W-2

Phase II Analysis for the proposed Wingfield Park Amphitheater

prepared for

Casazza, Peetz and Hancock
1745 South Wells Avenue
Reno, Nevada 89502

February 1991

REGISTERED PROFESSIONAL ENGINEER
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CIVIL
No. 5252 NEVADA

2-7-91

Prepared by :

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Ray B
This study verifys approval of the Amphitheater project is in compliance with our Flood Hazard ordinance & National FEMA requirements. Please file for future reference.

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Original Model

Improved Model

1.0 INTRODUCTION AND PURPOSE

This report has been prepared at the request of Casazza, Peetz and Hancock Architects and Planners for the City of Reno, Downtown Redevelopment Agency. The agency is proposing to construct an Amphitheater on the Wingfield Park Island within the Truckee River (See Figure 1). The Park itself is bisected by Arlington Avenue (See Figure 2). The elevation of the Park in its present condition is beneath the 100-year regulatory water surface elevation but above the ordinary high water line. A Flood Insurance Study (FIS) was performed for this area by Tudor Engineers under contract to the Federal Emergency Management Agency (FEMA) (See Reference 1). The FIS developed water surface elevations for the Truckee River within the project area, but no floodway was delineated, due to the fact that the river channel contains the majority of the 100-year flows and is confined by floodwalls. (The remainder of the floodplain, the fringe area is developed.)

The Corps of Engineers constructed channel improvements in 1963 in order to steepen the gradient and widen and straighten the channel. Upon completion of the project, the Truckee Carson Conservancy District agreed to maintain the channel capacity of 14,000 cfs. Improvements or additions within the channelized reach must conform to this agreement and must also be approved by the Truckee Carson Conservancy District and US Army Corps of Engineers Sacramento District.

An earlier, preliminary study (See Reference 2) was conducted by Nimbus which utilized the computer modeling developed for the FIS. The purpose of that study was to determine the degree of impact the proposed project would have on the 14,000 cfs channel capacity and the 100 year or Base Flood Elevations (BFE's). The results of that study demonstrated that the project could be constructed with minimal impacts. This more detailed study, is built on the results of the previous work; however, it incorporates more recent topographic and survey information.

The analyses discussed herein were performed because the proposed Amphitheater is on an island within the Truckee River channel and any proposed construction within the channel must clearly demonstrate that it has a negligible impact on the conveyance of the River. The following analyses will demonstrate that construction of the Amphitheater will not significantly impact the Base Flood Elevation or the 14000 cfs channel capacity.

2.0 METHOD OF ANALYSIS

In order to ascertain the effects of the structures on the channel, a hydraulic computer model was prepared. The model was developed utilizing the Corps of Engineers HEC-2 program (See Reference 3), using data from the FIS, and 1989 survey and topographic information developed by the Sacramento District of the Corps of Engineers for a proposed Truckee Meadows Flood Control Project (See Reference 4). The original FIS model did not include a bridge for the south channel of the Truckee River at the Arlington Bridge. For the purpose of this analysis, the special bridge routine has been revised to include the effects of the south bridge. Cross section number 52.335 has also been

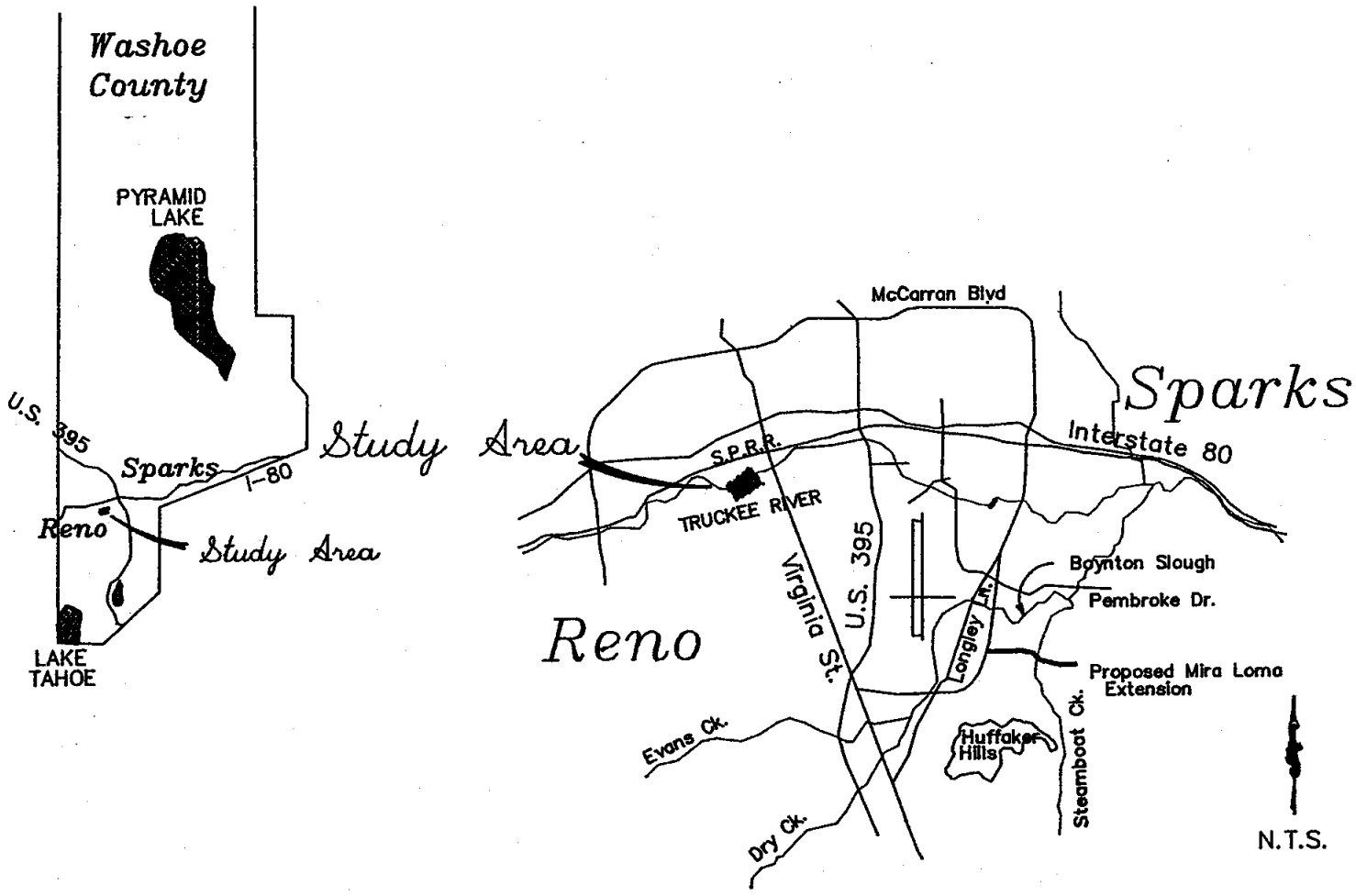

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FIGURE 1
Vicinity Map

Job No. : 9011 Date : 2/1/91

Legend :

Cross Section Location
Circles are at Channel Banks

Scale : 1" = 50'

Figure 2

Amphitheater
Workmap

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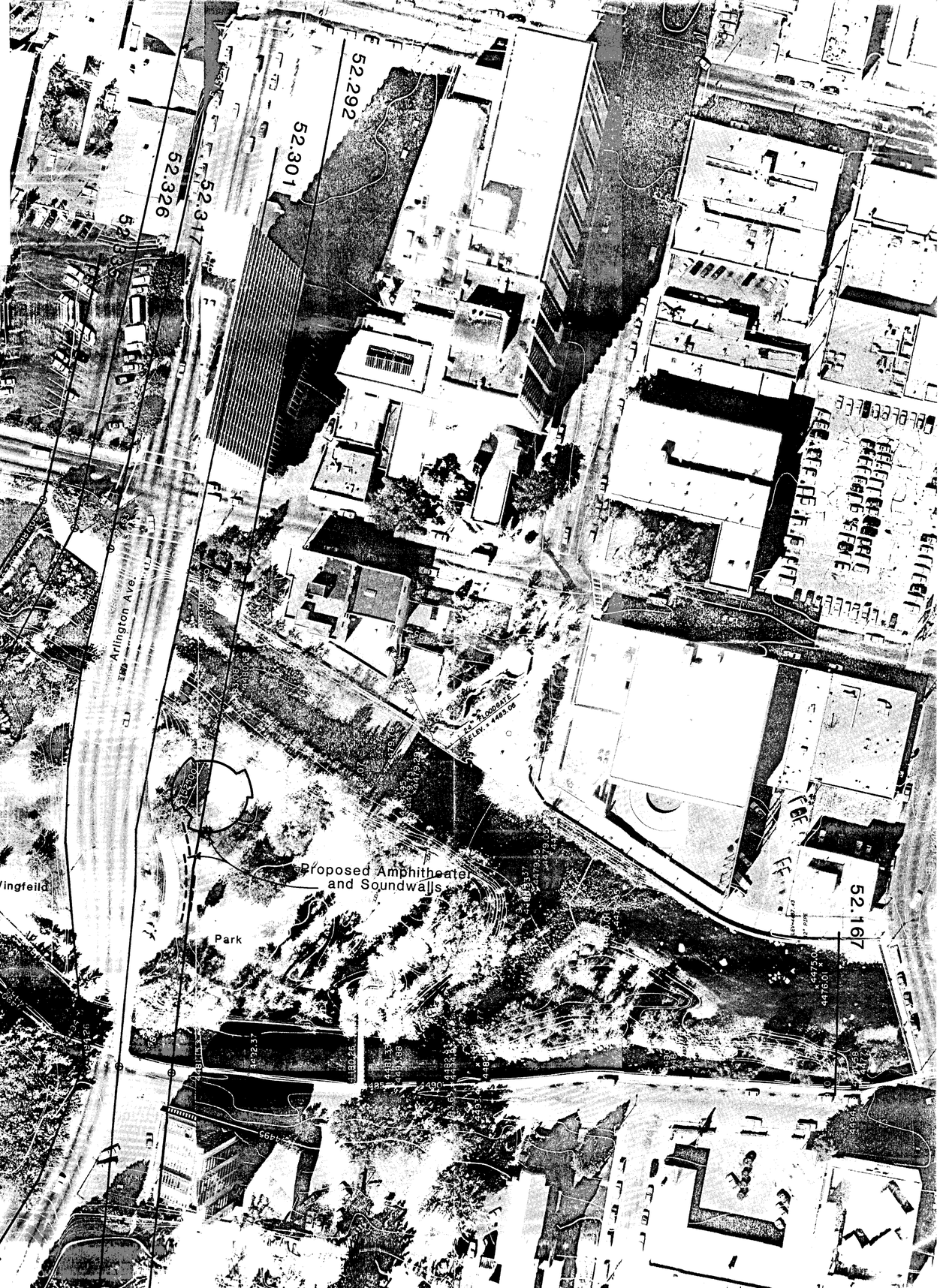

added to account for the Fish Bridge in the north channel just upstream of Arlington Avenue. The location of these cross sections, as well as the original Tudor cross sections are shown on Figure 2. This improved model will be referred to herein as the "Original Model".

The proposed amphitheater project includes construction of the amphitheater proper and soundwalls adjacent to the east side of Arlington Avenue. In order to develop the HEC-2 model, the area which will be removed from conveyance (or effective flow area) was determined. In addition to the immediate obstruction to flow created by the structures themselves, areas of ineffective flow created by the project were determined upstream and downstream of the structure. These areas are illustrated in Figure 3 and were determined using the expansion and contraction guidelines from the HEC-2 Users Manual.

A second HEC-2 model was created which incorporates changes resulting from the proposed Amphitheater to cross sections 52.292 and 52.301. This second model is referred to herein as the "Improved Model". Comparisons between the two models are offered in Tables 1 and 2. The two models compare favorably with the exception of lower Base Flood Elevations and slightly higher velocities surrounding the proposed Amphitheater. Figures 4 thru 7 are selected cross-section showing the study area in its existing and future states.

3.0 CONCLUSIONS AND RECOMMENDATIONS

As discussed in Section 2.0, the construction of the proposed Amphitheater does not affect the BFE's and velocities significantly. Since the Truckee River is a valued fishery, every attempt should be make to minimize or avoid disturbance of the river channel, therefore no excavation of the channel to mitigate the minimal increase in velocity is proposed. This depth, together with a minimum of 10' horizontal separation from footing to channel bank, provides an adequate degree of protection from local scour during events of significant flow. The channel is currently quite stable at the Amphitheater location and no signs of lateral migration, head cutting or other instability are apparent. Therefore no channel armoring is proposed for the project.

Since the analysis clearly demonstrates that the proposed structure will have a negligible affect on the existing BFE's and velocities, the Amphitheater will conform to the guidelines set forth by FEMA, the City of Reno and the Truckee-Carson Conservancy District.

