FLOODPLAIN STUDY
NEW RIVER
FROM
UNION HILLS DRIVE TO BEARDSLEY ROAD

prc

PRC Toups Corporation

A Planning Research Company

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FLOODPLAIN STUDY
NEW RIVER
FROM
UNION HILLS DRIVE TO BEARDSLEY ROAD

DECEMBER 4, 1979

PREPARED FOR

ARROWHEAD RANCH DEVELOPMENT, INC.

Registered Professional Engineer (Civil)
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PATEL
Date Signed 12/4/79
ARIZONA, U.S.A.

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FLOODPLAIN STUDY

NEW RIVER - NORTH OF UNION HILLS DRIVE
TO BEARDSLEY ROAD

SCOPE OF STUDY:

This floodplain study involves a portion of Section 26, T-4-N, R-1-E of the Gila and Salt River Base and Meridian, Maricopa County and a portion of Arrowhead Ranch Development Inc. Presented herein is an analysis of the existing conditions and a redelineation of the floodway boundary based on a portion of the modified channel in New River. The limits of this analysis start just south of Union Hills Drive and extend to Beardsley Road; river mile 11.00 to 12.10. The best available information was obtained for the hydrologic data and topographic mapping. Peak flood flows were obtained from the Corps of Engineers Report Design Memorandum No. 3 and from the Maricopa County Flood Control District.

Maps of the area were prepared as of August, 1979 from aerial photos at a scale of one inch equals 200 feet, with a 2-foot contour interval and were referenced to the USGS Datum.

BACKGROUND:

A previous hydrologic study in this area was completed in accordance with Federal Emergency Management Agency (formerly Federal Insurance Administration) guidelines. The study was completed by the Corps of Engineers, Los Angeles District in 1975, utilizing 1969 topographic maps at a scale of one inch equals 400 feet, with a 5 foot contour interval.

This study appears to contain inconsistencies with regard to mapping and computer input. Also, distribution of flow is inconsistent with natural stream flow. In addition, the effect of 83rd Avenue, as discussed in the latter part of this narrative, was not considered. Due to these problems, the HEC-2 input or output of the Corps study could not be used in this analysis.

HYDROLOGY:

The previous Corps of Engineers Report was the basis for the hydrology data used in this analysis. The 100-year flow of 53,000 cfs in New River was used directly from that report. New River dam is scheduled to be constructed upstream of the study area which will result in the 100-year flow being reduced to 9,000 cfs. That flow is less than the present 10-year flow of 15,000 cfs.

HYDRAULICS:

General

The stream cross-sections obtained from the recent topographic maps are used in the HEC-2 Step Backwater Computer Program which was developed by the Corps of Engineers. The HEC-2 Program computes water surface elevations for floods of selected recurrence intervals. Starting water surface elevations were developed by the slope area method. The previous studies to determine floodplain limits are obsolete due to the significant enlargement of the channel cross-section shown in the recent mapping.

Corps Analysis - 1975 Floodplain Study:

The 1975 Corps study considered the following approach: "The analysis of the north reach is complicated by the fact that the overbanks are extremely flat. The standard approach that is used in this situation is to curve the ends of the cross-sections to higher elevations so that the flows can be contained. The difficulty with this technique is selecting the degree of curvature of the cross-sections. The degree of curvature determines the amount of water in an overbank as well as the depth of flooding and the end stations. Another problem that may be encountered is the result of the fact that HEC-2 assigns water to the lower elevations. In consecutive cross-sections, water may be artificially transported from one overbank to the other because of changes in overbank elevations, even though there is no physical way for the water to have moved."

In the Corps study, a sheet flow analysis technique was used that assumed the overbanks to be flat. A series of water surface elevations were

assumed and for a given water surface elevation the amount of water in the overbank was computed. An approximation technique was then used to compute an end station for each of the given elevations (See Figure 1).

PRC Toups Analysis

The sheet flow analysis technique described above was not used in the analysis presented in this report. The results of the analysis presented here differ from those of the Corps study in the amount of sheet flow that would occur to the west of 83rd Avenue. Recent topographic maps and field observations reveal that 83rd Avenue will act as a ridge separating effective flow areas of the main channel from the sheet flow area on the west side of 83rd Ave. According to the Corps study, some flow will break out around Deer Valley Drive and will be separated from the main channel and, thereby, reduce the peak of 53,000 cfs at Beardsley Road (See Map 3).

This study assumes that the peak of 53,000 cfs will occur at the upstream end of the study reach, Beardsley Road, and will be contained in the main channel. This is a conservative approach without recent topographic maps available for the reach north of Beardsley Road.

Procedure - Existing Condition

As flood volume increases, the flood stage of the river will rise to the elevations of 83rd Avenue. Any additional volume will result in a split flow condition in which the flow will break over 83rd Avenue on the west of the main channel in a weir-flow fashion (see Figure 2). Based on the USGS Quadrangle Map, the flow that weirs over 83rd Avenue is separated permanently from the stream and, therefore, will not have an effect on the profile of New River in the main channel. To determine the amount of separated flow and the flow remaining in the main channel the following procedure was used:

1. "Method One" encroachment was used to contain the flow in the main channel and an artificial levee was modeled at 83rd Avenue.

2. Utilizing step No. 1, rating curves for elevation versus flood stage were computed for the sections where split flow occurred.
3. An iterative procedure was then used to compute the water surface elevation at which the summation of channel flow and weir flow equaled the total input flow.
4. The flows in the main channel at various channel sections, as determined by step No. 3, were utilized in the final computer run to establish a 100-year profile.

Due to the existence of split flow (weir flow) and the lack of new mapping upstream of Beardsley Rd., it was impossible to develop an accurate floodway delineation for the existing condition.

Proposed Floodway

To reclaim land located in the floodprone area, channel modifications were coded and used in HEC-2 to generate a flood profile. With the exceptions of the modified channel sections and treatment plant levee on the east, the analysis used the same procedure as described in the previous paragraph. The reduced flows due to break-out across 83rd Avenue were used in HEC-2 to generate a new flood profile for the proposed conditions.

The profile of this modified channel with levees, is generally lower than the profile of the same flood under existing conditions. However, in the downstream portion, the water surface for the proposed floodway exceeds that for the existing conditions by approximately one-half foot.

Federal Emergency Management Agency (FEMA) defines a floodway as follows: "A floodway is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water-surface more than a designated height." In this case the designated increase must be less than 1.0 foot in accordance with FEMA.

CONCLUSION:

The effect of encroachment into the existing delineated floodplain in conjunction with the specified channel improvements would result in a maximum increase of approximately one-half foot in water-surface elevation.

This illustrates that the proposed floodway meets the FEMA criteria.

APPENDIX

FLOW DISTRIBUTIONS IN CFS

CORP OF ENGINEERS STUDY (1975)

SECTION	LEFT OVERBANK	CHANNEL	RIGHT OVERBANK
10.78	7,098	34,908	10,994
11.05	9,933	26,194	16,873
11.30	14,044	23.492	15,464
11.66	1,168	51,220	612
12.04	1,989	39,120	11,891

PRC TOUPS STUDY

SECTION	LEFT OVERBANK	CHANNEL	RIGHT OVERBANK
11.00	14,383	29,758	8,859
11.25	16,184	34,583	2,232
11.65	8,414	43,308	1,278
12.10	3,150	49,536	313

HEC-2 INPUT AND OUTPUT DATA

EXISTING CONDITION

```
*************************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*************************************************


C
T1      ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOUPS CORPORATION
T2      100 YEAR FREQUENCY EXISTING CONDITIONS
T3      NEW RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.       3.        0.        0.   .006000      0.00      0.0       0.   1234.000    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     IBW       CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.000    43.000     1.000     2.000    26.000    39.000    21.000    22.000    27.000    28.000

    53.000    54.000     0.000    38.000    13.000    14.000    15.000    55.000    26.000    56.000

    63.000     1.000    51.000     4.000    42.000    57.000     0.000    38.000    39.000    33.000

     3.000    10.000    11.000    12.000     5.000     7.000     8.000    16.000    17.000    18.000

J5  LPRNT     NUMSEC                    ********REQUESTED SECTION NUMBERS********

   -10.000   -10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC     .045      .045      .035      .100      .300     0.000     0.000     0.000     0.000     0.000
QT    4.000 15000.000 45448.000  9000.000 2000.000     0.000     0.000     0.000     0.000     0.000
ET    0.000     9.100     9.100     9.100     9.100     9.100     9.100     0.000 17000.000 20300.000

        STATIONING FROM LEFT TO RIGHT, LOOKING DOWNSTREAM, FLOWLINE AT 20000.

        STARTING WATERSURFACE ELEVATION USING SLOPE AREA METHOD

        SECTIONS BEGINING 200 FT DOWNSTREAM OF UNION HILLS DR

X1   11.000    10.000 19888.000 20170.000     0.000     0.000     0.000     0.000     0.000     0.000
GR 1230.000 16000.000  1230.000 19800.000  1230.000 19840.000  1228.000 19888.000  1220.000 19910.000
GR 1218.800 20000.000  1220.000 20080.000  1226.000 20100.000  1228.000 20170.000  1230.000 20300.000
QT    4.000 15000.000 46581.000  9000.000 2000.000     0.000     0.000     0.000     0.000     0.000
ET    0.000     9.100     9.100     9.100     9.100     9.100     9.100     0.000 17000.000 20300.000


X1   11.010    10.000 19888.000 20170.000    70.000    70.000    70.000     0.000     0.000     0.000
GR 1230.000 16000.000  1230.000 19800.000  1230.000 19840.000  1228.000 19888.000  1220.000 19910.000
GR 1218.900 20000.000  1220.000 20080.000  1226.000 20100.000  1228.000 20170.000  1230.000 20300.000
QT    4.000 15000.000 47995.000  9000.000 2000.000     0.000     0.000     0.000     0.000     0.000
ET    0.000     9.100     9.100     9.100     9.100     9.100     9.100     0.000 17100.000 20315.000
```

X1	11.040	19.000	19883.000	20130.000	110.000	110.000	110.000	0.000	0.000	0.000
[redacted] GR	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
GR	1227.000	19810.000	1228.000	19860.000	1230.000	19875.000	1230.500	19883.000	1230.000	19890.000
GR	1222.000	19915.000	1220.000	19938.000	1219.500	20000.000	1220.000	20025.000	1222.000	20110.000
GR	1226.000	20130.000	1228.000	20275.000	1230.000	20310.000	1230.000	20315.000	0.000	0.000
QT	4.000	15000.000	49948.000	9000.000	2000.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	17250.000	20430.000
X1	11.080	17.000	19922.000	20155.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	1234.000	15760.000	1233.000	16280.000	1232.000	16470.000	1230.000	16510.000	1230.500	17570.000
GR	1230.000	19340.000	1230.000	19915.000	1230.000	19922.000	1222.000	19940.000	1220.000	19970.000
GR	1219.900	20000.000	1220.000	20025.000	1222.000	20095.000	1224.000	20125.000	1229.000	20155.000
GR	1229.000	20350.000	1231.500	20430.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	15000.000	50543.000	9000.000	2000.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	17750.000	20490.000
X1	11.140	18.000	19928.000	20160.000	530.000	530.000	530.000	0.000	0.000	0.000
GR	1236.000	15230.000	1234.000	15240.000	1232.000	16500.000	1230.000	16540.000	1232.000	18800.000
GR	1230.000	19865.000	1229.500	19895.000	1230.000	19920.000	1231.000	19928.000	1230.000	19935.000
GR	1224.000	19945.000	1222.000	19985.000	1221.800	20000.000	1222.000	20010.000	1224.000	20135.000
GR	1232.000	20160.000	1232.000	20420.000	1233.000	20490.000	0.000	0.000	0.000	0.000
QT	4.000	15000.000	52009.000	9000.000	2000.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	18300.000	20680.000 500
X1	11.250	310.000	19830.000	20075.000	650.000	650.000	650.000	0.000	0.000	0.000
GR	1234.000	18800.000	1234.000	19380.000	1232.000	19830.000	1226.000	19870.000	1224.000	19965.000
GR	1223.800	20000.000	1224.000	20030.000	1235.000	20075.000	1236.000	20400.000	1236.500	20500.000
QT	4.000	15000.000	52347.000	9000.000	2000.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	18970.000	20680.000
X1	11.380	16.000	19950.000	20190.000	530.000	530.000	530.000	0.000	0.000	0.000
GR	1238.000	15360.000	1237.500	15460.000	1237.500	16550.000	1236.000	16730.000	1236.000	17900.000
GR	1238.000	19000.000	1236.000	19685.000	1234.000	19950.000	1228.000	19970.000	1226.000	20000.000
GR	1228.000	20130.000	1230.000	20150.000	1236.000	20175.000	1237.500	20190.000	1238.000	20420.000
GR	1239.300	20680.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	15000.000	53000.000	9000.000	2000.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19520.000	20730.000
X1	11.460	17.000	19520.000	20210.000	420.000	420.000	420.000	0.000	0.000	0.000
GR	1244.000	15490.000	1242.000	16470.000	1240.000	17050.000	1240.000	19290.000	1238.000	19520.000
GR	1236.000	19550.000	1228.000	19605.000	1227.200	19625.000	1227.200	20000.000	1228.000	20055.000
GR	1230.000	20060.000	1230.000	20080.000	1232.000	20130.000	1234.000	20165.000	1240.000	20190.000
GR	1240.500	20210.000	1241.800	20730.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19470.000	20690.000
NC	.045	.045	.035	.500	.700	0.000	0.000	0.000	0.000	0.000
X1	11.550	24.000	19700.000	20150.000	480.000	480.000	480.000	0.000	0.000	0.000
GR	1246.000	15400.000	1246.000	17200.000	1244.000	18080.000	1242.000	18120.000	1242.000	18370.000
GR	1243.000	18680.000	1243.000	19140.000	1242.000	19220.000	1242.000	19700.000	1240.000	19740.000
GR	1234.000	19750.000	1234.400	19780.000	1234.000	19810.000	1232.000	19875.000	1230.000	19902.000
GR	1229.600	19915.000	1230.000	19930.000	1230.300	19955.000	1230.000	19980.000	1228.500	20000.000
GR	1230.000	20020.000	1232.000	20027.000	1242.000	20150.000	1243.300	20690.000	0.000	0.000
NC	.045	.045	.035	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19350.000	20800.000
X1	11.650	18.000	19500.000	20050.000	500.000	500.000	500.000	0.000	0.000	0.000
GR	1242.000	18800.000	1242.000	19000.000	1242.000	19235.000	1242.000	19240.000	1236.000	19350.000
GR	1234.500	19500.000	1234.500	19650.000	1235.000	19800.000	1236.000	19875.000	1236.000	19965.000
GR	1234.000	19985.000	1233.600	20000.000	1234.000	20040.000	1240.000	20050.000	1240.000	20070.000

GR	1244.000	20085.000	1246.000	20320.000	1248.000	20800.000	0.000	0.000	0.000	0.000
NC	.045	.045	.035	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19040.000	21200.000
X1	11.810	15.000	19450.000	20035.000	870.000	870.000	870.000	0.000	0.000	0.000
GR	1248.000	19040.000	1248.000	19100.000	1248.000	19300.000	1248.000	19350.000	1248.000	19440.000
GR	1238.000	19450.000	1239.000	19600.000	1238.000	19800.000	1238.000	19950.000	1236.000	19985.000
GR	1236.000	20015.000	1246.000	20035.000	1246.000	20050.000	1250.000	20070.000	1248.000	20800.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19450.000	21200.000
X1	11.930	19.000	19715.000	20027.000	650.000	650.000	650.000	0.000	0.000	0.000
GR	1248.000	19450.000	1248.000	19715.000	1242.000	19730.000	1241.000	19770.000	1241.000	19870.000
GR	1242.000	19900.000	1242.000	19925.000	1240.600	20000.000	1242.000	20015.000	1248.000	20027.000
GR	1248.000	20035.000	1246.000	20040.000	1245.000	20130.000	1246.000	20180.000	1248.000	20220.000
GR	1249.000	20370.000	1250.000	20720.000	1252.000	21180.000	1254.000	21200.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19540.000	20430.000
X1	12.100	12.000	19710.000	20295.000	900.000	900.000	900.000	0.000	0.000	0.000
GR	1254.000	19515.000	1250.000	19655.000	1250.000	19710.000	1246.000	19720.000	1246.000	19965.000
GR	1244.000	20000.000	1246.000	20075.000	1246.000	20140.000	1248.000	20195.000	1248.000	20275.000
GR	1254.000	20295.000	1254.000	20430.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

```
*************************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*************************************************

T1      ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOUPS CORPORATION
T2       10 YEAR FREQUENCY WITH FUTURE DAM EXISTING CONDITIONS
T3      NEW RIVER  NATURAL CONDITION

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.      5.        0.        0.     .006000     0.00      0.0       0.     1225.000   0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    15.000    0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1      ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOUPS CORPORATION
T2      100 YEAR FREQUENCY WITH FUTURE DAM EXISTING CONDITIONS
T3      NEW RIVER

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     -10.      4.       0.       0.    .006000    0.00     0.0      0.   1226.000   0.000

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     3.000    0.000   -1.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
```

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**************************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
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**************************************************

T1      ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOUPS CORPORATION
T2       10 YEAR FREQUENCY EXISTING CONDITIONS
T3      NEW RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.      2.        0.        0.   .006000     0.00      0.0       0.   1226.000    0.000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      2.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

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*****************************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*****************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

NEW RIVER

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	CRIWS	VCH	XLCH	STCHL	STCHR	STENCL	STENCR	SSTA	ENDST
*	11.000	45448.00	1231.82	1231.82	10.64	0.00	19888.00	20170.00	17000.00	20300.00	17000.00	20300.00
	11.000	15000.00	1226.73	0.00	10.76	0.00	19888.00	20170.00	17000.00	20300.00	19891.48	20125.72
	11.000	9000.00	1224.67	0.00	9.36	0.00	19888.00	20170.00	17000.00	20300.00	19897.17	20095.55
	11.000	2000.00	1221.56	0.00	5.34	0.00	19888.00	20170.00	17000.00	20300.00	19905.71	20085.20
	11.010	46581.00	1232.53	0.00	8.65	70.00	19888.00	20170.00	17000.00	20300.00	17000.00	20300.00
	11.010	15000.00	1227.56	0.00	9.42	70.00	19888.00	20170.00	17000.00	20300.00	19889.20	20154.70
	11.010	9000.00	1225.34	0.00	8.27	70.00	19888.00	20170.00	17000.00	20300.00	19895.31	20097.81
	11.010	2000.00	1222.01	0.00	4.47	70.00	19888.00	20170.00	17000.00	20300.00	19904.47	20086.71
	11.040	47995.00	1232.88	0.00	8.03	110.00	19883.00	20130.00	17100.00	20315.00	17100.00	20315.00
	11.040	15000.00	1228.23	0.00	8.71	110.00	19883.00	20130.00	17100.00	20315.00	19757.65	20279.11
	11.040	9000.00	1225.85	0.00	8.06	110.00	19883.00	20130.00	17100.00	20315.00	19902.95	20129.28
	11.040	2000.00	1222.42	0.00	5.16	110.00	19883.00	20130.00	17100.00	20315.00	19913.67	20112.12
	11.080	49948.00	1233.10	0.00	9.20	200.00	19922.00	20155.00	17250.00	20430.00	17250.00	20430.00
	11.080	15000.00	1228.72	0.00	9.71	200.00	19922.00	20155.00	17250.00	20430.00	19924.87	20153.35
	11.080	9000.00	1226.68	0.00	8.21	200.00	19922.00	20155.00	17250.00	20430.00	19929.45	20141.14
	11.080	2000.00	1223.41	0.00	4.46	200.00	19922.00	20155.00	17250.00	20430.00	19936.83	20116.14
*	11.140	50543.00	1233.81	1233.81	11.84	330.00	19928.00	20160.00	17750.00	20490.00	17750.00	20490.00
	11.140	15000.00	1230.07	0.00	10.28	330.00	19928.00	20160.00	17750.00	20490.00	19830.82	20153.95
	11.140	9000.00	1228.11	0.00	8.68	330.00	19928.00	20160.00	17750.00	20490.00	19938.17	20147.81
	11.140	2000.00	1224.81	0.00	5.37	330.00	19928.00	20160.00	17750.00	20490.00	19943.65	20137.52
*	11.250	52009.00	1236.85	1236.85	13.23	650.00	19830.00	20075.00	18300.00	20680.00	18800.00	20500.00
	11.250	15000.00	1233.05	0.00	8.79	650.00	19830.00	20075.00	18300.00	20680.00	19593.13	20067.03
	11.250	9000.00	1231.01	0.00	7.39	650.00	19830.00	20075.00	18300.00	20680.00	19836.57	20058.70
	11.250	2000.00	1227.46	0.00	4.02	650.00	19830.00	20075.00	18300.00	20680.00	19860.25	20044.17
*	11.380	52347.00	1239.67	1239.67	13.45	530.00	19950.00	20190.00	18970.00	20680.00	18970.00	20680.00
	11.380	15000.00	1234.76	0.00	10.11	530.00	19950.00	20190.00	18970.00	20680.00	19849.49	20169.83
	11.380	9000.00	1232.82	0.00	8.47	530.00	19950.00	20190.00	18970.00	20680.00	19953.94	20161.75
	11.380	2000.00	1229.24	0.00	5.44	530.00	19950.00	20190.00	18970.00	20680.00	19965.88	20142.35
	11.460	53000.00	1241.84	0.00	6.17	420.00	19520.00	20210.00	19520.00	20730.00	19520.00	20730.00
	11.460	15000.00	1236.67	0.00	2.95	420.00	19520.00	20210.00	19520.00	20730.00	19539.94	20176.13
	11.460	9000.00	1234.27	0.00	2.49	420.00	19520.00	20210.00	19520.00	20730.00	19561.87	20166.14
	11.460	2000.00	1230.10	0.00	1.54	420.00	19520.00	20210.00	19520.00	20730.00	19590.34	20082.58

