .0   41000.0       .0       .0    4785.2        .0    1617.1     161.5   1080.50
       .47       .00      8.57       .00      .000      .035      .000      .000   1062.40    284.30
   .001469      100.      100.      100.         2        14         0       .00    385.53    669.84


 *SECNO 179.000
```

```
            END CHNL BTM TRANSITION LT.
            LT CHNL BTM WDTH = 175 FT.
   179.000     12.79   1075.59   1070.03   1069.79   1076.67      1.08       .29       .01   1081.00
   41000.0       .0   41000.0       .0       .0    4915.7        .0    1639.4     163.3   1081.00
       .48       .00      8.34      .00      .000      .035      .000      .000   1062.80    317.65
   .001415     200.      200.      200.         2        11         0       .00    403.63    721.29

*SECNO 181.000
            END CHNL BTM TRANSITION RT.
            RT CHNL BTM WDTH = 260 FT.
   181.000     12.80   1076.10   1069.92   1070.08   1076.94       .84       .25       .02   1081.60
   41000.0       .0   41000.0       .0       .0    5579.9        .0    1663.5     165.3   1081.60
       .49       .00      7.35      .00      .000      .035      .000      .000   1063.30    317.70
   .001085     200.      200.      200.         2        11         0       .00    455.10    772.80

*SECNO 183.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .50

   183.000     11.93   1075.73   1073.82   1069.50   1077.65      1.91       .38       .32   1081.30
   41000.0       .0   41000.0       .0       .0    3693.8        .0    1684.8     167.3   1081.30
       .49       .00     11.10      .00      .000      .035      .000      .000   1063.80    318.63
   .004312     200.      200.      200.         3        15         0       .00    453.30    771.93
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 188.000

     HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.44

   188.000     12.93   1077.93   1074.01   1072.71   1079.16      1.23      1.45       .07   1083.00
   41000.0       .0   41000.0       .0       .0    4605.7        .0    1732.4     172.6   1083.00
       .51       .00      8.90      .00      .000      .035      .000      .000   1065.00    317.12
   .002083     500.      500.      500.         2        15         0       .00    455.82    772.94

*SECNO 193.000
            STA. 192+60.12 IS P.O.C. OF CURVE TO THE RT.
   193.000     12.80   1079.00   1074.75   1073.79   1080.16      1.16       .99       .01   1084.00
   41000.0       .0   41000.0       .0       .0    4743.0        .0    1786.1     177.8   1084.00
       .52       .00      8.64      .00      .000      .035      .000      .000   1066.20    317.19
   .001889     500.      500.      500.         2        14         0       .00    455.61    772.80

*SECNO 197.000
            BEGIN CHANNEL BOTTOM TRANSITION LEFT AND RIGHT
            TO MATCH PAST DEIGN CROSS SECTIONS.
   197.000     12.48   1079.68   1076.87   1074.60   1081.23      1.55       .95       .12   1084.60
   41000.0       .0   41000.0       .0       .0    4099.4        .0    1826.7     182.0   1084.60
       .53       .00     10.00      .00      .000      .035      .000      .000   1067.20    317.45
   .003072     400.      400.      400.         2        19         0       .00    455.03    772.48

CCHV=     .300 CEHV=     .500
*SECNO 199.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.50

   199.000     12.81   1080.51   1074.85   1075.38   1081.57      1.06       .20       .15   1086.20
   41000.0       .0   41000.0       .0       .0    4956.9        .0    1837.1     183.0   1086.20
       .54       .00      8.27      .00      .000      .035      .000      .000   1067.70    323.19
   .001369     200.      100.      200.         2        11         0       .00    399.63    722.81

*SECNO 201.100
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```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1086.70 ELREA=      1086.70

            DOWNSTREAM BRIDGE SECTION - 99TH AVENUE BRIDGE
   201.100     12.40   1080.60   1076.19   1075.51   1082.20      1.59       .36       .26   1086.70
   41000.0       .0   41000.0       .0       .0    4048.9        .0    1858.8     184.7   1086.70
       .54      .00     10.13       .00      .000      .035      .000      .000   1068.20    330.60
   .002166     210.      210.      210.         2        14         0       .00    338.81    669.40


SPECIAL BRIDGE

SB  XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     1.05      1.56       2.90     376.00     314.00      21.00    5763.00      1.00    1068.40    1068.20

*SECNO 201.900
CLASS A LOW FLOW

3420 BRIDGE W.S.=     1080.36 BRIDGE VELOCITY=      11.14     CALCULATED CHANNEL AREA=      3647.

 EGPRS      EGLWC      H3         QWEIR      QLOW       BAREA    TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                   AREA
       .00   1082.53       .37        0.     41000.      5763.     5697.     1086.70    1091.80        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1091.80 ELREA=      1091.80

            99TH AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS
   201.900     12.58   1080.98       .00   1075.59   1082.53      1.55       .33       .00   1086.90
   1000.0        .0   41000.0       .0       .0    4107.7        .0    1866.3     185.4   1086.90
       .54      .00      9.98       .00      .000      .035      .000      .000   1068.40    330.42
   .002068      80.       80.       80.         0         0         0       .00    339.16    669.58


*SECNO 204.000
   204.000     12.51   1081.41   1076.89   1075.89   1082.97      1.56       .44       .01   1087.40
   41000.0       .0   41000.0       .0       .0    4086.5        .0    1886.0     187.0   1087.40
       .55      .00     10.03       .00      .000      .035      .000      .000   1068.90    330.48
   .002103     210.      210.      210.         1        14         0       .00    339.03    669.52


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   17APR98      11:34:54                                                                                    PAGE   78

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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
*SECNO 209.300
   209.300     12.34   1082.53   1078.18   1076.78   1084.14      1.61      1.14       .02   1088.19
   41000.0       .0   41000.0       .0       .0    4023.5        .0    1935.4     191.1   1088.19
       .56      .00     10.19       .00      .000      .035      .000      .000   1070.19    330.67
   .002210     530.      530.      530.         1        14         0       .00    338.66    669.33


CCHV=      .300 CEHV=      .500
*SECNO 212.600

3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1089.60 ELREA=      1089.60

            DOWNSTREAM BRIDGE SECTION - OLIVE AVENUE BRIDGE
   212.600     11.93   1082.93   1080.32   1077.39   1085.64      2.71       .96       .55   1089.60
   41000.0       .0   41000.0       .0       .0    3101.6        .0    1962.3     193.4   1089.60
       .57      .00     13.22       .00      .000      .035      .000      .000   1071.00    364.07
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.003958	330.	330.	330.	2	15	0	.00	271.86	635.93

SPECIAL BRIDGE

XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.05	1.56	2.90	300.00	248.00	18.50	4481.60	1.00	1071.50	1071.00

*SECNO 213.500
CLASS A LOW FLOW

3420 BRIDGE W.S.= 1081.73 BRIDGE VELOCITY= 16.30 CALCULATED CHANNEL AREA= 2452.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1086.49	1.11	0.	41000.	4482.	4482.	1089.60	1095.00	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1095.00 ELREA= 1095.00

OLIVE AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS

213.500	12.54	1084.04	.00	1077.74	1086.49	2.44	.84	.00	1089.60
41000.0	.0	41000.0	.0	.0	3267.7	.0	1968.9	194.0	1089.60
.57	.00	12.55	.00	.000	.035	.000	.000	1071.50	363.46
.003353	90.	90.	90.	0	0	0	.00	273.08	636.54

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

CCHV= .100 CEHV= .300
*SECNO 213.700

HV CHANGED MORE THAN HVINS

213.700	10.67	1083.67	1082.02	1077.32	1086.76	3.09	.08	.19	1095.00
41000.0	.0	41000.0	.0	.0	2907.0	.0	1970.3	194.1	1096.20
.57	.00	14.10	.00	.000	.035	.000	.000	1073.00	358.42
.005143	20.	20.	20.	2	15	0	.00	282.61	641.03

*SECNO 217.500

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.69

217.500	12.47	1086.67	1081.81	1080.49	1088.02	1.35	1.08	.17	1096.00
41000.0	.0	41000.0	.0	.0	4400.9	.0	2002.2	196.9	1097.00
.59	.00	9.32	.00	.000	.035	.000	.000	1074.20	314.33
.001809	380.	380.	380.	3	15	0	.00	365.34	679.67

*SECNO 221.100

221.100	12.06	1087.36	1082.69	1081.20	1088.68	1.32	.66	.00	1096.60
41000.0	.0	41000.0	.0	.0	4438.6	.0	2038.7	200.0	1098.00
.60	.00	9.24	.00	.000	.035	.000	.000	1075.30	304.24
.001849	360.	360.	360.	2	11	0	.00	380.12	684.36

*SECNO 227.500

227.500	11.73	1088.83	1083.28	1082.60	1089.67	.83	.94	.05	1099.00
41000.0	.0	41000.0	.0	.0	5596.8	.0	2112.5	206.4	1099.00
.62	.00	7.33	.00	.000	.035	.000	.000	1077.10	255.68
.001184	640.	640.	640.	2	11	0	.00	489.11	744.79

NO 233.550

3301 HV CHANGED MORE THAN HVINS

233.550	10.40	1089.40	1085.68	1083.69	1090.73	1.34	.92	.15	1101.70
41000.0	.0	41000.0	.0	.0	4421.1	.0	2179.2	212.6	1101.60
.64	.00	9.27	.00	.000	.035	.000	.000	1079.00	282.30

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   .002228      580.      580.      580.         2        11         0       .00    435.50    717.80


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   17APR98      11:34:54                                                                                                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 238.660

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .58

   238.660      9.25   1089.85   1088.94   1085.54   1093.16      3.32      1.84       .59   1103.30
   41000.0        .0   41000.0       .0        .0    2805.3        .0    2222.0     217.0   1103.70
       .65       .00     14.62       .00      .000      .035      .000      .000   1080.60    343.56
   .006557      516.      516.      516.         2        15         0       .00    312.47    656.03


 *SECNO 238.690

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
   238.690      8.24   1091.84   1091.84   1087.55   1095.89      4.05       .02       .22   1103.40
   41000.0        .0   41000.0       .0        .0    2537.7        .0    2222.1     217.0   1103.90
       .65       .00     16.16       .00      .000      .035      .000      .000   1083.60    336.56
   .009278        3.        3.        3.         0        11         0       .00    316.37    652.94


 CCHV=     .100 CEHV=     .300
 *SECNO 242.000

   1 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.75

   242.000     11.30   1095.75   1092.51   1090.47   1097.72      1.97      1.62       .21   1104.00
   41000.0        .0   41000.0       .0        .0    3639.7        .0    2245.6     219.5   1104.00
       .66       .00     11.26       .00      .000      .035      .000      .000   1084.45    333.25
   .003017      331.      331.      331.         3         8         0       .00    333.49    666.75


 *SECNO 247.000
   247.000     11.65   1097.32   1093.72   1091.79   1099.16      1.83      1.42       .01   1104.50
   41000.0        .0   41000.0       .0        .0    3776.3        .0    2288.2     223.3   1104.50
       .67       .00     10.86       .00      .000      .035      .000      .000   1085.67    332.17
   .002694      500.      500.      500.         3        15         0       .00    335.65    667.83


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   17APR98      11:34:54                                                                                                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


 CCHV=     .100 CEHV=     .300
 *SECNO 270.500
 CHIMP CLSTA=    9955.00 CELCH=    1086.50 BW=     365.00 STCHL=    9753.15 STCHR=   10175.00
 EXCAVATION DATA
 AEX=    1319.1SQ-FT     VEXR=        .0K*CU-YD     VEXT=        .0K*CU-YD


 7701 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     9750.0   10218.0  TYPE=      1  TARGET=    -9750.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1105.85 ELREA=      1107.00

   270.500     12.67   1099.17   1093.74   1093.11   1100.31      1.14      1.09       .07   1105.85
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   41000.0        .0   41000.0        .0        .0    4787.1        .0    2342.7     228.0   1107.00
      .69       .00      8.56       .00      .000      .035      .000      .000   1086.50   9759.82
   .001488      338.      555.      338.         2        14         0       .00    390.35  10150.17


*SECNO 273.500
 CHIMP CLSTA=    9919.00 CELCH=    1087.20 BW=     375.00 STCHL=    9712.31 STCHR=   10127.15
EXCAVATION DATA
AEX=    2554.4SQ-FT     VEXR=      22.2K*CU-YD     VEXT=       22.2K*CU-YD


3470 ENCROACHMENT STATIONS=     9640.0   10160.0  TYPE=      1  TARGET=    -9640.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1106.39 ELREA=      1107.85

   273.500      12.46   1099.66   1094.33   1093.56   1100.78      1.12       .46       .00   1106.39
   41000.0        .0   41000.0        .0        .0    4825.9        .0    2376.9     230.8   1107.85
      .70       .00      8.50       .00      .000      .035      .000      .000   1087.20   9719.04
   .001497      315.      310.      310.         2        11         0       .00    399.91  10118.96


*SECNO 277.900
CHIMP CLSTA=    9927.00 CELCH=    1088.30 BW=     360.00 STCHL=    9729.30 STCHR=   10137.00
EXCAVATION DATA
AEX=    2900.7SQ-FT     VEXR=      42.4K*CU-YD     VEXT=       64.7K*CU-YD

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


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1106.00 ELREA=      1108.50

   277.900      11.91   1100.21   1095.64   1094.22   1101.54      1.33       .70       .06   1106.00
   41000.0        .0   41000.0        .0        .0    4430.1        .0    2421.6     234.5   1108.50
      .71       .00      9.25       .00      .000      .035      .000      .000   1088.30   9735.09
   .001884      420.      420.      420.         2        11         0       .00    383.82  10118.91


*SECNO 281.800
CHIMP CLSTA=    9932.00 CELCH=    1089.20 BW=     330.00 STCHL=    9747.63 STCHR=   10117.50
EXCAVATION DATA
AEX=    3280.4SQ-FT     VEXR=      46.9K*CU-YD     VEXT=      111.6K*CU-YD


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1108.57 ELREA=      1109.70

   281.800      11.66   1100.86   1096.94   1095.08   1102.51      1.64       .87       .09   1108.57
   41000.0        .0   41000.0        .0        .0    3984.3        .0    2461.2     238.0   1109.70
      .72       .00     10.29       .00      .000      .035      .000      .000   1089.20   9755.34
   .002408      410.      410.      410.         2        14         0       .00    353.32  10108.66


CCHV=     .300 CEHV=     .500
*SECNO 288.000
CHIMP CLSTA=    9988.00 CELCH=    1092.20 BW=     274.00 STCHL=    9829.45 STCHR=   10145.00
EXCAVATION DATA
AEX=    1602.9SQ-FT     VEXR=      54.3K*CU-YD     VEXT=      165.9K*CU-YD


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1113.75 ELREA=      1112.00

   288.000      10.01   1102.21   1100.93   1097.05   1105.44      3.23      2.14       .79   1113.75
   41000.0        .0   41000.0        .0        .0    2842.1        .0    2508.2     242.5   1112.00
      .73       .00     14.43       .00      .000      .035      .000      .000   1092.20   9840.99
    005809      600.      600.      600.         2        15         0       .00    294.01  10135.01


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

NO 290.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1117.80 ELREA= 1117.80

290.000	10.29	1103.29	1102.04	1098.54	1106.75	3.45	1.20	.11	1117.80
41000.0	.0	41000.0	.0	.0	2749.4	.0	2521.0	243.8	1117.80
.74	.00	14.91	.00	.000	.035	.000	.000	1093.00	9865.00
.006174	220.	200.	160.	2	11	0	.00	271.00	10136.00

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 1100.94 , NOT 1103.29 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.90	1.56	2.90	.00	271.00	10.50	4974.00	.00	1093.70	1093.30

*SECNO 291.000

3301 HV CHANGED MORE THAN HVINS

CLASS B LOW FLOW

3420 BRIDGE W.S.= 1102.66 BRIDGE VELOCITY= 17.18 CALCULATED CHANNEL AREA= 2334.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1107.45	.00	0.	41000.	4974.	5314.	1114.10	1119.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1117.80 ELREA= 1117.80

291.000	11.68	1104.68	.00	1098.80	1107.45	2.77	.70	.00	1116.00
41000.0	.0	41000.0	.0	.0	3071.3	.0	2526.1	244.3	1116.00
.74	.00	13.35	.00	.000	.035	.000	.000	1093.00	9865.00
.004315	77.	77.	77.	0	0	0	.00	271.00	10136.00

CCHV= .100 CEHV= .300
*SECNO 293.000
CHIMP CLSTA= 10007.00 CELCH= 1094.00 BW= 231.00 STCHL= 9869.90 STCHR= 10144.00

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

EXCAVATION DATA
AEX= -4.0SQ-FT VEXR= 5.9K*CU-YD VEXT= 171.8K*CU-YD

3301 HV CHANGED MORE THAN HVINS

293.000	11.08	1105.08	1103.79	1099.70	1108.71	3.63	1.00	.26	1115.60
41000.0	.0	41000.0	.0	.0	2682.0	.0	2539.4	245.5	1115.00
.74	.00	15.29	.00	.000	.035	.000	.000	1094.00	9880.42
.005843	200.	200.	200.	3	11	0	.00	253.16	10133.58

*SECNO 297.000
CHIMP CLSTA= 10006.00 CELCH= 1096.10 BW= 246.00 STCHL= 9863.04 STCHR= 10150.00
EXCAVATION DATA
AEX= -26.4SQ-FT VEXR= -.2K*CU-YD VEXT= 171.6K*CU-YD

1 HV CHANGED MORE THAN HVINS

297.000	11.84	1107.94	1105.49	1102.04	1110.74	2.80	1.95	.08	1116.05
41000.0	.0	41000.0	.0	.0	3052.3	.0	2565.7	247.9	1115.00
.75	.00	13.43	.00	.000	.035	.000	.000	1096.10	9871.16
.004131	400.	400.	400.	3	11	0	.00	269.68	10140.84

```
*SECNO 302.000
CHIMP CLSTA=    9999.00 CELCH=    1098.20 BW=     197.00 STCHL=    9882.00 STCHR=   10118.78
EXCAVATION DATA
AEX=       3.1SQ-FT     VEXR=       -.2K*CU-YD     VEXT=      171.3K*CU-YD


  HV CHANGED MORE THAN HVINS

   302.000     11.29   1109.49   1108.99   1104.40   1114.21      4.72      2.89       .58   1116.00
   41000.0        .0   41000.0       .0        .0    2351.4        .0    2598.6     250.8   1119.48
       .76       .00     17.44       .00      .000      .035      .000      .000   1098.20   9889.21
   .007541      530.      530.      530.         3        11         0       .00    219.58  10108.79


*SECNO 305.000
CHIMP CLSTA=    9992.00 CELCH=    1099.50 BW=     188.00 STCHL=    9880.94 STCHR=   10110.00
1
   17APR98      11:34:54                                                                              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


EXCAVATION DATA
AEX=     244.7SQ-FT     VEXR=       1.3K*CU-YD     VEXT=      172.6K*CU-YD


3301 HV CHANGED MORE THAN HVINS

   305.000     12.44   1111.94   1110.59   1106.05   1116.14      4.20      1.88       .05   1116.56
   41000.0        .0   41000.0       .0        .0    2493.7        .0    2614.1     252.2   1119.50
       .76       .00     16.44       .00      .000      .035      .000      .000   1099.50   9885.56
   .006004      280.      280.      280.         4         5         0       .00    212.88  10098.44


*SECNO 306.750
CHIMP CLSTA=    9959.00 CELCH=    1100.30 BW=     289.00 STCHL=    9798.80 STCHR=   10123.24
  VATION DATA
       1770.8SQ-FT     VEXR=       8.0K*CU-YD     VEXT=      180.6K*CU-YD


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.21

   306.750     15.46   1115.76   1108.74   1107.89   1116.94      1.18       .50       .30   1116.00
   41000.0        .0   41000.0       .0        .0    4708.1        .0    2631.9     253.5   1120.04
       .77       .00      8.71       .00      .000      .035      .000      .000   1100.30   9799.04
   .001229      215.      215.      215.         3        14         0       .00    319.93  10118.96


*SECNO 310.000
CHIMP CLSTA=    9965.00 CELCH=    1101.60 BW=     330.00 STCHL=    9784.66 STCHR=   10149.29
EXCAVATION DATA
AEX=    1007.5SQ-FT     VEXR=      16.5K*CU-YD     VEXT=      197.1K*CU-YD

   310.000     14.72   1116.32   1109.34   1108.39   1117.33      1.01       .37       .02   1116.94
   41000.0        .0   41000.0       .0        .0    5074.5        .0    2667.8     256.0   1120.90
       .78       .00      8.08       .00      .000      .035      .000      .000   1101.60   9785.28
   .001110      320.      320.      320.         2         8         0       .00    359.44  10144.72


*SECNO 313.200
CHIMP CLSTA=   10000.00 CELCH=    1103.00 BW=     330.00 STCHL=    9820.00 STCHR=   10183.25
1
   17APR98      11:34:54                                                                              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


EXCAVATION DATA
AEX=    1069.6SQ-FT     VEXR=      12.1K*CU-YD     VEXT=      209.2K*CU-YD

   313.200     13.59   1116.59   1110.74   1108.88   1117.78      1.20       .40       .06   1117.00
   41000.0        .0   41000.0       .0        .0    4668.4        .0    2703.1     258.6   1121.25
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      .79       .00      8.78       .00      .000      .035      .000      .000   1103.00   9821.41
  .001449      315.      315.      315.         2        11         0       .00    357.17  10178.59


*SECNO 318.000
CHIMP CLSTA=   10000.00 CELCH=    1105.10 BW=     330.00 STCHL=    9820.00 STCHR=   10182.90
 VATION DATA
        52.1SQ-FT     VEXR=      10.4K*CU-YD     VEXT=      219.6K*CU-YD

  318.000     12.13   1117.23   1112.85   1110.29   1118.75      1.52       .87       .10   1120.00
  41000.0        .0   41000.0        .0        .0    4148.9        .0    2753.7     262.7   1123.00
      .80       .00      9.88       .00      .000      .035      .000      .000   1105.10   9822.87
  .002114      500.      500.      500.         0        11         0       .00    354.25  10177.13


*SECNO 320.050
CHIMP CLSTA=   10000.00 CELCH=    1106.00 BW=     330.00 STCHL=    9816.00 STCHR=   10184.00
EXCAVATION DATA
AEX=     152.0SQ-FT     VEXR=       1.1K*CU-YD     VEXT=      220.7K*CU-YD

  320.050     11.81   1117.81   1113.74   1111.41   1119.41      1.60       .64       .03   1125.00
  41000.0        .0   41000.0        .0        .0    4037.6        .0    2780.9     265.1   1125.00
      .81       .00     10.15       .00      .000      .035      .000      .000   1106.00   9823.19
  .002308      290.      290.      290.         2        14         0       .00    353.63  10176.81


*SECNO 328.000
CHIMP CLSTA=   10000.00 CELCH=    1109.10 BW=     330.00 STCHL=    9817.10 STCHR=   10182.90
EXCAVATION DATA
AEX=     195.1SQ-FT     VEXR=       4.1K*CU-YD     VEXT=      224.8K*CU-YD


3301 HV CHANGED MORE THAN HVINS

  328.000     10.17   1119.27   1116.84   1113.86   1121.45      2.18      1.86       .17   1127.00
  41000.0        .0   41000.0        .0        .0    3459.6        .0    2836.0     270.2   1127.00
      .83       .00     11.85       .00      .000      .035      .000      .000   1109.10   9824.83
  .003790      640.      640.      640.         2        14         0       .00    350.34  10175.17


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  17APR98      11:34:54                                                                          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


*SECNO 330.000
CHIMP CLSTA=   10000.00 CELCH=    1110.10 BW=     330.00 STCHL=    9817.60 STCHR=   10182.40
EXCAVATION DATA
AEX=      76.6SQ-FT     VEXR=        .9K*CU-YD     VEXT=      225.7K*CU-YD

  330.000      9.74   1119.84   1117.84   1114.76   1122.22      2.38       .71       .06   1127.50
  41000.0        .0   41000.0        .0        .0    3309.2        .0    2849.6     271.6   1127.50
      .83       .00     12.39       .00      .000      .035      .000      .000   1110.10   9825.26
  .004383      175.      175.      175.         2        15         0       .00    349.48  10174.74


*SECNO 334.000
CHIMP CLSTA=   10000.00 CELCH=    1112.00 BW=     330.00 STCHL=    9818.00 STCHR=   10182.00
EXCAVATION DATA
AEX=      68.0SQ-FT     VEXR=       1.1K*CU-YD     VEXT=      226.8K*CU-YD

  334.000      9.68   1121.68   1119.74   1116.99   1124.09      2.41      1.86       .01   1129.00
  41000.0        .0   41000.0        .0        .0    3287.7        .0    2881.4     275.0   1129.00
      .84       .00     12.47       .00      .000      .035      .000      .000   1112.00   9825.32
  .004476      420.      420.      420.         2        15         0       .00    349.36  10174.68


CCHV=      .200 CEHV=      .400
*SECNO 343.000
CHIMP CLSTA=   10025.00 CELCH=    1115.70 BW=     329.00 STCHL=    9861.00 STCHR=   10206.30
EXCAVATION DATA
AEX=    2385.5SQ-FT     VEXR=      40.9K*CU-YD     VEXT=      267.7K*CU-YD


-.-5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1132.00 ELREA=      1132.00

  343.000      9.96   1125.66   1123.48   1120.84   1128.02      2.36      3.91       .01   1132.00
  41000.0        .0   41000.0        .0        .0    3328.0        .0    2949.7     282.1   1132.00
      .86       .00     12.32       .00      .000      .035      .000      .000   1115.70   9861.00
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   .004221      900.      900.      900.         0        15         0       .00    338.96  10199.96


 *SECNO 344.900

 3705 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1132.00 ELREA=      1132.00

   44.900     10.39   1126.69   1124.05   1121.67   1128.80      2.11       .74       .05   1132.00
 41000.0        .0   41000.0        .0        .0    3514.6        .0    2964.7     283.6   1132.00
      .87       .00     11.67       .00      .000      .035      .000      .000   1116.30   9827.06
   .003566     110.      190.      260.         2        15         0       .00    346.54  10173.60


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   17APR98      11:34:54                                                                          PAGE   88


 T1      NEW RIVER: FLOOD CONTROL DISTRICT CHANNELIZATION PROJECT
 T2      NEW RIVER: BETHANY HOME ALIGNMENT TO GRAND AVE.
 T3      500-YEAR EVENT              NRO2B

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0        5                                                                   1043.78

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      4         0        -1                                      -1                            0

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 *PROF 4

   TICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS


 CCHV=     .100 CEHV=     .300
 *SECNO 39.000

 3470 ENCROACHMENT STATIONS=     9585.9   10426.1  TYPE=      1  TARGET=     840.199
              BEGIN ANALYSIS NEAR THE BETHANY HOME ROAD ALIGNMENT.
              WATER SURFACE UTILIZED FOR THIS ANALYSIS IS BASED ON
              EXISTING CONDTIONS OUTPUT DATA WHICH INCLUDES THE
              GLENDALE MUNICIPAL AIRPORT CHANNELIZATION AND SIDEBANK
              PROTECTION.  CROSS SECTION 39.00 ASSUMES EXISTING CONDITIONS
              BOTTOM CONTOURS WITH EXISTING LEFT BANK NATURAL SIDESLOPE.
   39.000     15.78   1043.78   1037.45   1036.06   1044.58       .80       .00       .00   1042.50
 75000.0        .0   75000.0        .0        .1   10464.0        .1        .0        .0   1043.20
      .00       .21      7.17       .01      .045      .035      .045      .000   1028.00   9585.90
   .000996     270.      220.      200.         0        13         0       .00    840.20  10426.10


 CCHV=     .200 CEHV=     .400
 *SECNO 44.000
              BEGIN CHANNELIZATION AND SIDEBANK PROTECTION DEGIGN.
              LT CHNL BTM WDTH = 500 FEET - MATCH EXISTING DOWNSTREAM
              RT CHNL BTM WDTH PER GLENDALE AIRPORT "AS BUILTS" = 362+OR- FEET
   44.000     13.54   1044.29   1038.94   1036.53   1045.16       .87       .56       .03   1044.90
 75000.0        .0   75000.0        .0        .0   10039.3        .0     117.7      10.0   1045.10
      .02       .00      7.47       .00      .000      .035      .000      .000   1030.75   9487.03
   .001245     500.      500.      500.         1        11         0       .00    896.26  10383.29


 *SECNO 47.000

 3301 HV CHANGED MORE THAN HVINS

   47.000     13.46   1044.46   1040.63   1037.11   1045.86      1.40       .49       .21   1045.00
 75000.0        .0   75000.0        .0        .0    7908.6        .0     179.5      15.7   1045.00
      .03       .00      9.48       .00      .000      .035      .000      .000   1031.00    597.07
   .002215     300.      300.      300.         2        19         0       .00    759.39   1356.46


1
   17APR98      11:34:54                                                                          PAGE   90
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

    NO 51.500

3301 HV CHANGED MORE THAN HVINS

              LT CHNL BTM WDTH = 225 FT
    51.500      13.67    1045.07    1042.61    1038.44    1047.62       2.54       1.30        .46    1045.70
   75000.0        .0    75000.0        .0         .0     5859.9         .0      250.6       22.4    1045.70
       .04        .00      12.80        .00       .000       .035       .000       .000    1031.40     762.05
   .003919      450.       450.       450.          2         15          0        .00     547.03    1309.08

*SECNO 55.000
              STA. 53+12.97 IS P.O.C. OF CURVE TO THE RIGHT
    55.000      14.40    1046.30    1043.47    1039.30    1049.02       2.72       1.33        .07    1047.00
   75000.0        .0    75000.0        .0         .0     5667.8         .0      296.9       26.5    1047.00
       .04        .00      13.23        .00       .000       .035       .000       .000    1031.90     261.39
   .003689      350.       350.       350.          2         15          0        .00     479.21     740.60

*SECNO 58.120
              END GLENDALE MUNICIPAL AIRPORT GABION MATTRESS SIDESLOPE
              ALONG NEW RIVER RT BANK, GABION MATRESS TURNS CORNER AND
              CONTINUES NORTHWESTERLY A FEW HUNDRED FEET ALONG THE EAST
              BOUNDARY OF GLENDALE MUNICIPAL AIRPORT.
              MATCH EXISTING GABION MATTRESS-GROUT GABIONS AND CONSTRUCT
              TRANSITION FROM 2:1 TO 1:1 SIDESLOPE IN 75 FT TAPER.
    58.120      16.44    1048.54    1044.28    1040.41    1051.15       2.61       2.11        .02    1049.10
   75000.0        .0    75000.0        .0         .0     5785.9         .0      383.9       33.2    1049.00
       .06        .00      12.96        .00       .000       .035       .000       .000    1032.10     758.56
   .002785      662.       662.       662.          2         15          0        .00     403.99    1162.54

*SECNO 62.000
              STA. 60+21.80 IS P.O.T.
    62.000      17.14    1050.04    1045.26    1040.95    1052.23       2.20       1.00        .08    1050.40
   75000.0        .0    75000.0        .0         .0     6301.5         .0      437.8       37.0    1050.40
       .07        .00      11.90        .00       .000       .035       .000       .000    1032.90     257.33
   .002396      388.       388.       388.          2         15          0        .00     445.81     703.14

*SECNO 66.000
1
   17APR98      11:34:54                                                                                    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

3301 HV CHANGED MORE THAN HVINS

              LT CHNL BTM WDTH = 225 FT.
              RT CHNL BTM WDTH = 230 FT.
    66.000      17.61    1051.61    1044.67    1041.69    1053.10       1.49        .73        .14    1051.80
   75000.0        .0    75000.0        .0         .0     7651.8         .0      501.8       41.3    1051.80
       .08        .00       9.80        .00       .000       .035       .000       .000    1034.00     257.57
   .001420      400.       400.       400.          2         14          0        .00     490.04     747.61

*SECNO 71.000
3280 CROSS SECTION     71.00 EXTENDED       .80 FEET

              GRAND DRAIN INLET PER A.D.O.T. PLANS
    71.000      17.30    1052.30    1045.71    1042.23    1053.86       1.56        .73        .03    1051.50
   75000.0        .0    75000.0        .0         .0     7492.5         .0      588.8       46.9    1051.50
       .09        .00      10.01        .00       .000       .035       .000       .000    1035.00     258.50
   .001511      500.       500.       500.          2         14          0        .00     487.60     746.10

*SECNO 75.000
    75.000      16.40    1052.90    1046.43    1042.77    1054.48       1.58        .61        .01    1053.10
   75000.0        .0    75000.0        .0         .0     7425.3         .0      657.2       51.4    1053.10
       .10        .00      10.10        .00       .000       .035       .000       .000    1036.50     258.82
   .001547      400.       400.       400.          0         11          0        .00     487.57     746.39
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*SECNO 78.000
            GRAND DRAIN LOW FLOW OUTLET PIPE AT LT SIDESLOPE
    78.000     15.95   1053.35   1047.10   1043.20   1054.97      1.63       .47       .02   1053.50
   75000.0        .0   75000.0        .0        .0    7326.0        .0     708.0      54.8   1053.50
       .11       .00     10.24       .00      .000      .035      .000      .000   1037.40    259.20
   001612      300.      300.      300.         1        11         0       .00    486.75    745.95


*SECNO 81.000
    81.000     15.82   1053.82   1047.65   1043.69   1055.47      1.66       .49       .01   1054.00
   75000.0        .0   75000.0        .0        .0    7262.5        .0     758.3      58.1   1054.00
       .12       .00     10.33       .00      .000      .035      .000      .000   1038.00    259.35
   .001653      300.      300.      300.         0        14         0       .00    485.48    744.83


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   17APR98      11:34:54                                                                                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


*SECNO 84.000
    84.000     17.29   1054.29   1048.37   1044.21   1056.01      1.71       .51       .02   1054.50
   75000.0        .0   75000.0        .0        .0    7142.0        .0     807.9      61.5   1054.50
       .13       .00     10.50       .00      .000      .035      .000      .000   1037.00    259.90
   .001747      300.      300.      300.         1        19         0       .00    485.31    745.20


*SECNO 87.000
    87.000     14.98   1054.78   1049.34   1044.82   1056.60      1.82       .55       .04   1055.00
   75000.0        .0   75000.0        .0        .0    6924.4        .0     856.3      64.8   1055.00
       .14       .00     10.83       .00      .000      .035      .000      .000   1039.80    260.24
   .001928      300.      300.      300.         2        11         0       .00    484.74    744.98


*SECNO 89.000
    89.000     14.72   1055.12   1050.08   1045.31   1057.05      1.93       .40       .04   1055.40
   75000.0        .0   75000.0        .0        .0    6729.3        .0     887.7      67.0   1055.40
       .14       .00     11.15       .00      .000      .035      .000      .000   1040.40    260.56
   .002119      200.      200.      200.         2        14         0       .00    484.16    744.72


*SECNO 94.000
            STA. 91+49.71 IS P.O.C. OF CURVE TO THE LEFT
    94.000     14.37   1056.17   1051.38   1046.74   1058.17      2.00      1.09       .03   1056.40
   75000.0        .0   75000.0        .0        .0    6607.2        .0     964.2      72.6   1056.40
       .15       .00     11.35       .00      .000      .035      .000      .000   1041.80    260.87
   .002248      500.      500.      500.         2        14         0       .00    483.50    744.37


CCHV=     .300 CEHV=     .500
*SECNO 97.000
    97.000     14.22   1056.82   1052.39   1047.56   1058.92      2.10       .70       .05   1057.10
   75000.0        .0   75000.0        .0        .0    6444.1        .0    1009.1      75.9   1057.10
       .16       .00     11.64       .00      .000      .035      .000      .000   1042.60    261.06
   .002445      300.      300.      300.         0        14         0       .00    483.16    744.22


*SECNO 99.540

3301 HV CHANGED MORE THAN HVINS

            STA. 99+45.00 IS P.O.T.
            LT CHNL BTM WDTH = 157.9 FT.
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            RT CHNL BTM WDTH = 157.9 FT.
    99.540     13.57   1056.77   1054.42   1048.29   1060.65      3.87       .84       .88   1063.50
   75000.0        .0   75000.0        .0        .0    4749.0        .0    1041.8      78.3   1063.50
       .16       .00     15.79       .00      .000      .035      .000      .000   1043.20    325.12
   004718      254.      254.      254.         2        15         0       .00    349.77    674.88


CCHV=     .300 CEHV=     .500
*SECNO 99.600
```

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1063.80 ELREA= 1063.80

DOWNSTREAM BRIDGE SECTION - GLENDALE AVENUE

99.600	11.22	1057.42	1057.42	1049.78	1063.09	5.67	.03	.90	1063.80
75000.0	.0	75000.0	.0	.0	3924.2	.0	1042.4	78.4	1063.80
.16	.00	19.11	.00	.000	.025	.000	.000	1046.20	325.12
.004470	6.	6.	6.	0	15	0	.00	349.76	674.88

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 1055.12 , NOT 1057.42 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.90	1.56	2.90	358.00	349.74	32.00	5378.30	.00	1046.50	1046.20

*SECNO 100.400

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.76

CLASS B LOW FLOW

3420 BRIDGE W.S.= 1058.36 BRIDGE VELOCITY= 19.66 CALCULATED CHANNEL AREA= 3767.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
1062.13	1065.22	.00	0.	75000.	5378.	5370.	1063.40	1065.90	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1065.90 ELREA= 1065.90

GLENDALE AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS

100.400	15.90	1062.40	.00	1051.57	1065.22	2.83	2.13	.00	1063.60
75000.0	.0	75000.0	.0	.0	5559.7	.0	1051.1	79.0	1063.60
.17	.00	13.49	.00	.000	.025	.000	.000	1046.50	325.10
.001447	80.	80.	80.	0	0	0	.00	349.79	674.90

*SECNO 100.900
BEGIN CHANNEL BOTTOM TRANSITION
LT CHNL BTM WDTH = 157.9 FT.
RT CHNL BTM WDTH = 157.9 FT.

100.900	16.42	1063.02	1057.70	1051.77	1065.44	2.41	.09	.12	1063.60
75000.0	.0	75000.0	.0	.0	6014.6	.0	1057.7	79.5	1063.60
.17	.00	12.47	.00	.000	.035	.000	.000	1046.60	308.72
.002294	50.	50.	50.	2	19	0	.00	382.55	691.28

*SECNO 103.000

103.000	17.09	1064.09	1057.83	1052.78	1066.09	2.00	.53	.12	1065.40
75000.0	.0	75000.0	.0	.0	6606.7	.0	1095.4	81.8	1065.40
.17	.00	11.35	.00	.000	.035	.000	.000	1047.00	294.61
.001832	260.	260.	260.	2	14	0	.00	412.09	706.70

CCHV= .100 CEHV= .300
*SECNO 106.000

3301 HV CHANGED MORE THAN HVINS

106.000	17.76	1065.36	1056.98	1053.55	1066.57	1.21	.41	.08	1066.40
75000.0	.0	75000.0	.0	.0	8481.1	.0	1147.4	85.0	1066.40
.18	.00	8.84	.00	.000	.035	.000	.000	1047.60	248.47
.001037	300.	300.	300.	2	11	0	.00	504.09	752.56

*SECNO 109.000
END CHANNEL BOTTOM TRANSITION
LT CHNL BTM WDTH = 280 FT.
RT CHNL BTM WDTH = 280 FT.

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   109.000     17.80   1066.00   1056.69   1053.99   1066.87       .87       .26       .03   1066.90
   75000.0       .0   75000.0       .0       .0   10034.7        .0    1211.1      88.8   1066.90
       .19       .00      7.47       .00      .000      .035      .000      .000   1048.20    203.09
   .000736      300.      300.      300.         2        11         0       .00    594.71    797.80


     0 110.000
     0.000     19.06   1066.06   1056.97   1054.09   1066.95       .89       .08       .01   1066.90
   75000.0       .0   75000.0       .0       .0    9897.0        .0    1234.0      90.1   1066.90
       .20       .00      7.58       .00      .000      .035      .000      .000   1047.00    203.00
   .000771      100.      100.      100.         2        11         0       .00    594.66    797.66


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   17APR98      11:34:54                                                                          PAGE   95

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 113.000
   113.000     17.28   1066.28   1057.40   1054.46   1067.20       .92       .24       .01   1067.20
   75000.0       .0   75000.0       .0       .0    9770.0        .0    1301.7      94.2   1067.20
       .21       .00      7.68       .00      .000      .035      .000      .000   1049.00    203.63
   .000803      300.      300.      300.         0        14         0       .00    593.66    797.29


*SECNO 116.000
            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 280 FT.
            RT CHNL BTM WDTH = 280 FT.
   116.000     16.88   1066.48   1058.37   1054.84   1067.48      1.00       .26       .03   1067.30
   75000.0       .0   75000.0       .0       .0    9336.4        .0    1367.5      98.3   1067.30
       .22       .00      8.03       .00      .000      .035      .000      .000   1049.60    203.94
   .000941      240.      300.      340.         2         8         0       .00    592.94    796.88


*SECNO 120.000

     HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .57

            END CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 210 FT.
            RT CHNL BTM WDTH = 230 FT.
   120.000     15.74   1066.14   1062.26   1055.34   1068.49      2.35       .61       .40   1067.10
   75000.0       .0   75000.0       .0       .0    6094.8        .0    1438.4     103.2   1067.10
       .23       .00     12.31       .00      .000      .035      .000      .000   1050.40    275.20
   .002864      327.      400.      497.         2        19         0       .00    470.55    745.75


*SECNO 123.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.40

   123.000     16.68   1067.68   1060.78   1057.27   1069.25      1.57       .68       .08   1068.80
   75000.0       .0   75000.0       .0       .0    7465.5        .0    1491.6     106.9   1068.80
       .24       .00     10.05       .00      .000      .035      .000      .000   1051.00    274.42
   .001454      342.      342.      342.         2        14         0       .00    472.28    746.69


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   17APR98      11:34:54                                                                          PAGE   96

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 127.000
   127.000     16.45   1068.25   1061.60   1057.78   1069.86      1.61       .60       .01   1068.80
   75000.0       .0   75000.0       .0       .0    7359.6        .0    1559.7     111.2   1068.80
       .25       .00     10.19       .00      .000      .035      .000      .000   1051.80    274.12
   .001525      400.      400.      400.         2        11         0       .00    472.32    746.44
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*SECNO 131.000
   131.000     18.83   1068.83   1062.55   1058.39   1070.52      1.70       .64       .02   1069.40
   75000.0        .0   75000.0        .0        .0    7177.3        .0    1626.4     115.6   1069.40
       .26       .00     10.45       .00      .000      .035      .000      .000   1050.00    274.33
   001662      400.      400.      400.         1        15         0       .00    471.91    746.24


*SECNO 135.000
   135.000     16.01   1069.41   1064.11   1059.19   1071.32      1.91       .74       .07   1069.60
   75000.0        .0   75000.0        .0        .0    6756.1        .0    1690.4     119.9   1069.90
       .27       .00     11.10       .00      .000      .035      .000      .000   1053.40    273.89
   .002044      400.      400.      400.         2        11         0       .00    471.93    745.82


*SECNO 138.000
3280 CROSS SECTION    138.00 EXTENDED       .53 FEET

   138.000     16.13   1070.13   1064.29   1060.06   1071.91      1.79       .58       .01   1069.60
   75000.0        .0   75000.0        .0        .0    6990.0        .0    1737.7     123.1   1069.60
       .28       .00     10.73       .00      .000      .035      .000      .000   1054.00    274.40
   .001818      300.      300.      300.         2        14         0       .00    471.20    745.60


*SECNO 141.000
   141.000     15.99   1070.59   1065.46   1060.64   1072.56      1.96       .59       .05   1071.00
   75000.0        .0   75000.0        .0        .0    6669.4        .0    1784.7     126.4   1071.00
       .28       .00     11.25       .00      .000      .035      .000      .000   1054.60    274.41
   .002133      300.      300.      300.         2        14         0       .00    471.58    745.99


*SECNO 145.000
            A.D.O.T. CHANNEL INLET LT. BANK, NORTHERN AVENUE CHANNEL
   145.000     16.26   1071.66   1065.17   1061.60   1073.32      1.66       .73       .03   1072.00
   75000.0        .0   75000.0        .0        .0    7249.6        .0    1848.7     130.7   1077.00
       .30       .00     10.35       .00      .000      .035      .000      .000   1055.40    274.08
   .001591      400.      400.      400.         2        14         0       .00    468.41    742.49


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   17APR98      11:34:54                                                                          PAGE   97

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 147.000
            BEGIN CHANNEL BOTTOM TRANSITION
            LT CHNL BTM WDTH = 210 FT.
            RT CHNL BTM WDTH = 230 FT.
   147.000     16.17   1071.97   1065.56   1061.85   1073.64      1.67       .32       .00   1072.40
   75000.0        .0   75000.0        .0        .0    7239.5        .0    1881.9     132.9   1072.40
       .30       .00     10.36       .00      .000      .035      .000      .000   1055.80    274.26
   .001608      200.      200.      200.         2        14         0       .00    471.92    746.17


*SECNO 150.000
            CHANNEL BOTTOM TAPERS
            LT CHNL BTM WDTH = 260 FT.
            RT CHNL BTM WDTH = 210 FT.
   150.000     16.26   1072.66   1065.77   1062.30   1074.11      1.45       .45       .02   1073.00
   75000.0        .0   75000.0        .0        .0    7769.8        .0    1933.6     136.2   1073.00
       .31       .00      9.65       .00      .000      .035      .000      .000   1056.40    224.08
   .001378      350.      300.      260.         2        11         0       .00    502.19    726.26


*SECNO 155.000

3301 HV CHANGED MORE THAN HVINS

            CHANNEL BOTTOM TAPERS
            LT CHNL BTM WDTH = 260 FT.
            RT CHNL BTM WDTH = 170 FT.
   155.000     15.60   1073.00   1068.85   1063.05   1075.31      2.32       .94       .26   1073.30
   75000.0        .0   75000.0        .0        .0    6140.6        .0    2013.4     141.7   1073.30
       .32       .00     12.21       .00      .000      .035      .000      .000   1057.40    224.70
   .002732      585.      500.      460.         2        19         0       .00    460.89    685.60


CCHV=     .300 CEHV=     .500
```

*SECNO 158.000

3301 HV CHANGED MORE THAN HVINS

END CHANNEL BOTTOM TRANSITION
LT CHNL BTM WDTH = 162.5 FT.
RT CHNL BTM WDTH = 162.5 FT.

58.000	15.39	1073.39	1070.01	1064.30	1076.79	3.39	.94	.54	1076.50
75000.0	.0	75000.0	.0	.0	5073.3	.0	2052.1	144.5	1075.00
.33	.00	14.78	.00	.000	.035	.000	.000	1058.00	325.21
.003597	360.	300.	265.	2	15	0	.00	352.68	677.89

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 159.450

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1077.46 ELREA= 1077.46

DOWNSTREAM BRIDGE SECTION - NORTHERN AVENUE BRIDGE

159.450	16.77	1075.07	1069.94	1064.97	1077.73	2.66	.73	.22	1076.80
75000.0	.0	75000.0	.0	.0	5732.7	.0	2082.4	146.5	1076.80
.33	.00	13.08	.00	.000	.035	.000	.000	1058.30	320.73
.002479	245.	245.	245.	3	15	0	.00	358.55	679.27

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.56	2.90	388.00	325.00	28.00	6034.00	1.00	1058.46	1058.30

*SECNO 160.250
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
1078.82	1078.43	.94	0.	75000.	6034.	6004.	1077.46	1082.00	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1082.00 ELREA= 1082.00

NORTHERN AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS

160.250	18.09	1076.55	.00	1065.10	1078.82	2.27	1.08	.00	1077.00
75000.0	.0	75000.0	.0	.0	6206.2	.0	2093.4	147.2	1077.00
.33	.00	12.08	.00	.000	.035	.000	.000	1058.46	319.45
.001928	80.	80.	80.	3	0	0	.00	361.10	680.55

*SECNO 162.000
BEGIN CHANNEL BOTTOM TRANSITION
LT CHNL BTM WDTH = 162.5 FT.
RT CHNL BTM WDTH = 162.5 FT.

162.000	18.09	1076.89	1070.44	1065.41	1079.15	2.27	.34	.00	1077.00
75000.0	.0	75000.0	.0	.0	6205.1	.0	2118.3	148.7	1077.00
.34	.00	12.09	.00	.000	.035	.000	.000	1058.80	319.41
.001930	175.	175.	175.	2	14	0	.00	361.17	680.59

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

*SECNO 165.000
3280 CROSS SECTION 165.00 EXTENDED .13 FEET

3301 HV CHANGED MORE THAN HVINS

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

END CHANNEL BOTTOM TRANSITION
LT CHNL BTM WDTH = 300 FT.
RT CHNL BTM WDTH = 250 FT.

165.000	19.53	1078.93	1070.43	1066.04	1079.92	.99	.38	.38	1078.80
75000.0	.0	75000.0	.0	.0	9384.9	.0	2172.0	151.9	1078.80
.35	.00	7.99	.00	.000	.035	.000	.000	1059.40	189.20
.000892	300.	300.	300.	3	14	0	.00	580.20	769.40

*SECNO 168.000
3280 CROSS SECTION 168.00 EXTENDED .17 FEET

168.000	19.07	1079.17	1071.31	1066.47	1080.24	1.07	.28	.04	1079.00
75000.0	.0	75000.0	.0	.0	9054.7	.0	2235.5	155.9	1079.00
.36	.00	8.28	.00	.000	.035	.000	.000	1060.10	190.00
.001002	300.	300.	300.	2	11	0	.00	578.90	768.90

CCHV= .100 CEHV= .300
*SECNO 170.000
3280 CROSS SECTION 170.00 EXTENDED .16 FEET

BEGIN CHANNEL BOTTOM TRANSITION
LT CHNL BTM WDTH = 300 FT.
RT CHNL BTM WDTH = 250 FT.

170.000	18.76	1079.36	1071.72	1066.81	1080.45	1.10	.20	.01	1079.20
75000.0	.0	75000.0	.0	.0	8926.7	.0	2276.8	158.5	1079.20
.36	.00	8.40	.00	.000	.035	.000	.000	1060.60	190.80
.001048	200.	200.	200.	0	11	0	.00	577.80	768.60

*SECNO 173.000
3280 CROSS SECTION 173.00 EXTENDED .05 FEET

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

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .66

END CHNL BTM TRANSITION RT.
RT CHNL BTM WDTH = 157 FT.

173.000	17.64	1079.04	1074.31	1067.16	1081.23	2.19	.46	.33	1079.00
75000.0	.0	75000.0	.0	.0	6315.1	.0	2329.3	162.1	1079.00
.37	.00	11.88	.00	.000	.035	.000	.000	1061.40	224.10
.002392	300.	300.	300.	2	19	0	.00	450.50	674.60

*SECNO 176.000
3280 CROSS SECTION 176.00 EXTENDED .01 FEET

176.000	17.41	1079.61	1074.84	1068.79	1082.04	2.43	.74	.07	1079.60
75000.0	.0	75000.0	.0	.0	5990.0	.0	2371.7	165.0	1079.60
.38	.00	12.52	.00	.000	.035	.000	.000	1062.20	265.90
.002513	300.	300.	300.	2	19	0	.00	408.50	674.40

*SECNO 177.000

3301 HV CHANGED MORE THAN HVINS

BEGIN CHNL BTM TRANSITION RT.
RT CHNL BTM WDTH = 157 FT.

177.000	18.01	1080.41	1073.29	1069.56	1082.30	1.88	.20	.06	1080.50
75000.0	.0	75000.0	.0	.0	6808.4	.0	2386.3	166.0	1080.50
.38	.00	11.02	.00	.000	.035	.000	.000	1062.40	279.18
.001593	100.	100.	100.	2	14	0	.00	395.83	675.02

```
*SECNO 179.000
            END CHNL BTM TRANSITION LT.
            LT CHNL BTM WDTH = 175 FT.
   179.000     18.08   1080.88   1073.54   1069.79   1082.62      1.73       .31       .01   1081.00
   75000.0       .0   75000.0       .0        .0    7095.3        .0    2418.3     167.8   1081.00
       .39      .00     10.57       .00      .000      .035      .000      .000   1062.80    307.03
   .001481     200.      200.      200.         2        14         0       .00    419.55    726.58


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


*SECNO 181.000
            END CHNL BTM TRANSITION RT.
            RT CHNL BTM WDTH = 260 FT.
   181.000     18.29   1081.59   1073.17   1070.08   1082.91      1.32       .25       .04   1081.60
   75000.0       .0   75000.0       .0        .0    8123.4        .0    2453.2     169.9   1081.60
       .39      .00      9.23       .00      .000      .035      .000      .000   1063.30    306.72
   .001099     200.      200.      200.         2        11         0       .00    471.57    778.29


*SECNO 183.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .65

   183.000     17.48   1081.28   1077.01   1069.50   1083.51      2.23       .32       .27   1081.30
   75000.0       .0   75000.0       .0        .0    6255.1        .0    2486.2     172.0   1081.30
       .40      .00     11.99       .00      .000      .035      .000      .000   1063.80    307.54
   .002638     200.      200.      200.         2        19         0       .00    469.95    777.48


   .NO 188.000
   188.000     17.82   1082.82   1077.20   1072.71   1084.67      1.85      1.12       .04   1083.00
   75000.0       .0   75000.0       .0        .0    6868.1        .0    2561.5     177.4   1083.00
       .41      .00     10.92       .00      .000      .035      .000      .000   1065.00    307.35
   .001934     500.      500.      500.         2        19         0       .00    470.47    777.82


*SECNO 193.000
            STA. 192+60.12 IS P.O.C. OF CURVE TO THE RT.
   193.000     17.62   1083.82   1077.97   1073.79   1085.62      1.80       .94       .01   1084.00
   75000.0       .0   75000.0       .0        .0    6972.8        .0    2641.0     182.8   1084.00
       .42      .00     10.76       .00      .000      .035      .000      .000   1066.20    307.55
   .001837     500.      500.      500.         2        14         0       .00    470.07    777.62


*SECNO 197.000
            BEGIN CHANNEL BOTTOM TRANSITION LEFT AND RIGHT
            TO MATCH PAST DEIGN CROSS SECTIONS.
   197.000     17.20   1084.40   1080.06   1074.60   1086.61      2.21       .87       .13   1084.60
   75000.0       .0   75000.0       .0        .0    6281.3        .0    2701.8     187.2   1084.60
       .43      .00     11.94       .00      .000      .035      .000      .000   1067.20    308.00
   .002601     400.      400.      400.         2        19         0       .00    469.20    777.20


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   17APR98      11:34:54                                                                          PAGE  102

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


   'V=      .300 CEHV=      .500
   .NO 199.000
   199.000     17.31   1085.01   1078.33   1075.38   1086.91      1.90       .21       .09   1086.20
   75000.0       .0   75000.0       .0        .0    6773.0        .0    2716.8     188.2   1086.20
       .43      .00     11.07       .00      .000      .035      .000      .000   1067.70    318.69
   .001685     200.      100.      200.         2        14         0       .00    408.62    727.31
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```
*SECNO 201.100

3301 HV CHANGED MORE THAN HVINS


     OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1086.70 ELREA=      1086.70

            DOWNSTREAM BRIDGE SECTION - 99TH AVENUE BRIDGE
   201.100     16.78   1084.98   1080.11   1075.51   1087.81      2.83       .44       .47   1086.70
   75000.0       .0   75000.0       .0        .0    5551.2        .0    2746.5     190.0   1086.70
       .44       .00     13.51       .00      .000      .035      .000      .000   1068.20    326.22
   .002652     210.      210.      210.         2        14         0       .00    347.56    673.78


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.56      2.90    376.00    314.00     21.00   5763.00      1.00   1068.40   1068.20

*SECNO 201.900
PRESSURE FLOW


 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC     ELTRD     WEIRLN
                                                               AREA
   1089.08   1088.42      .81        0.    75000.     5763.     5697.     1086.70   1091.80        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1091.80 ELREA=      1091.80

            99TH AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS
   201.900     18.33   1086.73       .00   1075.59   1089.08      2.35      1.27       .00   1086.90
   75000.0       .0   75000.0       .0        .0    6092.4        .0    2757.2     190.6   1086.90
       .44       .00     12.31       .00      .000      .035      .000      .000   1068.40    324.67
   .001977      80.       80.       80.         3         0         0       .00    350.66    675.33


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   17APR98      11:34:54                                                                                PAGE  103

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 204.000
   204.000     18.24   1087.14   1080.80   1075.89   1089.52      2.38       .42       .01   1087.40
   75000.0       .0   75000.0       .0        .0    6058.5        .0    2786.5     192.3   1087.40
       .44       .00     12.38       .00      .000      .035      .000      .000   1068.90    324.76
   .002012     210.      210.      210.         2        14         0       .00    350.47    675.24


CCHV=      .300 CEHV=      .500
*SECNO 209.300
3280 CROSS SECTION    209.30 EXTENDED       .00 FEET

   209.300     18.00   1088.19   1082.09   1076.78   1090.64      2.45      1.09       .03   1088.19
   75000.0       .0   75000.0       .0        .0    5976.8        .0    2859.7     196.6   1088.19
       .46       .00     12.55       .00      .000      .035      .000      .000   1070.19    325.00
   .002100     530.      530.      530.         0        14         0       .00    350.00    675.00


CCHV=      .300 CEHV=      .500
*SECNO 212.600

3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1089.60 ELREA=      1089.60

            DOWNSTREAM BRIDGE SECTION - OLIVE AVENUE BRIDGE
   212.600     17.25   1088.25   1084.84   1077.39   1092.42      4.17       .92       .86   1089.60
   75000.0       .0   75000.0       .0        .0    4576.7        .0    2899.7     199.0   1089.60
       .46       .00     16.39       .00      .000      .035      .000      .000   1071.00    358.75
   .003881     330.      330.      330.         2        15         0       .00    282.51    641.25


SPECIAL BRIDGE
```

5227 DOWNSTREAM ELEV IS 1082.38 , NOT 1088.25 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.56	2.90	300.00	248.00	18.50	4481.60	1.00	1071.50	1071.00

IO 213.500
CROSS SECTION 213.50 EXTENDED 2.59 FEET

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

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
1095.03	1093.43	.00	2.	74906.	4482.	4482.	1089.60	1095.00	300.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1095.00 ELREA= 1095.00

OLIVE AVENUE BRIDGE - SPECIAL BRIDGE ANALYSIS

213.500	20.68	1092.18	.00	1077.74	1095.02	2.83	2.60	.00	1089.60
75000.0	.0	75000.0	.0	.0	5551.4	.0	2910.1	199.6	1089.60
.46	.00	13.51	.00	.000	.035	.000	.000	1071.50	357.90
.002085	90.	90.	90.	3	0	0	.00	284.20	642.10

CCHV= .100 CEHV= .300
*SECNO 213.700

213.700	19.07	1092.07	1086.38	1077.32	1095.13	3.05	.05	.07	1095.00
75000.0	.0	75000.0	.0	.0	5348.2	.0	2912.6	199.7	1096.20
.46	.00	14.02	.00	.000	.035	.000	.000	1073.00	350.03
.002500	20.	20.	20.	2	14	0	.00	298.96	648.99

*SECNO 217.500

3301 HV CHANGED MORE THAN HVINS

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

217.500	20.04	1094.24	1085.54	1080.49	1095.92	1.67	.65	.14	1096.00
75000.0	.0	75000.0	.0	.0	7225.0	.0	2967.5	202.7	1097.00
.47	.00	10.38	.00	.000	.035	.000	.000	1074.20	306.76
.001249	380.	380.	380.	3	11	0	.00	380.49	687.24

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

*SECNO 221.100

221.100	19.43	1094.73	1086.28	1081.20	1096.37	1.64	.45	.00	1096.60
75000.0	.0	75000.0	.0	.0	7295.9	.0	3027.5	205.9	1098.00
.48	.00	10.28	.00	.000	.035	.000	.000	1075.30	296.87
.001266	360.	360.	360.	2	11	0	.00	394.87	691.73

NO 227.500

3301 HV CHANGED MORE THAN HVINS

227.500	18.93	1096.03	1086.35	1082.60	1097.07	1.04	.64	.06	1099.00
75000.0	.0	75000.0	.0	.0	9173.2	.0	3148.5	212.5	1099.00

```
      .51       .00      8.18       .00      .000      .035      .000      .000   1077.10    248.11
   .000806      640.      640.      640.         2        11         0       .00    503.91    752.02


*SECNO 233.550

    HV CHANGED MORE THAN HVINS

   233.550     17.26   1096.26   1088.93   1083.69   1097.83      1.57       .60       .16   1101.70
   75000.0        .0   75000.0       .0        .0    7457.1        .0    3259.2     218.8   1101.60
      .52       .00     10.06       .00      .000      .035      .000      .000   1079.00    275.44
   .001381      580.      580.      580.         2        11         0       .00    449.23    724.66


*SECNO 238.660

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .57

   238.660     15.12   1095.72   1093.05   1085.54   1099.72      4.00      1.16       .73   1103.30
   75000.0        .0   75000.0       .0        .0    4674.0        .0    3331.0     223.4   1103.70
      .53       .00     16.05       .00      .000      .035      .000      .000   1080.60    337.64
   .004282      516.      516.      516.         3        15         0       .00    324.31    661.95


*SECNO 238.690
1
   17APR98      11:34:54                                                                                PAGE  106

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


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
     CRITICAL DEPTH ASSUMED
   238.690     12.26   1095.86   1095.86   1087.55   1101.82      5.97       .02       .59   1103.40
   75000.0        .0   75000.0       .0        .0    3826.5        .0    3331.3     223.4   1103.90
      .53       .00     19.60       .00      .000      .035      .000      .000   1083.60    332.54
   .008270        3.        3.        3.         0        15         0       .00    324.42    656.96


CCHV=     .100 CEHV=     .300
*SECNO 242.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.63

   242.000     16.08   1100.53   1096.45   1090.47   1103.69      3.16      1.59       .28   1104.00
   75000.0        .0   75000.0       .0        .0    5254.7        .0    3365.8     225.9   1104.00
      .54       .00     14.27       .00      .000      .035      .000      .000   1084.45    328.48
   .003125      331.      331.      331.         3         8         0       .00    343.04    671.52


*SECNO 247.000
   247.000     16.58   1102.25   1097.62   1091.79   1105.19      2.94      1.47       .02   1104.50
   75000.0        .0   75000.0       .0        .0    5454.5        .0    3427.3     229.9   1104.50
      .55       .00     13.75       .00      .000      .035      .000      .000   1085.67    327.25
   .002789      500.      500.      500.         3        15         0       .00    345.51    672.75


CCHV=     .100 CEHV=     .300
*SECNO 270.500
CHIMP CLSTA=    9955.00 CELCH=    1086.50 BW=     365.00 STCHL=    9753.15 STCHR=   10175.00
EXCAVATION DATA
AEX=    1319.1SQ-FT     VEXR=        .0K*CU-YD     VEXT=        .0K*CU-YD


    HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9750.0   10218.0  TYPE=      1  TARGET=    -9750.000
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1105.85 ELREA=      1107.00

   270.500     18.10   1104.60   1097.30   1093.11   1106.42      1.82      1.12       .11   1105.85
   75000.0       .0   75000.0       .0        .0    6934.7        .0    3506.2     234.7   1107.00
       .56      .00     10.82       .00      .000      .035      .000      .000   1086.50   9754.40
   .001522     338.      555.      338.         3        14         0       .00    401.20  10155.60


*SECNO 273.500
CHIMP CLSTA=    9919.00 CELCH=    1087.20 BW=     375.00 STCHL=    9712.31 STCHR=   10127.15
EXCAVATION DATA
AEX=    2554.4SQ-FT     VEXR=      22.2K*CU-YD     VEXT=       22.2K*CU-YD


3470 ENCROACHMENT STATIONS=     9640.0   10160.0  TYPE=      1  TARGET=    -9640.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1106.39 ELREA=      1107.85

   273.500     17.93   1105.13   1097.85   1093.56   1106.89      1.76       .47       .01   1106.39
   75000.0       .0   75000.0       .0        .0    7045.7        .0    3556.0     237.5   1107.85
       .57      .00     10.64       .00      .000      .035      .000      .000   1087.20   9713.57
   .001490     315.      310.      310.         2        11         0       .00    410.86  10124.43


*SECNO 277.900
CHIMP CLSTA=    9927.00 CELCH=    1088.30 BW=     360.00 STCHL=    9729.30 STCHR=   10137.00
EXCAVATION DATA
AEX=    2900.7SQ-FT     VEXR=      42.4K*CU-YD     VEXT=       64.7K*CU-YD


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1106.00 ELREA=      1108.50

   277.900     17.32   1105.62   1099.19   1094.22   1107.67      2.05       .69       .09   1106.00
   75000.0       .0   75000.0       .0        .0    6535.3        .0    3621.4     241.4   1108.50
       .58      .00     11.48       .00      .000      .035      .000      .000   1088.30   9729.68
   .001815     420.      420.      420.         2        14         0       .00    394.64  10124.32


*SECNO 281.800
CHIMP CLSTA=    9932.00 CELCH=    1089.20 BW=     330.00 STCHL=    9747.63 STCHR=   10117.50
1
   17APR98      11:34:54                                                                                    PAGE  108

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


EXCAVATION DATA
AEX=    3280.4SQ-FT     VEXR=      46.9K*CU-YD     VEXT=      111.6K*CU-YD


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1108.57 ELREA=      1109.70

   281.800     16.92   1106.12   1100.73   1095.08   1108.65      2.54       .84       .15   1108.57
   75000.0       .0   75000.0       .0        .0    5869.3        .0    3679.8     245.0   1109.70
       .59      .00     12.78       .00      .000      .035      .000      .000   1089.20   9750.08
   .002337     410.      410.      410.         2        14         0       .00    363.84  10113.92


CCHV=      .300 CEHV=      .500
*SECNO 288.000
CHIMP CLSTA=    9988.00 CELCH=    1092.20 BW=     274.00 STCHL=    9829.45 STCHR=   10145.00
EXCAVATION DATA
AEX=    1602.9SQ-FT     VEXR=      54.3K*CU-YD     VEXT=      165.9K*CU-YD


[illegible] HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .67


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1113.75 ELREA=      1112.00
```

```
   288.000     14.82   1107.02   1105.19   1097.05   1111.79      4.76      2.02      1.11   1113.75
   75000.0        .0   75000.0        .0        .0    4281.8        .0    3749.7     249.6   1112.00
       .60       .00     17.52       .00      .000      .035      .000      .000   1092.20   9836.17
   .005258      600.      600.      600.         2        15         0       .00    303.65  10139.82


   ;O 290.000

3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1117.80 ELREA=      1117.80

   290.000     14.78   1107.78   1106.45   1098.54   1113.34      5.56      1.15       .40   1117.80
   75000.0        .0   75000.0        .0        .0    3964.8        .0    3768.7     250.9   1117.80
       .60       .00     18.92       .00      .000      .035      .000      .000   1093.00   9865.00
   .006350      220.      200.      160.         2        11         0       .00    271.00  10136.00


1
   17APR98      11:34:54                                                                          PAGE  109

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


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS    1104.73 , NOT    1107.78 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .90      1.56      2.90       .00    271.00     10.50   4974.00       .00   1093.70   1093.30

*SECNO 291.000

3301 HV CHANGED MORE THAN HVINS

    S B LOW FLOW

3420 BRIDGE W.S.=    1107.20 BRIDGE VELOCITY=      21.01     CALCULATED CHANNEL AREA=      3518.

 EGPRS      EGLWC      H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
   1113.29   1114.35      .00        0.    75000.     4974.     5314.    1114.10   1119.10        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1117.80 ELREA=      1117.80

   291.000     17.13   1110.13       .00   1098.80   1114.35      4.22      1.02       .00   1116.00
   75000.0        .0   75000.0        .0        .0    4546.9        .0    3776.2     251.4   1116.00
       .60       .00     16.49       .00      .000      .035      .000      .000   1093.00   9865.00
   .004099       77.       77.       77.         0         0         0       .00    271.00  10136.00


CCHV=     .100 CEHV=     .300
*SECNO 293.000
CHIMP CLSTA=   10007.00 CELCH=    1094.00 BW=     231.00 STCHL=    9869.90 STCHR=   10144.00
EXCAVATION DATA
AEX=      -4.0SQ-FT     VEXR=       5.9K*CU-YD     VEXT=      171.8K*CU-YD


3301 HV CHANGED MORE THAN HVINS

   293.000     16.23   1110.23   1108.52   1099.70   1115.66      5.42       .94       .36   1115.60
   75000.0        .0   75000.0        .0        .0    4013.6        .0    3795.8     252.6   1115.00
       .61       .00     18.69       .00      .000      .035      .000      .000   1094.00   9875.27
   .005482      200.      200.      200.         3        11         0       .00    263.47  10138.73


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   17APR98      11:34:54                                                                          PAGE  110

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 297.000
CHIMP CLSTA=   10006.00 CELCH=    1096.10 BW=     246.00 STCHL=    9863.04 STCHR=   10150.00
EXCAVATION DATA
AEX=     -26.4SQ-FT     VEXR=       -.2K*CU-YD     VEXT=      171.6K*CU-YD


    HV CHANGED MORE THAN HVINS

   297.000     17.31   1113.41   1110.04   1102.04   1117.61      4.21      1.84       .12   1116.05
   75000.0       .0   75000.0       .0        .0    4555.8        .0    3835.2     255.1   1115.00
       .61       .00     16.46       .00      .000      .035      .000      .000   1096.10   9865.70
   .003908     400.      400.      400.         3        11         0       .00    280.61  10146.30


*SECNO 302.000
CHIMP CLSTA=    9999.00 CELCH=    1098.20 BW=     197.00 STCHL=    9882.00 STCHR=   10118.78
EXCAVATION DATA
AEX=       3.1SQ-FT     VEXR=       -.2K*CU-YD     VEXT=      171.3K*CU-YD


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   302.000     16.00   1114.20   1114.20   1104.40   1121.72      7.52      2.86       .99   1116.00
   75000.0       .0   75000.0       .0        .0    3407.5        .0    3883.6     258.2   1119.48
       .62       .00     22.01       .00      .000      .035      .000      .000   1098.20   9884.50
   .007902     530.      530.      530.         0        11         0       .00    228.99  10113.50


*SECNO 305.000
CHIMP CLSTA=    9992.00 CELCH=    1099.50 BW=     188.00 STCHL=    9880.94 STCHR=   10110.00
EXCAVATION DATA
AEX=     244.7SQ-FT     VEXR=       1.3K*CU-YD     VEXT=      172.6K*CU-YD


3301 HV CHANGED MORE THAN HVINS

   305.000     17.60   1117.10   1115.92   1106.05   1123.78      6.68      1.97       .08   1116.56
   75000.0       7.1   74992.9       .0       5.1    3615.7        .0    3906.2     259.7   1119.50
       .62      1.39     20.74       .00      .035      .035      .000      .000   1099.50   9861.74
    006307     280.      280.      280.         3         8         0       .00    241.85  10103.59


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   17APR98      11:34:54                                                                          PAGE  111


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 306.750
CHIMP CLSTA=    9959.00 CELCH=    1100.30 BW=     289.00 STCHL=    9798.80 STCHR=   10123.24
EXCAVATION DATA
AEX=    1770.8SQ-FT     VEXR=       8.0K*CU-YD     VEXT=      180.6K*CU-YD

3280 CROSS SECTION    306.75 EXTENDED      7.01 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.41

   306.750     22.72   1123.02   1112.85   1107.89   1124.74      1.72       .47       .50   1116.00
   75000.0     511.5   74442.7      45.8     124.8    7049.7      25.4    3932.9     261.2   1120.04
       .63      4.10     10.56      1.80      .035      .035      .035      .000   1100.30   9781.00
   .001082     215.      215.      215.         3        19         0       .00    359.39  10140.39


*SECNO 310.000
CHIMP CLSTA=    9965.00 CELCH=    1101.60 BW=     330.00 STCHL=    9784.66 STCHR=   10149.29
EXCAVATION DATA
      1007.5SQ-FT     VEXR=      16.5K*CU-YD     VEXT=      197.1K*CU-YD

3280 CROSS SECTION    310.00 EXTENDED      6.66 FEET

   310.000     22.06   1123.66   1113.16   1108.39   1125.08      1.43       .32       .03   1116.94
   75000.0      79.0   74464.2     456.8      31.2    7739.2     150.3    3988.5     264.0   1120.90
       .64      2.53      9.62      3.04      .035      .035      .035      .000   1101.60   9780.00
```

```
   .000920      320.      320.      320.         2         8         0       .00    405.00  10185.00


*SECNO 313.200
CHIMP CLSTA=   10000.00 CELCH=    1103.00 BW=     330.00 STCHL=    9820.00 STCHR=   10183.25
EXCAVATION DATA
        1069.6SQ-FT     VEXR=      12.1K*CU-YD     VEXT=      209.2K*CU-YD

3280 CROSS SECTION    313.20 EXTENDED      6.85 FEET

   313.200     20.85   1123.85   1114.53   1108.88   1125.45      1.60       .32       .05   1117.00
   75000.0     573.9   74327.3      98.8     137.1    7296.5      40.3    4044.1     266.9   1121.25
       .65      4.19     10.19      2.45      .035      .035      .035      .000   1103.00   9800.00
   .001106      315.      315.      315.         2        11         0       .00    398.00  10198.00


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   17APR98      11:34:54                                                                                                PAGE  112

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       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 318.000
CHIMP CLSTA=   10000.00 CELCH=    1105.10 BW=     330.00 STCHL=    9820.00 STCHR=   10182.90
EXCAVATION DATA
AEX=      52.1SQ-FT     VEXR=      10.4K*CU-YD     VEXT=      219.6K*CU-YD

3280 CROSS SECTION    318.00 EXTENDED      1.25 FEET

   318.000     19.15   1124.25   1116.64   1110.29   1126.20      1.94       .64       .10   1120.00
   75000.0     170.0   74795.6      34.4      55.1    6678.4      18.9    4125.8     271.5   1123.00
       .66      3.09     11.20      1.82      .035      .035      .035      .000   1105.10   9800.00
   .001504      500.      500.      500.         2        11         0       .00    398.00  10198.00


*SECNO 320.050
CHIMP CLSTA=   10000.00 CELCH=    1106.00 BW=     330.00 STCHL=    9816.00 STCHR=   10184.00
EXCAVATION DATA
        152.0SQ-FT     VEXR=       1.1K*CU-YD     VEXT=      220.7K*CU-YD

   320.050     18.63   1124.63   1117.53   1111.41   1126.70      2.07       .46       .04   1125.00
   75000.0        .0   75000.0       .0        .0    6495.9        .0    4169.9     274.0   1125.00
       .67       .00     11.55       .00      .000      .035      .000      .000   1106.00   9816.37
   .001695      290.      290.      290.         0        14         0       .00    367.27  10183.63


*SECNO 328.000
CHIMP CLSTA=   10000.00 CELCH=    1109.10 BW=     330.00 STCHL=    9817.10 STCHR=   10182.90
EXCAVATION DATA
AEX=     195.1SQ-FT     VEXR=       4.1K*CU-YD     VEXT=      224.8K*CU-YD


3301 HV CHANGED MORE THAN HVINS

   328.000     16.41   1125.51   1120.63   1113.86   1128.21      2.70      1.32       .19   1127.00
   75000.0        .0   75000.0       .0        .0    5684.3        .0    4259.4     279.4   1127.00
       .68       .00     13.19       .00      .000      .035      .000      .000   1109.10   9818.59
   .002583      640.      640.      640.         2        14         0       .00    362.82  10181.41


*SECNO 330.000
CHIMP CLSTA=   10000.00 CELCH=    1110.10 BW=     330.00 STCHL=    9817.60 STCHR=   10182.40
EXCAVATION DATA
AEX=      76.6SQ-FT     VEXR=        .9K*CU-YD     VEXT=      225.7K*CU-YD

1
   17APR98      11:34:54                                                                                                PAGE  113

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


   330.000     15.72   1125.82   1121.62   1114.76   1128.77      2.96       .49       .08   1127.50
   75000.0        .0   75000.0       .0        .0    5433.1        .0    4281.7     280.9   1127.50
       .68       .00     13.80       .00      .000      .035      .000      .000   1110.10   9819.28
   .002987      175.      175.      175.         2        19         0       .00    361.43  10180.72
```

```
*SECNO 334.000
CHIMP CLSTA=   10000.00 CELCH=    1112.00 BW=     330.00 STCHL=    9818.00 STCHR=   10182.00
EXCAVATION DATA
AEX=      68.0SQ-FT     VEXR=       1.1K*CU-YD     VEXT=      226.8K*CU-YD

   34.000     14.95   1126.95   1123.54   1116.99   1130.23      3.29      1.36       .10   1129.00
   5000.0        .0   75000.0        .0        .0    5156.4        .0    4332.7     284.3   1129.00
      .69       .00     14.55       .00      .000      .035      .000      .000   1112.00   9820.05
  .003528      420.      420.      420.         2        15         0       .00    359.90  10179.95


CCHV=     .200 CEHV=     .400
*SECNO 343.000
CHIMP CLSTA=   10025.00 CELCH=    1115.70 BW=     329.00 STCHL=    9861.00 STCHR=   10206.30
EXCAVATION DATA
AEX=    2385.5SQ-FT     VEXR=      40.9K*CU-YD     VEXT=      267.7K*CU-YD


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1132.00 ELREA=      1132.00

  343.000     14.44   1130.14   1127.32   1120.84   1133.85      3.70      3.45       .17   1132.00
  75000.0        .0   75000.0        .0        .0    4856.6        .0    4436.2     291.6   1132.00
      .71       .00     15.44       .00      .000      .035      .000      .000   1115.70   9861.00
  .004172      900.      900.      900.         2        15         0       .00    343.44  10204.44


*SECNO 344.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1132.00 ELREA=      1132.00

  344.900     15.06   1131.36   1127.85   1121.67   1134.65      3.29       .72       .08   1132.00
  75000.0        .0   75000.0        .0        .0    5150.2        .0    4458.0     293.1   1132.00
      .71       .00     14.56       .00      .000      .035      .000      .000   1116.30   9823.49
  .003489      110.      190.      260.         3        15         0       .00    353.98  10177.47


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  17APR98      11:34:54                                                                          PAGE  114