Ineffective Flow Area

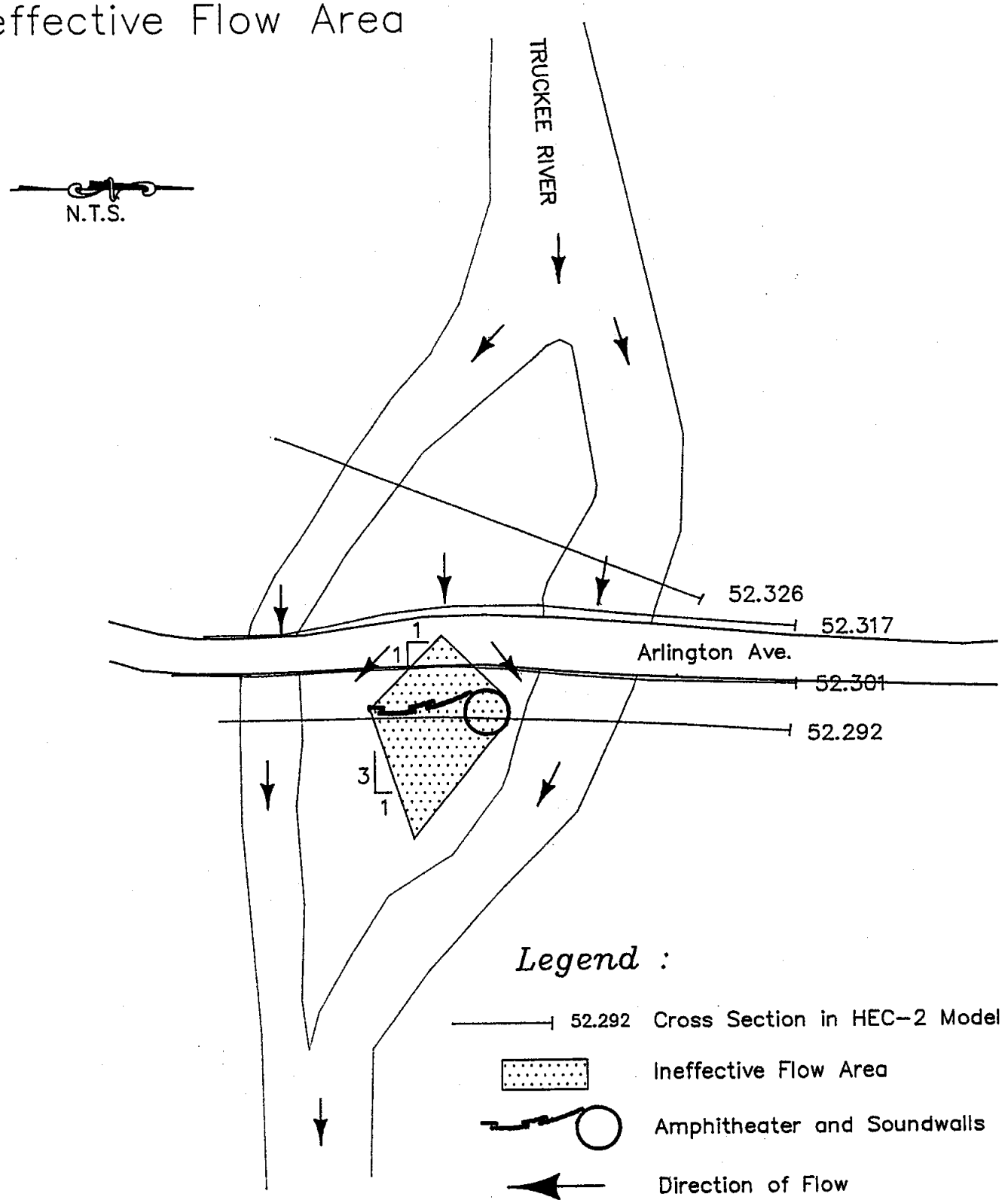

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Figure 3

2/1/91

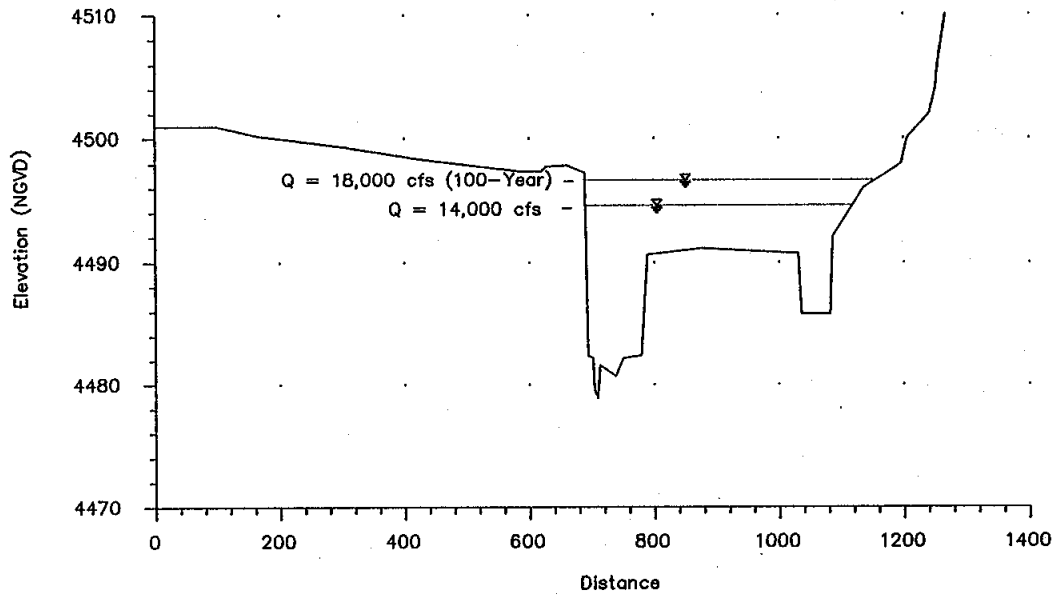
TABLE 1
ELEVATION COMPARISON

Sec. No.	Q	Original Model WSEL	Improved Model WSEL	Diff.
52.167	14000	4493.67	4493.67	0
	18000	4495.48	4495.48	0
	18500	4495.81	4495.81	0
52.292	14000	4494.60	4494.29	-0.31
	18000	4496.68	4496.35	-0.33
	18500	4497.02	4496.69	-0.33
52.301	14000	4494.53	4494.37	-0.16
	18000	4496.65	4496.56	-0.09
	18500	4496.99	4496.51	-0.08
52.317	14000	4494.84	4494.66	-0.18
	18000	4497.04	4496.97	-0.07
	18500	4497.38	4497.31	-0.07
52.326	14000	4494.95	4494.78	-0.17
	18000	4497.17	4497.10	-0.07
	18500	4497.50	4497.44	-0.06
52.335	14000	4494.89	4494.71	-0.18
	18000	4497.16	4497.09	-0.07
	18500	4497.50	4497.43	-0.07
52.391	14000	4495.46	4495.37	-0.09
	18000	4497.17	4497.11	-0.06
	18500	4497.47	4497.41	-0.06
52.489	14000	4496.33	4496.31	-0.02
	18000	4497.49	4497.45	-0.04
	18500	4497.69	4497.65	-0.04
52.594	14000	4498.25	4498.26	0.01
	18000	4499.58	4499.59	0.01
	18500	4499.72	4499.73	0.01
52.692	14000	4498.69	4498.70	0.01
	18000	4500.00	4499.99	-0.01
	18500	4500.20	4500.20	0

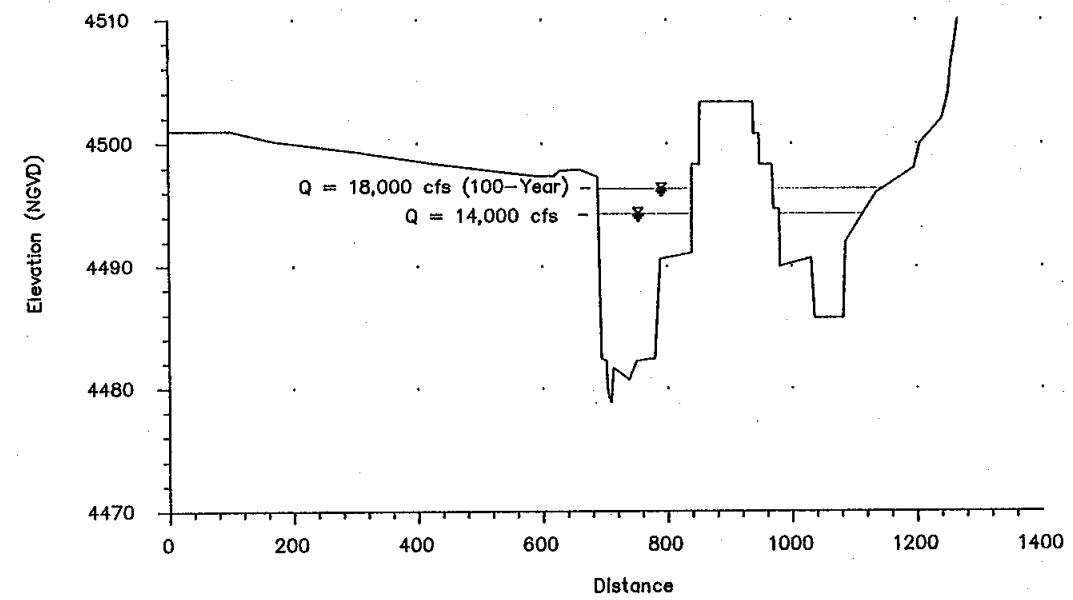
TABLE 2
VELOCITY COMPARISON

Sec. No.	Q	Original Model Velocities (cfs)	Improved Model Velocities (cfs)
52.167	14000	7.04	7.04
	18000	7.98	7.98
	18500	8.03	8.03
52.292	14000	5.42	6.99
	18000	5.24	7.02
	18500	5.18	6.96
52.301	14000	6.61	6.87
	18000	6.07	6.39
	18500	5.93	6.27
52.317	14000	6.26	6.45
	18000	5.73	5.77
	18500	5.60	5.63
52.326	14000	6.00	6.20
	18000	5.36	5.42
	18500	5.26	5.31
52.335	14000	7.33	7.62
	18000	6.10	6.17
	18500	5.93	5.99
52.391	14000	9.14	9.29
	18000	9.10	9.18
	18500	8.97	9.04
52.489	14000	11.79	11.84
	18000	12.92	12.98
	18500	12.93	13.00
52.594	14000	10.63	10.62
	18000	11.53	11.52
	18500	11.64	11.64
52.692	14000	14.95	14.94
	18000	16.33	16.34
	18500	16.39	16.38

Cross Section 52.292



Existing Conditions



With Amphitheater Project

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Figure 4

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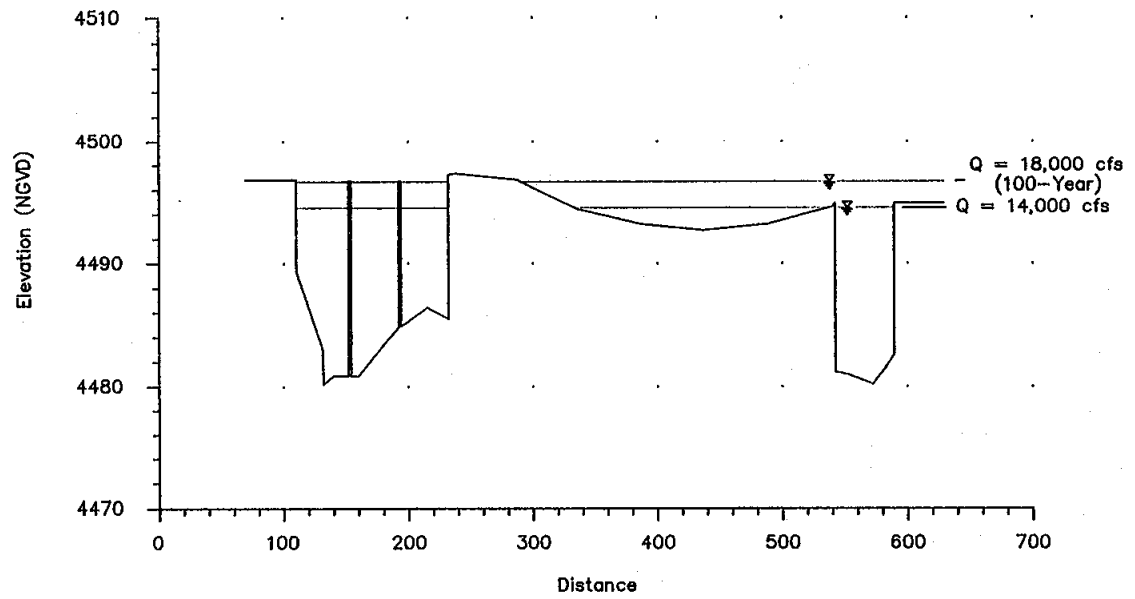
Cross Section 52.301



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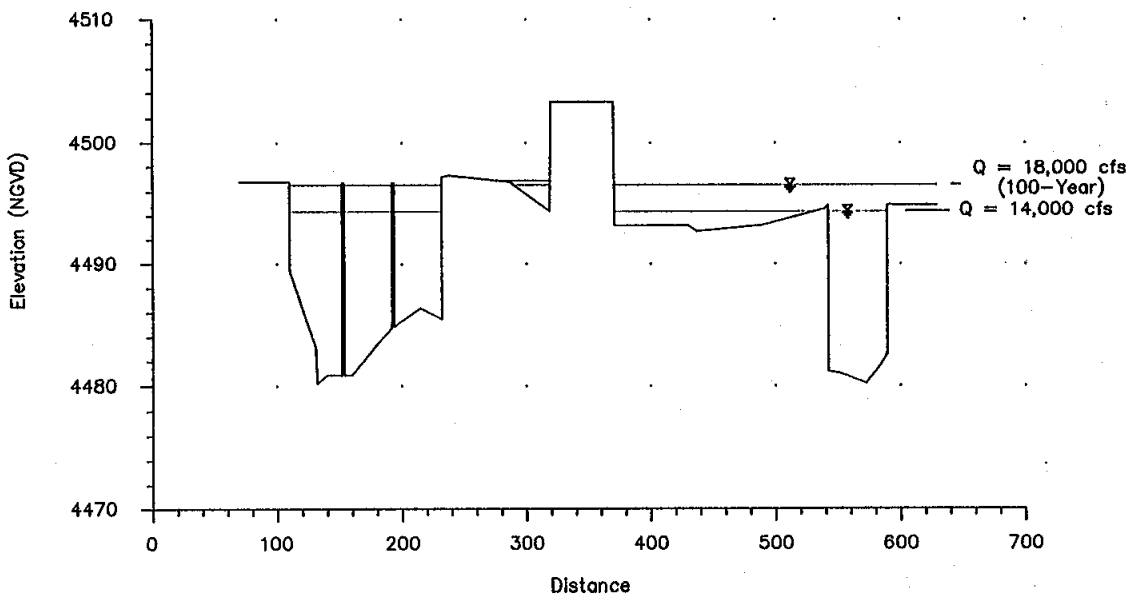

With Amphitheater Project

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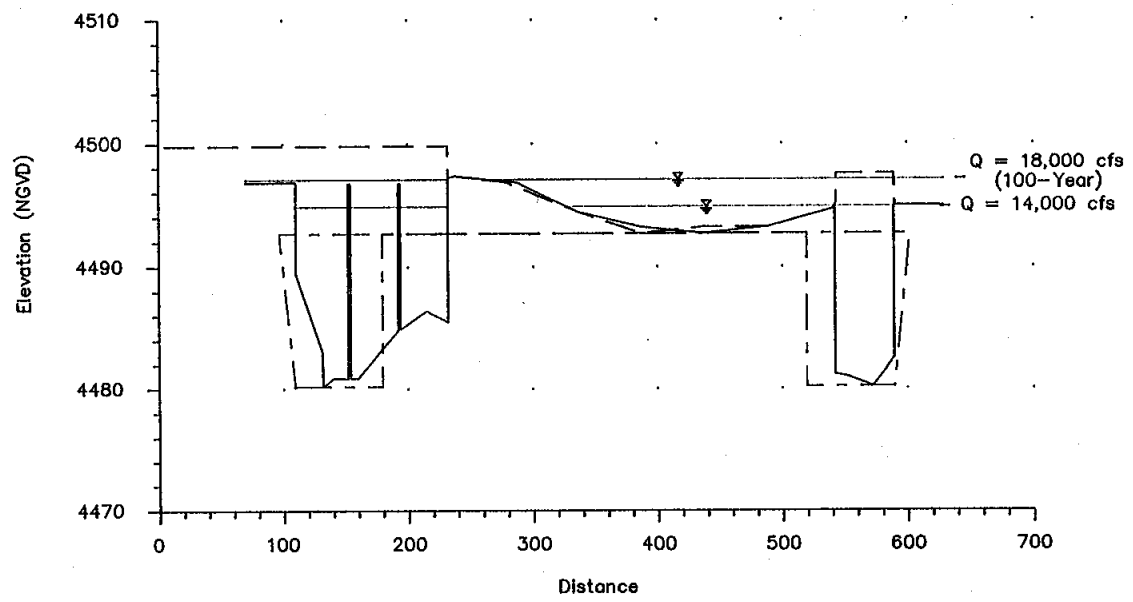
Figure 5