	SECNO	Q	CWSEL	CRIWS	VCH	XLCH	STCHL	STCHR	STENCL	STENCR	SSTA	ENDST
	11.550	53000.00	1241.78	0.00	15.24	480.00	19700.00	20150.00	19470.00	20690.00	19704.36	20147.32
	11.550	15000.00	1236.66	0.00	9.78	480.00	19700.00	20150.00	19470.00	20690.00	19745.56	20084.38
*	11.550	9000.00	1234.74	1234.74	9.92	480.00	19700.00	20150.00	19470.00	20690.00	19748.76	20060.73
*	11.550	2000.00	1231.77	1231.77	7.60	480.00	19700.00	20150.00	19470.00	20690.00	19878.14	20026.19
	11.650	53000.00	1246.70	0.00	6.70	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20487.15
	11.650	15000.00	1239.67	0.00	4.87	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20049.44
	11.650	9000.00	1238.34	0.00	4.08	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20047.23
	11.650	2000.00	1236.07	0.00	2.84	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20043.44
	11.810	53000.00	1247.40	0.00	9.81	870.00	19450.00	20035.00	19040.00	21200.00	19440.60	20057.01
	11.810	15000.00	1241.71	0.00	7.24	870.00	19450.00	20035.00	19040.00	21200.00	19446.29	20026.43
	11.810	9000.00	1240.69	0.00	6.06	870.00	19450.00	20035.00	19040.00	21200.00	19447.31	20024.38
	11.810	2000.00	1239.30	0.00	2.93	870.00	19450.00	20035.00	19040.00	21200.00	19448.70	20021.59
*	11.930	53000.00	1250.99	1250.99	13.35	650.00	19715.00	20027.00	19450.00	21200.00	19450.00	20947.53
*	11.930	15000.00	1245.81	1245.81	11.34	650.00	19715.00	20027.00	19450.00	21200.00	19720.48	20170.34
	11.930	9000.00	1244.78	0.00	8.91	650.00	19715.00	20027.00	19450.00	21200.00	19723.03	20020.57
	11.930	2000.00	1242.71	0.00	4.99	650.00	19715.00	20027.00	19450.00	21200.00	19728.23	20016.42
	12.100	53000.00	1255.19	0.00	9.62	900.00	19710.00	20295.00	19540.00	20430.00	19540.00	20430.00
	12.100	15000.00	1251.02	0.00	5.45	900.00	19710.00	20295.00	19540.00	20430.00	19619.01	20285.09
	12.100	9000.00	1249.58	0.00	4.74	900.00	19710.00	20295.00	19540.00	20430.00	19711.06	20280.25
	12.100	2000.00	1247.28	0.00	2.98	900.00	19710.00	20295.00	19540.00	20430.00	19716.81	20175.11

NEW RIVER

SUMMARY PRINTOUT

	SECNO	QLOB	QCH	QROB	VLOB	VCH	VROB	TELMX	CWSEL	DIFWSX	TOPWID	ELMIN	ALPHA
*	11.000	14382.86	29757.85	1307.28	2.71	10.64	3.56	1230.00	1231.82	0.00	3300.00	1218.80	2.67
	11.000	0.00	15000.00	0.00	0.00	10.76	0.00	1230.00	1226.73	0.00	234.24	1218.80	1.00
	11.000	0.00	9000.00	0.00	0.00	9.36	0.00	1230.00	1224.67	0.00	198.38	1218.80	1.00
	11.000	0.00	2000.00	0.00	0.00	5.34	0.00	1230.00	1221.56	0.00	179.48	1218.80	1.00
	11.010	19247.16	25861.11	1472.73	2.62	8.65	3.21	1230.00	1232.53	.71	3300.00	1218.90	2.40
	11.010	0.00	15000.00	0.00	0.00	9.42	0.00	1230.00	1227.56	.83	265.49	1218.90	1.00
	11.010	0.00	9000.00	0.00	0.00	8.27	0.00	1230.00	1225.34	.67	202.50	1218.90	1.00
	11.010	0.00	2000.00	0.00	0.00	4.47	0.00	1230.00	1222.01	.45	182.24	1218.90	1.00
	11.040	21672.82	22420.34	3901.83	2.61	8.03	3.89	1230.00	1232.88	.35	3215.00	1219.50	2.19
	11.040	110.45	14509.65	379.90	1.49	8.71	2.12	1230.00	1228.23	.67	487.71	1219.50	1.20
	11.040	0.00	9000.00	0.00	0.00	8.06	0.00	1230.00	1225.86	.52	226.33	1219.50	1.00
	11.040	0.00	2000.00	0.00	0.00	5.16	0.00	1230.00	1222.42	.41	198.45	1219.50	1.00
	11.080	22733.35	23574.29	3640.35	2.95	9.20	3.54	1231.50	1233.10	.22	3180.00	1219.90	2.29
	11.080	0.00	15000.00	0.00	0.00	9.71	0.00	1231.50	1228.72	.49	228.49	1219.90	1.00
	11.080	0.00	9000.00	0.00	0.00	8.21	0.00	1231.50	1226.68	.83	211.69	1219.90	1.00
	11.080	0.00	2000.00	0.00	0.00	4.46	0.00	1231.50	1223.41	.98	179.31	1219.90	1.00
*	11.140	21474.47	27447.23	1621.30	3.81	11.84	2.88	1233.00	1233.81	.72	2740.00	1221.80	2.34
	11.140	18.46	14981.54	0.00	1.00	10.28	0.00	1233.00	1230.07	1.34	309.09	1221.80	1.02
	11.140	0.00	9000.00	0.00	0.00	8.68	0.00	1233.00	1228.11	1.43	209.65	1221.80	1.00
	11.140	0.00	2000.00	0.00	0.00	5.37	0.00	1233.00	1224.81	1.40	193.87	1221.80	1.00
*	11.250	16184.38	34583.28	1241.34	4.78	13.23	2.48	1236.50	1236.85	3.04	1700.00	1223.80	1.93
	11.250	150.65	14849.35	0.00	1.21	8.79	0.00	1236.50	1233.05	2.99	473.90	1223.80	1.12
	11.250	0.00	9000.00	0.00	0.00	7.39	0.00	1236.50	1231.01	2.91	222.13	1223.80	1.00
	11.250	0.00	2000.00	0.00	0.00	4.02	0.00	1236.50	1227.46	2.65	183.92	1223.80	1.00
*	11.380	15031.61	35288.51	2026.88	4.82	13.45	2.87	1239.30	1239.67	2.82	1710.00	1226.00	1.96
	11.380	44.30	14955.70	0.00	1.16	10.11	0.00	1239.30	1234.76	1.70	320.34	1226.00	1.04
	11.380	0.00	9000.00	0.00	0.00	8.47	0.00	1239.30	1232.82	1.80	207.81	1226.00	1.00
	11.380	0.00	2000.00	0.00	0.00	5.44	0.00	1239.30	1229.24	1.78	176.47	1226.00	1.00
	11.460	0.00	52748.43	251.57	0.00	6.17	.70	1241.80	1241.84	2.17	1210.00	1227.20	1.07
	11.460	0.00	15000.00	0.00	0.00	2.95	0.00	1241.80	1236.67	1.91	636.18	1227.20	1.00
	11.460	0.00	9000.00	0.00	0.00	2.49	0.00	1241.80	1234.27	1.45	604.26	1227.20	1.00
	11.460	0.00	2000.00	0.00	0.00	1.54	0.00	1241.80	1230.10	.86	492.04	1227.20	1.00
	11.550	0.00	53000.00	0.00	0.00	15.24	0.00	1243.30	1241.78	-.06	442.95	1228.50	1.00
	11.550	0.00	15000.00	0.00	0.00	9.78	0.00	1243.30	1236.66	-.01	338.82	1228.50	1.00
*	11.550	0.00	9000.00	0.00	0.00	9.92	0.00	1243.30	1234.74	.47	311.97	1228.50	1.00
*	11.550	0.00	2000.00	0.00	0.00	7.60	0.00	1243.30	1231.77	1.67	148.04	1228.50	1.00
	11.650	8414.16	43308.16	1277.68	4.90	6.70	1.93	1248.00	1246.70	4.92	1137.15	1233.60	1.13
	11.650	2361.94	12638.06	0.00	3.57	4.87	0.00	1248.00	1239.67	3.00	699.44	1233.60	1.04
	11.650	1364.07	7635.93	0.00	2.94	4.08	0.00	1248.00	1238.34	3.60	697.23	1233.60	1.04
	11.650	213.42	1786.58	0.00	1.75	2.84	0.00	1248.00	1236.07	4.30	693.44	1233.60	1.06
	11.810	171.57	52775.84	52.59	3.88	9.81	2.03	1248.00	1247.40	.70	616.41	1236.00	1.01
	11.810	19.86	14980.14	0.00	2.88	7.24	0.00	1248.00	1241.71	2.05	580.14	1236.00	1.00
	11.810	8.79	8991.20	0.00	2.43	6.06	0.00	1248.00	1240.69	2.35	577.07	1236.00	1.00
	11.810	1.01	1998.99	0.00	1.20	2.93	0.00	1248.00	1239.30	3.23	572.89	1236.00	1.00

	SECNO	QLOB	QCH	QROB	VLOB	VCH	VROB	TELMX	CWSEL	DIFWSX	TOPWID	ELMIN	ALPHA
*	11.930	3834.45	38999.66	10165.89	4.84	13.35	5.14	1254.00	1250.99	3.59	1497.53	1240.60	1.59
*	11.930	0.00	14917.41	82.59	0.00	11.34	1.81	1254.00	1245.81	4.09	415.09	1240.60	1.05
	11.930	0.00	9000.00	0.00	0.00	8.91	0.00	1254.00	1244.78	4.09	297.54	1240.60	1.00
	11.930	0.00	2000.00	0.00	0.00	4.99	0.00	1254.00	1242.71	3.41	288.19	1240.60	1.00
	12.100	3149.69	49536.95	313.36	4.55	9.62	1.96	1254.00	1255.19	4.20	890.00	1244.00	1.13
	12.100	104.47	14895.53	0.00	1.39	5.45	0.00	1254.00	1251.02	5.22	666.08	1244.00	1.03
	12.100	0.00	9000.00	0.00	0.00	4.74	0.00	1254.00	1249.58	4.79	569.19	1244.00	1.00
	12.100	0.00	2000.00	0.00	0.00	2.98	0.00	1254.00	1247.28	4.57	458.30	1244.00	1.00

NEW RIVER

SUMMARY PRINTOUT

	SECNO	XLCH	K*CHSL	EG	HV	HL	OLOSS	10K*S	VOL	DEPTH	K*XNL	K*XNCH	K*XNR
*	11.000	0.00	0.00	1233.01	1.19	0.00	0.00	29.76	0.00	13.02	45.00	35.00	45.00
	11.000	0.00	0.00	1228.53	1.80	0.00	0.00	60.34	0.00	7.93	45.00	35.00	45.00
	11.000	0.00	0.00	1226.03	1.36	0.00	0.00	59.89	0.00	5.87	45.00	35.00	45.00
	11.000	0.00	0.00	1222.00	.44	0.00	0.00	59.62	0.00	2.76	45.00	35.00	45.00
	11.010	70.00	1.43	1233.22	.69	.16	.05	18.03	15.49	13.63	45.00	35.00	45.00
	11.010	70.00	1.43	1228.94	1.38	.37	.04	45.73	2.40	8.66	45.00	35.00	45.00
	11.010	70.00	1.43	1226.40	1.06	.34	.03	40.73	1.65	6.44	45.00	35.00	45.00
	11.010	70.00	1.43	1222.32	.31	.31	.01	33.51	.66	3.11	45.00	35.00	45.00
	11.040	110.00	5.45	1233.41	.53	.18	.02	14.21	44.40	13.38	45.00	35.00	45.00
	11.040	110.00	5.45	1229.38	1.14	.41	.02	31.13	6.83	8.73	45.00	35.00	45.00
	11.040	110.00	5.45	1226.87	1.01	.46	.01	43.25	4.43	6.36	45.00	35.00	45.00
	11.040	110.00	5.45	1222.84	.41	.49	.03	60.72	1.72	2.92	45.00	35.00	45.00
	11.080	200.00	2.00	1233.79	.70	.33	.05	19.46	98.09	13.20	45.00	35.00	45.00
	11.080	200.00	2.00	1230.19	1.46	.71	.10	41.38	14.78	8.82	45.00	35.00	45.00
	11.080	200.00	2.00	1227.73	1.05	.85	.01	42.02	9.51	6.78	45.00	35.00	45.00
	11.080	200.00	2.00	1223.72	.31	.87	.01	32.64	3.63	3.51	45.00	35.00	45.00
*	11.140	330.00	5.76	1235.09	1.28	.86	.18	36.75	173.12	12.01	45.00	35.00	45.00
	11.140	330.00	5.76	1231.70	1.64	1.46	.05	47.66	26.22	8.27	45.00	35.00	45.00
	11.140	330.00	5.76	1229.28	1.17	1.51	.04	50.18	17.59	6.31	45.00	35.00	45.00
	11.140	330.00	5.76	1225.26	.45	1.50	.04	67.14	6.74	3.01	45.00	35.00	45.00
*	11.250	650.00	3.08	1238.77	1.92	2.55	.19	41.78	285.19	13.05	45.00	35.00	45.00
	11.250	650.00	3.08	1234.24	1.19	2.49	.05	31.50	50.78	9.25	45.00	35.00	45.00
	11.250	650.00	3.08	1231.86	.85	2.55	.03	31.53	34.42	7.21	45.00	35.00	45.00
	11.250	650.00	3.08	1227.71	.25	2.44	.02	23.92	13.23	3.66	45.00	35.00	45.00
*	11.380	530.00	4.15	1241.67	2.00	2.21	.02	41.74	363.97	13.67	45.00	35.00	45.00
	11.380	530.00	4.15	1236.34	1.58	1.98	.12	45.11	71.04	8.76	45.00	35.00	45.00
	11.380	530.00	4.15	1233.93	1.11	1.99	.08	45.51	48.29	6.82	45.00	35.00	45.00
	11.380	530.00	4.15	1229.70	.46	1.93	.06	61.73	18.50	3.24	45.00	35.00	45.00
	11.460	420.00	2.86	1242.43	.59	.62	.14	7.45	438.00	14.64	45.00	35.00	45.00
	11.460	420.00	2.86	1236.81	.13	.32	.14	3.02	102.90	9.47	45.00	35.00	45.00
	11.460	420.00	2.86	1234.37	.10	.34	.10	3.19	70.81	7.07	45.00	35.00	45.00
	11.460	420.00	2.86	1230.14	.04	.39	.04	3.61	26.53	2.90	45.00	35.00	45.00
	11.550	480.00	2.71	1245.39	3.60	.85	2.11	83.13	506.23	13.28	45.00	35.00	45.00
	11.550	480.00	2.71	1238.15	1.49	.40	.95	71.36	139.39	8.16	45.00	35.00	45.00
*	11.550	480.00	2.71	1236.27	1.53	.46	1.00	131.86	95.69	6.24	45.00	35.00	45.00
*	11.550	480.00	2.71	1232.66	.90	.52	.60	149.35	35.14	3.27	45.00	35.00	45.00
	11.650	500.00	10.20	1247.33	.63	1.05	.89	9.36	576.95	13.10	45.00	35.00	45.00
	11.650	500.00	10.20	1240.01	.34	1.51	.34	16.63	166.90	6.07	45.00	35.00	45.00
	11.650	500.00	10.20	1238.58	.24	1.92	.39	18.04	114.29	4.74	45.00	35.00	45.00
	11.650	500.00	10.20	1236.19	.12	3.29	.23	36.82	40.97	2.47	45.00	35.00	45.00
	11.810	870.00	2.76	1248.89	1.49	1.31	.26	27.85	719.68	11.40	45.00	35.00	45.00
	11.810	870.00	2.76	1242.52	.81	2.38	.14	52.96	220.19	5.71	45.00	35.00	45.00
	11.810	870.00	2.76	1241.26	.57	2.58	.10	57.75	152.43	4.69	45.00	35.00	45.00
	11.810	870.00	2.76	1239.43	.13	3.24	.00	37.61	55.30	3.30	45.00	35.00	45.00

	SECNO	XLCH	K*CHSL	EG	HV	HL	OLOSS	10K*S	VOL	DEPTH	K*XNL	K*XNCH	K*XNR
*	11.930	650.00	7.08	1253.13	2.14	2.39	.20	50.65	802.82	10.39	45.00	35.00	45.00
*	11.930	650.00	7.08	1247.79	1.99	4.63	.35	101.08	245.84	5.21	45.00	35.00	45.00
	11.930	650.00	7.08	1246.02	1.23	4.56	.20	86.94	171.05	4.18	45.00	35.00	45.00
	11.930	650.00	7.08	1243.09	.39	3.59	.08	88.91	63.39	2.11	45.00	35.00	45.00
	12.100	900.00	3.78	1256.55	1.36	3.34	.08	28.38	923.62	11.19	45.00	35.00	45.00
	12.100	900.00	3.78	1251.48	.46	3.54	.15	20.73	288.90	7.02	45.00	35.00	45.00
	12.100	900.00	3.78	1249.92	.35	3.82	.09	25.04	201.10	5.58	45.00	35.00	45.00
	12.100	900.00	3.78	1247.41	.14	4.30	.02	29.72	74.46	3.28	45.00	35.00	45.00

SUMMARY OF ERRORS

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CAUTION  SECNO=   11.000  PROFILE= 1  CRITICAL DEPTH ASSUMED

CAUTION  SECNO=   11.140  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   11.140  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   11.140  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=   11.250  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   11.250  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   11.250  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=   11.380  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   11.380  PROFILE= 1  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=   11.550  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   11.550  PROFILE= 3  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   11.550  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   11.550  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   11.550  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=   11.930  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   11.930  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   11.930  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=   11.930  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   11.930  PROFILE= 2  MINIMUM SPECIFIC ENERGY
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HEC-2 INPUT AND OUTPUT DATA

PROPOSED CONDITION WITH MODIFIED CHANNEL

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*************************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*************************************************


C
T1      ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOOPS CORPORATION
T2      100 YEAR FREQUENCY  MODIFIED CHANNEL
T3      NEW RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.       3.        0.        0.   .006000      0.00       0.0       0.  1234.000     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.000    43.000     1.000     2.000    26.000    39.000    21.000    22.000    27.000    28.000

    53.000    54.000     0.000    38.000    13.000    14.000    15.000    55.000    26.000    56.000

    63.000     1.000    51.000     4.000    42.000    57.000     0.000    38.000    39.000    33.000

     3.000    10.000    11.000    12.000     5.000     7.000     8.000    16.000    17.000    18.000

J5  LPRNT     NUMSEC                    ********REQUESTED SECTION NUMBERS********

   -10.000   -10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      .045      .045      .035      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     6.000 15000.000 44396.000 9000.000 2000.000 53000.000 90000.000     0.000     0.000     0.000
ET     0.000     9.100     9.100     9.100     9.100     9.100     9.100     0.000 18800.000 20300.000

        STATIONING FROM LEFT TO RIGHT, LOOKING DOWNSTREAM, FLOWLINE AT 20000.