                                                                    THIS RUN EXECUTED 17APR98     11:34:58
************************************
 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


10-YEAR EVENT

SUMMARY PRINTOUT


      SECNO        Q        CWSEL       VCH      DEPTH    TOPWID      SSTA      ENDST

      39.000  13500.00   1036.06      3.33       8.06    818.79   9592.94  10411.72
      39.000  31000.00   1039.39      4.56      11.39    829.03   9589.35  10418.38
      39.000  41000.00   1040.66      5.22      12.66    832.94   9587.98  10420.92
      39.000  75000.00   1043.78      7.17      15.78    840.20   9585.90  10426.10

*     44.000  13500.00   1036.53      4.20       5.78    862.92   9502.54  10365.46
      44.000  31000.00   1039.78      5.13       9.03    877.03   9496.05  10373.08
      44.000  41000.00   1041.07      5.71      10.32    882.65   9493.46  10376.11
      44.000  75000.00   1044.29      7.47      13.54    896.26   9487.03  10383.29

      47.000  13500.00   1037.11      5.54       6.11    727.82    611.78   1339.60
      47.000  31000.00   1040.06      6.74       9.06    740.69    605.90   1346.59
      47.000  41000.00   1041.31      7.41      10.31    746.21    603.38   1349.59
      47.000  75000.00   1044.46      9.48      13.46    759.39    597.07   1356.46

      51.500  13500.00   1038.44      5.88       7.04    527.12    775.32   1302.44
      51.500  31000.00   1040.99      8.49       9.59    534.77    770.22   1304.99
      51.500  41000.00   1042.14      9.61      10.73    538.21    767.93   1306.14
      51.500  75000.00   1045.07     12.80      13.67    547.03    762.05   1309.08

      55.000  13500.00   1039.30      5.66       7.40    458.29    275.30    733.60
      55.000  31000.00   1041.99      8.54      10.09    466.34    269.95    736.29
      55.000  41000.00   1043.19      9.78      11.29    469.92    267.57    737.49
```

55.000	75000.00	1046.30	13.23	14.40	479.21	261.39	740.60
58.120	13500.00	1040.41	5.26	8.31	387.72	766.69	1154.41
58.120	31000.00	1043.56	8.16	11.46	394.03	763.54	1157.56
58.120	41000.00	1044.94	9.44	12.84	396.78	762.16	1158.94
58.120	75000.00	1048.54	12.96	16.44	403.99	758.56	1162.54
62.000	13500.00	1040.95	5.69	8.05	418.55	275.50	694.05
62.000	31000.00	1044.33	8.15	11.43	428.68	268.75	697.43
62.000	41000.00	1045.85	9.19	12.95	433.26	265.70	698.95
62.000	75000.00	1050.04	11.90	17.14	445.81	257.33	703.14

SECNO	Q	CWSEL	VCH	DEPTH	TOPWID	SSTA	ENDST
66.000	13500.00	1041.69	4.60	7.69	460.27	277.42	737.69
66.000	31000.00	1045.35	6.68	11.35	471.26	270.09	741.35
66.000	41000.00	1047.01	7.55	13.01	476.25	266.77	743.02
66.000	75000.00	1051.61	9.80	17.61	490.04	257.57	747.61
71.000	13500.00	1042.23	4.98	7.23	459.79	277.04	736.83
71.000	31000.00	1045.96	6.97	10.96	470.98	269.58	740.56
71.000	41000.00	1047.65	7.82	12.65	476.04	266.20	742.25
71.000	75000.00	1052.30	10.01	17.30	487.60	258.50	746.10
75.000	13500.00	1042.77	5.11	6.27	457.20	279.07	736.27
75.000	31000.00	1046.51	7.08	10.01	468.44	271.58	740.01
75.000	41000.00	1048.21	7.92	11.71	473.53	268.18	741.71
75.000	75000.00	1052.90	10.10	16.40	487.57	258.82	746.39
78.000	13500.00	1043.20	5.32	5.80	456.29	279.50	735.80
78.000	31000.00	1046.94	7.27	9.54	467.51	272.03	739.54
78.000	41000.00	1048.64	8.09	11.24	472.63	268.61	741.24
78.000	75000.00	1053.35	10.24	15.95	486.75	259.20	745.95
81.000	13500.00	1043.69	5.42	5.69	456.35	278.98	735.33
81.000	31000.00	1047.41	7.37	9.41	467.02	271.79	738.81
81.000	41000.00	1049.11	8.20	11.11	471.90	268.50	740.40
81.000	75000.00	1053.82	10.33	15.82	485.48	259.35	744.83
84.000	13500.00	1044.21	5.63	7.21	455.10	280.08	735.18
84.000	31000.00	1047.89	7.58	10.89	466.10	272.73	738.83
84.000	41000.00	1049.59	8.39	12.59	471.19	269.33	740.52
84.000	75000.00	1054.29	10.50	17.29	485.31	259.90	745.20
87.000	13500.00	1044.82	6.01	5.02	454.85	280.17	735.02
87.000	31000.00	1048.42	7.95	8.62	465.64	272.98	738.61
87.000	41000.00	1050.09	8.75	10.29	470.69	269.61	740.30
87.000	75000.00	1054.78	10.83	14.98	484.74	260.24	744.98
89.000	13500.00	1045.31	6.36	4.91	454.72	280.19	734.91
89.000	31000.00	1048.81	8.30	8.41	465.22	273.19	738.41
89.000	41000.00	1050.47	9.09	10.07	470.22	269.86	740.07
89.000	75000.00	1055.12	11.15	14.72	484.16	260.56	744.72
94.000	13500.00	1046.74	6.19	4.94	455.21	279.73	734.94
94.000	31000.00	1050.03	8.38	8.23	465.10	273.14	738.23
94.000	41000.00	1051.62	9.24	9.82	469.85	269.96	739.82
94.000	75000.00	1056.17	11.35	14.37	483.50	260.87	744.37
97.000	13500.00	1047.56	6.42	4.96	455.41	279.56	734.97
97.000	31000.00	1050.79	8.66	8.19	465.04	273.14	738.18
97.000	41000.00	1052.34	9.52	9.74	469.69	270.04	739.73
97.000	75000.00	1056.82	11.64	14.22	483.16	261.06	744.22

	SECNO	Q	CWSEL	VCH	DEPTH	TOPWID	SSTA	ENDST
	99.540	13500.00	1048.29	7.60	5.09	349.73	325.14	674.86
	99.540	31000.00	1051.31	10.92	8.11	349.74	325.13	674.87
	99.540	41000.00	1052.73	12.30	9.53	349.75	325.13	674.87
	99.540	75000.00	1056.77	15.79	13.57	349.77	325.12	674.88
*	99.600	13500.00	1049.78	10.79	3.58	349.72	325.14	674.86
*	99.600	31000.00	1052.43	14.23	6.23	349.74	325.13	674.87
*	99.600	41000.00	1053.70	15.63	7.50	349.74	325.13	674.87
*	99.600	75000.00	1057.42	19.11	11.22	349.76	325.12	674.88

*	100.400	13500.00	1051.57	7.62	5.07	349.73	325.14	674.86
*	100.400	31000.00	1055.32	10.05	8.82	349.75	325.12	674.88
*	100.400	41000.00	1057.13	11.03	10.63	349.76	325.12	674.88
*	100.400	75000.00	1062.40	13.49	15.90	349.79	325.10	674.90
	100.900	13500.00	1051.77	7.36	5.17	360.04	319.98	680.02
	100.900	31000.00	1055.61	9.59	9.01	367.72	316.14	683.86
	100.900	41000.00	1057.48	10.45	10.88	371.47	314.26	685.74
	100.900	75000.00	1063.02	12.47	16.42	382.55	308.72	691.28
	103.000	13500.00	1052.78	6.32	5.78	378.13	317.24	695.38
	103.000	31000.00	1056.62	8.58	9.62	389.69	309.54	699.23
	103.000	41000.00	1058.50	9.42	11.50	395.33	305.78	701.11
	103.000	75000.00	1064.09	11.35	17.09	412.09	294.61	706.70
	106.000	13500.00	1053.55	4.94	5.95	468.64	272.11	740.75
	106.000	31000.00	1057.60	6.66	10.00	480.80	264.00	744.80
	106.000	41000.00	1059.56	7.31	11.96	486.69	260.07	746.76
	106.000	75000.00	1065.36	8.84	17.76	504.09	248.47	752.56
	109.000	13500.00	1053.99	4.34	5.79	558.68	227.11	785.79
	109.000	31000.00	1058.11	5.71	9.91	571.02	218.89	789.91
	109.000	41000.00	1060.11	6.23	11.91	577.03	214.88	791.91
	109.000	75000.00	1066.00	7.47	17.80	594.71	203.09	797.80
	110.000	13500.00	1054.09	4.51	7.09	558.50	227.19	785.69
	110.000	31000.00	1058.19	5.84	11.19	570.88	218.91	789.79
	110.000	41000.00	1060.18	6.35	13.18	576.90	214.88	791.78
	110.000	75000.00	1066.06	7.58	19.06	594.66	203.00	797.66
	113.000	13500.00	1054.46	4.56	5.46	558.17	227.28	785.46
	113.000	31000.00	1058.48	5.93	9.48	570.23	219.25	789.48
	113.000	41000.00	1060.45	6.45	11.45	576.14	215.31	791.45
	113.000	75000.00	1066.28	7.68	17.28	593.66	203.63	797.29
	116.000	13500.00	1054.84	5.05	5.24	538.41	227.21	785.24
	116.000	31000.00	1058.77	6.38	9.17	569.83	219.35	789.18
	116.000	41000.00	1060.71	6.87	11.11	575.65	215.47	791.12
	116.000	75000.00	1066.48	8.03	16.88	592.94	203.94	796.88

	SECNO	Q	CWSEL	VCH	DEPTH	TOPWID	SSTA	ENDST
*	120.000	13500.00	1055.34	9.44	4.94	307.15	296.81	734.94
*	120.000	31000.00	1058.83	11.33	8.43	448.62	289.82	738.44
*	120.000	41000.00	1060.62	11.57	10.22	454.00	286.24	740.23
*	120.000	75000.00	1066.14	12.31	15.74	470.55	275.20	745.75
*	123.000	13500.00	1057.27	5.00	6.27	440.99	295.28	736.26
*	123.000	31000.00	1061.05	7.05	10.05	452.36	287.70	740.05
*	123.000	41000.00	1062.65	8.00	11.65	457.16	284.49	741.65
*	123.000	75000.00	1067.68	10.05	16.68	472.28	274.42	746.69
	127.000	13500.00	1057.78	5.24	5.98	440.91	295.06	735.97
	127.000	31000.00	1061.59	7.24	9.79	452.35	287.44	739.78
	127.000	41000.00	1063.22	8.16	11.42	457.26	284.16	741.42
	127.000	75000.00	1068.25	10.19	16.45	472.32	274.12	746.44
	131.000	13500.00	1058.39	5.60	8.39	440.56	295.22	735.79
	131.000	31000.00	1062.17	7.57	12.17	451.89	287.67	739.56
	131.000	41000.00	1063.82	8.46	13.82	456.85	284.37	741.22
	131.000	75000.00	1068.83	10.45	18.83	471.91	274.33	746.24
	135.000	13500.00	1059.19	6.45	5.79	441.02	294.70	735.72
	135.000	31000.00	1062.85	8.32	9.45	452.07	287.26	739.33
	135.000	41000.00	1064.48	9.18	11.08	457.01	283.93	740.94
	135.000	75000.00	1069.41	11.10	16.01	471.93	273.89	745.82
	138.000	13500.00	1060.06	5.66	6.06	442.59	293.47	736.06
	138.000	31000.00	1063.63	7.78	9.63	453.29	286.34	739.63
	138.000	41000.00	1065.26	8.67	11.26	458.19	283.07	741.26
	138.000	75000.00	1070.13	10.73	16.13	471.20	274.40	745.60
	141.000	13500.00	1060.64	6.32	6.04	419.48	294.25	736.04
	141.000	31000.00	1064.17	8.37	9.57	452.35	287.22	739.57
	141.000	41000.00	1065.79	9.24	11.19	457.20	283.99	741.19
	141.000	75000.00	1070.59	11.25	15.99	471.58	274.41	745.99
*	145.000	13500.00	1061.60	5.04	6.20	440.56	294.20	734.76
	145.000	31000.00	1065.22	7.23	9.82	450.58	286.96	737.55
	145.000	41000.00	1066.86	8.14	11.46	455.14	283.67	738.81

145.000	75000.00	1071.66	10.35	16.26	468.41	274.08	742.49
147.000	13500.00	1061.85	5.16	6.05	441.57	294.49	736.06
147.000	31000.00	1065.50	7.29	9.70	452.51	287.19	739.70
147.000	41000.00	1067.16	8.19	11.36	457.49	283.87	741.36
147.000	75000.00	1071.97	10.36	16.17	471.92	274.26	746.17
150.000	13500.00	1062.30	4.95	5.90	471.09	244.81	715.90
150.000	31000.00	1066.04	6.88	9.64	482.31	237.33	719.64
150.000	41000.00	1067.74	7.68	11.34	487.43	233.92	721.34
150.000	75000.00	1072.66	9.65	16.26	502.19	224.08	726.26

	SECNO	Q	CWSEL	VCH	DEPTH	TOPWID	SSTA	ENDST
*	155.000	13500.00	1063.05	7.75	5.65	400.68	244.60	675.65
*	155.000	31000.00	1066.61	9.52	9.21	441.72	237.48	679.21
*	155.000	41000.00	1068.25	10.29	10.85	446.65	234.20	680.85
	155.000	75000.00	1073.00	12.21	15.60	460.89	224.70	685.60
*	158.000	13500.00	1064.30	6.78	6.30	325.41	343.39	668.80
	158.000	31000.00	1067.51	10.16	9.51	335.03	336.98	672.01
	158.000	41000.00	1069.03	11.51	11.03	339.58	333.95	673.53
	158.000	75000.00	1073.39	14.78	15.39	352.68	325.21	677.89
	159.450	13500.00	1064.97	6.11	6.67	338.33	330.83	669.17
	159.450	31000.00	1068.59	8.98	10.29	345.59	327.21	672.79
	159.450	41000.00	1070.29	10.15	11.99	348.98	325.51	674.49
	159.450	75000.00	1075.07	13.08	16.77	358.55	320.73	679.27
	160.250	13500.00	1065.10	6.13	6.64	338.26	330.87	669.13
	160.250	31000.00	1068.96	8.80	10.50	345.96	327.02	672.98
	160.250	41000.00	1070.79	9.86	12.33	349.60	325.20	674.80
	160.250	75000.00	1076.55	12.08	18.09	361.10	319.45	680.55
	162.000	13500.00	1065.41	6.16	6.61	338.21	330.89	669.11
	162.000	31000.00	1069.32	8.78	10.52	346.05	326.97	673.03
	162.000	41000.00	1071.16	9.83	12.36	349.73	325.13	674.87
	162.000	75000.00	1076.89	12.09	18.09	361.17	319.41	680.59
	165.000	13500.00	1066.04	5.46	6.64	382.33	374.31	756.64
	165.000	31000.00	1070.48	6.75	11.08	555.25	205.83	761.08
	165.000	41000.00	1072.57	7.12	13.17	561.53	201.65	763.18
*	165.000	75000.00	1078.93	7.99	19.53	580.20	189.20	769.40
	168.000	13500.00	1066.47	5.88	6.37	370.30	386.06	756.37
	168.000	31000.00	1070.94	7.07	10.84	554.72	206.12	760.84
	168.000	41000.00	1072.94	7.45	12.84	560.73	202.11	762.84
	168.000	75000.00	1079.17	8.28	19.07	578.90	190.00	768.90
	170.000	13500.00	1066.81	5.98	6.21	372.82	383.39	756.21
	170.000	31000.00	1071.30	7.11	10.70	554.09	206.61	760.70
	170.000	41000.00	1073.23	7.54	12.63	559.88	202.74	762.63
	170.000	75000.00	1079.36	8.40	18.76	577.80	190.80	768.60
*	173.000	13500.00	1067.16	8.82	5.76	274.09	388.67	662.76
*	173.000	31000.00	1071.45	10.31	10.05	373.76	293.29	667.05
*	173.000	41000.00	1073.25	10.92	11.85	433.26	235.59	668.85
*	173.000	75000.00	1079.04	11.88	17.64	450.50	224.10	674.60
	176.000	13500.00	1068.79	7.74	6.59	376.05	287.53	663.58
	176.000	31000.00	1072.72	9.55	10.52	387.87	279.66	667.52
	176.000	41000.00	1074.40	10.50	12.20	392.92	276.29	669.21
	176.000	75000.00	1079.61	12.52	17.41	408.50	265.90	674.40

	SECNO	Q	CWSEL	VCH	DEPTH	TOPWID	SSTA	ENDST
*	177.000	13500.00	1069.56	5.13	7.16	374.24	289.92	664.16
*	177.000	31000.00	1073.50	7.52	11.10	382.09	286.02	668.10
*	177.000	41000.00	1075.23	8.57	12.83	385.53	284.30	669.84
	177.000	75000.00	1080.41	11.02	18.01	395.83	279.18	675.02
	179.000	13500.00	1069.79	5.14	6.99	386.20	329.29	715.49
	179.000	31000.00	1073.81	7.38	11.01	398.29	321.22	719.51
	179.000	41000.00	1075.59	8.34	12.79	403.63	317.65	721.29
	179.000	75000.00	1080.88	10.57	18.08	419.55	307.03	726.58

	181.000	13500.00	1070.08	4.67	6.78	437.04	329.74	766.78
	181.000	31000.00	1074.24	6.54	10.94	449.53	321.41	770.94
	181.000	41000.00	1076.10	7.35	12.80	455.10	317.70	772.80
	181.000	75000.00	1081.59	9.23	18.29	471.57	306.72	778.29
*	183.000	13500.00	1069.50	10.68	5.70	241.61	331.10	765.70
	183.000	31000.00	1073.82	10.95	10.02	447.56	322.46	770.02
	183.000	41000.00	1075.73	11.10	11.93	453.30	318.63	771.93
*	183.000	75000.00	1081.28	11.99	17.48	469.95	307.54	777.48
*	188.000	13500.00	1072.71	5.98	7.71	438.64	327.61	767.70
*	188.000	31000.00	1076.40	7.94	11.40	451.19	320.21	771.40
*	188.000	41000.00	1077.93	8.90	12.93	455.82	317.12	772.94
	188.000	75000.00	1082.82	10.92	17.82	470.47	307.35	777.82
	193.000	13500.00	1073.79	5.60	7.59	432.18	327.60	767.60
	193.000	31000.00	1077.43	7.69	11.23	450.90	320.34	771.23
	193.000	41000.00	1079.00	8.64	12.80	455.61	317.19	772.80
	193.000	75000.00	1083.82	10.76	17.62	470.07	307.55	777.62
*	197.000	13500.00	1074.60	7.24	7.40	411.62	327.59	767.40
	197.000	31000.00	1078.12	9.14	10.92	450.35	320.57	770.92
	197.000	41000.00	1079.68	10.00	12.48	455.03	317.45	772.48
	197.000	75000.00	1084.40	11.94	17.20	469.20	308.00	777.20
*	199.000	13500.00	1075.38	4.60	7.68	389.36	328.32	717.68
*	199.000	31000.00	1078.96	7.15	11.26	396.52	324.74	721.26
*	199.000	41000.00	1080.51	8.27	12.81	399.63	323.19	722.81
	199.000	75000.00	1085.01	11.07	17.31	408.62	318.69	727.31
	201.100	13500.00	1075.51	5.75	7.31	328.62	335.69	664.31
	201.100	31000.00	1079.07	8.78	10.87	335.74	332.13	667.87
	201.100	41000.00	1080.60	10.13	12.40	338.81	330.60	669.40
	201.100	75000.00	1084.98	13.51	16.78	347.56	326.22	673.78
	201.900	13500.00	1075.59	5.85	7.19	328.38	335.81	664.19
	201.900	31000.00	1079.32	8.73	10.92	335.84	332.08	667.92
	201.900	41000.00	1080.98	9.98	12.58	339.16	330.42	669.58
	201.900	75000.00	1086.73	12.31	18.33	350.66	324.67	675.33

	SECNO	Q	CWSEL	VCH	DEPTH	TOPWID	SSTA	ENDST
	204.000	13500.00	1075.89	6.02	6.99	327.97	336.02	663.98
	204.000	31000.00	1079.71	8.82	10.81	335.65	332.18	667.82
	204.000	41000.00	1081.41	10.03	12.51	339.03	330.48	669.52
	204.000	75000.00	1087.14	12.38	18.24	350.47	324.76	675.24
	209.300	13500.00	1076.78	6.39	6.59	327.18	336.41	663.59
	209.300	31000.00	1080.76	9.04	10.57	335.14	332.43	667.57
	209.300	41000.00	1082.53	10.19	12.34	338.66	330.67	669.33
	209.300	75000.00	1088.19	12.55	18.00	350.00	325.00	675.00
	212.600	13500.00	1077.39	8.30	6.39	260.78	369.61	630.39
	212.600	31000.00	1081.24	11.73	10.24	268.47	365.76	634.24
	212.600	41000.00	1082.93	13.22	11.93	271.86	364.07	635.93
	212.600	75000.00	1088.25	16.39	17.25	282.51	358.75	641.25
	213.500	13500.00	1077.74	8.51	6.24	260.48	369.76	630.24
	213.500	31000.00	1082.06	11.36	10.56	269.11	365.44	634.56
	213.500	41000.00	1084.04	12.55	12.54	273.08	363.46	636.54
*	213.500	75000.00	1092.18	13.51	20.68	284.20	357.90	642.10
*	213.700	13500.00	1077.32	11.76	4.32	270.21	364.78	634.99
	213.700	31000.00	1081.62	13.31	8.62	278.60	360.48	639.08
	213.700	41000.00	1083.67	14.10	10.67	282.61	358.42	641.03
	213.700	75000.00	1092.07	14.02	19.07	298.96	350.03	648.99
*	217.500	13500.00	1080.49	6.19	6.29	352.97	320.51	673.49
*	217.500	31000.00	1084.59	8.50	10.39	361.20	316.40	677.60
*	217.500	41000.00	1086.67	9.32	12.47	365.34	314.33	679.67
*	217.500	75000.00	1094.24	10.38	20.04	380.49	306.76	687.24
	221.100	13500.00	1081.20	6.31	5.90	367.82	310.39	678.21
	221.100	31000.00	1085.30	8.47	10.00	376.00	306.30	682.30
	221.100	41000.00	1087.36	9.24	12.06	380.12	304.24	684.36
	221.100	75000.00	1094.73	10.28	19.43	394.87	296.87	691.73
	227.500	13500.00	1082.60	5.22	5.50	476.30	262.23	738.52
	227.500	31000.00	1086.75	6.76	9.65	484.83	257.86	742.69
	227.500	41000.00	1088.83	7.33	11.73	489.11	255.68	744.79

	227.500	75000.00	1096.03	8.18	18.93	503.91	248.11	752.02
*	233.550	13500.00	1083.69	6.87	4.69	424.07	288.01	712.09
	233.550	31000.00	1087.45	8.66	8.45	431.61	284.24	715.86
	233.550	41000.00	1089.40	9.27	10.40	435.50	282.30	717.80
	233.550	75000.00	1096.26	10.06	17.26	449.23	275.44	724.66
	238.660	13500.00	1085.54	9.13	4.94	303.78	347.91	651.69
*	238.660	31000.00	1088.38	13.21	7.78	309.49	345.05	654.55
*	238.660	41000.00	1089.85	14.62	9.25	312.47	343.56	656.03
*	238.660	75000.00	1095.72	16.05	15.12	324.31	337.64	661.95

	SECNO	Q	CWSEL	VCH	DEPTH	TOPWID	SSTA	ENDST
*	238.690	13500.00	1087.55	11.26	3.95	307.79	340.85	648.65
*	238.690	31000.00	1090.45	14.75	6.85	313.60	337.95	651.55
*	238.690	41000.00	1091.84	16.16	8.24	316.37	336.56	652.94
*	238.690	75000.00	1095.86	19.60	12.26	324.42	332.54	656.96
*	242.000	13500.00	1090.47	7.08	6.02	322.93	338.53	661.47
*	242.000	31000.00	1094.07	10.06	9.62	330.14	334.93	665.07
*	242.000	41000.00	1095.75	11.26	11.30	333.49	333.25	666.75
*	242.000	75000.00	1100.53	14.27	16.08	343.04	328.48	671.52
	247.000	13500.00	1091.79	6.93	6.12	324.57	337.72	662.28
	247.000	31000.00	1095.58	9.71	9.91	332.16	333.92	666.08
	247.000	41000.00	1097.32	10.86	11.65	335.65	332.17	667.83
	247.000	75000.00	1102.25	13.75	16.58	345.51	327.25	672.75
	270.500	13500.00	1093.11	5.49	6.61	378.23	9765.89	10144.11
	270.500	31000.00	1097.25	7.67	10.75	386.51	9761.75	10148.25
	270.500	41000.00	1099.17	8.56	12.67	390.35	9759.82	10150.17
	270.500	75000.00	1104.60	10.82	18.10	401.20	9754.40	10155.60
	273.500	13500.00	1093.56	5.57	6.36	387.71	9725.15	10112.85
	273.500	31000.00	1097.72	7.64	10.52	396.04	9720.98	10117.02
	273.500	41000.00	1099.66	8.50	12.46	399.91	9719.04	10118.96
	273.500	75000.00	1105.13	10.64	17.93	410.86	9713.57	10124.43
	277.900	13500.00	1094.22	6.23	5.92	371.84	9741.08	10112.92
	277.900	31000.00	1098.30	8.37	10.00	380.01	9737.00	10117.00
	277.900	41000.00	1100.21	9.25	11.91	383.82	9735.09	10118.91
	277.900	75000.00	1105.62	11.48	17.32	394.64	9729.68	10124.32
	281.800	13500.00	1095.08	6.84	5.88	341.76	9761.12	10102.88
	281.800	31000.00	1099.01	9.30	9.81	349.61	9757.19	10106.81
	281.800	41000.00	1100.86	10.29	11.66	353.32	9755.34	10108.66
	281.800	75000.00	1106.12	12.78	16.92	363.84	9750.08	10113.92
*	288.000	13500.00	1097.05	9.97	4.85	283.71	9846.15	10129.85
*	288.000	31000.00	1100.54	13.16	8.34	290.68	9842.66	10133.34
*	288.000	41000.00	1102.21	14.43	10.01	294.01	9840.99	10135.01
*	288.000	75000.00	1107.02	17.52	14.82	303.65	9836.17	10139.82
	290.000	13500.00	1098.54	9.23	5.54	271.00	9865.00	10136.00
	290.000	31000.00	1101.72	13.34	8.72	271.00	9865.00	10136.00
	290.000	41000.00	1103.29	14.91	10.29	271.00	9865.00	10136.00
	290.000	75000.00	1107.78	18.92	14.78	271.00	9865.00	10136.00
	291.000	13500.00	1098.80	9.14	5.80	271.00	9865.00	10136.00
*	291.000	31000.00	1102.82	12.08	9.82	271.00	9865.00	10136.00
*	291.000	41000.00	1104.68	13.35	11.68	271.00	9865.00	10136.00
*	291.000	75000.00	1110.13	16.49	17.13	271.00	9865.00	10136.00

SECNO	Q	CWSEL	VCH	DEPTH	TOPWID	SSTA	ENDST
293.000	13500.00	1099.70	10.00	5.70	242.41	9885.79	10128.21
293.000	31000.00	1103.35	13.78	9.35	249.72	9882.14	10131.86
293.000	41000.00	1105.08	15.29	11.08	253.16	9880.42	10133.58
293.000	75000.00	1110.23	18.69	16.23	263.47	9875.27	10138.73
297.000	13500.00	1102.04	9.03	5.94	257.87	9877.06	10134.94
297.000	31000.00	1106.03	12.19	9.93	265.87	9873.07	10138.93
297.000	41000.00	1107.94	13.43	11.84	269.68	9871.16	10140.84
297.000	75000.00	1113.41	16.46	17.31	280.61	9865.70	10146.30

	302.000	13500.00	1104.40	10.72	6.20	209.40	9894.30	10103.70
	302.000	31000.00	1107.92	15.43	9.72	216.44	9890.78	10107.22
	302.000	41000.00	1109.49	17.44	11.29	219.58	9889.21	10108.79
*	302.000	75000.00	1114.20	22.01	16.00	228.99	9884.50	10113.50
	305.000	13500.00	1106.05	10.59	6.55	201.10	9891.45	10092.55
	305.000	31000.00	1110.07	14.76	10.57	209.15	9887.43	10096.57
	305.000	41000.00	1111.94	16.44	12.44	212.88	9885.56	10098.44
	305.000	75000.00	1117.10	20.74	17.60	241.85	9861.74	10103.59
*	306.750	13500.00	1107.89	5.99	7.59	304.19	9806.91	10111.09
*	306.750	31000.00	1113.23	7.94	12.93	314.85	9801.57	10116.43
*	306.750	41000.00	1115.76	8.71	15.46	319.93	9799.04	10118.96
*	306.750	75000.00	1123.02	10.56	22.72	359.39	9781.00	10140.39
	310.000	13500.00	1108.39	5.90	6.79	343.59	9793.21	10136.79
	310.000	31000.00	1113.75	7.45	12.15	354.31	9787.85	10142.15
	310.000	41000.00	1116.32	8.08	14.72	359.44	9785.28	10144.72
	310.000	75000.00	1123.66	9.62	22.06	405.00	9780.00	10185.00
	313.200	13500.00	1108.88	6.83	5.88	341.76	9829.12	10170.88
	313.200	31000.00	1114.06	8.22	11.06	352.12	9823.94	10176.06
	313.200	41000.00	1116.59	8.78	13.59	357.17	9821.41	10178.59
	313.200	75000.00	1123.85	10.19	20.85	398.00	9800.00	10198.00
	318.000	13500.00	1110.29	7.77	5.19	340.37	9829.81	10170.19
	318.000	31000.00	1114.84	9.37	9.74	349.49	9825.26	10174.74
	318.000	41000.00	1117.23	9.88	12.13	354.25	9822.87	10177.13
	318.000	75000.00	1124.25	11.20	19.15	398.00	9800.00	10198.00
	320.050	13500.00	1111.41	7.43	5.41	340.83	9829.58	10170.42
	320.050	31000.00	1115.55	9.56	9.55	349.11	9825.45	10174.55
	320.050	41000.00	1117.81	10.15	11.81	353.63	9823.19	10176.81
	320.050	75000.00	1124.63	11.55	18.63	367.27	9816.37	10183.63
	328.000	13500.00	1113.86	8.47	4.76	339.52	9830.24	10169.76
	328.000	31000.00	1117.35	11.10	8.25	346.51	9826.75	10173.25
	328.000	41000.00	1119.27	11.85	10.17	350.34	9824.83	10175.17
	328.000	75000.00	1125.51	13.19	16.41	362.82	9818.59	10181.41

SECNO	Q	CWSEL	VCH	DEPTH	TOPWID	SSTA	ENDST
330.000	13500.00	1114.76	8.66	4.66	339.32	9830.34	10169.66
330.000	31000.00	1118.06	11.53	7.96	345.91	9827.04	10172.96
330.000	41000.00	1119.84	12.39	9.74	349.48	9825.26	10174.74
330.000	75000.00	1125.82	13.80	15.72	361.43	9819.28	10180.72
334.000	13500.00	1116.99	8.07	4.99	339.98	9830.01	10169.99
334.000	31000.00	1120.15	11.25	8.15	346.29	9826.85	10173.15
334.000	41000.00	1121.68	12.47	9.68	349.36	9825.32	10174.68
334.000	75000.00	1126.95	14.55	14.95	359.90	9820.05	10179.95
343.000	13500.00	1120.84	7.93	5.14	334.14	9861.00	10195.14
343.000	31000.00	1124.15	11.01	8.45	337.45	9861.00	10198.45
343.000	41000.00	1125.66	12.32	9.96	338.96	9861.00	10199.96
343.000	75000.00	1130.14	15.44	14.44	343.44	9861.00	10204.44
344.900	13500.00	1121.67	7.52	5.37	338.55	9830.89	10169.45
344.900	31000.00	1125.10	10.45	8.80	344.02	9828.27	10172.29
344.900	41000.00	1126.69	11.67	10.39	346.54	9827.06	10173.60
344.900	75000.00	1131.36	14.56	15.06	353.98	9823.49	10177.47

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=     44.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

  TION SECNO=      99.600  PROFILE=  1  CRITICAL DEPTH ASSUMED
   ION SECNO=      99.600  PROFILE=  1  MINIMUM SPECIFIC ENERGY
 UTION SECNO=      99.600  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     99.600  PROFILE=  2  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     99.600  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     99.600  PROFILE=  3  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     99.600  PROFILE=  4  CRITICAL DEPTH ASSUMED
```

```
CAUTION SECNO=     99.600  PROFILE=  4  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    100.400  PROFILE=  1  HYDRAULIC JUMP D.S.
WARNING SECNO=    100.400  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=    100.400  PROFILE=  2  HYDRAULIC JUMP D.S.
WARNING SECNO=    100.400  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
    ION SECNO=    100.400  PROFILE=  3  HYDRAULIC JUMP D.S.
    ING SECNO=    100.400  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=    100.400  PROFILE=  4  HYDRAULIC JUMP D.S.
WARNING SECNO=    100.400  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    120.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    120.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    120.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    120.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    123.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    123.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    123.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    123.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    145.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    155.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    155.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    155.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    158.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    165.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    173.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    173.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    173.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    173.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    177.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    177.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    177.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    183.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    183.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=    183.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    183.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    188.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    188.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    188.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    197.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    199.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    199.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    199.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    213.500  PROFILE=  4  HYDRAULIC JUMP D.S.

CAUTION SECNO=    213.700  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    213.700  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    217.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    217.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    217.500  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    217.500  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    233.550  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    238.660  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    238.660  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    238.660  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    238.690  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    238.690  PROFILE=  1  MINIMUM SPECIFIC ENERGY
    TION SECNO=    238.690  PROFILE=  2  CRITICAL DEPTH ASSUMED
    ION SECNO=    238.690  PROFILE=  2  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    238.690  PROFILE=  3  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    238.690  PROFILE=  3  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    238.690  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    238.690  PROFILE=  4  MINIMUM SPECIFIC ENERGY
```

```
WARNING SECNO=    242.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    242.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    242.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    242.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    288.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
    ING SECNO=    288.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
    ING SECNO=    288.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    288.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    291.000  PROFILE=  2  HYDRAULIC JUMP D.S.
CAUTION SECNO=    291.000  PROFILE=  3  HYDRAULIC JUMP D.S.
CAUTION SECNO=    291.000  PROFILE=  4  HYDRAULIC JUMP D.S.

CAUTION SECNO=    302.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    302.000  PROFILE=  4  MINIMUM SPECIFIC ENERGY
1
   17APR98      11:34:54                                                    PAGE  126


WARNING SECNO=    306.750  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    306.750  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    306.750  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    306.750  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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1986 FIS DUPLICATE MODEL

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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
    RUN DATE    20APR98    TIME   08:51:29 *
     ****************************************
```

```
*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  HYDROLOGIC ENGINEERING CENTER        *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616-4687         *
*          (916) 756-1104               *
*****************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X    X            X     X
X     X  X        X                 X     X
XXXXXXX  XXXX     X          XXXXX   XXXXX
X     X  X        X                 X
X     X  X        X    X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

1

20APR98 08:51:29 PAGE 1

THIS RUN EXECUTED 20APR98 08:51:29

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*************************************
 HEC-2 WATER SURFACE PROFILES

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

```
T1      FCDMC NEW RIVER FLOODWAY ANALYSIS
T2      100-YEAR FLOWS
T3      NEW RIVER-A.F.R. TO S.C.

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        4                         .001                                1027.5

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      1        0        -1       10      67.67              -1                         0

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38       43        1        8        3       26       12       53        4       54
    150      105      200

NC     .045     .045     .035      0.1      0.3
QT        5    12500    29000    39000    39000    70000
ET   501.45                                 9.1      9.1                                9300    12150
X1   501.45       74     9150    11440
GR     1034     5420     1032     5520     1030     6550   1029.3     7130   1028.5     8140
GR     1028     8260     1027     8530     1027     9080   1027.7     9150     1026     9220
GR   1025.3     9240     1026     9260     1027     9300     1026     9315     1020     9335
GR     1020     9445     1022     9450     1022     9560     1020     9615   1019.2     9640
GR     1020     9650     1022     9665     1023     9675     1022     9685   1021.7     9860
GR   1020.9    10000   1020.5    10050     1022    10200   1022.3    10300     1022    10390
GR     1022    10480     1026    10520     1026    10600   1027.5    10720     1026    10965
GR     1024    10975     1026    11000   1026.3    11130     1026    11260     1026    11370
GR     1028    11440   1029.2    11470     1028    11500     1026    11750     1024    11800
GR     1024    11830     1026    11920     1026    11950   1025.6    12070     1024    12140
GR   1024.5    12210     1024    12270     1022    12280   1020.4    12320     1022    12360
GR     1024    12435     1026    12480     1026    12565     1024    12600     1024    12650
GR     1026    12720     1025    12820     1026    12900     1024    12960     1026    13000
GR     1027    13070     1026    13135     1026    13580   1025.8    14080     1026    14550
GR   1026.5    15000   1027.3    15150     1030    15250   1030.5    15270