Job No. : 9011 Date : 2/1/91

Cross Section 52.317



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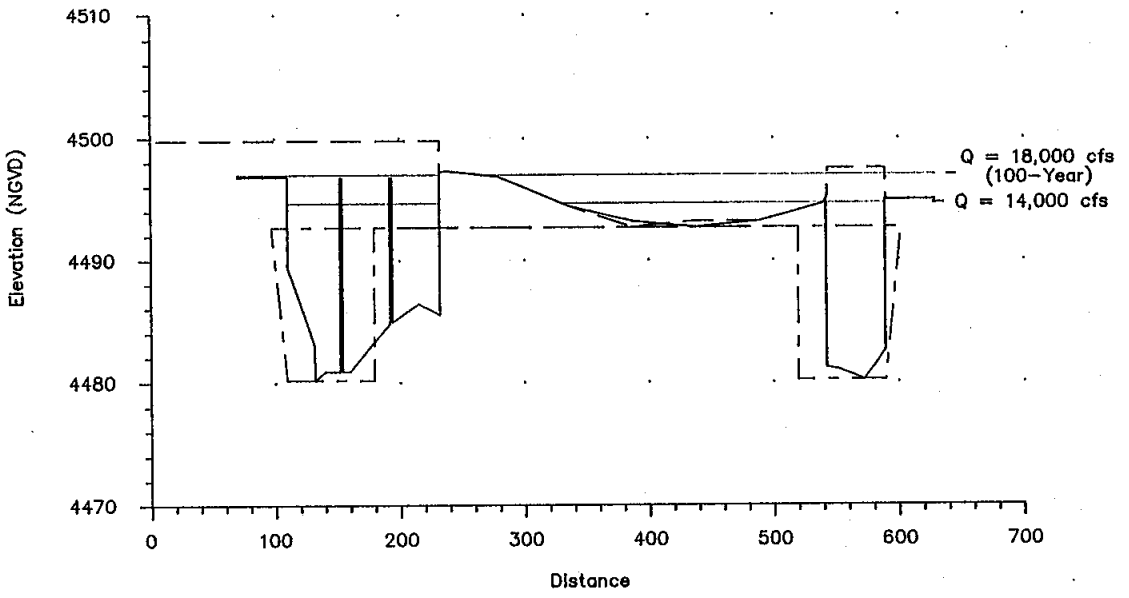

With Amphitheater Project

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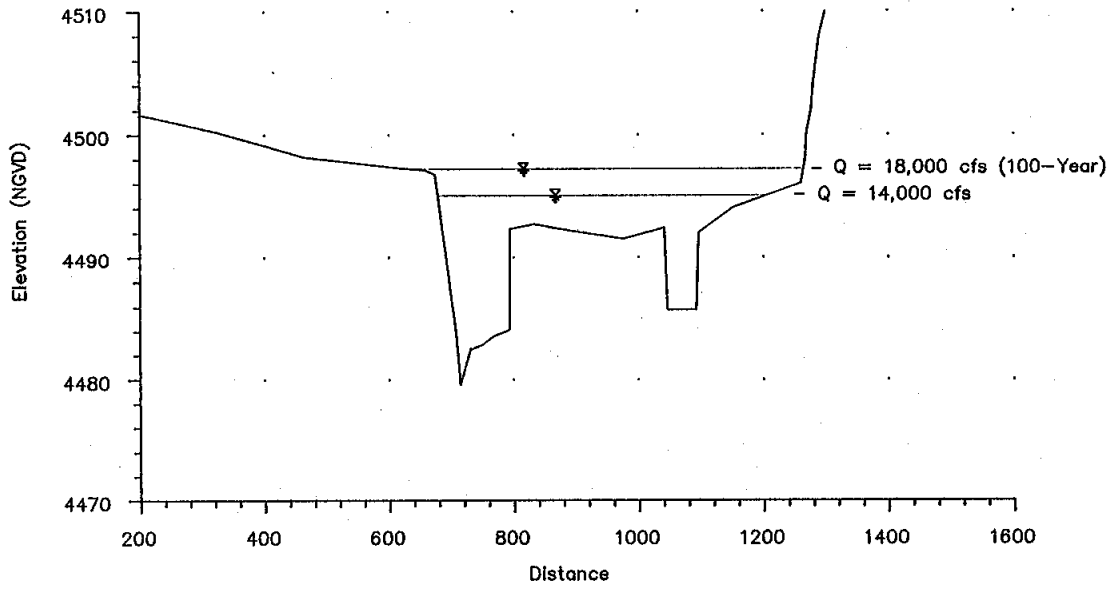
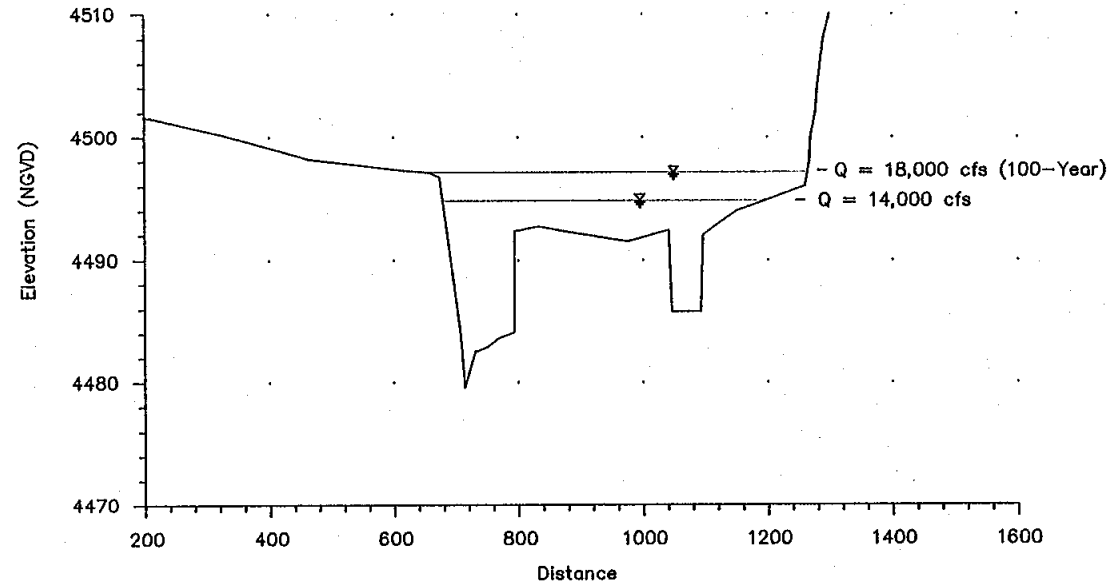
Figure 6

Job No. : 9011 Date : 2/1/91

Cross Section 52.326



Existing Conditions



With Amphitheater Project

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Figure 7

Job No. : 9011 Date : 2/1/91

4.0 REFERENCES

1. Federal Emergency Management Agency, Flood Insurance Study, Washoe County, Nevada, April 16, 1990.

2. Letter Report for Phase I Analysis for a Proposed Amphitheater to Casazza, Peetz and Hancock, Dated October 8, 1990.

3. U.S. Department of the Army Corps of Engineers, Hydrologic Engineering Center, Computer Program 723-X6-LZOZA, HECII Water Surface Profiles, April 1989.

4. U.S. Army Corps of Engineer 1" = 50' scale topographic mapping on orthophotos, sheet 136 and 137, 1989.

5. Federal Emergency Management Agency, Floodway Boundary and Floodway Map, Washoe County, Nevada, Scale 1" = 500', Panel 1432, April 16, 1990.

6. Tudor Engineering Company, Panel No. T1, Workmap for combined Flood Boundary, Floodway and Insurance Rate Mapping for Washoe County, Nevada, November 1979.

APPENDIX

"ORIGINAL MODEL"

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*  U.S. ARMY CORPS OF ENGINEERS         *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616-4687         *
*           (916) 756-1104              *
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T3 DOWNTOWN RENO  (EXISTING CONDITIONS)

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J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

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GR  4475.1      701   4473.6      707     4473      721   4472.9      734   4472.6      744
GR    4473      756   4473.8      769   4474.3      784   4475.1      799   4475.6      800
GR  4480.5      823   4486.1      837   4488.5      928   4490.2     1027   4490.2     1047
GR  4491.5     1103   4492.1     1165   4492.1     1194   4494.1     1247   4494.7     1303
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GR  4476.7      672   4476.3      673   4475.9      674   4475.5      692   4474.4      705
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GR  4475.5       84     4475       94     4475      104     4475      114     4475      124
GR    4475      134     4475      144   4475.5      154     4491      154     4491      180
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ST	154	4491	4491	0	0	0	0	0	0	0
ST	0	9.1	9.1	9.1	9.1	9.1	9.1	9.1	575	890
X1	52.021	45	666	837	20	20	20	0	0	0
GR	4494.3	0	4494.1	64	4493.9	80	4493.3	133	4493.3	195
GR	4490.9	471	4490.4	503	4489.7	514	4490.3	517	4490.3	577
GR	4490.3	591	4490.3	603	4490.3	635	4490.3	652	4490.3	666
GR	4477.3	677	4477.3	678	4475.3	690	4475.1	705	4475	735
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GR	4494	1002	4494	1021	4493.6	1025	4494.2	1037	4494.2	1070
GR	4494.3	1084	4496	1146	4496.3	1246	4496.3	1297	4494.1	1366
GR	4493.4	1427	4493.4	1463	4494	1495	4494	1529	4494.3	1546
ST		9.1	9.1	9.1	9.1	9.1	9.1	9.1	670	890
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GR	4478.3	682	4476.3	695	4476.3	698	4475.8	733	4477.9	753
GR	4475.3	773	4474.7	787	4477	812	4477.3	818	4478.3	821
GR	4494	822	4494.5	882	4494.5	924	4494	1002	4493.9	1009
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GR	4495.6	1483	4495.6	1495	4495.8	1521	4495.9	1551	4495.9	1555
X1	52.078	16	5	145	30	30	30	0	0	0
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GR	4476	46	4475.4	65	4475.2	70	4475.2	80	4475.3	85
GR	4475.5	104	4476.3	124	4477.3	140	4477.6	145	4493.8	145
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NC	.060	.060	.030	0	0	0	0	0	0	0
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X2	0	0	1	4490.4	4493.8	0	0	0	0	0
BT	16	0	4493.8	4493.8	5	4493.8	4480.6	10	4493.8	4485
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BT	4493.8	4479.2	70	4493.8	4475.2	80	4493.8	4475.2	80	4493.8
BT	4479.2	85	4493.8	4485	104	4493.8	4490.4	124	4493.8	4490.4
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GR	4496.3	217	4488.1	232	4488.1	291	4490.2	294	4492	324
GR	4494.0	334	4495.1	386	4495.1	644	4494.8	669	4494.9	682
GR	4473.5	690	4477	696	4477	698	4476.9	708	4476.8	726
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SB    .900     1.5      2.5        0      106       12     1430        0   4475.5   4475.5
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X1  52.159       0        0        0       61       61       61
X2       0       0        1   4489.8     4493        0        0        0        0        0
ET      11      50     4493     4493      100     4493   4488.7      118     4493   4489.8
ET     136    4493   4488.6      139     4493   4488.6      162     4493   4489.4      184
ET    4493   4487.8      187     4493   4487.8      206     4493   4489.2      225     4493
ET  4487.8     275     4493     4493        0        0        0        0        0        0

ET              9.1      9.1      9.1      9.1      9.1      9.1      9.1      670      850
X1  52.167      30      685      815       42       42       42
GR  4500.4       0   4500.1        3   4499.3       41   4489.2      230   4496.3      355
GR  4494.1     552   4493.4      602   4492.3      667   4492.3      675     4492      685
GR  4478.3     694   4476.3      715   4476.3      716   4476.3      725   4475.1      745
GR  4475.7     759     4477      775   4477.7      788   4479.2      792   4479.6      793
GR  4490.4     815   4492.2      938   4493.9      983     4496     1012   4498.3     1049
GR  4498.6    1078   4498.3     1130   4497.8     1231   4498.3     1346   4501.1     1492

ET     0       9.1      9.1      9.1      9.1      9.1      9.1      9.1      600     1150
NC                              .3       .5
NH     5      .06      689     .025      789     .045     1031     .025     1086      .06
NH  1377
X1  52.292      39      689     1086      620      750      660
GR    4501       0     4501       99   4500.2      165   4499.3      306   4498.4      425
GR  4497.4     588   4497.4      619   4497.3      627   4497.9      660   4497.3      689
GR  4482.4     694   4482.2      702   4480.2      703   4479.2      706   4479.2      708
GR  4478.9     709   4481.6      713   4480.7      738   4482.2      750   4482.4      779
GR  4490.6     739   4491.1      876   4490.7     1031   4485.8     1036   4485.8     1082
GR    4492    1036     4496     1136     4498     1196     4500     1206     4502     1241
GR    4504    1251     4506     1255     4508     1261     4510     1267     4512     1287
GR    4514    1297     4516     1307     4518     1322     4520     1377

NH     5      .06      110     .025      .232     .045    542.1     .025    589.2      .06
NH   629
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X1	52.301	35	110	589.2	50	50	50			
X3	10									
GR	4496.8	70	4496.8	110	4489.4	110.1	4483.1	131	4480.2	132
GR	4480.9	140	4480.9	152	4496.7	152.1	4496.7	153.9	4480.3	154
GR	4480.9	160	4483.4	180	4484.8	192	4496.7	192.1	4496.7	193.9
GR	4484.9	194	4486.4	215	4485.5	232	4497.2	232.1	4497.3	238.1
GR	4496.3	287	4494.4	336.2	4493.2	386.5	4492.7	437.0	4493.2	488.6
GR	4494.8	539.3	4494.3	542.1	4481.2	542.2	4481.0	552.1	4480.6	562.1
GR	4430.2	572.1	4481.5	582.1	4482.6	589.1	4494.9	589.2	4494.9	629