        STARTING WATERSURFACE ELEVATION USING SLOPE AREA METHOD

        SECTIONS BEGINING 200 FT DOWNSTREAM OF UNION HILLS DR

X1     11.000    10.000 19888.000 20170.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   1230.000 16000.000  1230.000 19800.000  1230.000 19840.000  1228.000 19888.000  1220.000 19910.000
GR   1218.800 20000.000  1220.000 20080.000  1226.000 20100.000  1228.000 20170.000  1230.000 20300.000
QT     6.000 15000.000 45883.000 9000.000 2000.000 53000.000 90000.000     0.000     0.000     0.000
ET     0.000     9.100     9.100     9.100     9.100     9.100     9.100     0.000 18840.000 20300.000

X1     11.010    10.000 19888.000 20170.000    70.000    70.000    70.000     0.000     0.000     0.000
GR   1230.000 16000.000  1230.000 19800.000  1230.000 19840.000  1228.000 19888.000  1220.000 19910.000
GR   1218.900 20000.000  1220.000 20080.000  1226.000 20100.000  1228.000 20170.000  1230.000 20300.000
NC      .043      .045      .033      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     6.000 15000.000 47821.000 9000.000 2000.000 53000.000 90000.000     0.000     0.000     0.000
ET     0.000     9.100     9.100     9.100     9.100     9.100     9.100     0.000 18950.000 20315.000
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X1	11.040	19.000	19883.000	20130.000	110.000	110.000	110.000	0.000	0.000	0.000
GR	1234.000	15140.000	1232.000	16250.000	1230.000	16440.000	1230.000	19740.000	1228.000	19760.000
GR	1227.000	19810.000	1228.000	19860.000	1230.000	19875.000	1230.500	19885.000	1230.000	19890.000
GR	1222.000	19915.000	1220.000	19938.000	1219.500	20000.000	1220.000	20025.000	1222.000	20110.000
GR	1226.000	20130.000	1228.000	20275.000	1230.000	20310.000	1230.000	20315.000	0.000	0.000
QT	4.000	15000.000	49948.000	9000.000	2000.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	17250.000	20430.000

X1	11.080	17.000	19922.000	20155.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	1234.000	15780.000	1233.000	16280.000	1232.000	16470.000	1230.000	16510.000	1230.500	17570.000
GR	1230.000	19340.000	1230.000	19915.000	1230.000	19922.000	1222.000	19940.000	1220.000	19970.000
GR	1219.900	20000.000	1220.000	20025.000	1222.000	20095.000	1224.000	20125.000	1229.000	20155.000
GR	1229.000	20350.000	1231.500	20430.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	15000.000	50543.000	9000.000	2000.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	17750.000	20490.000

X1	11.140	18.000	19928.000	20160.000	330.000	330.000	330.000	0.000	0.000	0.000
GR	1236.000	15230.000	1234.000	15240.000	1232.000	16500.000	1230.000	16540.000	1232.000	18800.000
GR	1230.000	19865.000	1229.500	19895.000	1230.000	19920.000	1231.000	19928.000	1230.000	19935.000
GR	1224.000	19945.000	1222.000	19985.000	1221.800	20000.000	1222.000	20010.000	1224.000	20135.000
GR	1232.000	20160.000	1232.000	20420.000	1233.000	20490.000	0.000	0.000	0.000	0.000
QT	4.000	15000.000	52009.000	9000.000	2000.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	18300.000	20~~680~~ 500.000

X1	11.250	310.000	19830.000	20075.000	650.000	650.000	650.000	0.000	0.000	0.000
GR	1234.000	18800.000	1234.000	19580.000	1232.000	19830.000	1226.000	19870.000	1224.000	19965.000
GR	1223.800	20000.000	1224.000	20030.000	1235.000	20075.000	1236.000	20400.000	1236.500	20500.000
QT	4.000	15000.000	52347.000	9000.000	2000.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	18970.000	20680.000

X1	11.380	16.000	19950.000	20190.000	530.000	530.000	530.000	0.000	0.000	0.000
GR	1238.000	15360.000	1237.500	15460.000	1237.500	16550.000	1236.000	16730.000	1236.000	17900.000
GR	1238.000	19000.000	1236.000	19685.000	1234.000	19950.000	1228.000	19970.000	1226.000	20000.000
GR	1228.000	20130.000	1230.000	20150.000	1236.000	20175.000	1237.500	20190.000	1238.000	20420.000
GR	1239.300	20680.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	15000.000	53000.000	9000.000	2000.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19520.000	20730.000

X1	11.460	17.000	19520.000	20210.000	420.000	420.000	420.000	0.000	0.000	0.000
GR	1244.000	15490.000	1242.000	16470.000	1240.000	17050.000	1240.000	19290.000	1238.000	19520.000
GR	1236.000	19550.000	1228.000	19605.000	1227.200	19625.000	1227.200	20000.000	1228.000	20055.000
GR	1230.000	20060.000	1230.000	20080.000	1232.000	20130.000	1234.000	20165.000	1240.000	20190.000
GR	1240.500	20210.000	1241.800	20730.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19470.000	20690.000
NC	.045	.045	.035	.500	.700	0.000	0.000	0.000	0.000	0.000

X1	11.550	24.000	19700.000	20150.000	480.000	480.000	480.000	0.000	0.000	0.000
GR	1246.000	15400.000	1246.000	17200.000	1244.000	18080.000	1242.000	18120.000	1242.000	18370.000
GR	1243.000	18680.000	1243.000	19140.000	1242.000	19220.000	1242.000	19700.000	1240.000	19740.000
GR	1234.000	19750.000	1234.400	19780.000	1234.000	19810.000	1232.000	19875.000	1230.000	19902.000
GR	1229.600	19915.000	1230.000	19930.000	1230.500	19955.000	1230.000	19980.000	1228.500	20000.000
GR	1230.000	20020.000	1232.000	20027.000	1242.000	20150.000	1243.500	20690.000	0.000	0.000
NC	.045	.045	.035	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19350.000	20800.000

X1	11.650	18.000	19500.000	20050.000	500.000	500.000	500.000	0.000	0.000	0.000
GR	1242.000	18800.000	1242.000	19000.000	1242.000	19235.000	1242.000	19240.000	1236.000	19350.000
GR	1234.500	19500.000	1234.500	19650.000	1235.000	19800.000	1236.000	19875.000	1236.000	19965.000

GR	1244.000	20085.000	1246.000	20320.000	1248.000	20800.000	0.000	0.000	0.000	0.000
NC	.045	.045	.035	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19040.000	21200.000
X1	11.810	15.000	19450.000	20035.000	870.000	870.000	870.000	0.000	0.000	0.000
GR	1248.000	19040.000	1248.000	19100.000	1248.000	19300.000	1248.000	19350.000	1248.000	19440.000
GR	1238.000	19450.000	1239.000	19600.000	1238.000	19800.000	1238.000	19950.000	1236.000	19985.000
GR	1236.000	20015.000	1246.000	20035.000	1246.000	20050.000	1250.000	20070.000	1248.000	20800.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19450.000	21200.000
X1	11.930	19.000	19715.000	20027.000	650.000	650.000	650.000	0.000	0.000	0.000
GR	1248.000	19450.000	1248.000	19715.000	1242.000	19730.000	1241.000	19770.000	1241.000	19870.000
GR	1242.000	19900.000	1242.000	19925.000	1240.600	20000.000	1242.000	20015.000	1248.000	20027.000
GR	1248.000	20035.000	1246.000	20040.000	1245.000	20130.000	1246.000	20180.000	1248.000	20220.000
GR	1249.000	20370.000	1250.000	20720.000	1252.000	21180.000	1254.000	21200.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19540.000	20430.000
X1	12.100	12.000	19710.000	20295.000	900.000	900.000	900.000	0.000	0.000	0.000
GR	1254.000	19515.000	1250.000	19655.000	1250.000	19710.000	1246.000	19720.000	1246.000	19965.000
GR	1244.000	20000.000	1246.000	20075.000	1246.000	20140.000	1248.000	20195.000	1248.000	20275.000
GR	1254.000	20295.000	1254.000	20430.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*************************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*************************************************

T1      ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOOPS CORPORATION
T2       10 YEAR FREQUENCY MODIFIED CHANNEL
T3      NEW RIVER

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
     -10.      2.       0.       0.   .006000     0.00     0.0      0.   1226.000   0.000

J2  NPROF     IPLOT    PREVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     2.000    0.000   -1.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
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*************************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*************************************************


T1      ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOOPS CORPORATION
T2      100 YEAR FREQUENCY WITH FUTURE DAM MODIFIED CHANNEL
T3      NEW RIVER

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      -10.      4.       0.       0.   .006000     0.00     0.0      0.  1226.000   0.000

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      3.000    0.000   -1.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
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*****************************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*****************************************************

T1      ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOUPS CORPORATION
T2       10 YEAR FREQUENCY WITH FUTURE DAM    MODIFIED CHANNEL
T3      NEW RIVER  MODIFIED CONDITION

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.       5.        0.        0.   .006000      0.00       0.0       0.  1225.000     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     IBW       CHNIM     ITRACE

    15.000    0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*************************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

NEW RIVER

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	CRIWS	VCH	XLCH	STCHL	STCHR	STENCL	STENCR	SSTA	ENDST
*	11.000	44396.00	1232.00	1232.00	12.38	0.00	19888.00	20170.00	18800.00	20300.00	18800.00	20300.00
	11.000	15000.00	1226.73	0.00	10.76	0.00	19888.00	20170.00	18800.00	20300.00	19891.48	20125.72
	11.000	9000.00	1224.67	0.00	9.36	0.00	19888.00	20170.00	18800.00	20300.00	19897.17	20095.55
	11.000	2000.00	1221.56	0.00	5.34	0.00	19888.00	20170.00	18800.00	20300.00	19905.71	20085.20
	11.010	45883.00	1232.85	0.00	10.80	70.00	19888.00	20170.00	18840.00	20300.00	18840.00	20300.00
	11.010	15000.00	1227.56	0.00	9.42	70.00	19888.00	20170.00	18840.00	20300.00	19889.20	20154.70
	11.010	9000.00	1225.34	0.00	8.27	70.00	19888.00	20170.00	18840.00	20300.00	19895.31	20097.81
	11.010	2000.00	1222.01	0.00	4.47	70.00	19888.00	20170.00	18840.00	20300.00	19904.47	20086.71
	11.040	47821.00	1233.38	0.00	10.21	110.00	19883.00	20130.00	18950.00	20315.00	18950.00	20315.00
	11.040	15000.00	1228.18	0.00	8.81	110.00	19883.00	20130.00	18950.00	20315.00	19758.17	20278.20
	11.040	9000.00	1225.82	0.00	8.13	110.00	19883.00	20130.00	18950.00	20315.00	19903.07	20129.09
	11.040	2000.00	1222.40	0.00	5.23	110.00	19883.00	20130.00	18950.00	20315.00	19913.74	20112.01
	11.080	51199.00	1233.57	0.00	10.83	200.00	19910.00	20190.00	19150.00	20430.00	19150.00	20430.00
	11.080	15000.00	1229.10	0.00	6.63	200.00	19910.00	20190.00	19150.00	20430.00	19911.84	20209.14
	11.080	9000.00	1226.86	0.00	5.45	200.00	19910.00	20190.00	19150.00	20430.00	19916.41	20182.70
	11.080	2000.00	1223.13	0.00	2.87	200.00	19910.00	20190.00	19150.00	20430.00	19924.03	20169.98
	11.140	53000.00	1234.14	0.00	11.01	330.00	19885.00	20210.00	19420.00	20490.00	19420.00	20490.00
	11.140	15000.00	1229.63	0.00	6.13	330.00	19885.00	20210.00	19420.00	20490.00	19886.05	20203.36
	11.140	9000.00	1227.34	0.00	5.19	330.00	19885.00	20210.00	19420.00	20490.00	19892.65	20196.93
	11.140	2000.00	1223.54	0.00	3.23	330.00	19885.00	20210.00	19420.00	20490.00	19903.55	20186.29
*	11.250	53000.00	1235.07	1235.07	15.70	650.00	19800.00	20100.00	19500.00	20500.00	19500.00	20120.92
	11.250	15000.00	1230.47	0.00	8.26	650.00	19800.00	20100.00	19500.00	20500.00	19804.55	20088.08
	11.250	9000.00	1228.37	0.00	7.30	650.00	19800.00	20100.00	19500.00	20500.00	19810.80	20082.55
	11.250	2000.00	1225.31	0.00	4.68	650.00	19800.00	20100.00	19500.00	20500.00	19819.90	20074.51
	11.380	53000.00	1238.51	0.00	12.83	520.00	19910.00	20220.00	19600.00	20680.00	19600.00	20522.06
	11.380	15000.00	1231.99	0.00	8.50	520.00	19910.00	20220.00	19600.00	20680.00	19917.84	20203.31
	11.380	9000.00	1230.20	0.00	7.14	520.00	19910.00	20220.00	19600.00	20680.00	19922.51	20198.32
	11.380	2000.00	1227.44	0.00	3.84	520.00	19910.00	20220.00	19600.00	20680.00	19929.69	20190.66
	11.460	53000.00	1240.97	0.00	8.23	420.00	19520.00	20220.00	19520.00	20730.00	19520.00	20584.73
	11.460	15000.00	1233.42	0.00	8.39	420.00	19520.00	20220.00	19520.00	20730.00	19914.84	20205.66
	11.460	9000.00	1231.68	0.00	6.96	420.00	19520.00	20220.00	19520.00	20730.00	19920.12	20200.25
	11.460	2000.00	1228.78	0.00	3.94	420.00	19520.00	20220.00	19520.00	20730.00	19928.96	20191.19

	SECNO	Q	CWSEL	CRIWS	VCH	XLCH	STCHL	STCHR	STENCL	STENCR	SSTA	ENDST
	11.550	53000.00	1241.96	0.00	14.89	480.00	19700.00	20150.00	19470.00	20690.00	19700.74	20149.55
*	11.550	15000.00	1236.03	1236.03	11.37	480.00	19700.00	20150.00	19470.00	20690.00	19746.62	20076.52
*	11.550	9000.00	1234.75	1234.75	9.88	480.00	19700.00	20150.00	19470.00	20690.00	19748.75	20060.86
*	11.550	2000.00	1231.75	1231.75	7.68	480.00	19700.00	20150.00	19470.00	20690.00	19878.39	20026.12
	11.650	53000.00	1246.65	0.00	6.73	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20476.84
	11.650	15000.00	1239.82	0.00	4.70	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20049.71
	11.650	9000.00	1238.33	0.00	4.09	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20047.22
	11.650	2000.00	1236.07	0.00	2.82	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20043.45
	11.810	53000.00	1247.37	0.00	9.84	870.00	19450.00	20035.00	19040.00	20800.00	19440.63	20056.86
	11.810	15000.00	1241.70	0.00	7.27	870.00	19450.00	20035.00	19040.00	20800.00	19446.30	20026.40
	11.810	9000.00	1240.69	0.00	6.06	870.00	19450.00	20035.00	19040.00	20800.00	19447.31	20024.39
	11.810	2000.00	1239.29	0.00	2.94	870.00	19450.00	20035.00	19040.00	20800.00	19448.71	20021.58
*	11.930	53000.00	1250.99	1250.99	13.35	650.00	19715.00	20027.00	19450.00	21200.00	19450.00	20947.37
*	11.930	15000.00	1245.80	1245.80	11.35	650.00	19715.00	20027.00	19450.00	21200.00	19720.49	20170.21
	11.930	9000.00	1244.78	0.00	8.92	650.00	19715.00	20027.00	19450.00	21200.00	19723.04	20020.57
	11.930	2000.00	1242.72	0.00	4.96	650.00	19715.00	20027.00	19450.00	21200.00	19728.21	20016.43
	12.100	53000.00	1255.19	0.00	9.62	900.00	19710.00	20295.00	19540.00	20430.00	19540.00	20430.00
	12.100	15000.00	1251.02	0.00	5.45	900.00	19710.00	20295.00	19540.00	20430.00	19618.97	20285.10
	12.100	9000.00	1249.58	0.00	4.74	900.00	19710.00	20295.00	19540.00	20430.00	19711.06	20280.25
	12.100	2000.00	1247.27	0.00	2.99	900.00	19710.00	20295.00	19540.00	20430.00	19716.82	20175.02

NEW RIVER

SUMMARY PRINTOUT

	SECNO	QLOB	QCH	QROB	VLOB	VCH	VROB	TELMX	CWSEL	DIFWSX	TOPWID	ELMIN	ALPHA
*	11.000	7464.44	35266.09	1665.47	3.35	12.38	4.27	1230.00	1232.00	0.00	1500.00	1218.80	1.88
	11.000	0.00	15000.00	0.00	0.00	10.76	0.00	1230.00	1226.73	0.00	234.24	1218.80	1.00
	11.000	0.00	9000.00	0.00	0.00	9.36	0.00	1230.00	1224.67	0.00	198.38	1218.80	1.00
	11.000	0.00	2000.00	0.00	0.00	5.34	0.00	1230.00	1221.56	0.00	179.48	1218.80	1.00
	11.010	10563.72	33243.71	2075.57	3.49	10.80	4.15	1230.00	1232.85	.84	1460.00	1218.90	1.83
	11.010	0.00	15000.00	0.00	0.00	9.42	0.00	1230.00	1227.56	.83	265.49	1218.90	1.00
	11.010	0.00	9000.00	0.00	0.00	8.27	0.00	1230.00	1225.34	.67	202.50	1218.90	1.00
	11.010	0.00	2000.00	0.00	0.00	4.47	0.00	1230.00	1222.01	.45	182.24	1218.90	1.00
	11.040	12750.16	29810.99	5259.85	3.70	10.21	4.80	1230.00	1233.38	.54	1365.00	1219.50	1.73
	11.040	97.84	14563.67	338.49	1.43	8.81	1.97	1230.00	1228.18	.62	485.72	1219.50	1.20
	11.040	0.00	9000.00	0.00	0.00	8.13	0.00	1230.00	1225.82	.48	226.02	1219.50	1.00
	11.040	0.00	2000.00	0.00	0.00	5.23	0.00	1230.00	1222.40	.39	198.26	1219.50	1.00
	11.080	9812.04	38055.37	3331.59	3.61	10.83	3.64	1231.50	1233.57	.18	1280.00	1220.20	1.76
	11.080	0.00	14999.84	.16	0.00	6.63	.17	1231.50	1229.10	.92	297.31	1220.20	1.00
	11.080	0.00	9000.00	0.00	0.00	5.45	0.00	1231.50	1226.86	1.04	266.29	1220.20	1.00
	11.080	0.00	2000.00	0.00	0.00	2.87	0.00	1231.50	1223.13	.73	245.95	1220.20	1.00
	11.140	8609.35	42987.03	1403.62	4.47	11.01	2.49	1233.00	1234.14	.57	1070.00	1221.30	1.48
	11.140	0.00	15000.00	0.00	0.00	6.13	0.00	1233.00	1229.63	.53	317.31	1221.30	1.00
	11.140	0.00	9000.00	0.00	0.00	5.19	0.00	1233.00	1227.34	.48	304.28	1221.30	1.00
	11.140	0.00	2000.00	0.00	0.00	3.23	0.00	1233.00	1223.54	.42	282.74	1221.30	1.00
*	11.250	3298.19	49701.62	.19	4.74	15.70	.26	1236.00	1235.07	.93	620.92	1223.60	1.24
	11.250	0.00	15000.00	0.00	0.00	8.26	0.00	1236.00	1230.47	.83	283.53	1223.60	1.00
	11.250	0.00	9000.00	0.00	0.00	7.30	0.00	1236.00	1228.37	1.03	271.75	1223.60	1.00
	11.250	0.00	2000.00	0.00	0.00	4.68	0.00	1236.00	1225.31	1.76	254.60	1223.60	1.00
	11.380	5078.27	47784.85	136.89	4.67	12.83	1.07	1239.30	1238.51	3.44	922.06	1225.40	1.31
	11.380	0.00	15000.00	0.00	0.00	8.50	0.00	1239.30	1231.99	1.52	285.47	1225.40	1.00
	11.380	0.00	9000.00	0.00	0.00	7.14	0.00	1239.30	1230.20	1.83	275.80	1225.40	1.00
	11.380	0.00	2000.00	0.00	0.00	3.84	0.00	1239.30	1227.44	2.13	260.98	1225.40	1.00
	11.460	0.00	51951.07	1048.93	0.00	8.23	2.08	1241.80	1240.97	2.46	1064.73	1226.80	1.10
	11.460	0.00	15000.00	0.00	0.00	8.39	0.00	1241.80	1233.42	1.43	290.82	1226.80	1.00
	11.460	0.00	9000.00	0.00	0.00	6.96	0.00	1241.80	1231.68	1.48	280.12	1226.80	1.00
	11.460	0.00	2000.00	0.00	0.00	3.94	0.00	1241.80	1228.78	1.34	262.24	1226.80	1.00
	11.550	0.00	53000.00	0.00	0.00	14.89	0.00	1243.30	1241.96	.99	448.81	1228.50	1.00
*	11.550	0.00	15000.00	0.00	0.00	11.37	0.00	1243.30	1236.03	2.60	329.89	1228.50	1.00
*	11.550	0.00	9000.00	0.00	0.00	9.88	0.00	1243.30	1234.75	3.07	312.11	1228.50	1.00
*	11.550	0.00	2000.00	0.00	0.00	7.68	0.00	1243.30	1231.75	2.97	147.74	1228.50	1.00
	11.650	8418.88	43331.78	1249.34	4.92	6.73	1.94	1248.00	1246.65	4.69	1126.84	1233.60	1.13
	11.650	2368.92	12631.08	0.00	3.45	4.70	0.00	1248.00	1239.82	3.80	699.71	1233.60	1.04
	11.650	1363.82	7636.18	0.00	2.95	4.09	0.00	1248.00	1238.33	3.58	697.22	1233.60	1.04
	11.650	214.13	1785.86	0.00	1.74	2.82	0.00	1248.00	1236.07	4.32	693.45	1233.60	1.06
	11.810	171.05	52778.09	50.86	3.89	9.84	2.01	1248.00	1247.37	.72	616.23	1236.00	1.01
	11.810	19.78	14980.22	0.00	2.89	7.27	0.00	1248.00	1241.70	1.87	580.09	1236.00	1.00
	11.810	8.80	8991.20	0.00	2.43	6.06	0.00	1248.00	1240.69	2.36	577.08	1236.00	1.00
	11.810	1.01	1998.99	0.00	1.21	2.94	0.00	1248.00	1239.29	3.22	572.87	1236.00	1.00