ET       10                        7.1      9.1      9.1     8600    11510     9050    10370
X1       10       24     9730    10260      700     1700     1000
GR     1035     6900     1024     6950   1024.7     7370   1024.8     8000   1025.2     8430
       1026     8470   1027.1     8700   1026.3     9070     1028     9660   1028.3     9730
       1028     9800   1027.7     9890     1026     9940     1024     9960     1024    10050
GR     1026    10230     1028    10260     1028    10380   1029.8    10570   1028.5    10750
GR     1030    11000     1030    11500     1032    11510   1033.5    11630
```

1

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ET	13			7.1	9.1	9.1	8600	11720	9050	10374
X1	13	34	9846	10374	100	300	300			
GR	1034	5200	1032	5345	1030	5430	1028.7	5460	1026	5770
GR	1024.9	6360	1025.4	6405	1025.3	7135	1025.5	8210	1027	8260
	1025.5	8290	1027	8580	1026	8605	1026	9115	1028	9360
	1030.0	9827	1030.0	9846	1029.0	9849	1029.0	9872	1029.8	9900
GR	1029.0	9914	1024	9930	1023	9955	1022.2	9960	1022.4	10000
GR	1022.5	10014	1022.8	10060	1023.4	10150	1024.9	10369	1027.5	10374
GR	1029.5	10414	1030.7	10800	1032	11300	1033.5	11720		
ET	20			7.1	9.1	9.1	8800	11360	9100	10445
X1	20	35	9630	10445	960	700	700			
GR	1034.3	5570	1034	5730	1032.3	5765	1032	5880	1030	6095
GR	1028	6170	1026	6460	1025.7	7160	1027.2	7220	1027.4	7530
GR	1027	7610	1027.2	7630	1028	7870	1028.3	8750	1030	9460
GR	1031.3	9500	1032	9600	1033	9630	1032	9645	1030	9750
GR	1029.3	9890	1028	9905	1026	9910	1024	9960	1023.6	10025
GR	1024.5	10165	1025.5	10310	1025.5	10378	1024.5	10429	1028.5	10445
GR	1029.5	10457	1030	10690	1031.2	10900	1032	11060	1034	11360
ET	26.8			7.1	9.1	9.1	8000	11740	9150	10400
X1	26.8	37	9793	10400	1000	680	680			
GR	1036	5980	1035.7	6080	1035.2	6235	1034	6400	1033	6480
GR	1032	6530	1030	6640	1030.2	6750	1030	7200	1030	7830
GR	1031	8160	1032	8660	1033.2	8700	1032	8740	1032	9520
GR	1033	9793	1032.5	9809	1031.5	9825	1030.5	9845	1029.5	9866
GR	1028.5	9886	1027.5	9908	1025.5	9946	1024.9	9957	1026	10044
GR	1026.5	10193	1027.5	10342	1027.6	10362	1029.5	10366	1030.5	10381
GR	1031.5	10400	1033.2	10540	1033.4	10710	1033.6	10895	1033.8	11090
GR	1034	11260	1035.3	11740						
ET	32.6			7.1	9.1	9.1	8500	10233	9000	10233
X1	32.6	48	9565	10233	660	580	580			
GR	1038	6020	1037.8	6155	1036	6300	1035	6650	1034	6760
GR	1032.3	6930	1032	7035	1032	7190	1032	7800	1033	7830
GR	1034	7860	1034.2	8080	1035	8500	1035	8670	1035.7	8695
GR	1035	8730	1034	8970	1034	9480	1035.1	9532	1035.3	9547
GR	1034.5	9550	1034.5	9558	1034.5	9565	1033.5	9644	1032.5	9670
GR	1031.5	9691	1030.5	9711	1029.5	9722	1028.5	9747	1027.5	9774
GR	1026.5	9794	1026.2	9800	1026.5	9847	1027.5	9997	1028.5	10147
	1027.5	10207	1028.5	10209	1032.5	10217	1036.5	10225	1040.5	10233
	1041.2	10320	1041.8	10520	1042.3	10670	1043.2	10975	1043.8	11160
GR	1044.0	11480	1044.5	11750	1045.0	11920				
ET	38			7.1	9.1	9.1	8900	10073	8900	10073
X1	38	40	9420	10072.6	440	500	540			
GR	1040.6	5895	1040	6065	1040	6067	1039.7	6275	1038	6368
GR	1038	6370	1036	6635	1034	6920	1033.8	7280	1034	7365
GR	1032.9	7385	1034.3	7660	1034.5	7940	1035.3	8245	1036	8640
GR	1035.5	9365	1035.6	9420	1034.5	9492	1033.5	9512	1032.5	9532
GR	1031.5	9552	1030.5	9572	1029.5	9592	1028.5	9612	1027.5	9632
GR	1027.2	9646	1028	9698	1029	9846	1030	9997	1030.4	10051.4
GR	1041.0	10072.6	1041.4	10160	1041.5	10165	1041.6	10190	1041.6	10200

GR	1041.7	10250	1044.2	10880	1044.4	10920	1045.7	11500	1045.9	11630
ET	45			7.1	9.1	9.1	9150	10136	9150	10136
X1	45	44	9375	10135.8	440	680	700			
GR	1042	5925	1043.2	6000	1042.3	6220	1042	6395	1042	6397
GR	1040	6425	1039.3	6530	1038	6575	1037.7	6730	1037.3	6925
GR	1036	6975	1035.7	7225	1034.6	7570	1034.7	8000	1035.5	8350
GR	1036	8510	1036.3	8850	1036.5	9060	1036.3	9255	1038	9368
GR	1038.7	9375	1038	9395	1036.8	9460	1036	9525	1036.3	9538
GR	1035.5	9558	1034.5	9578	1033.5	9598	1032.5	9618	1031.5	9638
GR	1030.5	9658	1029.5	9678	1028.5	9698	1028.3	9710	1028.5	9748
GR	1029.5	9888	1030.5	10047	1031.0	10115.4	1041.2	10135.8	1041.4	10252
GR	1041.5	10390	1041.9	10590	1042.2	10710	1043.1	11000		
ET	51.7			7.1	9.1	9.1	9799	10599	9799	10599
X1	51.7	43	9800	10598.2	600	510	670			
GR	1042	7015	1040	7060	1039.7	7175	1038.5	7270	1038	7320
GR	1037.7	7470	1036	7545	1035.2	7800	1035	8110	1034.8	8265
	1034.7	8480	1036	8820	1036.5	8860	1037.4	9090	1037.8	9510
	1038	9660	1039.1	9680	1038	9695	1038	9755	1040	9760
GR	1041	9765	1041	9770	1041	9780	1041	9790	1041	9800
GR	1040	9820	1044.5	9832	1044.5	9840	1034.5	9875	1030	9910
GR	1028.0	9915	1027.4	9970	1027.5	10000	1029.5	10090	1029.8	10172
GR	1030.5	10271	1031.5	10420	1032.5	10570	1032.6	10577.4	1043.0	10598.2
GR	1043.5	10675	1043.8	10685	1044.5	10705				

ET	54			7.1	9.1	9.1	9854	10696	9854	10696
X1	54	55	9855	10695	270	200	230			
GR	1045	5965	1045.6	6005	1045.7	6090	1045	6360	1044	6775
GR	1042	6900	1041	7020	1040	7125	1038.7	7230	1038	7385
GR	1036.8	7475	1037.3	7825	1036.3	8165	1036.4	8460	1036.4	8635
	1036.5	8790	1037	9055	1037.7	9260	1038	9540	1039.2	9635
	1038	9705	1034	9712	1033.3	9750	1034	9780	1036	9785
GR	1038	9800	1040	9810	1042	9815	1042.5	9835	1042.5	9855
GR	1036	9862	1034	9868	1032	9875	1030	9890	1028	9915
GR	1029	10000	1030	10035	1030	10115	1032	10140	1034	10160
GR	1033.5	10180	1032.5	10219	1031.5	10242	1030.5	10263	1030.2	10269
GR	1030.5	10311	1031.5	10459	1032.5	10610	1032.9	10674.4	1043.2	10695
GR	1044.1	11215	1044.2	11525	1044.5	11780	1045	11840	1046	13150
ET	59			7.1	9.1	9.1	9744	10701	9744	10701
X1	59	43	9745	10700.2	760	490	500			
GR	1046	6900	1045.5	7000	1045	7100	1044	7305	1042.7	7410
GR	1042	7525	1041.7	7640	1041.5	7875	1041	8170	1041.5	8560
GR	1040	8720	1040	8800	1040.8	9085	1041	9500	1042	9585
GR	1044	9600	1042	9615	1040.3	9630	1044	9700	1044	9720
GR	1044	9745	1042	9765	1040	9770	1038	9800	1036	9805
GR	1034	9815	1032	9865	1030.7	9880	1032	9890	1034	9915
GR	1032	9945	1031.6	10000	1035	10204	1034	10224	1033	10245
GR	1032	10266	1031.1	10274	1031.5	10335	1032.5	10484	1033.5	10632
GR	1033.8	10679.4	1044.2	10700.2	1046	12750				

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ET	63			7.1	9.1	9.1	9669	10572	9669	10572
X1	63	37	9670	10571.6	460	380	400			
GR	1050	6725	1049	6950	1048	7040	1047.2	7190	1046	7330
GR	1044	7710	1043.4	8020	1043.2	8470	1043.1	8630	1043.1	8865
GR	1043.3	9315	1043.3	9490	1042	9535	1042	9655	1043.5	9670
GR	1042	9685	1040	9715	1038	9760	1036	9780	1034	9845
GR	1034	9890	1033.7	9960	1032.9	10000	1032	10020	1032.3	10100
GR	1032	10120	1031.8	10130	1032	10140	1031.7	10145	1032.5	10266
GR	1033.5	10415	1034.4	10550.4	1045.0	10571.6	1045.5	11090	1046	11350
GR	1047.7	11390	1048	12390						
	70.5			7.1	9.1	9.1	9579	10271	9579	10271
	70.5	40	9580	10270	710	700	750			
GR	1049.8	7020	1048	7215	1047.7	7255	1046	7310	1045.8	7420
GR	1045	7825	1045.1	7985	1044.3	8190	1045	8520	1044.7	8790
GR	1045.2	9075	1044.6	9360	1044	9460	1043	9485	1042	9505
GR	1042	9550	1044	9565	1044	9570	1044	9580	1042	9595
GR	1040.7	9625	1041.8	9720	1040	9825	1038	9840	1035.5	9922
GR	1035.5	9994	1036.4	10000	1034.5	10055	1033.5	10122	1035.5	10147
GR	1033.5	10165	1034.5	10240	1046.5	10262	1047.5	10270	1046	10390
GR	1046	10490	1046.5	10560	1046	10600	1046	11300	1048	11700
ET	77			7.1	9.1	9.1	9775	10250	9775	10250
X1	77	33	9776	10148	480	660	650			
GR	1052	7105	1050	7110	1048.4	7205	1048	7500	1047	8115
GR	1047.3	8410	1047.2	8760	1046	9080	1045.7	9225	1045.5	9390
GR	1044.2	9548	1044	9648	1043.7	9748	1051	9776	1044.6	9807
GR	1042.3	9858	1042.2	9875	1043.4	9884	1042.3	9891	1042.8	9900
GR	1035.6	9921	1036.3	9956	1036.2	10000	1035.5	10048	1034.6	10078
GR	1035.7	10104	1044.7	10148	1044.5	10165	1048.2	10192	1046.1	10214
GR	1046.7	10236	1048.1	10248	1050.9	10285				
ET	84			7.1	9.1	9.1	9844	10790	9844	10401
X1	84	40	9845	10400	620	700	700			
X3	10									
GR	1054	7475	1052	7490	1052	7520	1052	7545	1051	7570
GR	1050	7795	1048.5	7970	1048.4	8210	1048.2	8500	1048.2	8820
GR	1050	8950	1048.7	9320	1048	9480	1047.5	9630	1046	9740
GR	1046	9815	1052	9840	1053.5	9845	1052	9855	1046.1	9875
GR	1044.1	9880	1042.1	9905	1036.1	9915	1035.8	9970	1036.1	9990
GR	1038.1	10025	1038.1	10045	1040.1	10115	1042.1	10160	1042.1	10215
GR	1040.1	10230	1040.1	10360	1042.1	10370	1044.4	10400	1042	10415
GR	1042	10490	1044	10570	1048	10610	1050	10615	1050.0	10790
ET	88.7			7.1	9.1	9.1	9729	10980	9729	10301
X1	88.7	47	9730	10300	520	430	470			
	1054	6520	1052	6550	1052	6580	1052	7170	1052	7440
GR	1052	8650	1050.4	8770	1050.2	8910	1050.2	9080	1050.1	9250
GR	1050	9630	1050	9725	1052	9730	1050	9735	1036.2	9760
GR	1035.9	9765	1036.2	9770	1042.2	9810	1042.2	9910	1034.2	9930
GR	1036.2	9990	1038.2	10000	1036.2	10030	1034.2	10100	1034.2	10170
GR	1044.1	10220	1044.1	10220	1045.6	10300	1046	10310	1046	10360

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GR	1048	10430	1050	10455	1052	10500	1052	10530	1050	10560
GR	1050	10610	1052	10615	1052	10650	1050	10700	1052	10710
	1052	10760	1050	10765	1050	10830	1050.9	10850	1051.1	10950
	1052	10980	1058	11030						
ET	95.5				9.1	9.1			9499	10306
X1	95.5	40	9500	10305	400	680	680			
X3	10									
GR	1056	6420	1055.8	6575	1055	7030	1053.3	7530	1053.3	7540
GR	1052	7550	1052	7610	1052	7615	1052.0	8270	1052.0	8610
GR	1052	8855	1052	9140	1053.6	9340	1052	9470	1052	9500
GR	1050	9535	1050	9840	1048.1	9845	1046.1	9850	1044.2	9890
GR	1042.2	9905	1040.2	9915	1037.5	9960	1036.2	10000	1036.2	10085
GR	1034.2	10120	1034.2	10240	1036.2	10250	1038.2	10260	1038.2	10280
GR	1052	10305	1050	10310	1050	10330	1052	10420	1050.7	10580
GR	1051	10880	1052	10975	1052.1	11070	1054	11280	1064	11400
ET	100.7				9.1	9.1			9629	10191
X1	100.7	48	9630	10190	550	620	520			
GR	1056	7400	1055.1	7450	1070	7451	1070	7600	1056	7601
GR	1055	7730	1070	7731	1070	8019	1054.5	8020	1054.3	8110
GR	1070	8111	1070	8139	1054.2	8140	1054.2	8210	1054.1	8450
GR	1054.2	8600	1054.1	8740	1053.6	9180	1054	9300	1054.5	9450
GR	1054	9570	1054	9600	1055	9630	1054	9645	1052	9670
GR	1051	9720	1052	9820	1052	9865	1050	9890	1042.3	9900
GR	1042.3	9960	1040.3	9970	1036.3	9980	1036.3	10070	1035	10100
GR	1036.3	10120	1038.3	10130	1040.3	10155	1052	10190	1052	10240
GR	1053	10270	1052	10300	1052	10380	1052.2	10430	1053.3	10570
GR	1053.7	10880	1054	11140	1062	11200				
ET	107				9.1	9.1			9709	10256
X1	107	48	9710	10255	300	640	630			
GR	1058.9	7275	1058.7	7480	1058.2	7715	1058	7750	1056	7810
GR	1070	7811	1070	7920	1055.3	7921	1055.1	8025	1055	8120
GR	1070	8121	1070	8194	1055.5	8195	1055.2	8330	1070	8331
GR	1070	8389	1055.3	8390	1055.1	8580	1054.2	8630	1054.4	8835
GR	1054.5	9105	1054.8	9370	1056	9490	1056	9620	1056	9710
	1052	9735	1040.1	9750	1039.6	9755	1040.1	9770	1040.1	9830
	1038.1	9835	1038.1	9960	1040.1	9985	1040.1	10110	1042.1	10130
	1042.1	10180	1045.1	10190	1045.1	10240	1054	10255	1055	10365
GR	1055.7	10460	1055.7	10550	1056	10735	1057	10740	1056.1	10755
GR	1056.2	10870	1056	10980	1060	11010				
NC	.045	.045	.035	.3	.5					
ET	110.7				9.1	9.1			9734	10236
X1	110.7	42	9735	10235	600	300	370			
GR	1060	7845	1060	7846	1058	7852	1058	7854	1057.7	8000
GR	1058	8145	1058	8150	1058	8200	1057.1	8540	1057.4	8810
GR	1056.6	8950	1056.1	9075	1056	9100	1055.6	9320	1055.4	9430
GR	1056	9495	1056.7	9525	1056	9540	1054	9545	1054	9690
GR	1055.6	9735	1054	9770	1042.2	9790	1041.5	9820	1042.2	9870
GR	1046.2	9880	1048.2	9910	1049.2	10000	1049.2	10120	1048.2	10160
GR	1047	10190	1048.2	10215	1056	10235	1054	10250	1054	10340
GR	1056	10345	1056.7	10500	1056	10590	1055.8	10670	1056	10770

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GR	1058	10810	1060	10830						
ET	117.2				9.1	9.1			9844	10196
X1	117.2	33	9845	10195	800	400	650			
X3	10							1061	1061	
GR	1066	7075	1064	7120	1062	8020	1060	8035	1060	8037
GR	1059.8	8280	1060	8340	1060	8360	1060	8380	1058.5	8500
GR	1058.7	8630	1057.9	8780	1057.9	9100	1058.4	9330	1058	9550
GR	1058	9730	1056	9845	1054.1	9855	1052.2	9885	1050.2	9910
GR	1048.2	9970	1046.4	10030	1046.4	10120	1048.2	10165	1056	10195
GR	1057	10260	1057.5	10460	1056	10550	1056	10940	1056	11415
GR	1058	11555	1060	11620	1062	11685				
SB	.9	1.56	2.9	0	352	19.8	5503	0	1046.5	1046.2
ET	118				9.11	9.11			9844	10196
	118	33	9845	10195	80	80	80			00
			1	1063.1	1063					
X3	10							1063.5	1063	
BT	-18	8080	1064.5	0	8140	1063.9	0	8420	1063.6	0
BT		8720	1063.5	0	9000	1063.5	0	9230	1063.6	0
BT		9650	1064	0	9700	1064.5	0	9844	1066.1	0
BT		9845	1068.6	1063.1	10195	1068.6	1063.1	10196	1066.1	0
BT		10370	1064	0	10600	1063.3	0	11150	1063	0

BT		11195	1063.4	0	11480	1063.6	0	11515	1064	0
GR	1066	7865	1066	7866	1065	8030	1065	8031	1065	8032
GR	1064	8190	1062.9	8250	1062	8320	1060.1	8515	1060	9170
GR	1059	9290	1060	9710	1060	9835	1058	9845	1056	9860
GR	1049.9	9895	1047.9	9920	1047.4	10020	1047.9	10130	1049.9	10160
	1051.9	10175	1058	10195	1058	10210	1060	10220	1058	10730
	1057.4	11030	1057.4	11190	1058	11330	1060	11400	1062	11403
GR	1064	11415	1064	11450	1066	11485				
ET	120			7.1	9.1	9.1	9550	10400	9799	10206
X1	120	40	9800	10205	200	130	200			
X3	10									
GR	1066.8	7690	1066.2	7795	1066	7840	1064.4	8070	1064	8160
GR	1062	8255	1060.3	8300	1060.3	8480	1060.2	8715	1069.9	8950
GR	1061.4	9100	1060.4	9200	1060	9220	1059.4	9260	1059.5	9360
GR	1058.4	9430	1059.8	9530	1058	9630	1058	9660	1058.6	9725
GR	1058	9760	1058	9780	1058.2	9800	1057.9	9820	1055.9	9825
GR	1051.9	9850	1049.9	9870	1045.9	9880	1045.9	10180	1058	10205
GR	1058.5	10270	1058.5	10330	1059.6	10350	1059.2	10400	1058.4	10700
GR	1058	11000	1056.7	11185	1056.7	11275	1060	11345	1066	11370
NC	.045	.045	.035	.1	.3					
ET	125			7.1	9.1	9.1	8950	10800	9789	10241
X1	125	36	9790	10240	500	480	500			
X3	10									
GR	1069	7190	1070	7240	1070	7360	1068	7410	1066	7660
GR	1064	7920	1062	8170	1061.4	8210	1061.5	8425	1061	8630
GR	1062.4	8720	1062	8770	1060	8800	1060	8850	1064.9	8890
GR	1060	8950	1060	8980	1060	9520	1060	9730	1059.8	9790
GR	1057.9	9810	1050.9	9835	1050.4	9900	1049.9	9965	1045.9	9970
GR	1046.2	10180	1047.9	10185	1060	10240	1060.9	10380	1060.1	10520

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GR	1060	10570	1059.6	10730	1060	10850	1062	10900	1064	10920
GR	1070	11130								
ET	131.0			7.1	9.1	9.1	8500	10365	9744	10251
X1	131.0	31	9745	10250	500	650	600			
X3	10									
	1068	7370	1067.4	7440	1066	7570	1065	7685	1064	7770
	1064	7880	1063.6	8005	1062.7	8430	1062.6	8580	1062	8660
GR	1062	9500	1062	9520	1064	9525	1064	9540	1062	9630
GR	1061	9745	1059.9	9760	1051.9	9790	1050	9830	1051.9	9890
GR	1053.9	9925	1055.9	10015	1058	10055	1058.7	10160	1057.9	10205
GR	1057.9	10230	1062	10235	1062.7	10250	1062	10300	1064	10335
GR	1071.5	10365								
ET	135.0			7.1	9.1	9.1	8400	10315	9799	10156
X1	135.0	34	9800	10155	380	430	400			
X3	10									
GR	1068	7340	1066	7460	1065.4	7660	1065	7865	1075	7866
GR	1075	8264	1064.4	8265	1063.8	8420	1063	8780	1063.2	8940
GR	1063.2	9170	1063.4	9400	1075	9401	1075	9584	1064	9585
GR	1064	9690	1063.5	9800	1061.9	9810	1051.9	9830	1051.8	9850
GR	1053.9	9880	1055.9	9920	1056.7	9940	1055.9	9960	1053.9	10000
GR	1054.7	10075	1055.9	10100	1055.9	10130	1057.9	10135	1059.9	10140
GR	1061	10155	1060.5	10230	1062	10280	1070	10315		
ET	140				9.1	9.1			9744	10261
X1	140	37	9745	10260	430	520	500			
X3	10									
X4	5	1100	7901	1100	8299	1064.5	8300	1100	9201	1100
X4	9499									
GR	1070	7050	1070	7070	1070	7095	1069.2	7190	1069.2	7305
GR	1068	7405	1066	7585	1065.2	7695	1065.5	7900	1065	8480
GR	1064	8700	1064.2	8875	1065	9000	1065	9200	1064.5	9500
GR	1065.3	9620	1065.7	9745	1063.9	9755	1057.9	9790	1057.9	9960
GR	1055.9	10000	1053.9	10005	1053.9	10035	1055.9	10050	1057.5	10110
GR	1055.9	10185	1053.9	10210	1055.9	10230	1061.9	10255	1062.5	10260
GR	1062	10280	1062	10340	1064	10360	1066	10415	1066	10580
GR	1070	10595	1076	10630						
ET	143				9.1	9.1			9600	10401
X1	143	32	9790	10400	300	300	300			
	6	1069.1	10380	1068.5	9770	1100	8201	1100	8524	1100
	9471	1100	9629							
GR	1071.4	7285	1070	7325	1070	7340	1069.2	7410	1069.2	7530
GR	1068	7650	1067.8	7675	1066	7870	1065.5	7955	1065.4	8200
GR	1065.1	8525	1066	8730	1064.8	8780	1065.1	9230	1065.9	9470
GR	1065.1	9630	1068	9740	1068	9790	1059.9	9810	1059.9	10015
GR	1057.9	10070	1057.9	10190	1063.9	10225	1059.9	10240	1059.9	10330
GR	1061.9	10370	1063.9	10379	1063.9	10381	1066	10390	1068	10400

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GR     1068      10480      1070      10720
1
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       146                                          9.1       9.1                                  9000     10201
X1     146         45      9800      10200        310       290       300
GR   1074.7       6940    1075.4       7135     1074.1      7310    1074.1      7312      1074      7409
GR     1072       7410      1070       7420       1070      7430      1072      7470      1070      7500
GR     1070       7510    1069.3       7735     1067.2      8000    1066.6      8350      1077      8351
GR     1077       8699    1066.5       8700     1066.5      8701    1066.5      8702    1066.5      8703
GR   1066.5       8805    1066.4       9525       1075      9526      1075      9699    1066.2      9700
GR     1068       9705      1070       9720     1070.8      9800      1070      9810    1059.9      9830
GR   1060.7       9890    1059.9       9970     1057.9      9990    1057.9     10050    1059.9     10065
GR   1063.9      10080      1066      10175       1068     10185    1069.7     10200    1068.5     10230
GR     1069      10500      1069      10640       1070     10790      1072     10830      1074     10840

QT       5      13000     30000      40000      40000     72500
ET   149.6                                          9.1       9.1                                  8850     10206
X1   149.6         44      9735      10205        370       375       360
X3
X4       4     1068.4      8570       1100       8571      1100      8799    1068.4      8800
GR    1075       7530      1074       7605       1072      7635      1070      7640      1070      7650
GR    1072       7655      1072       7720       1070      7730      1070      7850    1070.0      8050
GR    1069       8200    1068.6       8390     1100.0      8695    1068.4      8930    1068.2      9215
GR  1068.1       9285      1069       9365     1069.1      9500    1067.2      9640      1068      9725
GR  1069.3       9735    1067.9       9745     1065.9      9765    1063.9      9780    1061.9      9805
GR  1059.9       9815    1059.9       9840     1060.8      9860    1059.9      9930    1059.9     10050
GR  1061.9      10060    1065.9      10075     1065.9     10100    1063.9     10180    1065.9     10190
GR    1070      10195    1070.8      10205       1070     10215      1070     10415    1070.1     10605
GR  1070.2      10830      1070      10935       1072     10980      1078     11000

ET     158                                          9.1       9.1                                  8950     10250
X1     158         37      9730      10215        850       840       840
X3
GR    1076       7620    1075.4       7760     1075.4      7950      1074      8150      1072      8155
GR    1070       8160      1070       8170       1072      8175    1073.2      8205      1072      8240
GR    1072       8335      1070       8355       1070      8750    1069.8      9140      1070      9540
GR  1069.8       9620      1070       9720     1071.7      9730    1069.9      9740    1059.9      9770
      1059.5     9800    1059.9       9830     1063.9      9850    1063.9     10070    1067.9     10075
      1069.9    10150    1069.9      10175       1072     10190      1073     10215      1073     10260
GR    1072.2    10390    1072.4      10590     1072.9     10810    1073.3     11040    1073.8     11250
GR     1074     11270      1076      11310

ET     167                                          7.1       9.1       9.1                 11200     9000     10250
X1     167         33      9880      10120       1000       800       900
GR    1076       8695      1074       8800     1073.4      8950    1072.1      9240    1072.1      9340
GR    1085       9341      1085       9439     1072.1      9440    1072.4      9620      1072      9785
GR  1071.7       9880    1069.9       9885     1059.9      9910    1059.9      9930    1059.7      9960
GR  1058.9      10000    1058.9      10020     1059.3     10050    1058.9     10090    1069.9     10105
GR  1071.9      10115    1073.7      10120       1072     10160    1070.6     10270      1072     10425
GR    1074      10470      1074      10640       1075     10800    1075.4     11350    1076.3     11450
GR  1076.2      11570      1078      11610       1080     11625
1
   20APR98      08:51:29                                                                                    PAGE    9

ET     170                                          7.1       9.1       9.1                 11200     9030     10136
X1     170         44      9900      10135        300       270       300
X3      10
GR  1080.5       7765      1080       7820     1079.7      7880    1078.9      8050    1078.6      8200
GR    1078       8310    1076.7       8490       1076      8735    1075.7      8810      1074      9030
GR    1072       9060      1072       9085     1074.3      9105      1074      9160    1072.1      9290
GR  1072.8       9380      1080       9385       1080      9430    1072.8      9435    1073.4      9590
GR  1072.4       9770      1072       9850     1071.9      9900    1072.4      9915    1071.9      9920
GR  1059.9       9935    1059.9       9945     1059.2      9980    1059.2     10030    1059.2     10045
GR  1059.2      10065    1059.2      10075     1059.2     10080    1059.9     10095      1074     10130
GR    1076      10135      1074      10160       1074     10450    1075.8     10680      1076     10900
GR  1076.6      11250    1076.4      11600       1078     11640      1080     11645

ET   174.2                                          7.1       9.1       9.1      7800     10800     8850     10300
X1   174.2         40      9920      10095        440       430       420
GR    1080       8000    1079.4       8240       1078      8450    1077.7      8510    1076.5      8830
      1076.1     8920      1076       9085       1074      9140      1072      9150      1072      9160
      1075.3     9200      1072       9220       1072      9230      1074      9250      1076      9255
      1074.7     9390    1074.4       9635       1074      9810    1073.6      9840      1074      9870
GR  1074.7       9890      1074       9905       1076      9920      1074      9930    1059.8      9945
GR  1059.4       9960    1059.4      10020     1059.8     10070      1076     10085    1076.5     10095
GR    1076      10140    1075.7      10420     1076.4     10630    1076.4     10700      1077     11000
GR  1077.5      11300    1077.5      11580       1078     11600      1080     11610      1082     11630

NC    .045       .045      .035         .5         .7
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ET	178			7.1	9.1	9.1	8400	10600	8750	10400
X1	178	27	9860	10170	390	300	380			
X4	1	1082	8200							
GR	1084	7950	1080	8600	1078	8880	1077.4	8960	1076.4	9150
GR	1076.2	9280	1075.8	9400	1076	9650	1078	9710	1080	9850
	1080.7	9860	1069.9	9890	1059.9	9900	1059.9	10110	1069.9	10125
	1080	10170	1078	10180	1077.3	10400	1076.2	10600	1076.8	10770
GR	1077.2	11020	1077.5	11345	1077.7	11600	1078	11640	1080	11650
GR	1082	11670	1084	11780						
ET	178.5			7.1	9.1	9.1	8400	10550	8750	10415
X1	178.5	35	9710	10290	50	50	50			
X3	10									
GR	1085.3	7300	1084.2	7600	1084.1	7900	1084.1	7940	1084	8000
GR	1082	8160	1081.7	8195	1080	8400	1078.6	8500	1078	8705
GR	1077.8	8810	1077	9155	1076.3	9300	1076.6	9630	1076	9710
GR	1074	9750	1072	9820	1070	9860	1068	9970	1067.7	9980
GR	1068	10000	1070	10100	1072	10160	1074	10210	1076	10290
GR	1076.6	10315	1078.1	10415	1078	10430	1079.2	10659	1079.9	10940
GR	1080	11010	1080.1	11195	1082	11500	1082.2	11545	1084	11730
NC	.045	.045	.035	.1	.3					
ET	181.5				9.1	9.1			9100	10325
X1	181.5	50	9830	10150	310	320	310			
X3	10									
GR	1084.4	7590	1084.3	7870	1084	8005	1082.7	8050	1082	8100
GR	1081.6	8175	1080.8	8345	1080.3	8470	1080.2	8630	1080	8795
GR	1078.9	9000	1078	9095	1077.8	9205	1078	9290	1078	9299

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GR	1076	9305	1076.2	9340	1077.7	9480	1077.6	9530	1090	9531
GR	1090	9604	1077.4	9605	1077.2	9720	1077.1	9830	1076.2	9840
GR	1074.2	9850	1072.3	9895	1070.3	9910	1066.5	9915	1068.3	9940
GR	1066.9	9950	1068.3	9990	1068.9	10000	1068.3	10020	1067.5	10050
GR	1068.3	10075	1070.3	10100	1072.3	10120	1076.1	10150	1077	10300
GR	1078	10400	1080	10410	1082	10415	1083	10425	1082	10435
GR	1081.6	10540	1080	10645	1081	11060	1082	11215	1083.1	11505
[illegible]	185.3				9.1	9.1			9500	10211
	185.3	55	9850	10210	390	375	380			
	10									
GR	1086	7615	1085.4	7805	1084	7930	1084	7940	1083	7970
GR	1082	8160	1081.2	8410	1080.2	8655	1080.1	8855	1080	8970
GR	1079.3	9065	1078.4	9210	1078	9320	1078	9330	1078	9340
GR	1077.7	9370	1078	9405	1078.3	9420	1100	9421	1100	9559
GR	1078.4	9560	1078.9	9660	1079	9780	1078.8	9850	1078.1	9865
GR	1072.2	9895	1070.2	9925	1068.2	9930	1067.9	9990	1068.2	10020
GR	1069.8	10090	1070.2	10140	1076.2	10170	1078.1	10200	1078.7	10210
GR	1080	10250	1084.7	10290	1080	10360	1078	10410	1078	10425
GR	1080	10440	1082	10455	1083	10460	1082	10470	1080	10475
GR	1080.6	10570	1082	10690	1081.5	10755	1081.4	10905	1081.7	11090
GR	1082	11175	1082.2	11290	1084	11525	1084.4	11785	1085.5	11950
ET	190				9.1	9.1			9804	10401
X1	190	47	9805	10400	480	450	470			
X3	10									
GR	1086	7950	1084	8010	1082.2	8090	1082.2	8350	1082.1	8595
GR	1082.5	8810	1082.2	8965	1082.1	9180	1082.1	9270	1082.1	9290
GR	1082	9320	1081.5	9420	1100	9421	1100	9649	1081	9650
GR	1080.7	9805	1080.1	9815	1078.1	9845	1076.1	9865	1074.2	9870
GR	1072.2	9895	1072.2	9910	1070.2	9925	1068.2	9935	1068.8	9965
GR	1068.2	9990	1067.8	10010	1068.2	10035	1070.2	10045	1071.7	10050
GR	1072.2	10150	1072.2	10165	1074.2	10195	1076.1	10205	1078.1	10260
GR	1080.1	10325	1080.1	10360	1082.6	10400	1082	10480	1082.9	10620
GR	1082	10805	1082.5	11040	1083.4	11245	1084	11420	1084.1	11490
GR	1085.1	11740	1086	11840						
ET	193.6				9.1	9.1			9744	10211
X1	193.6	41	9760	10210	380	360	360			
X3	10									
X4	20	1084	9745	1089	7500	1088	7740	1086.6	7820	1084.6
X4	7850	1084.3	7960	1084	8050	1083.1	8320	1083.1	8500	1082.9
X4	8700	1082.8	8900	1083.5	9130	1084	9200	1083.7	9220	1083.7
X4	9290	1100	9291	1100	9349	1083.7	9350	1082.5	9600	1084
	9740									
	1089	7360	1084	9760	1082.1	9792	1080.1	9808	1078.2	9820
GR	1076.2	9835	1074.2	9855	1072.2	9870	1070.2	9880	1070.2	9890
GR	1070.3	9935	1072.2	9975	1073	10000	1074.2	10040	1074.2	10055
GR	1076.2	10065	1076.2	10090	1079.2	10105	1076.2	10110	1072.2	10115
GR	1070.2	10120	1070.2	10130	1072.2	10135	1074.2	10150	1076.2	10165
GR	1078.2	10170	1080.1	10185	1082.1	10192	1082.7	10210	1082.3	10235
GR	1082	10260	1082	10320	1082.4	10405	1083.3	10630	1083.2	10790

GR	1084	10900	1084	11140	1084	11170	1085.3	11320	1086.0	11610
GR	1088	11860								

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ET	198.4				9.1	9.1			9749	10201
X1	198.4	49	9750	10200	460	490	480			
X3	10									
X4	4	1085	9230	1100	9231	1100	9279	1085	9280	
GR	1090	7150	1089.7	7290	1088.8	7500	1088.8	7580	1088	7715
GR	1086	7760	1085.2	7900	1084.6	8095	1084.2	8255	1084	8305
GR	1084	8640	1084.2	8835	1084.8	8990	1084	9075	1082	9085
GR	1082	9095	1085.5	9125	1084.9	9165	1085	9350	1085	9535
GR	1086	9665	1088	9685	1086	9710	1086	9711	1086	9712
GR	1085.2	9750	1084.1	9762	1082.1	9773	1080.2	9790	1078.2	9800
GR	1076.2	9810	1074.2	9825	1072.2	9862	1071	9915	1072.2	10000
GR	1074.2	10035	1074.7	10075	1076.2	10110	1078.2	10150	1080.2	10162
GR	1082.1	10172	1084.1	10180	1086	10190	1086	10200	1086	10250
GR	1086.5	10450	1088	10890	1089	11265	1090	11520		
ET	202.4				9.1	9.1			9789	10181
X1	202.4	36	9790	10180	400	400	400			
X3	10									
X4	4	1086.3	9330	1100	9331	1100	9389	1086.1	9390	
GR	1089.4	7250	1090.0	7500	1090.0	7710	1089	7970	1088.6	8390
GR	1088.4	8880	1088	9065	1086.4	9090	1086.6	9125	1086.1	9400
GR	1086	9595	1086	9596	1086	9700	1086	9720	1086	9725
GR	1085.5	9790	1084	9805	1082.2	9820	1080.2	9832	1078.2	9837
GR	1076.3	9845	1074.3	9860	1073.3	9900	1072.5	10000	1074.3	10055
GR	1076.3	10070	1078.2	10088	1080.2	10105	1082.2	10112	1084	10140
GR	1086	10170	1087.3	10180	1088	10330	1088.5	10490	1089.5	10675
GR	1090	10740								
ET	206				9.1	9.1			9721	10171
X1	206	42	9740	10170	360	380	360			
X3	10									
X4	5	1087.3	9720	1087.7	9250	1100	9251	1100	9319	1087.6
X4	9320									
[illegible]	1091	7140	1090.7	7370	1090	7625	1088.6	7730	1088.3	7890
	1089	8112	1088.5	8260	1088.3	8570	1088.3	8780	1088	8920
	1087.5	9090	1087.9	9140	1087.4	9410	1087	9665	1086	9740
GR	1084.2	9750	1082.2	9765	1082.2	9790	1082.2	9791	1082.2	9792
GR	1083.1	9805	1084.2	9830	1086	9850	1086	9875	1084.2	9880
GR	1082.2	9885	1080.2	9890	1076.3	9900	1074.3	9920	1073.5	10000
GR	1074.3	10090	1078.3	10100	1080.2	10108	1082.2	10113	1084.2	10120
GR	1086	10130	1088	10140	1090	10170	1090	10290	1090.1	10395
GR	1091.8	10650	1092	10685						
ET	210.5			7.1	9.1	9.1	8550	10620	9814	10181
X1	210.5	45	9815	10180	440	440	450			
X3	10									
GR	1092.3	7150	1092	7200	1091.2	7400	1090	7700	1089.6	7760
GR	1089.8	7930	1090	8150	1090.3	8300	1090	8440	1089.4	8600
GR	1089.8	8730	1088.8	8850	1088.8	9030	1090	9040	1092	9050
GR	1090	9060	1089	9100	1089.2	9270	1100	9271	1100	9379
GR	1088	9380	1087.5	9490	1087.6	9525	1100	9526	1100	9629
GR	1087.8	9630	1088	9670	1086	9720	1082	9735	1082	9800
GR	1087.2	9815	1086.1	9820	1078.2	9835	1076.2	9845	1076.2	9870

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GR	1074.2	9915	1072.2	9970	1071.2	9990	1072.2	10015	1074.2	10110
GR	1076.2	10130	1078.2	10145	1092	10180	1092	10410	1094	10620
ET	216			7.1	9.1	9.1	8900	10480	9769	10241
X1	216	35	9770	10240	400	650	550			
X3	10									
GR	1092.5	7200	1092	7450	1092	7580	1091.6	7760	1090.3	7800
GR	1090.4	8000	1090.2	8300	1090	8540	1089.8	8830	1090	8970
GR	1090.1	9050	1092	9200	1094	9240	1092	9275	1090	9277
GR	1089.5	9310	1088	9620	1086	9700	1085.6	9770	1084.2	9790
GR	1078.2	9825	1076.2	9830	1074.2	9855	1072.2	9870	1074.2	9935
GR	1074.2	9990	1076.2	10020	1076.2	10110	1078.2	10130	1078.2	10175
	1092	10230	1093.5	10240	1094	10270	1094.2	10350	1094.4	10480
ET	218			7.1	9.1	9.1	9000	10660	9699	10256
X1	218	38	9700	10255	200	200	200			
X3	10									
GR	1094	7000	1093.2	7120	1092.4	7530	1092	7700	1090.9	7750
GR	1091	8100	1090.1	8430	1090	8700	1090.1	9000	1089.7	9300
GR	1090	9400	1090.1	9450	1090	9480	1088	9520	1086	9550

GR	1086	9640	1086.2	9700	1086.1	9710	1080.1	9720	1078.1	9750
GR	1076.1	9805	1074.1	9850	1072.1	9870	1072.1	9890	1074.1	9915
GR	1076.1	10000	1074.1	10040	1076.1	10070	1076.8	10100	1078.1	10135
GR	1080.1	10145	1080.1	10200	1094	10245	1094	10255	1094	10270
GR	1094	10315	1095	10460	1096	10660				
	220.8				9.1	9.1			9749	10256
X1	220.8	32	9750	10255	270	260	280			
X3	10									
GR	1094	7440	1093.3	7730	1093	7950	1092.4	8300	1092.2	8620
GR	1092	8720	1092	8930	1091.4	9230	1090	9280	1088	9360
GR	1088	9465	1088.6	9600	1088.4	9665	1088	9680	1086	9700
GR	1086.1	9750	1080.1	9765	1078.2	9780	1076.2	9785	1075.9	9825
GR	1076.2	9875	1076.2	9925	1074.2	10000	1073.2	10030	1074.2	10060
GR	1076.2	10100	1078.2	10130	1080.1	10170	1082.1	10205	1094	10240
GR	1094.4	10255	1096	10420						
ET	223				9.1	9.1			9749	10271
X1	223	30	9750	10270	220	230	220			
GR	1095	7350	1094	7600	1094	8000	1093.6	8030	1093	8350
GR	1092.5	8650	1092	9050	1090.9	9240	1090	9300	1088.7	9430
GR	1088.5	9580	1088.4	9695	1090	9705	1090.7	9750	1090	9760
GR	1076.2	9775	1076.2	9805	1078.2	9870	1079.9	9980	1078.2	10020
GR	1078.2	10075	1076.2	10095	1074.2	10115	1074.2	10140	1076.2	10145
GR	1078.2	10185	1080.2	10190	1094	10260	1095.1	10270	1095.8	10430
NC	.045	.045	.035	.3	.5					
ET	229			7.1	9.1	9.1	8000	10380	9659	10296
X1	229	25	9660	10295	600	600	600			
GR	1100	7650	1097.7	7800	1096	7850	1096	8180	1095	8330
GR	1094	8750	1093	9170	1092	9285	1091.1	9300	1092.2	9460
GR	1092	9470	1090	9471	1089.8	9590	1088	9660	1082.1	9685
GR	1081.8	9765	1081.6	9860	1080.5	9950	1080.1	9970	1079.9	10100
GR	1080.1	10200	1082.1	10230	1094	10295	1096	10370	1098	10500

ET	231.5			7.1	9.1	9.1	8600	10270	9600	10146
X1	231.5	19	9850	10145	280	200	250			
	10							1089	1092	
	1097	8130	1096	8300	1095.8	8350	1094	8650	1094	9540
GR	1092	9550	1090	9600	1088	9640	1086	9650	1084	9670
GR	1082	9740	1082.1	9850	1080.3	9851	1080.3	10010	1080.3	10085
GR	1080.3	10125	1090	10145	1094	10170	1096	10270		
SB	1.05	1.56	2.9	0	244	12.9	2400	2	1080	1080
ET	232.6			7.11	9.11	9.11	8600	10270	9550	10146
X1	232.6	21	9850	10145	110	110	110			
X2			1	1089.6	1094					
X3	10							1094.2	1096	
BT	-16	8100	1099.6	0	8290	1098	0	8350	1097.1	0
BT		8610	1096	0	8970	1094.8	0	9280	1094.2	0
BT		9740	1094	0	9849	1094.6	0	9850	1097	1088.3
BT		10145	1098.5	1089.6	10146	1095.9	0	10175	1096	0
BT		10325	1097.3	0	10450	1098	0	10700	1098.9	0
BT		10800	1099	0						
GR	1098	7500	1096.9	7901	1094.8	8550	1094.3	8800	1095	9050
GR	1092	9230	1092	9400	1096	9420	1096	9500	1094	9530
GR	1092	9550	1092	9850	1080.1	9880	1080.1	9970	1080.4	10045
GR	1080.1	10100	1080.1	10135	1094	10145	1096	10700	1098	10705
GR	1100	10780								
NC	.045	.045	.035	.1	.3					
ET	235			7.1	9.1	9.1	8650	10500	9620	10176
X1	235	23	9810	10175	130	350	240			
GR	1094.8	8600	1095.1	9040	1094.5	9280	1092	9320	1092	9480
GR	1094	9500	1096.3	9580	1094	9630	1092	9650	1092	9780
GR	1092.6	9810	1092	9815	1080.1	9860	1081	10000	1082.1	10070
GR	1084.1	10120	1086.1	10140	1088	10150	1096	10170	1097.5	10175
GR	1097.8	10250	1098	10410	1099	10500				
ET	238.8			7.1	9.1	9.1	8700	11200	9700	10241
X1	238.8	37	9785	10240	400	350	380			
GR	1098	8200	1096	8595	1095.6	8690	1094.8	8870	1094.4	9000
	1094.5	9180	1094	9195	1092	9200	1091.5	9325	1092	9500
	1094	9505	1094	9540	1092	9560	1092	9660	1090	9730
GR	1092	9750	1090	9775	1092	9780	1093	9785	1092	9790
GR	1090	9830	1088	9850	1086.1	9875	1084.1	9900	1082.1	9935
GR	1080.7	10000	1082.1	10095	1084.1	10110	1086.1	10140	1088	10170
GR	1090	10195	1098	10230	1098.5	10240	1098.8	10450	1099.8	10650
GR	1100	10760	1100.5	10770						

ET	240.8			7.1	9.1	9.1	8700	11200	9630	10266
X1	240.8	29	9850	10265	200	175	200			
X3	10									
GR	1097.6	8320	1096.8	8570	1096	8750	1095.7	8870	1095.2	8950
GR	1094.3	9140	1092.8	9220	1094	9360	1094	9580	1097	9600
	1096	9620	1090	9645	1090	9800	1091.7	9850	1090	9870
	1088	9905	1086.2	9940	1084.2	9955	1082.2	9985	1080.8	10040
GR	1082.2	10090	1084.2	10100	1096	10150	1096	10245	1098	10260

GR	1099	10265	1100	10330	1099.9	10580	1101	10800		
ET	245.8				9.1	9.1			9620	10211
X1	245.8	21	9765	10210	520	490	500			
X3	10									
GR	1100	8400	1099.4	8550	1098	8930	1097.2	9095	1095.9	9450
GR	1096	9750	1096.6	9765	1095.8	9775	1093.8	9820	1091.8	9845
GR	1089.9	9880	1083.9	9940	1081.9	9960	1082	10000	1081.9	10045
GR	1083.9	10075	1085.9	10085	1098	10155	1100	10200	1101.5	10210
GR	1102	10300								
ET	251				9.1	9.1			9704	10241
X1	251	27	9705	10240	560	500	520			
X3	10									
GR	1102	9035	1101.6	9135	1101.2	9415	1101.1	9540	1100.9	9650
GR	1102	9680	1103.1	9705	1102	9715	1100	9720	1098	9740
GR	1096	9790	1094	9830	1092	9855	1090.1	9890	1088.1	9915
GR	1086.1	9950	1084.1	9975	1082.1	9982	1082.1	10035	1084.1	10105
GR	1090.1	10154	1100	10210	1102	10220	1103	10240	1102	10300
GR	1102	10650	1102.7	10700						
ET	256				9.1	9.1			9814	10151
X1	256	25	9815	10150	500	500	500			
GR	1104	8500	1120	8501	1120	9039	1103	9040	1103	9160
GR	1103.3	9240	1102.4	9550	1102.1	9700	1102	9815	1100	9835
GR	1092.1	9875	1090.1	9880	1088.1	9950	1086.1	9980	1084.1	10025
GR	1082.8	10070	1084.1	10084	1086.1	10095	1088.1	10105	1090.1	10115
GR	1105.2	10150	1104	10220	1104	10370	1105.1	10420	1106	10500
	258.8				9.1	9.1			9789	10175
X1	258.8	20	9790	10175	250	270	280			
X3	10									
X4	3	1120	9271	1120	9384	1102.8	9385			
GR	1104.0	9020	1103.5	9125	1103.3	9270	1103.1	9565	1103.3	9790
GR	1102	9805	1100	9812	1092.1	9820	1090.1	9885	1090.1	9930
GR	1088.1	9968	1086.1	9977	1085.6	10000	1086.1	10020	1086.1	10125
GR	1090.1	10135	1100	10155	1102	10158	1104	10162	1104.2	10175
ET	262				9.1	9.1			9799	10190
X1	262	25	9800	10190	290	340	320			
X3	10									
X4	5	1104	9115	1104	8850	1103.4	9090	1120	9261	1103.8
X4	9440									
GR	1104.6	8500	1104.2	9260	1120	9439	1103.7	9490	1104	9570
GR	1104.4	9735	1104.4	9770	1104	9775	1104.5	9800	1104	9812
GR	1102	9828	1100	9842	1098	9847	1096	9855	1094	9860
GR	1092.1	9877	1090.1	9920	1088.1	9930	1086.6	10000	1088.1	10120
GR	1090.1	10155	1100	10165	1102	10172	1104	10176	1105.2	10190

ET	265				9.1	9.1			9599	10220
X1	265	23	9600	10220	310	350	300			
X3	10									
X4	14	1105	9600	1105.9	8620	1120	8621	1120	9129	1105.2
X4	9130	1104.4	9160	1105.2	9190	1120	9191	1120	9434	1105.2
X4	9435	1105.2	9500	1120	9501	1120	9569	1105.1	9570	
GR	1106	8500	1105.0	9600	1104	9610	1102	9650	1100	9655
GR	1098	9670	1094	9688	1092.1	9735	1092.1	9845	1092.4	9870
GR	1092.1	9890	1090.1	9940	1088.1	9970	1086.6	10000	1088.1	10045
GR	1090.1	10075	1090.4	10115	1090.1	10155	1090.1	10180	1092.1	10187
GR	1100	10205	1106	10212	1106.4	10220				
	270.5				9.1	9.1			9774	10211
X1	270.5	21	9775	10200	540	550	550			
X3	10									
X4	17	1120	8816	1120	9304	1106.2	9305	1106	9360	1106.3
X4	9400	1120	9401	1120	9559	1106.2	9560	1105.8	9610	1105.7
X4	9640	1120	9641	1120	9714	1105.6	9715	1107.2	10210	1107.1
X4	10235	1120	10236	1120	10469					

GR	1108.2	8815	1105.6	9775	1104	9790	1102	9800	1100	9805
GR	1092.1	9825	1092.1	9860	1092.1	9875	1092.1	9885	1094.1	9888
GR	1096.1	9890	1090.1	9905	1088.1	9915	1088.1	9970	1089.5	10000
GR	1090.1	10015	1090.1	10110	1092.1	10160	1100	10185	1106	10200
GR	1108.0	10470								
	273.5				9.1	9.1			9699	10156
X1	273.5	18	9705	10135	300	300	300			
X3	10									
X4	19	1106.1	9700	1120	9011	1120	9239	1107.8	9240	1107.1
X4	9270	1107.5	9315	1120	9316	1120	9489.7	1107.1	9490.1	1106.7
X4	9520	1106.1	9560	1120	9561	1120	9609	1106	9610	1107.7
X4	10155	1107.6	10190	1108	10200	1120	10201	1120	10269	
GR	1108.3	9010	1106	9665	1104	9705	1100	9712	1096	9725
GR	1090.1	9735	1090.1	9835	1092.1	9855	1092.1	9870	1090.6	9930
GR	1090.1	9980	1090.4	10000	1091.1	10050	1092.1	10105	1100	10135
GR	1106	10135	1108.0	10270	1109.6	10340				
ET	277				9.1	9.1			9804	10151
X1	277	22	9805	10150	350	330	350			
X3	10									
X4	19	1108.5	9120	1109.3	9170	1120	9171	1120	9329	1109
X4	9330	1108.1	9380	1109	9400	1120	9401	1120	9459	1109
X4	9460	1108	9500	1107.2	9510	1107.9	10170	1108	10185	1110
X4	10195	1120	10196	1120	10429	1110	10430	1110	10480	
GR	1109.3	9070	1106.7	9700	1106	9725	1104	9730	1104	9785
GR	1106	9805	1104	9850	1102	9855	1100	9865	1098	9870
GR	1096.1	9880	1094.1	9894	1092.1	9920	1090.8	9970	1091.1	10000
GR	1092.1	10100	1100	10120	1104	10130	1108	10138	1108.5	10150
GR	1110	10192	1110	10500						

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ET	281.8				9.1	9.1			9849	10126
X1	281.8	18	9850	10125	480	480	480			
X3	10									
X4	13	1120	9131	1120	9279	1110.7	9280	1110.2	9320	1110.9
X4	9365	1120	9366	1120	9419	1110.6	9420	1110	9420	1110
	10180	1120	10181	1120	10499	1113.2	10500			
	1110.3	9130	1108.5	9770	1109	9850	1108	9870	1100	9890
	1098.1	9895	1096.2	9898	1094.2	9900	1092.2	9910	1092.2	9920
GR	1093.3	10000	1094.2	10070	1096.2	10080	1098.1	10090	1100	10095
GR	1100	10105	1111	10125	1113	10501				
NC	.045	.045	.035	.3	.5					
ET	288				9.1	9.1			9844	10246
X1	288	23	9845	10230	620	620	620			
X3	10									
X4	3	1112	9630	1114	9550	1114.5	10245			
GR	1114.3	9520	1110.6	9710	1112	9790	1114	9835	1114	9845
GR	1114	9857	1112	9863	1110	9880	1100.1	9895	1098.1	9905
GR	1096.1	9930	1094.1	9940	1094.1	10000	1094.1	10045	1096.1	10070
GR	1098.1	10080	1098.1	10110	1100.1	10155	1102	10195	1110	10212
GR	1112	10220	1114	10230	1116.0	10400				
QT	5	13500	31000	41000	41000	75000				
ET	290				9.1	9.1			9851	10149
X1	290	20	9852	10148	220	160	200			
X3	10							1113.5	1115	
X4	1	1114	9665							
GR	1114.9	9350	1113	9852	1112	9855	1110	9860	1099.3	9865
GR	1097.3	9880	1095.3	9905	1093.3	9935	1093.3	10000	1093.3	10060
GR	1095.3	10070	1097.3	10090	1099.3	10130	1099.3	10135	1110	10140
GR	1110	10148	1110	10220	1112	10250	1114	10300	1116	10450
SB	0.9	1.56	2.9	0	222.2	10.9	3937	1.36	1096	1095.8
ET	291				9.11	9.11			9851	10149
X1	291	18	9852	10148	100	100	100	.906		
X2			1	1112.8	1114.0				.906	
X3	10							1114	1117	
X4	6	1093.6	9950	1115.6	9800	1114.3	9440	1114.1	9530	1114.3
X4	9590	1115.8	9750							
BT	-13	9400	1115.3	0	9505	1114.1	0	9665	1114	0
BT	0	9666	1114.0	0	9667	1114.0	0	9852	1117.8	0
	0	9852	1118.1	1112.8	10148	1118.1	1112.8	10148	1117.8	0
	0	10200	1117.9	0	10220	1117.9	0	10460	1117.5	0
BT	0	10730	1117	0						
GR	1115.6	9400	1114	9830	1112	9835	1110	9852	1099.3	9867
GR	1097.3	9882	1095.3	9910	1095.3	9990	1095.4	10000	1097.3	10110
GR	1099.6	10148	1100	10195	1102	10200	1104	10205	1112	10220
GR	1110	10240	1114	10255	1116	10350				

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FT	293			7.1	9.1	9.1	9700	10450	9844	10216
	293	23	9862	10215	170	220	200			
	10									
X4	11	1115.6	9845	1115.2	9435	1130	9436	1130	9519	1114.5
X4	9520	1114.2	9600	1114.4	9650	1115.9	9790	1130	9791	1130
X4	9839	1115.8	9840							
GR	1115.8	9265	1114	9862	1112	9870	1110	9875	1099.1	9897
GR	1097.1	9922	1095.1	9970	1095.1	10000	1097.1	10040	1097.1	10080
GR	1099.1	10110	1108	10125	1108	10150	1110	10200	1110.2	10215
GR	1110	10220	1110	10295	1112	10300	1114	10380	1115.3	10500
GR	1116	10630	1116.5	10700	1117.7	10900				
NC	.045	.045	.035	0.1	0.3					
ET	297				9.1	9.1			9844	10226
X1	297	16	9845	10225	400	400	400			
X4	15	1115.6	9806	1115.9	9100	1130	9101	1130	9449	1115.6
X4	9450	1115.2	9580	1114.8	9690	1114.2	9710	1115.7	9750	1130
X4	9751	1130	9805	1115.6	10440	1116	10580	1116.8	10680	1117.1
X4	10730									
GR	1116	9030	1115.5	9845	1114	9855	1112	9858	1110	9863
GR	1103.4	9880	1101.3	9900	1099.3	9940	1098.9	10000	1099.3	10080
GR	1101.3	10130	1110	10155	1112	10188	1114	10205	1115.3	10225
GR	1118.0	10755								
ET	302				9.1	9.1			9874	10121
X1	302	39	9875	10120	480	510	500			
GR	1119.3	9070	1117.3	9100	1116.3	9180	1117.3	9260	1130	9261
GR	1130	9409	1117.9	9410	1117.9	9520	1130	9521	1130	9579
GR	1117.3	9580	1116	9640	1116.7	9650	1116.7	9700	1117.5	9730
GR	1130	9731	1130	9844	1116	9845	1114.7	9875	1114	9892
GR	1103	9922	1101	9930	1101	10050	1099	10060	1099	10082
GR	1118	10115	1119.1	10120	1118	10130	1116	10150	1116	10260
GR	1116.5	10320	1130	10321	1130	10389	1116.7	10390	1117.1	10420
GR	1117	10580	1117.5	10800	1118	11070	1119.6	11170		
ET	305				9.1	9.1			9879	10111
X1	305	32	9880	10110	260	320	300			
	1119.9	9160	1118.4	9180	1118.4	9310	1118.7	9460	1118	9530
	1118	9580	1118.7	9635	1130	9636	1130	9789	1118.4	9790
GR	1118.5	9880	1118	9885	1109.3	9890	1103	9930	1101	9960
GR	1100.6	10000	1101	10015	1101.1	10035	1103	10082	1105	10083
GR	1118	10105	1118.5	10110	1118.5	10160	1119.8	10210	1118.8	10310
GR	1119.8	10380	1119.8	10540	1119	10800	1119.1	10960	1120	11200
GR	1120.7	11450	1122	11530						
ET	307				9.1	9.1			9889	10136
X1	307	33	9890	10135	200	160	200			
X3	10									
GR	1119.7	9150	1123	9290	1120	9310	1120	9400	1119.6	9490
GR	1118	9670	1116	9730	1116	9795	1115.7	9845	1114.8	9890
GR	1113.7	9895	1107.1	9915	1105.1	9925	1103.1	9945	1101.1	9955
GR	1101.1	9980	1101.7	10020	1101.1	10040	1101.1	10060	1101.5	10080
GR	1103.1	10095	1118	10125	1119	10135	1119.4	10200	1120	10260

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GR	1120.2	10330	1120	10480	1120	10570	1112.1	10750	1121.7	10950
GR	1122	11000	1122.6	11150	1124	11700				
ET	311.5				9.1	9.1			9844	10271
X1	311.5	36	9845	10270	430	430	450			
X3	10									
GR	1126.8	8200	1124.6	8500	1123	8530	1122.8	8650	1122.6	8700
GR	1119.2	9100	1121	9380	1120	9440	1118	9490	1116.7	9590
GR	1116	9690	1118	9755	1120	9760	1122	9775	1120	9845
GR	1111.1	9855	1107.1	9860	1107.1	9965	1106.2	10000	1105.1	10015
GR	1103.1	10035	1103.1	10200	1105.1	10210	1107.1	10235	1109.1	10240
GR	1105.1	10260	1116.4	10270	1117.2	10320	1116	10420	1118	10440
GR	1119.6	10490	1120	10510	1120.7	10660	1120.2	10900	1122	11000
GR	1122.8	11060								
	314				9.1	9.1			9694	10351
	314	39	9695	10350	250	240	250			
X3	10									
GR	1125.9	8500	1123.7	8700	1122.4	8900	1121.7	9020	1121.4	9100
GR	1121	9300	1121.7	9380	1120	9460	1118	9490	1116	9505
GR	1114	9530	1113.5	9600	1112	9675	1111.4	9695	1110.7	9701
GR	1106.7	9735	1106.2	9780	1106.7	9840	1108.7	9900	1106.7	9920
GR	1104.7	9940	1106.7	9950	1108.7	9985	1110.7	10040	1111.7	10070

GR	1110.7	10085	1108.7	10150	1108.7	10220	1110.7	10270	1112.5	10300
GR	1110.7	10310	1110.7	10320	1116.6	10340	1117.3	10350	1118	10360
GR	1120	10410	1121.2	10580	1122	10720	1128	10750		
ET	318				9.1	9.1			9619	10411
	318	21	9620	10410	450	420	400			
	10									
GR	1124	9540	1124	9550	1122	9605	1120	9620	1118.5	9623
GR	1116.5	9640	1106.6	9660	1108.6	9700	1110.6	9725	1112.6	9800
GR	1113.6	9830	1112.6	9885	1112.6	10090	1110.6	10150	1110.4	10180
GR	1110.6	10210	1112.6	10250	1113.8	10300	1114.6	10360	1122	10410
GR	1124	10435								
ET	323				9.1	9.1			9429	10401
X1	323	32	9430	10400	500	400	500			
X3	10									
GR	1126	9420	1126	9430	1124	9460	1122	9480	1120.2	9500
GR	1118.4	9505	1116.6	9510	1114.6	9530	1114.6	9590	1116.6	9620
GR	1116.6	9670	1114.6	9695	1110.6	9696	1109.3	9720	1110.6	9740
GR	1112.6	9770	1113.5	9800	1114.6	9835	1116.1	9890	1114.6	10020
GR	1116.6	10120	1116.6	10160	1114.6	10200	1112.6	10230	1114.6	10255
GR	1112.6	10265	1112.6	10340	1114.6	10345	1126	10390	1126.2	10400
GR	1126	10440	1124	10460						
ET	328				9.1	9.1			9729	10270
X1	328	37	9730	10265	600	460	500			
CI	10000	1111.6	500.035	1	1	-440				
X3	10	1111.56								
X4	3	1126	9761	1126	9770	1126	10230			
GR	1126	9110	1125.7	9225	1140	9226	1140	9309	1125.6	9310
GR	1126	9340	1132	9345	1133.2	9355	1132	9360	1130	9365

GR	1128	9390	1127.3	9420	1126.3	9480	1126	9520	1124	9535
GR	1120	9550	1120	9575	1122	9635	1126	9730	1122	9760
GR	1120	9785	1114	9835	1112	9865	1112	9895	1114	9925
GR	1116	9945	1116.6	9980	1117.6	10050	1116	10070	1116	10130
GR	1114	10165	1114	10210	1116	10225	1126	10255	1127.1	10265
	1126	10300	1126	10350						
ET	330				9.1	9.1			9820	10260
X1	330	25	9830	10200	200	200	200			
CI	10038	1110.9	175.035	1	1	-340				
X3	10									
X4	2	1126	9850	1126	9864					
GR	1132	9360	1130	9375	1128	9400	1127.5	9420	1126	9540
GR	1125	9625	1124	9640	1124	9750	1122	9830	1120	9865
GR	1114	9895	1112	9900	1112	9925	1114	9945	1116	9970
GR	1118	10025	1118	10060	1116	10080	1116	10120	1114	10145
GR	1114	10165	1120	10185	1126	10192	1127.5	10200	1126	10289
ET	334				9.1	9.1			9840	10210
X1	334	32	9850	10170	400	400	400			
CI	10025	1112.1	400.035	1	1	-330				
X3	10	1112.1								
GR	1135.9	7150	1135.4	7320	1134	7450	1132	7590	1130.8	7620
GR	1131	7970	1130.5	8300	1130.2	8510	1130	8660	1129.5	8730
GR	1129	9000	1129	9130	1128.5	9400	1128	9500	1128.2	9655
GR	1128	9770	1128.5	9850	1128	9855	1120	9865	1113.2	9880
GR	1114	9915	1116	9940	1116.6	9970	1118	10070	1117.5	10100
GR	1118	10120	1120	10135	1128	10170	1127.5	10240	1126.4	10410
GR	1126	10520	1127.4	10565						
ET	337				9.1	9.1			9855	10225
X1	337	64	9860	10130	300	300	300			
CI	10040	1113.2	300.035	1	1	-330				
X3	10									
GR	1135.7	7540	1134	7650	1132	7650	1132	7680	1132.4	7750
GR	1150	7751	1150	7819	1132.8	7820	1132	7880	1131.9	8010
GR	1150	8011	1150	8499	1130.3	8500	1130.2	8660	1150	8661
GR	1150	8749	1130	8750	1129.7	8835	1150	8836	1150	8999
GR	1129.6	9000	1129.4	9085	1150	9086	1150	9169	1129	9170
GR	1129.6	9190	1150	9191	1150	9259	1129	9260	1128.5	9310
GR	1128.3	9350	1150	9351	1150	9429	1128.9	9430	1128.7	9455
	1150	9456	1150	9559	1127.7	9560	1127.9	9580	1127.6	9650
	1150	9651	1150	9679	1127.7	9680	1127.7	9760	1127.7	9790
GR	1150	9791	1150	9829	1127.9	9830	1128	9855	1129.2	9860
GR	1128	9870	1116	9900	1114.3	9905	1116	9920	1116.6	9980
GR	1118	10085	1120	10095	1132	10125	1132.6	10130	1132	10135
GR	1130	10160	1128	10285	1130	10298	1130	10360		
ET	340.5				9.1	9.1			9860	10230

X1	340.5	41	9880	10115	350	350	350			
CI	10045	1114.4	350.035	1	1	-330				
X3	10									
GR	1135.7	7430	1134	7540	1132	7570	1132	7600	1132.4	7660
GR	1150	7661	1150	7749	1132.8	7750	1132	7930	1150	7931

GR	1150	8649	1130.2	8650	1130.2	8720	1150	8721	1150	9589
GR	1128.8	9590	1128.8	9690	1150	9691	1150	9779	1128.5	9780
GR	1128.4	9830	1129.7	9880	1128	9885	1118	9910	1118	9925
GR	1119	9950	1118	9960	1117.3	9990	1116	10015	1115	10025
GR	1116	10040	1118	10065	1120	10080	1130	10105	1131.5	10115
GR	1130	10120	1129.2	10180	1129.3	10300	1130	10315	1132	10325
GR	1130.5	10510								
ET	342				9.1	9.1			9870	10235
X1	342	50	9875	10135	150	150	150			
CI	10050	1114.9	150.035	1	1	-330				
X3	10									
GR	1135.7	7450	1134	7560	1132	7580	1132.4	7650	1150	7651
GR	1150	7779	1132.8	7780	1132.5	7879	1150	7880	1150	8049
GR	1131.8	8050	1131.7	8110	1150	8111	1150	8409	1131.5	8410
GR	1131.6	8540	1150	8541	1150	8649	1131.1	8650	1131.1	8860
GR	1150	8861	1150	8979	1130.8	8980	1130.5	9100	1150	9101
GR	1150	9249	1130.5	9250	1130.2	9550	1150	9551	1150	9599
GR	1130.1	9600	1128.8	9650	1129	9700	1150	9701	1150	9779
GR	1128.6	9780	1129.7	9875	1128	9885	1120	9915	1120	9950
GR	1119.1	9960	1118	10040	1116	10065	1115.2	10075	1116	10090
GR	1130	10130	1131.5	10135	1130	10145	1130	10330	1132	10360
ET	343				9.1	9.1			9840	10220
X1	343	29	9870	10155	100	100	100			
CI	10025	1115.2	100.035	1	1	-330				
X3	10									
GR	1135.7	7450	1134	7560	1132.6	7600	1132.5	7900	1131.9	8300
GR	1131.7	8650	1131.6	9000	1130.8	9300	1129	9670	1129	9860
GR	1132	9861	1135.2	9870	1132	9880	1122	9905	1120	9915
GR	1120	9950	1119.1	9975	1120	9985	1120	10015	1118	10070
[illegible]	1116	10090	1115.7	10100	1116	10110	1118	10122	1132	10147
	1132.5	10155	1132	10160	1132	10345	1134	10365		
NC	0.045	0.045	0.035	0.5	0.7					
ET	344.9				9.1	9.1			9822	10179
X1	344.9	4	9823	10178	110	260	190			
CI						.01				
X3	10									
GR	1132	9823	1116.3	9835	1116.3	10165	1132	10178		
ET	345.2				9.1	9.1			9822	10179
X1	345.2	4	9823	10178	30	30	30			
X3	10							1138.3	1138.3	
GR	1132	9823	1116.3	9835	1116.3	10165	1132	10178		
SB	1.1	1.56	2.9	0	330	36.5	5319	.72	1117	1116.3
ET	346.2				9.11	9.11			9822	10179
X1	346.2	4	9823	10178	100	100	100			0
X2			1	1134.3	1141.9					
X3	10							1138.3	1138.3	
BT	-2	9823	1141.9	1134.3	10178	1141.9	1134.3			
GR	1132	9823	1117.	9835	1117	10165	1132	10178		

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ET	346.62				9.1	9.1			9822	10188
X1	346.62	4	9823	10187	42	42	42			0
X3	10							1140.5	1140.5	
GR	1136	9823	1117.5	9840	1117.5	10170	1135	10187		
ET	346.72				9.1	9.1			9822	10188
X1	346.72	21	9823	100187	10	10	10			0
BT	-4	9823	1141.4	1135.8	9942	1141.4	1135.8	9947	1141.4	1134.9
BT		10187	1141.4	1134.9						0
	1136	9823	1117.5	9840	1117.5	9885	1135.8	9885	1135.8	9886
	1117.5	9886	1117.5	9941	1135.8	9942	1134.9	9947	1117.5	9948
GR	1117.5	10061	1134.9	10062	1134.9	10067	1117.5	10068	1117.5	10121
GR	1134.9	10122	1134.9	10127	1117.5	10128	1117.5	10170	1135	10187
GR	1141	10187								
ET	346.9				9.1	9.1			9822	10188
X1	346.9	22	9823	10187	18	18	18			0

BT	-4	9823	1141.4	1135.8	9942	1141.4	1135.8	9947	1141.4	1134.9
BT		10187	1141.4	1134.9						
GR	1141	9823	1136	9823	1117.7	9840	1117.7	9884	1135.8	9884
GR	1135.8	9889	1117.7	9889	1117.7	9939	1135.8	9942	1134.9	9947
GR	1117.7	9950	1117.7	10059	1134.9	10060	1134.9	10069	1117.7	10070
	1117.7	10119	1134.9	10122	1134.9	10129	1117.7	10130	1117.7	10170
	1117.5	10187	1141	10187						
ET	347				9.1	9.1			9822	10188
X1	347	10	9823	10187	10	10	10			0
X3	10							1138.6	1141.4	
GR	1140	5500	1138	5600	1137.7	6000	1137.7	8300	1139.8	9814
GR	1141	9823	1117.7	9840	1117.7	10170	1141	10187	1141	11188
NC	.045	.045	.035	.1	.3					
ET	349				9.1	9.1			9809	10214
X1	349	45	9810	10170	180	220	200			
CI	10000	1119.1	275.035	1	1	-330				
X3	10									
X4	2	1135	9810	1124	10170					
GR	1140	5470	1139.8	5600	1138.8	5800	1139.2	6070	1139.2	6300
GR	1139.1	6530	1138	6760	1137.2	7350	1137.1	7600	1136.7	7750
GR	1136	7800	1135.2	7900	1135.3	8130	1134.8	8420	1134	8500
GR	1134	8540	1133.7	8580	1133.5	8930	1134	9100	1134.3	9250
GR	1131.8	9380	1132	9450	1132	9525	1131.5	9550	1132	9575
GR	1131.3	9690	1132	9900	1134	9925	1138	9935	1136	9950
GR	1134	9970	1132	9980	1124	10005	1122	10025	1121.1	10065
GR	1122	10115	1124	10200	1141	10215	1128	10260	1128	10290
GR	1130	10325	1134	10345	1133.8	10380	1133.5	10540	1140	10550
ET	352				9.1	9.1			9809	10180
X1	352	48	9810	10160	230	400	300			
CI	9990	1121.3	300.035	1	1	-330				
X3	10									
X4	2	1132	9810	1124	10160					
GR	1142	5360	1141.2	5900	1141.4	6100	1141	6350	1140.3	6580

GR	1140	6750	1139.8	6800	1139.4	7100	1138.7	7400	1138	7730
	1138	7750	1150	7751	1150	7809	1137.7	7810	1136.8	7880
	1136.1	7950	1150	7951	1150	8129	1136	8130	1136	8250
GR	1135.6	8660	1134.8	8850	1135.2	9000	1135.5	9200	1135.4	9400
GR	1133.9	9420	1133.3	9640	1132	9715	1132	9925	1132.2	9960
GR	1132	9965	1122	9980	1121.3	10000	1122	10025	1124	10115
GR	1124	10170	1126	10180	1141	10190	1141	10200	1128	10395
GR	1136	10415	1137.4	10425	1136	10440	1134	10530	1134	10600
GR	1132	10730	1132	10750	1140	10770				
ET	358			7.1	9.1	9.1	9250	10720	9770	10400
X1	358	43	9875	10160	400	650	600			
CI						.01				
GR	1142	6850	1141.2	7000	1140.6	7230	1140.2	7500	1140	7630
GR	1139.7	7700	1138.8	8100	1138	8150	1136.8	8300	1137.8	8550
GR	1150	8551	1150	8879	1137.3	8880	1136	8900	1136.8	9100
GR	1135.7	9570	1135.3	9790	1135	9875	1134	9895	1132	9920
GR	1130	9935	1128	9950	1126	9970	1126	10085	1125.6	10100
GR	1126	10135	1136	10155	1137.5	10160	1128	10180	1128	10265
GR	1130	10270	1132	10290	1136.6	10330	1134	10430	1134.4	10470
GR	1134.4	10620	1136	10840	1136.6	10840	1136.6	10950	1137	11200
GR	1137.6	11370	1139	11400	1142	11480				
ET	365			7.1	9.1	9.1	8500	10770	9650	10600
X1	365	45	9880	10200	700	700	700			
GR	1144	6900	1143.7	7040	1143.5	7210	1143	7280	1142.4	7550
GR	1142	7760	1141.6	7850	1141.3	8100	1140	8540	1140	8650
GR	1140	8900	1140	9030	1140	9360	1138	9450	1138	9680
GR	1137.3	9740	1138	9770	1138	9830	1137.3	9855	1137	9880
GR	1136	9885	1134.1	9890	1134.1	9960	1132.1	9980	1130.1	10005
GR	1128.1	10010	1127.5	10040	1128.1	10085	1128.1	10155	1130.1	10165
GR	1136	10200	1136	10300	1137.3	10360	1136.3	10420	1136.6	10530
GR	1138	10680	1138.7	10840	1139.8	11050	1139.4	11270	1139.3	11390
GR	1140	11410	1141.2	11430	1140.2	11550	1140.4	11970	1142	12100
ET	370			7.1	9.1	9.1	8530	10800	9640	10350
	370	45	9855	10260	430	500	500			
	1144	7550	1143.4	7770	1142.5	8130	1142	8420	1141.8	8530
GR	1142	8780	1142	9100	1141.4	9400	1140	9515	1138	9540
GR	1136	9545	1134	9555	1134	9565	1136	9575	1138	9610
GR	1140	9620	1144.1	9640	1142	9670	1140	9700	1140	9750
GR	1140	9845	1140.5	9855	1140	9870	1138	9875	1136	9885
GR	1134.1	9940	1132.1	9970	1130.1	10000	1128.1	10005	1127.4	10025
GR	1128.1	10045	1129.1	10120	1130.1	10165	1132.1	10170	1134.1	10185

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GR      1136      10205      1138      10245      1139      10260      1139.2      10350      1138      10410
GR      1138      10550      1140      10600      1141.1    10900      1142        11100      1143      11300

ET       373                          7.1        9.1       9.1        8550        10700      9550      10250
X1       373        43      9855      10190       420       300        330
         1146      7620     1144.5     7670      1144      7800      1143.9       7900      1143.6      8160
       1143.2      8350     1142.1     8760      1142      8950      1142.2       9000      1142.1      9200
GR      1142      9350      1142      9400      1140      9420       1138        9450       1138       9468
GR      1136      9470      1134      9495      1134      9505       1136        9515       1138       9518
GR      1140      9545      1142      9550      1142.9    9610       1142        9630      1140.2      9710
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   20APR98      08:51:29                                                                          PAGE    23

GR      1140      9760      1140      9855      1134.1    9865       1133        9925      1132.1      9965
GR    1130.1      9975     1128.1     9985      1127.2    10000     1128.1       10025     1130.1      10080
GR    1132.1      10140     1140      10180      1141     10190      1140        10240      1140       10540
GR      1140      10640     1142      10660     1144.4    10670

ET       377                          7.1        9.1       9.1        9300        10700      9500      10230
X1       377        35      9850      10190       400       310        400
GR    1146.7      7850     1144.8     7900      1144      8150      1143.4       8480      1142.8      8720
GR    1142.3      8930     1142.2     9150      1142      9210       1143        9280       1142       9310
GR      1140      9320      1138      9330      1138      9400       1140        9450      1141.8      9520
GR      1142      9521     1142.5     9565      1142      9650      1141.5       9710       1142       9755
GR    1143.8      9850      1142      9855      1140      9860      1132.1       9930      1130.1      9960
GR    1128.5      10000     1130.1    10070      1142     10185      1143.9       10190      1144       10270
GR      1142      10320     1141.1    10420      1142     10600       1144        10930      1146       11330

ET       384                          7.1        9.1       9.1        9340        10240      9829      10240
X1       384        22      9830      10195       750       730        700
X3        10
GR    1148.2      8240      1146      8285      1144.7    8660      1144.6       8850       1144       9020
GR      1146      9060      1147      9080      1146      9120       1142        9175      1140.9      9230
GR      1142      9260      1144      9270      1145.4    9340       1146        9680      1147.0      9830
GR    1146.0      9845     1131.8     9945      1129.8    10030     1129.8       10045     1130.4      10113
GR    1146.0      10195     1147.4    10240

ET       388                                    9.1       9.1                              9819      10201
X1       388        33      9820      10200       400       400        400
         10
         1149      8440     1148.2     8490      1148      8520      1146.4       8750      1146.3      9100
         1146      9130      1146      9165      1148      9190       1150        9200       1155       9210
GR      1150      9220      1142      9235      1141.2    9260       1144        9290       1146       9320
GR    1147.7      9390     1147.2     9550      1146      9685       1144        9690      1143.5      9735
GR      1143      9755      1154      9790      1152      9800      1150.0       9810       1148       9820
GR    1140.0      9875     1132.0     9930      1130.3    10000     1130.0       10105     1140.0      10152
GR      1148      10180     1148      10200     1148.1    10260

ET     391.5                                    9.1       9.1                              9719      10191
X1     391.5       30      9720      10190       350       350        350
X3        10
GR    1149.9      8660      1148      8680      1149.2    8700       1148        8900      1147.1      9210
GR      1148      9220      1148      9240      1147      9270       1150        9310       1154       9320
GR      1150      9330      1146      9335      1144.5    9400       1146        9450       1148       9470
GR    1148.3      9510      1146      9570      1144      9580       1146        9655       1156       9680
GR      1156      9720      1140      9855      1133.0    9920      1132.2       9950      1131.7      10000
GR    1131.8      10075     1140.0    10130      1146     10148     1148.0       10190      1148       10240

ET       395                                    9.1       9.1                              9734      10191
X1       395        40      9735      10190       325       375        350
X3        10
GR      1154      7900      1152      8350      1151.3    8770       1150        8825       1149       8950
GR    1148.1      9120      1148      9140      1148      9300      1149.7       9340       1150       9355
GR    1157.6      9390      1156      9400      1150      9420       1146        9430      1145.6      9490
GR      1146      9510      1146      9540      1148      9640       1150        9715      1151.3      9735
GR      1150      9750      1148      9777      1144      9795       1140        9822       1136       9855
GR    1133.5      9890     1132.2     10000     1134.1    10065     1138.1       10092     1140.0      10112
1
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GR    1148.0      10135     1150      10190      1152     10210      1153.4      10220      1152       10240
GR      1150      10250     1148      10285     1147.5    10310      1148        10530     1150.3      10550

ET       402                          7.1        9.1       9.1        9150        10351      9804      10191
         402        18      9805      10190       670       710        700
         1152      9150      1150      9180      1150      9210      1150.1       9600      1150.7      9790
GR      1150      9805     1140.0     9865      1134.4    9905      1134.2       10000     1134.7      10115
GR    1136.0      10120    1140.0     10140     1150.0    10190     1151.4       10265     1151.8      10300
GR      1152      10310     1154      10350      1154     10360

NC      .045       .045      .035       .3        .5
ET       406                          7.1        9.1       9.1        9500        10300      9804      10191
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X1      406        22      9805     10190       390       410       400
GR     1154      8975      1154      9000      1152      9040      1150      9055      1150      9300
GR   1151.3      9350      1152      9480      1152      9600    1152.0      9805      1150      9815
GR   1135.1      9900    1135.5     10000    1135.1     10080    1140.0     10125    1150.0     10190
GR   1152.0     10250    1152.2     10310    1152.8     10340    1152.4     10370    1152.2     10390
        1152     10440    1152.4     10470

ET      409                         7.1       9.1       9.1      9830     10156      9830     10156
X1      409        21      9830     10155       550       150       300       .89
GR     1156      8800      1152      9150      1152      9420      1154      9520      1154      9775
GR     1160      9830    1138.1      9880    1136.1      9900    1135.3     10000    1136.1     10100
GR     1160     10155      1150     10240      1144     10380      1144     10410      1152     10500
GR   1152.5     10800      1152     10870    1151.4     11070    1151.5     11320    1150.8     11570
GR   1150.7     11700

ET   409.01                                   9.1       9.1                                 9851     10149
X1   409.01        32      9852     10148         1         1         1       .89                         0
X3       10
GR   1157.2      8900    1156.5      9130    1156.7      9370      1158      9500      1160      9600
GR   1161.5      9852      1138      9885      1136      9900    1135.9      9923    1135.9      9924
GR   1135.9      9925    1135.9      9927    1135.2      9998    1135.2      9999    1135.3     10000
GR   1135.4     10002    1135.4     10073    1135.4     10074    1135.3     10076    1135.2     10077
GR     1136     10100      1138     10105    1160.6     10148      1160     10230      1158     10350
GR     1156     10440      1154     10530      1152     10660    1150.4     10840    1151.4     11070
GR   1151.7     11340    1151.9     11700

ET   409.82                                   9.1       9.1                                 9851     10149
SB     1.05      1.56       2.9         0    167.33        18   3913.31      2.44    1135.6    1135.2
X1   409.82        30      9852     10148        81        81        81       .89
X2        0         0         1    1155.4    1163.5         0         0         0       .89         0
X3       10
BT       -5      9852    1163.7    1155.3      9922    1163.5    1155.6      9997    1163.3    1155.6
BT               10072    1163.1    1155.4     10148    1163.0    1154.6
GR   1157.2      8930    1156.5      9140    1156.7      9370      1158      9500      1160      9600
GR   1161.5      9852      1138      9890      1136      9900    1135.9      9922    1135.9      9923
GR   1135.9      9927    1135.9      9928    1135.8      9997    1135.7      9998    1135.7     10002
GR   1135.6     10003    1135.8     10072    1135.7     10073    1135.7     10077    1135.6     10078
GR     1136     10095    1160.6     10148      1160     10260      1158     10380      1156     10470
GR     1154     10570      1152     10700    1150.4     10880    1151.7     11380    1151.9     11730
1
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ET      410                                   9.1       9.1                                 9851     10149
X1      410        26      9852     10148        18        18        18       .89
X3       10
GR   1161.7      8100    1160.2      8300      1159      8500    1157.8      8720    1157.2      8920
GR   1156.5      9150    1156.7      9400      1158      9500      1160      9600      1160      9700
GR     1160      9750      1160      9830    1155.3      9852    1138.1      9890    1136.1      9905
GR   1135.7     10040    1136.1     10095    1158.0     10148      1160     10200      1154     10570
GR     1152     10600    1153.8     10680    1152.2     11000    1152.3     11250    1152.5     11520
GR   1152.2     11750

NC     .045      .045      .035        .1        .3
ET      412                                   9.1       9.1                                 9824     10166
X1      412        28      9825     10165       100       260       200
X3       10
GR   1161.7      8200    1160.2      8400      1159      8600    1157.8      8800    1157.2      9000
GR   1156.5      9200    1156.7      9450      1158      9580      1160      9590      1160      9595
GR     1160      9600    1159.7      9825      1158      9845    1137.1      9910    1136.8     10020
GR   1137.1     10085      1156     10155    1156.1     10165      1156     10190      1154     10650
GR     1154     10655    1154.9     10740    1155.4     10980      1156     11140    1156.5     11210
GR     1158     11370      1160     11530      1162     11600

ET      418                         7.1       9.1       9.1      9800     10190      9804     10206
X1      418        29      9805     10205       550       700       600
GR     1161      8400    1160.2      8550      1159      8630      1158      8770    1158.8      8800
GR     1158      8900      1158      9140    1157.2      9170      1158      9580      1158      9762
GR     1160      9770      1160      9805    1138.1      9930    1138.1      9970    1138.4     10000
GR   1138.1     10070    1140.1     10085      1146     10126      1148     10135      1150     10145
GR     1160     10205      1157     10360      1157     10375      1157     10435      1157     10455
GR   1157.3     10540      1158     10770      1160     10960      1162     11250

ET      423                                   9.1       9.1                                 9789     10211
X1      423        25      9790     10210       460       600       500
        1161.9     8300      1161      8620      1160      8670    1158.2      8850    1157.8      9000
        1159.0     9300    1159.3      9500    1159.6      9700      1160      9760      1162      9770
        1161.4     9790      1160      9810      1138      9950    1137.6     10000      1138     10072
GR     1152     10085      1144     10110      1150     10142      1156     10165      1160     10195
GR   1162.0     10210    1159.7     10480    1160.0     10520      1162     10580      1170     10630

ET      425                                   9.1       9.1                                 9799     10211
X1      425        14      9800     10210       130       170       200
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X4        3    1161.4     8700    1160.8     8250    1160.2     8650
GR   1162.5      8170     1160      8810   1158.6      8850   1158.0      9100    1158.0      9150
GR   1158.8      9630   1159.4      9800     1158      9825     1136      9970      1138     10060
GR     1160     10200   1162.0     10210     1162     10420     1170     10440

       428                          7.1      9.1       9.1      8000     10500      9809     10229
       428        33      9810     10228      300       300      300
GR    1163      8000     1162      8030   1161.3      8050   1161.3      8300    1161.5      8520
GR   1161.3      8730   1161.5      8930   1161.8      8950   1159.1      9000    1159.2      9150
GR    1160      9300   1160.3      9550   1161.8      9730   1161.4      9810      1160      9828
GR    1152      9842     1150      9886     1140      9948     1138      9980    1137.9     10000
GR    1138     10038     1140     10092     1150     10142     1156     10180      1160     10202
GR    1164     10228   1161.3     10350     1162     10460     1180     10500      1180     10590
1
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GR    1170     10680     1162     10690     1162     11040

ET     434                          7.1      9.1       9.1      8150     10600      9901     10326
X1     434        38      9902     10325      600       600      600
GR   1163.8      7750   1162.5      7770   1162.8      7900     1163      8060    1162.8      8260
GR   1163.2      8460   1163.4      8650   1163.3      8880   1162.9      9090    1163.2      9250
GR    1162      9700     1163      9800     1162      9890     1160      9902      1150      9930
GR    1148      9940     1148      9980     1148     10012     1140     10150      1138     10158
GR    1140     10170     1142     10205     1160     10302     1164     10325      1164     10515
GR    1172     10535     1172     10620     1164     10640     1162     10670      1160     10700
GR    1160     10740     1164     10770     1162     10810     1162     11480    1163.2     11530
GR    1164     11615     1166     11620   1167.7     11850

ET     440                          7.1      9.1       9.1      8600     11200      9919     10359
X1     440        40      9920     10358      600       600      600
GR    1166      6700     1165      7220   1164.8      7320     1164      7350    1163.6      7380
GR    1164      7700   1164.6      8000   1164.8      8200     1165      8380      1165      8600
GR   1164.8      8960   1166.4      9000   1164.7      9030   1164.8      9300    1164.2      9420
GR   1165.1      9600     1165      9810   1165.8      9845     1166      9920      1160      9935
GR    1150      9945   1149.8      9960     1150      9975     1152     10016      1152     10025
GR    1140     10095     1140     10190     1142     10228     1166     10358      1166     10365
GR    1164     10412     1164     10422     1166     10442     1166     10452    1165.3     10650
GR    1166     10700   1166.9     10980     1168     11030     1168     11220    1168.3     11250

      443.2                          7.1      9.1       9.1      8900     11200      9939     10386
      443.2        49      9940     10385      330       330      320
GR    1169      6800     1168      6840     1166      7050   1165.5      7320    1165.8      7520
GR   1165.7      7780   1165.4      8000   1165.6      8210   1165.8      8450    1165.7      8610
GR   1167.7      8650     1167      8700   1166.4      9030   1166.4      9200      1166      9430
GR   1166.3      9600   1166.7      9830     1166      9850     1166      9860      1166      9940
GR    1160      9950     1152      9960   1150.1      9968     1152      9985      1154     10050
GR    1152     10062     1150     10070     1144     10110   1140.9     10118    1140.5     10180
GR   1141.5     10235     1150     10295     1160     10350     1170     10385      1170     10395
GR    1169     10400     1168     10432     1171     10520     1164     10560      1164     10690
GR    1166     10710     1166     10760   1166.6     10840     1168     11180      1168     11380
GR    1168     11450     1170     11800     1172     12200   1172.4     12600

ET    449.1                          7.1      9.1       9.1      9500     11200      9937     10501
X1    449.1        36      9938     10500      600       580      590
GR    1170      8920   1169.5      8950   1169.5      9200   1169.1      9380    1168.8      9580
GR   1168.5      9780     1168      9880   1168.2      9895     1168      9925      1168      9930
GR    1169      9938     1168      9945   1153.4      9988   1153.4     10005      1166     10038
GR   1167.9     10055     1166     10074     1154     10142   1152.6     10150    1152.3     10220
GR    1154     10260     1152     10310     1153     10390     1160     10425      1170     10470
GR   1170.8     10500     1170     10620     1168     10628     1168     11080    1168.4     11300
GR    1168     11510     1167     11580     1168     11680     1170     11810      1172     12200
GR   1172.4     12350

ET    451.0                          7.1      9.1       9.1              11200      9909     10460
X1    451.0        39      9910     10460      200       120      190
GR   1172.5      8450     1172      8470   1171.7      8700   1171.5      9000    1170.6      9200
GR    1170      9470   1169.6      9620     1169      9800     1170      9830      1170      9910
GR   1167.9      9925   1163.9      9935   1163.9      9960   1161.9      9970    1153.9     10000
GR   1153.9     10015   1155.9     10030   1157.9     10070   1167.9     10100    1167.9     10180
1
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GR   1157.9     10190   1155.9     10260   1154.4     10290   1155.9     10325    1159.9     10340
     1161.9     10370   1168.0     10450     1170     10460   1170.5     10550      1170     10680
       1168     10760     1168     11070   1168.4     11330     1168     11510      1167     11580
GR     1168     11680     1170     11810     1172     12200   1172.4     12350

NC    0.045     0.045    0.035        .2       .4
ET    8.655                          9.1      9.1       9.1                         9820     10225
X1    8.655        36    9581.4   10224.3      950       375      690         0         0         0
X3       10
```

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GR   1173.9    8649.5    1172.8    8725.6    1173.6    8761.4    1172.8    8805.7    1171.9    8882.4
GR   1171.9    8973.3    1171.7    9029.3    1170.9    9157.1    1170.5    9250.0    1170.8    9322.0
GR   1170.3    9369.5    1169.5    9443.6    1169.3    9488.5    1171.5    9503.3    1167.1    9548.1
GR   1171.6    9581.4    1166.9    9605.5    1161.4    9624.0    1157.9    9660.0    1156.6    9716.3
GR   1155.1    9744.7    1156.1    9761.1    1155.3    9864.2    1155.3    9905.7    1156.2    9954.8
     1156.3   10000.0    1156.3   10071.0    1156.7   10091.4    1155.7   10121.5    1155.7   10154.7
     1164.5   10193.7    1171.2   10224.3    1172.3   10244.2    1171.2   10247.0    1171.1   10299.3
GR   1170.6   10403.3

NC                                     .1        .3
QT        5       2700       8000   12000      12000      32000
ET                                      9.1                                          9762.5    10213.5
X1    8.731         45     9762.5   10213.5      400        400       400
X3       10
GR   1174.8    8627.0    1174.1    8663.6    1172.6    8666.7    1174.4    8670.4    1172.1    8683.8
GR   1170.8    8831.8    1170.4    9040.0    1170.0    9196.9    1168.3    9265.9    1167.0    9305.7
GR   1166.8    9321.0    1173.5    9346.0    1167.4    9377.8    1160.3    9401.7    1156.9    9425.5
GR   1157.6    9463.0    1156.3    9473.2    1158.8    9489.1    1166.0    9510.2    1169.2    9519.8
GR   1168.9    9553.9    1169.2    9595.9    1168.6    9640.2    1168.3    9678.4    1173.6    9692.1
GR   1171.9    9727.6    1171.4    9748.3    1172.8    9762.5    1172.6    9771.0    1167.8    9795.5
GR   1160.0    9831.2    1157.1    9844.0    1156.1    9894.9    1156.9   10000.0    1157.8   10055.6
GR   1157.3   10089.1    1156.7   10123.2    1157.3   10151.0    1164.7   10183.1    1170.6   10206.7
GR   1172.2   10213.5    1173.3   10246.5    1172.0   10250.5    1171.9   10342.2    1171.3   10403.0

ET                                      9.1                                          9771.5    10219.2
X1    8.807         58     9771.3   10219.2      400        390       400
X3       10
GR   1174.2    8591.0    1174.2    8613.7    1174.8    8626.5    1174.6    8637.8    1173.1    8640.4
GR   1174.2    8644.4    1172.8    8658.6    1172.4    8867.9    1172.0    9015.9    1171.9    9044.3
GR   1172.4    9063.6    1170.8    9080.6    1170.8    9093.1    1174.4    9117.5    1175.0    9131.2
GR   1172.2    9150.5    1164.2    9172.6    1160.1    9193.9    1158.6    9221.8    1157.7    9249.9
GR   1159.2    9261.8    1157.9    9281.7    1159.2    9293.1    1164.6    9312.1    1171.3    9327.1
GR   1170.8    9359.0    1170.5    9382.8    1171.1    9406.1    1170.6    9448.1    1170.9    9478.8
GR   1171.6    9539.0    1171.9    9588.1    1172.4    9618.2    1172.2    9646.1    1172.1    9673.9
GR   1178.4    9688.1    1187.7    9701.7    1193.4    9715.9    1194.1    9729.6    1186.6    9749.4
GR   1174.7    9771.3    1169.2    9792.0    1162.1    9826.7    1158.7    9848.0    1158.4    9918.7
GR   1158.3    9957.1    1158.8   10000.0    1158.6   10069.8    1158.4   10113.6    1158.5   10146.5
GR   1163.7   10172.1    1170.8   10201.6    1173.9   10219.2    1174.4   10248.2    1173.2   10258.1
GR   1173.9   10328.3    1173.6   10380.5    1173.0   10402.7
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ET                                      9.1                                          9824.7    10216.9
X1    8.883         55     9824.7   10216.9      280        400       400
X3       10
GR   1176.2    8580.8    1175.3    8595.6    1173.7    8597.9    1174.9    8600.1    1173.5    8625.1
GR   1174.4    8705.8    1174.1    8768.8    1175.2    8824.2    1179.5    8846.4    1180.4    8864.3
GR   1177.5    8878.5    1167.9    8905.2    1162.9    8926.2    1159.6    8943.8    1159.9    8977.9
GR   1158.5    8985.3    1161.3    9000.6    1158.4    9027.9    1158.8    9040.4    1162.1    9058.5
GR   1169.4    9075.9    1173.3    9086.9    1174.0    9126.4    1173.0    9140.3    1173.0    9167.6
GR   1172.7    9204.5    1174.4    9252.2    1173.6    9288.3    1173.9    9325.0    1173.7    9357.3
GR   1174.3    9422.7    1174.7    9473.8    1173.9    9529.7    1173.9    9563.4    1175.1    9610.3
GR   1174.9    9680.1    1175.9    9745.5    1174.9    9824.7    1169.4    9860.8    1166.1    9911.3
GR   1163.8    9955.6    1163.1    9984.3    1163.1   10000.0    1160.2   10004.5    1160.9   10056.5
GR   1160.1   10106.7    1160.4   10145.4    1163.8   10164.1    1171.6   10191.4    1176.3   10216.9
GR   1177.0   10247.6    1175.5   10249.9    1176.3   10292.2    1176.1   10347.6    1175.3   10404.7

ET                                      9.1                                          9809.4    10213.2
X1    8.936         60     9809.4   10213.2      300        300       290
X3       10
GR   1180.0    8590.6    1174.5    8616.4    1165.7    8644.6    1162.8    8656.8    1162.9    8675.8
GR   1163.3    8691.1    1163.0    8713.3    1162.3    8740.0    1166.9    8754.2    1173.7    8779.8
GR   1179.0    8797.9    1177.6    8810.7    1177.4    8832.3    1175.7    8843.9    1174.6    8913.5
GR   1175.6    8920.6    1174.6    8947.9    1175.5    9022.3    1175.5    9091.0    1175.9    9152.4
GR   1176.4    9222.8    1177.0    9261.2    1177.8    9274.0    1177.1    9322.0    1177.8    9335.9
GR   1178.2    9360.6    1175.8    9370.5    1176.9    9389.9    1177.8    9408.3    1175.5    9452.4
GR   1177.0    9483.3    1176.2    9535.9    1175.6    9543.2    1176.6    9575.3    1176.0    9615.4
GR   1177.8    9634.7    1176.7    9680.7    1177.8    9708.0    1176.9    9754.0    1176.0    9785.5
GR   1176.1    9797.7    1177.3    9809.4    1176.0    9817.0    1167.6    9825.6    1166.8    9859.6
GR   1166.7    9894.0    1165.7    9939.7    1165.3    9959.9    1165.7    9994.3    1162.2   10000.0
GR   1162.3   10069.8    1161.8   10110.7    1162.1   10143.1    1167.9   10169.2    1174.0   10192.8
GR   1178.2   10213.2    1178.2   10244.2    1177.7   10247.6    1177.1   10309.8    1176.6   10402.1

ET                                      9.1                                          9886.1    10212.7
     8.977         58     9886.1   10212.7      220        200       210
        10
GR   1177.7    8605.6    1175.6    8628.1    1174.7    8658.4    1174.4    8712.7    1174.6    8744.5
GR   1175.6    8767.2    1174.1    8802.4    1175.6    8841.6    1174.9    8864.9    1175.0    8878.6
GR   1174.7    8934.8    1174.7    8953.5    1175.5    8991.6    1175.7    9030.5    1176.4    9064.0
GR   1178.2    9075.1    1176.8    9084.2    1176.6    9130.2    1176.8    9179.1    1177.1    9252.3
GR   1176.0    9330.2    1176.4    9370.6    1177.8    9377.4    1176.8    9385.9    1176.8    9448.7
GR   1177.3    9491.0    1176.4    9537.0    1176.4    9556.3    1176.9    9609.7    1176.8    9662.3
```

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GR   1176.3    9713.1    1177.2    9747.2    1178.5    9765.9    1178.8    9792.0    1179.6    9802.3
GR   1178.3    9821.0    1180.8    9828.4    1176.5    9836.1    1176.5    9867.6    1177.2    9886.1
GR   1168.4    9900.0    1167.1    9909.3    1165.7    9938.0    1164.9    9976.1    1165.5   10000.0
GR   1163.6   10007.3    1163.7   10066.4    1164.0   10103.3    1163.5   10128.9    1163.5   10137.4
GR   1168.4   10163.5    1173.3   10188.0    1178.5   10209.0    1179.3   10212.7    1180.9   10243.9
     1180.1   10248.2    1179.7   10281.7    1179.8   10401.6

ET                                            9.1                                     9764.5   10207.0
X1    9.009      34     9764.5   10207.0     330       180       180
X3       10
GR   1177.0    8740.0    1176.9    8817.3    1177.0    8883.2    1177.1    8937.1    1177.2    9008.7
GR   1177.5    9075.7    1177.5    9150.2    1177.5    9213.2    1177.7    9285.6    1177.7    9368.3
GR   1177.9    9462.0    1178.2    9547.2    1178.2    9614.3    1178.3    9675.6    1178.3    9725.9
1
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GR   1178.0    9764.5    1174.2    9786.1    1167.1    9821.6    1164.9    9852.3    1166.0    9886.3
GR   1164.6    9921.0    1163.6    9960.8    1162.9   10000.0    1164.1   10055.9    1164.8   10109.6
GR   1164.8   10149.3    1169.2   10162.4    1178.6   10177.2    1179.9   10207.0    1180.3   10253.3
GR   1179.5   10304.1    1180.2   10353.8    1179.8   10424.8    1179.3   10475.4

ET                                            9.1                                     9689.8   10113.8
X1    9.047      44     9689.8   10113.8     280       160       200
X3       10
GR   1179.8    8601.2    1179.8    8619.0    1180.6    8633.0    1179.4    8721.9    1179.5    8798.8
GR   1179.2    8858.5    1178.9    8933.2    1178.7    9004.2    1178.2    9070.4    1178.8    9154.1
GR   1178.8    9233.1    1178.8    9306.9    1179.0    9377.9    1179.1    9475.6    1178.6    9532.5
GR   1178.7    9570.5    1180.6    9579.9    1180.0    9593.2    1181.6    9616.5    1180.5    9660.0
GR   1177.5    9689.8    1171.4    9715.9    1166.4    9742.1    1166.2    9751.1    1166.9    9756.8
GR   1162.3    9762.5    1162.0    9781.0    1163.2    9794.9    1163.3    9845.4    1164.0    9880.4
GR   1162.9    9904.5    1161.7    9907.9    1161.2    9937.7    1161.9    9971.5    1162.6   10000.0
GR   1165.0   10050.5    1165.7   10084.6    1171.0   10101.3    1177.6   10113.8    1178.2   10168.4
GR   1178.2   10218.1    1178.1   10298.2    1178.7   10354.4    1178.2   10401.6

NC              .06
ET                                            9.1                                     9641.2   10090.0
X1    9.129      51     9641.2   10090.0     290       460       420
X3       10
GR   1182.2    8558.3    1182.2    8569.9    1183.0    8580.4    1181.8    8652.3    1181.8    8719.9
GR   1182.2    8785.2    1181.7    8844.6    1181.3    8932.3    1180.6    8995.9    1180.5    9075.5
     1181.0    9134.0    1181.0    9205.5    1181.5    9271.4    1181.2    9370.8    1180.3    9477.1
     1180.3    9499.5    1180.1    9524.8    1180.8    9562.3    1180.3    9599.2    1180.9    9629.9
GR   1180.6    9641.2    1176.6    9662.3    1173.0    9666.8    1173.4    9673.0    1164.9    9688.4
GR   1165.5    9712.2    1166.2    9768.2    1166.3    9795.2    1167.5    9799.7    1164.8    9814.5
GR   1164.2    9836.1    1165.2    9889.5    1165.1    9919.9    1166.3    9971.3    1167.1    9982.6
GR   1168.1    9987.7    1167.9   10000.0    1168.9   10061.6    1171.8   10079.8    1178.7   10090.0
GR   1179.0   10117.8    1179.0   10195.1    1178.6   10241.7    1178.5   10245.1    1179.4   10304.1
GR   1179.2   10370.6    1179.6   10407.5    1179.9   10429.4    1178.7   10432.2    1180.1   10433.6
GR   1179.5   10439.6

NC     .05       .06      .035       .1        .3
ET                                   9.1       9.1                                      19660    20015
X1    9.318      39      19660     20015      1000      1000      1000
X3       10
GR    1192    16150      1170     16210      1170     16310    1194.6     16420      1186    16465
GR  1186.6    16560      1184     16830    1185.2     16920      1184     17065      1184    17120
GR    1186    17130      1186     17150      1184     17160    1183.7     17360      1184    17470
GR    1185    17855    1185.2     18380    1185.3     18430      1185     18460    1185.1    19440
GR    1186    19660      1184     19685      1178     19710      1178     19865      1176    19945
GR    1174    19985    1173.2     20000      1174     20010    1181.5     20015    1181.3    20105
GR    1182    20360      1184     20370      1186     21110      1186     21150      1184    21595
GR    1182    22220      1180     22940      1180     23725    1181.2     23740

QT       5     2625      7625     11450     11450     30250
ET                                            9.1                                      19770    20235
X1    9.492      40      19770     20235      910       890       920
X3       10
GR  1197.2    16090      1178     16135      1178     16185    1193.2     16240      1192    16250
GR    1190    16470      1188     17185      1187     17360      1188     17710    1188.6    17900
GR  1189.3    18260      1189     18870    1188.8     18885      1190     18900      1190    18920
1
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GR  1189.2    19030    1189.5     19300      1188     19610      1185     19635      1186    19650
     1188     19700      1188     19770      1186     19905      1184     19930      1184    19950
     1180     19970      1179     20000      1180     20055      1182     20160      1184    20195
GR  1193.9    20235      1186     20255    1185.4     20310      1186     20785      1188    20800
GR  1188.8    21100      1190     21450      1190     22860      1188     23130      1188    24240

NC     .04       .06      .035
ET                                            9.1                                      19840    20060
X1    9.692      31      19840     20060      1050      1040      1056
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X3       10
GR     1194      15930       1192      16660       1190      17050      1189.8      17130       1190      17448
GR     1192      18040       1194      18880       1195      19040      1194.4      19150       1194      19280
GR     1194      19680       1192      19790       1192      19830        1195      19840       1186      19880
GR   1184.1      20000       1186      20015       1188      20020        1190      20040     1196.1      20060
       1194      20060     1193.2      20090       1194      20195        1194      21315       1196      21690
       1196      21725       1194      22305       1192      24380        1190      24790       1190      25100
GR     1192      25440
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=      .100 CEHV=      .300
*SECNO 501.45

3265 DIVIDED FLOW

    501.45      8.30   1027.50   1024.62   1027.50   1027.62       .12       .00       .00   1027.70
   39000.0     199.2   26795.3   12005.5     321.3    8381.7    6637.8        .0        .0   1028.00
       .00       .62      3.20      1.81      .045      .035      .045      .000   1019.20   8395.00
   .000991        0.        0.        0.         0        13         0       .00   6594.18  15157.41

*SECNO 10.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7105 MINIMUM SPECIFIC ENERGY
     CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     8600.0   11510.0  TYPE=      1  TARGET=     2910.000
    10.000      5.45   1029.45   1029.45       .00   1030.66      1.21      2.52       .33   1028.30
   39000.0   18099.5   19449.0    1451.5    2726.3    1819.9     423.6     279.4     128.2   1028.00
       .03      6.64     10.69      3.43      .045      .035      .045      .000   1024.00   8600.00
   .012236      700.     1000.     1700.         0        19         0       .00   2223.60  10908.61

*SECNO 13.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.69

3470 ENCROACHMENT STATIONS=     8600.0   11720.0  TYPE=      1  TARGET=     3120.000
    13.000      8.88   1031.08   1029.07       .00   1031.50       .42       .76       .08   1030.00
   39000.0   16149.6   22061.8     788.7    4613.1    3550.9     512.0     309.5     138.5   1027.50
       .05      3.50      6.21      1.54      .045      .035      .045      .000   1022.20   8600.00
   .001694      100.      300.      300.         3        12         0       .00   2347.98  10947.98

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

*SECNO 20.000

     DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     8800.0   11360.0  TYPE=      1  TARGET=     2560.000
    20.000      8.86   1032.46   1030.69       .00   1032.92       .46      1.40       .01   1033.00
   39000.0    7026.1   29027.0    2947.0    2298.2    4773.5    1214.2     466.4     182.0   1028.50
       .09      3.06      6.08      2.43      .045      .035      .045      .000   1023.60   8800.00
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   .001920      960.      700.      700.         4        15         0       .00   2303.88  11128.37

*SECNO 26.800

   ` ENCROACHMENT STATIONS=     8000.0   11740.0  TYPE=      1  TARGET=     3740.000
    26.800      9.03   1033.93   1032.93       .00   1034.54       .61      1.58       .04   1033.00
   39000.0    9897.7   28400.5     701.8    3724.7    3976.7     459.8     616.9     234.6   1031.50
       .12      2.66      7.14      1.53      .045      .035      .045      .000   1024.90   8000.00
   .002311     1000.      680.      680.         2        15         0       .00   3200.43  11200.43

*SECNO 32.600

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     8500.0   10233.0  TYPE=      1  TARGET=     1733.000
    32.600      9.05   1035.25   1033.34       .00   1036.42      1.17      1.71       .17   1034.50
   39000.0    1906.7   37093.3        .0     912.6    4177.3        .0     709.4     269.6 100000.00
       .14      2.09      8.88       .00      .045      .035      .000      .000   1026.20   8500.00
   .003732      660.      580.      580.         2        13         0       .00   1680.05  10222.50

*SECNO 38.000

3470 ENCROACHMENT STATIONS=     8900.0   10073.0  TYPE=      1  TARGET=     1173.000
    38.000      9.96   1037.16   1034.82       .00   1038.17      1.01      1.74       .02   1035.60
   39000.0    1798.1   37201.9        .0     780.1    4504.3        .0     771.8     285.5   1041.00
       .16      2.30      8.26       .00      .045      .035      .000      .000   1027.20   8900.00
   .002845      440.      540.      500.         2         8         0       .00   1164.90  10064.90

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

*SECNO 45.000

3470 ENCROACHMENT STATIONS=     9150.0   10136.0  TYPE=      1  TARGET=      986.000
    45.000     10.78   1039.08   1035.48       .00   1039.81       .73      1.61       .03   1038.70
   39000.0    1302.1   37697.9        .0     509.4    5414.8        .0     858.0     300.5   1041.20
       .19      2.56      6.96       .00      .045      .035      .000      .000   1028.30   9150.00
   .001957      440.      700.      680.         2        15         0       .00    981.56  10131.56

*SECNO 51.700

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.53

3470 ENCROACHMENT STATIONS=     9799.0   10599.0  TYPE=      1  TARGET=      800.000
    51.700     12.78   1040.18   1034.80       .00   1040.66       .47       .82       .03   1041.00
   39000.0        .0   39000.0        .0        .0    7077.6        .0     957.6     313.6   1043.00
       .22       .00      5.51       .00      .000      .035      .000      .000   1027.40   9816.33
   .000837      600.      670.      510.         2        19         0       .00    741.62  10592.57

*SECNO 54.000

3470 ENCROACHMENT STATIONS=     9854.0   10696.0  TYPE=      1  TARGET=      842.000
    54.000     12.44   1040.44   1035.22       .00   1040.84       .40       .18       .01   1042.50
   39000.0        .0   39000.0        .0        .0    7670.4        .0     996.5     317.7   1043.20
       .23       .00      5.08       .00      .000      .035      .000      .000   1028.00   9857.22
   .000748      270.      230.      200.         2        11         0       .00    832.27  10689.49

*SECNO 59.000

3470 ENCROACHMENT STATIONS=     9744.0   10701.0  TYPE=      1  TARGET=      957.000
    59.000     10.15   1040.85   1036.70       .00   1041.30       .45       .44       .02   1044.00
   39000.0        .0   39000.0        .0        .0    7215.3        .0    1081.9     327.8   1044.20
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      .26       .00      5.41       .00      .000      .035      .000      .000   1030.70   9767.88
   .001053      760.      500.      490.         2        11         0       .00    925.61  10693.49


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


 *SECNO 63.000

 3470 ENCROACHMENT STATIONS=     9669.0   10572.0  TYPE=      1  TARGET=      903.000
    63.000      9.55   1041.25   1037.49       .00   1041.82       .57       .48       .03   1043.50
   39000.0        .0   39000.0        .0        .0    6458.0        .0    1144.7     336.1   1045.00
       .28       .00      6.04       .00      .000      .035      .000      .000   1031.70   9696.25
   .001396      460.      400.      380.         2        11         0       .00    867.85  10564.10


 *SECNO 70.500

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .38


 3470 ENCROACHMENT STATIONS=     9579.0   10271.0  TYPE=      1  TARGET=      692.000
    70.500      8.77   1042.27   1042.08       .00   1044.53      2.25      2.20       .51   1044.00
   39000.0        .0   39000.0        .0        .0    3238.3        .0    1228.2     349.2   1047.50
       .30       .00     12.04       .00      .000      .035      .000      .000   1033.50   9592.93
   .009725      710.      750.      700.         2        15         0       .00    661.32  10254.25


 *SECNO 77.000

 - '5 DIVIDED FLOW


 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     9775.0   10250.0  TYPE=      1  TARGET=      475.000
    77.000     12.28   1046.88   1045.95       .00   1049.71      2.82      5.01       .17   1051.00
   39000.0        .0   38743.0    257.0        .0    2864.8      73.3    1274.3     357.3   1044.70
       .31       .00     13.52      3.51      .000      .035      .045      .000   1034.60   9795.96
   .006259      480.      650.      660.         2        11         0       .00    418.12  10237.54


 *SECNO 84.000
 3280 CROSS SECTION     84.00 EXTENDED       .69 FEET

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.80


 3470 ENCROACHMENT STATIONS=     9844.0   10790.0  TYPE=      1  TARGET=      946.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1053.50 ELREA=      1044.40

    84.000     14.89   1050.69   1045.17       .00   1051.15       .47      1.21       .24   1053.50
   39000.0        .0   33223.7   5776.3        .0    5754.9    1694.5    1357.7     368.1   1044.40
       .35       .00      5.77      3.41      .000      .035      .045      .000   1035.80   9859.46
   .000796      620.      700.      700.         3        19         0       .00    930.54  10790.00


 *SECNO 88.700
```

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 9729.0 10980.0 TYPE= 1 TARGET= 1251.000

88.700	16.83	1051.03	1043.63	.00	1051.48	.45	.32	.00	1052.00
9000.0	.0	37488.5	1511.5	.0	6842.3	811.3	1438.1	378.2	1045.60
.37	.00	5.48	1.86	.000	.035	.045	.000	1034.20	9732.41
.000612	520.	470.	430.	2	17	0	.00	999.80	10917.22

*SECNO 95.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1052.00 ELREA= 1052.00

95.500	17.32	1051.52	1043.03	.00	1052.03	.50	.53	.02	1052.00
39000.0	.0	39000.0	.0	.0	6845.2	.0	1551.2	392.2	1052.00
.40	.00	5.70	.00	.000	.035	.000	.000	1034.20	9508.36
.001030	400.	680.	680.	2	11	0	.00	795.78	10304.13

*SECNO 100.700

3265 DIVIDED FLOW

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

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .56

100.700	16.54	1051.54	1047.09	.00	1053.28	1.74	.88	.37	1055.00
39000.0	.0	39000.0	.0	.0	3683.8	.0	1614.1	399.3	1052.00
.42	.00	10.59	.00	.000	.035	.000	.000	1035.00	9692.93
.003274	550.	520.	620.	2	19	0	.00	399.10	10188.63

*SECNO 107.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.25

107.000	15.56	1053.66	1046.14	.00	1054.18	.53	.78	.12	1056.00
39000.0	.0	39000.0	.0	.0	6705.7	.0	1689.2	406.0	1054.00
.45	.00	5.82	.00	.000	.035	.000	.000	1038.10	9724.66
.000648	300.	630.	640.	2	11	0	.00	529.75	10254.42

CCHV= .300 CEHV= .500
*SECNO 110.700

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

110.700	11.73	1053.23	1053.23	.00	1056.47	3.24	.62	1.36	1055.60
39000.0	.0	39000.0	.0	.0	2699.3	.0	1729.1	410.2	1056.00
.45	.00	14.45	.00	.000	.035	.000	.000	1041.50	9771.30
.010987	600.	370.	300.	0	13	0	.00	456.59	10227.90

*SECNO 117.200

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 = 1.76

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1061.00 ELREA= 1061.00

117.200	12.13	1058.53	1056.04	.00	1060.57	2.04	3.74	.36	1056.00
39000.0	.0	39000.0	.0	.0	3403.3	.0	1774.7	416.2	1056.00
.47	.00	11.46	.00	.000	.035	.000	.000	1046.40	9845.00
.003529	800.	650.	400.	3	15	0	.00	350.00	10195.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.90	1.56	2.90	.00	352.00	19.80	5503.00	.00	1046.50	1046.20

*SECNO 118.000
CLASS A LOW FLOW

3420 BRIDGE W.S.= 1058.48 BRIDGE VELOCITY= 9.68 CALCULATED CHANNEL AREA= 3979.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	1061.03	.40	0.	39000.	5503.	5515.	1063.10	1063.00	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1063.50 ELREA= 1063.00

118.000	11.53	1058.93	.00	.00	1061.03	2.09	.46	.00	1058.00
39000.0	.0	39000.0	.0	.0	3360.5	.0	1780.9	416.9	1058.00
.47	.00	11.61	.00	.000	.035	.000	.000	1047.40	9845.00
.003687	80.	80.	80.	0	0	0	.00	350.00	10195.00

*SECNO 120.000

HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.08

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

3470 ENCROACHMENT STATIONS= 9550.0 10400.0 TYPE= 1 TARGET= 850.000

120.000	15.15	1061.05	1053.79	.00	1061.75	.70	.31	.42	1058.20
39000.0	1258.4	36947.8	793.7	673.5	5367.5	458.0	1803.2	419.5	1058.00
.48	1.87	6.88	1.73	.045	.035	.045	.000	1045.90	9550.00
.000850	200.	200.	130.	3	14	0	.00	850.00	10400.00

CCHV= .100 CEHV= .300
*SECNO 125.000

3470 ENCROACHMENT STATIONS= 8950.0 10800.0 TYPE= 1 TARGET= 1850.000

125.000	15.66	1061.56	1054.85	.00	1062.19	.63	.43	.01	1059.80
39000.0	1736.1	36263.7	1000.2	1322.4	5503.7	793.9	1883.9	434.8	1060.00
.50	1.31	6.59	1.26	.045	.035	.045	.000	1045.90	8950.00
.000865	500.	500.	480.	2	14	0	.00	1850.00	10800.00