SE	.5	1.5	2.3		480	340	1360	1	4480.2	4480.2
NH	5	.06	110	.025	232	.045	542.1	.025	589.2	.06
NH	629									
X1	52.317	0	0	0	80	60	80			
X2			1	4492.7	4492.7					
X3	10									
BT	-19	0	4496.8		.1	4499.8		128.0	4499.8	
BT		128.1	4499.3		232.0	4499.3		232.1	4497.3	
BT		238.1	4497.3		279.0	4496.3		336.2	4494.4	
BT		386.5	4492.7		437.0	4493.2		488.6	4493.2	
BT		539.3	4494.6		542.1	4494.9		543.3	4495.2	
BT		543.4	4497.5		589.2	4497.5		590.0	4494.9	
BT		629.0	4494.9							

ET		9.100	9.100	9.100					610.000	1260.000
NH	5	.060	674	.025	794	.045	1041.	.025	1096	.06
NH	1670									
X1	52.326	36.000	674.000	1036.000	75.000	65.000	50.000			
GR	4503.2	0.000	4502.800	111.000	4501.900	135.000	4501.600	166.000	4501.600	207.000
GR	4500.2	325.000	4498.200	463.000	4497.300	612.000	4497.100	658.000	4496.700	674.000
GR	4484.1	707.000	4483.6	714.000	4483.6	731.000	4483.5	732.000	4483.5	750.000
GR	4483.6	768.000	4484.100	793.000	4492.300	794.000	4492.700	832.000	4492.300	874.000
GR	4491.5	975.000	4492.400	1041.000	4485.300	1046.000	4485.300	1092.000	4492.000	1096.000
GR	4494.0	1150.000	4496.000	1260.000	4498.000	1267.000	4500.000	1269.000	4502.000	1277.000
GR	4504.0	1280.000	4506.000	1285.000	4508.000	1290.000	4510.000	1300.000	4512.000	1480.000
GR	4514.0	1670.000								

NC	.060	.060	.0348	0	0					
X1	52.335	34	231	602	41	68	45	0	0	0
GR	4499	0	4498	55	4497	142	4496	176	4496	182
GR	4496	199	4496	210	4496	216	4496.1	220	4495	221
GR	4496.4	231	4487.3	231	4487.2	251	4487.1	280	4487.1	327
GR	4493.7	334	4495.3	346	4492.3	347	4492	350	4492	459
GR	4491.4	527	4492.4	527	4492.4	528	4487	528	4487.5	600
GR	4494.4	602	4494.4	603	4492.9	604	4493	616	4493.8	654
GR	4494.3	654	4495	833	4500	861	4505	887		

ST		9.100	9.100	9.100					500.000	1100.000
NC	.060	.060	.03	.1	.3					
X1	52.391	33	628.000	844	320	150	295			
GR	4503.9	0.000	4503.200	22.000	4503.800	54.000	4503.200	89.000	4503.2	198.000
GR	4500.4	246.000	4498.800	371.000	4498.200	505.000	4497.800	512.000	4498.300	522.000
GR	4498.9	548.000	4498.000	575	4498.3	602	4496.000	628	4491.7	631
GR	4488	636	4487.10	670	4489	715	4493	724	4489	755
GR	4488	772	4488	817	4489	881	4490	836	4494	844
GR	4495	822	4495.6	922	4496.	970	4495	1043	4495	1052
GR	4493	1137	4500	1159	4505	1179				

ST		9.100	9.100	9.100					600.00	1000.000
NC	.060	.060	.025							
X1	52.489	45.000	655.000	834.000	550.000	470.000	520.000			
GR	4503.8	0.000	4506.200	113.000	4504.100	146.000	4502.100	206.000	4501.400	229.000
GR	4500.2	261.000	4499.300	270.000	4500.300	280.00	4500.300	321.000	4499.800	336.000
GR	4498.5	488.000	4498.300	614.000	4498.800	628.000	4498.600	646.000	4498.300	655.000
GR	4490.2	678.000	4490.200	689.000	4489.500	694.000	4489.100	713.000	4488.000	719.000
GR	4488.3	746.000	4489.200	790.000	4489.300	829.000	4490.200	830.000	4490.200	831.000
GR	4496.3	834.000	4496.700	840.000	4496.700	878.000	4498.200	958.000	4500.100	998.000
GR	4510.1	1020.000	4530.200	1050.000	4532.000	1061.000	4534.100	1087.000	4536.000	1111.000
GR	4538.3	1136.000	4538.300	1163.000	4536.400	1219.000	4536.400	1248.000	4536.400	1272.000
GR	4534.1	1315.000	4532.400	1356.000	4530.700	1423.000	4528.400	1442.000	4526.300	1485.000

NC	.06	.06	.025							
ST		9.1	9.1	9.1					600	1000
X1	52.594	55	661	873	570	540	550	0	0	0
GR	4510	0	4509.9	30	4509.9	40	4510.3	64	4509.9	90
GR	4508.1	120	4505.7	135	4503.9	190	4502.1	215	4502.1	234
GR	4501	297	4500.5	376	4500	438	4499.5	447	4499.5	487
GR	4500.3	520	4500.6	539	4500	583	4499.4	620	4499.4	658
GR	4499	661	4498.4	665	4497.3	688	4494.3	669	4490.1	672
GR	4491.7	697	4491.7	696	4490.7	702	4490.4	711	4490.3	766
GR	4489.7	791	4489.3	812	4490.1	823	4491.7	834	4492.2	835
GR	4497.3	833	4500	857	4509.9	873	4520.2	889	4530.1	897
GR	4540	906	4548	929	4549.9	947	4549.9	969	4550	1004
GR	4547.9	1071	4546.6	1105	4546.3	1120	4543.8	1193	4542.2	1268
GR	4541.4	1292	4540.2	1348	4540.0	1363	4538.8	1419	4538.1	1461

ST		9.1	9.1	9.1	9.1	9.1	9.1	9.1	550	900
X1	52.392	50	697	832	500	570	520	0	0	0
GR	4507.6	0	4506.3	57	4506.3	74	4504.1	120	4502.5	146
GR	4502.5	193	4502.5	327	4502.5	370	4502.1	565	4500.3	572
GR	4499.7	579	4499.7	606	4500.3	611	4501.7	635	4500.2	665
GR	4499.8	670	4499.3	676	4498.7	680	4498.4	683	4498.4	687
GR	4492.4	691	4491.7	695	4490.6	717	4490.2	741	4490.2	753
GR	4489.4	783	4490	789	4491.5	795	4492.4	798	4492.9	799
GR	4500.1	814	4510	832	4520	854	4530	865	4539.9	881
GR	4549.9	891	4553.8	899	4555.1	919	4554	1027	4552.1	1073
GR	4550.0	1145	4548.8	1221	4549.2	1238	4548.6	1277	4548.6	1341

GR	4546.3	1433	4547.2	1454	4546.6	1483	4546.2	1495	4546.2	1505

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

*PROF 1

CCHV= .300 CEHV= .500
*SECNO 51.945

3470 ENCROACHMENT STATIONS= 683.0 1080.0 TYPE= 1 TARGET= 397.000

51.945	17.40	4490.00	.00	.00	4490.64	.64	.00	.00	4490.10
14000.0	.0	13744.3	255.7	.0	2127.3	311.2	.0	.0	4486.10
.00	.00	6.46	.82	.000	.025	.060	.000	4472.60	683.12
.000379	40.	40.	40.	0	0	0	.00	332.22	1015.34

*SECNO 52.000

3470 ENCROACHMENT STATIONS= 590.0 839.0 TYPE= 1 TARGET= 249.000

52.000	15.85	4490.25	.00	.00	4490.77	.52	.10	.04	4490.40
14000.0	.0	14000.0	.0	.0	2424.1	.0	16.4	1.8	100000.00
.01	.00	5.78	.00	.000	.025	.000	.000	4474.40	665.07
.000316	250.	290.	340.	2	0	0	.00	173.92	839.00

*SECNO 52.005

52.005	15.22	4490.22	.00	.00	4490.82	.60	.01	.04	4491.00
14000.0	.0	14000.0	.0	.0	2255.4	.0	17.7	1.9	4491.00
.02	.00	6.21	.00	.000	.025	.000	.000	4475.00	5.00
.000372	25.	25.	25.	2	0	0	.00	149.00	154.00

SPECIAL BRIDGE

SB XK	XKCR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.00	1.50	2.50	.00	151.00	.00	1900.00	.00	4475.50	4475.50

*SECNO 52.017
PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4491.49	4491.28	.00	121.	13864.	1900.	2069.	4489.20	4491.00	154.

52.017	15.82	4490.82	.00	.00	4491.46	.55	.64	.00	4491.00
14000.0	.0	14000.0	.0	.0	2358.9	.0	21.2	2.1	4491.00
.02	.00	5.84	.00	.000	.025	.000	.000	4475.00	5.00
.000324	65.	65.	65.	2	0	3	.00	149.00	154.00

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

*SECNO 52.021

3470 ENCROACHMENT STATIONS= 575.0 890.0 TYPE= 1 TARGET= 315.000

52.021	15.92	4490.92	.00	.00	4491.47	.55	.01	.00	4490.30
14000.0	18.8	13981.2	.0	56.7	2349.1	.9	22.2	2.2	4492.00
.02	.33	5.95	.00	.060	.025	.000	.000	4475.00	575.00
.000337	20.	20.	20.	0	0	0	.00	256.62	831.62

*SECNO 52.072

3470 ENCROACHMENT STATIONS= 670.0 890.0 TYPE= 1 TARGET= 220.000

52.072	16.26	4490.96	.00	.00	4491.64	.68	.10	.07	4491.30
14000.0	.0	14000.0	.0	.0	2115.2	.0	36.3	3.5	4494.00
.03	.00	6.62	.00	.000	.025	.000	.000	4474.70	670.32
.000429	280.	270.	250.	2	0	0	.00	151.49	821.81

*SECNO 52.078

52.078	15.76	4490.96	.00	.00	4491.66	.69	.01	.01	4493.80
14000.0	.0	14000.0	.0	.0	2093.2	.0	37.7	3.6	4493.80
.03	.00	6.69	.00	.000	.025	.000	.000	4475.20	5.00
.000437	30.	30.	30.	0	0	0	.00	140.00	145.00

SPECIAL BRIDGE

SB XK	XKOR	COEQ	RDLEN	EWC	EWP	BAREA	SS	ELCHU	ELCHD
.00	1.50	2.50	.00	100.00	.00	1520.00	.00	4475.20	4475.20

*SECNO 52.033
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4492.94	4491.66	.00	0.	14000.	1520.	1520.	4490.40	4493.80	0.

52.093	17.16	4492.36	.00	.00	4492.94	.58	1.28	.00	4493.30
14000.0	.0	14000.0	.0	.0	2287.7	.0	41.7	3.8	4493.30
.04	.00	6.12	.00	.000	.030	.000	.000	4475.20	5.00
.000479	80.	80.	80.	2	0	0	.00	140.00	145.00

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

*SECNO 52.097

3470 ENCROACHMENT STATIONS= 682.0 890.0 TYPE= 1 TARGET= 208.000

52.097	15.81	4492.31	.00	.00	4493.02	.71	.01	.06	4494.90
14000.0	.0	13999.4	.5	.0	2068.9	2.2	42.7	3.9	4490.40
.04	.00	6.77	.26	.000	.030	.060	.000	4476.50	683.27
.000607	20.	20.	20.	2	0	0	.00	150.76	834.95

*SECNO 52.142

3470 ENCROACHMENT STATIONS= 665.0 870.0 TYPE= 1 TARGET= 205.000

52.142	16.17	4492.37	.00	.00	4493.28	.91	.17	.10	4494.30
14000.0	.0	13928.3	71.2	.0	1815.7	77.4	53.6	4.8	4490.50
.04	.00	7.67	.92	.000	.030	.060	.000	4476.20	691.15
.000815	260.	240.	200.	2	0	0	.00	178.65	870.00

*SECNO 52.148

52.148	16.90	4492.40	.00	.00	4493.32	.92	.03	.01	4493.00
14000.0	.0	14000.0	.0	.0	1819.5	.0	54.9	4.9	4493.00
.05	.00	7.69	.00	.000	.030	.000	.000	4475.50	100.00
.001258	30.	30.	30.	0	0	0	.00	125.00	225.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.50	2.50	.00	106.00	12.00	1430.00	.00	4475.50	4475.50

*SECNO 52.159
3280 CROSS SECTION 52.16 EXTENDED .60 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4494.63	4493.46	.16	904.	13160.	1430.	1344.	4489.80	4493.00	225.

52.159	18.09	4493.59	.00	.00	4494.37	.78	1.05	.00	4493.00
14000.0	20.4	13959.2	20.4	29.8	1969.6	29.8	57.6	5.1	4493.00
.05	.69	7.09	.69	.060	.038	.060	.000	4475.50	50.00
.001554	61.	61.	61.	2	0	2	.00	225.00	275.00

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

*SECNO 52.167

3470 ENCROACHMENT STATIONS= 670.0 850.0 TYPE= 1 TARGET= 180.000

52.167	18.57	4493.37	.00	.00	4494.43	.76	.05	.01	4492.00
14000.0	20.7	13819.4	159.9	21.9	1963.2	105.1	59.6	5.3	4490.40
.05	.95	7.04	1.52	.060	.038	.060	.000	4475.10	670.00
.000962	42.	42.	42.	1	0	0	.00	180.00	850.00

CCHV= .300 CEHV= .500
1490 NH CARD USED
*SECNO 52.292

3470 ENCROACHMENT STATIONS= 600.0 1150.0 TYPE= 1 TARGET= 550.000

52.292	15.70	4494.60	.00	.00	4495.06	.46	.54	.09	4497.30
14000.0	.0	13967.2	32.8	.0	2576.3	42.3	95.4	10.0	4492.00
.08	.00	5.42	.78	.000	.024	.060	.000	4478.90	689.91
.000696	620.	660.	750.	2	0	0	.00	428.60	1118.51

1490 NH CARD USED
*SECNO 52.301

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE. ELLEA= 4496.80 ELREA= 4494.90

52.301	14.33	4494.53	.00	.00	4495.21	.68	.04	.11	4496.80
14000.0	.0	14000.0	.0	.0	2118.8	.0	98.1	10.5	4494.90
.09	.00	6.61	.00	.000	.020	.000	.000	4480.20	110.03
.000979	50.	50.	50.	2	0	0	.00	369.28	589.20

SPECIAL BRIDGE

SB XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.90	1.50	2.80	.00	480.00	340.00	1950.00	1.00	4480.20	4480.20

1490 NH CARD USED
*SECNO 52.317

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

PRESS FLOW BECAUSE EGLWC OF 4499.02 EXCEEDS 1.5 DEPTH

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4495.73	4499.02	3.82	1760.	12212.	1950.	1906.	4492.70	4492.70	271.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 4496.80 ELREA= 4494.90

52.317	14.64	4494.84	.00	.00	4495.44	.61	.24	.00	4496.80
14000.0	.0	14000.0	.0	.0	2235.8	.0	102.1	11.1	4494.90
.09	.00	6.26	.00	.000	.020	.000	.000	4480.20	110.03
.000893	80.	80.	80.	2	0	3	.00	380.05	589.20