	SECNO	QLOB	QCH	QROB	VLOB	VCH	VROB	TELMX	CWSEL	DIFWSX	TOPWID	ELMIN	ALPHA
*	11.930	3833.88	39002.37	10163.95	4.84	13.35	5.14	1254.00	1250.99	3.62	1497.37	1240.60	1.59
*	11.930	0.00	14918.04	81.96	0.00	11.35	1.81	1254.00	1245.80	4.11	414.71	1240.60	1.05
	11.930	0.00	9000.00	0.00	0.00	8.92	0.00	1254.00	1244.78	4.09	297.53	1240.60	1.00
	11.930	0.00	2000.00	0.00	0.00	4.96	0.00	1254.00	1242.72	3.43	288.22	1240.60	1.00
	12.100	3149.97	49536.49	313.54	4.55	9.62	1.96	1254.00	1255.19	4.20	890.00	1244.00	1.13
	12.100	104.64	14895.36	0.00	1.39	5.45	0.00	1254.00	1251.02	5.22	666.12	1244.00	1.03
	12.100	0.00	9000.00	0.00	0.00	4.74	0.00	1254.00	1249.58	4.79	569.19	1244.00	1.00
	12.100	0.00	2000.00	0.00	0.00	2.99	0.00	1254.00	1247.27	4.56	458.20	1244.00	1.00

NEW RIVER

SUMMARY PRINTOUT

	SECNO	XLCH	K*CHSL	EG	HV	HL	OLOSS	10K*S	VOL	DEPTH	K*XNL	K*XNCH	K*XNR
*	11.000	0.00	0.00	1233.93	1.93	0.00	0.00	39.36	0.00	13.20	45.00	35.00	45.00
	11.000	0.00	0.00	1228.53	1.80	0.00	0.00	60.34	0.00	7.93	45.00	35.00	45.00
	11.000	0.00	0.00	1226.03	1.36	0.00	0.00	59.89	0.00	5.87	45.00	35.00	45.00
	11.000	0.00	0.00	1222.00	.44	0.00	0.00	59.62	0.00	2.76	45.00	35.00	45.00
	11.010	70.00	1.43	1234.21	1.37	.23	.06	27.03	9.70	13.95	45.00	35.00	45.00
	11.010	70.00	1.43	1228.94	1.38	.37	.04	45.73	2.40	8.66	45.00	35.00	45.00
	11.010	70.00	1.43	1226.40	1.06	.34	.03	40.73	1.65	6.44	45.00	35.00	45.00
	11.010	70.00	1.43	1222.32	.31	.31	.01	33.51	.66	3.11	45.00	35.00	45.00
	11.040	110.00	5.45	1234.49	1.11	.25	.03	19.30	27.46	13.88	43.00	33.00	45.00
	11.040	110.00	5.45	1229.35	1.17	.39	.02	28.54	6.80	8.68	43.00	33.00	45.00
	11.040	110.00	5.45	1226.84	1.03	.44	.00	39.38	4.42	6.32	43.00	33.00	45.00
	11.040	110.00	5.45	1222.83	.42	.47	.03	56.09	1.71	2.90	43.00	33.00	45.00
	11.080	200.00	3.50	1234.97	1.41	.39	.09	20.16	60.98	13.37	43.00	33.00	45.00
	11.080	200.00	3.50	1229.78	.68	.38	.05	13.45	16.34	8.90	43.00	33.00	45.00
	11.080	200.00	3.50	1227.32	.46	.42	.06	12.99	10.76	6.66	43.00	33.00	45.00
	11.080	200.00	3.50	1223.26	.13	.40	.03	10.21	4.19	2.93	43.00	33.00	45.00
	11.140	330.00	3.33	1235.72	1.58	.70	.05	22.02	112.26	12.84	40.00	33.00	45.00
	11.140	330.00	3.33	1230.22	.58	.42	.01	12.31	34.19	8.33	40.00	33.00	45.00
	11.140	330.00	3.33	1227.75	.42	.43	.00	13.18	23.58	6.04	40.00	33.00	45.00
	11.140	330.00	3.33	1223.71	.16	.44	.01	18.06	9.17	2.24	40.00	33.00	45.00
*	11.250	650.00	3.54	1238.68	3.61	2.12	.61	53.37	188.79	11.47	40.00	33.00	45.00
	11.250	650.00	3.54	1231.53	1.06	1.17	.14	28.63	65.99	6.87	40.00	33.00	45.00
	11.250	650.00	3.54	1229.20	.83	1.32	.12	35.30	45.71	4.77	40.00	33.00	45.00
	11.250	650.00	3.54	1225.65	.34	1.89	.05	54.16	16.99	1.71	40.00	33.00	45.00
	11.380	520.00	3.46	1240.85	2.34	2.04	.13	30.02	241.32	13.11	40.00	33.00	45.00
	11.380	520.00	3.46	1233.11	1.12	1.57	.02	31.75	87.36	6.59	40.00	33.00	45.00
	11.380	520.00	3.46	1230.99	.79	1.79	.00	33.42	60.59	4.80	40.00	33.00	45.00
	11.380	520.00	3.46	1227.67	.23	2.01	.01	29.01	22.66	2.04	40.00	33.00	45.00
	11.460	420.00	3.33	1242.01	1.03	1.03	.13	20.29	297.98	14.17	45.00	35.00	45.00
	11.460	420.00	3.33	1234.51	1.09	1.40	.00	34.99	104.49	6.62	45.00	35.00	45.00
	11.460	420.00	3.33	1232.43	.75	1.44	.00	35.20	72.91	4.88	45.00	35.00	45.00
	11.460	420.00	3.33	1229.02	.24	1.35	.00	35.81	27.61	1.98	45.00	35.00	45.00
	11.550	480.00	3.54	1245.40	3.44	1.71	1.69	78.36	355.13	13.46	45.00	35.00	45.00
*	11.550	480.00	3.54	1238.03	2.01	2.78	.64	113.52	121.61	7.53	45.00	35.00	45.00
*	11.550	480.00	3.54	1236.27	1.52	2.93	.54	130.42	85.05	6.25	45.00	35.00	45.00
*	11.550	480.00	3.54	1232.66	.92	3.13	.47	154.08	31.85	3.25	45.00	35.00	45.00
	11.650	500.00	10.20	1247.29	.64	1.04	.84	9.48	426.03	13.05	45.00	35.00	45.00
	11.650	500.00	10.20	1240.14	.32	1.60	.51	14.88	148.53	6.22	45.00	35.00	45.00
	11.650	500.00	10.20	1238.58	.24	1.92	.38	18.12	103.65	4.73	45.00	35.00	45.00
	11.650	500.00	10.20	1236.19	.12	3.28	.24	36.14	37.68	2.47	45.00	35.00	45.00
	11.810	870.00	2.76	1248.87	1.50	1.32	.26	28.16	568.09	11.37	45.00	35.00	45.00
	11.810	870.00	2.76	1242.52	.82	2.22	.15	53.70	202.85	5.70	45.00	35.00	45.00
	11.810	870.00	2.76	1241.26	.57	2.59	.10	57.63	141.77	4.69	45.00	35.00	45.00
	11.810	870.00	2.76	1237.42	.13	3.23	.01	38.20	52.02	3.29	45.00	35.00	45.00

	SECNO	XLCH	K*CHSL	EG	HV	HL	OLOSS	10K*S	VOL	DEPTH	K*XNL	K*XNCH	K*XNR
*	11.930	650.00	7.08	1253.13	2.14	2.40	.19	50.67	651.08	10.39	45.00	35.00	45.00
*	11.930	650.00	7.08	1247.79	1.99	4.68	.35	101.29	228.43	5.20	45.00	35.00	45.00
	11.930	650.00	7.08	1246.02	1.24	4.56	.20	87.09	160.39	4.18	45.00	35.00	45.00
	11.930	650.00	7.08	1243.10	.38	3.60	.07	87.46	60.10	2.12	45.00	35.00	45.00
	12.100	900.00	3.78	1256.55	1.36	3.34	.08	28.37	771.88	11.19	45.00	35.00	45.00
	12.100	900.00	3.78	1251.48	.46	3.54	.15	20.72	271.48	7.02	45.00	35.00	45.00
	12.100	900.00	3.78	1249.92	.35	3.82	.09	25.02	190.44	5.58	45.00	35.00	45.00
	12.100	900.00	3.78	1247.41	.14	4.29	.02	29.94	71.18	3.27	45.00	35.00	45.00