*SECNO 131.000

DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

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3470 ENCROACHMENT STATIONS=     8500.0   10365.0  TYPE=      1  TARGET=     1865.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1061.00 ELREA=      1062.70

    31.000      12.12   1062.12   1062.12       .00   1064.40      2.28      1.13       .50   1061.00
    9000.0      210.2   38789.8        .0     175.6    3192.1        .0    1958.3     456.0   1062.70
       .52       1.20     12.15       .00      .045      .035      .000      .000   1050.00   8644.03
   .006830       500.      600.      650.         0        12         0       .00   1489.22  10237.57


*SECNO 135.000

3265 DIVIDED FLOW

1
   20APR98      08:51:29                                                                                    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


3301 HV CHANGED MORE THAN HVINS


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


3470 ENCROACHMENT STATIONS=     8400.0   10315.0  TYPE=      1  TARGET=     1915.000
   135.000      13.04   1064.84   1063.95       .00   1066.12      1.28      1.62       .10   1063.50
   39000.0     3904.1   32996.9    2099.0    1755.8    3368.8     503.8    1999.3     470.2   1061.00
       .53       2.22      9.79      4.17      .045      .035      .045      .000   1051.80   8400.00
   .002684       380.      400.      430.         2         5         0       .00   1707.62  10292.42


*SECNO 140.000

     DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

   140.000      12.57   1066.47   1062.97       .00   1067.14       .67       .95       .06   1065.70
   39000.0     4144.7   33272.8    1582.6    2324.3    4707.9     579.5    2072.3     491.4   1062.50
       .55       1.78      7.07      2.73      .045      .035      .045      .000   1053.90   7543.08
   .001458       430.      500.      520.         3        16         0       .00   2338.85  10581.75


*SECNO 143.000

3265 DIVIDED FLOW

   143.000       8.99   1066.89   1064.91       .00   1067.79       .89       .58       .07   1068.00
   39000.0     4921.7   34078.3        .0    2118.5    4225.6        .0    2120.4     506.5   1068.00
       .56       2.32      8.06       .00      .045      .035      .000      .000   1057.90   7772.90
   .002725       300.      300.      300.         2        11         0       .00   2041.33  10394.48


*SECNO 146.000

3265 DIVIDED FLOW

1
   20APR98      08:51:29                                                                                    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


     HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   146.000      10.74   1068.64   1068.64       .00   1070.12      1.48      1.08       .18   1070.80
   39000.0     9322.2   29675.7       2.1    2549.0    2697.7       5.4    2160.8     520.1   1069.70
       .57       3.66     11.00       .39      .045      .035      .045      .000   1057.90   7818.53
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   .004938      310.      300.      290.         0         8         0       .00   1823.13  10304.55

*SECNO 149.600

   3 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.43

   149.600     10.59   1070.49   1069.43       .00   1071.42       .93      1.25       .06   1069.30
   40000.0    7750.1   31965.1     284.8    2993.3    3735.5     303.9    2212.3     540.5   1070.80
       .58      2.59      8.56       .94      .045      .035      .045      .000   1059.90   7638.77
   .002555      370.      360.      375.         2        11         0       .00   2993.35  10946.04


*SECNO 158.000

3265 DIVIDED FLOW

   158.000     13.26   1072.76   1071.56       .00   1073.43       .66      1.98       .03   1071.70
   40000.0   12267.0   27616.1     116.9    4058.5    3636.9     147.8    2356.5     593.7   1073.00
       .62      3.02      7.59       .79      .045      .035      .045      .000   1059.50   8153.09
   .002166      850.      840.      840.         3         9         0       .00   2484.14  10750.11


*SECNO 167.000

3265 DIVIDED FLOW

1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3301 HV CHANGED MORE THAN HVINS

   167.000     15.25   1074.15   1073.10       .00   1075.73      1.58      2.03       .28   1071.70
   40000.0    3562.5   33863.2    2574.4    1557.7    3100.5     884.1    2500.1     639.4   1073.70
       .65      2.29     10.92      2.91      .045      .035      .045      .000   1058.90   8792.33
   .002260     1000.      900.      800.         3         8         0       .00   1771.34  10663.36


*SECNO 170.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1071.90 ELREA=      1076.00

   170.000     15.25   1074.45   1074.03       .00   1076.76      2.31       .81       .22   1071.90
   40000.0    3599.0   36401.0        .0    1320.1    2853.2        .0    2533.2     649.1   1076.00
       .66      2.73     12.76       .00      .045      .035      .000      .000   1059.20   8971.37
   .003294      300.      300.      270.         2         8         0       .00   1107.05  10131.13


*SECNO 174.200

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     7800.0   10800.0  TYPE=       1  TARGET=     3000.000
   174.200     17.81   1077.21   1077.21       .00   1078.90      1.69      1.19       .06   1076.00
   .0000.0    8354.8   30210.3    1434.9    2679.9    2538.6     792.7    2583.3     665.5   1076.50
       .67      3.12     11.90      1.81      .045      .035      .045      .000   1059.40   8641.65
   .002442      440.      420.      430.         0         9         0       .00   2158.35  10800.00


CCHV=      .500 CEHV=      .700
*SECNO 178.000
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.74


3470 ENCROACHMENT STATIONS=     8400.0   10600.0  TYPE=      1  TARGET=     2200.000
   178.000     19.24   1079.14   1070.10       .00   1079.87       .73       .49       .48   1080.70
   40000.0    4214.0   34592.5    1193.5    2360.6    4704.9     808.6    2643.0     681.9   1080.00
       .68      1.79      7.35      1.48      .045      .035      .045      .000   1059.90   8720.54
   .000804      390.      380.      300.         3        11         0       .00   1796.72  10600.00


*SECNO 178.500

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .67


3470 ENCROACHMENT STATIONS=     8400.0   10550.0  TYPE=      1  TARGET=     2150.000
   178.500     11.60   1079.30   1077.15       .00   1079.97       .66       .06       .03   1076.00
   40000.0    6314.0   32850.8     835.2    2592.3    4609.7     407.5    2651.9     684.2   1076.00
       .69      2.44      7.13      2.05      .045      .035      .045      .000   1067.70   8449.86
   .001777       50.       50.       50.         2        11         0       .00   2100.14  10550.00


CCHV=     .100 CEHV=     .300
*SECNO 181.500

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69

   181.500     12.87   1079.37   1079.01       .00   1081.03      1.66       .77       .30   1077.10
   40000.0    4642.0   33061.7    2296.3    1455.1    2934.8     618.4    2696.9     696.8   1076.10
       .69      3.19     11.27      3.71      .045      .035      .045      .000   1066.50   8909.73
   .003703      310.      310.      320.         2         8         0       .00   1422.49  10406.92
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 185.300

3265 DIVIDED FLOW

   185.300     13.07   1080.97   1079.63       .00   1082.24      1.26      1.16       .04   1078.80
   40000.0    5343.5   33916.1     740.4    2006.4    3487.6     323.2    2744.5     711.4   1078.70
       .71      2.66      9.72      2.29      .045      .035      .045      .000   1067.90   8465.87
   .002556      390.      380.      375.         3         8         0       .00   1883.72  10601.88


*SECNO 190.000

3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1080.70 ELREA=      1082.60

   190.000     14.57   1082.37   1078.84       .00   1083.43      1.07      1.18       .02   1080.70
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   40000.0     695.5   39304.5        .0     506.0    4701.8        .0    2804.1     732.3   1082.60
       .72      1.37      8.36       .00      .045      .035      .000      .000   1067.80   8082.58
   .002452      480.      470.      450.         2        15         0       .00   1943.56  10396.27


    IO 193.600

3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1084.00 ELREA=      1082.70

   193.600     12.69   1082.89   1080.73       .00   1084.87      1.98      1.16       .27   1084.00
   40000.0        .0   39718.8     281.2        .0    3503.1     170.8    2841.0     743.7   1082.70
       .73       .00     11.34      1.65      .000      .035      .045      .000   1070.20   9778.67
   .004442      380.      360.      360.         2        12         0       .00    749.19  10527.86


*SECNO 198.400

3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1085.20 ELREA=      1086.00

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


   198.400     14.07   1085.07   1081.05       .00   1086.42      1.34      1.48       .06   1085.20
   40000.0        .0   40000.0        .0        .0    4298.8        .0    2884.9     750.3   1086.00
       .75       .00      9.30       .00      .000      .035      .000      .000   1071.00   9751.36
   .002268      460.      480.      490.         2        15         0       .00    433.77  10185.13


    IO 202.400

3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1085.50 ELREA=      1087.30

   202.400     13.17   1085.67   1083.29       .00   1087.91      2.24      1.23       .27   1085.50
   40000.0        .8   39999.2        .0       2.0    3330.8        .0    2920.0     754.1   1087.30
       .75       .43     12.01       .00      .045      .035      .000      .000   1072.50   9767.34
   .004380      400.      400.      400.         2        11         0       .00    397.78  10165.12


*SECNO 206.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1086.00 ELREA=      1090.00

   206.000     13.87   1087.37   1085.06       .00   1089.50      2.13      1.58       .01   1086.00
   40000.0       66.0   39934.0        .0      70.2    3407.6        .0    2948.1     758.7   1090.00
       .76       .94     11.72       .00      .045      .035      .000      .000   1073.50   9428.99
   .004395      360.      360.      380.         3        12         0       .00    707.86  10136.85


*SECNO 210.500

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.31


3470 ENCROACHMENT STATIONS=     8550.0   10620.0  TYPE=      1  TARGET=     2070.000

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1087.20 ELREA= 1092.00

210.500	18.43	1089.63	1081.98	.00	1090.37	.73	.72	.14	1087.20
0000.0	3222.4	36777.6	.0	1444.0	5148.7	.0	2999.9	768.9	1092.00
.78	2.23	7.14	.00	.045	.035	.000	.000	1071.20	8550.00
.000827	440.	450.	440.	2	15	0	.00	1296.11	10173.99

*SECNO 216.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 8900.0 10480.0 TYPE= 1 TARGET= 1580.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1085.60 ELREA= 1093.50

216.000	17.98	1090.18	1082.78	.00	1090.81	.63	.43	.01	1085.60
40000.0	1792.2	38207.8	.0	1048.7	5891.3	.0	3081.1	781.3	1093.50
.81	1.71	6.49	.00	.045	.035	.000	.000	1072.20	8900.00
.000769	400.	550.	650.	2	11	0	.00	1102.69	10222.77

*SECNO 218.000

3470 ENCROACHMENT STATIONS= 9000.0 10660.0 TYPE= 1 TARGET= 1660.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1086.20 ELREA= 1094.00

218.000	18.43	1090.53	1082.17	.00	1090.95	.42	.12	.02	1086.20
40000.0	1743.9	38256.1	.0	1133.6	7181.0	.0	3116.1	786.6	1094.00
.82	1.54	5.33	.00	.045	.035	.000	.000	1072.10	9000.00
.000497	200.	200.	200.	2	11	0	.00	1233.75	10233.75

*SECNO 220.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1086.10 ELREA= 1094.40

20.800	17.42	1090.62	1082.73	.00	1091.13	.51	.15	.03	1086.10
40000.0	1899.4	38100.6	.0	1197.5	6471.9	.0	3167.2	793.6	1094.40
.83	1.59	5.89	.00	.045	.035	.000	.000	1073.20	9258.02
.000605	270.	280.	260.	2	11	0	.00	972.02	10230.04

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	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 223.000

3265 DIVIDED FLOW

223.000	16.47	1090.67	1084.23	.00	1091.34	.68	.16	.05	1090.70
40000.0	1194.4	38805.6	.0	779.8	5795.6	.0	3203.2	798.5	1095.10
.84	1.53	6.70	.00	.045	.035	.000	.000	1074.20	9255.57
.000948	220.	220.	230.	2	11	0	.00	984.90	10243.09

CCHV= .300 CEHV= .500
*SECNO 229.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 8000.0 10380.0 TYPE= 1 TARGET= 2380.000

229.000	11.43	1091.33	1086.29	.00	1091.97	.64	.61	.01	1088.00
40000.0	572.8	39427.2	.0	344.7	6112.7	.0	3292.9	811.2	1094.00
.87	1.66	6.45	.00	.045	.035	.000	.000	1079.90	9296.19
.001096	600.	600.	600.	2	18	0	.00	847.14	10280.41

*SECNO 231.500

3470 ENCROACHMENT STATIONS= 8600.0 10270.0 TYPE= 1 TARGET= 1670.000

```
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1089.00 ELREA=      1092.00

   231.500     11.18   1091.48   1089.11       .00   1092.53      1.05       .36       .20   1082.10
   40000.0   11291.6   28708.4        .0    1932.8    3201.1        .0    3327.0     815.4   1090.00
       .87      5.84      8.97       .00      .045      .035      .000      .000   1080.30   9562.92
    001885      280.      250.      200.         2        22         0       .00    582.08  10145.00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.56      2.90       .00   244.00     12.90   2400.00      2.00   1080.00   1080.00

*SECNO 232.600
BTCARD, BRIDGE STENCL=    8600.00   STENCR=   10270.00
1
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape


 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD      WEIRLN
                                                              AREA
   1098.21   1094.16      .14     7014.   33155.     2400.     2403.     1089.60   1094.00      1291.


3470 ENCROACHMENT STATIONS=     8600.0   10270.0  TYPE=      1  TARGET=     1670.000

     OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1094.20 ELREA=      1096.00

   232.600     14.97   1095.07       .00       .00   1096.11      1.03      3.58       .00   1092.00
   40000.0   4303.6   35696.4        .0    2017.5    4148.5        .0    3341.2     818.0   1094.00
       .88      2.13      8.60       .00      .045      .035      .000      .000   1080.10   8600.00
   .001261      110.      110.      110.         2         0         0       .00   1446.39  10145.00


CCHV=     .100 CEHV=     .300
*SECNO 235.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     8650.0   10500.0  TYPE=      1  TARGET=     1850.000
   235.000     15.38   1095.48   1089.87       .00   1096.41       .93       .29       .01   1092.60
   40000.0   3707.9   36292.1        .0    1714.6    4485.2        .0    3370.6     823.2   1097.50
       .89      2.16      8.09       .00      .045      .035      .000      .000   1080.10   8650.00
   .001267      130.      240.      350.         2        14         0       .00   1472.16  10168.69


*SECNO 238.800

3470 ENCROACHMENT STATIONS=     8700.0   11200.0  TYPE=      1  TARGET=     2500.000
   238.800     15.63   1096.33   1091.28       .00   1096.87       .54       .42       .04   1093.00
   40000.0   8599.3   31400.7        .0    3440.3    4829.3        .0    3434.9     836.7   1098.50
       .91      2.50      6.50       .00      .045      .035      .000      .000   1080.70   8700.00
   .000959      400.      380.      350.         2        16         0       .00   1522.71  10222.71


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


*SECNO 240.800

3265 DIVIDED FLOW
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3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .63

ENCROACHMENT STATIONS= 8700.0 11200.0 TYPE= 1 TARGET= 2500.000

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1091.70 ELREA= 1099.00

240.800	15.59	1096.39	1093.73	.00	1097.25	.86	.29	.10	1091.70
40000.0	11837.4	28162.6	.0	3008.4	3305.1	.0	3468.4	843.8	1099.00
.91	3.93	8.52	.00	.045	.035	.000	.000	1080.80	8700.00
.002410	200.	200.	175.	2	16	0	.00	1531.61	10247.92

*SECNO 245.800

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1096.60 ELREA= 1101.50

245.800	15.27	1097.17	1094.26	.00	1098.97	1.80	1.44	.28	1096.60
40000.0	1144.3	38855.7	.0	598.8	3560.0	.0	3529.3	859.0	1101.50
.93	1.91	10.91	.00	.045	.035	.000	.000	1081.90	9103.37
.003428	520.	500.	490.	2	8	0	.00	1046.83	10150.19

*SECNO 251.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1103.10 ELREA= 1103.00

251.000	17.12	1099.22	1094.00	.00	1100.32	1.11	1.29	.07	1103.10
40000.0	.0	40000.0	.0	.0	4736.3	.0	3582.7	868.4	1103.00
.94	.00	8.45	.00	.000	.035	.000	.000	1082.10	9727.81
.001868	560.	520.	500.	2	15	0	.00	477.78	10205.58

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

*SECNO 256.000

3301 HV CHANGED MORE THAN HVINS

256.000	16.87	1099.67	1096.03	.00	1101.80	2.13	1.17	.31	1102.00
40000.0	.0	40000.0	.0	.0	3418.3	.0	3629.5	872.8	1105.20
.96	.00	11.70	.00	.000	.035	.000	.000	1082.80	9836.62
.003021	500.	500.	500.	2	15	0	.00	300.58	10137.21

*SECNO 258.800

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1103.30 ELREA= 1104.20

258.800	15.55	1101.15	1096.00	.00	1102.51	1.36	.64	.08	1103.30
40000.0	.0	40000.0	.0	.0	4270.0	.0	3654.2	874.9	1104.20
.96	.00	9.37	.00	.000	.035	.000	.000	1085.60	9807.97
.001772	250.	280.	270.	3	14	0	.00	348.76	10156.73

*SECNO 262.000

5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1104.50 ELREA= 1105.20

262.000	15.05	1101.65	1096.78	.00	1103.17	1.52	.61	.05	1104.50
40000.0	.0	40000.0	.0	.0	4046.2	.0	3684.7	877.5	1105.20
.97	.00	9.89	.00	.000	.035	.000	.000	1086.60	9830.44
.002044	290.	320.	340.	2	14	0	.00	340.34	10170.78

*SECNO 265.000

3301 HV CHANGED MORE THAN HVINS

WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.57

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1105.00 ELREA= 1106.40

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
265.000	16.45	1103.05	1096.44	.00	1103.63	.58	.37	.09	1105.00
40000.0	.0	40000.0	.0	.0	6548.0	.0	3721.2	880.6	1106.40
.99	.00	6.11	.00	.000	.035	.000	.000	1086.60	9628.87
.000825	310.	300.	350.	2	14	0	.00	579.69	10208.57

*SECNO 270.500

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1105.60 ELREA= 1106.00

270.500	15.18	1103.28	1097.84	.00	1104.40	1.13	.60	.16	1105.60
40000.0	.0	40000.0	.0	.0	4698.0	.0	3792.2	886.8	1106.00
1.00	.00	8.51	.00	.000	.035	.000	.000	1088.10	9793.61
.001538	540.	550.	550.	2	14	0	.00	399.58	10193.19

*SECNO 273.500

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1104.00 ELREA= 1106.00

273.500	13.84	1103.94	1097.84	.00	1104.82	.88	.39	.02	1104.00
40000.0	.0	40000.0	.0	.0	5300.1	.0	3826.6	889.7	1106.00
1.02	.00	7.55	.00	.000	.035	.000	.000	1090.10	9705.11
.001138	300.	300.	300.	2	8	0	.00	429.89	10135.00

*SECNO 277.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .43

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1106.00 ELREA= 1108.50

277.000	12.09	1102.89	1101.76	.00	1106.38	3.49	.78	.78	1106.00
40000.0	.0	40000.0	.0	.0	2669.2	.0	3858.7	892.5	1108.50
1.02	.00	14.99	.00	.000	.035	.000	.000	1090.80	9852.76
.006095	350.	350.	330.	3	15	0	.00	274.48	10127.24

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 281.800

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1109.00 ELREA= 1111.00

281.800	13.35	1105.55	1104.43	.00	1109.44	3.89	2.94	.12	1109.00
40000.0	.0	40000.0	.0	.0	2527.1	.0	3887.3	895.3	1111.00
1.03	.00	15.83	.00	.000	.035	.000	.000	1092.20	9876.13
.006159	480.	480.	480.	3	5	0	.00	238.96	10115.09

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CCHV=     .300 CEHV=     .500
*SECNO 288.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.94


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1114.00 ELREA=      1114.00

   288.000     16.55   1110.65   1104.99       .00   1111.98      1.33      1.77       .77   1114.00
   40000.0       .0   40000.0       .0        .0    4316.5        .0    3936.0     899.4   1114.00
      1.05       .00      9.27      .00      .000      .035      .000      .000   1094.10   9874.50
   .001645      620.      620.      620.         3        15         0       .00    340.08  10214.59


*SECNO 290.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1113.50 ELREA=      1115.00

   290.000     17.63   1110.93   1103.99       .00   1112.31      1.38       .31       .02   1113.00
   41000.0       .0   41000.0       .0        .0    4351.1        .0    3955.9     900.9   1110.00
      1.05       .00      9.42      .00      .000      .035      .000      .000   1093.30   9857.68
   .001422      220.      200.      160.         3        14         0       .00    290.32  10148.00


SPECIAL BRIDGE

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


    XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .90      1.56       2.90        .00      222.20     10.90     3937.00      1.36     1096.00    1095.80

*SECNO 291.000
CLASS A LOW FLOW

3420 BRIDGE W.S.=     1110.76 BRIDGE VELOCITY=      11.92     CALCULATED CHANNEL AREA=      3414.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD      WEIRLN
                                                                 AREA
      .00   1112.80      .14        0.     41000.     3937.     3934.     1112.80   1114.00         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1114.00 ELREA=      1117.00

   291.000     17.46   1111.06       .00       .00   1112.80      1.73       .49       .00   1110.00
   41000.0       .0   41000.0       .0        .0    3882.4        .0    3965.3     901.5   1099.60
      1.06       .00     10.56      .00      .000      .035      .000      .000   1093.60   9809.51
   .001789      100.      100.      100.         0         0         0       .00    268.18  10077.69


*SECNO 293.000

3470 ENCROACHMENT STATIONS=     9700.0   10450.0  TYPE=      1  TARGET=      750.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1114.00 ELREA=      1110.20

   293.000     16.32   1111.42   1106.91       .00   1113.35      1.93       .46       .10   1114.00
   41000.0       .0   40735.8    264.2        .0    3642.4     115.9    3982.9     903.1   1110.20
      1.06       .00     11.18      2.28      .000      .035      .045      .000   1095.10   9871.44
   .003043      170.      200.      220.         2        15         0       .00    427.12  10298.56


CCHV=     .100 CEHV=     .300
*SECNO 297.000
   297.000     13.67   1112.57   1109.09       .00   1114.67      2.09      1.27       .05   1115.50
   41000.0       .0   41000.0       .0        .0    3530.2        .0    4016.4     906.6   1115.30
      1.07       .00     11.61      .00      .000      .035      .000      .000   1098.90   9857.14
   .003294      400.      400.      400.         2        14         0       .00    335.75  10192.89


*SECNO 302.000
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .64

302.000	13.89	1112.89	1112.73	.00	1118.05	5.15	2.46	.92	1114.70
41000.0	.0	41000.0	.0	.0	2250.6	.0	4049.5	909.8	1119.10
1.08	.00	18.22	.00	.000	.035	.000	.000	1099.00	9895.01
.008140	480.	500.	510.	3	5	0	.00	211.13	10106.14

*SECNO 305.000

3301 HV CHANGED MORE THAN HVINS

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

305.000	16.12	1116.72	1113.54	.00	1119.85	3.13	1.60	.20	1118.50
41000.0	.0	41000.0	.0	.0	2886.6	.0	4067.2	911.3	1118.50
1.09	.00	14.20	.00	.000	.035	.000	.000	1100.60	9885.74
.003757	260.	300.	320.	4	11	0	.00	217.09	10102.83

*SECNO 307.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1114.80 ELREA= 1119.00

307.000	17.42	1118.52	1113.56	.00	1120.53	2.01	.57	.11	1114.80
41000.0	1584.2	39415.8	.0	551.8	3400.6	.0	4082.9	913.0	1119.00
1.09	2.87	11.59	.00	.045	.035	.000	.000	1101.10	9611.11
.002240	200.	200.	160.	2	16	0	.00	519.12	10130.23

*SECNO 311.500

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	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 = 2.07

311.500	17.52	1120.62	1111.94	.00	1121.11	.49	.43	.15	1120.00
41000.0	2081.9	37525.9	1392.2	1375.4	6423.5	862.7	4147.5	924.5	1116.40
1.11	1.51	5.84	1.61	.045	.035	.045	.000	1103.10	8932.65
.000524	430.	450.	430.	3	8	0	.00	1797.07	10923.47

*SECNO 314.000

314.000	16.23	1120.93	1113.85	.00	1121.25	.32	.12	.02	1111.40
41000.0	4120.6	36698.5	181.0	1587.2	7840.3	191.3	4199.8	932.8	1117.30
1.13	2.60	4.68	.95	.045	.035	.045	.000	1104.70	9416.06
.000446	250.	250.	240.	2	11	0	.00	1126.22	10542.28

*SECNO 318.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .61

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1120.00 ELREA= 1122.00

318.000	14.42	1121.02	1116.61	.00	1121.61	.58	.28	.08	1120.00
1000.0	2.9	40997.1	.0	3.9	6698.1	.0	4275.7	941.8	1122.00
1.15	.73	6.12	.00	.045	.035	.000	.000	1106.60	9612.32
.001196	450.	400.	420.	2	14	0	.00	791.08	10403.40

*SECNO 323.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1126.00 ELREA= 1126.20

323.000	12.39	1121.69	1118.87	.00	1122.39	.70	.75	.04	1126.00
41000.0	.0	41000.0	.0	.0	6113.5	.0	4349.2	951.5	1126.20
1.17	.00	6.71	.00	.000	.035	.000	.000	1109.30	9483.44
.001926	500.	500.	400.	2	18	0	.00	889.55	10372.99

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	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 328.000
CHIMP CLSTA= 10000.00 CELCH= 1111.60 BW= 440.00 STCHL= 9730.00 STCHR= 10265.00
EXCAVATION DATA
AEX= 1704.9SQ-FT VEXR= .0K*CU-YD VEXT= .0K*CU-YD

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1126.00 ELREA= 1127.10

328.000	10.72	1122.32	1118.01	.00	1123.44	1.12	.93	.13	1126.00
41000.0	.0	41000.0	.0	.0	4833.6	.0	4412.1	959.2	1127.10
1.18	.00	8.48	.00	.000	.035	.000	.000	1111.60	9769.28
001786	600.	500.	460.	2	11	0	.00	461.45	10230.72

*SECNO 330.000
CHIMP CLSTA= 10038.00 CELCH= 1110.90 BW= 340.00 STCHL= 9830.00 STCHR= 10224.19
EXCAVATION DATA
AEX= 2104.8SQ-FT VEXR= 12.3K*CU-YD VEXT= 12.3K*CU-YD

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1122.00 ELREA= 1127.09

330.000	11.44	1122.34	1118.52	.00	1123.95	1.61	.36	.15	1122.00
41000.0	1.2	40998.8	.0	2.3	4020.6	.0	4429.8	960.9	1127.09
1.19	.50	10.20	.00	.045	.035	.000	.000	1110.90	9816.41
.002432	200.	175.	200.	2	15	0	.00	378.17	10219.44

*SECNO 334.000
CHIMP CLSTA= 10025.00 CELCH= 1112.10 BW= 330.00 STCHL= 9843.64 STCHR= 10205.65
EXCAVATION DATA
AEX= 2250.9SQ-FT VEXR= 32.3K*CU-YD VEXT= 44.6K*CU-YD

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1128.46 ELREA= 1127.75

334.000	11.15	1123.25	1119.84	.00	1125.05	1.80	1.04	.06	1128.46
41000.0	.0	41000.0	.0	.0	3803.0	.0	4465.8	964.3	1127.75
1.20	.00	10.78	.00	.000	.035	.000	.000	1112.10	9848.85
.002798	400.	400.	400.	2	14	0	.00	352.29	10201.15

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

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*SECNO 337.000
CHIMP CLSTA=   10040.00 CELCH=    1113.20 BW=     330.00 STCHL=    9859.19 STCHR=   10220.83
EXCAVATION DATA
AEX=    2906.4SQ-FT     VEXR=      28.7K*CU-YD     VEXT=       73.3K*CU-YD


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1129.01 ELREA=      1129.03

   337.000     10.85   1124.05   1120.94       .00   1125.96      1.91       .88       .03   1129.01
   41000.0        .0   41000.0        .0        .0    3699.2        .0    4491.6     966.7   1129.03
      1.21       .00     11.08       .00      .000      .035      .000      .000   1113.20   9864.15
   .003059      300.      300.      300.         2        19         0       .00    351.71  10215.85


*SECNO 340.500
CHIMP CLSTA=   10045.00 CELCH=    1114.40 BW=     330.00 STCHL=    9865.09 STCHR=   10224.84
EXCAVATION DATA
AEX=    2890.7SQ-FT     VEXR=      37.6K*CU-YD     VEXT=      110.8K*CU-YD


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1129.31 ELREA=      1129.24

   340.500     10.71   1125.11   1122.16       .00   1127.07      1.96      1.09       .02   1129.31
   41000.0        .0   41000.0        .0        .0    3649.1        .0    4521.1     969.5   1129.24
      1.22       .00     11.24       .00      .000      .035      .000      .000   1114.40   9869.29
   .003196      350.      350.      350.         2        15         0       .00    351.42  10220.71


*SECNO 342.000
CHIMP CLSTA=   10050.00 CELCH=    1114.90 BW=     330.00 STCHL=    9870.25 STCHR=   10230.10
EXCAVATION DATA
AEX=    2693.6SQ-FT     VEXR=      15.5K*CU-YD     VEXT=      126.3K*CU-YD


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1129.65 ELREA=      1130.00

   342.000     10.68   1125.58   1122.65       .00   1127.56      1.97       .48       .00   1129.65
   41000.0        .0   41000.0        .0        .0    3638.1        .0    4533.7     970.7   1130.00
      1.22       .00     11.27       .00      .000      .035      .000      .000   1114.90   9874.32
   .003227      150.      150.      150.         0        15         0       .00    351.36  10225.68


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


*SECNO 343.000
CHIMP CLSTA=   10025.00 CELCH=    1115.20 BW=     330.00 STCHL=    9846.20 STCHR=   10206.80
EXCAVATION DATA
AEX=    2668.8SQ-FT     VEXR=       9.9K*CU-YD     VEXT=      136.3K*CU-YD


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1129.00 ELREA=      1132.00

   343.000     10.72   1125.92   1122.95       .00   1127.88      1.96       .32       .00   1129.00
   41000.0        .0   41000.0        .0        .0    3649.1        .0    4542.0     971.6   1132.00
      1.22       .00     11.24       .00      .000      .035      .000      .000   1115.20   9849.29
   .003196      100.      100.      100.         1        15         0       .00    351.42  10200.71


CCHV=     .500 CEHV=     .700
*SECNO 344.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1132.00 ELREA=      1132.00

   344.900     10.21   1126.51   1124.06       .00   1128.70      2.19       .66       .16   1132.00
   41000.0        .0   41000.0        .0        .0    3454.7        .0    4557.5     973.1   1132.00
      1.23       .00     11.87       .00      .000      .035      .000      .000   1116.30   9827.19
   .003776      110.      190.      260.         0        15         0       .00    346.27  10173.46


*SECNO 345.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1138.30 ELREA=      1138.30

   345.200     10.49   1126.79   1124.05       .00   1128.86      2.07       .11       .06   1132.00
   41000.0        .0   41000.0        .0        .0    3550.9        .0    4560.0     973.3   1132.00
```

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     1.23       .00      11.55       .00      .000      .035      .000      .000   1116.30   9826.98
  .003455       30.       30.       30.         2        15         0       .00    346.71  10173.69


  ˙˙IAL BRIDGE

˙˙˙˙7 DOWNSTREAM ELEV IS    1122.35 , NOT    1126.79 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

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  20APR98      08:51:29                                                                                                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

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.10      1.56      2.90       .00    330.00     36.50   5319.00       .72   1117.00   1116.30

*SECNO 346.200
CLASS B LOW FLOW

3420 BRIDGE W.S.=    1125.06 BRIDGE VELOCITY=      16.28     CALCULATED CHANNEL AREA=      2411.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                                  AREA
       .00   1130.07      .00        0.    41000.     5319.     5293.     1134.30   1141.90        0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1138.30 ELREA=      1138.30

   346.200     11.30   1128.30       .00       .00   1130.07      1.77      1.21       .00   1132.00
   41000.0        .0   41000.0        .0        .0    3835.2        .0    4568.4     974.1   1132.00
      1.23       .00     10.69       .00      .000      .035      .000      .000   1117.00   9825.96
   .002698      100.      100.      100.         0         0         0       .00    348.83  10174.79

   ˙˙NO 346.620

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1140.50 ELREA=      1140.50

   346.620     10.88   1128.38   1125.25       .00   1130.28      1.90       .12       .09   1136.00
   41000.0        .0   41000.0        .0        .0    3702.6        .0    4572.1     974.5   1135.00
      1.23       .00     11.07       .00      .000      .035      .000      .000   1117.50   9830.00
   .003040       42.       42.       42.         2        14         0       .00    350.57  10180.57

*SECNO 346.720

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=  1141.40 MAX ELLC=  1135.80

   346.720     10.84   1128.34   1125.55       .00   1130.51      2.17       .04       .19   1136.00
   41000.0        .0   41000.0        .0        .0    3469.5        .0    4572.9     974.5   1141.00
      1.23       .00     11.82       .00      .000      .035      .000      .000   1117.50   9830.04
   .004707       10.       10.       10.         2         9         0       .00    332.20  10180.53


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

*SECNO 346.900

˙˙˙˙5 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=  1141.40 MAX ELLC=  1135.80

   346.900     10.90   1128.40   1125.80       .00   1130.65      2.25       .09       .06   1141.00
   41000.0        .0   41000.0        .0        .0    3403.5        .0    4574.3     974.7   1141.00
      1.23       .00     12.05       .00      .000      .035      .000      .000   1117.50   9830.05
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   .004957       18.       18.       18.         0         9         0       .00    326.33  10187.00

*SECNO 347.000

  1 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.40


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1138.60 ELREA=      1141.40

   347.000     11.55   1129.25   1125.48       .00   1130.96      1.71       .03       .27   1141.00
   41000.0        .0   41000.0       .0        .0    3908.3        .0    4575.1     974.7   1141.00
      1.23       .00     10.49       .00      .000      .035      .000      .000   1117.70   9831.57
   .002526       10.       10.       10.         3        15         0       .00    346.85  10178.43


CCHV=     .100 CEHV=     .300
*SECNO 349.000
CHIMP CLSTA=   10000.00 CELCH=    1119.10 BW=     330.00 STCHL=    9810.00 STCHR=   10170.00
EXCAVATION DATA
AEX=    2991.4SQ-FT     VEXR=      28.8K*CU-YD     VEXT=      165.1K*CU-YD


3265 DIVIDED FLOW


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1135.00 ELREA=      1124.00

   349.000     10.85   1129.95   1126.86       .00   1131.71      1.76       .73       .02   1135.00
   41000.0        .0   39700.3    1299.7        .0    3680.1     292.2    4599.8     977.2   1124.00
      1.24       .00     10.79      4.45      .000      .035      .045      .000   1119.10   9824.15
   .002828      180.      275.      220.         2        14         0       .00    451.91  10324.08


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


*SECNO 352.000
CHIMP CLSTA=    9990.00 CELCH=    1121.30 BW=     330.00 STCHL=    9810.00 STCHR=   10160.00
EXCAVATION DATA
AEX=    1925.1SQ-FT     VEXR=      27.3K*CU-YD     VEXT=      192.4K*CU-YD


3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1132.00 ELREA=      1124.00

   352.000      9.25   1130.55   1129.02       .00   1133.02      2.47      1.10       .21   1132.00
   41000.0        .0   39907.3    1092.7        .0    3133.1     185.1    4625.5     980.4   1124.00
      1.25       .00     12.74      5.90      .000      .035      .045      .000   1121.30   9815.75
   .004828      230.      300.      400.         2        15         0       .00    411.99  10401.39


*SECNO 358.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9250.0   10720.0  TYPE=      1  TARGET=     1470.000
   358.000     10.51   1136.11   1136.11       .00   1138.26      2.15      3.26       .03   1135.00
   41000.0     483.9   29667.9   10848.2     252.0    2256.0    1523.2    4676.5     991.4   1137.50
      1.26      1.92     13.15      7.12      .045      .035      .045      .000   1125.60   9394.56
   .006031      400.      600.      650.         0         8         0       .00   1294.80  10720.00


*SECNO 365.000

3301 HV CHANGED MORE THAN HVINS
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3470 ENCROACHMENT STATIONS=     8500.0   10770.0  TYPE=      1  TARGET=     2270.000
   365.000     12.47   1139.97   1139.29      .00   1141.32     1.34      2.97      .08   1137.00
   41000.0   2971.6   31051.1    6977.3    999.8    2963.3   1737.9    4754.7    1013.1   1136.00
      1.28     2.97     10.48      4.01     .045      .035     .045      .000   1127.50   9361.02
    003155     700.      700.      700.        2         9        0       .00   1408.98  10770.00
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 370.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     8530.0   10800.0  TYPE=      1  TARGET=     2270.000
   370.000     14.21   1141.61   1139.59      .00   1142.71     1.10      1.37      .02   1140.50
   41000.0   3114.1   33744.6    4141.3    877.6    3690.6   1296.4    4819.6    1028.7   1139.00
      1.30     3.55      9.14      3.19     .045      .035     .045      .000   1127.40   9290.07
   .002452     430.      500.      500.        2         5        0       .00   1462.13  10800.00

*SECNO 373.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     8550.0   10700.0  TYPE=      1  TARGET=     2150.000
   373.000     15.13   1142.33   1139.48      .00   1143.56     1.23       .80       .04   1140.00
   41000.0   4452.1   33683.7    2864.2   1259.8    3469.7   1045.0    4865.1    1042.9   1141.00
      1.31     3.53      9.71      2.74     .045      .035     .045      .000   1127.20   8678.50
   .002343     420.      330.      300.        2        14        0       .00   1931.14  10661.33

*SECNO 377.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     9300.0   10700.0  TYPE=      1  TARGET=     1400.000
   377.000     14.64   1143.14   1141.47      .00   1144.78     1.64      1.10       .12   1143.80
   41000.0   4443.9   35243.2    1312.9   1090.5    3208.2    543.6    4912.2    1056.7   1143.90
      1.32     4.08     10.99      2.42     .045      .035     .045      .000   1128.50   9300.00
   .003333     400.      400.      310.        2         8        0       .00   1259.52  10700.00

*SECNO 384.000

3470 ENCROACHMENT STATIONS=     9340.0   10240.0  TYPE=      1  TARGET=      900.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1147.00 ELREA=      1146.00

   384.000     15.32   1145.12   1141.34      .00   1147.07     1.95      2.20       .09   1147.00
   41000.0       .0   41000.0       .0        .0    3663.2       .0    4981.3    1070.0   1146.00
      1.34       .00     11.19       .00     .000      .035     .000      .000   1129.80   9851.18
   .002938     750.      700.      730.        2        15        0       .00    339.20  10190.38
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

    NO 388.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1148.00 ELREA=      1148.00

   388.000     16.55   1146.55   1141.27      .00   1148.07     1.52       .96       .04   1148.00
   41000.0       .0   41000.0       .0        .0    4145.8       .0    5017.2    1073.1   1148.00
      1.35       .00      9.89       .00     .000      .035     .000      .000   1130.00   9829.97
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   .001994      400.      400.      400.         2        15         0       .00    344.96  10174.93


*SECNO 391.500

     OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1156.00 ELREA=      1148.00

   391.500     15.56   1147.26   1142.80       .00   1148.88      1.62       .78       .03   1156.00
   41000.0        .0   41000.0        .0        .0    4008.8        .0    5049.9    1076.0   1148.00
      1.36       .00     10.23       .00      .000      .035      .000      .000   1131.70   9793.74
   .002536      350.      350.      350.         2        14         0       .00    380.74  10174.48


*SECNO 395.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1151.30 ELREA=      1150.00

   395.000     16.07   1148.27   1143.07       .00   1149.67      1.40       .77       .02   1151.30
   41000.0        .0   41000.0        .0        .0    4314.5        .0    5083.4    1079.0   1150.00
      1.37       .00      9.50       .00      .000      .035      .000      .000   1132.20   9773.34
   .001908      325.      350.      375.         2        19         0       .00    369.13  10142.46


*SECNO 402.000

3470 ENCROACHMENT STATIONS=     9150.0   10351.0  TYPE=      1  TARGET=     1201.000
   402.000     15.47   1149.67   1144.00       .00   1150.94      1.27      1.26       .01   1150.00
   41000.0        .0   41000.0        .0        .0    4528.9        .0    5154.4    1085.1   1150.00
      1.39       .00      9.05       .00      .000      .035      .000      .000   1134.20   9806.97
   .001694      670.      700.      710.         2        14         0       .00    381.38  10188.36


CCHV=     .300 CEHV=     .500
*SECNO 406.000

3470 ENCROACHMENT STATIONS=     9500.0   10300.0  TYPE=      1  TARGET=      800.000
1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


   406.000     15.23   1150.33   1145.31       .00   1151.75      1.42       .73       .07   1152.00
   41000.0        .0   40999.3        .7        .0    4289.2       1.7    5194.9    1088.6   1150.00
      1.40       .00      9.56       .45      .000      .035      .045      .000   1135.10   9813.34
   .001995      390.      400.      410.         2        14         0       .00    386.62  10199.96


*SECNO 409.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9830.0   10156.0  TYPE=      1  TARGET=      326.000
   409.000     15.29   1150.59   1150.59       .00   1156.08      5.48      1.02      2.03 100000.00
   41000.0        .0   40143.0     857.0        .0    2115.4     178.8    5217.3    1090.6   1160.00
      1.41       .00     18.98      4.79      .000      .035      .045      .000   1135.30   9830.00
   .007200      550.      300.      150.         0         5         0       .00    235.58  10156.00


*SECNO 409.010
3280 CROSS SECTION    409.01 EXTENDED      4.12 FEET


3301 HV CHANGED MORE THAN HVINS


   ? WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.60


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1161.50 ELREA=      1160.60

   409.010     20.82   1156.02   1146.62       .00   1157.33      1.31       .00      1.25   1161.50
   41000.0        .0   41000.0        .0        .0    4459.8        .0    5217.4    1090.6   1160.60
      1.41       .00      9.19       .00      .000      .035      .000      .000   1135.20   9754.13
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   .001063        1.        1.        1.        4       15        0      .00    248.82  10002.96

1
   20APR98      08:51:29                                                                                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


 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.56      2.90       .00     167.33     18.00   3913.31     2.44   1135.60   1135.20

 *SECNO 409.820
 3280 CROSS SECTION    409.82 EXTENDED      5.58 FEET

 PRESSURE FLOW

  EGPRS      EGLWC      H3        QWEIR     QPR       BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                                 AREA
   1158.68   1157.64     .25        0.     41000.     3913.     3913.     1155.40   1163.50        0.


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1161.50 ELREA=      1160.60

   409.820     21.88   1157.48       .00       .00   1158.68      1.20      1.35       .00   1161.50
   41000.0       .0   41000.0        .0        .0    4661.3        .0    5225.8    1091.0   1160.60
      1.41      .00      8.80       .00      .000      .035      .000      .000   1135.60   9756.36
   .000930      81.       81.       81.         2         0         0       .00    251.68  10008.04


 *SECNO 410.000

   ; DIVIDED FLOW

 3280 CROSS SECTION    410.00 EXTENDED      5.43 FEET


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1155.30 ELREA=      1158.00

   410.000     21.93   1157.63   1157.58       .00   1158.73      1.09       .02       .03   1155.30
   41000.0     396.4   40603.6        .0     459.1    4818.3        .0    5227.9    1091.3   1158.00
      1.41      .86      8.43       .00      .045      .035      .000      .000   1135.70   8701.33
   .000852      18.       18.       18.         2         7         0       .00    891.92   9921.93


 CCHV=     .100 CEHV=     .300
 *SECNO 412.000
1
   20APR98      08:51:29                                                                                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


 3301 HV CHANGED MORE THAN HVINS


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1159.70 ELREA=      1156.10

   412.000     21.53   1158.33   1148.02       .00   1158.92       .59       .15       .05   1159.70
   41000.0       .0   35108.5    5891.5        .0    5290.5    3448.0    5261.9    1097.0   1156.10
      1.42      .00      6.64      1.71      .000      .035      .045      .000   1136.80   9841.11
   .000603     100.      200.      260.         2        18         0       .00   1555.36  11396.46


 ECNO 418.000

 3470 ENCROACHMENT STATIONS=     9800.0   10190.0  TYPE=      1  TARGET=      390.000
   418.000     20.47   1158.57   1149.60       .00   1159.46       .90       .45       .09   1160.00
   41000.0       .0   41000.0        .0        .0    5389.9        .0    5363.2    1111.8 100000.00
      1.44      .00      7.61       .00      .000      .035      .000      .000   1138.10   9813.19
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   .000939      550.      600.      700.         2        11         0       .00    376.81  10190.00

*SECNO 423.000

     DIVIDED FLOW

   423.000     21.41   1159.01   1150.93       .00   1160.02      1.02       .53       .04   1161.40
   41000.0     341.5   40658.5        .0     366.1    5005.2        .0    5424.8    1118.9   1162.00
      1.46       .93      8.12       .00      .045      .035      .000      .000   1137.60   8769.23
   .001184      460.      500.      600.         2        14         0       .00    907.14  10187.56

*SECNO 425.000

3265 DIVIDED FLOW

   425.000     23.38   1159.38   1150.44       .00   1160.26       .88       .22       .01   1159.40
   41000.0     909.1   40090.9        .0     867.2    5281.3        .0    5450.2    1122.9   1162.00
      1.47      1.05      7.59       .00      .045      .035      .000      .000   1136.00   8827.67
   .001021      130.      200.      170.         2        14         0       .00   1362.80  10196.06

*SECNO 428.000
1
   20APR98      08:51:29                                                                          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


3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     8000.0   10500.0  TYPE=      1  TARGET=     2500.000
   428.000     21.76   1159.66   1150.89       .00   1160.55       .89       .29       .00   1161.40
   41000.0      57.4   40942.6        .0      99.3    5400.2        .0    5490.3    1129.7   1164.00
      1.48       .58      7.58       .00      .045      .035      .000      .000   1137.90   8989.63
   .000914      300.      300.      300.         2        11         0       .00    618.17  10200.13

*SECNO 434.000

3470 ENCROACHMENT STATIONS=     8150.0   10600.0  TYPE=      1  TARGET=     2450.000
   434.000     22.23   1160.23   1152.69       .00   1161.14       .90       .58       .00   1160.00
   41000.0        .0   41000.0        .0        .2    5376.3        .0    5565.2    1136.7   1164.00
      1.50       .26      7.63       .00      .045      .035      .000      .000   1138.00   9900.56
   .001029      600.      600.      600.         0        19         0       .00    402.82  10303.38

*SECNO 440.000

3470 ENCROACHMENT STATIONS=     8600.0   11200.0  TYPE=      1  TARGET=     2600.000
   440.000     20.89   1160.89   1152.72       .00   1161.71       .83       .57       .01   1166.00
   41000.0        .0   41000.0        .0        .0    5624.0        .0    5641.0    1142.2   1166.00
      1.52       .00      7.29       .00      .000      .035      .000      .000   1140.00   9932.78
   .000882      600.      600.      600.         2        11         0       .00    397.54  10330.32

*SECNO 443.200

3470 ENCROACHMENT STATIONS=     8900.0   11200.0  TYPE=      1  TARGET=     2300.000
   443.200     20.64   1161.14   1154.01       .00   1162.05       .91       .31       .02   1166.00
   41000.0        .0   41000.0        .0        .0    5366.5        .0    5681.4    1145.2   1170.00
      1.53       .00      7.64       .00      .000      .035      .000      .000   1140.50   9948.10
   .001058      330.      320.      330.         2        14         0       .00    405.89  10353.99

*SECNO 449.100

3265 DIVIDED FLOW

   20APR98      08:51:29                                                                          PAGE   67

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
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3301 HV CHANGED MORE THAN HVINS

     MINIMUM SPECIFIC ENERGY
     CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9500.0   11200.0  TYPE=      1  TARGET=     1700.000
   449.100      9.19   1161.19   1161.19       .00   1164.73      3.53      1.41       .79   1169.00
   41000.0        .0   41000.0       .0        .0    2717.7        .0    5736.1    1150.6   1170.80
      1.54       .00     15.09       .00      .000      .035      .000      .000   1152.00   9965.05
   .009611      600.      590.      580.         0        14         0       .00    389.50  10430.37


*SECNO 451.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   451.000     11.66   1165.56   1165.56       .00   1169.07      3.51      1.85       .00   1170.00
   41000.0        .0   41000.0       .0        .0    2726.5        .0    5748.0    1152.3   1170.00
      1.55       .00     15.04       .00      .000      .035      .000      .000   1153.90   9930.84
   .009862      200.      190.      120.         0        11         0       .00    397.85  10418.04


CCHV=     .200 CEHV=     .400
*SECNO 8.655

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.99


3470 ENCROACHMENT STATIONS=     9820.0   10225.0  TYPE=      1  TARGET=      405.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1171.20

     8.655     15.08   1170.38   1163.50       .00   1171.31       .92      1.71       .52 100000.00
   41000.0        .0   41000.0       .0        .0    5317.4        .0    5811.7    1158.6   1171.20
      1.57       .00      7.71       .00      .000      .035      .000      .000   1155.30   9820.00
   .001107      950.      690.      375.         2        19         0       .00    400.54  10220.54


1
   20APR98      08:51:29                                                                                    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


CCHV=     .100 CEHV=     .300
*SECNO 8.731
3280 CROSS SECTION      8.73 EXTENDED       .20 FEET


3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1172.80 ELREA=      1172.20

     8.731     15.40   1171.50   1160.46       .00   1171.58       .08       .19       .08   1172.80
   12000.0        .0   12000.0       .0        .0    5388.4        .0    5860.9    1162.5   1172.20
      1.62       .00      2.23       .00      .000      .035      .000      .000   1156.10   9776.61
   .000097      400.      400.      400.         2        14         0       .00    433.92  10210.53


*SECNO 8.807

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1174.70 ELREA=      1173.90

     8.807     13.23   1171.53   1162.14       .00   1171.63       .10       .05       .01   1174.70
   12000.0        .0   12000.0       .0        .0    4723.5        .0    5907.3    1166.4   1173.90
      1.67       .00      2.54       .00      .000      .035      .000      .000   1158.30   9783.23
   .000144      400.      400.      390.         2        11         0       .00    422.52  10205.75


*SECNO 8.883
```

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.65

ENCROACHMENT STATIONS= 9799.0 10156.0 TYPE= 1 TARGET= 357.000

135.000	12.91	1064.71	1062.46	1064.84	1066.85	2.14	2.43	.09	1063.50
39000.0	1.7	38991.8	6.5	1.2	3323.6	3.7	1757.9	276.8	1061.00
.50	1.38	11.73	1.76	.045	.035	.045	.000	1051.80	9799.00
.003920	380.	400.	430.	2	11	0	.00	357.00	10156.00

*SECNO 140.000

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

3301 HV CHANGED MORE THAN HVINS

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

3470 ENCROACHMENT STATIONS= 9744.0 10261.0 TYPE= 1 TARGET= 517.000

140.000	13.32	1067.22	1062.80	1066.47	1068.13	.91	1.16	.12	1065.70
39000.0	1.4	38993.2	5.4	1.5	5098.0	4.7	1806.3	281.8	1062.50
.52	.92	7.65	1.14	.045	.035	.045	.000	1053.90	9744.00
.001535	430.	500.	520.	2	19	0	.00	517.00	10261.00

*SECNO 143.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 9600.0 10401.0 TYPE= 1 TARGET= 801.000

143.000	9.81	1067.71	1064.83	1066.89	1068.75	1.04	.58	.04	1068.00
39000.0	249.4	38750.6	.0	129.2	4716.6	.0	1840.5	286.0	1068.00
.53	1.93	8.22	.00	.045	.035	.000	.000	1057.90	9629.92
.002486	300.	300.	300.	2	11	0	.00	706.33	10398.55

*SECNO 146.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 9000.0 10201.0 TYPE= 1 TARGET= 1201.000

146.000	10.74	1068.64	1068.64	1068.64	1070.79	2.16	1.14	.33	1070.80
39000.0	5184.1	33815.9	.0	1165.2	2697.3	.0	1870.7	291.6	1069.70
.53	4.45	12.54	.00	.045	.035	.000	.000	1057.90	9000.00
.006414	310.	300.	290.	0	8	0	.00	913.24	10190.62

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

NO 149.600

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.88

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3470 ENCROACHMENT STATIONS=     8850.0   10206.0  TYPE=      1  TARGET=     1356.000
   149.600     11.38   1071.28   1069.36   1070.49   1072.08       .80      1.15       .14   1069.30
   40000.0    7756.3   32243.4        .4    2598.5    4107.4        .5    1914.8     301.2   1070.80
       .55      2.98      7.85       .70      .045      .035      .045      .000   1059.90   8850.00
    001915      370.      360.      375.         2        17         0       .00   1356.00  10206.00


*SECNO 158.000

3470 ENCROACHMENT STATIONS=     8950.0   10250.0  TYPE=      1  TARGET=     1300.000
   158.000     13.56   1073.06   1071.45   1072.76   1073.94       .88      1.83       .02   1071.70
   40000.0    8705.3   31294.3        .4    2460.0    3776.7       1.9    2040.2     327.0   1073.00
       .58      3.54      8.29       .23      .045      .035      .045      .000   1059.50   8950.00
   .002493      850.      840.      840.         2         8         0       .00   1300.00  10250.00


*SECNO 167.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9000.0   10250.0  TYPE=      1  TARGET=     1250.000
   167.000     15.77   1074.67   1070.37   1074.15   1076.16      1.49      2.04       .18   1071.70
   40000.0    4894.8   34025.7    1079.5    1858.3    3226.9     365.0    2165.5     353.9   1073.70
       .61      2.63     10.54      2.96      .045      .035      .045      .000   1058.90   9000.00
   .001997     1000.      900.      800.         2        15         0       .00   1150.40  10250.00


*SECNO 170.000

3265 DIVIDED FLOW

1
   20APR98      08:51:29                                                                                                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


3470 ENCROACHMENT STATIONS=     9030.0   10136.0  TYPE=      1  TARGET=     1106.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1071.90 ELREA=      1076.00

   170.000     15.93   1075.13   1073.96   1074.45   1076.91      1.78       .67       .09   1071.90
   40000.0    5477.2   34522.8        .0    1863.3    3011.0        .0    2200.9     361.4   1076.00
       .62      2.94     11.47       .00      .045      .035      .000      .000   1059.20   9030.00
   .002502      300.      300.      270.         2         8         0       .00   1051.07  10132.83


*SECNO 174.200
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     8850.0   10300.0  TYPE=      1  TARGET=     1450.000
   174.200     17.69   1077.09   1077.09   1077.21   1079.03      1.94      1.10       .05   1076.00
   40000.0    8114.7   31468.8       416.5    2472.8    2518.1     225.7    2250.6     374.0   1076.50
       .63      3.28     12.50      1.85      .045      .035      .045      .000   1059.40   8850.00
   .002722      440.      420.      430.         0        13         0       .00   1450.00  10300.00


CCHV=      .500 CEHV=      .700
*SECNO 178.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


  WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.89


3470 ENCROACHMENT STATIONS=     8750.0   10400.0  TYPE=      1  TARGET=     1650.000
   178.000     19.54   1079.44   1070.10   1079.14   1080.15       .70       .49       .62   1080.70
   40000.0    4932.1   34539.0       528.9    2674.7    4796.4     399.2    2307.7     387.1   1080.00
       .64      1.84      7.20      1.32      .045      .035      .045      .000   1059.90   8750.00
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   .000759      390.      380.      300.        3       11        0      .00   1592.09  10400.00

*SECNO 178.500
1
   20APR98      08:51:29                                                                                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


3470 ENCROACHMENT STATIONS=     8750.0   10415.0  TYPE=      1  TARGET=     1665.000
   178.500     11.97   1079.67   1077.14   1079.30   1080.25       .59       .05       .06   1076.00
   40000.0    6811.0   32435.7     753.3    2659.2    4821.4     315.9    2316.6     388.9   1076.00
       .65      2.56      6.73      2.38      .045      .035      .045      .000   1067.70   8750.00
   .001492       50.       50.       50.         2        11         0       .00   1665.00  10415.00


CCHV=     .100 CEHV=     .300
*SECNO 181.500

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


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


3470 ENCROACHMENT STATIONS=     9100.0   10325.0  TYPE=      1  TARGET=     1225.000
   181.500     13.18   1079.68   1078.92   1079.37   1081.19      1.51       .66       .28   1077.10
   40000.0   5182.3   32708.8    2108.9    1533.8    3030.6     534.0    2362.6     399.0   1076.10
       .65      3.38     10.79      3.95      .045      .035      .045      .000   1066.50   9100.00
   .003256      310.      310.      320.         2         8         0       .00   1150.35  10325.00


   NO 185.300

3470 ENCROACHMENT STATIONS=     9500.0   10211.0  TYPE=      1  TARGET=      711.000
   185.300     12.80   1080.70   1078.32   1080.97   1082.61      1.92      1.30       .12   1078.80
   40000.0   1617.5   38379.5       3.0     540.7    3389.3       2.0    2402.2     407.0   1078.70
       .66      2.99     11.32      1.51      .045      .035      .045      .000   1067.90   9559.89
   .003601      390.      380.      375.         2        11         0       .00    651.11  10211.00


*SECNO 190.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9804.0   10401.0  TYPE=      1  TARGET=      597.000
   190.000     15.18   1082.98   1078.85   1082.37   1083.94       .97      1.24       .09   1080.70
   40000.0       2.6   39997.1        .2       2.3    5063.2        .4    2450.8     413.7   1082.60
       .68      1.16      7.90       .62      .045      .035      .045      .000   1067.80   9804.00
   .002000      480.      470.      450.         3        11         0       .00    597.00  10401.00


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   20APR98      08:51:29                                                                                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


*SECNO 193.600

3301 HV CHANGED MORE THAN HVINS


   ENCROACHMENT STATIONS=     9744.0   10211.0  TYPE=      1  TARGET=      467.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1084.00 ELREA=      1082.70

   193.600     13.16   1083.36   1080.83   1082.89   1085.16      1.81       .97       .25   1084.00
   40000.0        .0   39999.3        .7        .0    3709.8        .7    2487.1     418.0   1082.70
       .69       .00     10.78      1.11      .000      .035      .045      .000   1070.20   9770.67
```

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   .003813      380.      360.      360.         2        20         0       .00    440.33  10211.00

*SECNO 198.400

 `1 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     9749.0   10201.0  TYPE=      1  TARGET=      452.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1085.20 ELREA=      1086.00

   198.400     14.27   1085.27   1081.05   1085.07   1086.56      1.29      1.34       .05   1085.20
   40000.0        .0   40000.0        .0        .1    4383.8        .0    2531.7     422.8   1086.00
       .70       .02      9.12       .00      .045      .035      .000      .000   1071.00   9749.00
   .002141      460.      480.      490.         2        15         0       .00    437.16  10186.16

*SECNO 202.400

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     9789.0   10181.0  TYPE=      1  TARGET=      392.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1085.50 ELREA=      1087.30

   202.400     13.32   1085.82   1083.28   1085.67   1087.98      2.16      1.16       .26   1085.50
   40000.0        .3   39999.7        .0        .3    3388.6        .0    2567.4     426.6   1087.30
       .71       .84     11.80       .00      .045      .035      .000      .000   1072.50   9789.00
   .004169      400.      400.      400.         2        15         0       .00    378.42  10167.42

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   20APR98      08:51:29                                                                          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

*SECNO 206.000

3470 ENCROACHMENT STATIONS=     9721.0   10171.0  TYPE=      1  TARGET=      450.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1086.00 ELREA=      1090.00

   206.000     13.90   1087.40   1085.08   1087.37   1089.52      2.12      1.53       .00   1086.00
   40000.0       27.2   39972.8        .0      14.8    3418.2        .0    2595.6     429.9   1090.00
       .72      1.83     11.69       .00      .045      .035      .000      .000   1073.50   9721.00
   .004360      360.      360.      380.         3        11         0       .00    415.98  10136.98

*SECNO 210.500

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.08

3470 ENCROACHMENT STATIONS=     9814.0   10181.0  TYPE=      1  TARGET=      367.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1087.20 ELREA=      1092.00

   210.500     18.31   1089.51   1081.98   1089.63   1090.46       .95       .83       .12   1087.20
   40000.0        2.0   39998.0        .0        2.5    5105.7        .0    2639.7     433.9   1092.00
       .74       .80      7.83       .00      .045      .035      .000      .000   1071.20   9814.00
   .001004      440.      450.      440.         2        15         0       .00    359.69  10173.69

*SECNO 216.000

3470 ENCROACHMENT STATIONS=     9769.0   10241.0  TYPE=      1  TARGET=      472.000

    OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1085.60 ELREA=      1093.50

   216.000     18.08   1090.28   1082.78   1090.18   1090.99       .70       .50       .02   1085.60
   40000.0        3.9   39996.1        .0        4.7    5935.7        .0    2709.4     439.0   1093.50
       .76       .83      6.74       .00      .045      .035      .000      .000   1072.20   9769.00
   .000822      400.      550.      650.         2        11         0       .00    454.16  10223.16
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 218.000

3470 ENCROACHMENT STATIONS=     9699.0   10256.0  TYPE=      1  TARGET=      557.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1086.20 ELREA=      1094.00

 218.000     18.57   1090.67   1082.17   1090.53   1091.14       .47       .13       .02   1086.20
 40000.0      3.0   39997.0        .0       4.5    7256.5        .0    2739.7     441.3   1094.00
     .77      .66      5.51       .00      .045      .035      .000      .000   1072.10   9699.00
 .000525     200.      200.      200.         2        11         0       .00    535.21  10234.21

*SECNO 220.800

3470 ENCROACHMENT STATIONS=     9749.0   10256.0  TYPE=      1  TARGET=      507.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1086.10 ELREA=      1094.40

 220.800     17.55   1090.75   1082.73   1090.62   1091.33       .58       .16       .03   1086.10
 40000.0      3.4   39996.6        .0       4.7    6538.4        .0    2784.1     444.5   1094.40
     .78      .74      6.12       .00      .045      .035      .000      .000   1073.20   9749.00
 .000645     270.      280.      260.         2        11         0       .00    481.45  10230.45

*SECNO 223.000

3470 ENCROACHMENT STATIONS=     9749.0   10271.0  TYPE=      1  TARGET=      522.000
 223.000     16.63   1090.83   1084.22   1090.67   1091.55       .72       .17       .04   1090.70
 40000.0        .0   40000.0        .0        .1    5875.7        .0    2815.5     447.0   1095.10
     .79      .25      6.81       .00      .045      .035      .000      .000   1074.20   9749.00
  000966     220.      220.      230.         2        11         0       .00    494.91  10243.91

CCHV=     .300 CEHV=     .500
*SECNO 229.000

3470 ENCROACHMENT STATIONS=     9659.0   10296.0  TYPE=      1  TARGET=      637.000
 229.000     11.64   1091.54   1086.29   1091.33   1092.18       .64       .60       .02   1088.00
 40000.0      3.2   39996.8        .0       3.5    6244.9        .0    2899.0     454.7   1094.00
     .82      .91      6.40       .00      .045      .035      .000      .000   1079.90   9659.00
 .001053     600.      600.      600.         2        18         0       .00    622.57  10281.57
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 231.500

3470 ENCROACHMENT STATIONS=     9600.0   10146.0  TYPE=      1  TARGET=      546.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1089.00 ELREA=      1092.00

 231.500     11.40   1091.70   1089.00   1091.48   1092.70      1.00       .34       .18   1082.10
 40000.0   11345.4   28654.6        .0    1958.9    3264.4        .0    2932.5     458.1   1090.00
     .83      5.79      8.78       .00      .045      .035      .000      .000   1080.30   9600.00
 .001759     280.      250.      200.         2        29         0       .00    545.00  10145.00


 IAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    1.05      1.56      2.90       .00    244.00     12.90   2400.00      2.00   1080.00   1080.00