1490 NH CARD USED
*SECNO 52.326

3470 ENCROACHMENT STATIONS= 610.0 1260.0 TYPE= 1 TARGET= 650.000

52.326	11.45	4494.95	.00	.00	4495.51	.55	.05	.02	4496.70
14000.0	.0	13862.4	137.6	.0	2310.1	130.6	104.8	11.7	4492.00
.09	.00	6.00	1.05	.000	.023	.060	.000	4483.50	678.57
.000951	75.	50.	65.	2	0	0	.00	523.93	1202.50

*SECNO 52.335

3265 DIVIDED FLOW

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

52.335	7.89	4494.39	.00	.00	4495.72	.82	.08	.13	4496.40
14000.0	.0	13803.9	196.1	.0	1883.7	127.2	107.2	12.4	4494.40
.09	.00	7.33	1.54	.000	.035	.060	.000	4487.00	231.00
.003627	41.	45.	88.	2	0	0	.00	571.99	806.16

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

CCHV=     .100 CEHV=     .300
*SECNO 52.331

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     500.0    1100.0  TYPE=     1  TARGET=     600.000
   52.391      8.11   4495.46      .00      .00   4496.75     1.29      .89      .14   4498.30
  14000.0       .0   13889.9     110.1       .0   1520.0      99.1     119.2     14.9   4494.00
     .10       .00      9.14     1.11     .000     .030      .060     .000   4487.35    629.29
 .002579      320.      295.     150.        1        0         0      .00    344.93   1100.00

*SECNO 52.489

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     600.0    1000.0  TYPE=     1  TARGET=     400.000
   52.489      8.33   4496.33      .00      .00   4498.49     2.16     1.48      .26   4498.30
  14000.0       .0   14000.0       .0       .0   1187.1       .0    135.9     18.0   4496.30
     .11       .00     11.79      .01     .000     .025      .060     .000   4488.00    660.57
 .003154      550.      520.     470.        2        0         0      .00    173.98    834.56

*SECNO 52.594

3470 ENCROACHMENT STATIONS=     600.0    1000.0  TYPE=     1  TARGET=     400.000
   52.594      8.75   4498.25      .00      .00   4500.01     1.76     1.48      .04   4499.00
  14000.0       .0   14000.0       .0       .0   1316.6       .0    151.7     20.2   4509.90
     .13       .00     10.63      .00     .000     .025      .000     .000   4489.50    665.39
 .002325      570.      550.     540.        2        0         0      .00    175.84    841.23