SUMMARY OF ERRORS

```
CAUTION  SECNO=   11.000  PROFILE= 1  CRITICAL DEPTH ASSUMED

CAUTION  SECNO=   11.250  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   11.250  PROFILE= 1  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=   11.550  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   11.550  PROFILE= 2  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   11.550  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   11.550  PROFILE= 3  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   11.550  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   11.550  PROFILE= 4  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=   11.930  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   11.930  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   11.930  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=   11.930  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   11.930  PROFILE= 2  MINIMUM SPECIFIC ENERGY
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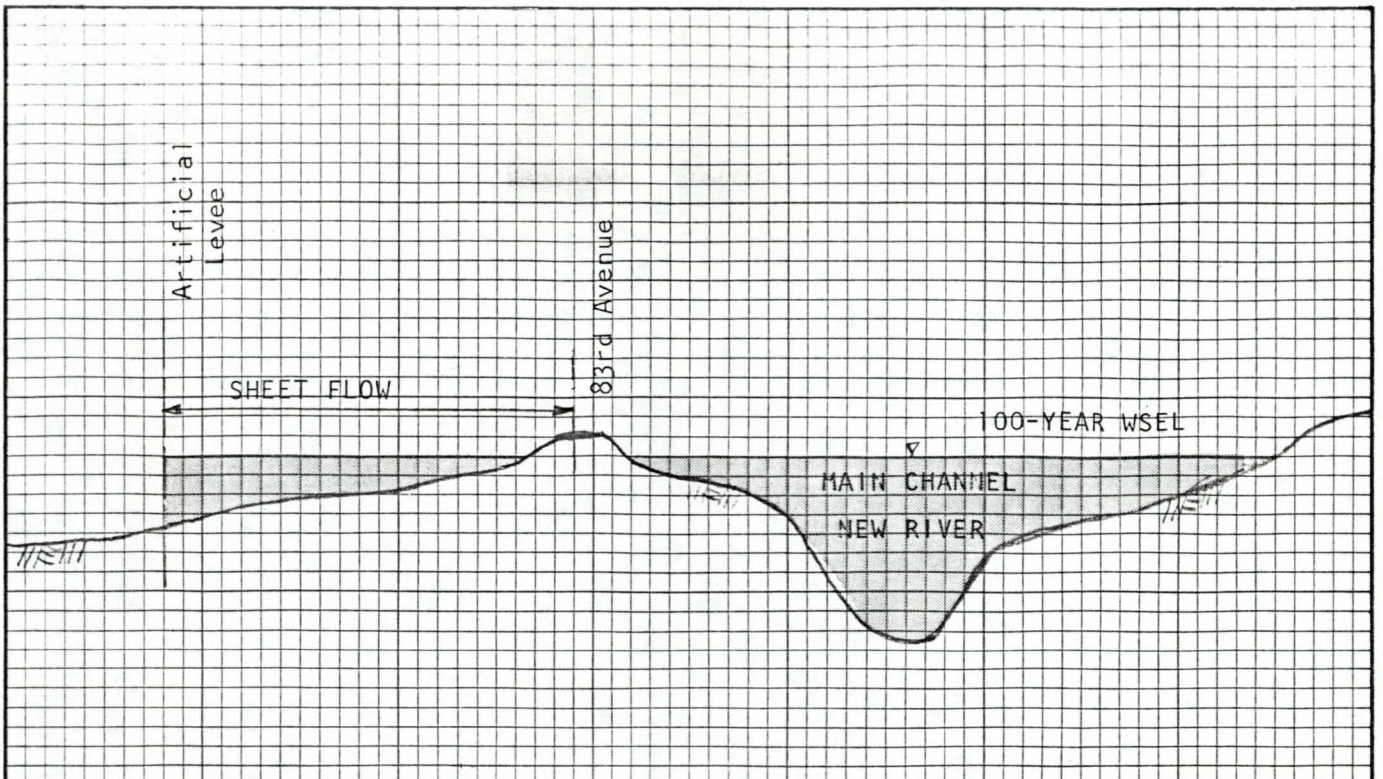
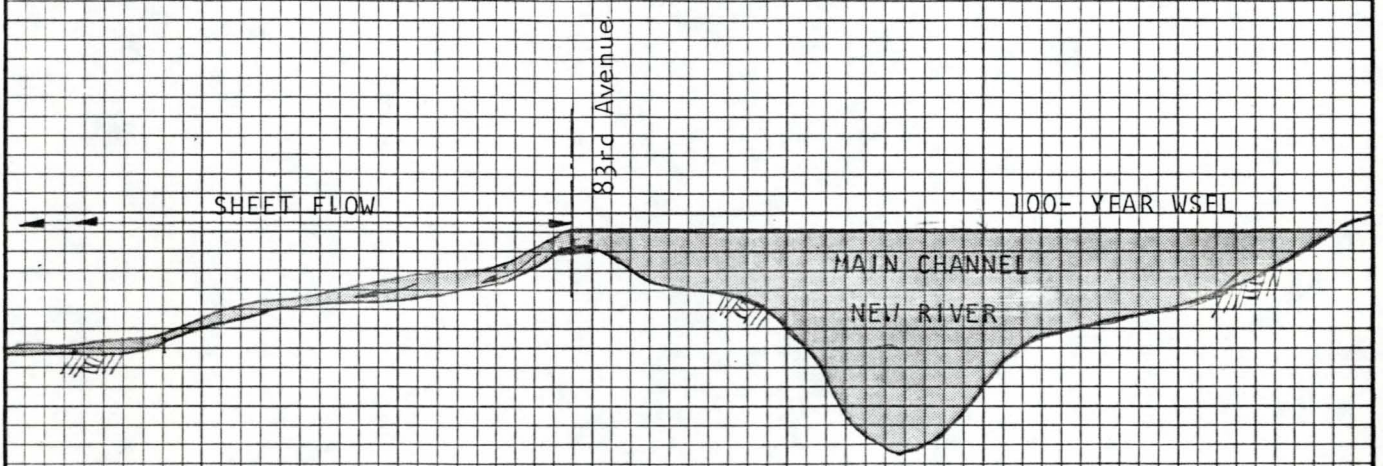


CORPS ANALYSIS (FIGURE 1.)

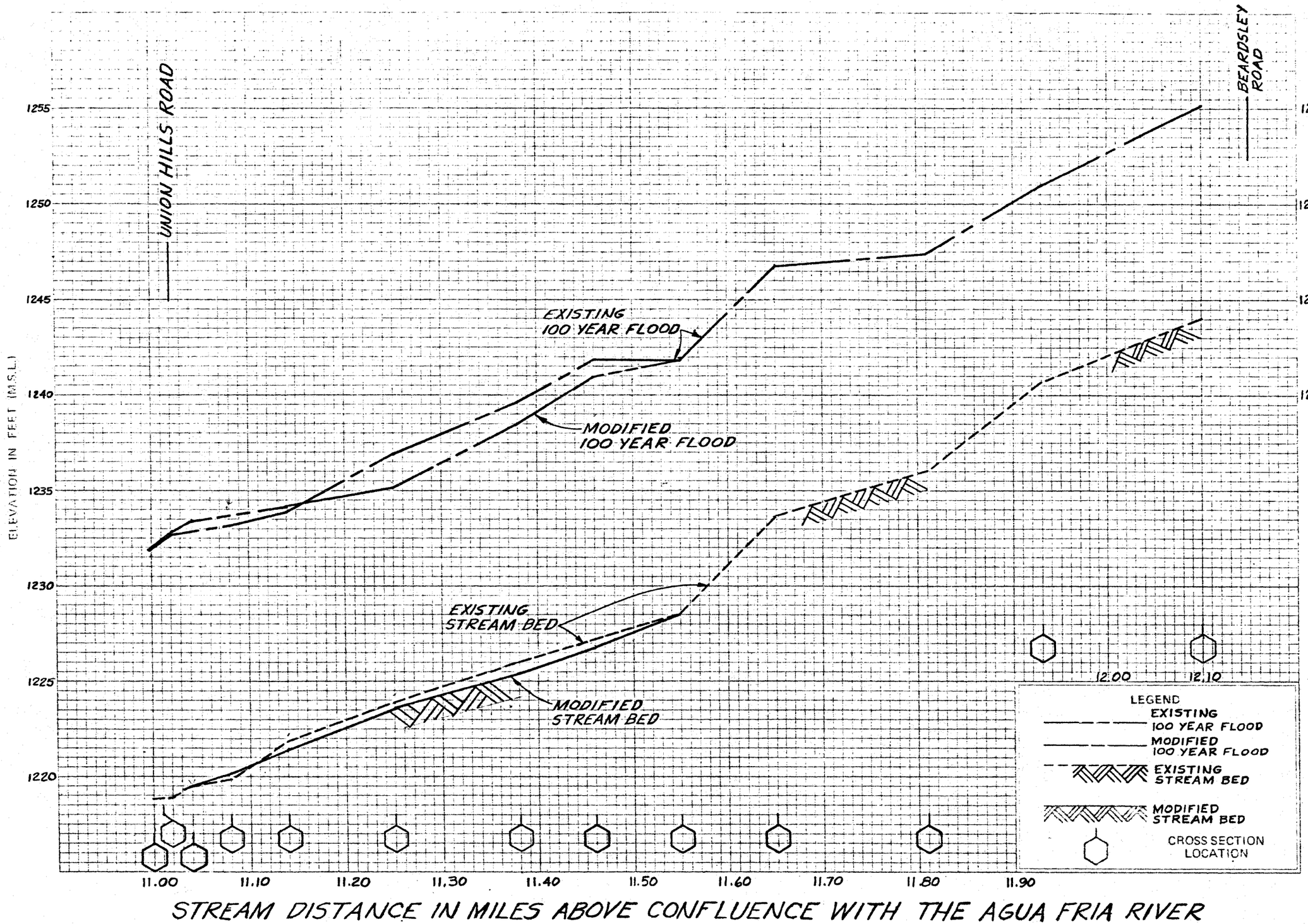


TOUPS ANALYSIS (FIGURE 2.)

SKETCH SHOWING METHOD OF APPROACH

LOOKING UPSTREAM
TYPICAL SECTION - NEW RIVER

NO SCALE

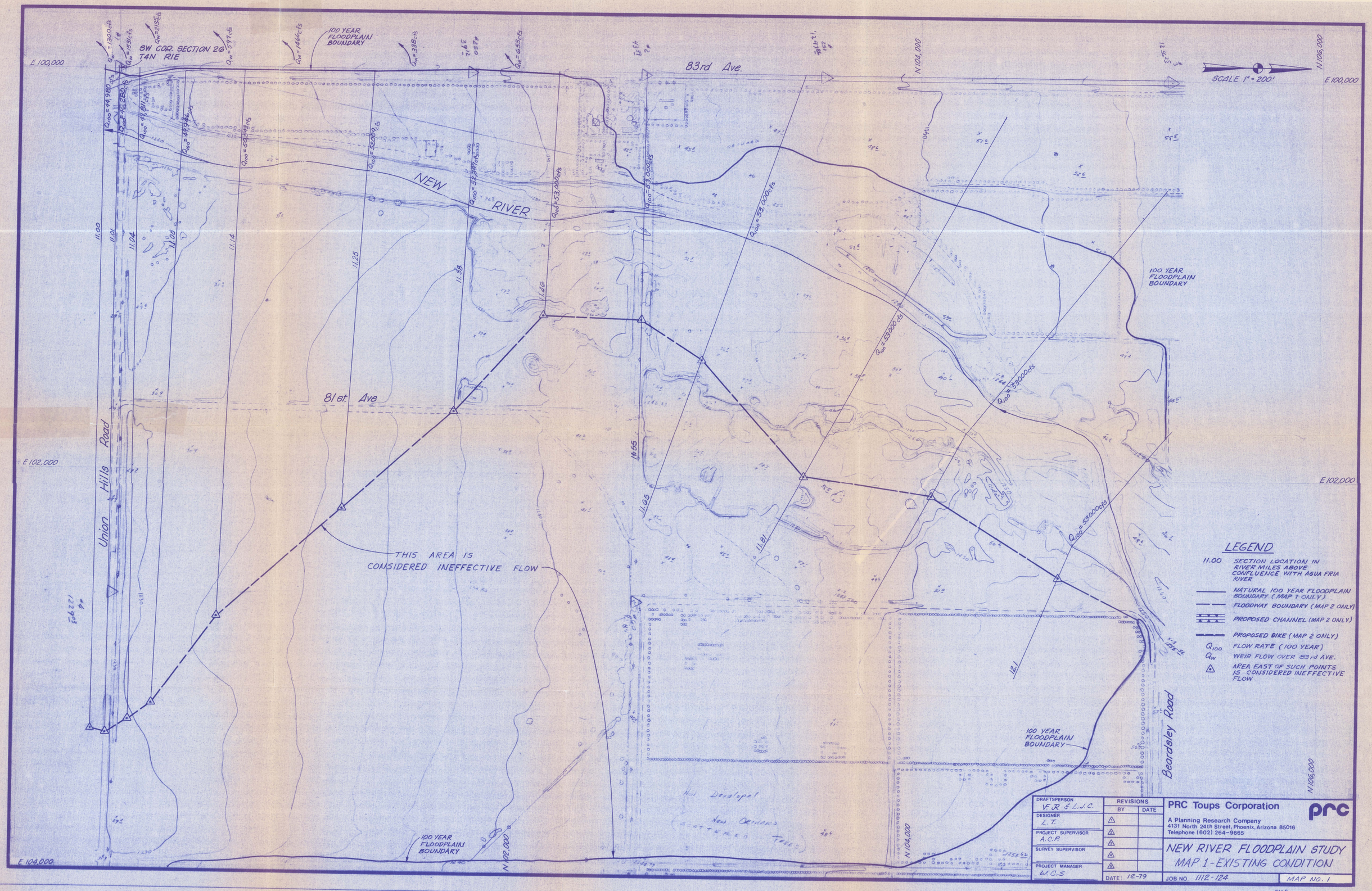


FLOOD PROFILES

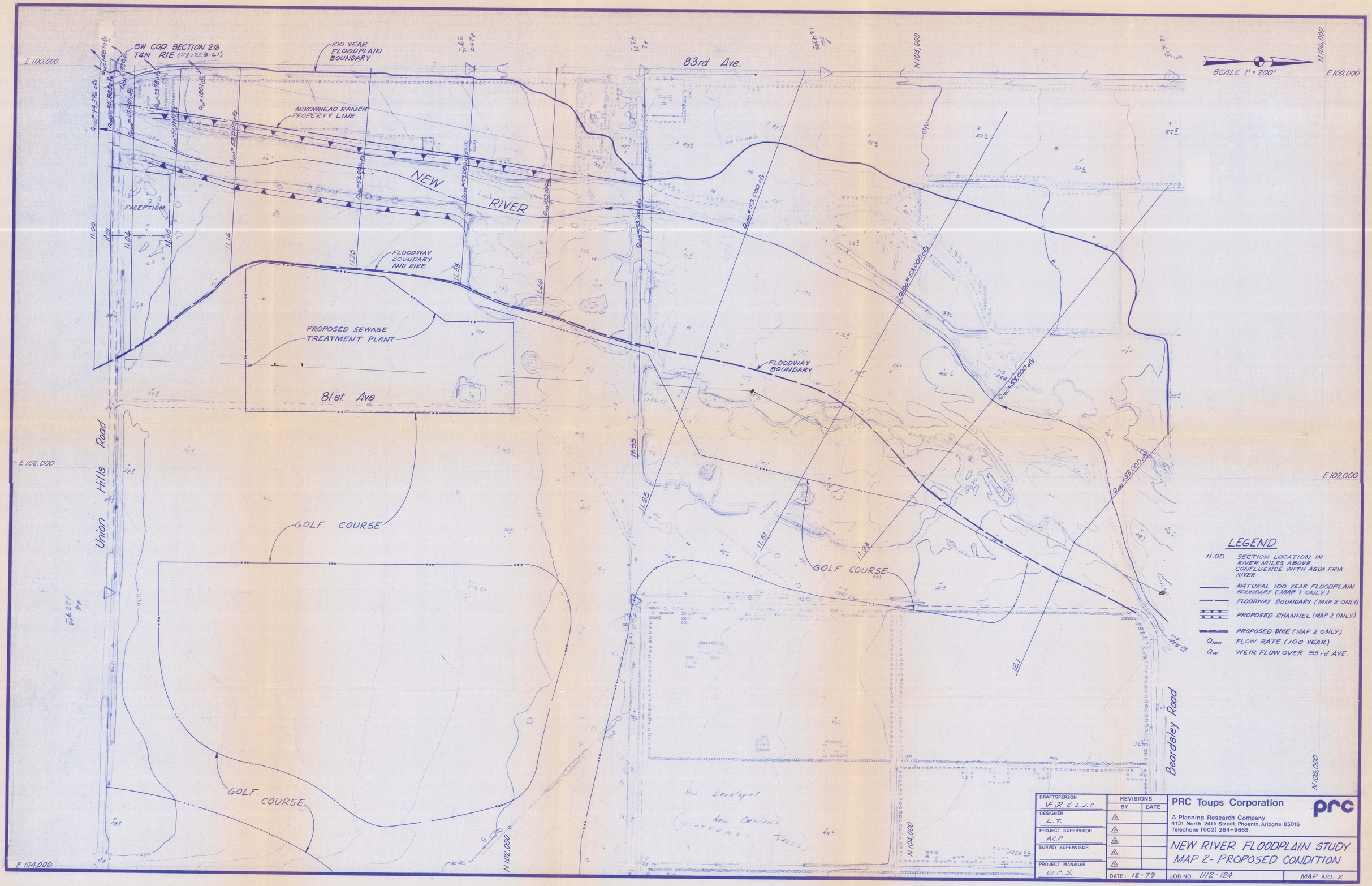
NEW RIVER

CITY OF GLENDALE
MARICOPA CO. ARIZONA

PLATE 1

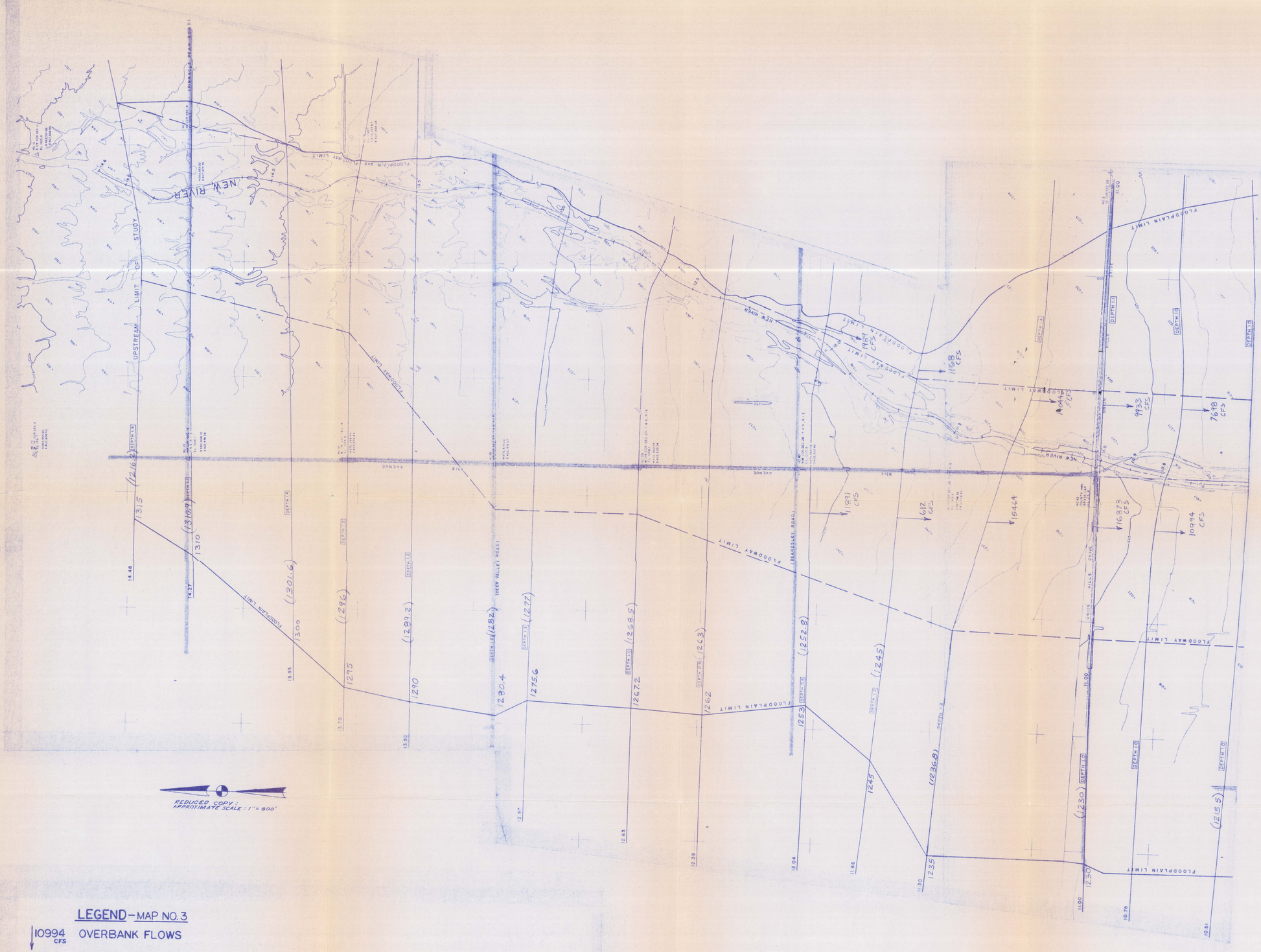

SCALE 1" = 200'
E 100,000
E 102,000
E 104,000
N 104,000
N 106,000
SW COR. SECTION 26 T4N R1E
100 YEAR FLOODPLAIN BOUNDARY
83rd Ave.
81st Ave
NEW RIVER
Union Hills Road
Beardsley Road
THIS AREA IS CONSIDERED INEFFECTIVE FLOW
LEGEND
11.00 SECTION LOCATION IN RIVER MILES ABOVE CONFLUENCE WITH AGUA FRIA RIVER
NATURAL 100 YEAR FLOODPLAIN BOUNDARY (MAP 1 ONLY)
FLOODWAY BOUNDARY (MAP 2 ONLY)
PROPOSED CHANNEL (MAP 2 ONLY)
PROPOSED DIKE (MAP 2 ONLY)
Q100 FLOW RATE (100 YEAR)
QW WEIR FLOW OVER 83rd AVE.
AREA EAST OF SUCH POINTS IS CONSIDERED INEFFECTIVE FLOW
DRAFTSPERSON V.F.R. & L.J.C.
DESIGNER L.T.
PROJECT SUPERVISOR A.C.R.
SURVEY SUPERVISOR
PROJECT MANAGER W.C.S.
REVISIONS BY DATE
DATE: 12-79
PRC Toups Corporation
A Planning Research Company
4131 North 24th Street, Phoenix, Arizona 85016
Telephone (602) 264-9665
NEW RIVER FLOODPLAIN STUDY
MAP 1 - EXISTING CONDITION
JOB NO. 1112-124
MAP NO. 1

FILE



DRAFTSPERSON V.R. & L.J.C.	REVISIONS BY	DATE	PRC Toups Corporation
DESIGNER L.T.	△		A Planning Research Company 4131 North 24th Street, Phoenix, Arizona 85016 Telephone (602) 264-9665
PROJECT SUPERVISOR A.C.P.	△		NEW RIVER FLOODPLAIN STUDY MAP 2- PROPOSED CONDITION
SURVEY SUPERVISOR	△		
PROJECT MANAGER W.C.S.	△		
DATE: 12-79			JOB NO. 1112-124 — MAP NO. 2

FILE



LEGEND – MAP NO. 3

10994 CFS	OVERBANK FLOWS
1230	GROUND ELEVATION
(1235)	WATER SURFACE ELEVATION (100 YEAR)
10.51	CROSS SECTION LOCATION (IN MILES ABOVE CONFLUENCE WITH AGUA FRIA RIVER)

SOURCE

FLOODPLAIN STUDY: CORPS OF ENGINEERS L.A. DIST. (1975)

MAPPING: CORPS OF ENGINEERS L.A. DIST. (1969)

FLOODPLAIN DELINEATION
(BY CORPS OF ENGINEERS - 1975)

```
*********************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*********************************************
```

FULL FLOW RUN - USED FOR WEIR CALCULATIONS (RATING CURVE)

```
1     ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOOPS CORPORATION
2     100 YEAR FREQUENCY EXISTING CONDITIONS
3     NEW RIVER

1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     -1.       3.        0.        0.    .006000     0.00      0.0       0.    1234.000   0.000

2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.000    43.000     1.000     2.000    26.000    39.000    21.000    22.000    27.000    28.000

    53.000    54.000     0.000    38.000    13.000    14.000    15.000    55.000    26.000    56.000

    63.000     1.000    51.000     4.000    42.000    57.000     0.000    38.000    39.000    33.000

     3.000    10.000    11.000    12.000     5.000     7.000     8.000    16.000    17.000    18.000

3  LPRNT     NUMSEC                    ********REQUESTED SECTION NUMBERS********

   -10.000   -10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
C     .045      .045      .035      .100      .300     0.000     0.000     0.000     0.000     0.000
NT   4.000 15000.000 53000.000 40000.000 30000.000     0.000     0.000     0.000     0.000     0.000
NT   0.000     9.100     9.100     9.100     9.100     9.100     9.100     0.000 17000.000 20300.000

     STATIONING FROM LEFT TO RIGHT, LOOKING DOWNSTREAM, FLOWLINE AT 20000.

     STARTING WATERSURFACE ELEVATION USING SLOPE AREA METHOD

     SECTIONS BEGINING 200 FT DOWNSTREAM OF UNION HILLS DR

X1   11.000    10.000 19888.000 20170.000     0.000     0.000     0.000     0.000     0.000     0.000
X3 1230.000 16000.000  1230.000 19800.000  1230.000 19840.000  1228.000 19888.000  1220.000 19910.000
X3 1218.800 20000.000  1220.000 20080.000  1226.000 20100.000  1228.000 20170.000  1230.000 20300.000
NT    0.000     9.100     9.100     9.100     9.100     9.100     9.100     0.000 17000.000 20300.000