*SECNO 232.600
BTCARD, BRIDGE STENCL=    9550.00   STENCR=   10146.00
```

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
1098.43	1094.27	.13	4319.	35672.	2400.	2403.	1089.60	1094.00	310.

3470 ENCROACHMENT STATIONS= 9550.0 10146.0 TYPE= 1 TARGET= 596.000

232.600	15.97	1096.07	.00	1095.07	1097.05	.98	4.35	.00	1092.00
40000.0	3314.8	36683.5	1.7	1220.7	4443.4	2.1	2946.3	459.6	1094.00
.83	2.72	8.26	.83	.045	.035	.045	.000	1080.10	9550.00
.001060	110.	110.	110.	3	0	2	.00	596.00	10146.00

CCHV= .100 CEHV= .300
*SECNO 235.000

3470 ENCROACHMENT STATIONS= 9620.0 10176.0 TYPE= 1 TARGET= 556.000

235.000	16.30	1096.40	1089.86	1095.48	1097.31	.91	.25	.01	1092.60
40000.0	2227.4	37772.6	.0	786.1	4820.1	.0	2974.8	462.1	1097.50
.84	2.83	7.84	.00	.045	.035	.000	.000	1080.10	9620.00
.001091	130.	240.	350.	0	14	0	.00	551.36	10171.36

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

*SECNO 238.800

3470 ENCROACHMENT STATIONS= 9700.0 10241.0 TYPE= 1 TARGET= 541.000

238.800	16.20	1096.90	1091.42	1096.33	1097.75	.84	.44	.01	1093.00
40000.0	1849.1	38150.9	.0	511.5	5080.4	.0	3024.0	466.9	1098.50
.85	3.61	7.51	.00	.045	.035	.000	.000	1080.70	9700.00
1205	400.	380.	350.	2	14	0	.00	525.21	10225.21

*SECNO 240.800

3470 ENCROACHMENT STATIONS= 9630.0 10266.0 TYPE= 1 TARGET= 636.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1091.70 ELREA= 1099.00

240.800	16.29	1097.09	1093.47	1096.39	1098.14	1.05	.33	.06	1091.70
40000.0	8493.8	31506.2	.0	1489.4	3584.4	.0	3048.4	469.5	1099.00
.86	5.70	8.79	.00	.045	.035	.000	.000	1080.80	9630.00
.002342	200.	200.	175.	2	19	0	.00	623.15	10253.15

*SECNO 245.800

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 9620.0 10211.0 TYPE= 1 TARGET= 591.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1096.60 ELREA= 1101.50

245.800	16.08	1097.98	1094.27	1097.17	1099.55	1.57	1.26	.15	1096.60
40000.0	759.6	39240.4	.0	285.2	3873.7	.0	3101.8	476.2	1101.50
.88	2.66	10.13	.00	.045	.035	.000	.000	1081.90	9620.00
.002682	520.	500.	490.	0	16	0	.00	534.88	10154.88

SECNO 251.000

301 HV CHANGED MORE THAN HVINS

470 [illegible]OACHMENT STATIONS= 9704.0 10241.0 TYPE= 1 TARGET= 537.000

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

	SECNO	CWSEL	HL	OLOSS	TOPWID	QLOB	QCH	QROB
	95.500	1051.52	.53	.02	795.78	.00	39000.00	.00
	95.500	1051.86	.50	.00	802.20	.00	39000.00	.00
*	100.700	1051.54	.88	.37	399.10	.00	39000.00	.00
*	100.700	1051.90	.83	.34	456.80	.00	39000.00	.00
*	107.000	1053.66	.78	.12	529.75	.00	39000.00	.00
*	107.000	1053.87	.77	.11	531.46	.00	39000.00	.00
*	110.700	1053.23	.62	1.36	456.59	.00	39000.00	.00
*	110.700	1053.52	.58	1.22	457.81	.00	39000.00	.00
*	117.200	1058.53	3.74	.36	350.00	.00	39000.00	.00
*	117.200	1058.28	3.73	.24	350.00	.00	39000.00	.00
	118.000	1058.93	.46	.00	350.00	.00	39000.00	.00
	118.000	1058.74	.48	.00	350.00	.00	39000.00	.00
*	120.000	1061.05	.31	.42	850.00	1258.44	36947.83	793.73
*	120.000	1060.82	.36	.40	407.00	2.22	38995.38	2.41
	125.000	1061.56	.43	.01	1850.00	1736.11	36263.72	1000.17
	125.000	1061.39	.51	.00	452.00	1.23	38997.74	1.03
*	131.000	1062.12	1.13	.50	1489.22	210.20	38789.80	.00
*	131.000	1061.31	1.46	.66	490.16	.40	38999.60	.00
*	135.000	1064.84	1.62	.10	1707.62	3904.06	32996.92	2099.02
*	135.000	1064.71	2.43	.09	357.00	1.68	38991.78	6.54
	140.000	1066.47	.95	.06	2338.85	4144.66	33272.75	1582.58
*	140.000	1067.22	1.16	.12	517.00	1.41	38993.21	5.38
	143.000	1066.89	.58	.07	2041.33	4921.68	34078.32	.00
	143.000	1067.71	.58	.04	706.33	249.36	38750.64	.00
	146.000	1068.64	1.08	.18	1823.13	9322.22	29675.68	2.10
	146.000	1068.64	1.14	.33	913.24	5184.05	33815.95	.00
*	149.600	1070.49	1.25	.06	2993.35	7750.15	31965.07	284.78
*	149.600	1071.28	1.15	.14	1356.00	7756.27	32243.37	.36
	158.000	1072.76	1.98	.03	2484.14	12267.02	27616.07	116.91
	158.000	1073.06	1.83	.02	1300.00	8705.27	31294.29	.44
	167.000	1074.15	2.03	.28	1771.34	3562.46	33863.18	2574.37
	167.000	1074.67	2.04	.18	1150.40	4894.83	34025.67	1079.50
	170.000	1074.45	.81	.22	1107.05	3599.02	36400.98	.00
	170.000	1075.13	.67	.09	1051.07	5477.19	34522.81	.00

	SECNO	CWSEL	HL	OLOSS	TOPWID	QLOB	QCH	QROB
*	174.200	1077.21	1.19	.06	2158.35	8354.85	30210.27	1434.88
*	174.200	1077.09	1.10	.05	1450.00	8114.65	31468.81	416.54
*	178.000	1079.14	.49	.48	1796.72	4214.03	34592.47	1193.50
*	178.000	1079.44	.49	.62	1592.09	4932.11	34539.03	528.87
*	178.500	1079.30	.06	.03	2100.14	6314.02	32850.79	835.19
	178.500	1079.67	.05	.06	1665.00	6811.04	32435.69	753.27
*	181.500	1079.37	.77	.30	1422.49	4641.99	33061.74	2296.27
*	181.500	1079.68	.66	.28	1150.35	5182.30	32708.76	2108.94
	185.300	1080.97	1.16	.04	1883.72	5343.48	33916.11	740.41
	185.300	1080.70	1.30	.12	651.11	1617.47	38379.53	3.00
	190.000	1082.37	1.18	.02	1943.56	695.53	39304.47	.00
	190.000	1082.98	1.24	.09	597.00	2.63	39997.13	.24
	193.600	1082.89	1.16	.27	749.19	.00	39718.79	281.20
	193.600	1083.36	.97	.25	440.33	.00	39999.25	.75
	198.400	1085.07	1.48	.06	433.77	.00	40000.00	.00
	198.400	1085.27	1.34	.05	437.16	.00	40000.00	.00

	202.400	1085.67	1.23	.27	397.78	.85	39999.15	.00
	202.400	1085.82	1.16	.26	378.42	.27	39999.73	.00
	206.000	1087.37	1.58	.01	707.86	66.04	39933.96	.00
	206.000	1087.40	1.53	.00	415.98	27.16	39972.84	.00
*	210.500	1089.63	.72	.14	1296.11	3222.42	36777.58	.00
*	210.500	1089.51	.83	.12	359.69	1.99	39998.01	.00
	216.000	1090.18	.43	.01	1102.69	1792.23	38207.77	.00
	216.000	1090.28	.50	.02	454.16	3.90	39996.11	.00
	218.000	1090.53	.12	.02	1233.75	1743.94	38256.05	.00
	218.000	1090.67	.13	.02	535.21	2.96	39997.05	.00
	220.800	1090.62	.15	.03	972.02	1899.41	38100.59	.00
	220.800	1090.75	.16	.03	481.45	3.43	39996.57	.00
	223.000	1090.67	.16	.05	984.90	1194.43	38805.57	.00
	223.000	1090.83	.17	.04	494.91	.03	39999.97	.00
	229.000	1091.33	.61	.01	847.14	572.85	39427.16	.00
	229.000	1091.54	.60	.02	622.57	3.21	39996.79	.00
	231.500	1091.48	.36	.20	582.08	11291.59	28708.41	.00
	231.500	1091.70	.34	.18	545.00	11345.43	28654.57	.00

	SECNO	CWSEL	HL	OLOSS	TOPWID	QLOB	QCH	QROB
	232.600	1095.07	3.58	.00	1446.39	4303.64	35696.36	.00
	232.600	1096.07	4.35	.00	596.00	3314.84	36683.46	1.71
	235.000	1095.48	.29	.01	1472.16	3707.92	36292.08	.00
	235.000	1096.40	.25	.01	551.36	2227.36	37772.64	.00
	238.800	1096.33	.42	.04	1522.71	8599.27	31400.73	.00
	238.800	1096.90	.44	.01	525.21	1849.11	38150.89	.00
*	240.800	1096.39	.29	.10	1531.61	11837.41	28162.59	.00
	240.800	1097.09	.33	.06	623.15	8493.76	31506.25	.00
	245.800	1097.17	1.44	.28	1046.83	1144.31	38855.69	.00
	245.800	1097.98	1.26	.15	534.88	759.61	39240.39	.00
	251.000	1099.22	1.29	.07	477.78	.00	40000.00	.00
	251.000	1099.67	1.08	.06	484.81	.00	40000.00	.00
	256.000	1099.67	1.17	.31	300.58	.00	40000.00	.00
	256.000	1100.02	1.05	.30	303.30	.00	40000.00	.00
	258.800	1101.15	.64	.08	348.76	.00	40000.00	.00
	258.800	1101.37	.59	.07	349.90	.00	40000.00	.00
	262.000	1101.65	.61	.05	340.34	.00	40000.00	.00
	262.000	1101.84	.58	.05	342.33	.00	40000.00	.00
*	265.000	1103.05	.37	.09	579.69	.00	40000.00	.00
*	265.000	1103.19	.36	.09	582.63	.00	40000.00	.00
	270.500	1103.28	.60	.16	399.58	.00	40000.00	.00
	270.500	1103.40	.58	.16	400.52	.00	40000.00	.00
	273.500	1103.94	.39	.02	429.89	.00	40000.00	.00
	273.500	1104.04	.38	.02	430.10	.00	40000.00	.00
*	277.000	1102.89	.78	.78	274.48	.00	40000.00	.00
*	277.000	1103.03	.75	.76	275.15	.00	40000.00	.00
	281.800	1105.55	2.94	.12	238.96	.00	40000.00	.00
	281.800	1105.56	2.88	.15	239.00	.00	40000.00	.00
	288.000	1110.65	1.77	.77	340.08	.00	40000.00	.00
	288.000	1110.65	1.77	.77	340.07	.00	40000.00	.00
	290.000	1110.93	.31	.02	290.32	.00	41000.00	.00
	290.000	1110.93	.31	.02	290.32	.00	41000.00	.00
	291.000	1111.06	.49	.00	268.18	.00	41000.00	.00
	291.000	1111.42	1.25	.00	226.69	.00	41000.00	.00

	SECNO	CWSEL	HL	OLOSS	TOPWID	QLOB	QCH	QROB
	293.000	1111.42	.46	.10	427.12	.00	40735.85	264.15
	293.000	1112.54	.44	.16	348.17	.00	40997.10	2.90
	297.000	1112.57	1.27	.05	335.75	.00	41000.00	.00
	297.000	1113.38	.97	.06	343.79	.00	41000.00	.00
*	302.000	1112.89	2.46	.92	211.13	.00	41000.00	.00
*	302.000	1113.39	2.04	.87	213.35	.00	41000.00	.00
*	305.000	1116.72	1.60	.20	217.09	.00	41000.00	.00
	305.000	1116.59	1.54	.15	216.80	.00	41000.00	.00
	307.000	1118.52	.57	.11	519.12	1584.17	39415.84	.00
	307.000	1118.10	.63	.08	237.00	4.66	40995.34	.00
*	311.500	1120.62	.43	.15	1797.07	2081.86	37525.95	1392.19
*	311.500	1120.54	.51	.18	427.00	.22	40996.80	2.98
	314.000	1120.93	.12	.02	1126.22	4120.56	36698.47	180.96
	314.000	1120.93	.15	.02	657.00	6.94	40990.67	2.39
*	318.000	1121.02	.28	.08	791.08	2.85	40997.15	.00
*	318.000	1121.14	.31	.04	785.17	.79	40999.21	.00
	323.000	1121.69	.75	.04	889.55	.00	41000.00	.00
	323.000	1121.77	.72	.03	890.83	.00	41000.00	.00
	328.000	1122.32	.93	.13	461.45	.00	41000.00	.00
	328.000	1122.38	.90	.13	461.56	.00	41000.00	.00
	330.000	1122.34	.36	.15	378.17	1.15	40998.85	.00
	330.000	1122.39	.36	.15	374.94	1.77	40998.23	.00
	334.000	1123.25	1.04	.06	352.29	.00	41000.00	.00
	334.000	1123.28	1.03	.06	352.37	.00	41000.00	.00
	337.000	1124.05	.88	.03	351.71	.00	41000.00	.00
	337.000	1124.08	.87	.03	351.76	.00	41000.00	.00
	340.500	1125.11	1.09	.02	351.42	.00	41000.00	.00
	340.500	1125.13	1.09	.02	351.45	.00	41000.00	.00
	342.000	1125.58	.48	.00	351.36	.00	41000.00	.00
	342.000	1125.60	.48	.00	351.39	.00	41000.00	.00
	343.000	1125.92	.32	.00	351.42	.00	41000.00	.00
	343.000	1125.93	.32	.00	351.45	.00	41000.00	.00
	344.900	1126.51	.66	.16	346.27	.00	41000.00	.00
	344.900	1126.52	.66	.16	346.28	.00	41000.00	.00

	SECNO	CWSEL	HL	OLOSS	TOPWID	QLOB	QCH	QROB
	345.200	1126.79	.11	.06	346.71	.00	41000.00	.00
	345.200	1126.80	.11	.06	346.72	.00	41000.00	.00
*	346.200	1128.30	1.21	.00	348.83	.00	41000.00	.00
*	346.200	1128.30	1.21	.00	348.83	.00	41000.00	.00
	346.620	1128.38	.12	.09	350.57	.00	41000.00	.00
	346.620	1128.38	.12	.09	350.57	.00	41000.00	.00
	346.720	1128.34	.04	.19	332.20	.00	41000.00	.00
	346.720	1128.34	.04	.19	332.20	.00	41000.00	.00
	346.900	1128.40	.09	.06	326.33	.00	41000.00	.00
	346.900	1128.40	.09	.06	326.33	.00	41000.00	.00
*	347.000	1129.25	.03	.27	346.85	.00	41000.00	.00
*	347.000	1129.25	.03	.27	346.85	.00	41000.00	.00
	349.000	1129.95	.73	.02	451.91	.00	39700.31	1299.69
	349.000	1129.93	.74	.03	381.06	.00	39925.15	1074.85

	352.000	1130.55	1.10	.21	411.99	.00	39907.28	1092.72
	352.000	1130.54	1.12	.22	364.24	.00	40160.52	839.48
*	358.000	1136.11	3.26	.03	1294.80	483.95	29667.89	10848.17
	358.000	1135.48	3.92	.19	566.95	45.00	31615.15	9339.85
	365.000	1139.97	2.97	.08	1408.98	2971.62	31051.10	6977.29
*	365.000	1140.65	3.05	.19	950.00	2294.68	31532.82	7172.50
	370.000	1141.61	1.37	.02	1462.13	3114.12	33744.60	4141.28
	370.000	1141.78	1.41	.12	676.66	779.20	39375.36	845.44
	373.000	1142.33	.80	.04	1931.14	4452.09	33683.66	2864.24
	373.000	1142.69	.98	.03	681.77	1613.41	38985.91	400.68
	377.000	1143.14	1.10	.12	1259.52	4443.89	35243.21	1312.90
	377.000	1143.74	1.24	.08	686.14	1409.63	39590.37	.00
	384.000	1145.12	2.20	.09	339.20	.00	41000.00	.00
	384.000	1146.13	1.95	.04	356.14	.00	40999.93	.07
	388.000	1146.55	.96	.04	344.96	.00	41000.00	.00
	388.000	1147.20	.79	.03	351.69	.00	41000.00	.00
	391.500	1147.26	.78	.03	380.74	.00	41000.00	.00
	391.500	1147.82	.68	.03	397.09	.00	41000.00	.00
	395.000	1148.27	.77	.02	369.13	.00	41000.00	.00
	395.000	1148.69	.70	.02	386.37	.00	41000.00	.00

	SECNO	CWSEL	HL	OLOSS	TOPWID	QLOB	QCH	QROB
	402.000	1149.67	1.26	.01	381.38	.00	41000.00	.00
	402.000	1149.97	1.18	.01	384.70	.00	41000.00	.00
	406.000	1150.33	.73	.07	386.62	.00	40999.26	.74
	406.000	1150.58	.68	.07	378.91	.00	40999.59	.41
*	409.000	1150.59	1.02	2.03	235.58	.00	40143.03	856.97
*	409.000	1150.55	.98	2.09	235.12	.00	40166.47	833.53
*	409.010	1156.02	.00	1.25	248.82	.00	41000.00	.00
*	409.010	1150.42	.01	.68	142.48	.00	41000.00	.00
	409.820	1157.48	1.35	.00	251.68	.00	41000.00	.00
*	409.820	1156.83	2.71	.00	155.80	.00	41000.00	.00
	410.000	1157.63	.02	.03	891.92	396.43	40603.57	.00
*	410.000	1164.89	.07	.50	298.00	.00	29127.58	11872.42
	412.000	1158.33	.15	.05	1555.36	.00	35108.53	5891.47
*	412.000	1169.24	.09	.39	342.00	3.61	40991.34	5.05
	418.000	1158.57	.45	.09	376.81	.00	41000.00	.00
	418.000	1169.38	.09	.00	402.00	3.46	40993.09	3.45
	423.000	1159.01	.53	.04	907.14	341.48	40658.52	.00
	423.000	1169.44	.08	.01	422.00	3.28	40993.71	3.01
	425.000	1159.38	.22	.01	1362.80	909.09	40090.91	.00
	425.000	1169.48	.03	.00	412.00	4.00	40993.10	2.90
	428.000	1159.66	.29	.00	618.17	57.45	40942.55	.00
	428.000	1169.53	.05	.00	420.00	3.20	40994.69	2.11
	434.000	1160.23	.58	.00	402.82	.04	40999.96	.00
	434.000	1169.63	.10	.00	425.00	3.94	40993.84	2.22
	440.000	1160.89	.57	.01	397.54	.00	41000.00	.00
	440.000	1169.74	.11	.00	440.00	1.42	40997.16	1.42
	443.200	1161.14	.31	.02	405.89	.00	41000.00	.00
	443.200	1169.79	.06	.01	445.29	1.55	40998.45	.00
*	449.100	1161.19	1.41	.79	389.50	.00	41000.00	.00
*	449.100	1169.82	.21	.08	532.17	.46	40999.54	.00
*	451.000	1165.56	1.85	.00	397.85	.00	41000.00	.00
*	451.000	1169.60	.23	.19	545.17	.00	41000.00	.00

*	8.655	1170.38	1.71	.52	400.54	.00	41000.00	.00
*	8.655	1171.08	1.01	.08	403.76	.00	41000.00	.00

	SECNO	CWSEL	HL	OLOSS	TOPWID	QLOB	QCH	QROB
	8.731	1171.50	.19	.08	433.92	.00	12000.00	.00
	8.731	1172.08	.16	.08	439.33	.00	12000.00	.00
	8.807	1171.53	.05	.01	422.52	.00	12000.00	.00
	8.807	1172.11	.04	.01	427.95	.00	12000.00	.00
*	8.883	1171.50	.11	.06	344.04	.00	12000.00	.00
*	8.883	1172.08	.09	.05	350.79	.00	12000.00	.00
	8.936	1171.70	.23	.01	362.48	.00	12000.00	.00
	8.936	1172.24	.18	.01	365.12	.00	12000.00	.00
	8.977	1171.77	.27	.08	285.65	.00	12000.00	.00
	8.977	1172.28	.21	.07	289.01	.00	12000.00	.00
*	9.009	1172.33	.20	.03	371.88	.00	12000.00	.00
*	9.009	1172.74	.17	.03	374.59	.00	12000.00	.00
	9.047	1172.56	.11	.01	393.29	.00	12000.00	.00
	9.047	1172.94	.09	.01	395.64	.00	12000.00	.00
*	9.129	1172.72	.26	.04	406.92	.00	12000.00	.00
*	9.129	1173.07	.22	.04	409.35	.00	12000.00	.00
*	9.318	1180.55	2.51	.45	314.99	.00	12000.00	.00
*	9.318	1180.61	2.16	.44	315.30	.00	12000.00	.00
*	9.492	1187.16	5.33	.12	380.98	.00	11450.00	.00
*	9.492	1187.11	5.31	.11	377.29	.00	11450.00	.00
*	9.692	1191.36	5.18	.42	188.27	.00	11450.00	.00
	9.692	1191.38	5.24	.41	188.45	.00	11450.00	.00

NEW RIVER-A.F.R. TO S.C.

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	501.45	.00	.00	.00	1019.20	39000.00	1027.50	1024.62	1027.62	9.91	3.20	15340.78	12386.92
	501.45	.00	.00	.00	1019.20	39000.00	1028.22	1024.72	1028.42	10.00	3.69	11270.33	12331.60
*	10.000	1000.00	.00	.00	1024.00	39000.00	1029.45	1029.45	1030.66	122.36	10.69	4969.74	3525.68
*	10.000	1000.00	.00	.00	1024.00	39000.00	1030.01	1030.01	1031.58	116.89	11.54	4222.62	3607.20
*	13.000	300.00	.00	.00	1022.20	39000.00	1031.08	1029.07	1031.50	16.94	6.21	8675.90	9475.77
*	13.000	300.00	.00	.00	1022.20	39000.00	1031.97	1029.69	1032.58	18.44	7.00	7047.08	9082.55
	20.000	700.00	.00	.00	1023.60	39000.00	1032.46	1030.69	1032.92	19.20	6.08	8285.85	8900.25
	20.000	700.00	.00	.00	1023.60	39000.00	1033.37	1030.67	1033.90	16.53	6.15	7192.19	9593.18
	26.800	680.00	.00	.00	1024.90	39000.00	1033.93	1032.93	1034.54	23.11	7.14	8161.15	8111.86
	26.800	680.00	.00	.00	1024.90	39000.00	1034.58	1032.84	1035.45	25.10	7.90	5891.66	7785.04
	32.600	580.00	.00	.00	1026.20	39000.00	1035.25	1033.34	1036.42	37.32	8.88	5089.86	6383.69
	32.600	580.00	.00	.00	1026.20	39000.00	1036.03	1033.27	1036.90	24.26	7.72	5782.75	7918.29
	38.000	540.00	.00	.00	1027.20	39000.00	1037.16	1034.82	1038.17	28.45	8.26	5284.44	7312.40
	38.000	540.00	.00	.00	1027.20	39000.00	1037.32	1034.79	1038.26	25.96	8.01	5478.71	7654.07
	45.000	700.00	.00	.00	1028.30	39000.00	1039.08	1035.48	1039.81	19.57	6.96	5924.26	8817.02
	45.000	700.00	.00	.00	1028.30	39000.00	1039.10	1035.49	1039.82	19.39	6.94	5941.88	8856.13
	51.700	670.00	.00	.00	1027.40	39000.00	1040.18	1034.80	1040.66	8.37	5.51	7077.61	13480.55
*	51.700	670.00	.00	.00	1027.40	39000.00	1040.19	1034.80	1040.66	8.34	5.50	7085.12	13500.89
	54.000	230.00	.00	.00	1028.00	39000.00	1040.44	1035.22	1040.84	7.48	5.08	7670.43	14263.82
	54.000	230.00	.00	.00	1028.00	39000.00	1040.45	1035.22	1040.85	7.45	5.08	7678.15	14287.37

	59.000	500.00	.00	.00	1030.70	39000.00	1040.85	1036.70	1041.30	10.53	5.41	7215.30	12018.79
	59.000	500.00	.00	.00	1030.70	39000.00	1040.85	1036.70	1041.31	10.49	5.40	7222.87	12039.47
	63.000	400.00	.00	.00	1031.70	39000.00	1041.25	1037.49	1041.82	13.96	6.04	6458.00	10436.45
	63.000	400.00	.00	.00	1031.70	39000.00	1041.26	1037.49	1041.82	13.93	6.03	6463.72	10450.94
	70.500	750.00	.00	.00	1033.50	39000.00	1042.27	1042.08	1044.53	97.25	12.04	3238.29	3954.76
	70.500	750.00	.00	.00	1033.50	39000.00	1042.27	1042.08	1044.53	97.16	12.04	3239.18	3956.52
	77.000	650.00	.00	.00	1034.60	39000.00	1046.88	1045.95	1049.71	62.59	13.52	2938.14	4929.53
	77.000	650.00	.00	.00	1034.60	39000.00	1046.88	1045.95	1049.71	62.61	13.52	2937.83	4928.80
*	84.000	700.00	.00	.00	1035.80	39000.00	1050.69	1045.17	1051.15	7.96	5.77	7449.40	13825.00
*	84.000	700.00	.00	.00	1035.80	39000.00	1050.72	1045.28	1051.43	10.84	6.75	5781.93	11847.62
	88.700	470.00	.00	.00	1034.20	39000.00	1051.03	1043.63	1051.48	6.12	5.48	7653.60	15759.83
	88.700	470.00	.00	.00	1034.20	39000.00	1051.35	1043.65	1051.83	6.09	5.55	7028.79	15807.87

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	95.500	680.00	.00	.00	1034.20	39000.00	1051.52	1043.03	1052.03	10.30	5.70	6845.21	12149.76
	95.500	680.00	.00	.00	1034.20	39000.00	1051.86	1043.03	1052.33	9.17	5.48	7111.17	12876.88
*	100.700	520.00	.00	.00	1035.00	39000.00	1051.54	1047.09	1053.28	32.74	10.59	3683.80	6816.30
*	100.700	520.00	.00	.00	1035.00	39000.00	1051.90	1047.09	1053.50	34.26	10.17	3833.00	6663.03
*	107.000	630.00	.00	.00	1038.10	39000.00	1053.66	1046.14	1054.18	6.48	5.82	6705.71	15317.47
*	107.000	630.00	.00	.00	1038.10	39000.00	1053.87	1046.11	1054.38	6.16	5.72	6819.83	15719.67
*	110.700	370.00	.00	.00	1041.50	39000.00	1053.23	1053.23	1056.47	109.87	14.45	2699.30	3720.77
*	110.700	370.00	.00	.00	1041.50	39000.00	1053.52	1053.52	1056.46	94.16	13.78	2830.45	4019.07
*	117.200	650.00	.00	.00	1046.40	39000.00	1058.53	1056.04	1060.57	35.29	11.46	3403.27	6565.48
*	117.200	650.00	.00	.00	1046.40	39000.00	1058.28	1056.04	1060.43	38.55	11.77	3314.11	6281.29
	118.000	80.00	1063.00	1063.10	1047.40	39000.00	1058.93	.00	1061.03	36.87	11.61	3360.47	6423.09
	118.000	80.00	1063.00	1063.10	1047.40	39000.00	1058.74	.00	1060.92	39.54	11.85	3290.57	6201.97
	120.000	200.00	.00	.00	1045.90	39000.00	1061.05	1053.79	1061.75	8.50	6.88	6499.01	13376.85
*	120.000	200.00	.00	.00	1045.90	39000.00	1060.82	1053.78	1061.67	10.04	7.39	5279.80	12310.02
	125.000	500.00	.00	.00	1045.90	39000.00	1061.56	1054.85	1062.19	8.65	6.59	7620.03	13261.70
	125.000	500.00	.00	.00	1045.90	39000.00	1061.39	1054.85	1062.19	10.50	7.19	5426.48	12033.91
*	131.000	600.00	.00	.00	1050.00	39000.00	1062.12	1062.12	1064.40	68.30	12.15	3367.63	4718.93
*	131.000	600.00	.00	.00	1050.00	39000.00	1061.31	1061.31	1064.33	106.18	13.94	2797.45	3784.79
*	135.000	400.00	.00	.00	1051.80	39000.00	1064.84	1063.95	1066.12	26.84	9.79	5628.40	7527.81
*	135.000	400.00	.00	.00	1051.80	39000.00	1064.71	1062.46	1066.85	39.20	11.73	3328.57	6228.89
	140.000	500.00	.00	.00	1053.90	39000.00	1066.47	1062.97	1067.14	14.58	7.07	7611.63	10214.75
*	140.000	500.00	.00	.00	1053.90	39000.00	1067.22	1062.80	1068.13	15.35	7.65	5104.23	9952.86
	143.000	300.00	.00	.00	1057.90	39000.00	1066.89	1064.91	1067.79	27.25	8.06	6344.07	7470.54
	143.000	300.00	.00	.00	1057.90	39000.00	1067.71	1064.83	1068.75	24.86	8.22	4845.79	7822.65
*	146.000	300.00	.00	.00	1057.90	39000.00	1068.64	1068.64	1070.12	49.38	11.00	5252.01	5550.19
*	146.000	300.00	.00	.00	1057.90	39000.00	1068.64	1068.64	1070.79	64.14	12.54	3862.56	4869.76
*	149.600	360.00	.00	.00	1059.90	40000.00	1070.49	1069.43	1071.42	25.55	8.56	7032.69	7913.72
*	149.600	360.00	.00	.00	1059.90	40000.00	1071.28	1069.36	1072.08	19.15	7.85	6706.43	9139.56
	158.000	840.00	.00	.00	1059.50	40000.00	1072.76	1071.56	1073.43	21.66	7.59	7843.22	8594.39
	158.000	840.00	.00	.00	1059.50	40000.00	1073.06	1071.45	1073.94	24.93	8.29	6238.63	8011.10
	167.000	900.00	.00	.00	1058.90	40000.00	1074.15	1073.10	1075.73	22.60	10.92	5542.37	8413.82
	167.000	900.00	.00	.00	1058.90	40000.00	1074.67	1070.37	1076.16	19.97	10.54	5450.20	8950.23
	170.000	300.00	.00	.00	1059.20	40000.00	1074.45	1074.03	1076.76	32.94	12.76	4173.31	6968.99
	170.000	300.00	.00	.00	1059.20	40000.00	1075.13	1073.96	1076.91	25.02	11.47	4874.30	7997.13

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	174.200	420.00	.00	.00	1059.40	40000.00	1077.21	1077.21	1078.90	24.42	11.90	6011.19	8094.46
*	174.200	420.00	.00	.00	1059.40	40000.00	1077.09	1077.09	1079.03	27.22	12.50	5216.62	7666.28

*	178.000	380.00	.00	.00	1059.90	40000.00	1079.14	1070.10	1079.87	8.04	7.35	7874.13	14110.83
*	178.000	380.00	.00	.00	1059.90	40000.00	1079.44	1070.10	1080.15	7.59	7.20	7870.29	14523.17
*	178.500	50.00	.00	.00	1067.70	40000.00	1079.30	1077.15	1079.97	17.77	7.13	7609.47	9488.32
	178.500	50.00	.00	.00	1067.70	40000.00	1079.67	1077.14	1080.25	14.92	6.73	7796.55	10356.74
	181.500	310.00	.00	.00	1066.50	40000.00	1079.37	1079.01	1081.03	37.03	11.27	5008.27	6573.33
	181.500	310.00	.00	.00	1066.50	40000.00	1079.68	1078.92	1081.19	32.56	10.79	5098.40	7009.76
	185.300	380.00	.00	.00	1067.90	40000.00	1080.97	1079.63	1082.24	25.56	9.72	5817.27	7911.59
	185.300	380.00	.00	.00	1067.90	40000.00	1080.70	1078.32	1082.61	36.01	11.32	3931.95	6665.85
	190.000	470.00	.00	.00	1067.80	40000.00	1082.37	1078.84	1083.43	24.52	8.36	5207.76	8078.20
	190.000	470.00	.00	.00	1067.80	40000.00	1082.98	1078.85	1083.94	20.00	7.90	5065.85	8943.65
	193.600	360.00	.00	.00	1070.20	40000.00	1082.89	1080.73	1084.87	44.42	11.34	3673.91	6001.57
	193.600	360.00	.00	.00	1070.20	40000.00	1083.36	1080.83	1085.16	38.13	10.78	3710.47	6477.96
	198.400	480.00	.00	.00	1071.00	40000.00	1085.07	1081.05	1086.42	22.68	9.30	4298.79	8398.75
	198.400	480.00	.00	.00	1071.00	40000.00	1085.27	1081.05	1086.56	21.41	9.12	4383.85	8645.44
	202.400	400.00	.00	.00	1072.50	40000.00	1085.67	1083.29	1087.91	43.80	12.01	3332.76	6044.31
	202.400	400.00	.00	.00	1072.50	40000.00	1085.82	1083.28	1087.98	41.69	11.80	3388.93	6194.85
	206.000	360.00	.00	.00	1073.50	40000.00	1087.37	1085.06	1089.50	43.95	11.72	3477.79	6033.44
	206.000	360.00	.00	.00	1073.50	40000.00	1087.40	1085.08	1089.52	43.60	11.69	3433.01	6057.52
*	210.500	450.00	.00	.00	1071.20	40000.00	1089.63	1081.98	1090.37	8.27	7.14	6592.68	13911.70
*	210.500	450.00	.00	.00	1071.20	40000.00	1089.51	1081.98	1090.46	10.04	7.83	5108.15	12621.37
	216.000	550.00	.00	.00	1072.20	40000.00	1090.18	1082.78	1090.81	7.69	6.49	6940.03	14427.58
	216.000	550.00	.00	.00	1072.20	40000.00	1090.28	1082.78	1090.99	8.22	6.74	5940.40	13947.82
	218.000	200.00	.00	.00	1072.10	40000.00	1090.53	1082.17	1090.95	4.97	5.33	8314.54	17945.97
	218.000	200.00	.00	.00	1072.10	40000.00	1090.67	1082.17	1091.14	5.25	5.51	7260.93	17456.22
	220.800	280.00	.00	.00	1073.20	40000.00	1090.62	1082.73	1091.13	6.05	5.89	7669.37	16266.74
	220.800	280.00	.00	.00	1073.20	40000.00	1090.75	1082.73	1091.33	6.45	6.12	6543.02	15752.50
	223.000	220.00	.00	.00	1074.20	40000.00	1090.67	1084.23	1091.34	9.48	6.70	6575.40	12989.46
	223.000	220.00	.00	.00	1074.20	40000.00	1090.83	1084.22	1091.55	9.66	6.81	5875.82	12870.45
	229.000	600.00	.00	.00	1079.90	40000.00	1091.33	1086.29	1091.97	10.96	6.45	6457.34	12080.92
	229.000	600.00	.00	.00	1079.90	40000.00	1091.54	1086.29	1092.18	10.53	6.40	6248.47	12325.85
	231.500	250.00	.00	.00	1080.30	40000.00	1091.48	1089.11	1092.53	18.85	8.97	5133.90	9214.01
	231.500	250.00	.00	.00	1080.30	40000.00	1091.70	1089.00	1092.70	17.59	8.78	5223.30	9537.43

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	232.600	110.00	1094.00	1089.60	1080.10	40000.00	1095.07	.00	1096.11	12.61	8.60	6166.08	11262.11
	232.600	110.00	1094.00	1089.60	1080.10	40000.00	1096.07	.00	1097.05	10.60	8.26	5666.18	12287.80
	235.000	240.00	.00	.00	1080.10	40000.00	1095.48	1089.87	1096.41	12.67	8.09	6199.85	11238.40
	235.000	240.00	.00	.00	1080.10	40000.00	1096.40	1089.86	1097.31	10.91	7.84	5606.14	12111.65
	238.800	380.00	.00	.00	1080.70	40000.00	1096.33	1091.28	1096.87	9.59	6.50	8269.62	12915.52
	238.800	380.00	.00	.00	1080.70	40000.00	1096.90	1091.42	1097.75	12.05	7.51	5591.87	11522.36
*	240.800	200.00	.00	.00	1080.80	40000.00	1096.39	1093.73	1097.25	24.10	8.52	6313.50	8147.49
	240.800	200.00	.00	.00	1080.80	40000.00	1097.09	1093.47	1098.14	23.42	8.79	5073.86	8264.76
	245.800	500.00	.00	.00	1081.90	40000.00	1097.17	1094.26	1098.97	34.28	10.91	4158.84	6831.40
	245.800	500.00	.00	.00	1081.90	40000.00	1097.98	1094.27	1099.55	26.82	10.13	4158.88	7723.51
	251.000	520.00	.00	.00	1082.10	40000.00	1099.22	1094.00	1100.32	18.68	8.45	4736.26	9254.78
	251.000	520.00	.00	.00	1082.10	40000.00	1099.67	1094.00	1100.68	16.42	8.08	4952.52	9872.65
	256.000	500.00	.00	.00	1082.80	40000.00	1099.67	1096.03	1101.80	30.21	11.70	3418.32	7277.20
	256.000	500.00	.00	.00	1082.80	40000.00	1100.02	1096.06	1102.02	27.64	11.35	3523.64	7607.78
	258.800	280.00	.00	.00	1085.60	40000.00	1101.15	1096.00	1102.51	17.72	9.37	4270.05	9501.99
	258.800	280.00	.00	.00	1085.60	40000.00	1101.37	1096.01	1102.69	16.73	9.19	4350.22	9778.30
	262.000	320.00	.00	.00	1086.60	40000.00	1101.65	1096.78	1103.17	20.44	9.89	4046.19	8847.78
	262.000	320.00	.00	.00	1086.60	40000.00	1101.84	1096.77	1103.31	19.54	9.73	4110.77	9049.13
*	265.000	300.00	.00	.00	1086.60	40000.00	1103.05	1096.44	1103.63	8.25	6.11	6547.97	13927.57
*	265.000	300.00	.00	.00	1086.60	40000.00	1103.19	1096.44	1103.76	7.97	6.03	6628.63	14166.34

	270.500	550.00	.00	.00	1088.10	40000.00	1103.28	1097.84	1104.40	15.38	8.51	4697.99	10199.93
	270.500	550.00	.00	.00	1088.10	40000.00	1103.40	1097.84	1104.50	14.89	8.42	4748.24	10365.78
	273.500	300.00	.00	.00	1090.10	40000.00	1103.94	1097.84	1104.82	11.38	7.55	5300.06	11857.10
	273.500	300.00	.00	.00	1090.10	40000.00	1104.04	1097.84	1104.91	11.07	7.48	5345.09	12021.23
	277.000	350.00	.00	.00	1090.80	40000.00	1102.89	1101.76	1106.38	60.95	14.99	2669.23	5123.42
	277.000	350.00	.00	.00	1090.80	40000.00	1103.03	1101.76	1106.42	58.42	14.78	2706.30	5233.44
	281.800	480.00	.00	.00	1092.20	40000.00	1105.55	1104.43	1109.44	61.59	15.83	2527.13	5096.76
	281.800	480.00	.00	.00	1092.20	40000.00	1105.56	1104.40	1109.44	61.45	15.82	2529.11	5102.88
*	288.000	620.00	.00	.00	1094.10	40000.00	1110.65	1104.99	1111.98	16.45	9.27	4316.50	9862.53
*	288.000	620.00	.00	.00	1094.10	40000.00	1110.65	1104.99	1111.98	16.45	9.27	4316.13	9861.37
	290.000	200.00	.00	.00	1093.30	41000.00	1110.93	1103.99	1112.31	14.22	9.42	4351.10	10873.26
	290.000	200.00	.00	.00	1093.30	41000.00	1110.93	1103.99	1112.31	14.22	9.42	4350.82	10872.14
	291.000	100.00	1114.00	1112.80	1093.60	41000.00	1111.06	.00	1112.80	17.89	10.56	3882.38	9693.29
	291.000	100.00	1114.00	1112.80	1093.60	41000.00	1111.42	.00	1113.55	21.65	11.72	3498.43	8811.60

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	293.000	200.00	.00	.00	1095.10	41000.00	1111.42	1106.91	1113.35	30.43	11.18	3758.33	7432.49
	293.000	200.00	.00	.00	1095.10	41000.00	1112.54	1106.95	1114.15	22.34	10.18	4031.51	8675.02
	297.000	400.00	.00	.00	1098.90	41000.00	1112.57	1109.09	1114.67	32.94	11.61	3530.18	7143.57
	297.000	400.00	.00	.00	1098.90	41000.00	1113.38	1109.14	1115.18	26.54	10.78	3803.39	7958.80
*	302.000	500.00	.00	.00	1099.00	41000.00	1112.89	1112.73	1118.05	81.40	18.22	2250.65	4544.31
*	302.000	500.00	.00	.00	1099.00	41000.00	1113.39	1112.75	1118.10	70.92	17.40	2356.22	4868.67
*	305.000	300.00	.00	.00	1100.60	41000.00	1116.72	1113.54	1119.85	37.57	14.20	2886.56	6688.74
	305.000	300.00	.00	.00	1100.60	41000.00	1116.59	1113.55	1119.78	38.69	14.34	2859.37	6591.62
	307.000	200.00	.00	.00	1101.10	41000.00	1118.52	1113.56	1120.53	22.40	11.59	3952.45	8662.14
	307.000	200.00	.00	.00	1101.10	41000.00	1118.10	1113.52	1120.49	26.17	12.42	3303.21	8014.12
	311.500	450.00	.00	.00	1103.10	41000.00	1120.62	1111.94	1121.11	5.24	5.84	8661.69	17906.70
	311.500	450.00	.00	.00	1103.10	41000.00	1120.54	1111.90	1121.18	6.36	6.41	6395.68	16252.59
	314.000	250.00	.00	.00	1104.70	41000.00	1120.93	1113.85	1121.25	4.46	4.68	9618.73	19421.80
	314.000	250.00	.00	.00	1104.70	41000.00	1120.93	1113.74	1121.35	5.56	5.23	7855.14	17394.61
*	318.000	400.00	.00	.00	1106.60	41000.00	1121.02	1116.61	1121.61	11.96	6.12	6702.02	11856.77
*	318.000	400.00	.00	.00	1106.60	41000.00	1121.14	1116.61	1121.70	11.46	6.04	6788.15	12111.88
	323.000	500.00	.00	.00	1109.30	41000.00	1121.69	1118.87	1122.39	19.26	6.71	6113.49	9341.51
	323.000	500.00	.00	.00	1109.30	41000.00	1121.77	1118.87	1122.46	18.53	6.62	6189.12	9525.74
	328.000	500.00	.00	.00	1111.60	41000.00	1122.32	1118.01	1123.44	17.86	8.48	4833.63	9700.42
	328.000	500.00	.00	.00	1111.60	41000.00	1122.38	1118.00	1123.49	17.56	8.44	4859.31	9784.31
	330.000	175.00	.00	.00	1110.90	41000.00	1122.34	1118.52	1123.95	24.32	10.20	4022.96	8313.73
	330.000	175.00	.00	.00	1110.90	41000.00	1122.39	1118.49	1123.99	23.97	10.15	4042.38	8373.46
	334.000	400.00	.00	.00	1112.10	41000.00	1123.25	1119.84	1125.05	27.98	10.78	3802.96	7751.41
	334.000	400.00	.00	.00	1112.10	41000.00	1123.28	1119.84	1125.08	27.67	10.74	3816.04	7794.37
	337.000	300.00	.00	.00	1113.20	41000.00	1124.05	1120.94	1125.96	30.59	11.08	3699.20	7413.51
	337.000	300.00	.00	.00	1113.20	41000.00	1124.08	1120.94	1125.98	30.34	11.06	3708.60	7443.90
	340.500	350.00	.00	.00	1114.40	41000.00	1125.11	1122.16	1127.07	31.96	11.24	3649.11	7252.39
	340.500	350.00	.00	.00	1114.40	41000.00	1125.13	1122.16	1127.08	31.80	11.22	3654.91	7270.96
	342.000	150.00	.00	.00	1114.90	41000.00	1125.58	1122.65	1127.56	32.27	11.27	3638.14	7217.24
	342.000	150.00	.00	.00	1114.90	41000.00	1125.60	1122.65	1127.56	32.13	11.25	3643.02	7232.88
	343.000	100.00	.00	.00	1115.20	41000.00	1125.92	1122.95	1127.88	31.96	11.24	3649.07	7252.25
	343.000	100.00	.00	.00	1115.20	41000.00	1125.93	1122.95	1127.89	31.84	11.22	3653.37	7266.01
	344.900	190.00	.00	.00	1116.30	41000.00	1126.51	1124.06	1128.70	37.76	11.87	3454.74	6672.27
	344.900	190.00	.00	.00	1116.30	41000.00	1126.52	1124.07	1128.70	37.64	11.86	3458.03	6682.58

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K

	345.200	30.00	.00	.00	1116.30	41000.00	1126.79	1124.05	1128.86	34.55	11.55	3550.87	6975.34
	345.200	30.00	.00	.00	1116.30	41000.00	1126.80	1124.05	1128.87	34.49	11.54	3552.90	6981.79
*	346.200	100.00	1141.90	1134.30	1117.00	41000.00	1128.30	.00	1130.07	26.98	10.69	3835.21	7892.78
*	346.200	100.00	1141.90	1134.30	1117.00	41000.00	1128.30	.00	1130.07	26.99	10.69	3835.13	7892.50
	346.620	42.00	.00	.00	1117.50	41000.00	1128.38	1125.25	1130.28	30.40	11.07	3702.59	7435.92
	346.620	42.00	.00	.00	1117.50	41000.00	1128.38	1125.25	1130.28	30.40	11.07	3702.54	7435.77
	346.720	10.00	1141.40	1135.80	1117.50	41000.00	1128.34	1125.55	1130.51	47.07	11.82	3469.55	5976.07
	346.720	10.00	1141.40	1135.80	1117.50	41000.00	1128.34	1125.55	1130.51	47.07	11.82	3469.46	5975.85
	346.900	18.00	1141.40	1135.80	1117.50	41000.00	1128.40	1125.80	1130.65	49.57	12.05	3403.49	5823.61
	346.900	18.00	1141.40	1135.80	1117.50	41000.00	1128.40	1125.80	1130.65	49.57	12.05	3403.40	5823.39
*	347.000	10.00	.00	.00	1117.70	41000.00	1129.25	1125.48	1130.96	25.26	10.49	3908.30	8157.65
*	347.000	10.00	.00	.00	1117.70	41000.00	1129.25	1125.48	1130.96	25.26	10.49	3908.34	8157.79
	349.000	275.00	.00	.00	1119.10	41000.00	1129.95	1126.86	1131.71	28.28	10.79	3972.30	7709.69
	349.000	275.00	.00	.00	1119.10	41000.00	1129.93	1126.86	1131.73	28.77	10.87	3866.81	7643.52
	352.000	300.00	.00	.00	1121.30	41000.00	1130.55	1129.02	1133.02	48.28	12.74	3318.24	5900.87
	352.000	300.00	.00	.00	1121.30	41000.00	1130.54	1128.95	1133.06	49.16	12.84	3248.71	5847.65
*	358.000	600.00	.00	.00	1125.60	41000.00	1136.11	1136.11	1138.26	60.31	13.15	4031.23	5279.27
*	358.000	600.00	.00	.00	1125.60	41000.00	1135.48	1135.48	1138.65	89.14	15.20	2990.34	4342.60
	365.000	700.00	.00	.00	1127.50	41000.00	1139.97	1139.29	1141.32	31.55	10.48	5700.95	7299.36
*	365.000	700.00	.00	.00	1127.50	41000.00	1140.65	1139.15	1141.89	25.73	9.92	5510.94	8082.88
	370.000	500.00	.00	.00	1127.40	41000.00	1141.61	1139.59	1142.71	24.52	9.14	5864.58	8279.96
	370.000	500.00	.00	.00	1127.40	41000.00	1141.78	1139.26	1143.42	31.53	10.49	4291.89	7301.29
	373.000	330.00	.00	.00	1127.20	41000.00	1142.33	1139.48	1143.56	23.43	9.71	5774.51	8470.05
	373.000	330.00	.00	.00	1127.20	41000.00	1142.69	1139.48	1144.44	27.87	10.84	4267.34	7766.62
	377.000	400.00	.00	.00	1128.50	41000.00	1143.14	1141.47	1144.78	33.33	10.99	4842.29	7101.89
	377.000	400.00	.00	.00	1128.50	41000.00	1143.74	1141.10	1145.76	34.74	11.60	3937.71	6956.32
	384.000	700.00	.00	.00	1129.80	41000.00	1145.12	1141.34	1147.07	29.38	11.19	3663.17	7563.59
	384.000	700.00	.00	.00	1129.80	41000.00	1146.13	1141.35	1147.75	22.81	10.22	4011.78	8585.05
	388.000	400.00	.00	.00	1130.00	41000.00	1146.55	1141.27	1148.07	19.94	9.89	4145.75	9181.04
	388.000	400.00	.00	.00	1130.00	41000.00	1147.20	1141.24	1148.56	17.15	9.38	4371.79	9900.54
	391.500	350.00	.00	.00	1131.70	41000.00	1147.26	1142.80	1148.88	25.36	10.23	4008.79	8141.41
	391.500	350.00	.00	.00	1131.70	41000.00	1147.82	1142.79	1149.28	22.51	9.70	4224.80	8640.86
	395.000	350.00	.00	.00	1132.20	41000.00	1148.27	1143.07	1149.67	19.08	9.50	4314.46	9385.87
	395.000	350.00	.00	.00	1132.20	41000.00	1148.69	1143.09	1150.00	17.97	9.17	4473.32	9671.86

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	402.000	700.00	.00	.00	1134.20	41000.00	1149.67	1144.00	1150.94	16.94	9.05	4528.95	9961.20
	402.000	700.00	.00	.00	1134.20	41000.00	1149.97	1144.00	1151.18	15.76	8.83	4644.67	10328.56
	406.000	400.00	.00	.00	1135.10	41000.00	1150.33	1145.31	1151.75	19.95	9.56	4290.90	9180.22
	406.000	400.00	.00	.00	1135.10	41000.00	1150.58	1145.31	1151.94	18.63	9.35	4384.36	9498.57
*	409.000	300.00	.00	.00	1135.30	41000.00	1150.59	1150.59	1156.08	72.00	18.98	2294.15	4831.94
*	409.000	300.00	.00	.00	1135.30	41000.00	1150.55	1150.55	1156.08	72.85	19.06	2282.92	4803.57
*	409.010	1.00	.00	.00	1135.20	41000.00	1156.02	1146.62	1157.33	10.63	9.19	4459.81	12573.19
*	409.010	1.00	.00	.00	1135.20	41000.00	1150.42	1150.42	1157.32	89.01	21.07	1945.67	4345.81
	409.820	81.00	1163.50	1155.40	1135.60	41000.00	1157.48	.00	1158.68	9.30	8.80	4661.34	13444.60
*	409.820	81.00	1163.50	1155.40	1135.60	41000.00	1156.83	.00	1160.03	28.96	14.34	2859.39	7618.37
	410.000	18.00	.00	.00	1135.70	41000.00	1157.63	1157.58	1158.73	8.52	8.43	5277.40	14049.57
*	410.000	18.00	.00	.00	1135.90	41000.00	1164.89	1164.89	1169.08	54.37	18.78	2998.98	5560.42
	412.000	200.00	.00	.00	1136.80	41000.00	1158.33	1148.02	1158.92	6.03	6.64	8738.50	16689.83
	412.000	200.00	.00	.00	1136.80	41000.00	1169.24	1148.02	1169.56	1.50	4.56	9013.69	33509.78
	418.000	600.00	.00	.00	1138.10	41000.00	1158.57	1149.60	1159.46	9.39	7.61	5389.92	13380.95
	418.000	600.00	.00	.00	1138.10	41000.00	1169.38	1149.60	1169.66	1.43	4.22	9726.16	34345.08
	423.000	500.00	.00	.00	1137.60	41000.00	1159.01	1150.93	1160.02	11.84	8.12	5371.28	11915.77
	423.000	500.00	.00	.00	1137.60	41000.00	1169.44	1150.93	1169.74	1.78	4.40	9335.25	30727.00

	425.000	200.00	.00	.00	1136.00	41000.00	1159.38	1150.44	1160.26	10.21	7.59	6148.46	12829.92
	425.000	200.00	.00	.00	1136.00	41000.00	1169.48	1150.42	1169.78	1.64	4.36	9419.83	32041.46
	428.000	300.00	.00	.00	1137.90	41000.00	1159.66	1150.89	1160.55	9.14	7.58	5499.43	13559.68
	428.000	300.00	.00	.00	1137.90	41000.00	1169.53	1150.88	1169.83	1.66	4.34	9460.75	31803.95
	434.000	600.00	.00	.00	1138.00	41000.00	1160.23	1152.69	1161.14	10.29	7.63	5376.48	12784.00
	434.000	600.00	.00	.00	1138.00	41000.00	1169.63	1152.69	1169.93	1.77	4.40	9324.06	30820.76
	440.000	600.00	.00	.00	1140.00	41000.00	1160.89	1152.72	1161.71	8.82	7.29	5623.99	13802.81
	440.000	600.00	.00	.00	1140.00	41000.00	1169.74	1152.70	1170.04	1.82	4.36	9404.27	30411.13
	443.200	320.00	.00	.00	1140.50	41000.00	1161.14	1154.01	1162.05	10.58	7.64	5366.51	12604.77
	443.200	320.00	.00	.00	1140.50	41000.00	1169.79	1154.01	1170.11	2.09	4.52	9065.50	28336.52
*	449.100	590.00	.00	.00	1152.00	41000.00	1161.19	1161.19	1164.73	96.11	15.09	2717.69	4182.16
*	449.100	590.00	.00	.00	1152.00	41000.00	1169.82	1161.19	1170.40	7.19	6.11	6709.18	15293.60
*	451.000	190.00	.00	.00	1153.90	41000.00	1165.56	1165.56	1169.07	98.62	15.04	2726.51	4128.55
*	451.000	190.00	.00	.00	1153.90	41000.00	1169.60	1165.58	1170.82	25.85	8.87	4620.14	8064.20
*	8.655	690.00	.00	.00	1155.30	41000.00	1170.38	1163.50	1171.31	11.07	7.71	5317.42	12324.98
*	8.655	690.00	.00	.00	1155.30	41000.00	1171.08	1163.50	1171.91	9.43	7.32	5600.67	13353.32

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	8.731	400.00	.00	.00	1156.10	12000.00	1171.50	1160.46	1171.58	.97	2.23	5388.38	12208.56
	8.731	400.00	.00	.00	1156.10	12000.00	1172.08	1160.45	1172.15	.84	2.13	5641.34	13068.45
	8.807	400.00	.00	.00	1158.30	12000.00	1171.53	1162.14	1171.63	1.44	2.54	4723.53	9984.77
	8.807	400.00	.00	.00	1158.30	12000.00	1172.11	1162.15	1172.20	1.24	2.42	4968.34	10768.38
*	8.883	400.00	.00	.00	1160.10	12000.00	1171.50	1165.99	1171.80	6.77	4.38	2737.81	4610.51
*	8.883	400.00	.00	.00	1160.10	12000.00	1172.08	1165.98	1172.34	5.49	4.08	2939.08	5121.83
	8.936	290.00	.00	.00	1161.80	12000.00	1171.70	1167.73	1172.04	9.40	4.73	2537.27	3914.82
	8.936	290.00	.00	.00	1161.80	12000.00	1172.24	1167.73	1172.53	7.41	4.39	2733.74	4409.49
	8.977	210.00	.00	.00	1163.50	12000.00	1171.77	1168.75	1172.40	18.39	6.37	1883.58	2798.26
	8.977	210.00	.00	.00	1163.50	12000.00	1172.28	1168.77	1172.82	14.55	5.91	2030.54	3145.61
*	9.009	180.00	.00	.00	1162.90	12000.00	1172.33	1167.92	1172.63	7.69	4.42	2717.51	4327.15
*	9.009	180.00	.00	.00	1162.90	12000.00	1172.74	1167.94	1173.01	6.47	4.18	2871.50	4719.39
	9.047	200.00	.00	.00	1161.20	12000.00	1172.56	1166.61	1172.75	4.11	3.57	3358.07	5917.89
	9.047	200.00	.00	.00	1161.20	12000.00	1172.94	1166.59	1173.12	3.58	3.42	3508.26	6339.10
*	9.129	420.00	.00	.00	1164.20	12000.00	1172.72	1169.21	1173.06	10.39	4.66	2575.29	3722.31
*	9.129	420.00	.00	.00	1164.20	12000.00	1173.07	1169.21	1173.38	8.73	4.41	2720.69	4061.61
*	9.318	1000.00	.00	.00	1173.20	12000.00	1180.55	1180.55	1182.39	125.66	10.88	1102.67	1070.50
*	9.318	1000.00	.00	.00	1173.20	12000.00	1180.61	1180.61	1182.39	118.32	10.68	1123.25	1103.18
*	9.492	920.00	.00	.00	1179.00	11450.00	1187.16	1184.97	1187.84	32.48	6.62	1729.04	2008.96
*	9.492	920.00	.00	.00	1179.00	11450.00	1187.11	1184.97	1187.80	33.31	6.70	1709.46	1984.03
*	9.692	1056.00	.00	.00	1184.10	11450.00	1191.36	1190.91	1193.45	82.68	11.60	987.40	1259.24
*	9.692	1056.00	.00	.00	1184.10	11450.00	1191.38	1190.91	1193.45	81.57	11.54	991.81	1267.81

NEW RIVER-A.F.R. TO S.C.

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	501.45	39000.00	1027.50	.00	.00	.00	6594.18	.00
	501.45	39000.00	1028.22	.72	.00	.72	2800.83	.00
	10.000	39000.00	1029.45	.00	1.95	.00	2223.60	1000.00
	10.000	39000.00	1030.01	.55	1.79	.55	1320.00	1000.00
*	13.000	39000.00	1031.08	.00	1.63	.00	2347.98	300.00
*	13.000	39000.00	1031.97	.89	1.97	.89	1324.00	300.00
	20.000	39000.00	1032.46	.00	1.37	.00	2303.88	700.00

	20.000	39000.00	1033.37	.91	1.40	.91	1345.00	700.00
	26.800	39000.00	1033.93	.00	1.47	.00	3200.43	680.00
	26.800	39000.00	1034.58	.65	1.21	.65	1250.00	680.00
	32.600	39000.00	1035.25	.00	1.32	.00	1680.05	580.00
	32.600	39000.00	1036.03	.78	1.46	.78	1224.06	580.00
	38.000	39000.00	1037.16	.00	1.91	.00	1164.90	540.00
	38.000	39000.00	1037.32	.16	1.28	.16	1165.23	540.00
	45.000	39000.00	1039.08	.00	1.92	.00	981.56	700.00
	45.000	39000.00	1039.10	.02	1.78	.02	981.60	700.00
*	51.700	39000.00	1040.18	.00	1.10	.00	741.62	670.00
*	51.700	39000.00	1040.19	.01	1.10	.01	741.91	670.00
	54.000	39000.00	1040.44	.00	.26	.00	832.27	230.00
	54.000	39000.00	1040.45	.01	.26	.01	832.30	230.00
	59.000	39000.00	1040.85	.00	.40	.00	925.61	500.00
	59.000	39000.00	1040.85	.01	.40	.01	925.64	500.00
	63.000	39000.00	1041.25	.00	.40	.00	867.85	400.00
	63.000	39000.00	1041.26	.01	.40	.01	867.96	400.00
*	70.500	39000.00	1042.27	.00	1.02	.00	661.32	750.00
*	70.500	39000.00	1042.27	.00	1.02	.00	661.33	750.00
	77.000	39000.00	1046.88	.00	4.61	.00	418.12	650.00
	77.000	39000.00	1046.88	.00	4.61	.00	418.10	650.00
*	84.000	39000.00	1050.69	.00	3.80	.00	930.54	700.00
*	84.000	39000.00	1050.72	.04	3.84	.04	541.67	700.00
	88.700	39000.00	1051.03	.00	.34	.00	999.80	470.00
	88.700	39000.00	1051.35	.32	.63	.32	569.38	470.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	95.500	39000.00	1051.52	.00	.49	.00	795.78	680.00
	95.500	39000.00	1051.86	.34	.52	.34	802.20	680.00
*	100.700	39000.00	1051.54	.00	.01	.00	399.10	520.00
*	100.700	39000.00	1051.90	.36	.03	.36	456.80	520.00
*	107.000	39000.00	1053.66	.00	2.12	.00	529.75	630.00
*	107.000	39000.00	1053.87	.21	1.97	.21	531.46	630.00
*	110.700	39000.00	1053.23	.00	-.43	.00	456.59	370.00
*	110.700	39000.00	1053.52	.29	-.35	.29	457.81	370.00
*	117.200	39000.00	1058.53	.00	5.30	.00	350.00	650.00
*	117.200	39000.00	1058.28	-.25	4.76	-.25	350.00	650.00
	118.000	39000.00	1058.93	.00	.40	.00	350.00	80.00
	118.000	39000.00	1058.74	-.20	.45	-.20	350.00	80.00
*	120.000	39000.00	1061.05	.00	2.12	.00	850.00	200.00
*	120.000	39000.00	1060.82	-.23	2.09	-.23	407.00	200.00
	125.000	39000.00	1061.56	.00	.51	.00	1850.00	500.00
	125.000	39000.00	1061.39	-.17	.56	-.17	452.00	500.00
*	131.000	39000.00	1062.12	.00	.56	.00	1489.22	600.00
*	131.000	39000.00	1061.31	-.81	-.07	-.81	490.16	600.00
*	135.000	39000.00	1064.84	.00	2.72	.00	1707.62	400.00
*	135.000	39000.00	1064.71	-.13	3.40	-.13	357.00	400.00
	140.000	39000.00	1066.47	.00	1.63	.00	2338.85	500.00
*	140.000	39000.00	1067.22	.76	2.51	.76	517.00	500.00
	143.000	39000.00	1066.89	.00	.43	.00	2041.33	300.00
	143.000	39000.00	1067.71	.81	.48	.81	706.33	300.00
*	146.000	39000.00	1068.64	.00	1.74	.00	1823.13	300.00
*	146.000	39000.00	1068.64	.00	.93	.00	913.24	300.00
*	149.600	40000.00	1070.49	.00	1.85	.00	2993.35	360.00

*	149.600	40000.00	1071.28	.79	2.64	.79	1356.00	360.00
	158.000	40000.00	1072.76	.00	2.27	.00	2484.14	840.00
	158.000	40000.00	1073.06	.30	1.78	.30	1300.00	840.00
	167.000	40000.00	1074.15	.00	1.38	.00	1771.34	900.00
	167.000	40000.00	1074.67	.52	1.61	.52	1150.40	900.00
	170.000	40000.00	1074.45	.00	.30	.00	1107.05	300.00
	170.000	40000.00	1075.13	.69	.46	.69	1051.07	300.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	174.200	40000.00	1077.21	.00	2.76	.00	2158.35	420.00
*	174.200	40000.00	1077.09	-.12	1.96	-.12	1450.00	420.00
*	178.000	40000.00	1079.14	.00	1.93	.00	1796.72	380.00
*	178.000	40000.00	1079.44	.30	2.36	.30	1592.09	380.00
*	178.500	40000.00	1079.30	.00	.16	.00	2100.14	50.00
	178.500	40000.00	1079.67	.36	.22	.36	1665.00	50.00
*	181.500	40000.00	1079.37	.00	.07	.00	1422.49	310.00
*	181.500	40000.00	1079.68	.30	.01	.30	1150.35	310.00
	185.300	40000.00	1080.97	.00	1.60	.00	1883.72	380.00
	185.300	40000.00	1080.70	-.28	1.02	-.28	651.11	380.00
	190.000	40000.00	1082.37	.00	1.39	.00	1943.56	470.00
	190.000	40000.00	1082.98	.61	2.28	.61	597.00	470.00
	193.600	40000.00	1082.89	.00	.52	.00	749.19	360.00
	193.600	40000.00	1083.36	.47	.38	.47	440.33	360.00
	198.400	40000.00	1085.07	.00	2.18	.00	433.77	480.00
	198.400	40000.00	1085.27	.19	1.91	.19	437.16	480.00
	202.400	40000.00	1085.67	.00	.60	.00	397.78	400.00
	202.400	40000.00	1085.82	.15	.55	.15	378.42	400.00
	206.000	40000.00	1087.37	.00	1.70	.00	707.86	360.00
	206.000	40000.00	1087.40	.03	1.58	.03	415.98	360.00
*	210.500	40000.00	1089.63	.00	2.26	.00	1296.11	450.00
*	210.500	40000.00	1089.51	-.12	2.11	-.12	359.69	450.00
	216.000	40000.00	1090.18	.00	.55	.00	1102.69	550.00
	216.000	40000.00	1090.28	.10	.77	.10	454.16	550.00
	218.000	40000.00	1090.53	.00	.35	.00	1233.75	200.00
	218.000	40000.00	1090.67	.14	.39	.14	535.21	200.00
	220.800	40000.00	1090.62	.00	.09	.00	972.02	280.00
	220.800	40000.00	1090.75	.14	.09	.14	481.45	280.00
	223.000	40000.00	1090.67	.00	.05	.00	984.90	220.00
	223.000	40000.00	1090.83	.16	.07	.16	494.91	220.00
	229.000	40000.00	1091.33	.00	.66	.00	847.14	600.00
	229.000	40000.00	1091.54	.21	.71	.21	622.57	600.00
	231.500	40000.00	1091.48	.00	.15	.00	582.08	250.00
	231.500	40000.00	1091.70	.21	.16	.21	545.00	250.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	232.600	40000.00	1095.07	.00	3.59	.00	1446.39	110.00
	232.600	40000.00	1096.07	1.00	4.37	1.00	596.00	110.00
	235.000	40000.00	1095.48	.00	.40	.00	1472.16	240.00
	235.000	40000.00	1096.40	.92	.33	.92	551.36	240.00
	238.800	40000.00	1096.33	.00	.85	.00	1522.71	380.00
	238.800	40000.00	1096.90	.58	.51	.58	525.21	380.00
*	240.800	40000.00	1096.39	.00	.06	.00	1531.61	200.00

	240.800	40000.00	1097.09	.70	.18	.70	623.15	200.00
	245.800	40000.00	1097.17	.00	.78	.00	1046.83	500.00
	245.800	40000.00	1097.98	.81	.90	.81	534.88	500.00
	251.000	40000.00	1099.22	.00	2.05	.00	477.78	520.00
	251.000	40000.00	1099.67	.45	1.68	.45	484.81	520.00
	256.000	40000.00	1099.67	.00	.46	.00	300.58	500.00
	256.000	40000.00	1100.02	.35	.36	.35	303.30	500.00
	258.800	40000.00	1101.15	.00	1.48	.00	348.76	280.00
	258.800	40000.00	1101.37	.22	1.35	.22	349.90	280.00
	262.000	40000.00	1101.65	.00	.50	.00	340.34	320.00
	262.000	40000.00	1101.84	.19	.47	.19	342.33	320.00
*	265.000	40000.00	1103.05	.00	1.40	.00	579.69	300.00
*	265.000	40000.00	1103.19	.14	1.35	.14	582.63	300.00
	270.500	40000.00	1103.28	.00	.22	.00	399.58	550.00
	270.500	40000.00	1103.40	.13	.21	.13	400.52	550.00
	273.500	40000.00	1103.94	.00	.66	.00	429.89	300.00
	273.500	40000.00	1104.04	.10	.64	.10	430.10	300.00
*	277.000	40000.00	1102.89	.00	-1.05	.00	274.48	350.00
*	277.000	40000.00	1103.03	.14	-1.01	.14	275.15	350.00
	281.800	40000.00	1105.55	.00	2.66	.00	238.96	480.00
	281.800	40000.00	1105.56	.01	2.53	.01	239.00	480.00
*	288.000	40000.00	1110.65	.00	5.10	.00	340.08	620.00
*	288.000	40000.00	1110.65	.00	5.09	.00	340.07	620.00
	290.000	41000.00	1110.93	.00	.28	.00	290.32	200.00
	290.000	41000.00	1110.93	.00	.28	.00	290.32	200.00
	291.000	41000.00	1111.06	.00	.14	.00	268.18	100.00
	291.000	41000.00	1111.42	.36	.49	.36	226.69	100.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	293.000	41000.00	1111.42	.00	.36	.00	427.12	200.00
	293.000	41000.00	1112.54	1.12	1.12	1.12	348.17	200.00
	297.000	41000.00	1112.57	.00	1.15	.00	335.75	400.00
	297.000	41000.00	1113.38	.80	.83	.80	343.79	400.00
*	302.000	41000.00	1112.89	.00	.32	.00	211.13	500.00
*	302.000	41000.00	1113.39	.50	.02	.50	213.35	500.00
*	305.000	41000.00	1116.72	.00	3.82	.00	217.09	300.00
	305.000	41000.00	1116.59	-.13	3.20	-.13	216.80	300.00
	307.000	41000.00	1118.52	.00	1.81	.00	519.12	200.00
	307.000	41000.00	1118.10	-.42	1.51	-.42	237.00	200.00
*	311.500	41000.00	1120.62	.00	2.10	.00	1797.07	450.00
*	311.500	41000.00	1120.54	-.08	2.45	-.08	427.00	450.00
	314.000	41000.00	1120.93	.00	.31	.00	1126.22	250.00
	314.000	41000.00	1120.93	-.01	.38	-.01	657.00	250.00
*	318.000	41000.00	1121.02	.00	.09	.00	791.08	400.00
*	318.000	41000.00	1121.14	.11	.21	.11	785.17	400.00
	323.000	41000.00	1121.69	.00	.67	.00	889.55	500.00
	323.000	41000.00	1121.77	.08	.64	.08	890.83	500.00
	328.000	41000.00	1122.32	.00	.63	.00	461.45	500.00
	328.000	41000.00	1122.38	.06	.60	.06	461.56	500.00
	330.000	41000.00	1122.34	.00	.01	.00	378.17	175.00
	330.000	41000.00	1122.39	.05	.01	.05	374.94	175.00
	334.000	41000.00	1123.25	.00	.91	.00	352.29	400.00
	334.000	41000.00	1123.28	.04	.89	.04	352.37	400.00
	337.000	41000.00	1124.05	.00	.81	.00	351.71	300.00

337.000	41000.00	1124.08	.03	.79	.03	351.76	300.00
340.500	41000.00	1125.11	.00	1.06	.00	351.42	350.00
340.500	41000.00	1125.13	.02	1.05	.02	351.45	350.00
342.000	41000.00	1125.58	.00	.47	.00	351.36	150.00
342.000	41000.00	1125.60	.01	.47	.01	351.39	150.00
343.000	41000.00	1125.92	.00	.33	.00	351.42	100.00
343.000	41000.00	1125.93	.01	.33	.01	351.45	100.00
344.900	41000.00	1126.51	.00	.59	.00	346.27	190.00
344.900	41000.00	1126.52	.01	.59	.01	346.28	190.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	345.200	41000.00	1126.79	.00	.28	.00	346.71	30.00
	345.200	41000.00	1126.80	.01	.28	.01	346.72	30.00
*	346.200	41000.00	1128.30	.00	1.51	.00	348.83	100.00
*	346.200	41000.00	1128.30	.00	1.50	.00	348.83	100.00
	346.620	41000.00	1128.38	.00	.08	.00	350.57	42.00
	346.620	41000.00	1128.38	.00	.08	.00	350.57	42.00
	346.720	41000.00	1128.34	.00	-.04	.00	332.20	10.00
	346.720	41000.00	1128.34	.00	-.04	.00	332.20	10.00
	346.900	41000.00	1128.40	.00	.06	.00	326.33	18.00
	346.900	41000.00	1128.40	.00	.06	.00	326.33	18.00
*	347.000	41000.00	1129.25	.00	.85	.00	346.85	10.00
*	347.000	41000.00	1129.25	.00	.85	.00	346.85	10.00
	349.000	41000.00	1129.95	.00	.70	.00	451.91	275.00
	349.000	41000.00	1129.93	-.02	.68	-.02	381.06	275.00
	352.000	41000.00	1130.55	.00	.60	.00	411.99	300.00
	352.000	41000.00	1130.54	-.02	.61	-.02	364.24	300.00
*	358.000	41000.00	1136.11	.00	5.56	.00	1294.80	600.00
*	358.000	41000.00	1135.48	-.63	4.94	-.63	566.95	600.00
	365.000	41000.00	1139.97	.00	3.86	.00	1408.98	700.00
*	365.000	41000.00	1140.65	.68	5.17	.68	950.00	700.00
	370.000	41000.00	1141.61	.00	1.64	.00	1462.13	500.00
	370.000	41000.00	1141.78	.16	1.13	.16	676.66	500.00
	373.000	41000.00	1142.33	.00	.71	.00	1931.14	330.00
	373.000	41000.00	1142.69	.37	.92	.37	681.77	330.00
	377.000	41000.00	1143.14	.00	.81	.00	1259.52	400.00
	377.000	41000.00	1143.74	.60	1.04	.60	686.14	400.00
	384.000	41000.00	1145.12	.00	1.99	.00	339.20	700.00
	384.000	41000.00	1146.13	1.01	2.39	1.01	356.14	700.00
	388.000	41000.00	1146.55	.00	1.43	.00	344.96	400.00
	388.000	41000.00	1147.20	.65	1.07	.65	351.69	400.00
	391.500	41000.00	1147.26	.00	.71	.00	380.74	350.00
	391.500	41000.00	1147.82	.56	.62	.56	397.09	350.00
	395.000	41000.00	1148.27	.00	1.01	.00	369.13	350.00
	395.000	41000.00	1148.69	.42	.88	.42	386.37	350.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	402.000	41000.00	1149.67	.00	1.40	.00	381.38	700.00
	402.000	41000.00	1149.97	.30	1.28	.30	384.70	700.00
	406.000	41000.00	1150.33	.00	.66	.00	386.62	400.00
	406.000	41000.00	1150.58	.25	.61	.25	378.91	400.00
*	409.000	41000.00	1150.59	.00	.26	.00	235.58	300.00

*	409.000	41000.00	1150.55	-.05	-.04	-.05	235.12	300.00
*	409.010	41000.00	1156.02	.00	5.42	.00	248.82	1.00
*	409.010	41000.00	1150.42	-5.60	-.13	-5.60	142.48	1.00
	409.820	41000.00	1157.48	.00	1.46	.00	251.68	81.00
	409.820	41000.00	1156.83	-.64	6.41	-.64	155.80	81.00
	410.000	41000.00	1157.63	.00	.16	.00	891.92	18.00
*	410.000	41000.00	1164.89	7.26	8.06	7.26	298.00	18.00
	412.000	41000.00	1158.33	.00	.70	.00	1555.36	200.00
*	412.000	41000.00	1169.24	10.91	4.35	10.91	342.00	200.00
	418.000	41000.00	1158.57	.00	.24	.00	376.81	600.00
	418.000	41000.00	1169.38	10.81	.14	10.81	402.00	600.00
	423.000	41000.00	1159.01	.00	.44	.00	907.14	500.00
	423.000	41000.00	1169.44	10.43	.06	10.43	422.00	500.00
	425.000	41000.00	1159.38	.00	.37	.00	1362.80	200.00
	425.000	41000.00	1169.48	10.10	.04	10.10	412.00	200.00
	428.000	41000.00	1159.66	.00	.28	.00	618.17	300.00
	428.000	41000.00	1169.53	9.87	.05	9.87	420.00	300.00
	434.000	41000.00	1160.23	.00	.57	.00	402.82	600.00
	434.000	41000.00	1169.63	9.40	.10	9.40	425.00	600.00
	440.000	41000.00	1160.89	.00	.66	.00	397.54	600.00
	440.000	41000.00	1169.74	8.86	.11	8.86	440.00	600.00
	443.200	41000.00	1161.14	.00	.25	.00	405.89	320.00
	443.200	41000.00	1169.79	8.65	.05	8.65	445.29	320.00
*	449.100	41000.00	1161.19	.00	.05	.00	389.50	590.00
*	449.100	41000.00	1169.82	8.62	.02	8.62	532.17	590.00
*	451.000	41000.00	1165.56	.00	4.37	.00	397.85	190.00
*	451.000	41000.00	1169.60	4.04	-.22	4.04	545.17	190.00
	8.655	41000.00	1170.38	.00	4.82	.00	400.54	690.00
	8.655	41000.00	1171.08	.70	1.48	.70	403.76	690.00

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	8.731	12000.00	1171.50	.00	1.12	.00	433.92	400.00
	8.731	12000.00	1172.08	.58	1.00	.58	439.33	400.00
	8.807	12000.00	1171.53	.00	.03	.00	422.52	400.00
	8.807	12000.00	1172.11	.58	.03	.58	427.95	400.00
*	8.883	12000.00	1171.50	.00	-.03	.00	344.04	400.00
*	8.883	12000.00	1172.08	.58	-.03	.58	350.79	400.00
	8.936	12000.00	1171.70	.00	.20	.00	362.48	290.00
	8.936	12000.00	1172.24	.54	.16	.54	365.12	290.00
	8.977	12000.00	1171.77	.00	.07	.00	285.65	210.00
	8.977	12000.00	1172.28	.51	.04	.51	289.01	210.00
*	9.009	12000.00	1172.33	.00	.56	.00	371.88	180.00
*	9.009	12000.00	1172.74	.41	.47	.41	374.59	180.00
	9.047	12000.00	1172.56	.00	.22	.00	393.29	200.00
	9.047	12000.00	1172.94	.38	.19	.38	395.64	200.00
*	9.129	12000.00	1172.72	.00	.16	.00	406.92	420.00
*	9.129	12000.00	1173.07	.36	.14	.36	409.35	420.00
*	9.318	12000.00	1180.55	.00	7.83	.00	314.99	1000.00
*	9.318	12000.00	1180.61	.07	7.54	.07	315.30	1000.00
	9.492	11450.00	1187.16	.00	6.61	.00	380.98	920.00
	9.492	11450.00	1187.11	-.05	6.49	-.05	377.29	920.00
*	9.692	11450.00	1191.36	.00	4.20	.00	188.27	1056.00
*	9.692	11450.00	1191.38	.02	4.28	.02	188.45	1056.00

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MARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=     10.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     10.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     10.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     10.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=     13.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     13.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     51.700  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     51.700  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     70.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     70.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     84.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     84.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    100.700  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    100.700  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    107.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    107.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    110.700  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    110.700  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    110.700  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    110.700  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    117.200  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    117.200  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    120.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    120.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

  ION SECNO=    131.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    131.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    131.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    131.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    135.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    135.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    140.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    146.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    146.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    146.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=    146.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    149.600  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    149.600  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    174.200  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    174.200  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    174.200  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    174.200  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    178.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    178.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    178.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    181.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    181.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

  ING SECNO=    210.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    210.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    240.800  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    265.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    265.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=    277.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    277.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    288.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
   NING SECNO=    288.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    302.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    302.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    305.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    311.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    311.500  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=    318.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    318.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    346.200  PROFILE=  1  HYDRAULIC JUMP D.S.
CAUTION SECNO=    346.200  PROFILE=  2  HYDRAULIC JUMP D.S.

WARNING SECNO=    347.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    347.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    358.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    358.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=    358.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    358.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    365.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    409.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    409.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    409.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    409.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    409.010  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
   TION SECNO=    409.010  PROFILE=  2  CRITICAL DEPTH ASSUMED
   TION SECNO=    409.010  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    409.820  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    410.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    410.000  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    412.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    449.100  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    449.100  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=    449.100  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    451.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    451.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
WARNING SECNO=    451.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      8.655  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      8.655  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      8.883  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      8.883  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.009  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      9.009  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.129  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      9.129  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      9.318  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      9.318  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      9.318  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      9.318  PROFILE=  2  MINIMUM SPECIFIC ENERGY

 RNING SECNO=      9.492  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
   NING SECNO=      9.492  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.692  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      9.692  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
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FLOODWAY DATA, NEW RIVER-A.F.R. TO S.C.
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
501.45	2850.	11270.	3.5	1028.2	1027.5	.7
10.000	1320.	4223.	9.2	1030.1	1029.5	.6
13.000	1324.	7047.	5.5	1032.0	1031.1	.9
20.000	1345.	7192.	5.4	1033.4	1032.5	.9
26.800	1250.	5892.	6.6	1034.5	1033.9	.6
32.600	1224.	5783.	6.7	1036.1	1035.3	.8
38.000	1165.	5479.	7.1	1037.4	1037.2	.2
45.000	982.	5942.	6.6	1039.1	1039.1	.0
51.700	776.	7085.	5.5	1040.2	1040.2	.0
54.000	832.	7678.	5.1	1040.4	1040.4	.0
59.000	926.	7223.	5.4	1040.8	1040.8	.0
63.000	868.	6464.	6.0	1041.3	1041.3	.0
70.500	661.	3239.	12.0	1042.3	1042.3	.0
77.000	442.	2938.	13.3	1046.9	1046.9	.0
84.000	542.	5782.	6.7	1050.7	1050.7	.0
88.700	569.	7029.	5.5	1051.3	1051.0	.3
95.500	802.	7111.	5.5	1051.8	1051.5	.3
100.700	514.	3833.	10.2	1051.9	1051.5	.4
107.000	531.	6820.	5.7	1053.9	1053.7	.2
110.700	458.	2830.	13.8	1053.5	1053.2	.3
117.200	350.	3314.	11.8	1058.3	1058.5	-.2
118.000	350.	3291.	11.9	1058.7	1058.9	-.2
120.000	407.	5280.	7.4	1060.9	1061.1	-.2
125.000	452.	5426.	7.2	1061.4	1061.6	-.2
131.000	490.	2797.	13.9	1061.3	1062.1	-.8
135.000	357.	3329.	11.7	1064.7	1064.8	-.1
140.000	517.	5104.	7.6	1067.3	1066.5	.8
143.000	769.	4846.	8.0	1067.7	1066.9	.8
146.000	1191.	3863.	10.1	1068.6	1068.6	.0
149.600	1356.	6706.	6.0	1071.3	1070.5	.8
158.000	1300.	6239.	6.4	1073.1	1072.8	.3
167.000	1250.	5450.	7.3	1074.6	1074.1	.5
170.000	1103.	4874.	8.2	1075.1	1074.4	.7
174.200	1450.	5217.	7.7	1077.1	1077.2	-.1
178.000	1650.	7870.	5.1	1079.4	1079.1	.3
178.500	1665.	7797.	5.1	1079.7	1079.3	.4
181.500	1225.	5098.	7.8	1079.7	1079.4	.3
185.300	651.	3932.	10.2	1080.7	1081.0	-.3
190.000	597.	5066.	7.9	1083.0	1082.4	.6
193.600	440.	3710.	10.8	1083.4	1082.9	.5
198.400	437.	4384.	9.1	1085.3	1085.1	.2
202.400	378.	3389.	11.8	1085.8	1085.7	.1

FLOODWAY DATA, NEW RIVER-A.F.R. TO S.C.
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
206.000	416.	3433.	11.7	1087.4	1087.4	.0
210.500	360.	5108.	7.8	1089.5	1089.6	-.1
216.000	454.	5940.	6.7	1090.3	1090.2	.1
218.000	535.	7261.	5.5	1090.6	1090.5	.1
220.800	481.	6543.	6.1	1090.7	1090.6	.1
223.000	495.	5876.	6.8	1090.9	1090.7	.2
229.000	623.	6248.	6.4	1091.5	1091.3	.2
231.500	545.	5223.	7.7	1091.7	1091.5	.2
232.600	596.	5666.	7.1	1096.1	1095.1	1.0
235.000	551.	5606.	7.1	1096.4	1095.5	.9
238.800	525.	5592.	7.2	1096.9	1096.3	.6
240.800	623.	5074.	7.9	1097.1	1096.4	.7

245.800	535.	4159.	9.6	1098.0	1097.2	.8
251.000	485.	4953.	8.1	1099.7	1099.2	.5
256.000	303.	3524.	11.4	1100.0	1099.7	.3
258.800	350.	4350.	9.2	1101.4	1101.2	.2
262.000	342.	4111.	9.7	1101.9	1101.7	.2
265.000	583.	6629.	6.0	1103.2	1103.1	.1
270.500	401.	4748.	8.4	1103.4	1103.3	.1
273.500	430.	5345.	7.5	1104.0	1103.9	.1
277.000	275.	2706.	14.8	1103.0	1102.9	.1
281.800	239.	2529.	15.8	1105.5	1105.5	.0
288.000	340.	4316.	9.3	1110.6	1110.6	.0
290.000	290.	4351.	9.4	1110.9	1110.9	.0
291.000	227.	3498.	11.7	1111.5	1111.1	.4
293.000	348.	4032.	10.2	1112.5	1111.4	1.1
297.000	344.	3803.	10.8	1113.4	1112.6	.8
302.000	213.	2356.	17.4	1113.4	1112.9	.5
305.000	217.	2859.	14.3	1116.6	1116.7	-.1
307.000	237.	3303.	12.4	1118.1	1118.5	-.4
311.500	427.	6396.	6.4	1120.5	1120.6	-.1
314.000	657.	7855.	5.2	1120.9	1120.9	.0
318.000	785.	6788.	6.0	1121.1	1121.0	.1
323.000	891.	6189.	6.6	1121.8	1121.7	.1
328.000	462.	4859.	8.4	1122.4	1122.3	.1
330.000	399.	4042.	10.1	1122.4	1122.3	.1
334.000	352.	3816.	10.7	1123.2	1123.2	.0
337.000	352.	3709.	11.1	1124.1	1124.1	.0
340.500	351.	3655.	11.2	1125.1	1125.1	.0
342.000	351.	3643.	11.3	1125.6	1125.6	.0
343.000	351.	3653.	11.2	1125.9	1125.9	.0
344.900	346.	3458.	11.9	1126.5	1126.5	.0

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FLOODWAY DATA, NEW RIVER-A.F.R. TO S.C.
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
345.200	347.	3553.	11.5	1126.8	1126.8	.0
346.200	349.	3835.	10.7	1128.3	1128.3	.0
346.620	351.	3703.	11.1	1128.4	1128.4	.0
346.720	350.	3469.	11.8	1128.3	1128.3	.0
346.900	357.	3403.	12.0	1128.4	1128.4	.0
347.000	347.	3908.	10.5	1129.3	1129.3	.0
349.000	381.	3867.	10.6	1129.9	1129.9	.0
352.000	364.	3249.	12.6	1130.6	1130.6	.0
358.000	630.	2990.	13.7	1135.5	1136.1	-.6
365.000	950.	5511.	7.4	1140.7	1140.0	.7
370.000	677.	4292.	9.6	1141.8	1141.6	.2
373.000	700.	4267.	9.6	1142.7	1142.3	.4
377.000	690.	3938.	10.4	1143.7	1143.1	.6
384.000	356.	4012.	10.2	1146.1	1145.1	1.0
388.000	352.	4372.	9.4	1147.2	1146.6	.6
391.500	397.	4225.	9.7	1147.9	1147.3	.6
395.000	386.	4473.	9.2	1148.7	1148.3	.4
402.000	385.	4645.	8.8	1150.0	1149.7	.3
406.000	379.	4384.	9.4	1150.6	1150.3	.3
409.000	326.	2283.	18.0	1150.6	1150.6	.0
409.010	142.	1946.	21.1	1150.4	1156.0	-5.6
409.820	156.	2859.	14.3	1156.9	1157.5	-.6
410.000	298.	2999.	13.7	1164.9	1157.6	7.3
412.000	342.	9014.	4.5	1169.2	1158.3	10.9
418.000	402.	9726.	4.2	1169.4	1158.6	10.8
423.000	422.	9335.	4.4	1169.4	1159.0	10.4
425.000	412.	9420.	4.4	1169.5	1159.4	10.1
428.000	420.	9461.	4.3	1169.6	1159.7	9.9
434.000	425.	9324.	4.4	1169.6	1160.2	9.4
440.000	440.	9404.	4.4	1169.8	1160.9	8.9
443.200	445.	9065.	4.5	1169.8	1161.1	8.7
449.100	532.	6709.	6.1	1169.8	1161.2	8.6
451.000	545.	4620.	8.9	1169.6	1165.6	4.0
8.655	404.	5601.	7.3	1171.1	1170.4	.7
8.731	439.	5641.	2.1	1172.1	1171.5	.6
8.807	428.	4968.	2.4	1172.1	1171.5	.6
8.883	351.	2939.	4.1	1172.1	1171.5	.6
8.936	365.	2734.	4.4	1172.2	1171.7	.5
8.977	289.	2031.	5.9	1172.3	1171.8	.5
9.009	375.	2872.	4.2	1172.7	1172.3	.4

9.047	396.	3508.	3.4	1173.0	1172.6	.4
9.129	415.	2721.	4.4	1173.1	1172.7	.4

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FLOODWAY DATA, NEW RIVER-A.F.R. TO S.C.
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
9.318	315.	1123.	10.7	1180.6	1180.5	.1
9.492	377.	1709.	6.7	1187.1	1187.2	-.1
9.692	188.	992.	11.5	1191.4	1191.4	.0

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    TIME       VLOB       VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL      XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


     OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1103.10 ELREA=      1103.00

   251.000     17.57   1099.67   1094.00   1099.22   1100.68      1.01      1.08       .06   1103.10
   40000.0       .0   40000.0       .0        .0    4952.5        .0    3156.4     482.4   1103.00
       .89      .00      8.08       .00      .000      .035      .000      .000   1082.10   9723.31
   .001642     560.      520.      500.         2        19         0       .00    484.81  10208.13


*SECNO 256.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9814.0   10151.0  TYPE=      1  TARGET=      337.000
   256.000     17.22   1100.02   1096.06   1099.67   1102.02      2.00      1.05       .30   1102.00
   40000.0       .0   40000.0       .0        .0    3523.6        .0    3205.0     486.9   1105.20
       .91      .00     11.35       .00      .000      .035      .000      .000   1082.80   9834.71
   .002764     500.      500.      500.         2        15         0       .00    303.30  10138.01


*SECNO 258.800

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9789.0   10175.0  TYPE=      1  TARGET=      386.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1103.30 ELREA=    100000.00

   258.800     15.77   1101.37   1096.01   1101.15   1102.69      1.31       .59       .07   1103.30
   40000.0       .0   40000.0       .0        .0    4350.2        .0    3230.3     489.0 100000.00
       .91      .00      9.19       .00      .000      .035      .000      .000   1085.60   9807.17
   .001673     250.      280.      270.         2        14         0       .00    349.90  10157.07


*SECNO 262.000

3470 ENCROACHMENT STATIONS=     9799.0   10190.0  TYPE=      1  TARGET=      391.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1104.50 ELREA=    100000.00

   262.000     15.24   1101.84   1096.77   1101.65   1103.31      1.47       .58       .05   1104.50
   40000.0       .0   40000.0       .0        .0    4110.8        .0    3261.4     491.6 100000.00
       .92      .00      9.73       .00      .000      .035      .000      .000   1086.60   9829.11
   .001954     290.      320.      340.         2        14         0       .00    342.33  10171.44


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


*SECNO 265.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.57


3470 ENCROACHMENT STATIONS=     9599.0   10220.0  TYPE=      1  TARGET=      621.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1105.00 ELREA=    100000.00

   265.000     16.59   1103.19   1096.44   1103.05   1103.76       .57       .36       .09   1105.00
   40000.0       .0   40000.0       .0        .0    6628.6        .0    3298.4     494.8 100000.00
       .94      .00      6.03       .00      .000      .035      .000      .000   1086.60   9626.10
   .000797     310.      300.      350.         2        14         0       .00    582.63  10208.73


*SECNO 270.500

3301 HV CHANGED MORE THAN HVINS
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3470 ENCROACHMENT STATIONS= 9774.0 10211.0 TYPE= 1 TARGET= 437.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1105.60 ELREA= 1106.00

70.500	15.30	1103.40	1097.84	1103.28	1104.50	1.10	.58	.16	1105.60
0000.0	.0	40000.0	.0	.0	4748.2	.0	3370.2	501.0	1106.00
.96	.00	8.42	.00	.000	.035	.000	.000	1088.10	9792.99
.001489	540.	550.	550.	2	14	0	.00	400.52	10193.51

*SECNO 273.500

3470 ENCROACHMENT STATIONS= 9699.0 10156.0 TYPE= 1 TARGET= 457.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1104.00 ELREA= 1106.00

273.500	13.94	1104.04	1097.84	1103.94	1104.91	.87	.38	.02	1104.00
40000.0	.0	40000.0	.0	.0	5345.1	.0	3405.0	503.8	1106.00
.97	.01	7.48	.00	.000	.035	.000	.000	1090.10	9704.90
.001107	300.	300.	300.	2	8	0	.00	430.10	10135.00

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

*SECNO 277.000

3301 HV CHANGED MORE THAN HVINS

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

ENCROACHMENT STATIONS= 9804.0 10151.0 TYPE= 1 TARGET= 347.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1106.00 ELREA= 1108.50

277.000	12.23	1103.03	1101.76	1102.89	1106.42	3.39	.75	.76	1106.00
40000.0	.0	40000.0	.0	.0	2706.3	.0	3437.3	506.7	1108.50
.97	.00	14.78	.00	.000	.035	.000	.000	1090.80	9852.42
.005842	350.	350.	330.	3	15	0	.00	275.15	10127.58

*SECNO 281.800

3470 ENCROACHMENT STATIONS= 9849.0 10126.0 TYPE= 1 TARGET= 277.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1109.00 ELREA= 1111.00

281.800	13.36	1105.56	1104.40	1105.55	1109.44	3.88	2.88	.15	1109.00
40000.0	.0	40000.0	.0	.0	2529.1	.0	3466.1	509.5	1111.00
.98	.00	15.82	.00	.000	.035	.000	.000	1092.20	9876.11
.006145	480.	480.	480.	3	5	0	.00	239.00	10115.10

CCHV= .300 CEHV= .500
*SECNO 288.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.93

3470 ENCROACHMENT STATIONS= 9844.0 10246.0 TYPE= 1 TARGET= 402.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1114.00 ELREA= 1114.00

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

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   288.000     16.55   1110.65   1104.99   1110.65   1111.98      1.33      1.77       .77   1114.00
   40000.0       .0   40000.0       .0        .0    4316.1        .0    3514.9     513.6   1114.00
      1.00      .00      9.27       .00      .000      .035      .000      .000   1094.10   9874.51
   .001645     620.      620.      620.         3        15         0       .00    340.07  10214.58


*SECNO 290.000

3470 ENCROACHMENT STATIONS=     9851.0   10149.0  TYPE=      1  TARGET=      298.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1113.50 ELREA=      1115.00

   290.000     17.63   1110.93   1103.99   1110.93   1112.31      1.38       .31       .02   1113.00
   41000.0       .0   41000.0       .0        .0    4350.8        .0    3534.8     515.1   1110.00
      1.01      .00      9.42       .00      .000      .035      .000      .000   1093.30   9857.68
   .001422     220.      200.      160.         3        14         0       .00    290.32  10148.00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     .90      1.56      2.90       .00    222.20     10.90   3937.00     1.36   1096.00   1095.80

*SECNO 291.000
BTCARD, BRIDGE STENCL=    9808.61   STENCR=   10078.59

3301 HV CHANGED MORE THAN HVINS

PRESSURE FLOW


 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
   1113.55   1113.30      .14        0.    41000.     3937.     3934.     1112.80   1114.00        0.


3470 ENCROACHMENT STATIONS=     9851.0   10149.0  TYPE=      1  TARGET=      298.000

   5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1114.00 ELREA=      1117.00

   291.000     17.82   1111.42       .00   1111.06   1113.55      2.13      1.25       .00 100000.00
   41000.0       .0   41000.0       .0        .0    3498.4        .0    3543.8     515.6   1099.60
      1.01      .00     11.72       .00      .000      .035      .000      .000   1093.60   9851.00
   .002165     100.      100.      100.         3         0         0       .00    226.69  10077.69


1
   20APR98      08:51:29                                                                                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 293.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9844.0   10216.0  TYPE=      1  TARGET=      372.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1114.00 ELREA=      1110.20

   293.000     17.44   1112.54   1106.95   1111.42   1114.15      1.61       .44       .16   1114.00
   41000.0       .0   40997.1      2.9        .0    4029.2       2.4    3561.1     517.0   1110.20
      1.01      .00     10.18      1.23      .000      .035      .045      .000   1095.10   9867.82
   .002234     170.      200.      220.         3        14         0       .00    348.17  10216.00


CCHV=     .100 CEHV=     .300
 *SECNO 297.000

  0 ENCROACHMENT STATIONS=     9844.0   10226.0  TYPE=      1  TARGET=      382.000
   297.000     14.48   1113.38   1109.14   1112.57   1115.18      1.80       .97       .06   1115.50
   41000.0       .0   41000.0       .0        .0    3803.4        .0    3597.0     520.1   1115.30
      1.02      .00     10.78       .00      .000      .035      .000      .000   1098.90   9855.93
   .002654     400.      400.      400.         2        11         0       .00    343.79  10199.72
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*SECNO 302.000

3301 HV CHANGED MORE THAN HVINS


     WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61


3470 ENCROACHMENT STATIONS=     9874.0   10121.0  TYPE=      1  TARGET=      247.000
   302.000     14.39   1113.39   1112.75   1112.89   1118.10      4.70      2.04       .87   1114.70
   41000.0       .0   41000.0       .0        .0    2356.2        .0    3632.4     523.3   1119.10
      1.03      .00     17.40       .00      .000      .035      .000      .000   1099.00   9893.65
   .007092     480.      500.      510.         3        12         0       .00    213.35  10107.00


*SECNO 305.000
1
   20APR98      08:51:29                                                                                    PAGE   95

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


3470 ENCROACHMENT STATIONS=     9879.0   10111.0  TYPE=      1  TARGET=      232.000
   305.000     15.99   1116.59   1113.55   1116.72   1119.78      3.19      1.54       .15   1118.50
   41000.0       .0   41000.0       .0        .0    2859.4        .0    3650.3     524.8   1118.50
      1.04      .00     14.34       .00      .000      .035      .000      .000   1100.60   9885.81
   .003869     260.      300.      320.         4        11         0       .00    216.80  10102.61


*SECNO 307.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9889.0   10136.0  TYPE=      1  TARGET=      247.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1114.80 ELREA=      1119.00

   307.000     17.00   1118.10   1113.52   1118.52   1120.49      2.40       .63       .08   1114.80
   41000.0       4.7   40995.3       .0       3.3    3299.9        .0    3664.5     525.9   1119.00
      1.04      1.42     12.42       .00      .045      .035      .000      .000   1101.10   9889.00
   .002617     200.      200.      160.         2        15         0       .00    237.00  10126.00


*SECNO 311.500

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.03


3470 ENCROACHMENT STATIONS=     9844.0   10271.0  TYPE=      1  TARGET=      427.000
   311.500     17.44   1120.54   1111.90   1120.62   1121.18       .64       .51       .18   1120.00
   41000.0       .2   40996.8       3.0        .5    6391.0       4.1    3714.6     529.3   1116.40
      1.06      .41      6.41       .72      .045      .035      .045      .000   1103.10   9844.00
   .000636     430.      450.      430.         2        11         0       .00    427.00  10271.00


*SECNO 314.000
1
   20APR98      08:51:29                                                                                    PAGE   96

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=     9694.0   10351.0  TYPE=      1  TARGET=      657.000
   314.000     16.23   1120.93   1113.74   1120.93   1121.35       .42       .15       .02   1111.40
   41000.0       6.9   40990.7       2.4       9.5    7842.0       3.6    3755.5     532.4   1117.30
      1.07      .73      5.23       .66      .045      .035      .045      .000   1104.70   9694.00
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   .000556      250.      250.      240.         1        11         0       .00    657.00  10351.00


*SECNO 318.000

 ?? WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .70


3470 ENCROACHMENT STATIONS=     9619.0   10411.0  TYPE=      1  TARGET=      792.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1120.00 ELREA=      1122.00

   318.000     14.54   1121.14   1116.61   1121.02   1121.70       .57       .31       .04   1120.00
   41000.0       .8   40999.2        .0       1.1    6787.1        .0    3822.7     539.0   1122.00
      1.09       .73      6.04       .00      .045      .035      .000      .000   1106.60   9619.00
   .001146      450.      400.      420.         2        14         0       .00    785.17  10404.17


*SECNO 323.000

3470 ENCROACHMENT STATIONS=     9429.0   10401.0  TYPE=      1  TARGET=      972.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1126.00 ELREA=      1126.20

   323.000     12.47   1121.77   1118.87   1121.69   1122.46       .68       .72       .03   1126.00
   41000.0        .0   41000.0        .0        .0    6189.1        .0    3897.2     548.6   1126.20
      1.11       .00      6.62       .00      .000      .035      .000      .000   1109.30   9482.50
   .001853      500.      500.      400.         2        18         0       .00    890.83  10373.32


*SECNO 328.000
CHIMP CLSTA=   10000.00 CELCH=    1111.60 BW=     440.00 STCHL=    9730.00 STCHR=   10265.00
EXCAVATION DATA
AEX=    1704.9SQ-FT     VEXR=        .0K*CU-YD     VEXT=         .0K*CU-YD


3470 ENCROACHMENT STATIONS=     9729.0   10270.0  TYPE=      1  TARGET=      541.000
1
   20APR98      08:51:29                                                                                    PAGE   97


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=      1126.00 ELREA=      1127.10

   328.000     10.78   1122.38   1118.00   1122.32   1123.49      1.11       .90       .13   1126.00
   41000.0        .0   41000.0        .0        .0    4859.3        .0    3960.6     556.4   1127.10
      1.13       .00      8.44       .00      .000      .035      .000      .000   1111.60   9769.22
   .001756      600.      500.      460.         2        11         0       .00    461.56  10230.78


*SECNO 330.000
CHIMP CLSTA=   10038.00 CELCH=    1110.90 BW=     340.00 STCHL=    9830.00 STCHR=   10224.19
EXCAVATION DATA
AEX=    2104.8SQ-FT     VEXR=       12.3K*CU-YD     VEXT=        12.3K*CU-YD


3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     9820.0   10260.0  TYPE=      1  TARGET=      440.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1122.00 ELREA=      1127.09

   330.000     11.49   1122.39   1118.49   1122.34   1123.99      1.60       .36       .15   1122.00
   41000.0       1.8   40998.2        .0       2.7    4039.7        .0    3978.5     558.1   1127.09
      1.14       .66     10.15       .00      .045      .035      .000      .000   1110.90   9820.00
   .002397      200.      175.      200.         2        19         0       .00    374.94  10219.49


*SECNO 334.000
CHIMP CLSTA=   10025.00 CELCH=    1112.10 BW=     330.00 STCHL=    9843.64 STCHR=   10205.65
 VATION DATA
 =    2250.9SQ-FT     VEXR=       32.3K*CU-YD     VEXT=        44.6K*CU-YD


3470 ENCROACHMENT STATIONS=     9840.0   10210.0  TYPE=      1  TARGET=      370.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1128.46 ELREA=      1127.75
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```
   334.000     11.18   1123.28   1119.84   1123.25   1125.08      1.79      1.03       .06   1128.46
   41000.0       .0   41000.0        .0        .0    3816.0        .0    4014.6     561.4   1127.75
      1.15      .00     10.74       .00      .000      .035      .000      .000   1112.10   9848.82
   .002767     400.      400.      400.         2        14         0       .00    352.37  10201.18
```