*SECNO 52.692

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     550.0     900.0  TYPE=     1  TARGET=     350.000
   52.692      9.29   4498.69   4498.45      .00   4502.16     3.47     1.64      .51   4498.40
  14000.0       1.1   13998.9       .0       1.6    936.2       .0    165.1     22.0   4510.00
     .14       .66     14.95      .00      .060     .025      .000     .000   4489.40    680.07
 .004510      500.      520.     570.        6        8         0      .00    131.00    811.07
```

T1 TRUCKEE RIVER - Center St. to Arlington
T2 File : RENODT18.DAT modified from File : RENO2.802
T3 Bridges in place, Peak Flow = 18,000 cfs

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3	0	0	.00063	0	0	0	4488	0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2	0	-1							15

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


*PROF 2

CCHV=     .300 CEHV=     .500
*SECNO 51.945

3470 ENCROACHMENT STATIONS=     683.0    1060.0  TYPE=     1  TARGET=     397.000
    51.945    17.40   4490.00      .00   4490.00   4491.05     1.05      .00      .00   4490.10
  18000.0       .0   17671.3    328.7       .0   2127.3    311.2       .0       .0   4486.10
      .00       .00     8.31     1.06     .000     .025     .060     .000   4472.60    683.12
   .000626     40.      40.      40.         0        0        2      .00    332.22   1015.34


FLOW DISTRIBUTION FOR SECNO=    51.94         CWSEL=   4490.00

STA=     683.     837.     928.    1015.
  PER Q=    98.2      1.6       .2
   AREA=  2127.3   245.7    65.5
    VEL=     8.3      1.2       .5
  DEPTH=    13.8      2.7       .8

*SECNO 52.000

3470 ENCROACHMENT STATIONS=     590.0     839.0  TYPE=     1  TARGET=     249.000
    52.000    16.05   4490.45      .00   4490.25   4491.28      .83      .16      .07   4490.40
  18000.0       .0   18000.0       .0       .2   2457.6       .0     16.5      1.8 100000.00
      .01       .01     7.32      .00      .060     .025     .000     .000   4474.40    660.63
   .000501    250.     290.      340.        2        0        0      .00    178.37    839.00


FLOW DISTRIBUTION FOR SECNO=    52.00         CWSEL=   4490.45

STA=     661.     839.
  PER Q=   100.0
   AREA=  2457.6
    VEL=     7.3
  DEPTH=    14.1

*SECNO 52.005
    52.005    15.39   4490.39      .00   4490.22   4491.36      .97      .01      .07   4491.00
  18000.0       .0   18000.0       .0       .0   2280.9       .0     17.8      1.9   4491.00
      .01       .00     7.89      .00      .000     .025     .000     .000   4475.00      5.00
   .000594    25.      25.       25.         2        0        0      .00    149.00    154.00
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	RV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IBC	ICONT	CORAR	TOPWID	ENDST

FLOW DISTRIBUTION FOR SECNO= 52.01 CWSEL= 4490.39

STA=	5.	154.
PER Q=	100.0	
AREA=	2280.9	
VEL=	7.9	
DEPTH=	15.3	

SPECIAL BRIDGE

SB XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.00	1.50	2.50	.00	151.00	.00	1900.00	.00	4475.50	4475.50

*SECNO 52.017
3280 CROSS SECTION 52.02 EXTENDED .53 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4492.48	4491.80	.00	616.	17496.	1900.	2069.	4489.20	4491.00	154.

52.017	16.53	4491.53	.00	4490.92	4492.37	.84	1.01	.00	4491.00
18000.0	.9	17994.3	4.9	2.7	2450.9	13.9	21.4	2.1	4491.00
.01	.33	7.34	.35	.060	.025	.060	.000	4475.00	.00
.000471	65.	65.	65.	2	0	2	.00	180.00	180.00

FLOW DISTRIBUTION FOR SECNO= 52.02 CWSEL= 4491.53

STA=	0.	5.	154.	160.
PER Q=	.0	100.0	.0	
AREA=	2.7	2450.9	13.9	
VEL=	.3	7.3	.3	
DEPTH=	.5	16.4	.5	

*SECNO 52.021

3470 ENCROACHMENT STATIONS= 575.0 890.0 TYPE= 1 TARGET= 315.000

52.021	16.56	4491.56	.00	4490.92	4492.38	.83	.01	.00	4490.30
18000.0	71.9	17928.1	.0	113.7	2453.7	.0	22.5	2.2	4492.00
.02	.63	7.31	.00	.060	.025	.000	.000	4475.00	575.00
.000491	20.	20.	20.	1	0	0	.00	259.74	834.74

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

FLOW DISTRIBUTION FOR SECNO= 52.02 CWSEL= 4491.56

STA=	575.	591.	608.	635.	652.	666.	837.
PER Q=	.1	.1	.1	.1	.1	99.6	
AREA=	29.0	21.2	33.7	21.2	17.5	2453.7	
VEL=	.6	.6	.6	.6	.6	7.3	
DEPTH=	1.2	1.2	1.2	1.2	1.2	14.5	

*SECNO 52.072

3470 ENCROACHMENT STATIONS=	670.0	890.0	TYPE=	1	TARGET=	220.000			
52.072	16.90	4491.60	.00	4490.96	4492.63	1.03	.15	.10	4491.30
18000.0	.0	18000.0	.0	.0	2213.0	.0	37.4	3.5	4494.00
.02	.00	8.13	.00	.000	.025	.000	.000	4474.70	670.00
.000616	260.	270.	250.	2	0	0	.00	151.85	821.85

FLOW DISTRIBUTION FOR SECNO= 52.07 CWSEL= 4491.60

STA=	670.	822.
PER Q=	100.0	
AREA=	2213.0	
VEL=	8.1	
DEPTH=	14.6	

*SECNO 52.078

52.078	16.41	4491.61	.00	4490.96	4492.66	1.06	.02	.01	4493.80
18000.0	.0	18000.0	.0	.0	2183.3	.0	38.9	3.6	4493.80
.03	.00	8.24	.00	.000	.025	.000	.000	4475.20	5.00
.000635	30.	30.	30.	1	0	0	.00	140.00	145.00

FLOW DISTRIBUTION FOR SECNO= 52.08 CWSEL= 4491.61

STA=	5.	145.
PER Q=	100.0	
AREA=	2183.3	
VEL=	8.2	
DEPTH=	15.6	

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

SPECIAL BRIDGE

SE	XK	XKOR	CORQ	RDLEN	BWC	BWP	BAREA	SS	ELCHO	ELCHD
	.00	1.50	2.50	.00	100.00	.00	1520.00	.00	4475.20	4475.20

*SECNO 52.093
3280 CROSS SECTION 52.09 EXTENDED .15 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4494.87	4492.66	.00	369.	17647.	1520.	1520.	4490.40	4493.80	160.

52.093	18.75	4493.95	.00	4492.36	4494.75	.80	2.08	.00	4493.80
18000.0	.1	17999.5	.4	.8	2510.4	2.3	43.2	3.9	4493.80
.03	.17	7.17	.17	.060	.030	.060	.000	4475.20	.00
.000594	80.	80.	80.	2	0	2	.00	160.00	160.00

FLOW DISTRIBUTION FOR SECNO= 52.09 CWSEL= 4493.95

STA=	0.	5.	145.	160.
PER Q=	.0	100.0	.0	
AREA=	.8	2510.4	2.3	
VEL=	.2	7.2	.2	
DEPTH=	.2	17.9	.2	

*SECNO 52.097

3470 ENCROACHMENT STATIONS= 682.0 890.0 TYPE= 1 TARGET= 208.000

52.097	17.39	4493.39	.00	4492.31	4494.84	.95	.01	.08	4494.90
18000.0	.0	17940.6	59.4	.0	2288.9	80.7	44.3	4.0	4490.40
.03	.00	7.84	.74	.000	.030	.060	.000	4476.50	682.49
.000723	20.	20.	20.	2	0	0	.00	207.50	890.00

FLOW DISTRIBUTION FOR SECNO= 52.10 CWSEL= 4493.89

STA=	682.	822.	823.	890.
PER Q=	99.7	.0	.3	
AREA=	2288.9	2.6	78.1	
VEL=	7.8	.8	.7	
DEPTH=	16.4	2.6	1.2	

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

*SECNO 52.142

8470 ENCROACHMENT STATIONS=		665.0	870.0	TYPE=	1	TARGET=	205.000		
52.142	17.77	4496.37	.00	4492.37	4495.15	1.18	.20	.12	4494.30
18000.0	.0	17751.0	249.0	.0	2021.0	158.7	56.7	5.0	4490.50
.04	.00	8.78	1.57	.000	.030	.060	.000	4476.20	669.37
.000947	260.	240.	200.	2	0	0	.00	180.63	870.00

FLOW DISTRIBUTION FOR SECNO= 52.14 CWSEL= 4493.97

STA=	688.	819.	870.
PER Q=	38.6	1.4	
AREA=	2021.0	158.7	
VEL=	8.8	1.6	
DEPTH=	15.6	3.1	

*SECNO 52.148
3280 CROSS SECTION 52.15 EXTENDED .99 FEET

52.148	18.49	4493.99	.00	4492.40	4495.20	1.22	.03	.02	4493.00
18000.0	46.2	17907.5	46.2	49.6	2019.2	49.6	58.2	5.1	4493.00
.04	.93	8.87	.93	.060	.030	.060	.000	4475.50	50.00
.001467	30.	30.	30.	0	0	0	.00	225.00	275.00

FLOW DISTRIBUTION FOR SECNO= 52.15 CWSEL= 4493.99

STA=	50.	100.	225.	275.
PER Q=	.3	99.5	.3	
AREA=	49.6	2019.2	49.6	
VEL=	.9	8.9	.9	
DEPTH=	1.0	16.2	1.0	

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	EAREA	SS	ELCHU	ELCHD
.30	1.50	2.50	.00	106.00	12.00	1430.00	.00	4475.50	4475.50

*SECNO 52.159
3280 CROSS SECTION 52.16 EXTENDED 2.43 FEET

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

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	Q2R	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4497.66	4495.44	.24	3515.	14536.	1430.	1344.	4489.30	4493.00	225.
52.159	19.92	4495.42	.00	4493.59	4496.39	.97	1.19	.00	4493.00
18000.0	217.6	17564.8	217.6	121.5	2198.9	121.5	61.4	5.5	4493.00
.04	1.79	7.99	1.79	.060	.038	.060	.000	4475.50	50.00
.001704	61.	61.	61.	2	0	2	.00	225.00	275.00

FLOW DISTRIBUTION FOR SECNO= 52.16 CWSEL= 4495.42

STA=	50.	100.	225.	275.
PER Q=	1.2	97.6	1.2	
AREA=	121.5	2198.9	121.5	
VEL=	1.8	8.0	1.8	
DEPTH=	2.4	17.6	2.4	

*SECNO 52.167

3470 ENCROACHMENT STATIONS= 670.0 850.0 TYPE= 1 TARGET= 180.000

52.167	20.38	4495.48	.00	4493.67	4496.45	.37	.06	.00	4492.00
18000.0	80.3	17560.1	359.6	49.4	2201.2	169.2	63.8	5.7	4490.40
.04	1.63	7.98	2.13	.060	.038	.060	.000	4475.10	670.00
.001061	42.	42.	42.	0	0	0	.00	180.00	850.00

FLOW DISTRIBUTION FOR SECNO= 52.17 CWSEL= 4495.48

STA=	670.	675.	685.	815.	850.
PER Q=	.1	.3	97.6	2.0	
AREA=	16.0	33.4	2201.2	169.2	
VEL=	1.3	1.8	8.0	2.1	
DEPTH=	3.2	3.3	16.9	4.8	

CCHV= .300 CEHV= .500

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

1490 NH CARD USED
*SECNO 52.292

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 600.0 1150.0 TYPE= 1 TARGET= 550.000

52.292	17.78	4496.68	.00	4494.60	4497.11	.42	.50	.16	4497.30
18000.0	.0	17846.4	153.6	.0	3402.7	140.6	109.2	10.6	4492.00
.06	.00	5.24	1.09	.000	.027	.060	.000	4478.90	689.21
.000559	620.	660.	750.	2	0	0	.00	460.79	1150.90

FLOW DISTRIBUTION FOR SECNO= 52.29 CWSEL= 4496.68

STA=	689.	789.	1031.	1086.	1136.	1150.
PER Q=	59.4	19.7	20.1	.8	.0	
AREA=	1424.3	1404.3	574.0	134.3	6.3	
VEL=	7.5	2.5	6.3	1.1	.3	
DEPTH=	14.3	5.8	10.4	2.7	.5	

1490 NH CARD USED
*SECNO 52.301

3265 DIVIDED FLOW

3280 CROSS SECTION 52.30 EXTENDED 1.75 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 4496.80 ELREA= 4494.90

52.301	16.45	4496.65	.00	4494.53	4497.21	.57	.03	.07	4496.80
18000.0	.0	17929.0	71.0	.0	2954.9	69.5	113.0	11.1	4494.90
.08	.00	6.07	1.02	.000	.023	.060	.000	4480.20	110.00
.000857	50.	50.	50.	2	0	0	.00	457.33	629.00

FLOW DISTRIBUTION FOR SECNO= 52.30 CWSEL= 4496.65

STA=	110.	232.	542.	589.	629.
PER Q=	58.9	7.5	33.2	.4	
AREA=	1500.7	717.6	736.6	69.5	
VEL=	7.1	1.9	8.1	1.0	
DEPTH=	12.7	2.8	15.6	1.7	

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

SPECIAL BRIDGE

SE	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.50	2.80	.00	480.00	340.00	1950.00	1.00	4480.20	4480.20

1490 NH CARD USED
*SECNO 52.317
PRESS FLOW BECAUSE EGLWC OF 4439.85 EXCEEDS 1.5 DEPTH

3265 DIVIDED FLOW

3280 CROSS SECTION 52.32 EXTENDED 2.14 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4498.63	4499.85	2.64	5793.	12111.	1950.	1906.	4492.70	4492.70	337.

52.317	16.84	4497.04	.00	4494.84	4497.54	.51	.33	.00	4496.80
18000.0	2.5	17903.3	94.2	9.6	3124.7	85.2	118.7	12.0	4494.90
.08	.27	5.73	1.11	.060	.023	.060	.000	4480.20	70.00
.000775	80.	80.	80.	2	0	2	.00	527.59	629.00

FLOW DISTRIBUTION FOR SECNO= 52.32 CWSEL= 4497.04

STA=	70.	110.	232.	542.	589.	629.
PER Q=	.0	58.2	8.4	32.9	.5	
AREA=	9.6	1548.7	820.8	755.2	85.2	
VEL=	.3	6.8	1.8	7.8	1.1	
DEPTH=	.2	12.7	2.9	16.0	2.1	

1490 NH CARD USED
*SECNO 52.326

3470 ENCROACHMENT STATIONS= 610.0 1260.0 TYPE= 1 TARGET= 650.000

52.326	13.67	4497.17	.00	4494.95	4497.80	.43	.04	.02	4496.70
18000.0	1.2	17384.2	614.6	4.8	3240.6	463.7	122.8	12.7	4492.00
.09	.24	5.36	1.33	.060	.027	.060	.000	4483.50	642.14
.000641	75.	50.	65.	2	0	0	.00	617.86	1260.00

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

FLOW DISTRIBUTION FOR SECNO=    52.33        CWSEL=   4497.17

STA=    842.    674.    794.   1041.   1096.   1260.
  PER Q=     .0    56.3    17.1    22.6     3.4
   AREA=    4.8  1394.0  1250.1   596.4   463.7
    VEL=     .2     7.3     2.5     6.8     1.3
  DEPTH=     .2    11.6     5.1    10.3     2.8

*SECNO 52.335

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

   52.335    10.16  4497.16     .00  4494.89  4497.70     .54     .05     .05  4496.40
 18000.0     91.7   16607.1  1301.1    90.7   2723.8   662.3   127.1    13.6  4494.40
     .09      1.01    6.10    1.96     .060    .035    .060    .000 4487.00   127.98
 .001562     41.     45.     88.       2       0       0       .00  717.12   845.10

FLOW DISTRIBUTION FOR SECNO=    52.33        CWSEL=   4497.16

STA=    128.    231.    602.    833.    845.
  PER Q=     .5    92.3     7.2      .1
   AREA=   90.7  2723.8   649.2    13.1
    VEL=    1.0     6.1     2.0     1.0
  DEPTH=     .9     7.3     2.8     1.1

CCHV=    .100 CEHV=    .300
*SECNO 52.391

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=    500.0   1100.0  TYPE=     1  TARGET=    600.000
   52.391     9.82  4497.17     .00  4495.46  4498.40     1.23     .50      .21  4498.30
 18000.0       .0   17172.8   827.2      .0   1887.2   475.3   145.0     16.9  4494.00
     .10       .00     9.10    1.74     .000    .030    .060    .000 4487.35   628.51
 .001338     320.    295.     150.       2       0       9       .00  471.49  1100.00

FLOW DISTRIBUTION FOR SECNO=    52.39        CWSEL=   4497.17
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


STA=     829.     844.     922.     970.    1043.    1052.    1100.
  PER Q=    95.4      2.4       .4       .6       .1      1.0
   AREA=  1387.2    208.7     61.2     85.8     15.1    104.4
    VEL=     9.1      2.1      1.3      1.2      1.5      1.8
  DEPTH=     8.8      2.7      1.3      1.2      1.7      2.2

*SECNO 52.489

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     600.0    1000.0  TYPE=     1  TARGET=     400.000
   52.489     9.49  4497.49  4496.40  4496.33  4500.07     2.58     1.26      .41  4498.30
  18000.0       .0 17943.8     56.2       .0  1388.8     52.5    167.4     21.0  4496.30
      .11      .00    12.92     1.07     .000     .025     .060     .000  4488.00   657.30
  .003150     550.     520.     470.        6       11        0      .00   262.78   920.08


FLOW DISTRIBUTION FOR SECNO=     52.49         CWSEL=  4497.49

STA=     657.     834.     840.     878.     920.
  PER Q=    99.7       .0       .2       .1
   AREA=  1388.8      5.9     30.0     16.6
    VEL=    12.9      1.4      1.2       .7
  DEPTH=     7.9      1.0       .8       .4

*SECNO 52.594

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     600.0    1000.0  TYPE=     1  TARGET=     400.000
   52.594    10.08  4499.58      .00  4498.25  4501.64     2.06     1.52      .05  4499.00
  18000.0      3.6 17996.4       .0      9.0  1561.1       .0    186.4     24.2  4509.90
      .12      .41    11.53      .00     .060     .025     .000     .000  4489.50   608.89
  .002441     570.     550.     540.        3        0        0      .00   244.32   853.20


FLOW DISTRIBUTION FOR SECNO=     52.59         CWSEL=  4499.58
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

STA=	609.	658.	661.	873.
PER Q=	.0	.0	100.0	
AREA=	7.8	1.1	1561.1	
VEL=	.4	.5	11.5	
DEPTH=	.2	.4	8.1	

*SECNO 52.692

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 550.0 900.0 TYPE= 1 TARGET= 350.000

52.692	10.60	4500.00	4500.00	4498.69	4504.13	4.13	1.68	.62	4498.40
18000.0	39.2	17960.8	.0	26.5	1099.8	.0	202.5	26.7	4510.00
.13	1.48	16.33	.00	.060	.025	.000	.000	4489.40	575.53
.004476	500.	520.	570.	3	8	0	.00	179.19	813.79

FLOW DISTRIBUTION FOR SECNO= 52.69 CWSEL= 4500.00

STA=	576.	606.	676.	680.	683.	687.	832.
PER Q=	.0	.0	.0	.1	.1	99.8	
AREA=	8.5	3.3	4.0	4.3	6.4	1099.8	
VEL=	.7	.9	1.6	2.1	2.3	16.3	
DEPTH=	.3	.0	1.0	1.4	1.6	8.7	

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T1 TRUCKEE RIVER  -  Center St. to Arlington
T2 File : RENODT18.DAT  modified from File : RRN02.802
T3 Bridges in place, Peak Flow = 18,500 cfs

J1  ICHECK    INQ     NINV     IDIR     STRT     METRIC   NVINS    Q       WSSL     NQ

       0        4        0        0   .00063        0        0       0      4458       0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM     ITRACE

      15        0       -1
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLOCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 3

CEHV= .300 CEHV= .300
*SECNO 51.846

3470 ENCROACHMENT STATIONS= 683.0 1080.0 TYPE= 1 TARGET= 397.000

51.846	17.52	4490.22	.00	4490.00	4491.23	1.07	.00	.00	4490.10
18500.0	.0	18116.2	383.8	.0	2160.5	351.3	.0	.0	4486.10
.06	.00	8.39	1.09	.000	.025	.060	.000	4472.60	683.00
.000627	40.	40.	40.	0	0	3	.00	364.65	1047.65

*SECNO 52.000

3470 ENCROACHMENT STATIONS= 590.0 839.0 TYPE= 1 TARGET= 249.000

52.000	16.26	4490.66	.00	4490.25	4491.51	.85	.16	.06	4490.40
18500.0	.4	18499.6	.0	2.2	2494.3	.0	16.9	2.0	100000.00
.01	.16	7.42	.00	.060	.025	.000	.000	4474.40	650.09
.000504	250.	290.	340.	2	0	0	.00	188.91	839.00

*SECNO 52.005

52.005	15.30	4490.60	.00	4490.22	4491.60	.99	.01	.07	4491.00
18500.0	.0	18500.0	.0	.0	2311.9	.0	18.3	2.1	4491.00
.01	.00	8.00	.00	.000	.025	.000	.000	4475.00	5.00
.000601	25.	25.	25.	2	0	0	.00	149.00	154.00

SPECIAL BRIDGE

SB XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.00	1.50	2.50	.00	151.00	.00	1900.00	.00	4475.50	4475.50

*SECNO 52.017
3280 CROSS SECTION 52.02 EXTENDED .79 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4492.81	4492.10	.00	811.	17786.	1900.	2069.	4489.20	4491.00	154.

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
52.017	16.79	4491.79	.00	4490.92	4492.64	.86	1.05	.00	4491.00
13500.0	1.6	18489.1	9.3	3.9	2488.9	20.5	21.9	8.3	4491.00
.01	.42	7.43	.45	.060	.025	.060	.000	4475.00	.00
.000472	85.	85.	85.	2	0	2	.00	180.00	180.00

*SECNO 52.021

3470 ENCROACHMENT STATIONS=		575.0	890.0	TYPE=	1	TARGET=	315.000		
52.021	16.82	4491.82	.00	4490.92	4492.66	.84	.01	.01	4490.30
18500.0	99.9	18400.1	.0	138.6	2500.1	.0	23.0	2.4	4492.00
.01	.72	7.36	.00	.060	.025	.000	.000	4475.00	575.00
.000490	20.	20.	20.	2	0	0	.00	261.11	836.11

*SECNO 52.072

3470 ENCROACHMENT STATIONS=		670.0	890.0	TYPE=	1	TARGET=	220.000		
52.072	17.16	4491.86	.00	4490.96	4492.91	1.05	.15	.11	4491.30
13500.0	.0	18500.0	.0	.0	2252.7	.0	38.2	3.7	4494.00
.02	.00	8.21	.00	.000	.025	.000	.000	4474.70	670.00
.000616	280.	270.	250.	2	0	0	.00	151.86	821.86

*SECNO 52.078

52.078	16.67	4491.87	.00	4490.96	4492.95	1.08	.02	.02	4493.80
18500.0	.0	18500.0	.0	.0	2219.8	.0	39.7	3.8	4493.80
.03	.00	8.33	.00	.000	.025	.000	.000	4475.20	5.00
.000637	30.	30.	30.	1	0	0	.00	140.00	145.00

SPECIAL BRIDGE

SE	XK	XKOR	CQFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.50	.00	100.00	.00	1520.00	.00	4475.20	4475.20

*SECNO 52.093
3280 CROSS SECTION 52.09 EXTENDED .50 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

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

ZGPRS	ZOLWC	H3	QWEIR	QFR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4495.32	4492.95	.00	598.	17924.	1520.	1520.	4490.40	4493.30	150.
52.093	19.10	4494.30	.00	4492.36	4495.11	.31	2.16	.00	4493.80
18500.0	.9	18496.4	2.8	2.5	2559.0	7.5	44.1	4.1	4493.80
.03	.35	7.23	.37	.060	.030	.060	.000	4475.20	.00
.000588	80.	80.	80.	2	0	2	.00	160.00	160.00

*SECNO 52.097

3470 ENCROACHMENT STATIONS= 682.0 890.0 TYPE= 1 TARGET= 208.000

52.097	17.73	4494.23	.00	4492.31	4495.19	.96	.01	.07	4494.90
18500.0	.0	18409.8	90.2	.0	2337.5	104.4	45.3	4.2	4490.40
.03	.00	7.88	.86	.000	.030	.060	.000	4476.50	682.32
.000712	20.	20.	20.	2	0	0	.00	207.67	890.00

*SECNO 52.142

3470 ENCROACHMENT STATIONS= 665.0 870.0 TYPE= 1 TARGET= 205.000

52.142	18.11	4494.31	.00	4492.37	4495.50	1.19	.19	.11	4494.30
18500.0	.0	18207.1	292.9	.3	2065.9	176.4	58.1	5.2	4490.50
.04	.04	8.81	1.66	.060	.030	.060	.000	4476.20	665.00
.000931	260.	240.	200.	2	0	0	.00	205.00	870.00

*SECNO 52.148
3280 CROSS SECTION 52.15 EXTENDED 1.34 FEET

52.148	18.83	4494.33	.00	4492.40	4495.55	1.22	.03	.02	4493.00
18500.0	75.0	18350.1	75.0	66.9	2062.5	66.9	59.6	5.4	4493.00
.04	1.12	8.90	1.12	.060	.030	.060	.000	4475.50	50.00
.001435	30.	30.	30.	0	0	0	.00	225.00	275.00

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

SPECIAL BRIDGE

SR	XX	XKOR	COPQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.50	2.50	.09	106.00	12.00	1430.00	.00	4475.50	4475.50

*SECNO 52.159
3280 CROSS SECTION 52.16 EXTENDED 2.76 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

KGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4498.23	4495.79	.24	4049.	14501.	1430.	1344.	4489.80	4493.00	225.

52.159	20.26	4495.76	.00	4493.59	4496.73	.97	1.18	.00	4493.00
18500.0	266.1	17967.9	266.1	138.2	2240.5	138.2	62.9	5.7	4493.00
.04	1.93	8.02	1.93	.060	.038	.060	.000	4475.50	50.00
.001675	61.	61.	61.	2	0	2	.00	225.00	275.00

*SECNO 52.167

3470 ENCROACHMENT STATIONS= 670.0 850.0 TYPE= 1 TARGET= 180.000

52.167	20.71	4495.81	.00	4493.67	4496.79	.98	.05	.00	4492.00
18500.0	92.7	18011.3	396.1	54.2	2243.4	180.6	65.3	5.9	4490.40
.04	1.71	8.03	2.19	.060	.038	.060	.000	4475.10	670.00
.001948	42.	42.	42.	1	0	0	.00	180.00	850.00

CCHV= .300 CEHV= .500
1490 NH CARD USED
*SECNO 52.292

3301 HV CHANGED MORE THAN HVINS

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

3470 ENCROACHMENT STATIONS= 600.0 1150.0 TYPE= 1 TARGET= 550.000

52.292	18.12	4497.02	.00	4494.60	4497.43	.41	.48	.17	4497.30
18500.0	.0	18315.0	185.0	.0	3536.4	162.1	112.4	10.8	4492.00
.08	.00	5.18	1.14	.000	.027	.060	.000	4478.90	689.09
.000530	620.	660.	750.	2	0	0	.00	460.91	1150.00

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

1490 NH CARD USED
*SECNO 52.301

3285 DIVIDED FLOW

3280 CROSS SECTION 52.30 EXTENDED 2.99 FEET

52.301	16.79	4496.39	.00	4494.53	4497.53	.54	.03	.07	4496.80
18500.0	1.7	18404.6	93.6	7.5	3101.2	83.1	116.4	11.4	4494.90
.08	.23	5.33	1.13	.060	.023	.060	.000	4480.20	70.00
.000831	50.	50.	50.	2	0	0	.00	522.44	629.00

SPECIAL BRIDGE

SB XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.90	1.50	2.80	.00	480.00	340.00	1950.00	1.00	4480.20	4480.20

1490 NH CARD USED
*SECNO 52.317
PRESS FLOW BECAUSE EGLWC OF 4499.96 EXCEEDS 1.5 DEPTH
3280 CROSS SECTION 52.32 EXTENDED 2.48 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4499.08	4499.96	2.43	6610.	11929.	1950.	1906.	4492.70	4492.70	397.

52.317	17.18	4497.38	.00	4494.84	4497.86	.48	.33	.00	4496.80
18500.0	10.3	18372.1	117.1	23.2	3282.9	98.7	122.4	12.4	4494.90
.08	.46	5.60	1.19	.060	.023	.060	.000	4480.20	70.30
.000741	80.	80.	80.	2	0	3	.00	559.00	629.00

1490 NH CARD USED
*SECNO 52.326

3470 ENCROACHMENT STATIONS= 610.0 1260.0 TYPE= 1 TARGET= 650.000

52.326	14.00	4497.50	.00	4494.95	4497.91	.41	.03	.02	4496.70
18500.0	7.9	17787.8	704.4	23.7	3379.4	517.7	126.8	13.2	4492.00
.09	.33	5.26	1.36	.060	.027	.060	.000	4483.50	610.00
.000598	75.	50.	65.	2	0	0	.00	650.00	1260.00

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

*SECNO 52.335

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

52.335	10.50	4497.50	.00	4494.89	4498.30	.50	.04	.04	4496.40
18500.0	146.6	16881.1	1478.3	130.0	2847.9	748.9	131.3	14.1	4494.40
.09	1.08	5.33	1.99	.060	.035	.060	.000	4487.00	98.88
.001391	41.	45.	88.	2	0	0	.00	748.09	846.98

CCHV= .100 CEHV= .300
*SECNO 52.391

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 500.0 1100.0 TYPE= 1 TARGET= 600.000

52.391	10.12	4497.47	.00	4495.46	4498.65	1.18	.45	.20	4498.30
18500.0	.0	17497.3	1002.7	.0	1950.4	550.4	150.3	17.4	4494.00
.10	.00	8.97	1.82	.000	.030	.060	.000	4487.35	628.38
.001806	320.	295.	150.	2	0	0	.00	471.62	1100.00

*SECNO 52.489

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 600.0 1000.0 TYPE= 1 TARGET= 400.000

52.489	9.69	4497.69	4496.55	4496.33	4500.27	2.59	1.20	.42	4498.30
18500.0	.0	18415.8	84.2	.0	1423.9	70.6	173.8	21.7	4496.30
.11	.00	12.93	1.19	.000	.025	.060	.000	4488.00	656.74
.003067	550.	520.	470.	6	11	0	.00	273.92	930.66

*SECNO 52.594

3470 ENCROACHMENT STATIONS= 600.0 1000.0 TYPE= 1 TARGET= 400.000

52.594	10.22	4499.72	.00	4498.25	4501.83	2.10	1.50	.05	4499.00
18500.0	9.4	18490.6	.0	16.9	1588.1	.0	193.3	25.0	4509.90
.12	.55	11.64	.00	.060	.025	.000	.000	4489.50	600.24
.002454	570.	550.	540.	3	0	0	.00	254.23	854.47

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

*SECNO 52.692

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 550.0 900.0 TYPE= 1 TARGET= 350.000

52.692	10.30	4500.20	4500.20	4498.69	4504.35	4.16	1.67	.62	4498.40
18500.0	58.1	18441.9	.0	37.6	1125.1	.0	209.8	27.6	4510.00
.13	1.55	16.39	.00	.060	.025	.000	.000	4489.40	573.21
.004395	500.	520.	570.	4	8	0	.00	186.04	814.17

THIS RUN EXECUTED 01FEB91 08:23:00

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************************************************
  HEC2 RELEASE DATED SEP 88 UPDATED JUN  1990

  ERROR CORR -  01,02,03,04
  MODIFICATION -
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

OWN RENO (EXISTING COND

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	XLTRD	XLLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
51.945	.00	.00	.00	4472.60	14000.00	4490.00	.00	4490.64	3.79	6.46	2438.51	7192.85
51.945	.00	.00	.00	4472.60	18000.00	4490.00	.00	4491.05	6.26	8.31	2438.51	7192.85
51.945	.00	.00	.00	4472.60	18500.00	4490.22	.00	4491.28	6.27	8.39	2511.72	7391.08
52.000	290.00	.00	.00	4474.40	14000.00	4490.25	.00	4490.77	3.16	5.78	2424.15	7872.59
52.000	290.00	.00	.00	4474.40	18000.00	4490.45	.00	4491.28	5.01	7.32	2457.77	8044.54
52.000	290.00	.00	.00	4474.40	18500.00	4490.66	.00	4491.51	5.04	7.42	2496.50	8239.84
52.005	25.00	.00	.00	4475.00	14000.00	4490.22	.00	4490.82	3.72	6.21	2255.43	7260.17
52.005	25.00	.00	.00	4475.00	18000.00	4490.39	.00	4491.36	5.94	7.89	2280.89	7387.90
52.005	25.00	.00	.00	4475.00	18500.00	4490.60	.00	4491.60	6.01	8.00	2311.88	7544.31
52.017	65.00	4491.00	4489.20	4475.00	14000.00	4490.92	.00	4491.46	3.24	5.94	2358.88	7783.46
52.017	65.00	4491.00	4489.20	4475.00	18000.00	4491.53	.00	4492.37	4.71	7.34	2467.49	8293.71
52.017	65.00	4491.00	4489.20	4475.00	18500.00	4491.79	.00	4492.64	4.72	7.43	2513.37	8511.31
52.021	20.00	.00	.00	4475.00	14000.00	4490.92	.00	4491.47	3.37	5.95	2405.88	7624.35
52.021	20.00	.00	.00	4475.00	18000.00	4491.56	.00	4492.38	4.91	7.31	2567.37	8126.82
52.021	20.00	.00	.00	4475.00	18500.00	4491.82	.00	4492.66	4.90	7.36	2638.71	8355.10
52.072	270.00	.00	.00	4474.70	14000.00	4490.96	.00	4491.64	4.29	6.62	2115.21	6761.25
52.072	270.00	.00	.00	4474.70	18000.00	4491.60	.00	4492.63	6.16	8.13	2213.01	7250.08
52.072	270.00	.00	.00	4474.70	18500.00	4491.86	.00	4492.91	6.16	8.21	2252.63	7452.79
52.078	30.00	.00	.00	4475.20	14000.00	4490.96	.00	4491.66	4.37	6.69	2093.15	6694.63
52.078	30.00	.00	.00	4475.20	18000.00	4491.61	.00	4492.66	6.35	8.24	2183.25	7145.26
52.078	30.00	.00	.00	4475.20	18500.00	4491.87	.00	4492.95	6.37	8.33	2219.75	7330.41
52.093	80.00	4493.80	4490.40	4475.20	14000.00	4492.36	.00	4492.94	4.79	6.12	2287.70	6399.10
52.093	80.00	4493.80	4490.40	4475.20	18000.00	4493.95	.00	4494.75	5.94	7.17	2513.45	7388.03
52.093	80.00	4493.80	4490.40	4475.20	18500.00	4494.30	.00	4495.11	5.88	7.23	2568.91	7628.91

	SECNO	XLCH	XLTRD	XLLC	XLMIN	Q	CWSEL	CRIWS	WG	10*KS	VCH	AREA	.01K
	52.097	20.00	.00	.00	4476.50	14000.00	4492.31	.00	4493.02	6.07	6.77	2071.09	5680.47
	52.097	20.00	.00	.00	4476.50	18000.00	4493.89	.00	4494.84	7.23	7.34	2369.57	6694.33
	52.097	20.00	.00	.00	4476.50	18500.00	4494.23	.00	4495.19	7.12	7.88	2441.94	6933.56
	52.142	240.00	.00	.00	4476.20	14000.00	4492.37	.00	4493.28	8.15	7.67	1893.17	4902.75
	52.142	240.00	.00	.00	4476.20	18000.00	4493.97	.00	4495.15	9.47	8.78	2179.71	5848.06
	52.142	240.00	.00	.00	4476.20	18500.00	4494.31	.00	4495.50	9.31	8.81	2242.56	6064.68
	52.148	30.00	.00	.00	4475.50	14000.00	4492.40	.00	4493.32	12.58	7.69	1819.54	3947.02
	52.148	30.00	.00	.00	4475.50	18000.00	4493.99	.00	4495.20	14.67	8.87	2118.45	4700.10
	52.148	30.00	.00	.00	4475.50	18500.00	4494.33	.00	4495.55	14.35	8.90	2136.34	4883.75
	52.159	61.00	4493.00	4489.30	4475.50	14000.00	4493.59	.00	4494.37	15.54	7.09	2029.13	3551.95
	52.159	61.00	4493.00	4489.30	4475.50	18000.00	4495.42	.00	4496.39	17.04	7.99	2442.00	4360.80
	52.159	61.00	4493.00	4489.30	4475.50	18500.00	4495.76	.00	4496.73	16.75	8.02	2516.81	4520.28
	52.167	42.00	.00	.00	4475.10	14000.00	4493.67	.00	4494.43	9.62	7.04	2090.18	4512.95
	52.167	42.00	.00	.00	4475.10	18000.00	4495.48	.00	4496.45	10.61	7.98	2419.77	5525.96
	52.167	42.00	.00	.00	4475.10	18500.00	4495.81	.00	4496.79	10.48	8.03	2478.22	5715.31
	52.292	660.00	.00	.00	4478.90	14000.00	4494.60	.00	4495.06	6.96	5.42	2618.54	5306.51
	52.292	660.00	.00	.00	4478.90	18000.00	4496.68	.00	4497.11	5.59	5.24	3543.23	7616.33
*	52.292	660.00	.00	.00	4478.90	18500.00	4497.02	.00	4497.43	5.30	5.18	3698.49	8032.43
	52.301	50.00	.00	.00	4480.20	14000.00	4494.53	.00	4495.21	9.79	6.61	2118.82	4474.49
	52.301	50.00	.00	.00	4480.20	18000.00	4496.65	.00	4497.21	8.57	6.07	3024.35	6149.91
	52.301	50.00	.00	.00	4480.20	18500.00	4496.99	.00	4497.53	8.31	5.93	3191.76	6418.48
	52.317	80.00	4492.70	4492.70	4480.20	14000.00	4494.84	.00	4495.44	8.93	6.26	2235.78	4685.33
	52.317	80.00	4492.70	4492.70	4480.20	18000.00	4497.04	.00	4497.54	7.75	5.73	3219.44	6467.35
	52.317	80.00	4492.70	4492.70	4480.20	18500.00	4497.38	.00	4497.86	7.41	5.60	3404.86	6796.38
	52.326	50.00	.00	.00	4483.50	14000.00	4494.95	.00	4495.51	9.51	6.00	2440.70	4540.15
	52.326	50.00	.00	.00	4483.50	18000.00	4497.17	.00	4497.60	6.41	5.36	3709.11	7107.20
	52.326	50.00	.00	.00	4483.50	18500.00	4497.50	.00	4497.91	5.98	5.26	3920.78	7564.71
*	52.335	45.00	.00	.00	4487.00	14000.00	4494.89	.00	4495.72	36.27	7.33	2010.87	2324.75
*	52.335	45.00	.00	.00	4487.00	18000.00	4497.16	.00	4497.70	15.62	6.10	3476.82	4555.12
*	52.335	45.00	.00	.00	4487.00	18500.00	4497.50	.00	4498.00	13.91	5.93	3721.85	4960.68
	52.391	295.00	.00	.00	4487.35	14000.00	4495.46	.00	4496.75	25.79	3.14	1619.04	2756.90
	52.391	295.00	.00	.00	4487.35	18000.00	4497.17	.00	4498.40	19.38	3.10	2362.48	4088.67
	52.391	295.00	.00	.00	4487.35	18500.00	4497.47	.00	4498.35	18.06	8.97	2500.86	4353.08
	52.489	520.00	.00	.00	4488.00	14000.00	4496.33	.00	4498.49	31.54	11.79	1187.09	2492.80
	52.489	520.00	.00	.00	4488.00	18000.00	4497.49	4496.40	4500.07	31.50	12.92	1441.33	3206.93
	52.489	520.00	.00	.00	4488.00	18500.00	4497.69	4496.55	4500.27	30.67	12.93	1494.53	3340.61
	52.594	550.00	.00	.00	4489.50	14000.00	4498.25	.00	4500.01	23.25	10.63	1316.57	2903.63
	52.594	550.00	.00	.00	4489.50	18000.00	4499.58	.00	4501.64	24.41	11.53	1570.08	3643.37
	52.594	550.00	.00	.00	4489.50	18500.00	4499.72	.00	4501.93	24.54	11.64	1605.01	3734.43

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	52.692	520.00	.00	.00	4483.40	14000.00	4498.89	4498.45	4502.16	45.10	14.95	937.85	2084.63
*	52.692	520.00	.00	.00	4489.40	18000.00	4500.00	4500.00	4504.13	44.76	16.33	1126.37	2690.44
*	52.692	520.00	.00	.00	4489.40	18500.00	4500.20	4500.20	4504.35	43.95	16.39	1162.66	2790.68

OWN RENO (EXISTING COND)

SUMMARY PRINTOUT TABLE 150

SSCSO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLOC
51.945	14000.00	4490.00	.00	.00	.00	382.22	.00
51.945	16000.00	4490.00	.00	.00	.00	382.22	.00
51.945	18500.00	4490.22	.22	.00	.22	364.65	.00
52.000	14000.00	4490.25	.00	.25	.00	178.32	290.00
52.000	16000.00	4490.45	.19	.45	.19	178.37	290.00
52.000	18500.00	4490.65	.21	.44	.40	188.91	290.00
52.005	14000.00	4490.22	.00	-.03	.00	149.00	25.00
52.005	16000.00	4490.39	.17	-.05	.17	149.00	25.00
52.005	18500.00	4490.60	.21	-.06	.38	149.00	25.00
52.017	14000.00	4490.92	.00	.69	.00	149.00	65.00
52.017	16000.00	4491.53	.62	1.14	.62	180.00	65.00
52.017	18500.00	4491.79	.25	1.18	.87	180.00	65.00
52.021	14000.00	4490.92	.00	.01	.00	256.62	20.00
52.021	16000.00	4491.56	.63	.02	.63	259.74	20.00
52.021	18500.00	4491.82	.27	.04	.90	261.11	20.00
52.072	14000.00	4490.96	.00	.04	.00	151.49	270.00
52.072	16000.00	4491.60	.64	.05	.64	151.85	270.00
52.072	18500.00	4491.86	.26	.04	.91	151.86	270.00
52.078	14000.00	4490.96	.00	.01	.00	140.00	30.00
52.078	16000.00	4491.61	.64	.00	.64	140.00	30.00
52.078	18500.00	4491.87	.26	.00	.90	140.00	30.00
52.093	14000.00	4492.36	.00	1.39	.00	140.00	80.00
52.093	16000.00	4493.95	1.59	2.34	1.59	160.00	80.00
52.093	18500.00	4494.30	.35	2.43	1.94	160.00	80.00
52.097	14000.00	4492.31	.00	-.05	.00	150.78	20.00
52.097	16000.00	4493.89	1.58	-.06	1.58	207.50	20.00
52.097	18500.00	4494.23	.35	-.06	1.93	207.67	20.00
52.142	14000.00	4492.37	.00	.07	.00	178.85	240.00
52.142	16000.00	4493.97	1.59	.08	1.59	180.63	240.00
52.142	18500.00	4494.31	.35	.08	1.94	205.00	240.00
52.148	14000.00	4492.40	.00	.02	.00	125.00	30.00
52.148	16000.00	4493.99	1.59	.02	1.59	225.00	30.00
52.148	18500.00	4494.33	.35	.02	1.93	225.00	30.00
52.159	14000.00	4493.59	.00	1.19	.00	225.00	61.00
52.159	16000.00	4495.42	1.83	1.44	1.83	225.00	61.00
52.159	18500.00	4495.76	.33	1.42	2.16	225.00	61.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFEWS	TOPWID	XLCH
	52.167	14000.00	4493.67	.00	.07	.00	180.00	42.00
	52.167	13000.00	4495.48	1.82	.06	1.32	180.00	42.00
	52.167	13500.00	4495.31	.33	.05	2.14	180.00	42.00
	52.252	14000.00	4494.80	.00	.33	.00	428.36	660.00
	52.252	13000.00	4496.88	2.08	1.20	2.08	480.73	660.00
*	52.252	13500.00	4497.02	.34	1.21	2.42	460.91	660.00
	52.301	14000.00	4494.53	.00	-.07	.00	363.26	50.00
	52.301	13000.00	4496.65	2.11	-.04	2.11	457.33	50.00
	52.301	13500.00	4496.99	.34	-.03	2.46	522.44	50.00
	52.317	14000.00	4494.34	.00	.30	.00	380.05	80.00
	52.317	13000.00	4497.04	2.20	.39	2.20	527.59	80.00
	52.317	13500.00	4497.38	.34	.39	2.54	559.00	80.00
	52.326	14000.00	4494.35	.00	.12	.00	523.93	50.00
	52.326	13000.00	4497.17	2.22	.13	2.22	617.36	50.00
	52.326	13500.00	4497.50	.33	.12	2.55	650.00	50.00
*	52.335	14000.00	4494.39	.00	-.06	.00	571.99	45.00
*	52.335	13000.00	4497.16	2.27	-.01	2.27	717.12	45.00
*	52.335	13500.00	4497.50	.33	.00	2.60	748.09	45.00
	52.391	14000.00	4495.46	.00	.57	.00	344.33	295.00
	52.391	13000.00	4497.17	1.71	.01	1.71	471.49	295.00
	52.391	13500.00	4497.47	.29	-.03	2.01	471.62	295.00
	52.489	14000.00	4496.33	.00	.87	.00	173.98	520.00
	52.489	13000.00	4497.49	1.16	.31	1.16	262.78	520.00
	52.489	13500.00	4497.69	.20	.22	1.36	273.92	520.00
	52.594	14000.00	4493.25	.00	1.92	.00	175.34	550.00
	52.594	13000.00	4499.58	1.33	2.09	1.33	244.32	550.00
	52.594	13500.00	4499.72	.14	2.03	1.47	254.23	550.00
	52.692	14000.00	4498.69	.00	.44	.00	131.00	520.00
*	52.692	13000.00	4500.00	1.31	.42	1.31	179.19	520.00
*	52.692	13500.00	4500.20	.20	.47	1.51	186.04	520.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 52.292 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 52.335 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 52.335 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 52.335 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 52.692 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 52.692 PROFILE= 2 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 52.692 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 52.692 PROFILE= 3 MINIMUM SPECIFIC ENERGY

"IMPROVED MODEL"

Nimbus Engineers

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**********************************************************
*  WATER SURFACE PROFILES                                *
*  VERSION OF SEPTEMBER 1988                             *
*  ERROR: 01,02,03,04                                    *
*  UPDATED:  JUNE 1990                                   *
*  RUN DATE    31JAN91    TIME   15:10:49                 *
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****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616-4687        *
*           (916) 756-1104             *
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X    X XXXXXXX  XXXXX          XXXXX
X    X X       X    X        X    X
X    X X       X              X
XXXXXXX XXXX   X       XXXXX  XXXXX
X    X X       X             X
X    X X       X    X        X
X    X XXXXXXX  XXXXX         XXXXXXX
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END OF BANNER

THIS RUN EXECUTED 31JAN91 15:10:49

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**************************************************
 HEC2 RELEASE DATED SEP 68 UPDATED JUN  1990

 ERROR CORR -  01,02,03,04
 MODIFICATION -
**************************************************

T1 TRUCKEE RIVER FLOOD INSURANCE STUDY
T2 TUDOR ENGINEERS  (INCLUDES NEW DATA FOR ARLINGTON BRIDGE)
T3 DOWNTOWN RENO  (AMPHFISB.DAT)

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

       0       2        0        0        0        0        0        0     4490        0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

       1       0       -1

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     150

QT       3    14000    18000    18500        0        0        0        0        0        0
NC     .06      .06     .025       .3       .5
NT              9.1      9.1      9.1                                          683     1080
X1   51.945       40      683      837       40       40       40        0        0        0
GR   4492.7        0   4492.4      111   4491.7      122   4492.3      132   4492.3      166
GR     4492      189   4490.4      415   4488.4      455     4488      531     4488      571
GR     4488      617   4488.5      644   4490.2      653   4490.6      673   4490.1      683
GR   4475.1      701   4473.8      707     4473      721   4472.9      734   4472.6      744
GR     4473      756   4473.8      769   4474.3      784   4475.1      799   4475.6      800
GR   4480.5      823   4486.1      837   4488.5      928   4490.2     1027   4490.2     1047
GR   4491.5     1103   4492.1     1165   4492.1     1194   4494.1     1247   4494.7     1303
GR   4494.8     1344     4495     1379     4495     1422   4495.6     1455   4496.6     1494

ST              9.1      9.1      9.1                                          590      839
X1       52       35      665      839      250      340      290        0        0        0
GR   4495.1        0   4494.1       90   4492.3      276   4490.4      460   4489.6      483
GR   4489.8      528   4490.5      536   4491.1      628   4490.4      563   4490.4      665
GR   4476.7      672   4476.3      673   4475.9      674   4475.5      692   4474.4      705
GR     4475      739   4476.5      760   4475.7      779   4475.4      817   4476.7      829
GR   4480.5      830     4490      839     4492      942   4494.1     1035   4494.3     1079
GR     4496     1149   4496.6     1249   4496.6     1285   4496.2     1302   4494.1     1350
GR   4493.7     1407   4492.9     1459   4493.2     1472   4493.2     1492   4493.5     1498

X1   52.005       20        5      154       25       25       25
GR     4491        0     4491        5     4475        5     4475       10     4475       20
GR     4475       35     4475       45     4475       55     4475       65   4475.5       72
GR   4475.5       84     4475       94     4475      104     4475      114     4475      124
GR     4475      134     4475      144   4475.5      154     4491      154     4491      180
```