X1   11.010    10.000 19888.000 20170.000    70.000    70.000    70.000     0.000     0.000     0.000
X3 1230.000 16000.000  1230.000 19800.000  1230.000 19840.000  1228.000 19888.000  1220.000 19910.000
X3 1218.900 20000.000  1220.000 20080.000  1226.000 20100.000  1228.000 20170.000  1230.000 20300.000
NT    0.000     9.100     9.100     9.100     9.100     9.100     9.100     0.000 17100.000 20315.000
```

L	11.040	19.000	19883.000	20130.000	110.000	110.000	110.000	0.000	0.000	0.000
I	1234.000	15140.000	1232.000	16250.000	1230.000	16440.000	1230.000	19740.000	1228.000	19760.000
I	1227.000	19810.000	1228.000	19860.000	1230.000	19875.000	1230.500	19883.000	1230.000	19890.000
I	1222.000	19915.000	1220.000	19938.000	1219.500	20000.000	1220.000	20025.000	1222.000	20110.000
I	1226.000	20130.000	1228.000	20275.000	1230.000	20310.000	1230.000	20315.000	0.000	0.000
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	17250.000	20430.000
L	11.080	17.000	19922.000	20155.000	200.000	200.000	200.000	0.000	0.000	0.000
I	1234.000	15780.000	1233.000	16280.000	1232.000	16470.000	1230.000	16510.000	1230.500	17570.000
I	1230.000	19340.000	1230.000	19915.000	1230.000	19922.000	1222.000	19940.000	1220.000	19970.000
I	1219.900	20000.000	1220.000	20025.000	1222.000	20095.000	1224.000	20125.000	1229.000	20155.000
I	1229.700	20350.000	1231.500	20430.000	0.000	0.000	0.000	0.000	0.000	0.000
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	17750.000	20490.000
L	11.140	18.000	19928.000	20160.000	330.000	330.000	330.000	0.000	0.000	0.000
I	1236.000	15230.000	1234.000	15240.000	1232.000	16500.000	1230.000	16540.000	1232.000	18800.000
I	1230.000	19865.000	1229.500	19895.000	1230.000	19920.000	1231.000	19928.000	1230.000	19935.000
I	1224.000	19945.000	1222.000	19985.000	1221.800	20000.000	1222.000	20010.000	1224.000	20135.000
I	1232.000	20160.000	1232.000	20420.000	1233.000	20490.000	0.000	0.000	0.000	0.000
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	18300.000	20680.000
L	11.250	10.000	19830.000	20075.000	650.000	650.000	650.000	0.000	0.000	0.000
I	1234.000	18800.000	1234.000	19380.000	1232.000	19830.000	1226.000	19870.000	1224.000	19965.000
I	1223.800	20000.000	1224.000	20030.000	1235.000	20075.000	1236.000	20400.000	1236.500	20500.000
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	18970.000	20680.000
L	11.380	16.000	19950.000	20190.000	530.000	530.000	530.000	0.000	0.000	0.000
I	1238.000	15360.000	1237.500	15460.000	1237.500	16550.000	1236.000	16730.000	1236.000	17900.000
I	1238.000	19000.000	1236.000	19685.000	1234.000	19950.000	1228.000	19970.000	1226.000	20000.000
I	1228.000	20130.000	1230.000	20150.000	1236.000	20175.000	1237.500	20190.000	1238.000	20420.000
I	1239.300	20680.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19520.000	20730.000
L	11.460	17.000	19520.000	20210.000	420.000	420.000	420.000	0.000	0.000	0.000
I	1244.000	15490.000	1242.000	16470.000	1240.000	17050.000	1240.000	19290.000	1238.000	19520.000
I	1236.000	19550.000	1228.000	19605.000	1227.200	19625.000	1227.200	20000.000	1228.000	20055.000
I	1230.000	20060.000	1230.000	20080.000	1232.000	20130.000	1234.000	20165.000	1240.000	20190.000
I	1240.500	20210.000	1241.800	20730.000	0.000	0.000	0.000	0.000	0.000	0.000
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19470.000	20690.000
C	.045	.045	.035	.500	.700	0.000	0.000	0.000	0.000	0.000
L	11.550	24.000	19700.000	20150.000	480.000	480.000	480.000	0.000	0.000	0.000
I	1246.000	15400.000	1246.000	17200.000	1244.000	18080.000	1242.000	18120.000	1242.000	18370.000
I	1243.000	18680.000	1243.000	19140.000	1242.000	19220.000	1242.000	19700.000	1240.000	19740.000
I	1234.000	19750.000	1234.400	19780.000	1234.000	19810.000	1232.000	19875.000	1230.000	19902.000
I	1229.600	19915.000	1230.000	19930.000	1230.300	19955.000	1230.000	19980.000	1228.500	20000.000
I	1230.000	20020.000	1232.000	20027.000	1242.000	20150.000	1243.300	20690.000	0.000	0.000
C	.045	.045	.035	.300	.500	0.000	0.000	0.000	0.000	0.000
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19350.000	20800.000
L	11.650	18.000	19500.000	20050.000	500.000	500.000	500.000	0.000	0.000	0.000
I	1242.000	18800.000	1242.000	19000.000	1242.000	19235.000	1242.000	19240.000	1236.000	19350.000
I	1234.500	19500.000	1234.500	19650.000	1235.000	19800.000	1236.000	19875.000	1236.000	19965.000
I	1234.000	19985.000	1233.600	20000.000	1234.000	20040.000	1240.000	20050.000	1240.000	20070.000
I	1244.000	20085.000	1246.000	20320.000	1248.000	20800.000	0.000	0.000	0.000	0.000
C	.045	.045	.035	.100	.300	0.000	0.000	0.000	0.000	0.000
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19040.000	21200.000

L	11.810	15.000	19450.000	20035.000	870.000	870.000	870.000	0.000	0.000	0.000
R	1248.000	19040.000	1248.000	19100.000	1248.000	19300.000	1248.000	19350.000	1248.000	19440.000
R	1238.000	19450.000	1239.000	19600.000	1238.000	19800.000	1238.000	19930.000	1236.000	19985.000
R	1236.000	20015.000	1246.000	20035.000	1246.000	20050.000	1250.000	20070.000	1248.000	20800.000
F	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19450.000	21200.000
L	11.930	19.000	19715.000	20027.000	650.000	650.000	650.000	0.000	0.000	0.000
R	1248.000	19450.000	1248.000	19715.000	1242.000	19730.000	1241.000	19770.000	1241.000	19870.000
R	1242.000	19900.000	1242.000	19925.000	1240.600	20000.000	1242.000	20015.000	1248.000	20027.000
R	1248.000	20035.000	1246.000	20040.000	1245.000	20130.000	1246.000	20180.000	1248.000	20220.000
R	1249.000	20370.000	1250.000	20720.000	1252.000	21180.000	1254.000	21200.000	0.000	0.000
F	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19540.000	20430.000
L	12.100	12.000	19710.000	20295.000	900.000	900.000	900.000	0.000	0.000	0.000
R	1254.000	19515.000	1250.000	19655.000	1250.000	19710.000	1246.000	19720.000	1246.000	19965.000
R	1244.000	20000.000	1246.000	20075.000	1246.000	20140.000	1248.000	20195.000	1248.000	20275.000
R	1254.000	20295.000	1254.000	20430.000	0.000	0.000	0.000	0.000	0.000	0.000
J	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*************************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*************************************************

1       ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOUPS CORPORATION
2        10 YEAR FREQUENCY EXISTING CONDITIONS
3       NEW RIVER

1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     -10.      2.        0.        0.   .006000     0.00      0.0       0.   1226.000   0.000

2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     2.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

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**************************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
**************************************************

1      ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOOPS CORPORATION
2      ~~-10 YEAR FREQUENCY WITH FUTURE DAM~~ EXISTING CONDITIONS
5      NEW RIVER

1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
     -10.      5.       0.       0.   .006000    0.00     0.0      0.   1232.000   0.000

2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLOC    IBW      CHNIM    ITRACE
     3.000    0.000   -1.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
```

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*****************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*****************************************

L      ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOUPS CORPORATION
2      100-YEAR FREQUENCY WITH FUTURE DAM EXISTING CONDITIONS
3      NEW RIVER  NATURAL CONDITION

1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     -10.      4.        0.        0.   .006000      0.00      0.0       0.   1231.000    0.000

2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     15.000    0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

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*****************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*****************************************
```

OTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

OW RIVER

UMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	XLCH	STCHL	STCHR	STENCL	STENCR	SSTA	ENDST
11.000	53000.00	1232.13	1232.13	11.16	0.00	19888.00	20170.00	17000.00	20300.00	17000.00	20300.00
11.000	15000.00	1226.73	0.00	10.76	0.00	19888.00	20170.00	17000.00	20300.00	19891.48	20125.72
11.000	30000.00	1231.01	1231.01	9.40	0.00	19888.00	20170.00	17000.00	20300.00	17000.00	20300.00
11.000	40000.00	1231.61	1231.61	10.09	0.00	19888.00	20170.00	17000.00	20300.00	17000.00	20300.00
11.010	53000.00	1232.90	0.00	8.82	70.00	19888.00	20170.00	17000.00	20300.00	17000.00	20300.00
11.010	15000.00	1227.56	0.00	9.42	70.00	19888.00	20170.00	17000.00	20300.00	19889.20	20154.70
11.010	30000.00	1231.77	0.00	7.15	70.00	19888.00	20170.00	17000.00	20300.00	17000.00	20300.00
11.010	40000.00	1232.31	0.00	7.99	70.00	19888.00	20170.00	17000.00	20300.00	17000.00	20300.00
11.040	53000.00	1233.27	0.00	7.96	110.00	19863.00	20130.00	17100.00	20315.00	17100.00	20315.00
11.040	15000.00	1228.23	0.00	8.71	110.00	19863.00	20130.00	17100.00	20315.00	19757.65	20279.11
11.040	30000.00	1232.07	0.00	6.40	110.00	19863.00	20130.00	17100.00	20315.00	17100.00	20315.00
11.040	40000.00	1232.65	0.00	7.14	110.00	19863.00	20130.00	17100.00	20315.00	17100.00	20315.00
11.080	53000.00	1233.51	0.00	8.65	200.00	19922.00	20155.00	17250.00	20430.00	17250.00	20430.00
11.080	15000.00	1228.72	0.00	9.71	200.00	19922.00	20155.00	17250.00	20430.00	19924.87	20153.35
11.080	30000.00	1232.21	0.00	7.43	200.00	19922.00	20155.00	17250.00	20430.00	17250.00	20430.00
11.080	40000.00	1232.84	0.00	7.99	200.00	19922.00	20155.00	17250.00	20430.00	17250.00	20430.00
11.140	53000.00	1233.92	1233.92	12.01	330.00	19928.00	20160.00	17750.00	20490.00	17750.00	20490.00
11.140	15000.00	1230.07	0.00	10.28	330.00	19928.00	20160.00	17750.00	20490.00	19830.82	20153.95
11.140	30000.00	1232.87	1232.87	9.80	330.00	19928.00	20160.00	17750.00	20490.00	17750.00	20480.70
11.140	40000.00	1233.38	1233.38	10.83	330.00	19928.00	20160.00	17750.00	20490.00	17750.00	20490.00
11.250	53000.00	1236.90	1236.90	13.34	650.00	19830.00	20075.00	18500.00	20680.00	18800.00	20500.00
11.250	15000.00	1233.05	0.00	8.79	650.00	19830.00	20075.00	18500.00	20680.00	19593.13	20067.03
11.250	30000.00	1235.11	1235.11	11.55	650.00	19830.00	20075.00	18500.00	20680.00	18800.00	20112.36
11.250	40000.00	1236.06	1236.06	12.26	650.00	19830.00	20075.00	18500.00	20680.00	18800.00	20412.25
11.380	53000.00	1239.70	1239.70	13.51	530.00	19950.00	20190.00	18970.00	20680.00	18970.00	20680.00
11.380	15000.00	1234.76	0.00	10.11	530.00	19950.00	20190.00	18970.00	20680.00	19849.49	20169.83
11.380	30000.00	1237.67	1237.67	12.16	530.00	19950.00	20190.00	18970.00	20680.00	19114.31	20266.48
11.380	40000.00	1238.88	1238.88	12.33	530.00	19950.00	20190.00	18970.00	20680.00	18970.00	20595.97
11.460	53000.00	1241.89	0.00	6.14	420.00	19520.00	20210.00	19520.00	20730.00	19520.00	20730.00
11.460	15000.00	1236.67	0.00	2.95	420.00	19520.00	20210.00	19520.00	20730.00	19539.94	20176.13
11.460	30000.00	1239.99	0.00	4.12	420.00	19520.00	20210.00	19520.00	20730.00	19520.00	20189.95
11.460	40000.00	1240.95	0.00	5.04	420.00	19520.00	20210.00	19520.00	20730.00	19520.00	20387.94

SECNO	Q	CWSEL	CRIWS	VCH	XLCH	STCHL	STCHR	STENCL	STENCR	SSTA	ENDST
11.550	53000.00	1241.83	0.00	15.14	480.00	19700.00	20150.00	19470.00	20690.00	19705.35	20147.94
11.550	15000.00	1236.66	0.00	9.78	480.00	19700.00	20150.00	19470.00	20690.00	19745.56	20084.38
11.550	30000.00	1239.97	0.00	11.00	480.00	19700.00	20150.00	19470.00	20690.00	19740.05	20124.99
11.550	40000.00	1240.92	0.00	12.86	480.00	19700.00	20150.00	19470.00	20690.00	19721.57	20136.75
11.650	53000.00	1246.68	0.00	6.71	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20484.12
11.650	15000.00	1239.67	0.00	4.87	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20049.44
11.650	30000.00	1242.85	0.00	5.75	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20080.70
11.650	40000.00	1244.60	0.00	6.25	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20155.76
11.810	53000.00	1247.39	0.00	9.82	870.00	19450.00	20035.00	19040.00	21200.00	19440.61	20056.97
11.810	15000.00	1241.71	0.00	7.24	870.00	19450.00	20035.00	19040.00	21200.00	19446.29	20026.43
11.810	30000.00	1244.07	0.00	8.72	870.00	19450.00	20035.00	19040.00	21200.00	19443.93	20031.14
11.810	40000.00	1245.57	0.00	9.26	870.00	19450.00	20035.00	19040.00	21200.00	19442.43	20034.14
11.930	53000.00	1250.99	1250.99	13.35	650.00	19715.00	20027.00	19450.00	21200.00	19450.00	20947.47
11.930	15000.00	1245.81	1245.81	11.34	650.00	19715.00	20027.00	19450.00	21200.00	19720.48	20170.34
11.930	30000.00	1248.58	1248.58	12.42	650.00	19715.00	20027.00	19450.00	21200.00	19450.00	20307.74
11.930	40000.00	1249.94	1249.94	12.52	650.00	19715.00	20027.00	19450.00	21200.00	19450.00	20699.72
12.100	53000.00	1255.19	0.00	9.62	900.00	19710.00	20295.00	19540.00	20430.00	19540.00	20430.00
12.100	15000.00	1251.02	0.00	5.45	900.00	19710.00	20295.00	19540.00	20430.00	19619.01	20285.09
12.100	30000.00	1253.28	0.00	7.18	900.00	19710.00	20295.00	19540.00	20430.00	19540.04	20292.62
12.100	40000.00	1254.19	0.00	8.34	900.00	19710.00	20295.00	19540.00	20430.00	19540.00	20430.00

EW RIVER

JMMARY PRINTOUT

SECNO	QLOB	QCH	QROB	VLOB	VCH	VROB	TELMX	CWSEL	DIFWSX	TOPWID	ELMIN	ALPHA
11.000	19184.68	52217.22	1598.10	3.09	11.16	3.92	1230.00	1232.13	0.00	3300.00	1218.80	2.56
11.000	0.00	15000.00	0.00	0.00	10.76	0.00	1230.00	1226.73	0.00	234.24	1218.80	1.00
11.000	5152.67	24147.84	699.49	1.73	9.40	2.67	1230.00	1231.01	0.00	3300.00	1218.80	2.69
11.000	11282.42	27612.87	1104.91	2.40	10.09	3.26	1230.00	1231.61	0.00	3300.00	1218.80	2.72
11.010	23998.09	27274.38	1727.53	2.85	8.82	3.41	1230.00	1232.90	.77	3300.00	1218.90	2.27
11.010	0.00	15000.00	0.00	0.00	9.42	0.00	1230.00	1227.56	.83	265.49	1218.90	1.00
11.010	9305.79	19835.47	858.74	1.80	7.15	2.38	1230.00	1231.77	.76	3300.00	1218.90	2.68
11.010	15406.85	23358.45	1234.70	2.30	7.99	2.88	1230.00	1232.31	.70	3300.00	1218.90	2.49
11.040	25753.75	23006.36	4239.89	2.74	7.96	3.94	1230.00	1233.27	.37	3215.00	1219.50	2.06
11.040	110.45	14509.65	379.90	1.49	8.71	2.12	1230.00	1228.23	.67	487.71	1219.50	1.20
11.040	10869.71	16611.92	2518.37	1.79	6.40	2.95	1230.00	1232.07	.30	3215.00	1219.50	2.47
11.040	17176.89	19540.99	3282.12	2.24	7.14	3.41	1230.00	1232.65	.35	3215.00	1219.50	2.26
11.080	26048.51	22988.66	3962.84	2.96	8.65	3.47	1231.50	1233.51	.24	3180.00	1219.90	2.13
11.080	0.00	15000.00	0.00	0.00	9.71	0.00	1231.50	1228.72	.49	228.49	1219.90	1.00
11.080	10514.39	17487.86	1997.75	1.97	7.43	2.55	1231.50	1232.21	.13	3180.00	1219.90	2.70
11.080	17157.38	19985.54	2857.08	2.45	7.99	2.99	1231.50	1232.84	.19	3180.00	1219.90	2.40
11.140	23068.07	28133.36	1798.57	3.94	12.01	3.01	1233.00	1233.92	.40	2740.00	1221.80	2.30
11.140	18.46	14981.54	0.00	1.00	10.28	0.00	1233.00	1230.07	1.34	309.09	1221.80	1.02
11.140	9038.87	20571.47	389.66	2.53	9.80	1.55	1233.00	1232.87	.66	2730.70	1221.80	2.65
11.140	15024.78	24025.51	949.71	3.19	10.83	2.25	1233.00	1233.38	.54	2740.00	1221.80	2.51
11.250	16654.96	35016.10	1328.94	4.84	13.34	2.55	1236.50	1236.90	2.99	1700.00	1223.80	1.93
11.250	150.65	14849.35	0.00	1.21	8.79	0.00	1236.50	1233.05	2.99	473.90	1223.80	1.12
11.250	4744.54	25254.79	.67	2.97	11.55	.31	1236.50	1235.11	2.25	1312.36	1223.80	1.81
11.250	10072.37	29669.06	258.57	3.91	12.26	1.41	1236.50	1236.06	2.68	1612.25	1223.80	1.93
11.380	15328.20	35563.29	2108.51	4.87	13.51	2.91	1239.30	1239.70	2.80	1710.00	1226.00	1.95
11.380	44.30	14955.70	0.00	1.16	10.11	0.00	1239.30	1234.76	1.70	320.34	1226.00	1.04
11.380	3929.55	26067.77	2.67	3.32	12.16	.42	1239.30	1237.67	2.55	1152.17	1226.00	1.60
11.380	9306.31	30021.85	671.84	3.97	12.33	1.99	1239.30	1238.88	2.82	1625.97	1226.00	1.93
11.460	0.00	52718.66	281.34	0.00	6.14	.73	1241.80	1241.89	2.19	1210.00	1227.20	1.07
11.460	0.00	15000.00	0.00	0.00	2.95	0.00	1241.80	1236.67	1.91	636.18	1227.20	1.00
11.460	0.00	30000.00	0.00	0.00	4.12	0.00	1241.80	1239.99	2.32	669.95	1227.20	1.00
11.460	0.00	39988.76	11.24	0.00	5.04	.28	1241.80	1240.95	2.07	867.94	1227.20	1.01
11.550	0.00	55000.00	0.00	0.00	15.14	0.00	1243.30	1241.83	-.06	444.58	1228.50	1.00
11.550	0.00	15000.00	0.00	0.00	9.78	0.00	1243.30	1236.66	-.01	338.82	1228.50	1.00
11.550	0.00	30000.00	0.00	0.00	11.00	0.00	1243.30	1239.97	-.02	384.94	1228.50	1.00
11.550	0.00	40000.00	0.00	0.00	12.86	0.00	1243.30	1240.92	-.02	415.16	1228.50	1.00
11.650	8415.56	43315.15	1269.29	4.91	6.71	1.94	1248.00	1246.68	4.85	1134.12	1233.60	1.13
11.650	2361.94	12638.06	0.00	3.57	4.87	0.00	1248.00	1239.67	3.00	699.44	1233.60	1.04
11.650	4832.78	25016.31	150.92	4.24	5.75	2.09	1248.00	1242.85	2.89	730.70	1233.60	1.05
11.650	6443.25	33195.46	361.29	4.59	6.25	2.37	1248.00	1244.60	3.68	805.76	1233.60	1.06
11.810	171.42	52776.50	52.08	3.89	9.82	2.02	1248.00	1247.39	.71	616.36	1236.00	1.01
11.810	19.86	14980.14	0.00	2.88	7.24	0.00	1248.00	1241.71	2.05	580.14	1236.00	1.00
11.810	63.69	29936.31	0.00	3.46	8.72	0.00	1248.00	1244.07	1.22	587.21	1236.00	1.00

11.810	105.23	39894.77	0.00	3.67	9.26	0.00	1248.00	1245.57	.97	591.71	1236.00	1.01

SECNO	QLOB	QCH	QROB	VLOB	VCH	VROB	TELMX	CWSEL	DIFWSX	TOPWID	ELMIN	ALPHA
11.930	3834.19	39000.57	10165.24	4.84	13.35	5.14	1254.00	1250.99	3.60	1497.47	1240.60	1.59
11.930	0.00	14917.41	82.59	0.00	11.34	1.81	1254.00	1245.81	4.09	415.09	1240.60	1.05
11.930	288.57	26976.14	2735.28	1.86	12.42	5.13	1254.00	1248.58	4.52	857.74	1240.60	1.28
11.930	1902.58	32501.21	5596.20	3.70	12.52	4.90	1254.00	1249.94	4.37	1249.72	1240.60	1.48
12.100	3149.78	49536.80	313.42	4.55	9.62	1.96	1254.00	1255.19	4.20	890.00	1244.00	1.13
12.100	104.47	14895.53	0.00	1.39	5.45	0.00	1254.00	1251.02	5.22	666.08	1244.00	1.03
12.100	1018.67	28981.33	0.00	2.76	7.18	0.00	1254.00	1253.28	4.70	752.58	1244.00	1.08
12.100	1887.31	38098.76	13.92	3.61	8.34	.54	1254.00	1254.19	4.25	890.00	1244.00	1.09

EW RIVER

UMMARY PRINTOUT

SECNO	XLCH	K*CHSL	EG	HV	HL	OLOSS	10K*S	VOL	DEPTH	K*XNL	K*XNCH	K*XNR
11.000	0.00	0.00	1233.37	1.24	0.00	0.00	31.47	0.00	13.33	45.00	35.00	45.00
11.000	0.00	0.00	1228.33	1.80	0.00	0.00	60.34	0.00	7.93	45.00	35.00	45.00
11.000	0.00	0.00	1232.13	1.11	0.00	0.00	26.01	0.00	12.21	45.00	35.00	45.00
11.000	0.00	0.00	1232.73	1.12	0.00	0.00	27.55	0.00	12.81	45.00	35.00	45.00
11.010	70.00	1.43	1233.39	.68	.16	.06	17.90	17.29	14.00	45.00	35.00	45.00
11.010	70.00	1.43	1228.94	1.38	.37	.04	45.73	2.40	8.66	45.00	35.00	45.00
11.010	70.00	1.43	1232.31	.54	.13	.06	13.57	11.34	12.87	45.00	35.00	45.00
11.010	70.00	1.43	1232.92	.61	.14	.05	15.83	14.31	13.41	45.00	35.00	45.00
11.040	110.00	5.45	1233.78	.50	.17	.02	13.35	49.33	13.77	45.00	35.00	45.00
11.040	110.00	5.45	1229.38	1.14	.41	.02	31.13	6.83	8.73	45.00	35.00	45.00
11.040	110.00	5.45	1232.46	.38	.13	.02	9.98	33.84	12.57	45.00	35.00	45.00
11.040	110.00	5.45	1233.09	.43	.15	.02	11.54	41.36	13.15	45.00	35.00	45.00
11.080	200.00	2.00	1234.10	.58	.29	.02	16.37	108.93	13.61	45.00	35.00	45.00
11.080	200.00	2.00	1230.19	1.46	.71	.10	41.38	14.78	8.82	45.00	35.00	45.00
11.080	200.00	2.00	1232.74	.53	.24	.04	14.18	75.10	12.31	45.00	35.00	45.00
11.080	200.00	2.00	1233.39	.54	.26	.03	15.14	91.50	12.94	45.00	35.00	45.00
11.140	330.00	5.76	1235.21	1.30	.78	.21	37.32	190.00	12.12	45.00	35.00	45.00
11.140	330.00	5.76	1231.70	1.64	1.46	.05	47.66	26.22	8.27	45.00	35.00	45.00
11.140	330.00	5.76	1233.92	1.05	.65	.16	28.75	129.62	11.07	45.00	35.00	45.00
11.140	330.00	5.76	1234.54	1.15	.71	.18	32.58	158.98	11.58	45.00	35.00	45.00
11.250	650.00	3.08	1238.84	1.94	2.58	.19	42.20	304.77	13.10	45.00	35.00	45.00
11.250	650.00	3.08	1234.24	1.19	2.49	.05	31.50	50.78	9.25	45.00	35.00	45.00
11.250	650.00	3.08	1236.88	1.76	2.20	.21	40.32	202.11	11.31	45.00	35.00	45.00
11.250	650.00	3.08	1237.85	1.79	2.33	.19	39.78	252.39	12.26	45.00	35.00	45.00
11.380	530.00	4.15	1241.72	2.01	2.23	.02	41.95	384.41	13.70	45.00	35.00	45.00
11.380	530.00	4.15	1236.34	1.58	1.98	.12	45.11	71.04	8.76	45.00	35.00	45.00
11.380	530.00	4.15	1239.68	2.02	2.25	.08	44.71	245.42	11.67	45.00	35.00	45.00
11.380	530.00	4.15	1240.71	1.83	2.08	.01	38.79	314.99	12.88	45.00	35.00	45.00
11.460	420.00	2.86	1242.47	.58	.61	.14	7.34	459.01	14.69	45.00	35.00	45.00
11.460	420.00	2.86	1236.81	.13	.32	.14	3.02	102.90	9.47	45.00	35.00	45.00
11.460	420.00	2.86	1240.25	.26	.39	.18	3.95	296.57	12.79	45.00	35.00	45.00
11.460	420.00	2.86	1241.34	.39	.49	.14	5.49	378.08	13.75	45.00	35.00	45.00
11.550	480.00	2.71	1245.39	3.56	.83	2.08	81.77	527.72	13.33	45.00	35.00	45.00
11.550	480.00	2.71	1238.15	1.49	.40	.95	71.36	139.39	8.16	45.00	35.00	45.00
11.550	480.00	2.71	1241.84	1.88	.46	1.13	49.70	351.70	11.47	45.00	35.00	45.00
11.550	480.00	2.71	1243.49	2.57	.63	1.52	63.15	439.13	12.42	45.00	35.00	45.00
11.650	500.00	10.20	1247.32	.63	1.05	.88	9.39	398.47	13.08	45.00	35.00	45.00
11.650	500.00	10.20	1240.01	.34	1.51	.34	16.63	166.90	6.07	45.00	35.00	45.00
11.650	500.00	10.20	1243.33	.47	1.06	.42	11.69	399.28	9.25	45.00	35.00	45.00
11.650	500.00	10.20	1245.16	.56	1.07	.60	10.58	496.39	11.00	45.00	35.00	45.00
11.810	870.00	2.76	1248.88	1.49	1.31	.26	27.94	741.01	11.39	45.00	35.00	45.00
11.810	870.00	2.76	1242.52	.81	2.38	.14	52.96	220.19	5.71	45.00	35.00	45.00
11.810	870.00	2.76	1245.25	1.18	1.71	.21	39.64	489.31	8.07	45.00	35.00	45.00

11.810	870.00	2.76	1246.90	1.33	1.51	.23	33.31	608.28	9.57	45.00	35.00	45.00

SECNO	XLCH	K*CHSL	EG	HV	HL	OLOSS	10K*S	VOL	DEPTH	K*XNL	K*XNCH	K*XNR
11.930	650.00	7.08	1253.13	2.14	2.39	.19	50.65	824.10	10.39	45.00	35.00	45.00
11.930	650.00	7.08	1247.79	1.99	4.63	.35	101.08	245.84	5.21	45.00	35.00	45.00
11.930	650.00	7.08	1250.78	2.19	3.25	.30	65.16	536.40	7.98	45.00	35.00	45.00
11.930	650.00	7.08	1251.98	2.04	2.68	.21	52.23	672.35	9.34	45.00	35.00	45.00
12.100	900.00	3.78	1256.55	1.36	3.34	.08	28.38	944.91	11.19	45.00	35.00	45.00
12.100	900.00	3.78	1251.48	.46	3.54	.15	20.73	288.90	7.02	45.00	35.00	45.00
12.100	900.00	3.78	1254.06	.78	3.14	.14	21.72	611.48	9.28	45.00	35.00	45.00
12.100	900.00	3.78	1255.23	1.04	3.15	.10	25.05	769.10	10.19	45.00	35.00	45.00

SUMMARY OF ERRORS