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

*SECNO 337.000
CHIMP CLSTA=   10040.00 CELCH=    1113.20 BW=     330.00 STCHL=    9859.19 STCHR=   10220.83
EXCAVATION DATA
AEX=    2906.4SQ-FT     VEXR=      28.7K*CU-YD     VEXT=       73.3K*CU-YD

3470 ENCROACHMENT STATIONS=     9855.0   10225.0  TYPE=      1  TARGET=      370.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1129.01 ELREA=      1129.03

   337.000     10.88   1124.08   1120.94   1124.05   1125.98      1.90       .87       .03   1129.01
   41000.0       .0   41000.0        .0        .0    3708.6        .0    4040.5     563.9   1129.03
      1.15      .00     11.06       .00      .000      .035      .000      .000   1113.20   9864.12
   .003034     300.      300.      300.         2        19         0       .00    351.76  10215.88

*SECNO 340.500
CHIMP CLSTA=   10045.00 CELCH=    1114.40 BW=     330.00 STCHL=    9865.09 STCHR=   10224.84
EXCAVATION DATA
AEX=    2890.7SQ-FT     VEXR=      37.6K*CU-YD     VEXT=      110.8K*CU-YD

3470 ENCROACHMENT STATIONS=     9860.0   10230.0  TYPE=      1  TARGET=      370.000

   5 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1129.31 ELREA=      1129.24

   340.500     10.73   1125.13   1122.16   1125.11   1127.08      1.95      1.09       .02   1129.31
   41000.0       .0   41000.0        .0        .0    3654.9        .0    4070.1     566.7   1129.24
      1.16      .00     11.22       .00      .000      .035      .000      .000   1114.40   9869.27
   .003180     350.      350.      350.         2        15         0       .00    351.45  10220.73

*SECNO 342.000
CHIMP CLSTA=   10050.00 CELCH=    1114.90 BW=     330.00 STCHL=    9870.25 STCHR=   10230.10
EXCAVATION DATA
AEX=    2693.6SQ-FT     VEXR=      15.5K*CU-YD     VEXT=      126.3K*CU-YD

3470 ENCROACHMENT STATIONS=     9870.0   10235.0  TYPE=      1  TARGET=      365.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1129.65 ELREA=      1130.00