SB	0	1.5	2.5	0	151	0	1900	0	4475.5	4475.5
X1	52.017	0	0	0	65	65	65	0	0	0
X2	0	0	1	4489.2	4491	0	0	0	0	0
BT	4	0	4491	4491	5	4491	4489.2	154	4491	4489.2
BT	154	4491	4491	0	0	0	0	0	0	0
RT		9.1	9.1	9.1					575	890
X1	52.021	45	686	837	20	20	20	0	0	0
GR	4494.8	0	4494.1	64	4493.9	80	4493.9	133	4493.3	195
GR	4490.9	471	4490.4	503	4489.7	514	4490.3	517	4490.3	577
GR	4490.3	591	4490.3	608	4490.3	635	4490.3	652	4490.3	666
GR	4477.3	677	4477.3	678	4475.8	690	4475.1	705	4475	735
GR	4476.7	752	4476.6	806	4475.9	810	4475.9	826	4477.3	829
GR	4490.5	830	4490.3	831	4492.0	837	4494	905	4493.8	914
GR	4494	1002	4494	1021	4493.6	1025	4494.2	1037	4494.2	1070
GR	4494.2	1084	4496	1146	4496.8	1246	4496.3	1297	4494.1	1366
GR	4493.4	1427	4493.4	1463	4494	1495	4494	1529	4494.3	1546
RT		9.1	9.1	9.1					670	890
X1	52.072	40	670	822	280	250	270			
GR	4499.2	0	4498.8	24	4498.8	70	4498.5	97	4497.6	181
GR	4496.4	322	4495.4	418	4494.2	478	4493.7	501	4491.3	670
GR	4478.3	682	4476.3	695	4476.3	698	4475.8	733	4477.9	753
GR	4475.3	773	4474.7	787	4477	812	4477.3	818	4478.3	821
GR	4494	822	4494.5	882	4494.5	924	4494	1002	4493.9	1009
GR	4493.9	1052	4494.2	1065	4496.1	1079	4497.3	1229	4497	1233
GR	4496.1	1310	4496.1	1360	4496.1	1387	4495.3	1431	4495.3	1463
GR	4495.6	1483	4495.6	1495	4495.8	1521	4495.9	1551	4495.9	1555
X1	52.078	16	5	145	30	30	30	0	0	0
GR	4493.8	0	4493.8	5	4476.7	5	4476.6	10	4476.5	26
GR	4476	46	4475.4	65	4475.2	70	4475.2	80	4475.3	85
GR	4475.5	104	4476.3	124	4477.3	140	4477.6	145	4493.8	145
GR	4493.8	160	0	0	0	0	0	0	0	0
SB	0	1.5	2.5	0	100	0	1520	0	4475.2	4475.2
NC	.060	.060	.030	0	0	0	0	0	0	0
X1	52.093	0	0	0	80	80	80	0	0	0
X2	0	0	1	4490.4	4493.8	0	0	0	0	0
BT	16	0	4493.8	4493.8	5	4493.8	4480.6	10	4493.8	4485
BT	26	4493.8	4490.4	46	4493.8	4490.4	65	4493.8	4485	70
BT	4493.8	4479.2	70	4493.8	4475.2	80	4493.8	4475.2	80	4493.8
BT	4479.2	85	4493.8	4485	104	4493.8	4490.4	124	4493.8	4490.4
BT	140	4493.8	4485	145	4493.8	4480.6	160	4493.8	4493.8	0
RT		9.1	9.1	9.1					682	890
X1	52.097	35	682	822	20	20	20	0	0	0
GR	4499.7	0	4499.3	4	4499.3	54	4499.3	62	4499.4	120
GR	4496.3	217	4488.1	232	4488.1	291	4490.2	294	4492	324
GR	4494.0	334	4495.1	386	4495.1	644	4494.8	669	4494.9	682
GR	4478.5	690	4477	696	4477	698	4476.9	708	4476.8	726
GR	4476.9	747	4476.5	763	4476.5	786	4476.9	802	4478.5	821
GR	4490.4	822	4492.1	823	4494.1	931	4495.3	1092	4496.2	1165