```
AUTION  SECNO=  11.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
AUTION  SECNO=  11.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
AUTION  SECNO=  11.000  PROFILE= 4  CRITICAL DEPTH ASSUMED

AUTION  SECNO=  11.140  PROFILE= 1  CRITICAL DEPTH ASSUMED
AUTION  SECNO=  11.140  PROFILE= 1  MINIMUM SPECIFIC ENERGY
AUTION  SECNO=  11.140  PROFILE= 3  CRITICAL DEPTH ASSUMED
AUTION  SECNO=  11.140  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
AUTION  SECNO=  11.140  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
AUTION  SECNO=  11.140  PROFILE= 4  CRITICAL DEPTH ASSUMED
AUTION  SECNO=  11.140  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
AUTION  SECNO=  11.140  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

AUTION  SECNO=  11.250  PROFILE= 1  CRITICAL DEPTH ASSUMED
AUTION  SECNO=  11.250  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
AUTION  SECNO=  11.250  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
AUTION  SECNO=  11.250  PROFILE= 3  CRITICAL DEPTH ASSUMED
AUTION  SECNO=  11.250  PROFILE= 3  MINIMUM SPECIFIC ENERGY
AUTION  SECNO=  11.250  PROFILE= 4  CRITICAL DEPTH ASSUMED
AUTION  SECNO=  11.250  PROFILE= 4  MINIMUM SPECIFIC ENERGY

AUTION  SECNO=  11.380  PROFILE= 1  CRITICAL DEPTH ASSUMED
AUTION  SECNO=  11.380  PROFILE= 1  MINIMUM SPECIFIC ENERGY
AUTION  SECNO=  11.380  PROFILE= 3  CRITICAL DEPTH ASSUMED
AUTION  SECNO=  11.380  PROFILE= 3  MINIMUM SPECIFIC ENERGY
AUTION  SECNO=  11.380  PROFILE= 4  CRITICAL DEPTH ASSUMED
AUTION  SECNO=  11.380  PROFILE= 4  MINIMUM SPECIFIC ENERGY

AUTION  SECNO=  11.930  PROFILE= 1  CRITICAL DEPTH ASSUMED
AUTION  SECNO=  11.930  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
AUTION  SECNO=  11.930  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
AUTION  SECNO=  11.930  PROFILE= 2  CRITICAL DEPTH ASSUMED
AUTION  SECNO=  11.930  PROFILE= 2  MINIMUM SPECIFIC ENERGY
AUTION  SECNO=  11.930  PROFILE= 3  CRITICAL DEPTH ASSUMED
AUTION  SECNO=  11.930  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
AUTION  SECNO=  11.930  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
AUTION  SECNO=  11.930  PROFILE= 4  CRITICAL DEPTH ASSUMED
AUTION  SECNO=  11.930  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
AUTION  SECNO=  11.930  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
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*************************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*************************************************
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FULL FLOW RUN - USED FOR WEIR CALCULATIONS (RATING CURVE)

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T1      ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOOPS CORPORATION
T2      100 YEAR FREQUENCY  MODIFIED CHANNEL
T3      NEW RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       -1.       3.        0.        0.   .006000      0.00       0.0        0.  1234.000     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.000    43.000     1.000     2.000    26.000    39.000    21.000    22.000    27.000    28.000

    53.000    54.000     0.000    38.000    13.000    14.000    15.000    55.000    26.000    56.000

    63.000     1.000    51.000     4.000    42.000    57.000     0.000    38.000    39.000    33.000

     3.000    10.000    11.000    12.000     5.000     7.000     8.000    16.000    17.000    18.000

J5  LPRNT     NUMSEC                    ********REQUESTED SECTION NUMBERS********

   -10.000   -10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
IC     .045      .045      .035      .100      .300     0.000     0.000     0.000     0.000     0.000
NT    6.000 15000.000 53000.000 40000.000 30000.000 53000.000 90000.000     0.000     0.000     0.000
ET    0.000     9.100     9.100     9.100     9.100     9.100     9.100     0.000 18800.000 20300.000

        STATIONING FROM LEFT TO RIGHT, LOOKING DOWNSTREAM, FLOWLINE AT 20000.

        STARTING WATERSURFACE ELEVATION USING SLOPE AREA METHOD

        SECTIONS BEGINING 200 FT DOWNSTREAM OF UNION HILLS DR

X1     11.000    10.000 19888.000 20170.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   1230.000 16000.000  1230.000 19800.000  1230.000 19840.000  1228.000 19888.000  1220.000 19910.000
GR   1218.800 20000.000  1220.000 20080.000  1226.000 20100.000  1228.000 20170.000  1230.000 20300.000
NT      0.000     9.100     9.100     9.100     9.100     9.100     9.100     0.000 18840.000 20300.000

X1     11.010    10.000 19888.000 20170.000    70.000    70.000    70.000     0.000     0.000     0.000
GR   1230.000 16000.000  1230.000 19800.000  1230.000 19840.000  1228.000 19888.000  1220.000 19910.000
GR   1218.900 20000.000  1220.000 20080.000  1226.000 20100.000  1228.000 20170.000  1230.000 20300.000
IC      .043      .045      .033      .100      .300     0.000     0.000     0.000     0.000     0.000
NT      0.000     9.100     9.100     9.100     9.100     9.100     9.100     0.000 18950.000 20315.000
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1	11.040	19.000	19885.000	20150.000	110.000	110.000	110.000	0.000	0.000	0.000	
R	1234.000	15140.000	1232.000	16250.000	1230.000	16440.000	1230.000	19740.000	1228.000	19760.000	
R	1227.000	19810.000	1228.000	19860.000	1230.000	19875.000	1230.500	19885.000	1230.000	19890.000	
R	1222.000	19915.000	1220.000	19938.000	1219.500	20000.000	1220.000	20025.000	1222.000	20110.000	
R	1226.000	20130.000	1228.000	20275.000	1230.000	20310.000	1230.000	20315.000	0.000	0.000	
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19150.000	20430.000	
1	11.080	7.000	19910.000	20190.000	200.000	200.000	200.000	0.000	0.000	0.000	
R	1230.000	19000.000	1230.000	19910.000	1220.200	19930.000	1220.200	20160.000	1229.000	20190.000	
R	1230.000	20380.000	1231.300	20430.000	0.000	0.000	0.000	0.000	0.000	0.000	
C	.040	.045	.035	.100	.300	0.000	0.000	0.000	0.000	0.000	
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19420.000	20490.000	
1	11.140	7.000	19885.000	20210.000	330.000	330.000	330.000	0.000	0.000	0.000	
R	1230.000	19000.000	1230.000	19885.000	1221.300	19910.000	1221.300	20180.000	1232.000	20210.000	
R	1232.000	20420.000	1233.000	20490.000	0.000	0.000	0.000	0.000	0.000	0.000	
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19500.000	20500.000	
1	11.250	7.000	19800.000	20100.000	650.000	650.000	650.000	0.000	0.000	0.000	
R	1233.500	19500.000	1232.000	19800.000	1223.600	19825.000	1223.600	20070.000	1235.000	20100.000	
R	1236.000	20400.000	1236.000	20500.000	0.000	0.000	0.000	0.000	0.000	0.000	
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19600.000	20680.000	
1	11.380	7.000	19910.000	20220.000	520.000	520.000	520.000	0.000	0.000	0.000	
R	1235.000	19000.000	1235.000	19910.000	1225.400	19935.000	1225.400	20185.000	1238.000	20220.000	
R	1238.000	20420.000	1239.300	20680.000	0.000	0.000	0.000	0.000	0.000	0.000	
C	.045	.045	.035	.100	.300	0.000	0.000	0.000	0.000	0.000	
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19520.000	20730.000	
1	11.460	12.000	19520.000	20220.000	420.000	420.000	420.000	0.000	0.000	0.000	
R	1244.000	15490.000	1242.000	16470.000	1240.000	17050.000	1240.000	19290.000	1238.000	19520.000	
R	1235.000	19600.000	1235.000	19910.000	1226.800	19935.000	1226.800	20185.000	1238.000	20220.000	
R	1240.500	20500.000	1241.800	20730.000	0.000	0.000	0.000	0.000	0.000	0.000	
C	.045	.045	.035	.500	.700	0.000	0.000	0.000	0.000	0.000	
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19470.000	20690.000	
1	11.550	24.000	19700.000	20150.000	480.000	480.000	480.000	0.000	0.000	0.000	
R	1246.000	15400.000	1246.000	17200.000	1244.000	18080.000	1242.000	18120.000	1242.000	18370.000	
R	1243.000	18680.000	1243.000	19140.000	1242.000	19220.000	1242.000	19700.000	1240.000	19740.000	
R	1234.000	19750.000	1234.400	19780.000	1234.000	19810.000	1232.000	19875.000	1230.000	19902.000	
R	1229.600	19915.000	1230.000	19930.000	1230.300	19955.000	1230.000	19980.000	1228.500	20000.000	
R	1230.000	20020.000	1232.000	20027.000	1242.000	20150.000	1245.300	20690.000	0.000	0.000	
C	.045	.045	.035	.300	.500	0.000	0.000	0.000	0.000	0.000	
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19350.000	20800.000	
1	11.650	18.000	19500.000	20050.000	500.000	500.000	500.000	0.000	0.000	0.000	
R	1242.000	18800.000	1242.000	19000.000	1242.000	19235.000	1242.000	19240.000	1236.000	19350.000	
R	1234.500	19500.000	1234.500	19650.000	1235.000	19800.000	1236.000	19875.000	1236.000	19965.000	
R	1234.000	19985.000	1233.600	20000.000	1234.000	20040.000	1240.000	20050.000	1240.000	20070.000	
R	1244.000	20085.000	1246.000	20320.000	1248.000	20800.000	0.000	0.000	0.000	0.000	
C	.045	.045	.035	.100	.300	0.000	0.000	0.000	0.000	0.000	
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19040.000	20800.000	
1	11.810	15.000	19450.000	20035.000	870.000	870.000	870.000	0.000	0.000	0.000	
R	1248.000	19040.000	1248.000	19100.000	1248.000	19300.000	1248.000	19350.000	1248.000	19440.000	
R	1238.000	19450.000	1239.000	19600.000	1238.000	19800.000	1238.000	19930.000	1236.000	19985.000	

R	1236.000	20015.000	1246.000	20035.000	1246.000	20050.000	1250.000	20070.000	1248.000	20800.000
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19450.000	21200.000
1	11.930	19.000	19715.000	20027.000	650.000	650.000	650.000	0.000	0.000	0.000
R	1248.000	19450.000	1248.000	19715.000	1242.000	19730.000	1241.000	19770.000	1241.000	19870.000
R	1242.000	19900.000	1242.000	19925.000	1240.600	20000.000	1242.000	20015.000	1248.000	20027.000
R	1248.000	20035.000	1246.000	20040.000	1245.000	20130.000	1246.000	20180.000	1248.000	20220.000
R	1249.000	20370.000	1250.000	20720.000	1252.000	21180.000	1254.000	21200.000	0.000	0.000
T	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	19540.000	20430.000
1	12.100	12.000	19710.000	20295.000	900.000	900.000	900.000	0.000	0.000	0.000
R	1254.000	19515.000	1250.000	19655.000	1250.000	19710.000	1246.000	19720.000	1246.000	19965.000
R	1244.000	20000.000	1246.000	20075.000	1246.000	20140.000	1248.000	20195.000	1248.000	20275.000
R	1254.000	20295.000	1254.000	20430.000	0.000	0.000	0.000	0.000	0.000	0.000
J	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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*****************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*****************************************

 1      ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOOPS CORPORATION
 2      [redacted] MODIFIED CHANNEL
 3      NEW RIVER

 1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.      2.        0.        0.   .006000      0.00      0.0       0.   1226.000    0.000

 2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     2.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*********************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*********************************************

1      ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOOPS CORPORATION
2      [redacted] MODIFIED CHANNEL
3      NEW RIVER

1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     -10.      5.        0.        0.   .006000      0.00      0.0       0.  1232.000    0.000

2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDL     IBW       CHNIM     ITRACE
     3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*****************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*****************************************

  1      ARROWHEAD RANCH, CITY OF GLENDALE, ARIZONA          PRC TOOPS CORPORATION
  2      [redacted]    MODIFIED CHANNEL
  3      NEW RIVER  MODIFIED CONDITION

  1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       -10.      4.        0.        0.   .006000      0.00      0.0       0.  1231.000     0.000
  2  UPROF     IPLOT     PREVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     15.000    0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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*********************************************
HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
ERROR CORR -  01,02
MODIFICATION -  50,51,52,53
*********************************************
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OTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