   342.000     10.70   1125.60   1122.65   1125.58   1127.56      1.97       .48       .00   1129.65
   41000.0       .0   41000.0        .0        .0    3643.0        .0    4082.6     567.9   1130.00
      1.17      .00     11.25       .00      .000      .035      .000      .000   1114.90   9874.31
   .003213     150.      150.      150.         0        15         0       .00    351.39  10225.69
```



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

*SECNO 343.000
CHIMP CLSTA=   10025.00 CELCH=    1115.20 BW=     330.00 STCHL=    9846.20 STCHR=   10206.80
EXCAVATION DATA
AEX=    2668.8SQ-FT     VEXR=       9.9K*CU-YD     VEXT=      136.3K*CU-YD

3470 ENCROACHMENT STATIONS=     9840.0   10220.0  TYPE=      1  TARGET=      380.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1129.00 ELREA=      1132.00
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```
   343.000     10.73   1125.93   1122.95   1125.92   1127.89      1.96       .32       .00   1129.00
   41000.0       .0   41000.0       .0       .0    3653.4        .0    4091.0     568.7   1132.00
      1.17       .00     11.22       .00      .000      .035      .000      .000   1115.20   9849.28
   .003184      100.      100.      100.         1        15         0       .00    351.45  10200.72


CEHV=      .500 CEHV=      .700
*SECNO 344.900

3470 ENCROACHMENT STATIONS=     9822.0   10179.0  TYPE=      1  TARGET=      357.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1182.00 ELREA=      1132.00

   344.900     10.22   1126.52   1124.07   1126.51   1128.70      2.18       .66       .16   1182.00
   41000.0       .0   41000.0       .0       .0    3458.0        .0    4106.5     570.2   1132.00
      1.17       .00     11.86       .00      .000      .035      .000      .000   1116.30   9827.18
   .003764      110.      190.      260.         0        15         0       .00    346.28  10173.47


*SECNO 345.200

3470 ENCROACHMENT STATIONS=     9822.0   10179.0  TYPE=      1  TARGET=      357.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1138.30 ELREA=      1138.30

   345.200     10.50   1126.80   1124.05   1126.79   1128.87      2.07       .11       .06   1182.00
   41000.0       .0   41000.0       .0       .0    3552.9        .0    4108.9     570.5   1132.00
      1.17       .00     11.54       .00      .000      .035      .000      .000   1116.30   9826.97
   .003449       30.       30.       30.         2        15         0       .00    346.72  10173.69


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


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS    1122.35 , NOT    1126.80 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.10      1.56      2.90       .00    330.00     36.50   5319.00       .72   1117.00   1116.30

*SECNO 346.200
BTCARD, BRIDGE STENCL=    9822.00   STENCR=   10179.00
CLASS B LOW FLOW

3420 BRIDGE W.S.=    1125.05 BRIDGE VELOCITY=      16.29     CALCULATED CHANNEL AREA=      2411.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                              AREA
       .00   1130.07      .00        0.    41000.     5319.     5293.     1134.30   1141.90        0.


3470 ENCROACHMENT STATIONS=     9822.0   10179.0  TYPE=      1  TARGET=      357.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1138.30 ELREA=      1138.30

   346.200     11.30   1128.30       .00   1128.30   1130.07      1.77      1.21       .00   1182.00
   41000.0       .0   41000.0       .0       .0    3835.1        .0    4117.4     571.3   1132.00
      1.18       .00     10.69       .00      .000      .035      .000      .000   1117.00   9825.96
   .002699      100.      100.      100.         0         0         0       .00    348.83  10174.79


*SECNO 346.620

3470 ENCROACHMENT STATIONS=     9822.0   10188.0  TYPE=      1  TARGET=      366.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1140.50 ELREA=      1140.50

   346.620     10.88   1128.38   1125.25   1128.38   1130.28      1.90       .12       .09   1186.00
   41000.0       .0   41000.0       .0       .0    3702.5        .0    4121.0     571.6   1135.00
      1.18       .00     11.07       .00      .000      .035      .000      .000   1117.50   9830.00
   .003040       42.       42.       42.         2        14         0       .00    350.57  10180.57
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*SECNO 346.720
1
   20APR98      08:51:29                                                                                                                PAGE  101

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


3265 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=  1141.40 MAX ELLC=  1135.80


3470 ENCROACHMENT STATIONS=     9822.0   10188.0  TYPE=      1  TARGET=      366.000
   346.720     10.84   1128.34   1125.55   1128.34   1130.51      2.17       .04       .19   1186.00
   41000.0       .0   41000.0       .0        .0    3469.5        .0    4121.9     571.7   1141.00
      1.18      .00     11.82       .00      .000      .035      .000      .000   1117.50   9830.04
   .004707      10.       10.       10.         2         9         0       .00    332.20  10180.53


*SECNO 346.900

3265 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=   4 MIN ELTRD=  1141.40 MAX ELLC=  1135.80


3470 ENCROACHMENT STATIONS=     9822.0   10188.0  TYPE=      1  TARGET=      366.000
   346.900     10.90   1128.40   1125.80   1128.40   1130.65      2.25       .09       .06   1191.00
   41000.0       .0   41000.0       .0        .0    3403.4        .0    4123.3     571.8   1141.00
      1.18      .00     12.05       .00      .000      .035      .000      .000   1117.50   9830.05
   .004957      18.       18.       18.         0         9         0       .00    326.33  10187.00


*SECNO 347.000

    HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.40


3470 ENCROACHMENT STATIONS=     9822.0   10188.0  TYPE=      1  TARGET=      366.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1138.60 ELREA=      1141.40

   347.000     11.55   1129.25   1125.48   1129.25   1130.96      1.71       .03       .27   1141.00
   41000.0       .0   41000.0       .0        .0    3908.3        .0    4124.1     571.9   1141.00
      1.18      .00     10.49       .00      .000      .035      .000      .000   1117.70   9831.57
   .002526      10.       10.       10.         3        15         0       .00    346.85  10178.43


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   20APR98      08:51:29                                                                                                                PAGE  102

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=     .100 CEHV=     .300
*SECNO 349.000
CHIMP CLSTA=   10000.00 CELCH=    1119.10 BW=     330.00 STCHL=    9810.00 STCHR=   10170.00
EXCAVATION DATA
AEX=    2991.4SQ-FT     VEXR=      28.8K*CU-YD     VEXT=      165.1K*CU-YD


3470 ENCROACHMENT STATIONS=     9809.0   10214.0  TYPE=      1  TARGET=      405.000

    OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1135.00 ELREA=      1124.00

   349.000     10.83   1129.93   1126.86   1129.95   1131.73      1.80       .74       .03   1135.00
   41000.0       .0   39925.2   1074.8        .0    3673.5     193.3    4148.5     574.2   1124.00
      1.19      .00     10.87      5.56      .000      .035      .045      .000   1119.10   9824.17
   .002877     180.      275.      220.         2        14         0       .00    381.06  10205.23
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*SECNO 352.000
CHIMP CLSTA=    9990.00 CELCH=    1121.30 BW=     330.00 STCHL=    9810.00 STCHR=   10160.00
EXCAVATION DATA
AEX=    1925.1SQ-FT     VEXR=      27.3K*CU-YD     VEXT=      192.4K*CU-YD


3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     9809.0   10180.0  TYPE=      1  TARGET=      371.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1132.00 ELREA=      1124.00

   352.000      9.24   1130.54   1128.95   1130.55   1133.06      2.52      1.12       .22   1132.00
   41000.0       .0   40160.5     839.5       .0    3127.9     120.8    4173.4     576.8   1124.00
      1.19       .00     12.84      6.95      .000      .035      .045      .000   1121.30   9815.76
   .004916      230.     300.      400.         2        19         0       .00    364.24  10180.00


*SECNO 358.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

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   20APR98      08:51:29                                                                                PAGE  103


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


7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9770.0   10400.0  TYPE=      1  TARGET=      630.000
   358.000      9.88   1135.48   1135.48   1136.11   1138.65      3.17      3.92       .19   1135.00
   41000.0      45.0   31615.2    9339.9      31.4    2080.0     879.0    4216.9     583.1   1137.50
      1.20      1.43     15.20     10.63      .045      .035      .045      .000   1125.60   9770.00
   .008914      400.     600.      650.         0         8         0       .00    566.95  10400.00


*SECNO 365.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.86


3470 ENCROACHMENT STATIONS=     9650.0   10600.0  TYPE=      1  TARGET=      950.000
   365.000     13.15   1140.65   1139.15   1139.97   1141.89      1.24      3.05       .19   1137.00
   41000.0    2294.7   31532.8    7172.5     671.7    3179.5    1659.8    4285.2     595.3   1136.00
      1.23      3.42      9.92      4.32      .045      .035      .045      .000   1127.50   9650.00
   .002573      700.      700.      700.         3         8         0       .00    950.00  10600.00


*SECNO 370.000

3470 ENCROACHMENT STATIONS=     9640.0   10350.0  TYPE=      1  TARGET=      710.000
   370.000     14.38   1141.78   1139.26   1141.61   1143.42      1.65      1.41       .12   1140.50
   41000.0     779.2   39375.4     845.4     296.7    3754.3     240.9    4340.7     604.3   1139.00
      1.24      2.63     10.49      3.51      .045      .035      .045      .000   1127.40   9673.34
   .003153      430.     500.      500.         3         8         0       .00    676.66  10350.00


*SECNO 373.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     9550.0   10250.0  TYPE=      1  TARGET=      700.000
   373.000     15.49   1142.69   1139.48   1142.33   1144.44      1.74       .98       .03   1140.00
   41000.0    1613.4   38985.9     400.7     534.8    3595.8     136.7    4373.8     609.9   1141.00
      1.25      3.02     10.84      2.93      .045      .035      .045      .000   1127.20   9550.00
   .002787      420.     330.      300.         2        12         0       .00    681.77  10250.00


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

*SECNO 377.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     9500.0   10230.0  TYPE=      1  TARGET=      730.000
   377.000     15.24   1143.74   1141.10   1143.14   1145.76      2.02      1.24       .08   1143.80
   41000.0    1409.6   39590.4        .0     526.2    3411.5        .0    4411.3     616.1   1143.90
      1.26      2.68     11.60       .00      .045      .035      .000      .000   1128.50   9500.00
   .003474     400.      400.      310.         2        12         0       .00    686.14  10189.57

*SECNO 384.000

3470 ENCROACHMENT STATIONS=     9829.0   10240.0  TYPE=      1  TARGET=      411.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1147.00 ELREA=      1146.00

   384.000     16.33   1146.13   1141.35   1145.12   1147.75      1.62      1.95       .04   1147.00
   41000.0        .0   40999.9        .1        .0    4011.5        .3    4475.5     624.6   1146.00
      1.28       .00     10.22       .26      .000      .035      .045      .000   1129.80   9843.05
   .002281     750.      700.      730.         2        15         0       .00    356.14  10199.19

*SECNO 388.000

3470 ENCROACHMENT STATIONS=     9819.0   10201.0  TYPE=      1  TARGET=      382.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1148.00 ELREA=      1148.00

   388.000     17.20   1147.20   1141.24   1146.55   1148.56      1.37       .79       .03   1148.00
   41000.0        .0   41000.0        .0        .0    4371.8        .0    4514.0     627.9   1148.00
      1.29       .00      9.38       .00      .000      .035      .000      .000   1130.00   9825.51
   .001715     400.      400.      400.         2        19         0       .00    351.69  10177.20

*SECNO 391.500

3470 ENCROACHMENT STATIONS=     9719.0   10191.0  TYPE=      1  TARGET=      472.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1156.00 ELREA=      1148.00

   391.500     16.12   1147.82   1142.79   1147.26   1149.28      1.46       .68       .03   1156.00
   41000.0        .0   41000.0        .0        .0    4224.8        .0    4548.5     630.9   1148.00
      1.30       .00      9.70       .00      .000      .035      .000      .000   1131.70   9789.05
   .002251     350.      350.      350.         2        14         0       .00    397.09  10186.14
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 395.000

3470 ENCROACHMENT STATIONS=     9734.0   10191.0  TYPE=      1  TARGET=      457.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1151.30 ELREA=      1150.00

   395.000     16.49   1148.69   1143.09   1148.27   1150.00      1.30       .70       .02   1151.30
   41000.0        .0   41000.0        .0        .0    4473.3        .0    4583.5     634.0   1150.00
      1.31       .00      9.17       .00      .000      .035      .000      .000   1132.20   9767.66
   .001797     325.      350.      375.         2        14         0       .00    386.37  10154.03

*SECNO 402.000

3470 ENCROACHMENT STATIONS=     9804.0   10191.0  TYPE=      1  TARGET=      387.000
   402.000     15.77   1149.97   1144.00   1149.67   1151.18      1.21      1.18       .01   1150.00
   41000.0        .0   41000.0        .0        .0    4644.7        .0    4656.8     640.2   1150.00
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      1.33       .00      8.83       .00      .000      .035      .000      .000   1134.20   9805.16
   .001576      670.      700.      710.         2        14         0       .00    384.70  10189.87


CCHV=     .300 CEHV=     .500
   SECNO 406.000

3470 ENCROACHMENT STATIONS=     9804.0   10191.0  TYPE=      1  TARGET=      387.000
   406.000     15.48   1150.58   1145.31   1150.33   1151.94      1.36       .68       .07   1152.00
   41000.0        .0   40999.6        .4        .0    4383.8        .6    4698.2     643.8   1150.00
      1.34       .00      9.35       .73      .000      .035      .045      .000   1135.10   9812.09
   .001863      390.      400.      410.         2        14         0       .00    378.91  10191.00


*SECNO 409.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9830.0   10156.0  TYPE=      1  TARGET=      326.000
   409.000     15.25   1150.55   1150.55   1150.59   1156.08      5.53       .98      2.09 100000.00
   41000.0        .0   40166.5    833.5        .0    2107.9     175.0    4720.9     645.7   1160.00
      1.35       .00     19.06      4.76      .000      .035      .045      .000   1135.30   9830.00
   .007285      550.      300.      150.         0         5         0       .00    235.12  10156.00


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


   SECNO 409.010

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9851.0   10149.0  TYPE=      1  TARGET=      298.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1160.60

   409.010     15.22   1150.42   1150.42   1156.02   1157.32      6.90       .01       .68 100000.00
   41000.0        .0   41000.0        .0        .0    1945.7        .0    4720.9     645.7   1160.60
      1.35       .00     21.07       .00      .000      .035      .000      .000   1135.20   9851.00
   .008901        1.        1.        1.         0         5         0       .00    142.48   9993.48


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.56      2.90       .00    167.33     18.00   3913.31      2.44   1135.60   1135.20

*SECNO 409.820
3280 CROSS SECTION    409.82 EXTENDED      4.93 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.75

CLASS A LOW FLOW

3420 BRIDGE W.S.=    1149.05 BRIDGE VELOCITY=      16.45     CALCULATED CHANNEL AREA=      2449.

   WRS       EGLWC       H3        QWEIR      QLOW      BAREA    TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                                    AREA
   1153.08   1160.03      6.41        0.    41000.     3913.     3913.     1155.40   1163.50        0.


3470 ENCROACHMENT STATIONS=     9851.0   10149.0  TYPE=      1  TARGET=      298.000
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1160.60

 409.820    21.23   1156.83       .00   1157.48   1160.03      3.19      2.71       .00 100000.00
 41000.0       .0   41000.0        .0       .0    2859.4        .0    4725.4     646.0   1160.60
    1.35      .00     14.34       .00      .000      .035      .000      .000   1135.60   9851.00
 .002896      81.       81.       81.         0         0         0       .00    155.80  10006.80


*SECNO 410.000
3280 CROSS SECTION    410.00 EXTENDED     12.69 FEET


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9851.0   10149.0  TYPE=      1  TARGET=      298.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1158.00

 410.000    28.99   1164.89   1164.89   1157.63   1169.08      4.19       .07       .50 100000.00
 41000.0       .0   29127.6   11872.4        .0    1550.8    1448.2    4726.6     646.1   1158.00
    1.35      .00     18.78      8.20      .000      .035      .045      .000   1135.90   9851.00
 .005437      18.       18.       18.         0        13         0       .00    298.00  10149.00


CCHV=     .100 CEHV=     .300
*SECNO 412.000
3280 CROSS SECTION    412.00 EXTENDED      7.25 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.03


3470 ENCROACHMENT STATIONS=     9824.0   10166.0  TYPE=      1  TARGET=      342.000
 412.000    32.44   1169.24   1148.02   1158.33   1169.56       .32       .09       .39   1159.70
 41000.0      3.6   40991.3       5.1       9.5    8991.0      13.1    4755.2     647.7   1156.10
    1.36      .38      4.56       .38      .045      .035      .045      .000   1136.80   9824.00
 .000150     100.      200.      260.         2        18         0       .00    342.00  10166.00
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO 418.000
3280 CROSS SECTION    418.00 EXTENDED      7.38 FEET


3470 ENCROACHMENT STATIONS=     9804.0   10206.0  TYPE=      1  TARGET=      402.000
 418.000    31.28   1169.38   1149.60   1158.57   1169.66       .28       .09       .00   1160.00
 41000.0      3.5   40993.1       3.5       9.4    9707.4       9.4    4884.2     652.9   1160.00
    1.40      .37      4.22       .37      .045      .035      .045      .000   1138.10   9804.00
 .000143     550.      600.      700.         2        22         0       .00    402.00  10206.00


 :NO 423.000

3470 ENCROACHMENT STATIONS=     9789.0   10211.0  TYPE=      1  TARGET=      422.000
 423.000    31.84   1169.44   1150.93   1159.01   1169.74       .30       .08       .01   1161.40
 41000.0      3.3   40993.7       3.0       8.0    9319.8       7.4    4993.6     657.6   1162.00
    1.43      .41      4.40       .40      .045      .035      .045      .000   1137.60   9789.00
 .000178     460.      500.      600.         1        18         0       .00    422.00  10211.00
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*SECNO 425.000

3470 ENCROACHMENT STATIONS=     9799.0   10211.0  TYPE=      1  TARGET=      412.000
   425.000     33.48   1169.48   1150.42   1159.38   1169.78       .30       .03       .00   1159.40
    1000.0       4.0   40993.1       2.9      10.1    9402.3       7.5    5036.7     659.5   1162.00
      1.45       .40      4.36       .39      .045      .035      .045      .000   1136.00   9799.00
   .000164      130.      200.      170.         1        14         0       .00    412.00  10211.00


*SECNO 428.000
3280 CROSS SECTION    428.00 EXTENDED      7.53 FEET


3470 ENCROACHMENT STATIONS=     9809.0   10229.0  TYPE=      1  TARGET=      420.000
   428.000     31.63   1169.53   1150.88   1159.66   1169.83       .29       .05       .00   1161.40
   41000.0       3.2   40994.7       2.1       8.1    9447.1       5.5    5101.7     662.4   1164.00
      1.47       .39      4.34       .38      .045      .035      .045      .000   1137.90   9809.00
   .000166      300.      300.      300.         0        18         0       .00    420.00  10229.00


*SECNO 434.000
3280 CROSS SECTION    434.00 EXTENDED      1.93 FEET
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3470 ENCROACHMENT STATIONS=     9901.0   10326.0  TYPE=      1  TARGET=      425.000
   434.000     31.63   1169.63   1152.69   1160.23   1169.93       .30       .10       .00   1160.00
   41000.0       3.9   40993.8       2.2       9.5    9308.9       5.6    5231.1     668.2   1164.00
      1.50       .41      4.40       .39      .045      .035      .045      .000   1138.00   9901.00
   .000177      600.      600.      600.         0        14         0       .00    425.00  10326.00


*SECNO 440.000
3280 CROSS SECTION    440.00 EXTENDED      1.44 FEET


3470 ENCROACHMENT STATIONS=     9919.0   10359.0  TYPE=      1  TARGET=      440.000
   440.000     29.74   1169.74   1152.70   1160.89   1170.04       .30       .11       .00   1166.00
   41000.0       1.4   40997.2       1.4       3.7    9396.8       3.7    5360.1     674.1   1166.00
      1.54       .38      4.36       .38      .045      .035      .045      .000   1140.00   9919.00
   .000182      600.      600.      600.         1        18         0       .00    440.00  10359.00


*SECNO 443.200

3470 ENCROACHMENT STATIONS=     9939.0   10386.0  TYPE=      1  TARGET=      447.000
   443.200     29.29   1169.79   1154.01   1161.14   1170.11       .32       .06       .01   1166.00
   41000.0       1.6   40998.4        .0       3.8    9061.7        .0    5427.9     677.4   1170.00
      1.56       .41      4.52       .00      .045      .035      .000      .000   1140.50   9939.00
   .000209      330.      320.      330.         1        14         0       .00    445.29  10384.29


*SECNO 449.100

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


3470 ENCROACHMENT STATIONS=     9937.0   10501.0  TYPE=      1  TARGET=      564.000
   449.100     17.82   1169.82   1161.19   1161.19   1170.40       .58       .21       .08   1169.00
   41000.0        .5   40999.5        .0        .9    6708.3        .0    5534.7     684.0   1170.80
      1.59       .52      6.11       .00      .045      .035      .000      .000   1152.00   9937.00
   .000719      600.      590.      580.         2        17         0       .00    532.17  10469.17


*SECNO 451.000
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
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3301 HV CHANGED MORE THAN HVINS

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

3470 ENCROACHMENT STATIONS=     9909.0   10460.0  TYPE=      1  TARGET=      551.000
   451.000     15.70   1169.60   1165.58   1165.56   1170.82      1.22       .23       .19   1170.00
   41000.0       .0   41000.0       .0        .0    4620.1        .0    5559.4     686.4 100000.00
      1.59      .00      8.87       .00      .000      .035      .000      .000   1153.90   9912.84
   .002585     200.      190.      120.         2        14         0       .00    545.17  10458.01

CCHV=     .200 CEHV=     .400
*SECNO 8.655
3280 CROSS SECTION      8.65 EXTENDED       .48 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66

3470 ENCROACHMENT STATIONS=     9820.0   10225.0  TYPE=      1  TARGET=      405.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=    100000.00 ELREA=      1171.20

     8.655     15.78   1171.08   1163.50   1170.38   1171.91       .83      1.01       .08 100000.00
   41000.0       .0   41000.0       .0        .0    5600.7        .0    5640.4     693.9   1171.20
      1.62      .00      7.32       .00      .000      .035      .000      .000   1155.30   9820.00
   .000943     950.      690.      375.         2        11         0       .00    403.76  10223.76

CCHV=     .100 CEHV=     .300
*SECNO 8.731
3280 CROSS SECTION      8.73 EXTENDED       .78 FEET

3301 HV CHANGED MORE THAN HVINS

_..0 ENCROACHMENT STATIONS=     9762.5   10213.5  TYPE=      1  TARGET=      451.000
1
   20APR98      08:51:29                                                                                PAGE  111

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=      1172.80 ELREA=    100000.00

     8.731     15.98   1172.08   1160.45   1171.50   1172.15       .07       .16       .08   1172.80
   12000.0       .0   12000.0       .0        .0    5641.3        .0    5692.0     697.7 100000.00
      1.67      .00      2.13       .00      .000      .035      .000      .000   1156.10   9773.66
   .000084     400.      400.      400.         2        14         0       .00    439.33  10212.99

*SECNO 8.807

3470 ENCROACHMENT STATIONS=     9771.5   10219.2  TYPE=      1  TARGET=      447.700

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

     8.807     13.81   1172.11   1162.15   1171.53   1172.20       .09       .04       .01 100000.00
   12000.0       .0   12000.0       .0        .0    4968.3        .0    5740.7     701.7 100000.00
      1.72      .00      2.42       .00      .000      .035      .000      .000   1158.30   9781.06
   .000124     400.      400.      390.         2        14         0       .00    427.95  10209.01

*SECNO 8.883

  ? WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .48

3470 ENCROACHMENT STATIONS=     9824.7   10216.9  TYPE=      1  TARGET=      392.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1174.90 ELREA=    100000.00

     8.883     11.98   1172.08   1165.98   1171.50   1172.34       .26       .09       .05   1174.90
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   12000.0        .0   12000.0        .0        .0    2939.1        .0    5777.0     705.3 100000.00
      1.75       .00      4.08       .00      .000      .035      .000      .000   1160.10   9843.21
   .000549      280.      400.      400.         2        18         0       .00    350.79  10194.00


   NO 8.936

3470 ENCROACHMENT STATIONS=     9809.4   10213.2  TYPE=      1  TARGET=      403.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1177.30 ELREA=    100000.00

     8.936     10.44   1172.24   1167.73   1171.70   1172.53       .30       .18       .01   1177.30
   12000.0        .0   12000.0        .0        .0    2733.7        .0    5795.9     707.7 100000.00
      1.76       .00      4.39       .00      .000      .035      .000      .000   1161.80   9820.85
   .000741      300.      290.      300.         2         8         0       .00    365.12  10185.97


1
   20APR98      08:51:29                                                                          PAGE  112

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 8.977

3470 ENCROACHMENT STATIONS=     9886.1   10212.7  TYPE=      1  TARGET=      326.601

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1177.20 ELREA=    100000.00

     8.977      8.78   1172.28   1168.77   1171.77   1172.82       .54       .21       .07   1177.20
   12000.0        .0   12000.0        .0        .0    2030.5        .0    5807.4     709.3 100000.00
      1.77       .00      5.91       .00      .000      .035      .000      .000   1163.50   9893.88
   .001455      220.      210.      200.         2         8         0       .00    289.01  10182.89


*SECNO 9.009

   ? WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.50


3470 ENCROACHMENT STATIONS=     9764.5   10207.0  TYPE=      1  TARGET=      442.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1178.00 ELREA=    100000.00

     9.009      9.84   1172.74   1167.94   1172.33   1173.01       .27       .17       .03   1178.00
   12000.0        .0   12000.0        .0        .0    2871.5        .0    5817.5     710.6 100000.00
      1.79       .00      4.18       .00      .000      .035      .000      .000   1162.90   9793.38
   .000647      330.      180.      180.         2        11         0       .00    374.59  10167.98


*SECNO 9.047

3470 ENCROACHMENT STATIONS=     9689.8   10113.8  TYPE=      1  TARGET=      424.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1177.50 ELREA=    100000.00

     9.047     11.74   1172.94   1166.59   1172.56   1173.12       .18       .09       .01   1177.50
   12000.0        .0   12000.0        .0        .0    3508.3        .0    5832.2     712.4 100000.00
      1.80       .00      3.42       .00      .000      .035      .000      .000   1161.20   9709.33
   .000358      280.      200.      160.         2        11         0       .00    395.64  10104.97


*SECNO 9.129

3265 DIVIDED FLOW

1
   20APR98      08:51:29                                                                          PAGE  113

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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 =   .64
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3470 ENCROACHMENT STATIONS=     9641.2   10090.0  TYPE=      1  TARGET=      448.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1180.60 ELREA=    100000.00

     9.129      8.87   1173.07   1169.21   1172.72   1173.38       .30       .22       .04   1180.60
   12000.0        .0   12000.0        .0        .0    2720.7        .0    5862.2     716.3 100000.00
      1.83       .00      4.41       .00      .000      .035      .000      .000   1164.20   9666.71
   .000873      290.      420.      460.         2        18         0       .00    409.35  10081.68


CCHV=      .100 CEHV=      .300
*SECNO 9.318

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    19660.0   20015.0  TYPE=      1  TARGET=      355.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1186.00 ELREA=    100000.00

     9.318      7.41   1180.61   1180.61   1180.55   1182.39      1.77      2.16       .44   1186.00
   12000.0        .0   12000.0        .0        .0    1123.2        .0    5906.3     724.6 100000.00
      1.85       .00     10.68       .00      .000      .035      .000      .000   1173.20  19699.11
   .011832     1000.     1000.     1000.         0        12         0       .00    315.30  20014.41


*SECNO 9.492

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.80


3470 ENCROACHMENT STATIONS=    19770.0   20235.0  TYPE=      1  TARGET=      465.000
1
   20APR98      08:51:29                                                                                    PAGE  114


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        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=      1188.00 ELREA=    100000.00

     9.492      8.11   1187.11   1184.97   1187.16   1187.80       .70      5.31       .11   1188.00
   11450.0        .0   11450.0        .0        .0    1709.5        .0    5936.2     731.9 100000.00
      1.89       .00      6.70       .00      .000      .035      .000      .000   1179.00  19830.27
   .003331      910.      920.      890.         3        11         0       .00    377.29  20207.55


*SECNO 9.692

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64


3470 ENCROACHMENT STATIONS=    19840.0   20060.0  TYPE=      1  TARGET=      220.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1195.00 ELREA=    100000.00

     9.692      7.28   1191.38   1190.91   1191.36   1193.45      2.07      5.24       .41   1195.00
   11450.0        .0   11450.0        .0        .0     991.8        .0    5969.0     738.8 100000.00
      1.92       .00     11.54       .00      .000      .035      .000      .000   1184.10  19856.08
   .008157     1050.     1056.     1040.         3        15         0       .00    188.45  20044.53


1
   20APR98      08:51:29                                                                                    PAGE  115


                                                                                THIS RUN EXECUTED 20APR98     08:51:33
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 HEC-2 WATER SURFACE PROFILES
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Version 4.6.2; May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

NEW RIVER-A.F.R. TO S.C.

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
	501.45	39000.00	1027.50	8.30	1027.62	3.20	.00	8395.00	6594.18	15157.41
	501.45	39000.00	1028.22	9.02	1028.42	3.69	.00	9300.00	2800.83	12150.00
*	10.000	39000.00	1029.45	5.45	1030.66	10.69	.33	8600.00	2223.60	10908.61
*	10.000	39000.00	1030.01	6.01	1031.58	11.54	.41	9050.00	1320.00	10370.00
*	13.000	39000.00	1031.08	8.88	1031.50	6.21	.08	8600.00	2347.98	10947.98
*	13.000	39000.00	1031.97	9.77	1032.58	7.00	.10	9050.00	1324.00	10374.00
	20.000	39000.00	1032.46	8.86	1032.92	6.08	.01	8800.00	2303.88	11128.37
	20.000	39000.00	1033.37	9.77	1033.90	6.15	.01	9100.00	1345.00	10445.00
	26.800	39000.00	1033.93	9.03	1034.54	7.14	.04	8000.00	3200.43	11200.43
	26.800	39000.00	1034.58	9.68	1035.45	7.90	.10	9150.00	1250.00	10400.00
	32.600	39000.00	1035.25	9.05	1036.42	8.88	.17	8500.00	1680.05	10222.50
	32.600	39000.00	1036.03	9.83	1036.90	7.72	.00	9000.00	1224.06	10224.06
	38.000	39000.00	1037.16	9.96	1038.17	8.26	.02	8900.00	1164.90	10064.90
	38.000	39000.00	1037.32	10.12	1038.26	8.01	.02	8900.00	1165.23	10065.23
	45.000	39000.00	1039.08	10.78	1039.81	6.96	.03	9150.00	981.56	10131.56
	45.000	39000.00	1039.10	10.80	1039.82	6.94	.02	9150.00	981.60	10131.60
*	51.700	39000.00	1040.18	12.78	1040.66	5.51	.03	9816.33	741.62	10592.57
*	51.700	39000.00	1040.19	12.79	1040.66	5.50	.03	9816.13	741.91	10592.59
	54.000	39000.00	1040.44	12.44	1040.84	5.08	.01	9857.22	832.27	10689.49
	54.000	39000.00	1040.45	12.45	1040.85	5.08	.01	9857.21	832.30	10689.50
	59.000	39000.00	1040.85	10.15	1041.30	5.41	.02	9767.88	925.61	10693.49
	59.000	39000.00	1040.85	10.15	1041.31	5.40	.02	9767.86	925.64	10693.51

	SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
	63.000	39000.00	1041.25	9.55	1041.82	6.04	.03	9696.25	867.85	10564.10
	63.000	39000.00	1041.26	9.56	1041.82	6.03	.03	9696.15	867.96	10564.11
*	70.500	39000.00	1042.27	8.77	1044.53	12.04	.51	9592.93	661.32	10254.25
*	70.500	39000.00	1042.27	8.77	1044.53	12.04	.51	9592.92	661.33	10254.26
	77.000	39000.00	1046.88	12.28	1049.71	13.52	.17	9795.96	418.12	10237.54
	77.000	39000.00	1046.88	12.28	1049.71	13.52	.17	9795.96	418.10	10237.54
*	84.000	39000.00	1050.69	14.89	1051.15	5.77	.24	9859.46	930.54	10790.00
*	84.000	39000.00	1050.72	14.92	1051.43	6.75	.21	9859.33	541.67	10401.00
	88.700	39000.00	1051.03	16.83	1051.48	5.48	.00	9732.41	999.80	10917.22
	88.700	39000.00	1051.35	17.15	1051.83	5.55	.02	9731.62	569.38	10301.00
	95.500	39000.00	1051.52	17.32	1052.03	5.70	.02	9508.36	795.78	10304.13
	95.500	39000.00	1051.86	17.67	1052.33	5.48	.00	9502.53	802.20	10304.74
*	100.700	39000.00	1051.54	16.54	1053.28	10.59	.37	9692.93	399.10	10188.63
*	100.700	39000.00	1051.90	16.90	1053.50	10.17	.34	9675.50	456.80	10189.67
*	107.000	39000.00	1053.66	15.56	1054.18	5.82	.12	9724.66	529.75	10254.42
*	107.000	39000.00	1053.87	15.77	1054.38	5.72	.11	9723.32	531.46	10254.78
	110.700	39000.00	1053.23	11.73	1056.47	14.45	1.36	9771.30	456.59	10227.90
	110.700	39000.00	1053.52	12.02	1056.46	13.78	1.22	9770.82	457.81	10228.63
*	117.200	39000.00	1058.53	12.13	1060.57	11.46	.36	9845.00	350.00	10195.00
*	117.200	39000.00	1058.28	11.88	1060.43	11.77	.24	9845.00	350.00	10195.00
	118.000	39000.00	1058.93	11.53	1061.03	11.61	.00	9845.00	350.00	10195.00

	118.000	39000.00	1058.74	11.34	1060.92	11.85	.00	9845.00	350.00	10195.00
*	120.000	39000.00	1061.05	15.15	1061.75	6.88	.42	9550.00	850.00	10400.00
*	120.000	39000.00	1060.82	14.92	1061.67	7.39	.40	9799.00	407.00	10206.00
	125.000	39000.00	1061.56	15.66	1062.19	6.59	.01	8950.00	1850.00	10800.00
	125.000	39000.00	1061.39	15.49	1062.19	7.19	.00	9789.00	452.00	10241.00
*	131.000	39000.00	1062.12	12.12	1064.40	12.15	.50	8644.03	1489.22	10237.57
*	131.000	39000.00	1061.31	11.31	1064.33	13.94	.66	9744.00	490.16	10234.16
*	135.000	39000.00	1064.84	13.04	1066.12	9.79	.10	8400.00	1707.62	10292.42
*	135.000	39000.00	1064.71	12.91	1066.85	11.73	.09	9799.00	357.00	10156.00
	140.000	39000.00	1066.47	12.57	1067.14	7.07	.06	7543.08	2338.85	10581.75
*	140.000	39000.00	1067.22	13.32	1068.13	7.65	.12	9744.00	517.00	10261.00
	143.000	39000.00	1066.89	8.99	1067.79	8.06	.07	7772.90	2041.33	10394.48
	143.000	39000.00	1067.71	9.81	1068.75	8.22	.04	9629.92	706.33	10398.55

	SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
*	146.000	39000.00	1068.64	10.74	1070.12	11.00	.18	7818.53	1823.13	10304.55
*	146.000	39000.00	1068.64	10.74	1070.79	12.54	.33	9000.00	913.24	10190.62
*	149.600	40000.00	1070.49	10.59	1071.42	8.56	.06	7638.77	2993.35	10946.04
*	149.600	40000.00	1071.28	11.38	1072.08	7.85	.14	8850.00	1356.00	10206.00
	158.000	40000.00	1072.76	13.26	1073.43	7.59	.03	8153.09	2484.14	10750.11
	158.000	40000.00	1073.06	13.56	1073.94	8.29	.02	8950.00	1300.00	10250.00
	167.000	40000.00	1074.15	15.25	1075.73	10.92	.28	8792.33	1771.34	10663.36
	167.000	40000.00	1074.67	15.77	1076.16	10.54	.18	9000.00	1150.40	10250.00
	170.000	40000.00	1074.45	15.25	1076.76	12.76	.22	8971.37	1107.05	10131.13
	170.000	40000.00	1075.13	15.93	1076.91	11.47	.09	9030.00	1051.07	10132.83
	174.200	40000.00	1077.21	17.81	1078.90	11.90	.06	8641.65	2158.35	10800.00
	174.200	40000.00	1077.09	17.69	1079.03	12.50	.05	8850.00	1450.00	10300.00
*	178.000	40000.00	1079.14	19.24	1079.87	7.35	.48	8720.54	1796.72	10600.00
*	178.000	40000.00	1079.44	19.54	1080.15	7.20	.62	8750.00	1592.09	10400.00
*	178.500	40000.00	1079.30	11.60	1079.97	7.13	.03	8449.86	2100.14	10550.00
	178.500	40000.00	1079.67	11.97	1080.25	6.73	.06	8750.00	1665.00	10415.00
*	181.500	40000.00	1079.37	12.87	1081.03	11.27	.30	8909.73	1422.49	10406.92
*	181.500	40000.00	1079.68	13.18	1081.19	10.79	.28	9100.00	1150.35	10325.00
	185.300	40000.00	1080.97	13.07	1082.24	9.72	.04	8465.87	1883.72	10601.88
	185.300	40000.00	1080.70	12.80	1082.61	11.32	.12	9559.89	651.11	10211.00
	190.000	40000.00	1082.37	14.57	1083.43	8.36	.02	8082.58	1943.56	10396.27
	190.000	40000.00	1082.98	15.18	1083.94	7.90	.09	9804.00	597.00	10401.00
	193.600	40000.00	1082.89	12.69	1084.87	11.34	.27	9778.67	749.19	10527.86
	193.600	40000.00	1083.36	13.16	1085.16	10.78	.25	9770.67	440.33	10211.00
	198.400	40000.00	1085.07	14.07	1086.42	9.30	.06	9751.36	433.77	10185.13
	198.400	40000.00	1085.27	14.27	1086.56	9.12	.05	9749.00	437.16	10186.16
	202.400	40000.00	1085.67	13.17	1087.91	12.01	.27	9767.34	397.78	10165.12
	202.400	40000.00	1085.82	13.32	1087.98	11.80	.26	9789.00	378.42	10167.42
	206.000	40000.00	1087.37	13.87	1089.50	11.72	.01	9428.99	707.86	10136.85
	206.000	40000.00	1087.40	13.90	1089.52	11.69	.00	9721.00	415.98	10136.98
*	210.500	40000.00	1089.63	18.43	1090.37	7.14	.14	8550.00	1296.11	10173.99
*	210.500	40000.00	1089.51	18.31	1090.46	7.83	.12	9814.00	359.69	10173.69
	216.000	40000.00	1090.18	17.98	1090.81	6.49	.01	8900.00	1102.69	10222.77
	216.000	40000.00	1090.28	18.08	1090.99	6.74	.02	9769.00	454.16	10223.16

SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
218.000	40000.00	1090.53	18.43	1090.95	5.33	.02	9000.00	1233.75	10233.75

	218.000	40000.00	1090.67	18.57	1091.14	5.51	.02	9699.00	535.21	10234.21
	220.800	40000.00	1090.62	17.42	1091.13	5.89	.03	9258.02	972.02	10230.04
	220.800	40000.00	1090.75	17.55	1091.33	6.12	.03	9749.00	481.45	10230.45
	223.000	40000.00	1090.67	16.47	1091.34	6.70	.05	9255.57	984.90	10243.09
	223.000	40000.00	1090.83	16.63	1091.55	6.81	.04	9749.00	494.91	10243.91
	229.000	40000.00	1091.33	11.43	1091.97	6.45	.01	9296.19	847.14	10280.41
	229.000	40000.00	1091.54	11.64	1092.18	6.40	.02	9659.00	622.57	10281.57
	231.500	40000.00	1091.48	11.18	1092.53	8.97	.20	9562.92	582.08	10145.00
	231.500	40000.00	1091.70	11.40	1092.70	8.78	.18	9600.00	545.00	10145.00
	232.600	40000.00	1095.07	14.97	1096.11	8.60	.00	8600.00	1446.39	10145.00
	232.600	40000.00	1096.07	15.97	1097.05	8.26	.00	9550.00	596.00	10146.00
	235.000	40000.00	1095.48	15.38	1096.41	8.09	.01	8650.00	1472.16	10168.69
	235.000	40000.00	1096.40	16.30	1097.31	7.84	.01	9620.00	551.36	10171.36
	238.800	40000.00	1096.33	15.63	1096.87	6.50	.04	8700.00	1522.71	10222.71
	238.800	40000.00	1096.90	16.20	1097.75	7.51	.01	9700.00	525.21	10225.21
*	240.800	40000.00	1096.39	15.59	1097.25	8.52	.10	8700.00	1531.61	10247.92
	240.800	40000.00	1097.09	16.29	1098.14	8.79	.06	9630.00	623.15	10253.15
	245.800	40000.00	1097.17	15.27	1098.97	10.91	.28	9103.37	1046.83	10150.19
	245.800	40000.00	1097.98	16.08	1099.55	10.13	.15	9620.00	534.88	10154.88
	251.000	40000.00	1099.22	17.12	1100.32	8.45	.07	9727.81	477.78	10205.58
	251.000	40000.00	1099.67	17.57	1100.68	8.08	.06	9723.31	484.81	10208.13
	256.000	40000.00	1099.67	16.87	1101.80	11.70	.31	9836.62	300.58	10137.21
	256.000	40000.00	1100.02	17.22	1102.02	11.35	.30	9834.71	303.30	10138.01
	258.800	40000.00	1101.15	15.55	1102.51	9.37	.08	9807.97	348.76	10156.73
	258.800	40000.00	1101.37	15.77	1102.69	9.19	.07	9807.17	349.90	10157.07
	262.000	40000.00	1101.65	15.05	1103.17	9.89	.05	9830.44	340.34	10170.78
	262.000	40000.00	1101.84	15.24	1103.31	9.73	.05	9829.11	342.33	10171.44
	265.000	40000.00	1103.05	16.45	1103.63	6.11	.09	9628.87	579.69	10208.57
	265.000	40000.00	1103.19	16.59	1103.76	6.03	.09	9626.10	582.63	10208.73
	270.500	40000.00	1103.28	15.18	1104.40	8.51	.16	9793.61	399.58	10193.19
	270.500	40000.00	1103.40	15.30	1104.50	8.42	.16	9792.99	400.52	10193.51
	273.500	40000.00	1103.94	13.84	1104.82	7.55	.02	9705.11	429.89	10135.00
	273.500	40000.00	1104.04	13.94	1104.91	7.48	.02	9704.90	430.10	10135.00

	SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
*	277.000	40000.00	1102.89	12.09	1106.38	14.99	.78	9852.76	274.48	10127.24
*	277.000	40000.00	1103.03	12.23	1106.42	14.78	.76	9852.42	275.15	10127.58
	281.800	40000.00	1105.55	13.35	1109.44	15.83	.12	9876.13	238.96	10115.09
	281.800	40000.00	1105.56	13.36	1109.44	15.82	.15	9876.11	239.00	10115.10
*	288.000	40000.00	1110.65	16.55	1111.98	9.27	.77	9874.50	340.08	10214.59
*	288.000	40000.00	1110.65	16.55	1111.98	9.27	.77	9874.51	340.07	10214.58
	290.000	41000.00	1110.93	17.63	1112.31	9.42	.02	9857.68	290.32	10148.00
	290.000	41000.00	1110.93	17.63	1112.31	9.42	.02	9857.68	290.32	10148.00
	291.000	41000.00	1111.06	17.46	1112.80	10.56	.00	9809.51	268.18	10077.69
	291.000	41000.00	1111.42	17.82	1113.55	11.72	.00	9851.00	226.69	10077.69
	293.000	41000.00	1111.42	16.32	1113.35	11.18	.10	9871.44	427.12	10298.56
	293.000	41000.00	1112.54	17.44	1114.15	10.18	.16	9867.82	348.17	10216.00
	297.000	41000.00	1112.57	13.67	1114.67	11.61	.05	9857.14	335.75	10192.89
	297.000	41000.00	1113.38	14.48	1115.18	10.78	.06	9855.93	343.79	10199.72
	302.000	41000.00	1112.89	13.89	1118.05	18.22	.92	9895.01	211.13	10106.14
	302.000	41000.00	1113.39	14.39	1118.10	17.40	.87	9893.65	213.35	10107.00
*	305.000	41000.00	1116.72	16.12	1119.85	14.20	.20	9885.74	217.09	10102.83
	305.000	41000.00	1116.59	15.99	1119.78	14.34	.15	9885.81	216.80	10102.61
	307.000	41000.00	1118.52	17.42	1120.53	11.59	.11	9611.11	519.12	10130.23

	307.000	41000.00	1118.10	17.00	1120.49	12.42	.08	9889.00	237.00	10126.00
*	311.500	41000.00	1120.62	17.52	1121.11	5.84	.15	8932.65	1797.07	10923.47
*	311.500	41000.00	1120.54	17.44	1121.18	6.41	.18	9844.00	427.00	10271.00
	314.000	41000.00	1120.93	16.23	1121.25	4.68	.02	9416.06	1126.22	10542.28
	314.000	41000.00	1120.93	16.23	1121.35	5.23	.02	9694.00	657.00	10351.00
*	318.000	41000.00	1121.02	14.42	1121.61	6.12	.08	9612.32	791.08	10403.40
*	318.000	41000.00	1121.14	14.54	1121.70	6.04	.04	9619.00	785.17	10404.17
	323.000	41000.00	1121.69	12.39	1122.39	6.71	.04	9483.44	889.55	10372.99
	323.000	41000.00	1121.77	12.47	1122.46	6.62	.03	9482.50	890.83	10373.32
	328.000	41000.00	1122.32	10.72	1123.44	8.48	.13	9769.28	461.45	10230.72
	328.000	41000.00	1122.38	10.78	1123.49	8.44	.13	9769.22	461.56	10230.78
	330.000	41000.00	1122.34	11.44	1123.95	10.20	.15	9816.41	378.17	10219.44
	330.000	41000.00	1122.39	11.49	1123.99	10.15	.15	9820.00	374.94	10219.49
	334.000	41000.00	1123.25	11.15	1125.05	10.78	.06	9848.85	352.29	10201.15
	334.000	41000.00	1123.28	11.18	1125.08	10.74	.06	9848.82	352.37	10201.18

SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
337.000	41000.00	1124.05	10.85	1125.96	11.08	.03	9864.15	351.71	10215.85
337.000	41000.00	1124.08	10.88	1125.98	11.06	.03	9864.12	351.76	10215.88
340.500	41000.00	1125.11	10.71	1127.07	11.24	.02	9869.29	351.42	10220.71
340.500	41000.00	1125.13	10.73	1127.08	11.22	.02	9869.27	351.45	10220.73
342.000	41000.00	1125.58	10.68	1127.56	11.27	.00	9874.32	351.36	10225.68
342.000	41000.00	1125.60	10.70	1127.56	11.25	.00	9874.31	351.39	10225.69
343.000	41000.00	1125.92	10.72	1127.88	11.24	.00	9849.29	351.42	10200.71
343.000	41000.00	1125.93	10.73	1127.89	11.22	.00	9849.28	351.45	10200.72
344.900	41000.00	1126.51	10.21	1128.70	11.87	.16	9827.19	346.27	10173.46
344.900	41000.00	1126.52	10.22	1128.70	11.86	.16	9827.18	346.28	10173.47
345.200	41000.00	1126.79	10.49	1128.86	11.55	.06	9826.98	346.71	10173.69
345.200	41000.00	1126.80	10.50	1128.87	11.54	.06	9826.97	346.72	10173.69
* 346.200	41000.00	1128.30	11.30	1130.07	10.69	.00	9825.96	348.83	10174.79
* 346.200	41000.00	1128.30	11.30	1130.07	10.69	.00	9825.96	348.83	10174.79
346.620	41000.00	1128.38	10.88	1130.28	11.07	.09	9830.00	350.57	10180.57
346.620	41000.00	1128.38	10.88	1130.28	11.07	.09	9830.00	350.57	10180.57
346.720	41000.00	1128.34	10.84	1130.51	11.82	.19	9830.04	332.20	10180.53
346.720	41000.00	1128.34	10.84	1130.51	11.82	.19	9830.04	332.20	10180.53
346.900	41000.00	1128.40	10.90	1130.65	12.05	.06	9830.05	326.33	10187.00
346.900	41000.00	1128.40	10.90	1130.65	12.05	.06	9830.05	326.33	10187.00
* 347.000	41000.00	1129.25	11.55	1130.96	10.49	.27	9831.57	346.85	10178.43
* 347.000	41000.00	1129.25	11.55	1130.96	10.49	.27	9831.57	346.85	10178.43
349.000	41000.00	1129.95	10.85	1131.71	10.79	.02	9824.15	451.91	10324.08
349.000	41000.00	1129.93	10.83	1131.73	10.87	.03	9824.17	381.06	10205.23
352.000	41000.00	1130.55	9.25	1133.02	12.74	.21	9815.75	411.99	10401.39
352.000	41000.00	1130.54	9.24	1133.06	12.84	.22	9815.76	364.24	10180.00
* 358.000	41000.00	1136.11	10.51	1138.26	13.15	.03	9394.56	1294.80	10720.00
* 358.000	41000.00	1135.48	9.88	1138.65	15.20	.19	9770.00	566.95	10400.00
365.000	41000.00	1139.97	12.47	1141.32	10.48	.08	9361.02	1408.98	10770.00
* 365.000	41000.00	1140.65	13.15	1141.89	9.92	.19	9650.00	950.00	10600.00
370.000	41000.00	1141.61	14.21	1142.71	9.14	.02	9290.07	1462.13	10800.00
370.000	41000.00	1141.78	14.38	1143.42	10.49	.12	9673.34	676.66	10350.00
373.000	41000.00	1142.33	15.13	1143.56	9.71	.04	8678.50	1931.14	10661.33
373.000	41000.00	1142.69	15.49	1144.44	10.84	.03	9550.00	681.77	10250.00

	SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
	377.000	41000.00	1143.14	14.64	1144.78	10.99	.12	9300.00	1259.52	10700.00
	377.000	41000.00	1143.74	15.24	1145.76	11.60	.08	9500.00	686.14	10189.57
	384.000	41000.00	1145.12	15.32	1147.07	11.19	.09	9851.18	339.20	10190.38
	384.000	41000.00	1146.13	16.33	1147.75	10.22	.04	9843.05	356.14	10199.19
	388.000	41000.00	1146.55	16.55	1148.07	9.89	.04	9829.97	344.96	10174.93
	388.000	41000.00	1147.20	17.20	1148.56	9.38	.03	9825.51	351.69	10177.20
	391.500	41000.00	1147.26	15.56	1148.88	10.23	.03	9793.74	380.74	10174.48
	391.500	41000.00	1147.82	16.12	1149.28	9.70	.03	9789.05	397.09	10186.14
	395.000	41000.00	1148.27	16.07	1149.67	9.50	.02	9773.34	369.13	10142.46
	395.000	41000.00	1148.69	16.49	1150.00	9.17	.02	9767.66	386.37	10154.03
	402.000	41000.00	1149.67	15.47	1150.94	9.05	.01	9806.97	381.38	10188.36
	402.000	41000.00	1149.97	15.77	1151.18	8.83	.01	9805.16	384.70	10189.87
	406.000	41000.00	1150.33	15.23	1151.75	9.56	.07	9813.34	386.62	10199.96
	406.000	41000.00	1150.58	15.48	1151.94	9.35	.07	9812.09	378.91	10191.00
*	409.000	41000.00	1150.59	15.29	1156.08	18.98	2.03	9830.00	235.58	10156.00
*	409.000	41000.00	1150.55	15.25	1156.08	19.06	2.09	9830.00	235.12	10156.00
*	409.010	41000.00	1156.02	20.82	1157.33	9.19	1.25	9754.13	248.82	10002.96
*	409.010	41000.00	1150.42	15.22	1157.32	21.07	.68	9851.00	142.48	9993.48
	409.820	41000.00	1157.48	21.88	1158.68	8.80	.00	9756.36	251.68	10008.04
*	409.820	41000.00	1156.83	21.23	1160.03	14.34	.00	9851.00	155.80	10006.80
	410.000	41000.00	1157.63	21.93	1158.73	8.43	.03	8701.33	891.92	9921.93
*	410.000	41000.00	1164.89	28.99	1169.08	18.78	.50	9851.00	298.00	10149.00
	412.000	41000.00	1158.33	21.53	1158.92	6.64	.05	9841.11	1555.36	11396.46
*	412.000	41000.00	1169.24	32.44	1169.56	4.56	.39	9824.00	342.00	10166.00
	418.000	41000.00	1158.57	20.47	1159.46	7.61	.09	9813.19	376.81	10190.00
	418.000	41000.00	1169.38	31.28	1169.66	4.22	.00	9804.00	402.00	10206.00
	423.000	41000.00	1159.01	21.41	1160.02	8.12	.04	8769.23	907.14	10187.56
	423.000	41000.00	1169.44	31.84	1169.74	4.40	.01	9789.00	422.00	10211.00
	425.000	41000.00	1159.38	23.38	1160.26	7.59	.01	8827.67	1362.80	10196.06
	425.000	41000.00	1169.48	33.48	1169.78	4.36	.00	9799.00	412.00	10211.00
	428.000	41000.00	1159.66	21.76	1160.55	7.58	.00	8989.63	618.17	10200.13
	428.000	41000.00	1169.53	31.63	1169.83	4.34	.00	9809.00	420.00	10229.00
	434.000	41000.00	1160.23	22.23	1161.14	7.63	.00	9900.56	402.82	10303.38
	434.000	41000.00	1169.63	31.63	1169.93	4.40	.00	9901.00	425.00	10326.00

	SECNO	Q	CWSEL	DEPTH	EG	VCH	OLOSS	SSTA	TOPWID	ENDST
	440.000	41000.00	1160.89	20.89	1161.71	7.29	.01	9932.78	397.54	10330.32
	440.000	41000.00	1169.74	29.74	1170.04	4.36	.00	9919.00	440.00	10359.00
	443.200	41000.00	1161.14	20.64	1162.05	7.64	.02	9948.10	405.89	10353.99
	443.200	41000.00	1169.79	29.29	1170.11	4.52	.01	9939.00	445.29	10384.29
*	449.100	41000.00	1161.19	9.19	1164.73	15.09	.79	9965.05	389.50	10430.37
*	449.100	41000.00	1169.82	17.82	1170.40	6.11	.08	9937.00	532.17	10469.17
*	451.000	41000.00	1165.56	11.66	1169.07	15.04	.00	9930.84	397.85	10418.04
*	451.000	41000.00	1169.60	15.70	1170.82	8.87	.19	9912.84	545.17	10458.01
*	8.655	41000.00	1170.38	15.08	1171.31	7.71	.52	9820.00	400.54	10220.54
*	8.655	41000.00	1171.08	15.78	1171.91	7.32	.08	9820.00	403.76	10223.76
	8.731	12000.00	1171.50	15.40	1171.58	2.23	.08	9776.61	433.92	10210.53
	8.731	12000.00	1172.08	15.98	1172.15	2.13	.08	9773.66	439.33	10212.99
	8.807	12000.00	1171.53	13.23	1171.63	2.54	.01	9783.23	422.52	10205.75
	8.807	12000.00	1172.11	13.81	1172.20	2.42	.01	9781.06	427.95	10209.01
*	8.883	12000.00	1171.50	11.40	1171.80	4.38	.06	9847.02	344.04	10191.05
*	8.883	12000.00	1172.08	11.98	1172.34	4.08	.05	9843.21	350.79	10194.00
	8.936	12000.00	1171.70	9.90	1172.04	4.73	.01	9821.41	362.48	10183.88

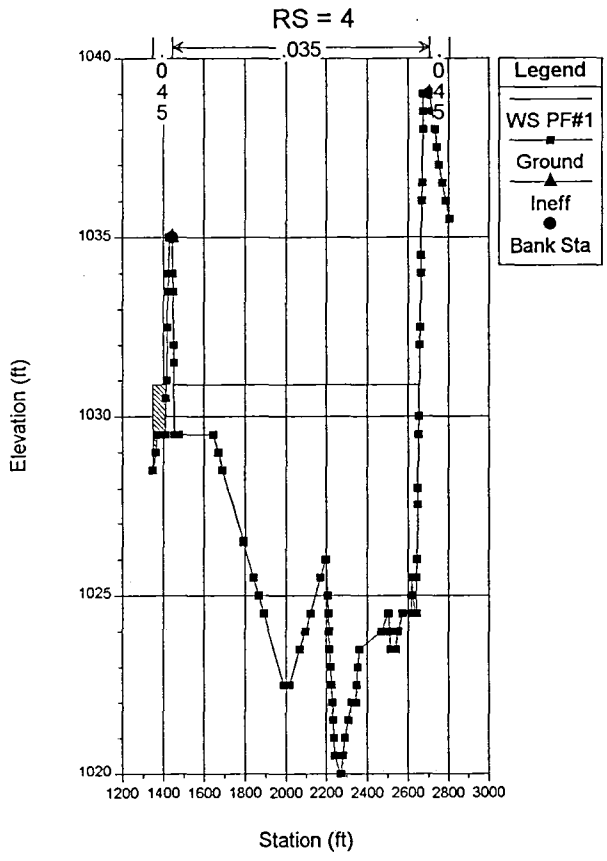
	8.936	12000.00	1172.24	10.44	1172.53	4.39	.01	9820.85	365.12	10185.97
	8.977	12000.00	1171.77	8.27	1172.40	6.37	.08	9894.68	285.65	10180.33
	8.977	12000.00	1172.28	8.78	1172.82	5.91	.07	9893.88	289.01	10182.89
	9.009	12000.00	1172.33	9.43	1172.63	4.42	.03	9795.45	371.88	10167.33
	9.009	12000.00	1172.74	9.84	1173.01	4.18	.03	9793.38	374.59	10167.98
	9.047	12000.00	1172.56	11.36	1172.75	3.57	.01	9710.96	393.29	10104.24
	9.047	12000.00	1172.94	11.74	1173.12	3.42	.01	9709.33	395.64	10104.97
*	9.129	12000.00	1172.72	8.52	1173.06	4.66	.04	9674.24	406.92	10081.16
*	9.129	12000.00	1173.07	8.87	1173.38	4.41	.04	9666.71	409.35	10081.68
*	9.318	12000.00	1180.55	7.35	1182.39	10.88	.45	19699.38	314.99	20014.37
*	9.318	12000.00	1180.61	7.41	1182.39	10.68	.44	19699.11	315.30	20014.41
*	9.492	11450.00	1187.16	8.16	1187.84	6.62	.12	19826.78	380.98	20207.76
*	9.492	11450.00	1187.11	8.11	1187.80	6.70	.11	19830.27	377.29	20207.55
*	9.692	11450.00	1191.36	7.26	1193.45	11.60	.42	19856.19	188.27	20044.45
*	9.692	11450.00	1191.38	7.28	1193.45	11.54	.41	19856.08	188.45	20044.53

NEW RIVER-A.F.R. TO S.C.

SUMMARY PRINTOUT TABLE 105

	SECNO	CWSEL	HL	OLOSS	TOPWID	QLOB	QCH	QROB
	501.45	1027.50	.00	.00	6594.18	199.19	26795.27	12005.53
	501.45	1028.22	.00	.00	2800.83	.00	35948.30	3051.70
*	10.000	1029.45	2.52	.33	2223.60	18099.46	19449.04	1451.51
*	10.000	1030.01	2.36	.41	1320.00	13369.86	24392.32	1237.82
*	13.000	1031.08	.76	.08	2347.98	16149.57	22061.76	788.67
	13.000	1031.97	.90	.10	1324.00	10878.90	28121.10	.00
	20.000	1032.46	1.40	.01	2303.88	7026.06	29026.95	2946.99
	20.000	1033.37	1.31	.01	1345.00	5088.63	33911.37	.00
	26.800	1033.93	1.58	.04	3200.43	9897.68	28400.53	701.78
	26.800	1034.58	1.45	.10	1250.00	4482.55	34517.45	.00
	32.600	1035.25	1.71	.17	1680.05	1906.65	37093.35	.00
	32.600	1036.03	1.45	.00	1224.06	2773.67	36226.33	.00
	38.000	1037.16	1.74	.02	1164.90	1798.14	37201.86	.00
	38.000	1037.32	1.34	.02	1165.23	2047.21	36952.79	.00
	45.000	1039.08	1.61	.03	981.56	1302.15	37697.86	.00
	45.000	1039.10	1.54	.02	981.60	1312.98	37687.02	.00
*	51.700	1040.18	.82	.03	741.62	.00	39000.00	.00
*	51.700	1040.19	.81	.03	741.91	.00	39000.00	.00
	54.000	1040.44	.18	.01	832.27	.00	39000.00	.00
	54.000	1040.45	.18	.01	832.30	.00	39000.00	.00
	59.000	1040.85	.44	.02	925.61	.00	39000.00	.00
	59.000	1040.85	.44	.02	925.64	.00	39000.00	.00
	63.000	1041.25	.48	.03	867.85	.00	39000.00	.00
	63.000	1041.26	.48	.03	867.96	.00	39000.00	.00
*	70.500	1042.27	2.20	.51	661.32	.00	39000.00	.00
*	70.500	1042.27	2.20	.51	661.33	.00	39000.00	.00
	77.000	1046.88	5.01	.17	418.12	.00	38742.97	257.03
	77.000	1046.88	5.01	.17	418.10	.00	38743.14	256.87
	84.000	1050.69	1.21	.24	930.54	.00	33223.66	5776.34
	84.000	1050.72	1.51	.21	541.67	.00	38993.74	6.26
	88.700	1051.03	.32	.00	999.80	.00	37488.48	1511.51
	88.700	1051.35	.37	.02	569.38	.00	38995.80	4.20

POST-PROJECT CROSS-SECTIONS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Bank Sta
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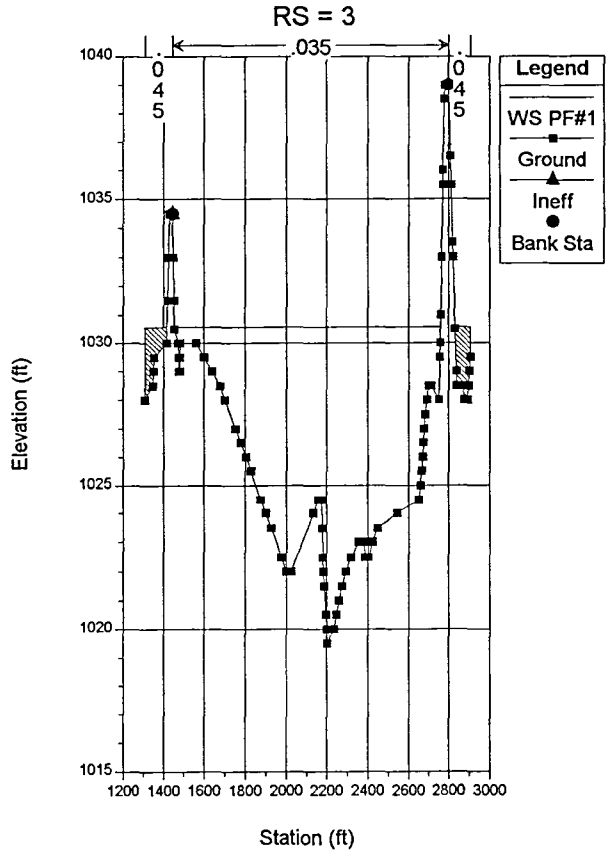
Station (ft)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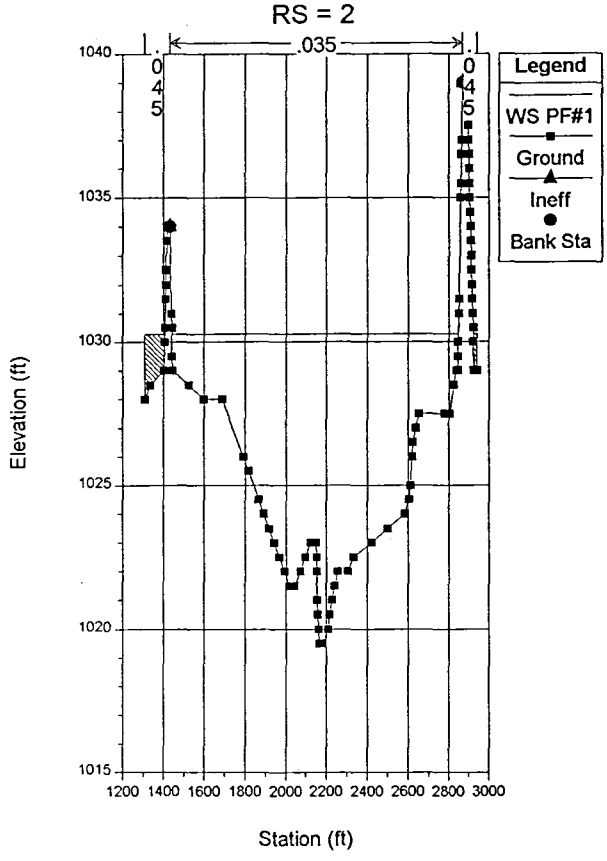
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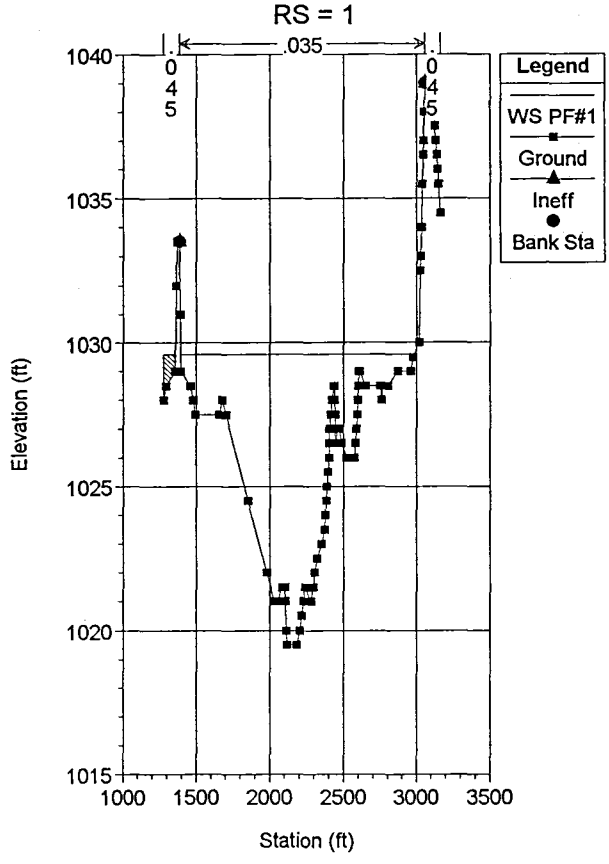
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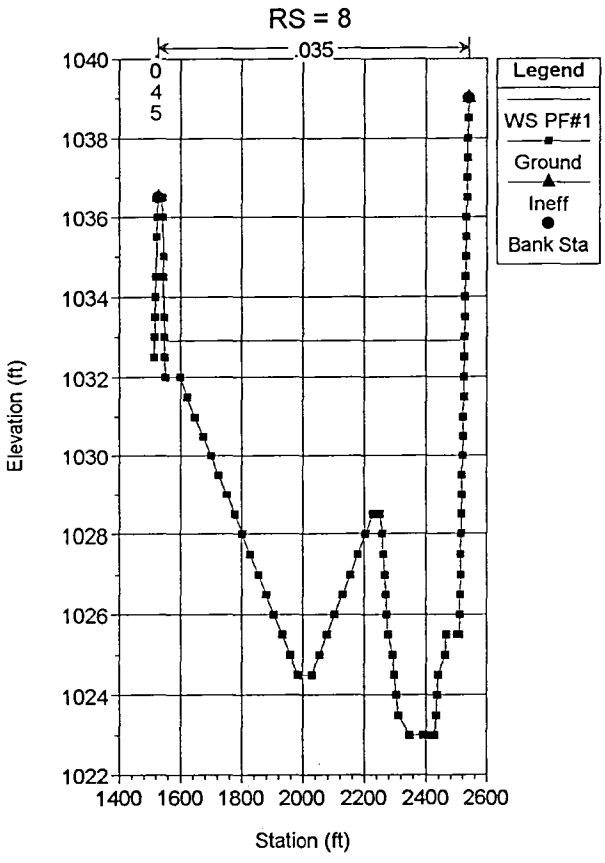
Station (ft)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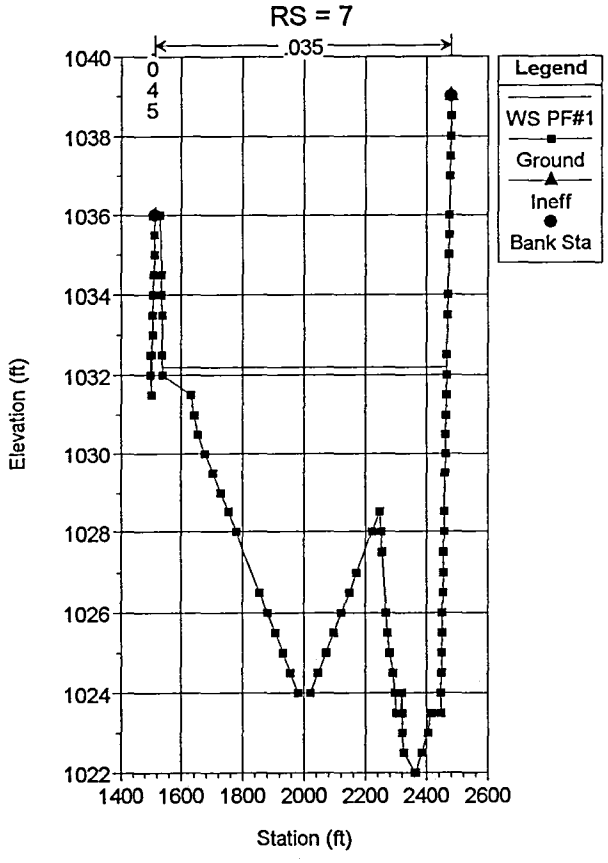
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Bank Sta
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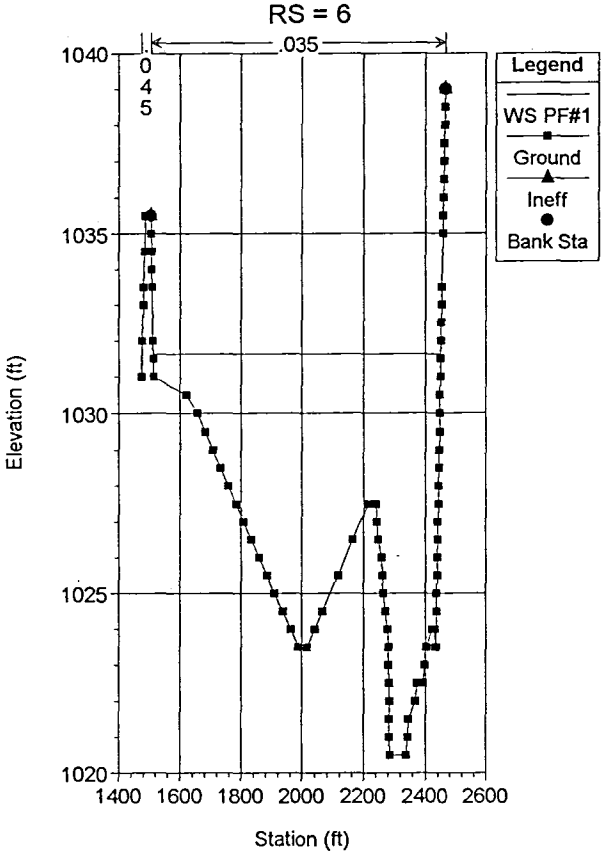
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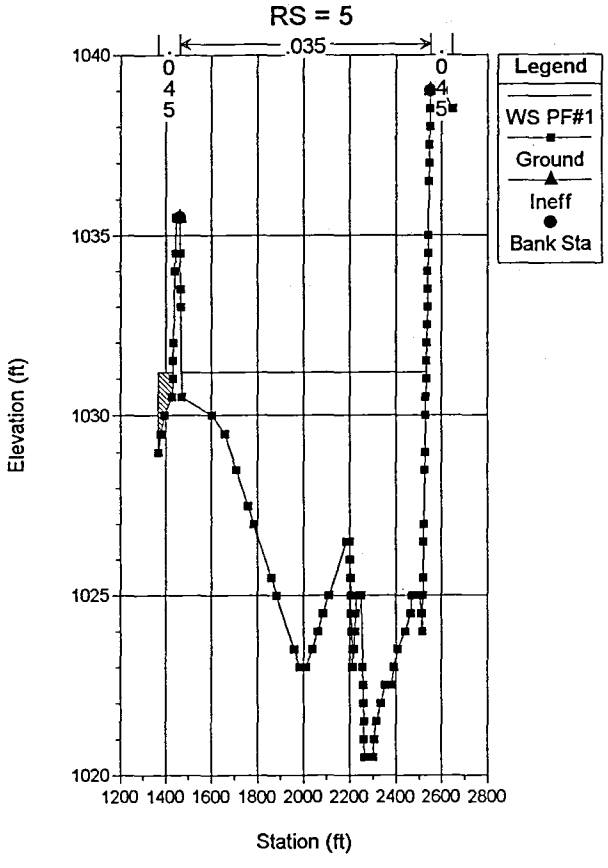
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Ineff
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1025
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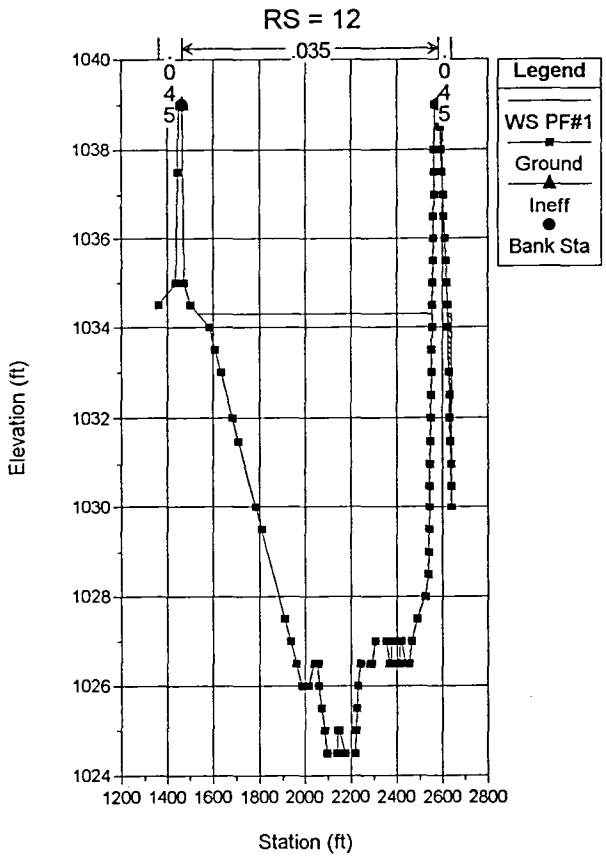
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Ineff
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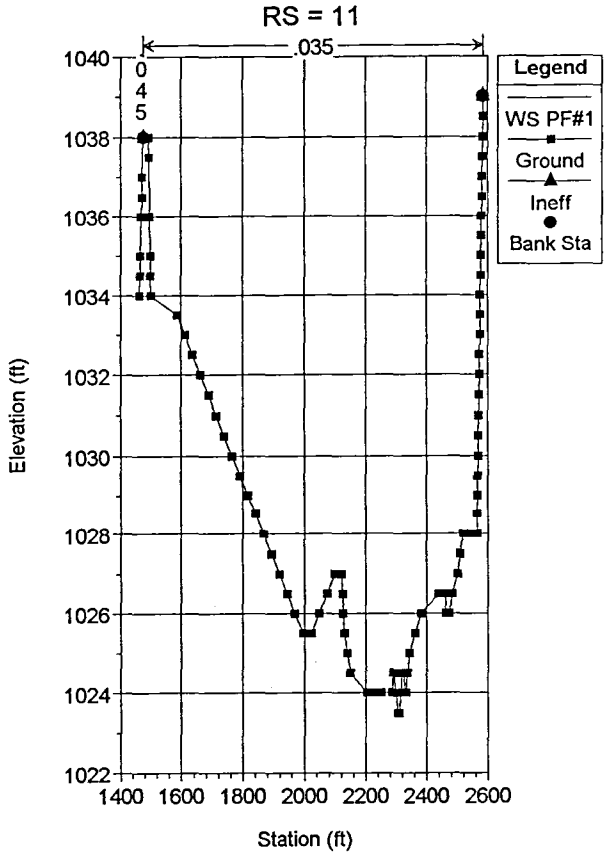
Station (ft)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Ineff
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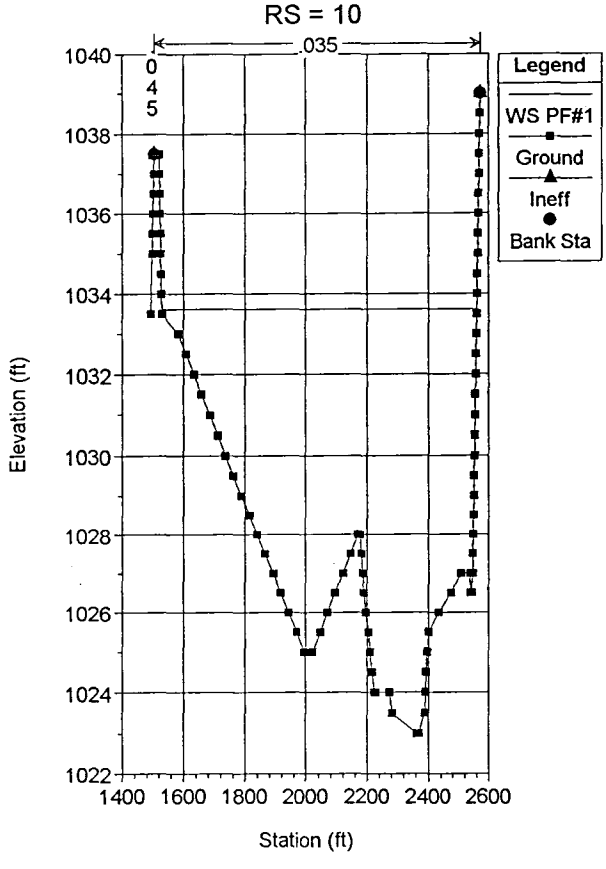
Station (ft)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Ground
Ineff
Bank Sta
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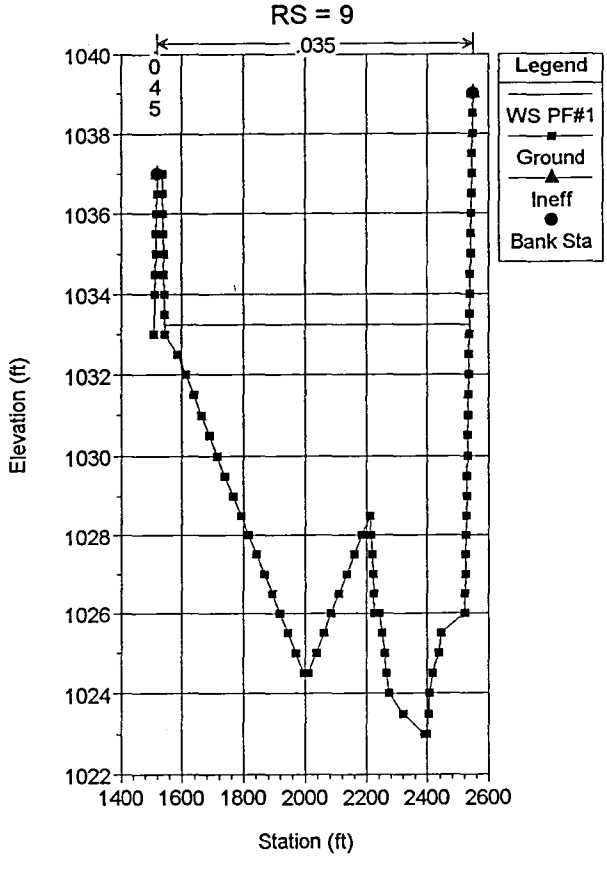
Station (ft)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Bank Sta
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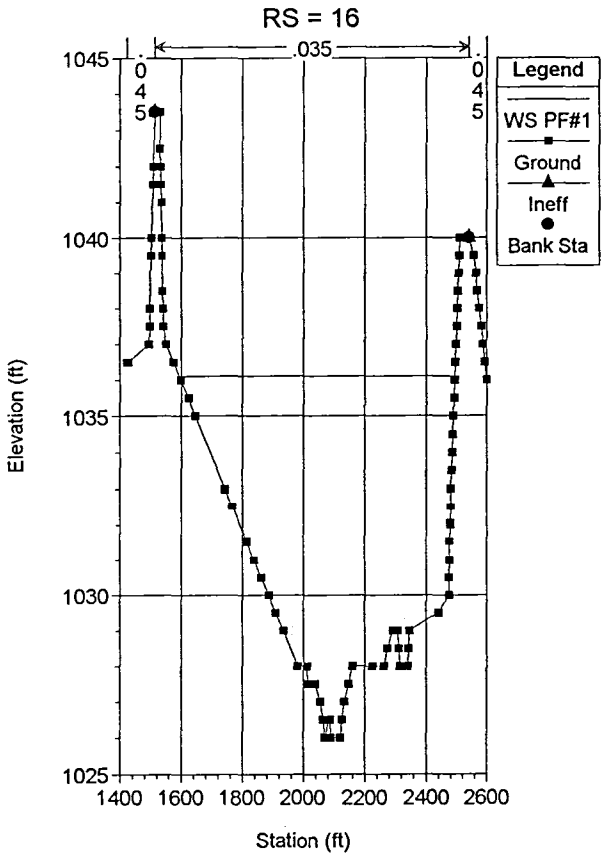
Station (ft)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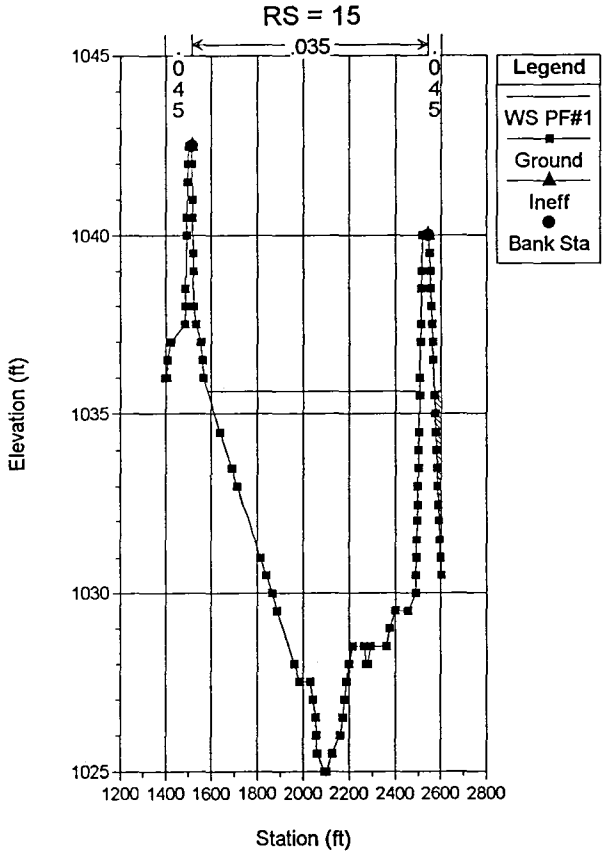
Station (ft)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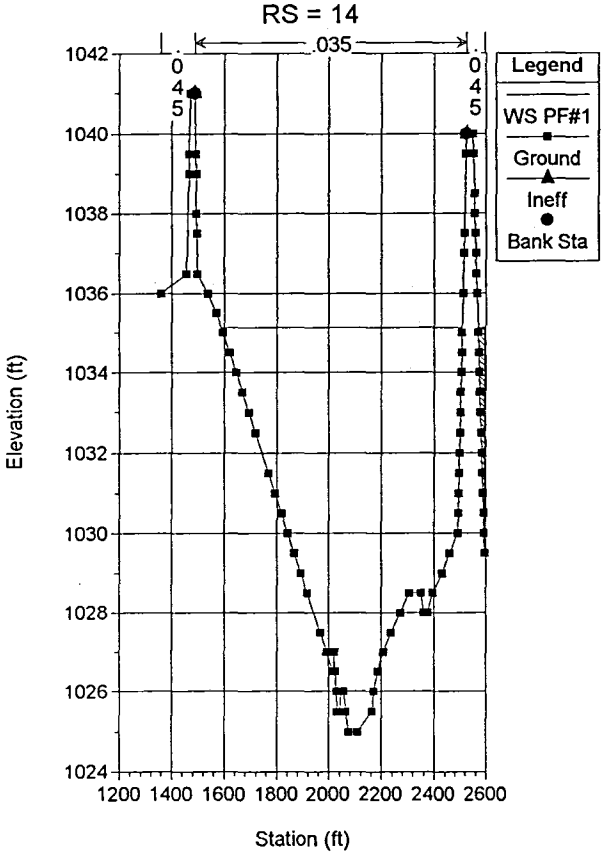
Station (ft)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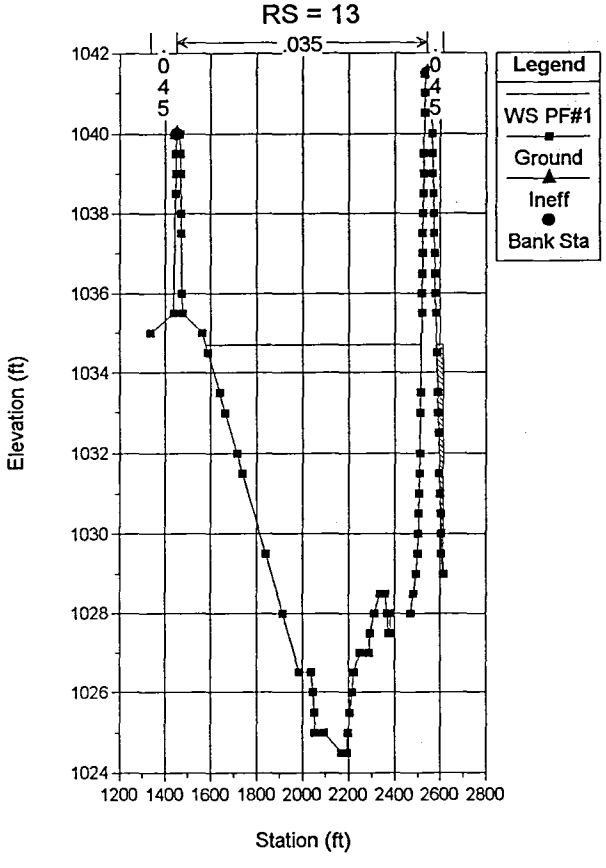
Station (ft)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Ineff
Bank Sta
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1030
1028
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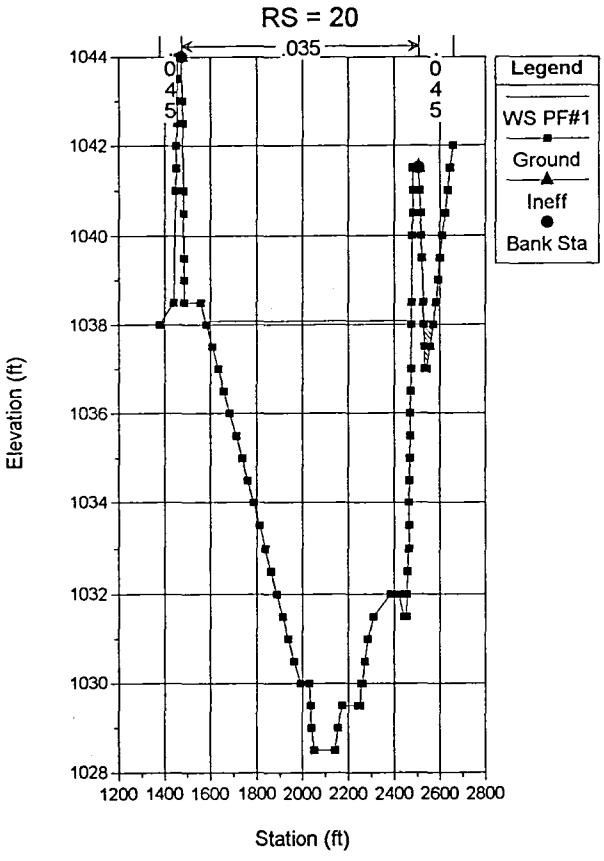
1024
1200 1400 1600 1800 2000 2200 2400 2600 2800
Station (ft)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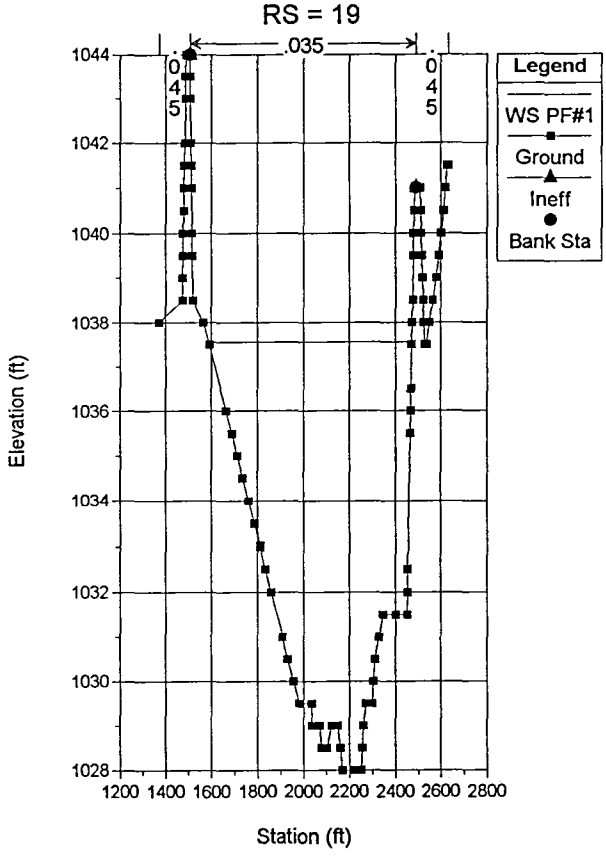
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)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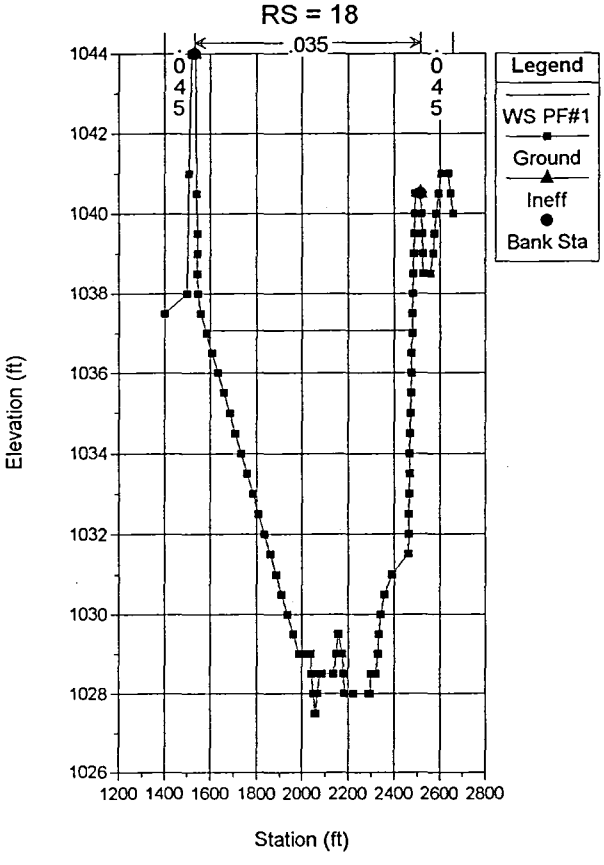
Bank Sta
Elevation (ft)
Station (ft)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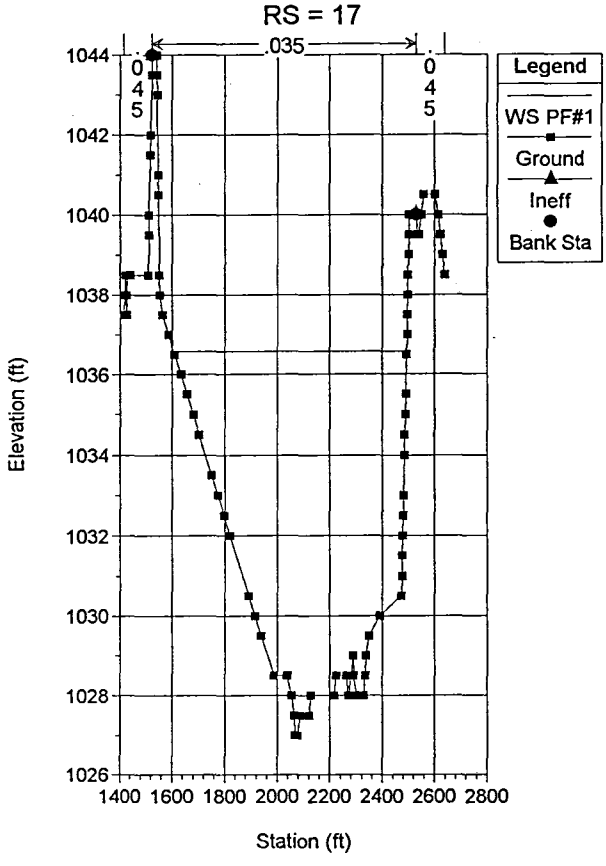
Station (ft)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Bank Sta
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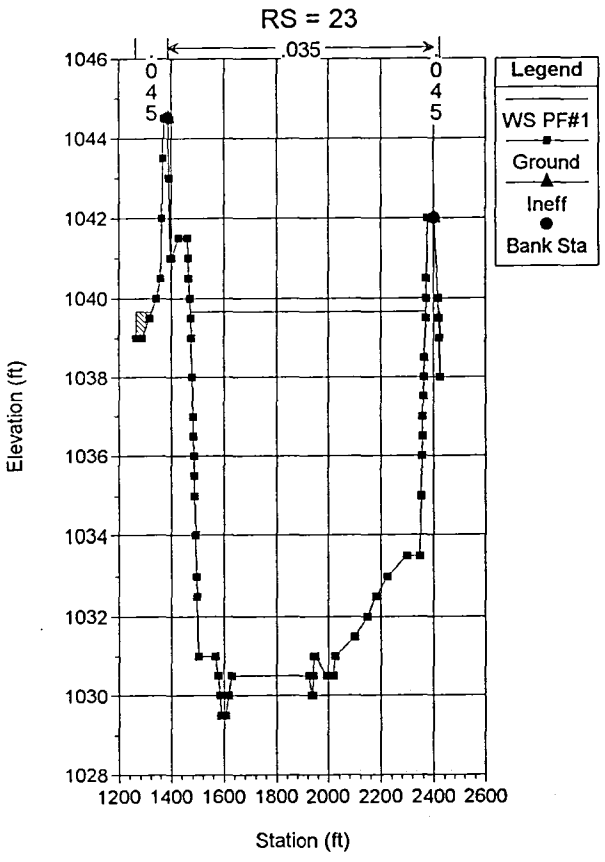
Station (ft)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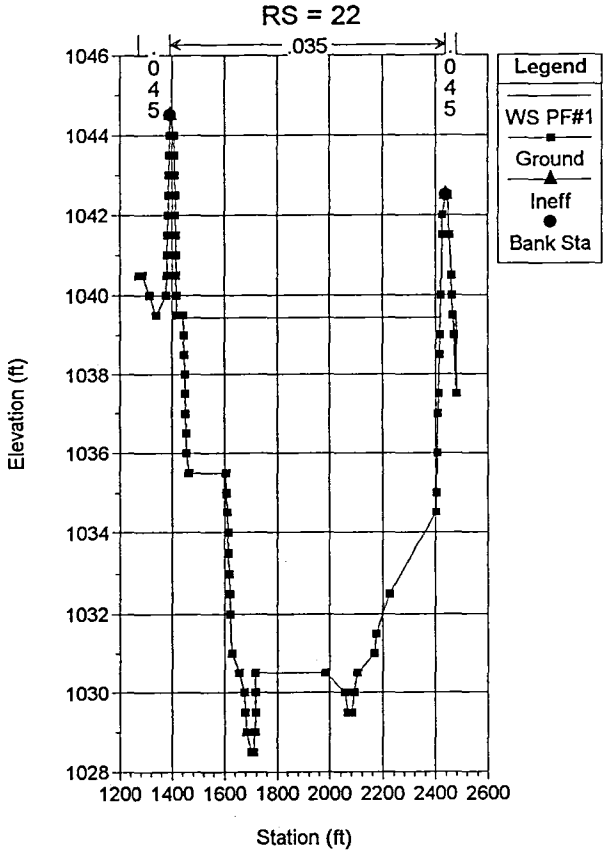
Station (ft)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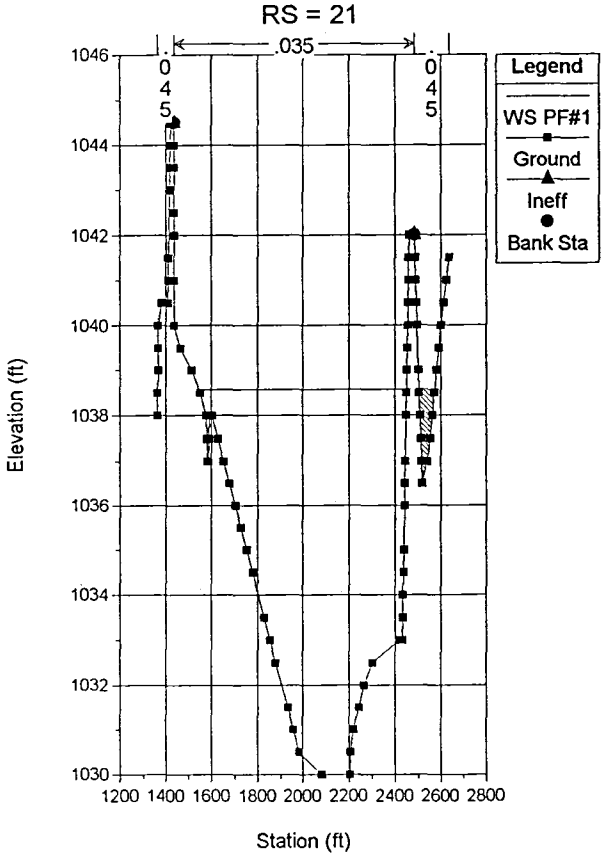
Station (ft)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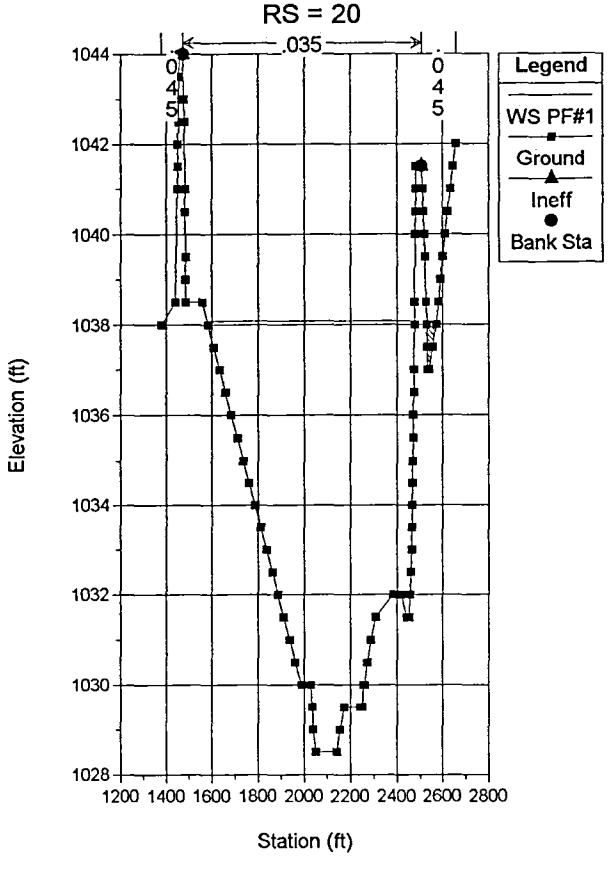
Station (ft)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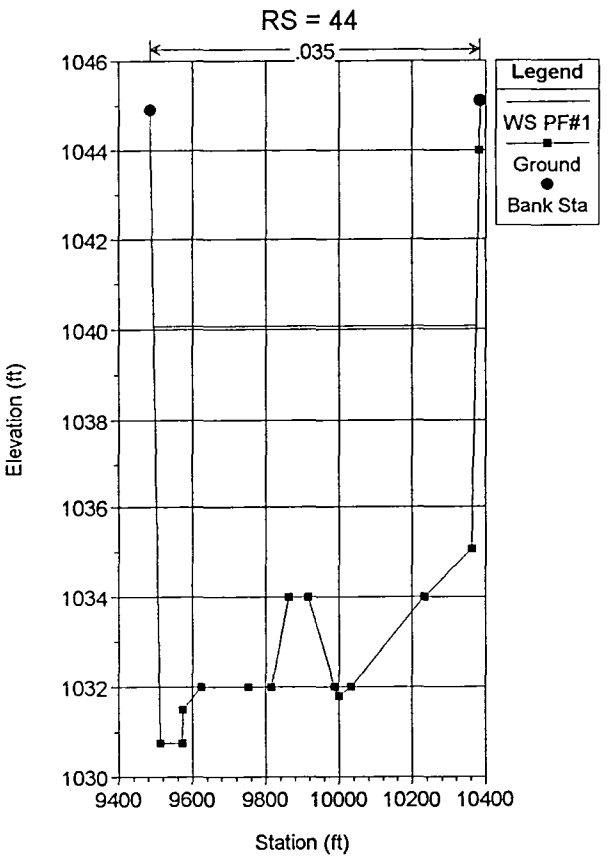
Station (ft)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Station (ft)
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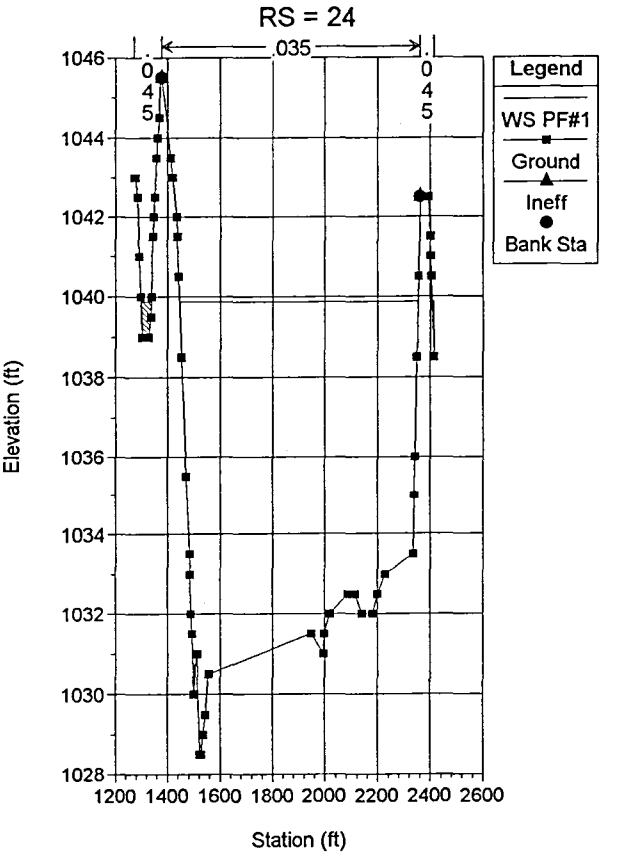
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1036
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1032
1030
1028
1200
1400
1600
1800
2000
2200
2400
2600

SEDIMENT GRADATION DATA

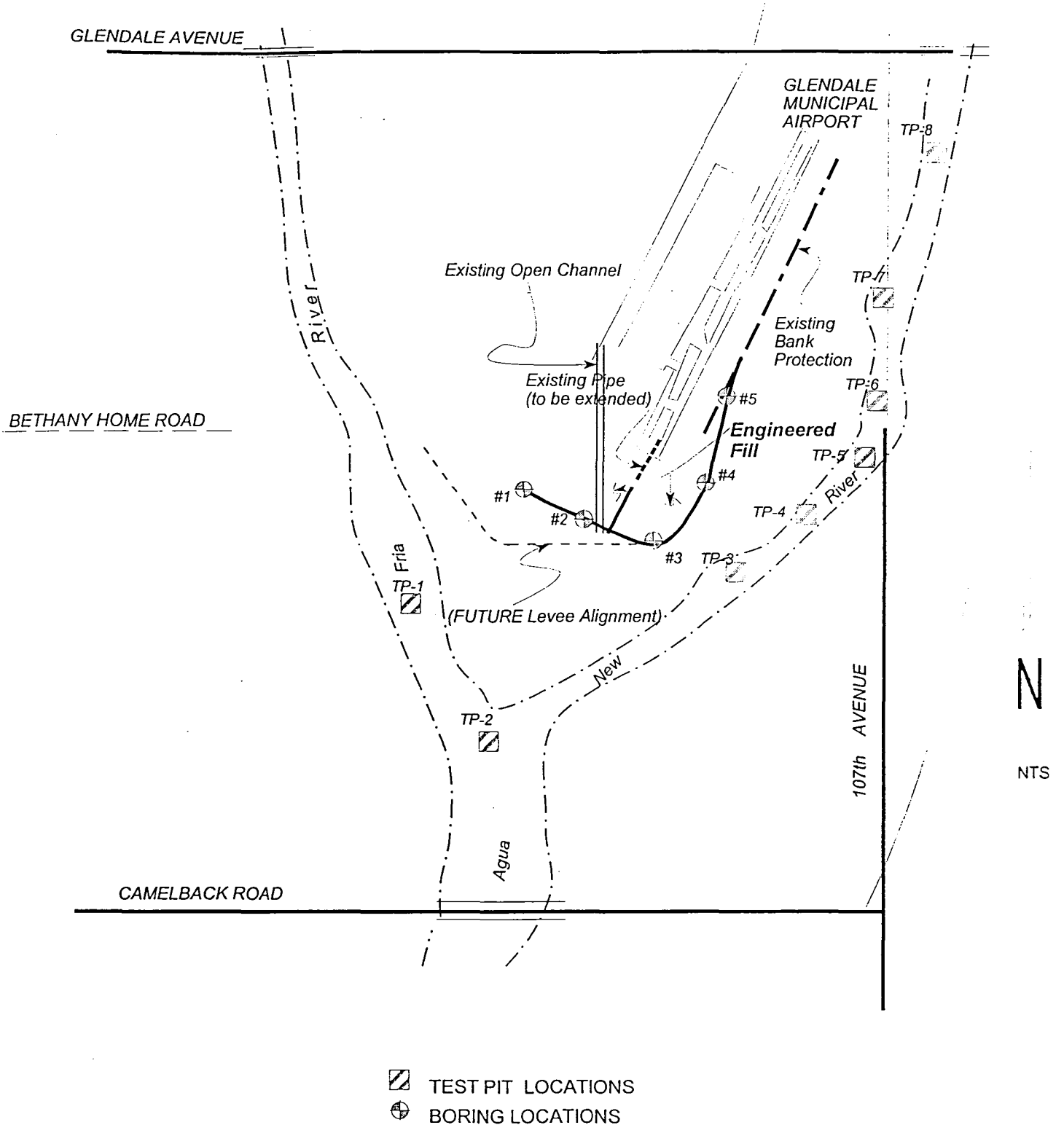
APPENDIX F

GEOTECHNICAL DATA

ATL, INC.

CONSTRUCTION QUALITY CONTROL
GEOTECHNICAL CONSULTANTS

DMJM
CAMELBACK RANCH LEVEE DESIGN
GLENDALE MUNICIPAL AIRPORT
FCD PROJECT NO. 95 -15
ATL JOB NO. 195039 -1



BORING AND TEST PIT LOCATIONS

CAMELBACK RANCH LEVEE

Glendale Municipal Airport

FCD CONTRACT #95-15

ATL JOB NO. 195039 -1

PLATE 4

SUMMARY OF LABORATORY ANALYSIS

CLIENT: DMJM DATE: 12/18/97

PROJECT: CAMELBACK RANCH LEVEE - FCD CONTRACT NO. 95-15

LOCATION: GLENDALE MUNICIPAL AIRPORT, GLENDALE, ARIZONA

MATERIAL: See Below SAMPLING DATE: 11/25/97

REQUESTED BY: David Hayes ATL JOB NO: 195039-1

BORING / TEST PIT No.	DEPTH (Feet)	MOIST. (%)	USCS	LL	PI	SIEVE ANALYSIS - PERCENT PASSING											
						200	50	30	10	#8	#4	1	2	3	3.5	5	6
1	0 - 14	1.0	SP-SM	-	NP	4.9	50	75	93	94	98	100	-	-	-	-	-
2	0 - 12	1.0	SP-SM	-	NP	6.2	39	75	95	96	98	100	-	-	-	-	-
3	4 - 10	1.4	SM	-	-	2.7	10	24	47	49	55	78	86	100	-	-	-
3	15 - 20	13.3	-	-	NP	-	-	-	-	-	-	-	-	-	-	-	-
4	2 - 6 1/2	2.7	SP	-	NP	3.6	13	29	50	51	58	80	100	-	-	-	-
5	0 - 10	1.8	-	-	NP	-	-	-	-	-	-	-	-	-	-	-	-
5	15 - 20	1.4	SM	-	-	17.4	32	45	67	68	73	88	100	-	-	-	-
TP-1	0 - 2	1.7	SP	-	-	3.0	5.0	22	67	68	73	86	91	100	-	-	-
TP-1	2 - 4	1.6	GW	-	NP	1.0	4.0	10	27	30	38	74	84	89	89	100	-
TP-2	0 - 2	1.2	SP	-	NP	1.0	6.0	32	63	65	73	94	97	100	-	-	-
TP-2	2 - 4	1.2	SP	-	-	7.0	16	48	71	72	73	80	84	84	100	-	-
TP-3	0 - 2	2.6	GW	-	NP	1.8	4	12	31	33	42	67	77	81	81	100	-
TP-3	2 - 4	3.5	SW-SM	-	NP	10.0	33	67	90	91	93	97	100	-	-	-	-
TP-4	0 - 2	2.2	SW-SM	-	NP	6.9	17	33	56	58	63	81	91	100	-	-	-
TP-4	2 - 4	3.3	SW	-	-	3.1	11	28	50	52	61	77	88	94	100	-	-
TP-5	0 - 2	1.5	SW	-	NP	3.7	19	39	62	64	65	83	90	100	-	-	-
TP-5	2 - 4	2.4	GW	26	7	4.6	7	11	18	19	23	45	64	90	100	-	-
TP-6	0 - 2	1.7	GW	-	NP	3.3	7	11	25	26	31	51	72	87	93	100	-
TP-6	2 - 4	-	SP	-	-	2.1	32	86	99	99	100	-	-	-	-	-	-
TP-7	0 - 2	2.3	SM	-	NP	16.0	26	44	54	55	58	69	84	89	89	100	
TP-7	2 - 4	1.2	GW	-	NP	1.9	4	7	19	20	25	53	84	93	100	-	-
TP-7	4-10	1.2	GW	-	NP	2.0	4	11	29	30	34	47	61	76	79	89	100
TP-8	0 - 2	3.9	GP - GM	-	NP	5.5	11	16	22	23	28	57	66	80	100	-	-
TP-8	2 - 4	3.8	GW	32	15	3.8	7	12	27	29	37	65	81	93	100	-	-

Project Number = 195039-1 Client: DMJM
Location = Camelback Ranch Levee Design-Add'l Investigation
Date = 12/10/97
Tested By = M. Blalock
Boring Number = TP-3
Depth = 0 - 2'
Sample Number = 97-1018
Description = Gray-tan, well graded GRAVEL(GW) with sand
Dry Sample Weight (g) = 1000

SIEVE NUMBER	SIEVE OPENING (mm)	RETAINED WEIGHT (g)	PERCENT OF WEIGHT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT FINER (%)
5"	127.000	0.00	0.00	0.00	100.00
4"	101.600	0.00	0.00	0.00	100.00
3 1/2"	88.900	190.00	19.00	19.00	81.00
3"	76.200	0.00	0.00	19.00	81.00
2 1/2"	63.500	0.00	0.00	19.00	81.00
2"	50.800	40.00	4.00	23.00	77.00
1 1/2"	38.100	30.00	3.00	26.00	74.00
1"	25.400	70.00	7.00	33.00	67.00
3/4"	19.050	50.00	5.00	38.00	62.00
1/2"	12.700	80.00	8.00	46.00	54.00
8"	9.500	40.00	4.00	50.00	50.00
1/4"	6.350	50.00	5.00	55.00	45.00
#4	4.750	30.00	3.00	58.00	42.00
#8	2.360	90.00	9.00	67.00	33.00
#10	2.000	20.00	2.00	69.00	31.00
#16	1.180	70.00	7.00	76.00	24.00
#30	0.600	120.00	12.00	88.00	12.00
#40	0.425	50.00	5.00	93.00	7.00
#50	0.300	30.00	3.00	96.00	4.00
#100	0.150	10.00	1.00	97.00	3.00
#200	0.075	10.00	1.00	98.00	2.00
-	0.037	1.00	0.10	98.10	1.90
-	0.007	0.00	0.00	98.10	1.90
-	0.003	2.00	0.20	98.30	1.70
-	0.001	3.00	0.30	98.60	1.40
Pan	0.000	0.00	0.00	98.60	1.40

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ATL, INC.
CONSTRUCTION QUALITY CONTROL
GEOTECHNICAL CONSULTANTS

HYDROME ANALYSIS
(ASTM D422)

CLIENT : DMJM
300 W. Clarendon Ave.
Phoenix, AZ 85013

PROJECT : Additional Camelback Levee Design

MATERIAL :

SOURCE OF MATERIAL: Boring No.:TP-3 Depth: 0 - 2'

DATE : 12/10/97

LAB. NO.: 97-1018

JOB NO. : 195039-1

DATE RCVD: 12/01/97

SAMPLED BY: J. Cowell

WEIGHT OF SAMPLE = 100.45 (grams) SOIL PASSING #10 SIEVE = 30.10 %

SPECIFIC GRAVITY OF SOIL SAMPLE = 2.740

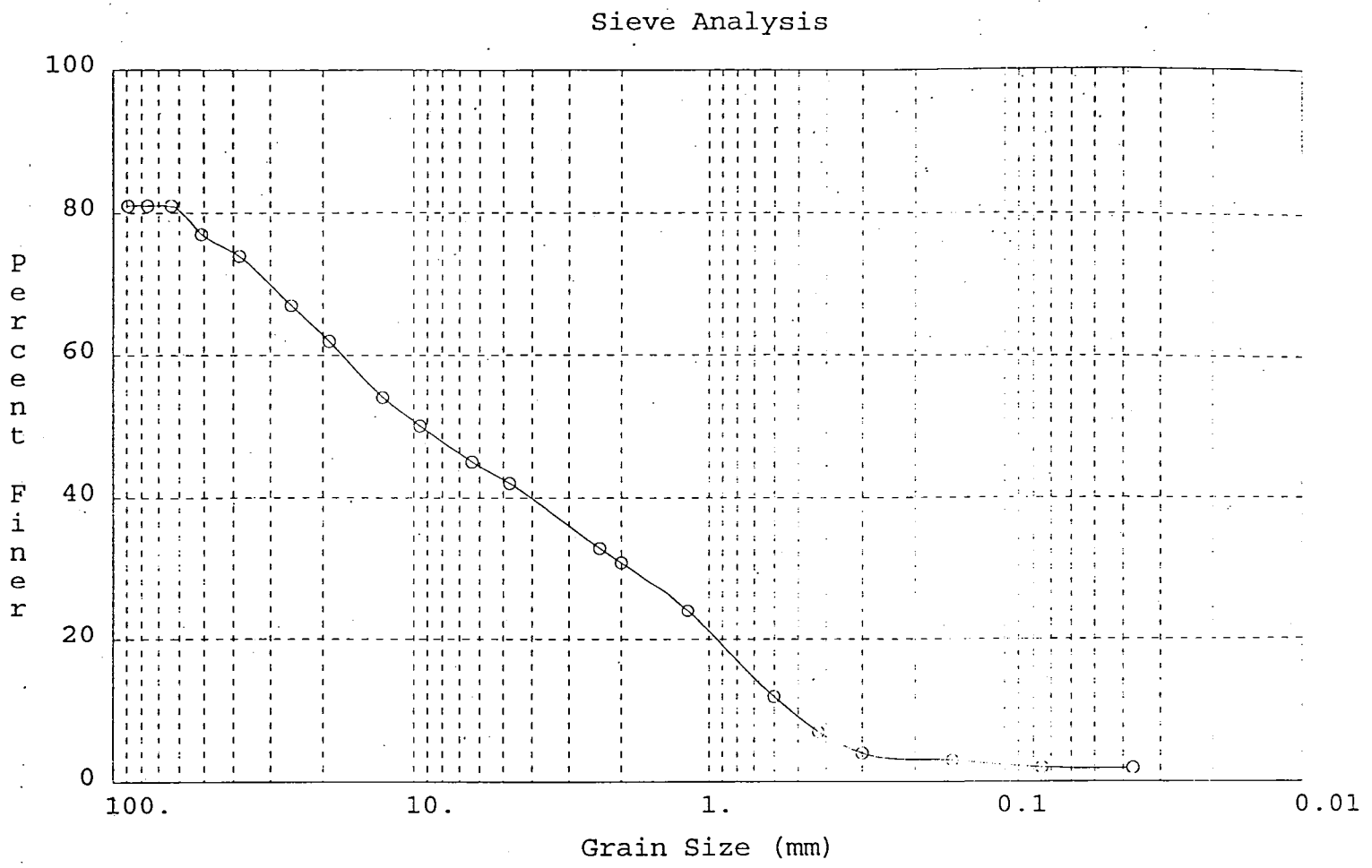
ELAPSED TIME (MIN)	TIME	TEMP. (oC)	CORR.(K) USING (TAB. 3)	HYDROMETER READING (WATER)	HYDROMETER READING (W/SOIL)	CORR. READING	EFFECTIVE DEPTH (cms)	PARTICLE SIZE (mm)	PERCENT FINER IN SUSPENSION
0	START 08:19 AM	20.0	0.01396	1.00375	1.00775	1.00400	14.2	0.037	1.9
2	08:21 AM	20.0	0.01396	1.00375	1.00775	1.00400	14.2	0.024	1.9
5	08:24 AM	20.0	0.01396	1.00375	1.00775	1.00400	14.2	0.014	1.9
15	08:34 AM	20.0	0.01396	1.00375	1.00775	1.00400	14.2	0.010	1.9
30	08:49 AM	20.0	0.01396	1.00375	1.00775	1.00400	14.2	0.007	1.9
60	09:19 AM	20.0	0.01396	1.00375	1.00725	1.00350	14.4	0.003	1.7
250	12:29 PM	20.6	0.01396	1.00375	1.00675	1.00300	14.5	0.001	1.4
12/10/97 1440	08:19 AM	17.7	0.01396	1.00375	1.00675	1.00300	14.5	0.001	1.4

Reviewed By:
Input By: AO

Respectfully Submitted:

Robert Rivera
Laboratory Supervisor

DMJM/Hydro/97-1018Geo


Sieve Analysis
100
80
60
40
20
0
Percent Finer
100.
10.
1.
0.1
0.01
Grain Size (mm)

Project Number = 195039-1 Client: DMJM
Location = Camelback Ranch Levee Design-Add'l Investigation
Date = 12/11/97
Tested By = D. Johnson
Boring Number = TP-3
Depth = 2' - 4'
Sample Number = 97-1019
Description = Brown, well graded SAND(SW-SM) with silt
Dry Sample Weight (g) = 1000

SIEVE NUMBER	SIEVE OPENING (mm)	RETAINED WEIGHT (g)	PERCENT OF WEIGHT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT FINER (%)
2"	50.800	0.00	0.00	0.00	100.00
1 1/2"	38.100	20.00	2.00	2.00	98.00
1"	25.400	10.00	1.00	3.00	97.00
3/4"	19.050	10.00	1.00	4.00	96.00
1/2"	12.700	10.00	1.00	5.00	95.00
3/8"	9.500	0.00	0.00	5.00	95.00
1/4"	6.350	10.00	1.00	6.00	94.00
#4	4.750	10.00	1.00	7.00	93.00
#8	2.360	20.00	2.00	9.00	91.00
#10	2.000	10.00	1.00	10.00	90.00
#16	1.180	50.00	5.00	15.00	85.00
#20	0.600	180.00	18.00	33.00	67.00
#40	0.425	150.00	15.00	48.00	52.00
#50	0.300	190.00	19.00	67.00	33.00
#100	0.150	190.00	19.00	86.00	14.00
#200	0.075	40.00	4.00	90.00	10.00
-	0.036	7.00	0.70	90.70	9.30
-	0.007	0.00	0.00	90.70	9.30
-	0.003	8.00	0.80	91.50	8.50
-	0.001	10.00	1.00	92.50	7.50
Pan	0.000	0.00	0.00	92.50	7.50

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ATL, INC.
CONSTRUCTION QUALITY CONTROL
GEOTECHNICAL CONSULTANTS

HYDROME' ANALYSIS
(ASTM D422)

CLIENT : DMJM
300 W. Clarendon Ave.
Phoenix, AZ 85013

PROJECT : Additional Camelback Levee Design

MATERIAL :

SOURCE OF MATERIAL: Boring No.:TP-3 Depth: 2' - 4'

DATE : 12/10/97

LAB. NO.: 97-1019

JOB NO. : 195039-1

DATE RCVD: 12/01/97

SAMPLED BY: J. Cowell

WEIGHT OF SAMPLE = 100.85 (grams) SOIL PASSING #10 SIEVE = 89.80 %

SPECIFIC GRAVITY OF SOIL SAMPLE = 2.671

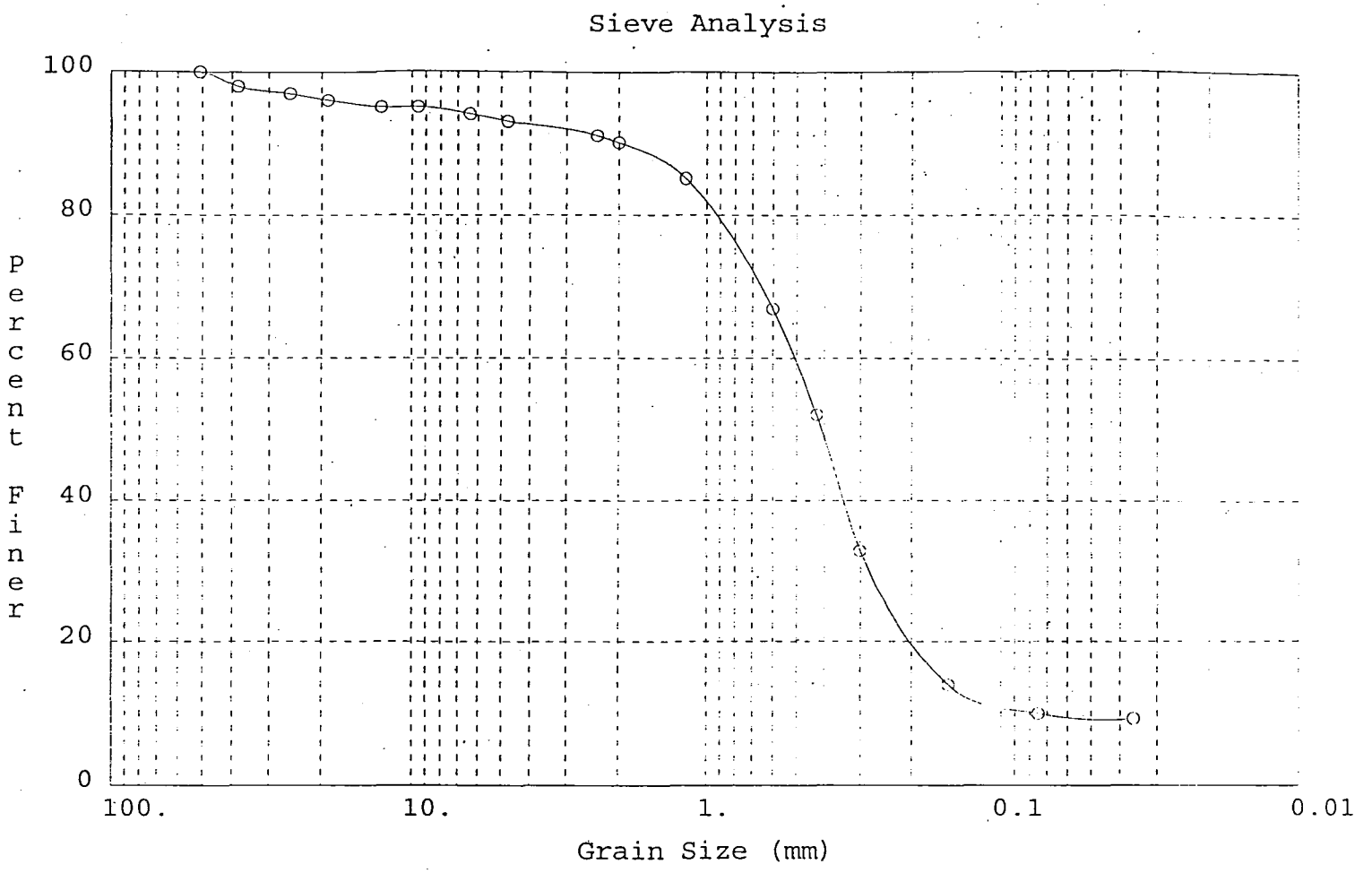
ELAPSED TIME (MIN)	TIME	TEMP. (oC)	CORR.(K) USING (TAB. 3)	HYDROMETER READING (WATER)	HYDROMETER READING (W/SOIL)	CORR. READING	EFFECTIVE DEPTH (cms)	PARTICLE SIZE (mm)	PERCENT FINER IN SUSPENSION
0	START 08:34 AM	20.0	0.01396	1.00375	1.01025	1.00650	13.6	0.036	9.3
2	08:36 AM	20.0	0.01396	1.00375	1.01025	1.00650	13.6	0.023	9.3
5	08:39 AM	20.0	0.01396	1.00375	1.01025	1.00650	13.6	0.013	9.3
15	08:49 AM	20.0	0.01396	1.00375	1.01025	1.00650	13.6	0.009	9.3
30	09:04 AM	20.0	0.01396	1.00375	1.01025	1.00650	13.6	0.007	9.3
60	09:34 AM	20.0	0.01396	1.00375	1.00975	1.00600	13.7	0.003	8.5
250	12:44 PM	20.5	0.01396	1.00375	1.00925	1.00550	13.8	0.001	7.8
12/10/97 1440	08:34 AM	20.0	0.01396	1.00375	1.00900	1.00525	13.9	0.001	7.5

Reviewed By:
Input By: AO

Respectfully Submitted:

Robert Rivera
Laboratory Supervisor

DMJM/Hydro/97-1019Geo


Sieve Analysis
100
80
60
40
20
0
Percent Finer
100.
10.
1.
0.1
0.01
Grain Size (mm)

Project Number = 195039-1 Client: DMJM
cation = Camelback Ranch Levee Design-Add'l Investigation
Date = 12/5/97
Tested By = D. Johnson
Boring Number = TP-4
Depth = 0 - 2'
Sample Number = 97-1020
Description = Gray-tan, well graded SAND(SW-SM) with silt and gravel
Dry Sample Weight (g) = 1000

SIEVE NUMBER	SIEVE OPENING (mm)	RETAINED WEIGHT (g)	PERCENT OF WEIGHT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT FINER (%)
3 1/2"	88.900	0.00	0.00	0.00	100.00
3"	76.200	0.00	0.00	0.00	100.00
2 1/2"	63.500	70.00	7.00	7.00	93.00
2"	50.800	20.00	2.00	9.00	91.00
1 1/2"	38.100	40.00	4.00	13.00	87.00
1"	25.400	60.00	6.00	19.00	81.00
3/4"	19.050	60.00	6.00	25.00	75.00
1/2"	12.700	40.00	4.00	29.00	71.00
3/8"	9.500	30.00	3.00	32.00	68.00
1/4"	6.350	30.00	3.00	35.00	65.00
#4	4.750	20.00	2.00	37.00	63.00
	2.360	50.00	5.00	42.00	58.00
#10	2.000	20.00	2.00	44.00	56.00
#16	1.180	70.00	7.00	51.00	49.00
#30	0.600	160.00	16.00	67.00	33.00
#40	0.425	90.00	9.00	76.00	24.00
#50	0.300	70.00	7.00	83.00	17.00
#100	0.150	80.00	8.00	91.00	9.00
#200	0.075	20.00	2.00	93.00	7.00
-	0.036	9.00	0.90	93.90	6.10
-	0.023	5.00	0.50	94.40	5.60
-	0.013	8.00	0.80	95.20	4.80
-	0.010	5.00	0.50	95.70	4.30
-	0.007	4.00	0.40	96.10	3.90
-	0.003	9.00	0.90	97.00	3.00
-	0.001	4.00	0.40	97.40	2.60
Pan	0.000	0.00	0.00	97.40	2.60

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ATL, INC.
CONSTRUCTION QUALITY CONTROL
GEOTECHNICAL CONSULTANTS

HYDROMET ANALYSIS
(ASTM D422)

CLIENT : DMJM
300 W. Clarendon Ave.
Phoenix, AZ 85013

PROJECT : Additional Camelback Levee Design
MATERIAL :
SOURCE OF MATERIAL: Boring No.:TP-4 Depth: 0 - 2'

DATE : 12/05/97
LAB. NO.: 97-1020
JOB NO. : 195039-1
DATE RCVD: 12/01/97
SAMPLED BY: J. Cowell

WEIGHT OF SAMPLE = 103.34 (grams) SOIL PASSING #10 SIEVE = 56.30 %

SPECIFIC GRAVITY OF SOIL SAMPLE = 2.680

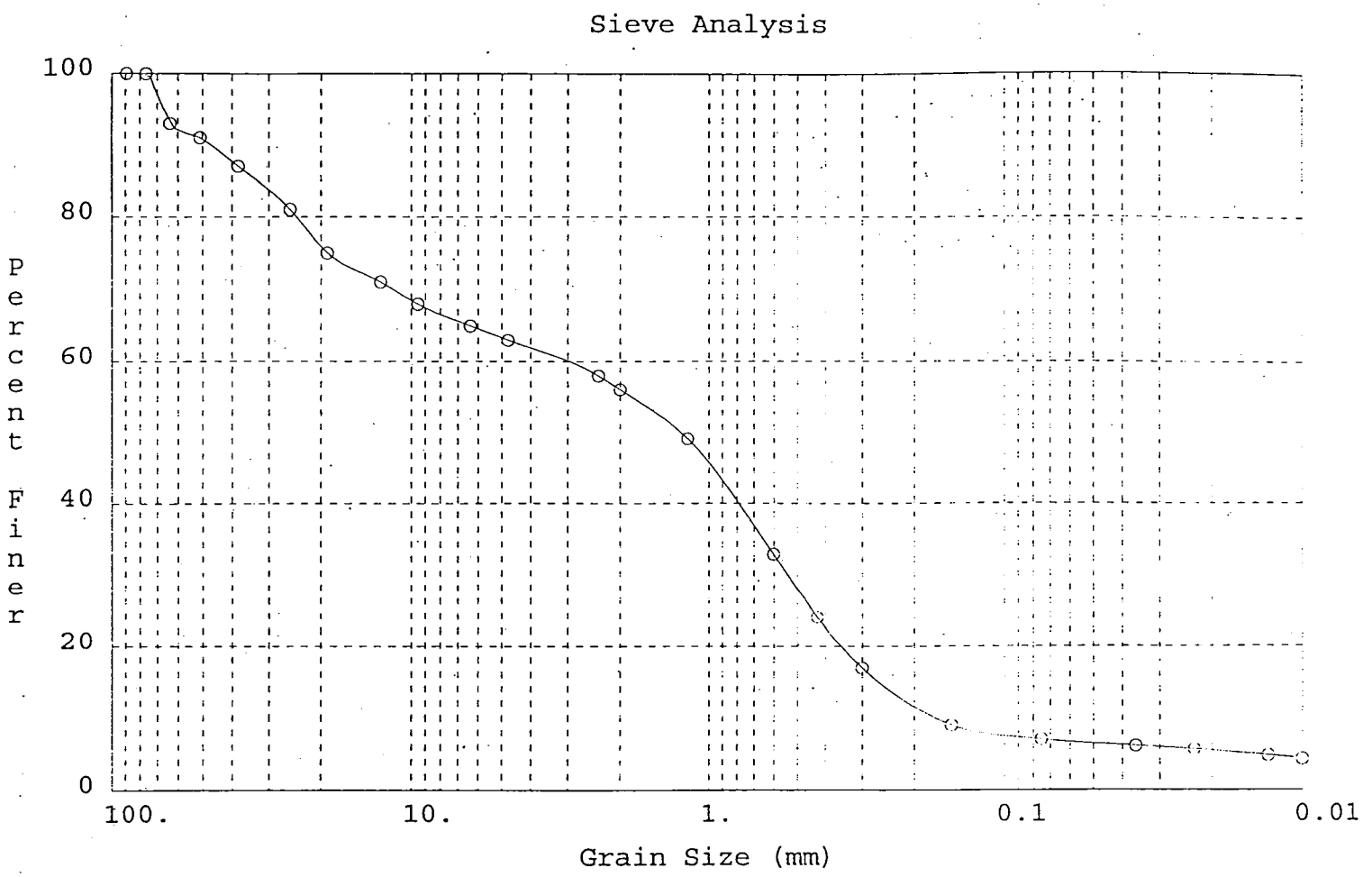
ELAPSED TIME (MIN)	TIME	TEMP. (oC)	CORR.(K) USING (TAB. 3)	HYDROMETER READING (WATER)	HYDROMETER READING (W/SOIL)	CORR. READING	EFFECTIVE DEPTH (cms)	PARTICLE SIZE (mm)	PERCENT FINER IN SUSPENSION
0	START 09:00 AM	20.0	0.01396	1.00325	1.01025	1.00700	13.6	0.036	6.1
2	09:02 AM	20,0	0.01396	1.00325	1.00975	1.00650	13.7	0.023	5.6
5	09:05 AM	20.0	0.01396	1.00325	1.00875	1.00550	14.0	0.013	4.8
15	09:15 AM	20.0	0.01396	1.00325	1.00825	1.00500	14.1	0.010	4.3
30	09:30 AM	20.0	0.01396	1.00325	1.00775	1.00450	14.2	0.007	3.9
60	10:00 AM	20.0	0.01396	1.00325	1.00675	1.00350	14.5	0.003	3.0
250	01:10 PM	20.0	0.01396	1.00325	1.00625	1.00300	14.6	0.001	2.6
12/05/97 1440	09:00 AM	17.7	0.01396	1.00325	1.00625	1.00300	14.6	0.001	2.6

Reviewed By:
Input By: AO

Respectfully Submitted:

Robert Rivera
Laboratory Supervisor

DMJM/Hydro/97-1020Geo


Sieve Analysis
100
80
60
40
20
0
Percent Finer
100.
10.
1.
0.1
0.01
Grain Size (mm)

Project Number = 195039-1 Client: DMJM
Location = Camelback Ranch Levee Design-Add'l Investigation
Date = 12/11/97
Tested By = M. Blalock
Boring Number = TP-4
Depth = 2' - 4'
Sample Number = 97-1021
Description = Gray-tan, well graded SAND(SW) with gravel
Dry Sample Weight (g) = 1000

SIEVE NUMBER	SIEVE OPENING (mm)	RETAINED WEIGHT (g)	PERCENT OF WEIGHT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT FINER (%)