EW RIVER

SUMMARY PRINTOUT

SECNO	Q	CWSEL	CRIWS	VCH	XLCH	STCHL	STCHR	STENCL	STENCR	SSTA	ENDST
11.000	53000.00	1232.69	1232.69	12.74	0.00	19888.00	20170.00	18800.00	20300.00	18800.00	20300.00
11.000	15000.00	1226.73	0.00	10.76	0.00	19888.00	20170.00	18800.00	20300.00	19891.48	20125.72
11.000	30000.00	1229.95	1229.20	13.03	0.00	19888.00	20170.00	18800.00	20300.00	19841.16	20296.86
11.000	40000.00	1231.64	1231.64	12.09	0.00	19888.00	20170.00	18800.00	20300.00	18800.00	20300.00
11.010	53000.00	1233.58	0.00	10.85	70.00	19888.00	20170.00	18840.00	20300.00	18840.00	20300.00
11.010	15000.00	1227.56	0.00	9.42	70.00	19888.00	20170.00	18840.00	20300.00	19889.20	20154.70
11.010	30000.00	1232.06	1230.72	8.34	70.00	19888.00	20170.00	18840.00	20300.00	18840.00	20300.00
11.010	40000.00	1232.75	0.00	9.58	70.00	19888.00	20170.00	18840.00	20300.00	18840.00	20300.00
11.040	53000.00	1234.12	0.00	9.97	110.00	19885.00	20130.00	18950.00	20315.00	18950.00	20315.00
11.040	15000.00	1228.18	0.00	8.81	110.00	19885.00	20130.00	18950.00	20315.00	19758.17	20278.20
11.040	30000.00	1232.45	0.00	7.64	110.00	19885.00	20130.00	18950.00	20315.00	18950.00	20315.00
11.040	40000.00	1233.23	0.00	8.79	110.00	19885.00	20130.00	18950.00	20315.00	18950.00	20315.00
11.080	53000.00	1234.37	0.00	9.89	200.00	19910.00	20190.00	19150.00	20430.00	19150.00	20430.00
11.080	15000.00	1229.10	0.00	6.63	200.00	19910.00	20190.00	19150.00	20430.00	19911.84	20209.14
11.080	30000.00	1232.65	0.00	7.43	200.00	19910.00	20190.00	19150.00	20430.00	19150.00	20430.00
11.080	40000.00	1233.45	0.00	8.63	200.00	19910.00	20190.00	19150.00	20430.00	19150.00	20430.00
11.140	53000.00	1234.80	0.00	10.04	330.00	19885.00	20210.00	19420.00	20490.00	19420.00	20490.00
11.140	15000.00	1229.63	0.00	6.13	330.00	19885.00	20210.00	19420.00	20490.00	19886.05	20205.36
11.140	30000.00	1232.97	0.00	7.43	330.00	19885.00	20210.00	19420.00	20490.00	19420.00	20487.88
11.140	40000.00	1233.83	0.00	8.69	330.00	19885.00	20210.00	19420.00	20490.00	19420.00	20490.00
11.250	53000.00	1235.06	1235.06	15.73	650.00	19800.00	20100.00	19500.00	20500.00	19500.00	20116.90
11.250	15000.00	1230.47	0.00	8.26	650.00	19800.00	20100.00	19500.00	20500.00	19804.55	20088.08
11.250	30000.00	1233.34	0.00	11.21	650.00	19800.00	20100.00	19500.00	20500.00	19531.72	20095.64
11.250	40000.00	1234.12	1232.86	13.44	650.00	19800.00	20100.00	19500.00	20500.00	19500.00	20097.70
11.380	53000.00	1238.52	0.00	12.82	520.00	19910.00	20220.00	19600.00	20680.00	19600.00	20523.92
11.380	15000.00	1231.99	0.00	8.50	520.00	19910.00	20220.00	19600.00	20680.00	19917.84	20205.31
11.380	30000.00	1235.10	0.00	11.19	520.00	19910.00	20220.00	19600.00	20680.00	19600.00	20211.95
11.380	40000.00	1236.64	0.00	12.23	520.00	19910.00	20220.00	19600.00	20680.00	19600.00	20216.22
11.460	53000.00	1240.97	0.00	8.23	420.00	19520.00	20220.00	19520.00	20730.00	19520.00	20584.90
11.460	15000.00	1233.42	0.00	8.39	420.00	19520.00	20220.00	19520.00	20730.00	19914.84	20205.66
11.460	30000.00	1237.62	0.00	7.57	420.00	19520.00	20220.00	19520.00	20730.00	19530.05	20218.82
11.460	40000.00	1239.25	0.00	7.82	420.00	19520.00	20220.00	19520.00	20730.00	19520.00	20360.16

SECNO	Q	CWSEL	CRIWS	VCH	XLCH	STCHL	STCHR	STENCL	STENCR	SSTA	ENDST
11.550	53000.00	1241.96	0.00	14.89	480.00	19700.00	20150.00	19470.00	20690.00	19700.72	20149.56
11.550	15000.00	1236.03	1236.03	11.37	480.00	19700.00	20150.00	19470.00	20690.00	19746.62	20076.52
11.550	30000.00	1239.31	0.00	12.11	480.00	19700.00	20150.00	19470.00	20690.00	19741.15	20116.90
11.550	40000.00	1240.55	0.00	13.53	480.00	19700.00	20150.00	19470.00	20690.00	19729.08	20132.11
11.650	53000.00	1246.65	0.00	6.73	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20476.81
11.650	15000.00	1239.82	0.00	4.70	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20049.71
11.650	30000.00	1242.82	0.00	5.78	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20080.57
11.650	40000.00	1244.62	0.00	6.24	500.00	19500.00	20050.00	19350.00	20800.00	19350.00	20157.95
11.810	53000.00	1247.37	0.00	9.84	870.00	19450.00	20035.00	19040.00	20800.00	19440.63	20056.86
11.810	15000.00	1241.70	0.00	7.27	870.00	19450.00	20035.00	19040.00	20800.00	19446.30	20026.40
11.810	30000.00	1244.05	0.00	8.74	870.00	19450.00	20035.00	19040.00	20800.00	19443.95	20031.11
11.810	40000.00	1245.58	0.00	9.25	870.00	19450.00	20035.00	19040.00	20800.00	19442.42	20034.16
11.930	53000.00	1250.99	1250.99	13.35	650.00	19715.00	20027.00	19450.00	21200.00	19450.00	20947.37
11.930	15000.00	1245.80	1245.80	11.35	650.00	19715.00	20027.00	19450.00	21200.00	19720.49	20170.21
11.930	30000.00	1248.59	1248.59	12.42	650.00	19715.00	20027.00	19450.00	21200.00	19450.00	20308.10
11.930	40000.00	1249.94	1249.94	12.52	650.00	19715.00	20027.00	19450.00	21200.00	19450.00	20699.78
12.100	53000.00	1255.19	0.00	9.62	900.00	19710.00	20295.00	19540.00	20430.00	19540.00	20430.00
12.100	15000.00	1251.02	0.00	5.45	900.00	19710.00	20295.00	19540.00	20430.00	19618.97	20285.10
12.100	30000.00	1253.28	0.00	7.18	900.00	19710.00	20295.00	19540.00	20430.00	19540.07	20292.61
12.100	40000.00	1254.19	0.00	8.34	900.00	19710.00	20295.00	19540.00	20430.00	19540.00	20430.00

EW RIVER

JMMARY PRINTOUT

SECND	QLOB	QCH	QROB	VLOB	VCH	VROB	TELMX	CWSEL	DIFWSX	TOPWID	ELMIN	ALPHA
11.000	11912.34	38778.42	2309.24	4.00	12.74	4.81	1230.00	1232.69	0.00	1500.00	1218.80	1.86
11.000	0.00	15000.00	0.00	0.00	10.76	0.00	1230.00	1226.73	0.00	234.24	1218.80	1.00
11.000	113.98	29577.18	308.84	2.49	13.03	2.49	1230.00	1229.95	0.00	455.70	1218.80	1.11
11.000	5425.93	33224.35	1349.72	2.96	12.09	3.93	1230.00	1231.64	0.00	1500.00	1218.80	1.87
11.010	14743.10	35602.56	2654.34	3.89	10.85	4.47	1230.00	1233.58	.88	1460.00	1218.90	1.76
11.010	0.00	15000.00	0.00	0.00	9.42	0.00	1230.00	1227.56	.83	265.49	1218.90	1.00
11.010	5042.33	23806.10	1151.57	2.29	8.34	2.90	1230.00	1232.06	2.10	1460.00	1218.90	1.86
11.010	8955.03	29262.29	1782.68	3.05	9.58	3.65	1230.00	1232.75	1.11	1460.00	1218.90	1.83
11.040	16094.44	30926.58	5978.98	3.89	9.97	4.85	1230.00	1234.12	.55	1365.00	1219.50	1.67
11.040	97.84	14563.67	338.49	1.43	8.81	1.97	1230.00	1228.18	.62	485.72	1219.50	1.20
11.040	6313.98	20541.30	3144.72	2.45	7.64	3.40	1230.00	1232.45	.40	1365.00	1219.50	1.80
11.040	10322.53	25306.40	4371.07	3.13	8.79	4.09	1230.00	1233.23	.48	1365.00	1219.50	1.75
11.080	12042.68	36963.66	3993.66	3.62	9.89	3.61	1231.50	1234.37	.25	1280.00	1220.20	1.71
11.080	0.00	14999.84	.16	0.00	6.63	.17	1231.50	1229.10	.92	297.31	1220.20	1.00
11.080	4300.82	24172.03	1527.15	2.14	7.43	2.20	1231.50	1232.65	.19	1280.00	1220.20	1.79
11.080	7437.30	30026.36	2536.34	2.83	8.63	2.86	1231.50	1233.45	.22	1280.00	1220.20	1.77
11.140	9676.69	41355.21	1968.11	4.34	10.04	2.63	1233.00	1234.80	.42	1070.00	1221.30	1.48
11.140	0.00	15000.00	0.00	0.00	6.13	0.00	1233.00	1229.63	.53	317.31	1221.30	1.00
11.140	3578.70	26175.16	246.13	2.59	7.43	1.04	1233.00	1232.97	.32	1067.88	1221.30	1.44
11.140	6076.61	33067.68	855.71	3.41	8.69	1.79	1233.00	1233.83	.38	1070.00	1221.30	1.48
11.250	3275.05	49724.85	.11	4.73	15.73	.22	1236.00	1235.06	.26	616.90	1223.60	1.23
11.250	0.00	15000.00	0.00	0.00	8.26	0.00	1236.00	1230.47	.83	283.53	1223.60	1.00
11.250	297.50	29702.50	0.00	1.65	11.21	0.00	1236.00	1233.34	.37	563.91	1223.60	1.11
11.250	1253.45	38746.55	0.00	3.04	13.44	0.00	1236.00	1234.12	.29	597.70	1223.60	1.19
11.380	5092.07	47766.75	141.18	4.67	12.82	1.08	1239.30	1238.52	3.46	923.92	1225.40	1.31
11.380	0.00	15000.00	0.00	0.00	8.50	0.00	1239.30	1231.99	1.52	285.47	1225.40	1.00
11.380	15.02	29984.97	0.00	.47	11.19	0.00	1239.30	1235.10	1.76	611.95	1225.40	1.02
11.380	1515.60	38484.40	0.00	2.98	12.23	0.00	1239.30	1236.64	2.51	616.22	1225.40	1.20
11.460	0.00	51950.22	1049.78	0.00	8.23	2.08	1241.80	1240.97	2.45	1064.90	1226.80	1.10
11.460	0.00	15000.00	0.00	0.00	8.39	0.00	1241.80	1233.42	1.43	290.82	1226.80	1.00
11.460	0.00	30000.00	0.00	0.00	7.57	0.00	1241.80	1237.62	2.53	688.78	1226.80	1.00
11.460	0.00	39895.69	104.31	0.00	7.82	1.19	1241.80	1239.25	2.61	840.16	1226.80	1.03
11.550	0.00	53000.00	0.00	0.00	14.89	0.00	1243.30	1241.96	.99	448.83	1228.50	1.00
11.550	0.00	15000.00	0.00	0.00	11.37	0.00	1243.30	1236.03	2.60	329.89	1228.50	1.00
11.550	0.00	30000.00	0.00	0.00	12.11	0.00	1243.30	1239.31	1.69	375.75	1228.50	1.00
11.550	0.00	40000.00	0.00	0.00	13.53	0.00	1243.30	1240.55	1.29	403.03	1228.50	1.00
11.650	8418.89	43331.83	1249.28	4.92	6.73	1.94	1248.00	1246.65	4.69	1126.81	1233.60	1.13
11.650	2368.92	12631.08	0.00	3.45	4.70	0.00	1248.00	1239.82	3.80	699.71	1233.60	1.04
11.650	4832.54	25018.70	148.76	4.26	5.78	2.09	1248.00	1242.82	3.51	730.57	1233.60	1.05
11.650	6443.00	33193.27	363.73	4.58	6.24	2.36	1248.00	1244.62	4.08	807.95	1233.60	1.06
11.810	171.05	52778.09	50.86	3.89	9.84	2.01	1248.00	1247.37	.72	616.23	1236.00	1.01
11.810	19.78	14980.22	0.00	2.89	7.27	0.00	1248.00	1241.70	1.87	580.09	1236.00	1.00
11.810	63.55	29936.45	0.00	3.47	8.74	0.00	1248.00	1244.05	1.24	587.16	1236.00	1.00

11.810	105.38	39894.62	0.00	3.67	9.25	0.00	1248.00	1245.58	.96	591.74	1236.00	1.01

SECNO	QLOB	QCH	QROB	VLOB	VCH	VROB	TELMX	CWSEL	DIFWSX	TOPWID	ELMIN	ALPHA
11.930	3833.68	39002.37	10163.95	4.84	13.35	5.14	1254.00	1250.99	3.62	1497.37	1240.60	1.59
11.930	0.00	14918.04	81.96	0.00	11.35	1.81	1254.00	1245.80	4.11	414.71	1240.60	1.05
11.930	290.32	26972.20	2737.49	1.87	12.42	5.12	1254.00	1248.59	4.53	858.10	1240.60	1.28
11.930	1902.74	32500.80	5596.46	3.70	12.52	4.90	1254.00	1249.94	4.36	1249.78	1240.60	1.48
12.100	3149.97	49536.49	313.54	4.55	9.62	1.96	1254.00	1255.19	4.20	890.00	1244.00	1.13
12.100	104.64	14895.36	0.00	1.39	5.45	0.00	1254.00	1251.02	5.22	666.12	1244.00	1.03
12.100	1018.24	28981.76	0.00	2.76	7.18	0.00	1254.00	1253.28	4.70	752.54	1244.00	1.08
12.100	1887.27	38098.82	13.91	3.61	8.34	.54	1254.00	1254.19	4.25	890.00	1244.00	1.09

EW RIVER

UMMARY PRINTOUT

SECNO	XLCH	K*CMSL	EG	HV	HL	OLOSS	10K*S	VOL	DEPTH	K*XNL	K*XNCH	K*XNR
11.000	0.00	0.00	1234.61	1.92	0.00	0.00	38.16	0.00	13.89	45.00	35.00	45.00
11.000	0.00	0.00	1228.53	1.80	0.00	0.00	60.34	0.00	7.93	45.00	35.00	45.00
11.000	0.00	0.00	1232.55	2.60	0.00	0.00	58.99	0.00	11.15	45.00	35.00	45.00
11.000	0.00	0.00	1233.56	1.91	0.00	0.00	39.43	0.00	12.84	45.00	35.00	45.00
11.010	70.00	1.43	1234.88	1.31	.21	.06	25.01	11.39	14.68	45.00	35.00	45.00
11.010	70.00	1.43	1228.94	1.38	.37	.04	45.73	2.40	8.66	45.00	35.00	45.00
11.010	70.00	1.43	1232.93	.88	.21	.17	17.82	6.34	13.16	45.00	35.00	45.00
11.010	70.00	1.43	1233.84	1.09	.20	.08	21.51	9.16	13.85	45.00	35.00	45.00
11.040	110.00	5.45	1235.14	1.01	.22	.03	16.96	31.76	14.62	43.00	33.00	45.00
11.040	110.00	5.45	1229.35	1.17	.39	.02	28.54	6.80	8.68	43.00	33.00	45.00
11.040	110.00	5.45	1233.11	.66	.16	.02	12.06	21.03	12.95	43.00	33.00	45.00
11.040	110.00	5.45	1234.06	.83	.19	.03	14.54	26.49	13.73	43.00	33.00	45.00
11.080	200.00	3.50	1235.49	1.12	.32	.03	15.47	69.96	14.17	43.00	33.00	45.00
11.080	200.00	3.50	1229.78	.68	.38	.05	13.45	16.34	8.90	43.00	33.00	45.00
11.080	200.00	3.50	1233.35	.70	.22	.01	10.50	48.90	12.45	43.00	33.00	45.00
11.080	200.00	3.50	1234.35	.90	.27	.02	12.95	59.18	13.25	43.00	33.00	45.00
11.140	330.00	3.33	1236.08	1.28	.54	.05	17.07	127.80	13.50	40.00	33.00	45.00
11.140	330.00	3.33	1230.22	.58	.42	.01	12.31	34.19	8.33	40.00	33.00	45.00
11.140	330.00	3.33	1233.73	.76	.36	.02	11.50	90.95	11.67	40.00	33.00	45.00
11.140	330.00	3.33	1234.83	1.00	.45	.03	14.22	108.63	12.53	40.00	33.00	45.00
11.250	650.00	3.54	1238.68	3.63	1.81	.70	53.64	209.51	11.46	40.00	33.00	45.00
11.250	650.00	3.54	1231.53	1.06	1.17	.14	28.63	65.99	6.87	40.00	33.00	45.00
11.250	650.00	3.54	1235.27	1.93	1.19	.35	33.74	150.42	9.74	40.00	33.00	45.00
11.250	650.00	3.54	1236.85	2.72	1.50	.52	43.80	178.44	10.52	40.00	33.00	45.00
11.380	520.00	3.46	1240.85	2.33	2.04	.13	29.92	262.04	13.12	40.00	33.00	45.00
11.380	520.00	3.46	1233.11	1.12	1.57	.02	31.75	87.36	6.59	40.00	33.00	45.00
11.380	520.00	3.46	1237.04	1.94	1.77	.00	34.15	183.49	9.70	40.00	33.00	45.00
11.380	520.00	3.46	1238.88	2.24	1.99	.05	33.57	219.93	11.24	40.00	33.00	45.00
11.460	420.00	3.33	1242.01	1.03	1.03	.13	20.28	318.75	14.17	45.00	35.00	45.00
11.460	420.00	3.33	1234.51	1.09	1.40	.00	34.99	104.49	6.62	45.00	35.00	45.00
11.460	420.00	3.33	1238.51	.89	1.37	.11	31.04	215.66	10.82	45.00	35.00	45.00
11.460	420.00	3.33	1240.20	.95	1.19	.13	24.25	262.55	12.45	45.00	35.00	45.00
11.550	480.00	3.54	1245.40	3.44	1.71	1.69	78.34	375.91	13.46	45.00	35.00	45.00
11.550	480.00	3.54	1238.03	2.01	2.78	.64	113.52	121.61	7.53	45.00	35.00	45.00
11.550	480.00	3.54	1241.59	2.28	2.10	.97	66.29	251.14	10.81	45.00	35.00	45.00
11.550	480.00	3.54	1243.39	2.84	1.86	1.33	71.88	307.42	12.05	45.00	35.00	45.00
11.650	500.00	10.20	1247.29	.64	1.04	.84	9.48	446.81	13.05	45.00	35.00	45.00
11.650	500.00	10.20	1240.14	.32	1.60	.51	14.88	148.53	6.22	45.00	35.00	45.00
11.650	500.00	10.20	1243.30	.48	1.17	.54	11.86	297.15	9.22	45.00	35.00	45.00
11.650	500.00	10.20	1245.18	.55	1.10	.69	10.51	363.88	11.02	45.00	35.00	45.00
11.810	870.00	2.76	1248.87	1.50	1.32	.26	28.16	588.86	11.37	45.00	35.00	45.00
11.810	870.00	2.76	1242.52	.82	2.22	.15	53.70	202.85	5.70	45.00	35.00	45.00
11.810	870.00	2.76	1245.24	1.18	1.73	.21	39.95	386.84	8.05	45.00	35.00	45.00

11.810	870.00	2.76	1246.90	1.32	1.50	.23	33.15	475.98	9.58	45.00	35.00	45.00

SECNO	XLCH	K*CHSL	EG	HV	HL	OLOSS	10K*S	VOL	DEPTH	K*XNL	K*XNCH	K*XNR
11.930	650.00	7.08	1253.13	2.14	2.40	.19	50.67	671.86	10.39	45.00	35.00	45.00
11.930	650.00	7.08	1247.79	1.99	4.68	.35	101.29	228.43	5.20	45.00	35.00	45.00
11.930	650.00	7.08	1250.78	2.19	3.26	.30	65.06	433.89	7.99	45.00	35.00	45.00
11.930	650.00	7.08	1251.98	2.04	2.67	.21	52.22	540.10	9.34	45.00	35.00	45.00
12.100	900.00	3.78	1256.55	1.36	3.34	.08	28.37	792.65	11.19	45.00	35.00	45.00
12.100	900.00	3.78	1251.48	.46	3.54	.15	20.72	271.48	7.02	45.00	35.00	45.00
12.100	900.00	3.78	1254.06	.78	3.14	.14	21.73	508.98	9.28	45.00	35.00	45.00
12.100	900.00	3.78	1255.23	1.04	3.15	.10	25.05	636.86	10.19	45.00	35.00	45.00

SUMMARY OF ERRORS

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CAUTION  SECNO=  11.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  11.000  PROFILE= 4  CRITICAL DEPTH ASSUMED

CAUTION  SECNO=  11.250  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  11.250  PROFILE= 1  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=  11.550  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  11.550  PROFILE= 2  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=  11.930  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  11.930  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  11.930  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  11.930  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  11.930  PROFILE= 2  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  11.930  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  11.930  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  11.930  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  11.930  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  11.930  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  11.930  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
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