3 1/2"	88.900	0.00	0.00	0.00	100.00
3"	76.200	60.00	6.00	6.00	94.00
2 1/2"	63.500	0.00	0.00	6.00	94.00
2"	50.800	60.00	6.00	12.00	88.00
1 1/2"	38.100	60.00	6.00	18.00	82.00
1"	25.400	50.00	5.00	23.00	77.00
3/4"	19.050	30.00	3.00	26.00	74.00
1/2"	12.700	50.00	5.00	31.00	69.00
3/8"	9.500	20.00	2.00	33.00	67.00
1/4"	6.350	40.00	4.00	37.00	63.00
#4	4.750	20.00	2.00	39.00	61.00
3	2.360	90.00	9.00	48.00	52.00
#10	2.000	20.00	2.00	50.00	50.00
#16	1.180	90.00	9.00	59.00	41.00
#30	0.600	130.00	13.00	72.00	28.00
#40	0.425	90.00	9.00	81.00	19.00
#50	0.300	80.00	8.00	89.00	11.00
#100	0.150	70.00	7.00	96.00	4.00
#200	0.075	10.00	1.00	97.00	3.00
-	0.037	3.00	0.30	97.30	2.70
-	0.024	4.00	0.40	97.70	2.30
-	0.003	0.00	0.00	97.70	2.30
-	0.001	8.00	0.80	98.50	1.50
Pan	0.000	0.00	0.00	98.50	1.50

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ATL, INC.
CONSTRUCTION QUALITY CONTROL
GEOTECHNICAL CONSULTANTS

HYDROMETER ANALYSIS
(ASTM D422)

CLIENT : DMJM
300 W. Clarendon Ave.
Phoenix, AZ 85013

PROJECT : Additional Camelback Levee Design

MATERIAL :

SOURCE OF MATERIAL: Boring No.:TP-4 Depth: 2' - 4'

DATE : 12/11/97

LAB. NO.: 97-1021

JOB NO. : 195039-1

DATE RCVD: 12/01/97

SAMPLED BY: J. Cowell

WEIGHT OF SAMPLE = 103.55 (grams) SOIL PASSING #10 SIEVE = 49.90 %

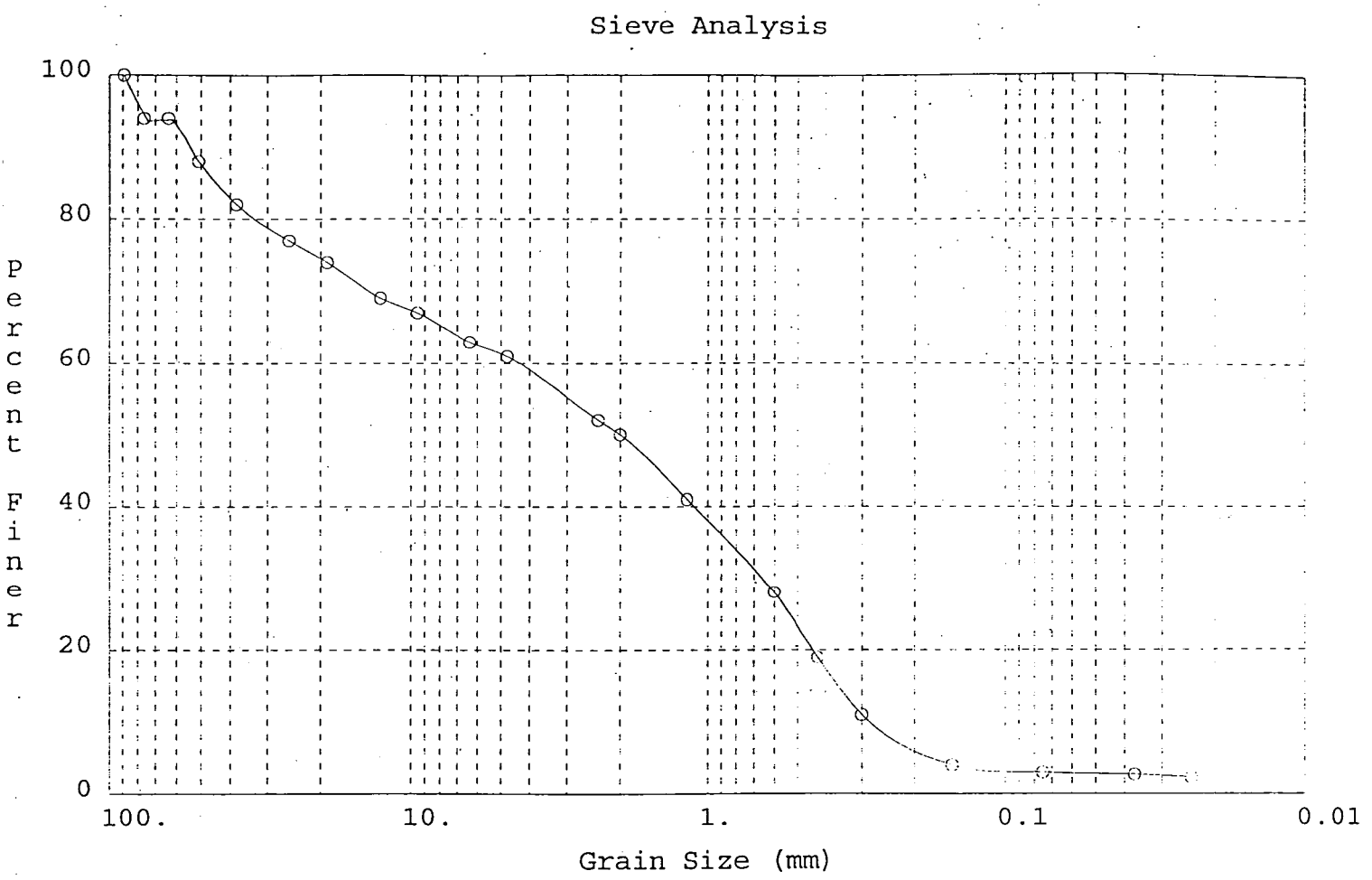
SPECIFIC GRAVITY OF SOIL SAMPLE = 2.696

ELAPSED TIME (MIN)	TIME	TEMP. (oC)	CORR.(K) USING (TAB. 3)	HYDROMETER READING (WATER)	HYDROMETER READING (W/SOIL)	CORR. READING	EFFECTIVE DEPTH (cms)	PARTICLE SIZE (mm)	PERCENT FINER IN SUSPENSION
0	START 10:54 AM	18.8	0.01396	1.00375	1.00725	1.00350	14.4	0.037	2.7
2	10:56 AM	18.8	0.01396	1.00375	1.00675	1.00300	14.5	0.024	2.3
5	10:59 AM	18.8	0.01396	1.00375	1.00675	1.00300	14.5	0.014	2.3
15	11:09 AM	18.8	0.01396	1.00375	1.00675	1.00300	14.5	0.010	2.3
30	11:24 AM	18.8	0.01396	1.00375	1.00675	1.00300	14.5	0.007	2.3
60	11:51 AM	18.8	0.01396	1.00375	1.00675	1.00300	14.5	0.003	2.3
250	03:04 PM	20.0	0.01396	1.00375	1.00600	1.00225	14.7	0.001	1.7
12/11/97 1440	10:54 AM	20.5	0.01396	1.00375	1.00575	1.00200	14.8	0.001	1.5

Reviewed By: [illegible]
Input By: AO

Respectfully Submitted:
Robert Rivera
Laboratory Supervisor

DMJM/Hydro/97-1021Geo


Sieve Analysis
100
80
60
40
20
0
Percent Finer
100.
10.
1.
0.1
0.01
Grain Size (mm)

roject Number = 195039-1 Client: DMJM
Location = Camelback Ranch Levee Design-Add'l Investigation
Date = 12/5/97
Tested By = D. Johnson
Boring Number = TP-5
Depth = 0 - 2'
Sample Number = 97-1022
Description = Tan, well graded SAND(SW) with gravel
Dry Sample Weight (g) = 1000

SIEVE NUMBER	SIEVE OPENING (mm)	RETAINED WEIGHT (g)	PERCENT OF WEIGHT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT FINER (%)
3 1/2"	88.900	0.00	0.00	0.00	100.00
3"	76.200	0.00	0.00	0.00	100.00
2 1/2"	63.500	0.00	0.00	0.00	100.00
2"	50.800	100.00	10.00	10.00	90.00
1 1/2"	38.100	20.00	2.00	12.00	88.00
1"	25.400	50.00	5.00	17.00	83.00
3/4"	19.050	100.00	10.00	27.00	73.00
1/2"	12.700	30.00	3.00	30.00	70.00
3/8"	9.500	20.00	2.00	32.00	68.00
1/4"	6.350	20.00	2.00	34.00	66.00
4	4.750	10.00	1.00	35.00	65.00
8	2.360	10.00	1.00	36.00	64.00
#10	2.000	20.00	2.00	38.00	62.00
#16	1.180	80.00	8.00	46.00	54.00
#30	0.600	150.00	15.00	61.00	39.00
#40	0.425	100.00	10.00	71.00	29.00
#50	0.300	100.00	10.00	81.00	19.00
#100	0.150	130.00	13.00	94.00	6.00
#200	0.075	20.00	2.00	96.00	4.00
-	0.024	8.00	0.80	96.80	3.20
-	0.014	3.00	0.30	97.10	2.90
-	0.007	2.00	0.20	97.30	2.70
-	0.003	2.00	0.20	97.50	2.50
-	0.001	5.00	0.50	98.00	2.00
Pan	0.000	0.00	0.00	98.00	2.00

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ATL, INC.
CONSTRUCTION QUALITY CONTROL
GEOTECHNICAL CONSULTANTS

HYDROMETI NALYSIS
(ASTM D422)

CLIENT : DMJM
300 W. Clarendon Ave.
Phoenix, AZ 85013

PROJECT : Additional Camelback Levee Design
MATERIAL :
SOURCE OF MATERIAL: Boring No.:TP-5 Depth: 0 - 2'

DATE : 12/05/97
LAB. NO.: 97-1022
JOB NO. : 195039-1
DATE RCVD: 12/01/97
SAMPLED BY: J. Cowell

WEIGHT OF SAMPLE = 102.40 (grams) SOIL PASSING #10 SIEVE = 62.50 %

SPECIFIC GRAVITY OF SOIL SAMPLE = 2.642

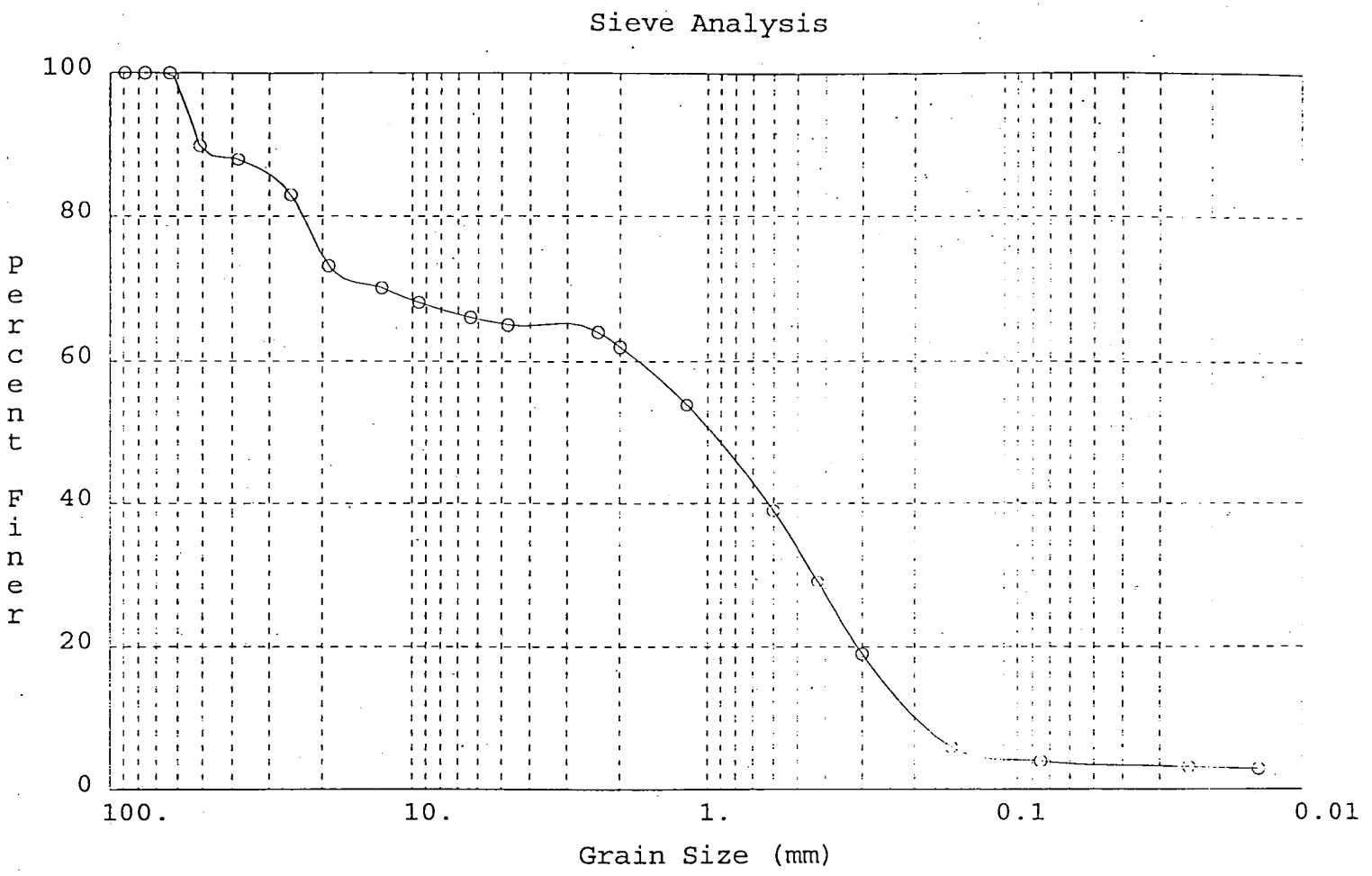
ELAPSED TIME (MIN)	TIME	TEMP. (oC)	CORR.(K) USING (TAB. 3)	HYDROMETER READING (WATER)	HYDROMETER READING (W/SOIL)	CORR. READING	EFFECTIVE DEPTH (cms)	PARTICLE SIZE (mm)	PERCENT FINER IN SUSPENSION
0	START 09:52 AM	20.0	0.01396	1.00325	1.00775	1.00450	14.2	0.037	4.4
2	09:54 AM	20.0	0.01396	1.00325	1.0065	1.00325	14.6	0.024	3.2
5	09:57 AM	20.0	0.01396	1.00325	1.00625	1.00300	14.6	0.014	2.9
15	10:07 AM	20.0	0.01396	1.00325	1.00625	1.00300	14.6	0.010	2.9
30	10:22 AM	20.0	0.01396	1.00325	1.00600	1.00275	14.7	0.007	2.7
60	10:52 AM	20.0	0.01396	1.00325	1.00575	1.00250	14.8	0.003	2.5
250	02:02 PM	20.5	0.01396	1.00325	1.00575	1.00250	14.8	0.001	2.5
12/05/97 1440	09:52 AM	18.3	0.01396	1.00325	1.00525	1.00200	14.9	0.001	2.0

Reviewed By:
Input By: AO

Respectfully Submitted:

Robert Rivera
Laboratory Supervisor

DMJM/Hydro/97-1022Geo


Sieve Analysis
100
80
60
40
20
0
Percent Finer
100.
10.
1.
0.1
0.01
Grain Size (mm)

Project Number = 195039-1 Client: DMJM
Location = Camelback Ranch Levee Design-Add'l Investigation
Date = 12/10/97
Tested By = M. Blalock
Boring Number = TP-5
Depth = 2' - 4'
Sample Number = 97-1023
Description = Brown, well graded GRAVEL(GW) with sand
Dry Sample Weight (g) = 1000

SIEVE NUMBER	SIEVE OPENING (mm)	RETAINED WEIGHT (g)	PERCENT OF WEIGHT RETAINED	CUMULATIVE PERCENT RETAINED	PERCENT FINER (%)
3 1/2"	88.900	0.00	0.00	0.00	100.00
3"	76.200	100.00	10.00	10.00	90.00
2 1/2"	63.500	160.00	16.00	26.00	74.00
2"	50.800	100.00	10.00	36.00	64.00
1 1/2"	38.100	90.00	9.00	45.00	55.00
1"	25.400	100.00	10.00	55.00	45.00
3/4"	19.050	60.00	6.00	61.00	39.00
1/2"	12.700	80.00	8.00	69.00	31.00
3/8"	9.500	30.00	3.00	72.00	28.00
1/4"	6.350	30.00	3.00	75.00	25.00
#4	4.750	20.00	2.00	77.00	23.00
#8	2.360	40.00	4.00	81.00	19.00
#10	2.000	10.00	1.00	82.00	18.00
#16	1.180	20.00	2.00	84.00	16.00
#30	0.600	50.00	5.00	89.00	11.00
#40	0.425	20.00	2.00	91.00	9.00
#50	0.300	20.00	2.00	93.00	7.00
#100	0.150	10.00	1.00	94.00	6.00
#200	0.075	10.00	1.00	95.00	5.00
-	0.034	15.00	1.50	96.50	3.50
-	0.022	9.00	0.90	97.40	2.60
-	0.013	3.00	0.30	97.70	2.30
-	0.009	1.00	0.10	97.80	2.20
-	0.007	3.00	0.30	98.10	1.90
-	0.003	1.00	0.10	98.20	1.80
-	0.001	4.00	0.40	98.60	1.40
Pan	0.000	0.00	0.00	98.60	1.40

2912 W. CLARENDON
PHOENIX, AZ 85017
TELEPHONE (602) 241-1097
FAX (602) 277-1306

820 E. 47TH STREET, SUITE B-1
TUCSON, AZ 85713
TELEPHONE (520) 623-4547
FAX (520) 623-4603

1400½ N. BROAD
GLOBE, AZ 85502
TELEPHONE (520) 425-8999
FAX (520) 425-9597

1855 W. KAIBAB LANE SUITE 6
FLAGSTAFF, AZ 86001
TELEPHONE (520) 773-9614
FAX (520) 773-9522

ATL, INC.
CONSTRUCTION QUALITY CONTROL
GEOTECHNICAL CONSULTANTS

HYDROMETER ANALYSIS
(ASTM D422)

CLIENT : DMJM
300 W. Clarendon Ave.
Phoenix, AZ 85013

PROJECT : Additional Camelback Levee Design

MATERIAL :

SOURCE OF MATERIAL: Boring No.:TP-5 Depth: 2' - 4'

DATE : 12/10/97

LAB. NO.: 97-1023

JOB NO. : 195039-1

DATE RCVD: 12/01/97

SAMPLED BY: J. Cowell

WEIGHT OF SAMPLE = 101.85 (grams) SOIL PASSING #10 SIEVE = 18.10 %

SPECIFIC GRAVITY OF SOIL SAMPLE = 2.874

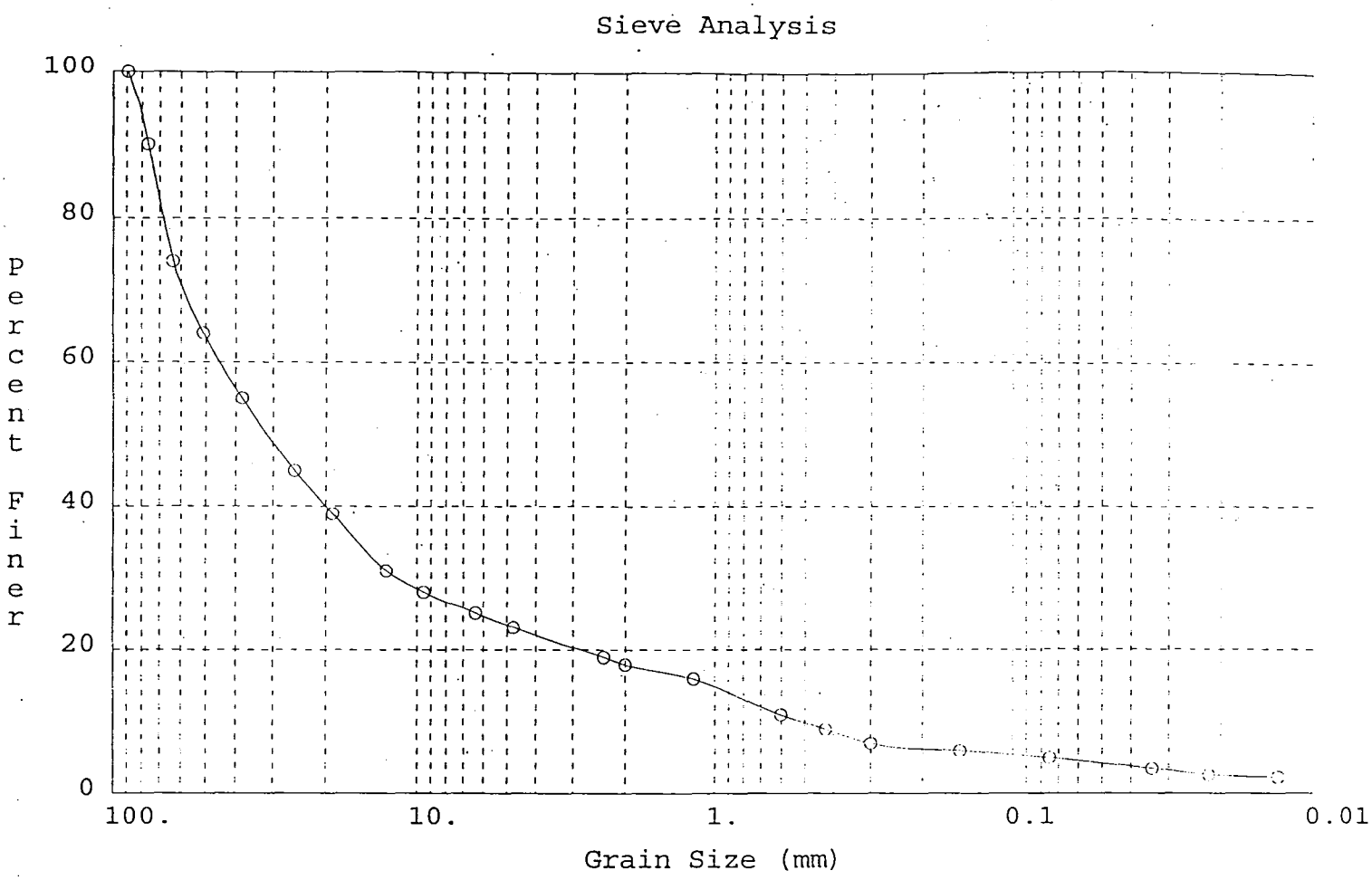
ELAPSED TIME (MIN)	TIME	TEMP. (oC)	CORR.(K) USING (TAB. 3)	HYDROMETER READING (WATER)	HYDROMETER READING (W/SOIL)	CORR. READING	EFFECTIVE DEPTH (cms)	PARTICLE SIZE (mm)	PERCENT FINER IN SUSPENSION
0	START 09:06 AM	20.0	0.01396	1.00375	1.01675	1.01300	11.9	0.034	3.5
2	09:08 AM	20.0	0.01396	1.00375	1.01325	1.00950	12.8	0.022	2.6
5	09:11 AM	20.0	0.01396	1.00375	1.01225	1.00850	13.1	0.013	2.3
15	09:21 AM	20.0	0.01396	1.00375	1.01175	1.00800	13.2	0.009	2.2
30	09:36 AM	20.0	0.01396	1.00375	1.01075	1.00700	13.5	0.007	1.9
60	10:06 AM	20.0	0.01396	1.00375	1.01025	1.00650	13.6	0.003	1.8
250	01:16 PM	20.5	0.01396	1.00375	1.00975	1.00600	13.7	0.001	1.6
12/10/97 1440	09:06 AM	18.3	0.01396	1.00375	1.00875	1.00500	14.0	0.001	1.4

Reviewed By:
Input By: AO

Respectfully Submitted:

Robert Rivera
Laboratory Supervisor

DMJM/Hydro/97-1023Geo


Sieve Analysis
100
80
60
40
20
0
Percent Finer
100.
10.
1.
0.1
0.01
Grain Size (mm)

LEVEE STABILITY ANALYSIS

ATL, INC.
CONSTRUCTION QUALITY CONTROL
GEOTECHNICAL CONSULTANTS

September 20, 1996

Mr. Michael Shapiro, P.E.
DMJM
300 W. Clarendon Avenue
Phoenix, Arizona 85013-0217

Re: Calculations and Analysis
Geotechnical Investigation
Camelback Ranch Levee
FCD Project No. 95-15
ATL Job No. 195034

Dear Mr. Shapiro:

Attached are copies of calculations used in part to develop ATL's Geotechnical Report for the subject project. The calculations address the following issues:

1.	Bearing Capactiy	-	Levee Foundation Toe-Down Foundation
2.	Settlement	-	Levee Foundation Toe-Down Foundation
3.	Equivalent Fluid Pressures	-	Levee Embankment
4.	Stability Analysis	-	Levee Embankment
5.	Shrinkage	-	Structural Fill and Native Material

Please do not hesitate to contact me if you have any questions.

Very truly yours,

David P. Hayes, P.E.
Executive Vice President

DPH/rg

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LAMBERT RANCH LOOP 19509

I) BEARING CAPACITY ANALYSIS

(A) PHASE I

1. Soil Type – Phase I

Based on an overexcavated and replacement material used as the "Bounding Soils", we have assumed 1 soil type – a poorly graded SAND

2. Footing Type

I have assumed a "Strip" footing condition, 12" deep and 15' wide

3. Soil Properties

Based on the testing of existing material, a Friction Angle of 41° was used

The in-place unit weight, assumed to be 95% of the maximum proctor density, was chosen @ 120 pcf

If the depth of footing is 1 foot, we assumed the worse condition that surface water could saturate it, since the SPF (Standard Project Flood) ends up 0.4 feet above grade.

No eccentricity or vertical inclination was assumed.

Registered Professional Engineer (Civil)
CERTIFICATE NO. 22719
David Preston Jones
Date Signed 9/20/96
ARIZONA, U.S.A.

Therefore, the following Qu were calculated as a function of depth:

Depth	Qu (psf)
0	10018.61
1.50	4587
3.00	4258
4.50	3909
6.00	3540
7.50	3152

Use 3000 psf for Design at Depth 0.
Factor of Safety = 3+.

(B) Phase II

1. Soil Type

The top 3 feet of material in this phase will be over-excavated and replaced with material from the Agua Fria Borrow Site (or) blended to meet a grading and PI specification.

We will assume 12" of somewhat disturbed material and will use a friction angle of 41°

Registered Professional Engineer (Civil)
CERTIFICATE NO. 29719
David Preston Hayes
Date Signed 9-20-10
ARIZONA, U.S.A.

2. Footing Type

We will use a "Strip Footing" configuration

3. Soil Properties

A friction angle of 41° was used for this silty SAND w/ gravel.

In-place unit weight at 95% of the maximum proctor dry density was calculated at 120 pcf.

We have assumed 1 foot of saturation based on a SPF of 0.4 feet above grade.

No eccentricity or ventilation inclination was assumed.

Therefore, the following Qu were calculated as a function of depth.

Depth	Qu (psf)
0	10019
1.50	4587
3.00	4258
4.50	3909
7.50	3152

Use 3000 psf at surface (Depth = 0)

Factor of Safety is 3+.

Registered Professional Engineer (Civil)
CERTIFICATE NO. 22719
Davis Wesley Hayes
Date Signed 9/20/96
ARIZONA, U.S.A.

(2) Discussion

Equations used and procedures are from: Tomlinson (1987) Bowles (1988) Das (1985).

Ultimate Bearing Capacity – Homogeneous

$$Q_u = (C)(N_c)F_1 + (q)(F_2)N_q + \tfrac{1}{2}BN_g$$

Where:

$$N_q = e^{\pi \tan(\phi)}(\tan(45 + \phi/2))$$

$$N_g = (2)(N_q + 1)\tan\phi$$

$$N_c = (N_q - 1)(\cot\phi)$$

$$F_1 = S_c(D_c)(I_c)$$
$$F_2 = S_q(D_q)(I_q)$$
$$F_3 = S_g(D_g)(I_g)$$

S(), D() and I() = Shape, depth and inclination factors.

C = Cohesion.

B = Footing Width

q = Overburden pressure at Foundation Level

Registered Professional Engineer
CERTIFICATE NO. 22719
David Preston Hayes
Date Signed 9/21/90
ARIZONA, U.S.A.

II) Equivalent Fluid Pressures

We have chosen to use the "Rankin states" to express geostatic stress. In this approach, there are two (2) conjugat stresses, one representing the Active State and the other representing the Passive State. The difference is as follows:

1) In the Active State, the shear stress, as represented by slip line orientation, opposes the effect of gravity.

2) In the Passive Condition, the ~~stress~~ Shear stress acts with gravity to oppose horizontal stresses.

K_a = Active Coefficient

$$= \frac{1}{K_p}$$

K_p = Passive Coefficient

$$= \frac{1 + \sin\phi}{1 - \sin\phi}$$

γ = Unit Wt of Soil

ϕ = Friction Angle.

EQUIVALENT FLUID PRESSURES $= K_p \gamma$

$= K_a \gamma$

Registered Professional Engineer (Civil) CERTIFICATE NO. 22719 David Preston Bates Date Signed 9/20/06 ARIZONA, U.S.A.

Using a Friction Angle of 41°
and a Dry Unit Wt of 104pcf;

$K_p = 4.815 \times 104 = 501$ pcf
$K_a = 0.208 \times 104 = 22$ pcf

If the "At Rest" Condition is needed, then

$K_r = 0.344 \times 104 = 36$ pcf.

Registered Professional Engineer (Civil)
CERTIFICATE NO.
22719
David Preston Hayes
Date Signed 9/24/96
ARIZONA, U.S.A.

III) Settlement Analysis

Analytical procedures are dictated by the material type and by actual testing. ATL conducted consolidation tests on material that will be used as recompacted founding soil for the levee embankment. The densities that this split-spoon samples exhibited were less than those anticipated during construction. Consolidation data is based on tests of a 1-inch thick sample and consolidation percentages are based on the top 1 inch.

Time Rate of Settlement was not computed since the founding soil is cohesionless, where $C_c = 0$. However, for a one-dimensional settlement analysis, the following formula is used:

$$\text{Total Settlement } (S) = \frac{C_c (H)}{1+e^o} \times \log\left[\frac{P_o + P}{P}\right]$$

Registered Professional Engineer (Civil)
CERTIFICATE NO. 22719
David Preston Hayes
Date Signed 9/24/99
ARIZONA, U.S.A.

H = Thickness of Layer
C_c = Compression Index (Coefficient of Cohesion)
P_o = Effective Overburden Pressure
P = Pressure Due to Structure.
e^o = Initial void ratio.

For Phase I

(a) $\boxed{H = 15 \text{ feet}}$ This layer is actually thicker, bu this is sufficient

(b) I used $\boxed{4}$ sublayers in that 15 feet.

(c) I assumed a constant unit weight of $\boxed{115 \text{ pcf}}$

(d) I assumed a $\boxed{C_c = 0.01}$ - minimal value.

(e) I used laboratory proctor data to determin an initial void ratio and used a value of $\boxed{e_0 = 0.40}$

(f) Total calculated settlement of 0.0345 ft. $\boxed{= 0.41 \text{ inches}}$

This is settlement due to an overburden pressure of $\boxed{420 \text{ psf}}$ and a constant pressure of $\boxed{1720 \text{ psf}}$ for a 60 foot high structure.

For Phase II

We have 2 layers; the first consists of a 4 ft thick barrow and the second the existing silty SAND layer — we will use 11.0 feet for that layer

Registered Professional Engineer (Civil) CERTIFICATE NO. 29716 David Preston Hayes Date Signed 9/20/96 ARIZONA, U.S.A.

For the analysis, two layers were evaluated. The overburden pressure remained at 1400 psf and the constant pressure remained at 780 psf for a 6 foot high structure.

For the 2nd layer, a $C_c = 0.10$ was used and a void ratio $e_0 = 1.0$. The unit weight was reduced to 103 pcf for the 2nd layer.

Total Settlement = 0.187 feet
= 2.24 inches

Note:

Settlement for these Phases is not time dependent and most settlement will occur during construction.

Procedures developed by: DAS (1985)
Lio & Evett (1985)
Winterkorn & Fang (1975)

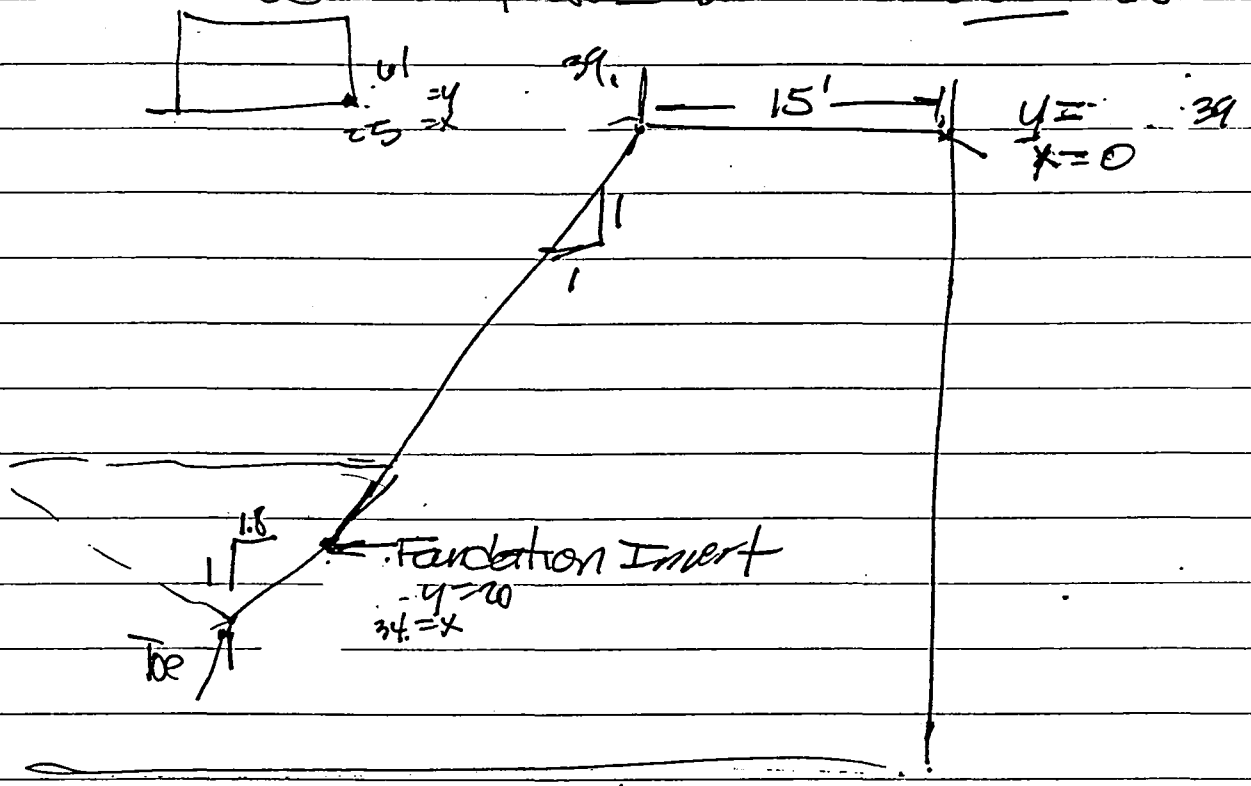
were used in the analysis

Registered Professional Engineer
CERTIFICATE NO. 22719
David Preston
Hayes
Date Signed 9/26/90
ARIZONA, U.S.A.

IV Slope Stability Analysis

ATL used a computer program Developed by GEORO, to determine the "most probable failure circle"

The following typical section was used for Phase I as the worst case. Sta 41+40.0



The resulting analysis produced the most probable failure circle of:

x = 34
y = 54
Radius = 30.00

Resulting in a $\boxed{\text{1.4428 Factor of Safety}}$

Registered Professional Engineer (Civil)
CERTIFICATE NO. 32709
David Patton Hayes
Date Signed 9/20/05
ARIZONA, U.S.A.

APPENDIX G

PRELIMINARY CONSTRUCTION PLANS
(Bound Separately)

APPENDIX H

APPLICATION/CERTIFICATION FORMS

FEDERAL EMERGENCY MANAGEMENT AGENCY REVISION REQUESTOR AND COMMUNITY OFFICIAL FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

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. /95

1. OVERVIEW

1. The basis for this revision request is (are): (check all that apply)
   - _X_ **Physical change**
     - ___ Existing
     - _X_ **Proposed**
   - ___ Improved methodology
   - ___ Improved data
   - ___ Floodway revision
   - ___ Other
     - Explain: **Proposed levee design along approximately 4,954 feet of the New River**
2. Flooding Source: **New River**
3. Project Name/Identifier: **Camelback Ranch Levee - North/Glendale Airport Levee**
4. FEMA zone designations affected: **AE**
   (example: A, AH, AO, A1-A30, A99, AE, V, V1-30, VE, B, C, D, X)
5. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	County	State	Map No.	Panel No.	Effective Date
EX: 480301 480287	Katy, City Harris County	Harris, Fort Bend, Harris	TX TX	480301 48201C	0005D 0220G	02/08/83 09/28/90
040051	**Phoenix, City**	**Maricopa**	**AZ**	**04013C**	**1620F**	**08/07/95**
040045	**Glendale, City**	**Maricopa**	**AZ**	**04013C**	**1620F**	**08/07/95**
040037	**Maricopa County**	**Maricopa**	**AZ**	**04013C**	**1620F**	**08/07/95**

6. The area of revision encompasses the following types of flooding, structures, and associated disciplines: *(check all that apply)*

Types of Flooding	Structures	Disciplines*
_X_ **Riverine**	_X_ **Channelization**	_X_ **Water Resources**
___ Coastal	_X_ **Levee/Floodwall**	___ Hydrology
___ Alluvial Fan	___ Bridge/Culvert	_X_ **Hydraulics**
___ Shallow Flooding *(e.g. Zones AO and AH)*	___ Dam	_X_ **Sediment Transport**
___ Lakes	___ Coastal	_X_ **Interior Drainage**
Affected by wind/wave action	___ Fill	___ Structural
___ Yes	___ Pump Station	_X_ **Geotechnical**
___ No	___ None	_X_ **Land Surveying**
	___ Channel Relocation	___ Other (describe)
___ Other (describe)	___ Excavation	
	___ Other (describe)	

* Attach completed "Certification by Registered Professional Engineer and/or Land Surveyor" Form for each discipline checked. (Form 2)

2. FLOODWAY INFORMATION

7. Does the affected flooding source have a floodway designated on the effective FIRM or FBFM? _X_ **Yes** ___ No
8. Does the revised floodway delineation differ from that shown on the effective FIRM or FBFM? _X_ **Yes** ___ No
   If yes, give reason: **Proposed levee will contain 100-year discharge.**

LOOKS LIKE MT-2

2. FLOODWAY INFORMATION (Con't)

Attach copy of either a public notice distributed by the community stating the community's intent to revise the floodway or a statement by the community that it has notified all affected property owners and affected adjacent jurisdictions.

9. Does the State have jurisdiction over the floodway or its adoption by communities participating in the NFIP?
   ___ Yes _X_ **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.

3. PROPOSED ENCROACHMENTS

10. With floodways:
    1A. Does the revision request involve fill, new construction, substantial improvement, or other development in the floodway? _X_ **Yes** ___ No
    1B. If yes, does the development cause the 100-year water-surface elevation to increase at any location by more than 0.000 feet? ___ Yes _X_ **No**

11. Without floodways:
    2A. Does the revision request involve fill, new construction, substantial improvement, or other development in the 100-year floodplain? ___ Yes ___ No
    2B. If yes, does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the 100-year water-surface elevation to increase at any location by more than one foot (*or other surcharge limit if community or state has adopted more stringent criteria)?*
    ___ Yes ___ No

If the answer to either Items 1B or 2B is yes, please provide 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.

4. REVISION REQUESTOR ACKNOWLEDGMENT

12. Having read NFIP Regulations, 44 CFR Ch. I, parts 59, 60, 61, and 72, I believe that the proposed revision _X_ **is** ___ is not in compliance with the requirements of the aforementioned NFIP Regulations.

5. COMMUNITY OFFICIAL ACKNOWLEDGMENT

13. Was this revision request reviewed by the community for compliance with the community's adopted floodplain management ordinances? _X_ **Yes** ___ No
14. Does this revision request have the endorsement of the community? _X_ **Yes** ___ No

If no to either of the above questions, please explain:
Please note that community acknowledgment and/or notification is required for all requests as outlined in Section 65.4 (b) of the NFIP Regulations.

6. OPERATION AND MAINTENANCE

15. Does the physical change involve a flood control structure (e.g., levees, floodwalls, channelization, basins, dams)?
    _X_ **Yes** ___ No

If yes, please provide the following information for each of the new flood control structures:

A. Inspection of the flood control project will be conducted periodically by **Flood Control District of Maricopa County and City of Glendale** with a maximum interval of _____ months between inspections.
   (entity)

B. Based on the results of scheduled periodic inspections, appropriate maintenance of the flood control facilities will be conducted by **Flood Control District of Maricopa County and City of Glendale** to ensure the integrity and degree of flood protection of the structure. (entity)

C. A formal plan of operation, including documentation of the flood warning system, specific actions and assignments of responsibility by individual name or title, and provisions for testing the plan at intervals not less than one year, ___ has _X_ has not been prepared for the flood control structure.

6. OPERATION AND MAINTENANCE (Con't)

D. The community is willing to assume responsibility for _X_ performing _X_ overseeing compliance with the maintenance and operation plans of the **Camelback Ranch Levee - North and Glendale Airport Levee** flood control structure. (Name)

If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

Attach operation and maintenance plans **To be prepared for LOMR**

7. REQUESTED RESPONSE FROM FEMA

16. After examining the pertinent NFIP regulations and reviewing the document entitled "Appeals, Revisions, and Amendments to Flood Insurance Maps: A Guide for Community Officials," dated January 1990, this request is for a:

_X_ a. CLOMR — A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision *(LOMR or PMR)*, or proposed hydrology changes *(see 44 CFR Ch. I, Parts 60, 65, and 72).*

___ b. LOMR — A letter from FEMA officially revising the current NFIP map to show changes to floodplains, floodways, or flood elevations. LOMRs typically depict decreased flood hazards. *(See 44 CFR Ch. I Parts 60 and 65.)*

___ c. PMR — A reprinted NFIP map incorporating changes to floodplains, floodways, or flood elevations. Because of the time and cost involved to change, reprint, and redistribute an NFIP map, a PMR is usually processed when a revision reflects increased flood hazards or large-scope changes. *(See 44 CFR Ch. I, Parts 60 and 65.)*

___d. Other: Describe:

8. FORMS INCLUDED

17. Form 2 entitled, "Certification by Registered Professional Engineer and/or Land Surveyor" must be submitted. The following forms should be included with this request if (check the included forms):

■ Hydrologic analysis for flooding source differs from that used to develop FIRM	___ Hydrologic Analysis Form (Form 3)
■ Hydraulic analysis for riverine flooding differs from that used to develop FIRM	_X_ Riverine Hydraulic Analysis Form (Form 4)
■ The request is based on updated topographic information or a revised floodplain or floodway delineation is requested	_X_ Riverine/Coastal Mapping Form (Form 5)
■ The request involves any type of channel modification	_X_ Channelization Form (Form 6)
■ The request involves new bridge or culvert or revised analysis of an existing bridge or culvert	___ Bridge/Culvert Form (Form 7)
■ The request involves a new revised levee/floodwall system	_X_ Levee/Floodwall System Analysis Form (Form 8)
■ The request involves analysis of coastal flooding	___ Coastal Analysis Form (Form 9)
■ The request involves coastal structures credited as providing protection from the 100-year flood	___ Coastal Structures (Form 10)
■ The request involves an existing, proposed, or modified dam	___ Dam Form (Form 11)
■ The request involves structures credited as providing protection from the 100-year flood on an alluvial fan	___ Alluvial Fan Flooding Form (Form 12)

9. INITIAL REVIEW FEE

18. The minimum initial review fee for the appropriate request category has been included. _X_ Yes ___ No
Initial fee amount: $_3,300.00__

or

19. This request is for a project that is for public benefit and is primarily intended for flood loss reduction to insurable structures in identified flood hazard areas which were in existence prior to the commencement of construction of the flood control project. ___ Yes ___ No

or

20. This request is to correct map errors, to include the effects of natural changes within the areas of special flood hazards, or solely to provide more detailed data. ___ Yes ___ No

Note: I understand that my signature indicates that all information submitted in support of this request is correct.	Note: Signature indicates that the community understands, from the revision requestor, the impacts of the revision on flooding conditions in the community.
Signature of Revision Requestor	Signature of Community Official
Bart S. Bergendahl, P.E., Project Manager Printed Name and Title of Revision Requestor	Michael S. Ellegood, P.E., Chief Engineer and General Manager Printed Name and Title of Community Official
Simons, Li & Associates, Inc. Company Name	Maricopa County Community Name
(602) 491-1393 Telephone No. — 5-18-98 Date	8/5/98 Date

Does this request impact any other communities: ___ Yes _X_ No

If yes, attach letters from all affected jurisdictions acknowledging revision request and approving changes to floodway, if applicable.

Note: Although a photograph of physical changes is not required, it may be helpful for FEMA's review.

9. INITIAL REVIEW FEE

18. The minimum initial review fee for the appropriate request category has been included. _X_ Yes ___ No
Initial fee amount: $ 3,300.00

or

19. This request is for a project that is for public benefit and is primarily intended for flood loss reduction to insurable structures in identified flood hazard areas which were in existence prior to the commencement of construction of the flood control project. ___ Yes ___ No

or

20. This request is to correct map errors, to include the effects of natural changes within the areas of special flood hazards, or solely to provide more detailed data. ___ Yes ___ No

Note: I understand that my signature indicates that all information submitted in support of this request is correct.	Note: Signature indicates that the community understands, from the revision requestor, the impacts of the revision on flooding conditions in the community.
Signature of Revision Requestor	Signature of Community Official
Bart S. Bergendahl, P.E., Project Manager Printed Name and Title of Revision Requestor	Grant Anderson, P.E., City Engineer Printed Name and Title of Community Official
Simons, Li & Associates, Inc. Company Name	City of Glendale Community Name
(602) 491-1393 Telephone No. — 5-18-98 Date	8-11-98 Date

Does this request impact any other communities: ___ Yes _X_ No

If yes, attach letters from all affected jurisdictions acknowledging revision request and approving changes to floodway, if applicable.

Note: Although a photograph of physical changes is not required, it may be helpful for FEMA's review.

9. INITIAL REVIEW FEE

18. The minimum initial review fee for the appropriate request category has been included. _X_ Yes ___ No
Initial fee amount: $ 3,300.00

or

19. This request is for a project that is for public benefit and is primarily intended for flood loss reduction to insurable structures in identified flood hazard areas which were in existence prior to the commencement of construction of the flood control project. ___ Yes ___ No

or

20. This request is to correct map errors, to include the effects of natural changes within the areas of special flood hazards, or solely to provide more detailed data. ___ Yes ___ No

Note: I understand that my signature indicates that all information submitted in support of this request is correct.	Note: Signature indicates that the community understands, from the revision requestor, the impacts of the revision on flooding conditions in the community.
Signature of Revision Requestor	Signature of Community Official
Bart S. Bergendahl, P.E., Project Manager Printed Name and Title of Revision Requestor	Ray Acuna, P.E., Floodplain Manager Printed Name and Title of Community Official
Simons, Li & Associates, Inc. Company Name	City of Phoenix Community Name
(602) 491-1393 Telephone No. — 5-18-98 Date	8-11-98 Date

Does this request impact any other communities: ___ Yes _X_ No

If yes, attach letters from all affected jurisdictions acknowledging revision request and approving changes to floodway, if applicable.

Note: Although a photograph of physical changes is not required, it may be helpful for FEMA's review.

FEDERAL EMERGENCY MANAGEMENT AGENCY CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

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.

1. This certification is in accordance with 44 CAR Ch. I, Section 65.2

2. I am licensed with an expertise in:
   [example: water resources (*hydrology, hydraulics, sediment transport, interior drainage*)* structural, geotechnical, land surveying.] **Hydrology, Hydraulics, Sediment Transport, and Interior Drainage**

3. I have _22_ years experience in the expertise listed above.

4. I have ___ prepared _X_ reviewed the attached supporting data and analyses related to my expertise.

5. I _X_ have ___ have not visited and physically viewed the project.

6. In my opinion, the following analyses and/or designs, is/are being certified: **Hydraulics, Sediment Transport and Interior Drainage**

7. Based upon the following review, the modifications in place have been constructed in general accordance with plans and specifications.

   Basis for above statement: (check all that apply) **N/A CLOMR**

   a. ___ Viewed all phases of actual construction.
   b. ___ Compared plans and specifications with as-built survey information.
   c. ___ Examined plans and specifications and compared with completed projects.
   d. ___ Other:

8. All information submitted in support of this request is correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: **Bart S. Bergendahl, P.E.**

Title: **Project Manager**

Registration No.: **28660** Expiration Date: **3/31/01**

State: **Arizona**

Type of License: **Civil Engineer**

Registered Professional Engineer (Civil) CERTIFICATE NO. 28660 BART S. BERGENDAHL Date Signed..... ARIZONA, U.S.A.

Bart S. Bergendahl
Signature

5-18-98
Date

Seal
(*Optional*)

*Specify Subdiscipline
Note: Insert not applicable (N/A) when statement does not apply.

FEDERAL EMERGENCY MANAGEMENT AGENCY CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

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

2. I am licensed with an expertise in:
   [example: water resources (*hydrology, hydraulics, sediment transport, interior drainage*)* structural, geotechnical, land surveying.] **Land Surveying**

3. I have __18__ years experience in the expertise listed above.

4. I have _X_ prepared ___ reviewed the attached supporting data and analyses related to my expertise.

5. I _X_ have ___ have not visited and physically viewed the project.

6. In my opinion, the following analyses and/or designs, is/are being certified: **Land Surveying and Mapping**

7. Based upon the following review, the modifications in place have been constructed in general accordance with plans and specifications.

   Basis for above statement: (check all that apply) **N/A CLOMR**

   a. ___ Viewed all phases of actual construction.
   b. ___ Compared plans and specifications with as-built survey information.
   c. ___ Examined plans and specifications and compared with completed projects.
   d. ___ Other:

8. All information submitted in support of this request is correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: **Arthur A. Witzell**

Title: **Survey Supervisor**

Registration No.: **26412** Expiration Date: **9/30/98**

State: **Arizona**

Type of License: **Registered Land Surveyor**

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
26412
ARTHUR A.
WITZELL
Date Signed 7/26/98
ARIZONA U.S.A.

Signature

Date

Seal
(*Optional*)

*Specify Subdiscipline

Note: Insert not applicable (N/A) when statement does not apply.

FEDERAL EMERGENCY MANAGEMENT AGENCY CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

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

2. I am licensed with an expertise in:
   [example: water resources (*hydrology, hydraulics, sediment transport, interior drainage*)* structural, geotechnical, land surveying.] **Geotechnical**

3. I have _30_ years experience in the expertise listed above.

4. I have _X_ prepared ___ reviewed the attached supporting data and analyses related to my expertise.

5. I _X_ have ___ have not visited and physically viewed the project.

6. In my opinion, the following analyses and/or designs, is/are being certified: **The stability of the levee.**

7. Based upon the following review, the modifications in place have been constructed in general accordance with plans and specifications.

   Basis for above statement: (check all that apply) **Project has not been constructed.**

   a. ___ Viewed all phases of actual construction.
   b. ___ Compared plans and specifications with as-built survey information.
   c. ___ Examined plans and specifications and compared with completed projects.
   d. ___ Other:

8. All information submitted in support of this request is correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: **David P. Hayes, P.E.**

Title: **Executive Vice President**

Registration No.: **22719** Expiration Date: **3/31/00**

State: **Arizona**

Type of License: **Civil**

Signature

May 22, 1998
Date

Registered Professional Engineer (Civil)
CERTIFICATE NO.
22719
David Preston
Hayes
Date Signed
ARIZONA, U.S.A.
(Optional)

*Specify Subdiscipline

Note: Insert not applicable (N/A) when statement does not apply.

FEDERAL EMERGENCY MANAGEMENT AGENCY RIVERINE HYDRAULIC ANALYSIS FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1997	FEMA USE ONLY

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.

Community Name: **Maricopa County/City of Glendale/City of Phoenix**

Flooding Source: **New River**
(One form for each flooding source)

Project Name/Identifier: **Camelback Ranch Levee - North/Glendale Airport Levee**

1. REACH TO BE REVISED

Downstream Limit: **Confluence with Agua Fria River**

Upstream Limit: **Approximately 3,800 feet downstream of Glendale Avenue**

2. EFFECTIVE FIS

___ Not studied

___ Studied by approximate methods

Downstream limit of study:
Upstream limit of study:

_X_ Studied by detailed methods

Downstream limit of study: **Approximately 1,800 feet upstream of Camelback Road**
Upstream limit of study: **Approximately 2.5 miles upstream of Olive Avenue**

_X_ Floodway delineated

Downstream limit of Floodway: **Approximately 1,800 feet upstream of Camelback Road**
Upstream limit of Floodway: **Approximately 2.5 miles upstream of Olive Avenue**

3. HYDRAULIC ANALYSIS

Why is the hydraulic analysis different from that used to develop the FIRM? (*Check all that apply*)

___ Not studied in FIS

___ Improved hydrologic data/analysis. Explain:

_X_ Improved hydraulic analysis. Explain: **Change in starting water surface at Agua Fria River**

_X_ Flood control structure. Explain: **Proposed levee construction**

___ Other. Explain:

3. RIVERINE HYDRAULIC ANALYSIS FORM
Models Submitted

For areas which have detailed flooding:
Full input and output listings along with files on diskette (*if available*) for each of the models listed below (items 1, 2, 3, 4, and 5) and summary of the source of input parameters used in the models must be provided. The summary must include a complete 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 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 below must be submitted.

	Natural	Floodway
1. Duplicate Effective Model 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 requestor's equipment to produce the duplicate effective model. This is required to assure that the effective model input data has been transferred correctly to the requestor'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.	X	X
2. Corrected Effective Model 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 corrected 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 The duplicate effective or corrected 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 or duplicate effective model.	—	—
4. Revised or Post-Project Conditions Model The existing or pre-project conditions model (*or duplicate effective 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 proposed project this model should reflect proposed conditions.	X	X
5. Other: Please attach a sheet describing all other models submitted.	—	—

6. Hydraulic Analyses (only if hydraulic models are not developed) Please attach all calculations for the existing or pre-project conditions and the revised or post-project conditions. Proceed to Form 5 "Riverine/Coastal Mapping Form."

4. MODEL PARAMETERS (from model used to revise 100-year water-surface elevation)

1. Discharges:	Upstream Limit	Downstream Limit
10-year	**13,500 cfs**	**12,500 cfs**
50-year	**31,000 cfs**	**29,000 cfs**
100-year	**41,000 cfs**	**39,000 cfs**
500-year	**75,000 cfs**	**70,000 cfs**
Attach diagram showing changes in 100-year discharge		

2. Explain how the starting water-surface elevations were determined: **From 1996 Re-Study of Agua Fria River, Confluence Cross-Section 9.790**

3. Give range of friction loss coefficients (Manning's "n") Channel.....**0.035**.....
Overbanks.....**0.045**.....

If friction loss coefficients are different anywhere along the revised reach from those used to develop the FIRM, give location, value used in the effective FIS, and revised values and an explanation as to how the revised values were determined.

Location	FIS	Revised

Explain:

4. Describe how the cross section geometry data were determined (*e.g., field survey, topographic map, taken from previous study*) and list cross sections that were added.

Topographic mapping/DTM

5. Were natural channel banks selected as the location of the left and right channel banks in this model?

___ Yes _X_ No If no, explain why not: **Left and right channel banks were selected as top of proposed levee alignment.**

4. MODEL PARAMETERS (Cont'd)

6. Explain how reach lengths for channel and overbanks were determined:

Based on river geometry with proposed design conditions.

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

1. Do the results indicate:	
a. Water-surface elevations higher than end points of cross sections?	__ Yes _X_ No
b. Supercritical depth?	__ Yes _X_ No
c. Critical depth?	__ Yes _X_ No
d. Other unique situations	__ Yes _X_ No
If yes to any of the above, attach an explanation that discusses the situation and how it is presented on the profiles, tables, and maps.	
2. What is the maximum change in energy gradient between cross sections?:	**0.000176 ft./ft.**
Specify location	**Section 47.0 - 51.5**
3. What is the distance between the cross sections in 2 above?:	**450 feet**
4. What is the maximum distance between cross sections?	**662 feet**
Specify location	**Section 55 - 58.12**
5. Floodway determination	
a. What is the maximum surcharge allowed by the community or State?	**1.0 foot**
b. What is the maximum surcharge for the revised conditions?	**0.0 foot**
Specify location	
c. What is the maximum velocity?	**10.10 fps**
Specify location	**Section 51.5**
d. Are there any negative surcharge values at any cross section?	__ Yes _X_ No
If yes, the floodway may need to be widened. If it is not widened, please explain and indicate the maximum negative surcharge.	

Explain:

5. RESULTS (Cont'd)

6. Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? ___ Yes _X_ No

   If Yes, explain:

7. Do 100-year water-surface elevations increase at any location? ___ Yes _X_ No

   If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases. *(For example: State if the increase is due to fill placed within the floodway fringe or placed within the currently adopted floodway limits.)*

Please attach a completed comparison table entitled: Water-Surface Elevation Check (See page 6)

6. REVISED FIRM/FBFM AND FLOOD PROFILES

A. The revised water surface elevations tie into those computed by the effective FIS Model (*10-, 50-, 100-, and 500-year*), downstream of the project at cross section _501.45_ within _1.3_ feet *(vertical)* and upstream of the project at cross section _58.12_ within _0.06_ feet *(vertical)*.

B. The revised floodway elevations tie into those computed by the effective FIS model, downstream of the project at cross section _501.45_ within _0.4_ feet *(vertical)* and upstream of the project at cross section _58.12_ within _0.06_ feet *(vertical)*.

C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studies (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

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

Proceed to Riverine/Coastal Mapping Form

FEDERAL EMERGENCY MANAGEMENT AGENCY
WATER-SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODING SOURCE	PROJECT NAME/IDENTIFIER
Maricopa County/City of Glendale/City of Phoenix	**New River**	**Camelback Ranch Levee - North/Glendale Aiport Levee**

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
SECNO	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]
20.0	1032.5	1033.4	0.9	1032.5	1033.4	0.9							1030.9	1030.9	0.0
26.8	1033.9	1034.5	0.6	1033.9	1034.5	0.6							1032.9	1032.9	0.0
32.6	1035.3	1036.1	0.8	1035.3	1036.1	0.8							(1034.2)	(1034.2)	0.0
38.0	1037.2	1037.4	0.2	1037.2	1037.4	0.2							(1034.9)	(1034.9)	0.0
45.0	1039.1	1039.1	0.0	1039.1	1039.1	0.0							(1036.4)	(1036.4)	0.0
51.7	1040.2	1040.2	0.0	1040.2	1040.2	0.0							1038.1	1038.1	0.0
54.0	1040.4	1040.4	0.0	1040.4	1040.4	0.0							1038.6	1038.6	0.0
* 44.0	1041.1	1041.1	0.0	1041.1	1041.1	0.0							1040.1	1040.1	0.0
47.0	1041.3	1041.3	0.0	1041.3	1041.3	0.0							1040.5	1040.5	0.0
51.7	1042.1	1042.1	0.0	1042.1	1042.1	0.0							1041.8	1041.8	0.0
55.0	1043.2	1043.2	0.0	1043.2	1043.2	0.0							1043.0	1043.0	0.0
58.12	1044.9	1044.9	0.0	1044.9	1044.9	0.0							1044.9	1044.9	0.0

COMMENTS:

*** Begin LOMR for New River Channelization Project, 1992**

[1]100-year (natural) water-surface elevation[2] Encroachment (floodway) Water-Surface Elevation[3] Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

FEDERAL EMERGENCY MANAGEMENT AGENCY RIVERINE/COASTAL MAPPING FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1997	FEMA USE ONLY

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.

Community Name: **Maricopa County/City of Glendale/City of Phoenix**

Flooding Source: **New River**

Project Name/Identifier: **Camelback Ranch Levee - North/Glendale Airport Levee**

1. MAPPING CHANGES

1. A topographic work map of suitable scale, contour interval, and planimetric definition must be submitted showing (*indicate N/A when not applicable*):

		Included		
A.	Revised approximate 100-year floodplain boundaries (Zone A)	___ Yes	___ No	X N/A
B.	Revised detailed 100- and 500-year floodplain boundaries	X Yes	___ No	___ N/A
C.	Revised 100-year floodway boundaries	X Yes	___ No	___ N/A
D.	Location and alignment of all cross sections used in the revised hydraulic model with stationing control indicated	X Yes	___ No	___ N/A
E.	Stream alignments, road and dam alignments	X Yes	___ No	___ N/A
F.	Current community boundaries	X Yes	___ No	___ N/A
G.	Effective 100- and 500-year floodplain and 100-year floodway boundaries from the FIRM/FBFM reduced or enlarged to the scale of the topographic work map	X Yes	___ No	___ N/A
H.	Tie-ins between the effective and revised 100- and 500-year floodplains and 100-year floodway boundaries	X Yes	___ No	___ N/A
I.	The requestor's property boundaries and community easements	X Yes	___ No	___ N/A
J.	The signed certification of a registered professional engineer	X Yes	___ No	___ N/A
K.	Location and description of reference marks	X Yes	___ No	___ N/A
L.	Vertical datum (example: NGVD, NAVD, etc.)	X Yes	___ No	___ N/A
M.	Coastal zone designations tie into adjacent areas not being revised	___ Yes	___ No	X N/A
N.	Location and alignment of all coastal transect used to revise the coastal analyses	___ Yes	___ No	X N/A

If any of the items above are marked no or N/A, please explain: **No Zone A (No approximate boundaries). Project not in a coastal zone.**

2. What is the source and date of the updated topographic information (*example: orthophoto maps, July 1985; field survey, May 1979, beach profiles, June 1987, etc.*)? **Aerial DTM, February, 1995.**

3. What is the scale and contour interval of the following work maps?
   a. Effective FIS **1" = 200 '** scale **2 '** Contour interval
   b. Revision Request **1" = 200 '** scale **2 '** Contour interval

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

4. Attach an annotated FIRM and FBFM at the scale of the effective FIRM and FBFM showing the revised 100-year and 500-year floodplains and the 100-year floodway boundaries and how they tie into those shown on the effective FIRM and FBFM downstream and upstream of the revision or adjacent to the area of revision for coastal studies.

   Attach additional pages if needed.

1. MAPPING CHANGES (Cont'd)

5. Flood Boundaries and 100-year water surface elevations:

   Has the 100-year floodplain been shifted or increased or the 100-year water surface elevation increased at any location on property other than the requestor's or community's? ___ Yes _X_ No

   If yes, please give the location of shift or increase and an explanation for the increase.

   a. Have the affected property owners been notified of this shift or increase and the effect it will have on their property? ___ Yes ___ No

   If yes, please attach letters from these property owners stating they have no objections to the revised flood boundaries if a LOMR is being requested.

   b. What is the number of insurable structures that will be impacted by this shift or increase? _____

6. Have the floodway boundaries shifted or increased at any location compared to those shown on the effective FBFM or FIRM: _X_ Yes ___ No

   If yes, explain: **Floodway boundary will be contained within the proposed levees**

7. If a V-zone has been designated, has it been delineated to extend landward to the heel of the primary frontal dune? ___Yes ___ No **N/A**

   If no, explain:

8. Manual or digital map submission:

   __ Manual

   _X_ Digital

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 of submission as possible.

1. The fill is: ___ Existing _X_ Proposed

2. Has fill been/will be placed in the regulatory floodway? _X_ Yes ___ No

   If yes, please attach completed Riverine Hydraulic Analysis Form.

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

   If yes, justify steeper slopes: **Slopes retained/protected by 9-foot-thick soil cement layer**

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.*) _X_ 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? _X_ Yes ___ No

D. Can structures conceivably be constructed on the fill at any time in the future? _X_ Yes ___ No

   If yes, provide certification of fill compaction (item C. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer. **N/A CLOMR**

4. Has fill been/will be placed in a V-zone? ___ Yes ___ No **N/A**

   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.

FEDERAL EMERGENCY MANAGEMENT AGENCY CHANNELIZATION FORM	O.M.B. Burden No. 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1.75 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.

Community Name: **Maricopa County/City of Glendale/City of Phoenix**

Flooding Source: **New River**

Project Name/Identifier: **Camelback Ranch Levee - North/Glendale Airport Levee**

1. EXTENT OF CHANNELIZATION

Downstream limit: **Agua Fria River and New River Confluence**

Upstream limit: **Bethany Home Road Alignment**

2. CHANNEL DESCRIPTION

1. Describe the inlet to the channel: **Flush with existing channel section.**

2. Briefly describe the shape of the channel *(both cross sectional and planimetric configuration)* and its lining *(channel bottom and sides)*:

   V-shaped, excavated over partial channel width, 2% bottom slopes.

3. Describe the outlet from the channel: **Ties into existing channel section.**

4. The channelization includes:

   _X_ Levees *(Attach Levee Form)*
   ___ Drop structures
   ___ Superelevated sections
   ___ Transitions in cross sectional geometry
   ___ Debris basin/detention basin
   ___ Energy dissipater
   ___ Other:

5. Attach the following: **See project plans.**

   a. Certified engineering drawings showing channel alignment and locations of inlet, outlet, and items checked in item 4.

   b. Typical cross sections and profiles of channel banks and invert

3. HYDRAULIC CONSIDERATIONS

1. What is the 100-year discharge? __39,000__ **cfs**

2. Do the cross sections in the hydraulic model match the typical cross sections in the plans? _X_ Yes ___ No

3. Are the channel banks higher than the 100-year flood elevations everywhere? _X_ Yes ___ No

4. Are the channel banks higher than the 100-year flood energy grade lines everywhere?_X_ Yes ___ No

5. Is the land on both sides of the channel above the adjacent 100-year flood elevation at all points along the channel?
   ___ Yes _X_ No

6. What is the range of freeboard? _3.9 - 6.4_ feet

7. What is the lining type? (both bottom and sides): **Soft bottom, soil cement sides**

   Explain how the channel lining prevents erosion and maintains channel stability *(attach documentation)*:

   Toe elevation of soil cement below estimated scour depths

9. What is the design elevation in the channel based on?

   _X_Subcritical flow
   ___ Critical flow
   ___ Supercritical flow
   ___ Energy grade line

   Is 100-year flood profile based on the above type of flow? _X_ Yes ___ No

   If no, explain:

10. Is there the potential for a hydraulic jump at the following locations?

Inlet to channel	___ Yes	_X_ No
Outlet of channel	___ Yes	_X_ No
At Drop Structures	___ Yes	_X_ No
At Transitions	___ Yes	_X_ No
Other locations.	Explain:	

If the answer to any of the above is yes, please explain how the hydraulic jump is controlled and the effects of the hydraulic jump on the stability of the channel.

Explain:

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year water-surface elevations and/or the capacity of the channel? ___ Yes _X_ No

B. Based on the conditions of the watershed and stream bed, is there a potential for sediment transport (including scour and deposition) to affect the 100-year water-surface elevations and/or the capacity of the channel? _X_ Yes ___ No

2. If the answer to either 1A or 1B is yes:

A. What is the estimated sediment (bed) load?

_180_ cfs (attach gradation curve)

See report for sediment gradations.

Explain method used to estimate load:

Meyer-Peter, Muller bed load function with Einstein's procedure for integration of the suspended load.

B. Is the 100-year flood velocity anywhere within the channel less than the 100-year flood velocity of the inlet?
__ Yes _X_ No

C. Will sediment accumulate anywhere within the channel?
__ Yes _X_ No

D. Will deposition or scour occur at or near the inlet?
_X_ Yes __ No

E. Will deposition or scour occur at or near the outlet?
_X_ Yes __ No

Attach documentation showing affects on the Hydrologic and Hydraulic Analyses

FEDERAL EMERGENCY MANAGEMENT AGENCY **LEVEE/FLOODWALL SYSTEM ANALYSES FORM**	O.M.B. Burden No. 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.0 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.

Community Name: **Maricopa County/City of Glendale/City of Phoenix**

Flooding Source: **New River**

Project Name/Identifier: **Camelback Ranch Levee - North/Glendale Airport Levee**

REACH TO BE REVISED

Downstream limit: **Confluence with Agua Fria River**

Upstream limit: **Bethany Home Road Alignment**

This Levee/Floodwall analysis is based on:

___ upgrading of an existing levee/floodwall system

_X_ a newly constructed levee/floodwall system

___ reanalysis of an existing levee/floodwall system

LEVEE/FLOODWALL SYSTEM ELEMENTS

1. Levee elements and locations are:

_X_ earthen embankment, dike, berm, etc. — Station **10+00** to **59+70** **(baseline)**

___ structural floodwall — Station _____ to _____

___ other (describe): — Station _____ to _____

Structural Type:

___ monolithic cast-in place reinforced concrete

___ reinforced concrete masonry block

___ sheet piling

___ other (describe):

2. Has this levee/floodwall system been certified by a Federal agency to provide protection against the 100-year flood event? ___ Yes _X_ No

If yes, by which agency?

If yes, complete only the interior drainage section on pages 7 and 8 of this form and the operation and maintenance section of Revision Requestor and Community Official Form.

LEVEE/FLOODWALL SYSTEM ELEMENTS (Cont'd)

3. Attach certified drawings containing the following information (indicate drawing sheet numbers):

   a. Plan of the levee embankment and floodwall structures. Sheet Numbers 9 - 13

   b. A profile of the levee/floodwall system showing the 100-year water-surface elevation, levee and/or wall crest and foundation, and closure locations for the total levee system. Sheet Numbers 9 - 13

   c. A profile of the 100-year water-surface elevation, closure opening outlet and inlet invert elevations, type and size of opening, and kind of closure device. Sheet Numbers 19 - 20

   d. A layout detail for the embankment protection measures. Sheet Numbers 3 - 4

   e. Location, layout, and size and shape of the levee embankment features, foundation treatment, floodwall structure, closure structures, and pump stations. Sheet Numbers 18

FREEBOARD

1. The minimum freeboard provided above the 100-year water-surface elevation is:

Riverine

3.0 feet or more at the downstream end and throughout	X Yes	___ No
3.5 feet or more at the upstream end	X Yes	___ No
4.0 feet immediately upstream of all structures and constrictions	X Yes	___ No

Coastal **Not Applicable**

1.0 foot above the height of the one percent wave for the 100-year stillwater surge elevation or maximum wave runup (whichever is greater).	___ Yes	___ No
2.0 feet above 100-year stillwater surge elevation	___ Yes	___ No

Please note, occasionally exceptions are made to the minimum freeboard requirement. If an exception is requested, attach documentation addressing Part 65.10(b)(1)(ii) of the National Flood Insurance Program regulations.

If no is answered to any of the above, please explain where and why:

2. Is there an indication from historical records that ice-jamming can effect the 100-year water-surface elevation?
   ___ Yes X No

   If yes, provide ice-jam analysis profile and evidence that the minimum freeboard discussed above still exists.

3. Tabulate the elevations at critical locations (tabulate values at each levee crest grade change)

Station	Location	100-year Water Surface Elevation	Levee Crest	Freeboard (ft.)
	Upper end			
		See report		
	Lower end			

(Extend table on an added sheet as needed and reference)

SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year water-surface elevations? ___ Yes _X_ No

   B. Based on the conditions (such as geomorphology, vegetative cover, and development of the water shed and stream bed, and bank conditions), is there a potential for debris and sediment transport (including scour and deposition) to affect the 100-year water-surface elevations and/or the freeboard for the levee/floodwall? _X_ Yes ___ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment (bed material) load?

   _180_ cfs (attach gradation curve) **See report for sediment gradations.**

   Explain method used to estimate the sediment transport and the depth of scour and/or deposition:

   Meyer-Peter, Muller bed load function and Einstein's procedure for integration of suspended load.

   B. Will sediment accumulate anywhere along the levee/floodwall (such as along any bends in the channel? __ Yes _X_ No

   If yes, what is the minimum freeboard at these locations? ____ feet

CLOSURES

1. Openings through the levee system:

   _X_ exist__ do not exist

   If openings exist, list all closures:

Levee Station	Left or Right Bank	Opening Type	Highest Elevation for Opening Invert	Type of Closure Device
11+56	**Left**	**Pipe**	**1019.50**	**Flapgate**
23+00	**Left**	**Pipe**	**1025.00**	**Flapgate**

(Extend table on an added sheet as needed and reference)

Geotechnical and geologic data:

In addition to the required detail analysis reports, data obtained during field and laboratory investigations and used in the design analysis for the following levee system features should be submitted in a tabulated summary form. (Reference U.S. Army Corps of Engineers EM-1110-2-1906 Form 2086).

EMBANKMENT PROTECTION

1. The maximum levee slope landside is: **3 : 1**
2. The maximum levee slope floodside is: **1 : 1**
3. The range of 100-year riverine flood velocities along the levee? **5.3 fps** (min.) to **7.7 fps** (max.)
4. Embankment material is protected by (describe the kind): **Soil cement - 9 feet thick.**

5. Riprap Design Parameters: (Include references) ___ Velocity ___ Tractive stress
N/A

Reach	Sideslope	Flow Depth	Velocity	Curve or Straight	Stone Riprap			Depth of Toedown
					D_{100}	D_{50}	Thickness	
Sta to								
Sta to								
Sta to								
Sta to								
Sta to								
Sta to								

(Extend table on an added sheet as needed and reference)

6. Has a bedding/filter analysis and design been included? ___ Yes ___ No
N/A

Describe the analysis used for other kinds of protection used (include copies of the design analysis):

Note: Attach engineering analysis to support construction plans.

EMBANKMENT AND FOUNDATION STABILITY

1. Identify locations and describe the basis for selection of critical location for analysis:

   ___ Overall height: Sta _____, height _____ ft.

   ___ Limiting foundation soil strength:

   Sta _____, depth _____ to _____

   strength Ø = __41°__ degrees, c = __0__ psf

   ___ slope: SS = __1__ (h) to __1__ (v)

   (Repeat as needed on an added sheet for additional locations)

2. Specify the embankment stability analyses methodology used (e.g., circular arc, sliding block, infinite slope, etc.):

   Bishop, Circular Arc - Most Probable Failure

3. Summary of stability analysis results:

Case	Loading Conditions	Critical Safety Factor	Criteria (Min.)
I	End of construction		1.3
II	Sudden drawdown		1.0
III	Critical flood stage		1.4
IV	Steady seepage at flood stage		1.4
VI	Earthquake (Case I)		1.0

(Reference: U.S. Army Corps of Engineers EM-1110-2-1913 Table 6-1)

4. Was a seepage analysis for the embankment performed? __X__ Yes ___ No

   Describe methodology used: **Flow Net Using La Place's Equations.**

5. Was a seepage analysis for the foundation performed: ___ Yes __X__ No

   Were uplift pressures at the embankment landside toe checked? __X__ Yes ___ No

   Were seepage exit gradients checked for piping potential? __X__ Yes ___ No

6. The duration of 100-year flood hydrograph against the embankment is __8__ Hrs.

Note: Attach engineering analysis to support construction plans.

EMBANKMENT AND FOUNDATION STABILITY

1. Describe analysis submittal based on Code:

   ___ UBC (1988) or ___ Other (specify):

2. Stability analysis submitted provides for:
   ___ Overturning ___ Sliding; If not, explain:

3. Loading included in the analyses were:

   ___ Lateral earth @ P_A = _____ psf; P_p = _____ psf

   ___ Surcharge-Slope @ _____, _____ surface _____ psf _____

   Wind @ P_w = _____ psf

   ___ Seepage (Uplift); ____ ____ Earthquake @ P_{eq} = _____ %g ____

   100-year significant wave height _____ ft.

   ___ 100-year significant wave period _____ sec.

4. Summary of Stability Analysis Results: Factors of Safety. Itemize for each range in site layout dimension and loading condition limitation for each respective reach.

Loading Condition	Criteria (Min)		Sta	To	Sta	To
	Overturn	Sliding	Overturn	Sliding	Overturn	Sliding
Dead & Wind	1.5	1.5				
	1.5	1.5				
	1.5	1.5				
	1.3	1.3				

(Ref: FEMA 114 Sept 1986; COE EM 1110-2-2502)

(Note: Extend table on an added sheet as needed and reference)

5. Foundation bearing strength for each soil type:

Bearing Pressure	Sustained Load	Short Term Load
omputed design maximum	psf	psf
Maximum allowable	psf	psf

6. Foundation scour protection _X_ is, ___ is not provided (describe).

   Soil cement protection provided below anticipated scour depth.

Note: Attach engineering analysis to support construction plans.

SETTLEMENT

1. Anticipated potential settlement has been determined and incorporated into the specified construction elevations to maintain the established freeboard margin. _X_ Yes __ No

2. The computed range of settlement is _0.015_ ft. to _0.04_ ft.

3. Settlement of the levee crest is determined to be primarily from:

   __ Foundation consolidation
   _X_ Embankment compression
   __ Other (describe):

4. Differential settlement of floodwalls

   __ has __ has not been accommodated in the structural design and construction. N/A

Note: Attach engineering analysis to support construction plans.

INTERIOR DRAINAGE

1. Specify size of each interior watershed

   Draining to pressure conduit: N/A
   Draining to ponding area: 474 acres

2. Relationships Established

   Ponding elevation vs. storage _X_ Yes __ No
   Ponding elevation vs. gravity flow _X_ Yes __ No
   Differential head vs. gravity flow _X_ Yes __ No

3. The river flow duration curve is enclosed __ Yes _X_ No

4. Specify the discharge capacity of the head pressure conduit: N/A

5. Which Flooding Conditions Were Analyzed?

   Gravity flow (Interior Watershed) _X_ Yes __ No
   Common storm (River Watershed) _X_ Yes __
   No Historical ponding probability __ Yes _X_ No
   Coastal wave overtopping __ Yes _X_ No
   If no, explain why: No ponding history. Not in coastal area.

6. Interior drainage has been analyzed based on joint probability of interior and exterior flooding and the capacities of pumping and outlet facilities to provide the established level of flood protection. _X_ Yes __ No

   If no, explain why:

7. The rate of seepage through the levee system for the 100-year flood is _____ cfs

INTERIOR DRAINAGE (Cont'd)

1. The length of levee system used to drive this seepage rate is _____ ft.

2. Will a pumping plant(s) be used for interior drainage? ___ Yes _X_ No

   If yes, include the number of pumping plants: ____

For each pumping plant, list:

	Plant #1	Plant #2
The number of pumps		
The ponding storage capacity		
The maximum pumping rate		
The maximum pumping head		
The pumping starting elevation		
The pumping stopping elevation		
Is the discharge facility protected?		
Is there a flood warning plan?		
How much time is available between warning		

Will the operations be automatic? ___ Yes ___ No
If the pumps are electric, are there backup power sources? ___ Yes ___ No

(Reference: U.S. Army Corps of Engineers EM-1110-2-3101, 3102, 3103, 3104, and 3105)

Note: Include a copy of supporting documentation of data and analysis. Provide a map showing the flooded area and maximum ponding elevations for all interior watersheds that result in flooding.

OTHER DESIGN CRITERIA

1. The following items have been addressed as stated:

   Liquefaction ____ is _X_ is not a problem
   Hydrocompaction ___ is _X_ is not a problem
   Heave differential movement due to soils of high shrink/swell ___ Is _X_ Is not a problem

2. For each of these problems, state the basic facts and corrective action taken:

   If the levee/floodwall is new or enlarged, will the structure adversely impact flood levels and/or flow velocities floodside of the structure? ___ Yes _X_ No

Note: Attach supporting documentation

The planned/installed works are in full compliance with NFIP regulations, Section 44 CFR Ch. 1 1.65.10
_X_ Yes ___ No

OPERATIONAL PLAN AND CRITERIA

1. The operation plan incorporates all the provisions for closure devices as required in Section 65.10(c)(1), of the NFIP regulations ___ Yes ___ No

2. The operation plan incorporates all the provisions for interior drainage as required in Section 65.10(c)(2), of the NFIP regulations. __ Yes __ No

   If no to either of the above, please explain: **Plan to be developed for LOMR request.**

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NEW RIVER

CONDITIONAL LETTER OF MAP REVISION

F.C.D. CONTRACT NO. 95-15

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
CROSS SECTION	(14) FP=100 Yr WSE / FW=Floodway WSE
ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1030
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	
SECTION LINE	

ELEVATION REFERENCE MARKS

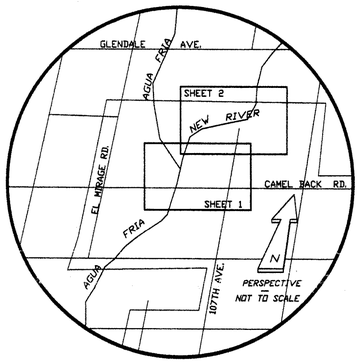
NOTE: ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO OBTAIN NAVD 88 ELEVATIONS, ADD 2.061 FEET

I. D. NUMBER	ELEV. (FT)	DESCRIPTION/LOCATION
ERM 18	1033.41	COTTON PICKER SPINDLE AT THE CENTERLINE OF CAMELBACK AT APPROXIMATELY 109th AVE
ERM 20	1042.55	1/2" REBAR WITH ALUMINIUM CAP ON THE WEST SIDE OF BERM FOR FENCE AROUND AIRPORT

NOTES

1. CROSS-SECTION STATION 1,000 IS THE HYDRAULIC BASELINE.
2. STARTING WSE AT SECTION 1 = AGUA FRIA RE-STUDY WSE AT SECTION 9.790 (CVL, 1996)

INDEX MAP



200 0' 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

SIMONS, LI & ASSOCIATES, INC.
Water Resources & Civil Engineering Consultants

	BY	DATE
DESIGN	IKT	4/98
DESIGN CHK.	BSB	4/98
PLANS	BAL	4/98
PLANS CHK.	BSB	4/98

SUBMITTED BY:
Bart Bergendahl, P.E. DATE: 4/98

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE
APPROVED BY: DATE
CHIEF ENGINEER AND GENERAL MANAGER

SHEET 1 OF 2

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 8/26/95

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS 1"=200' HORIZONTAL SCALE AND 1' CONTOUR INTERVALS AND BASED ON GROUND CONTROL SURVEY DATA PROVIDED BY AERIAL MAPPING COMPANY, INC.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

NEW RIVER

CONDITIONAL LETTER OF MAP REVISION

F.C.D. CONTRACT NO. 95-15

LEGEND

100-YR FLOODPLAIN BOUNDARY	
FLOODWAY BOUNDARY	
HYDRAULIC BASE LINE	
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ELEVATION REFERENCE MARK	ERM3 X
BASE FLOOD ELEVATIONS	1030
ZONE DESIGNATIONS	ZONE AE
CITY LIMITS	
SECTION LINE	

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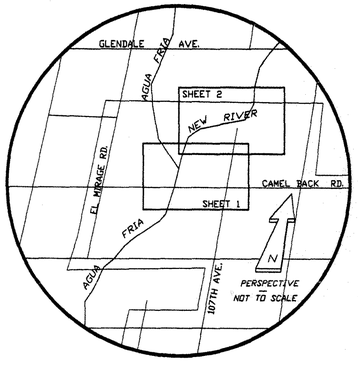
INDEX MAP



200 0' 200 400

SCALE: 1" = 200'
CONTOUR INTERVAL = 2 FEET

SIMONS, LI & ASSOCIATES, INC.
Water Resources & Civil Engineering Consultants

	BY	DATE
DESIGN	IKT	4/98
DESIGN CHK.	BSB	4/98
PLANS	BAL	4/98
PLANS CHK.	BSB	4/98

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

RECOMMENDED BY: DATE

APPROVED BY: DATE

CHIEF ENGINEER AND GENERAL MANAGER

SUBMITTED BY: Bart Bergendahl, P. E. DATE: 4/98

SHEET 2 OF 2

AERIAL MAPPING COMPANY, INC. SURVEYING AND PHOTOGRAMMETRY. FLIGHT DATE: 2/26/95

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS 1"=200' HORIZONTAL SCALE AND 1' CONTOUR INTERVALS AND BASED ON GROUND CONTROL SURVEY DATA PROVIDED BY AERIAL MAPPING COMPANY, INC.