GR	4496.9	1275	4497.3	1328	4497.7	1416	4497.9	1504	4498.3	1515
ET		9.1	9.1	9.1					665	870
X1	52.142	29	689	819	260	200	240	0	0	0
GR	4496.8	0	4499.5	125	4498.2	198	4496.3	340	4496.1	413
GR	4496	451	4495.9	518	4495.3	582	4494.3	633	4494.3	689
GR	4479.1	706	4477	713	4476.9	738	4476.4	761	4476.2	775
GR	4476.9	787	4477.5	794	4478.5	813	4479.1	818	4490.5	819
GR	4491.7	905	4492.2	952	4494	991	4496.2	1097	4496.9	1195
GR	4496	1434	4498.3	1490	4498.6	1496	4498.6	1500	0	0
X1	52.148	14	100	225	30	30	30	0	0	0
GR	4493	50	4493	100	4482.2	100	4476.5	136	4488.6	136
GR	4488.6	139	4476.5	139	4475.5	184	4487.8	184	4487.8	187
GR	4475.5	187	4478.4	225	4493	225	4493	275	0	0
SB	.900	1.5	2.5	0	106	12	1430	0	4475.5	4475.5
NC	.060	.060	.038			0	0	0	0	0
X1	52.159	0	0	0	61	61	61			
X2	0	0	1	4489.8	4493	0	0	0	0	0
BT	11	50	4493	4493	100	4493	4488.7	118	4493	4489.8
BT	136	4493	4488.6	139	4493	4488.6	162	4493	4489.4	184
BT	4493	4487.8	187	4493	4487.8	206	4493	4489.2	225	4493
BT	4487.8	275	4493	4493	0	0	0	0	0	0
ET		9.1	9.1	9.1					670	850
X1	52.167	30	685	815	42	42	42			
GR	4500.4	0	4500.1	3	4499.3	41	4489.2	230	4496.3	355
GR	4494.1	552	4493.4	602	4492.3	667	4492.3	675	4492	685
GR	4478.3	694	4476.3	715	4476.3	716	4476.3	725	4475.1	745
GR	4475.7	759	4477	775	4477.7	788	4479.2	792	4479.6	793
GR	4490.4	815	4492.2	938	4493.9	983	4496	1012	4498.3	1049
GR	4498.6	1078	4498.3	1130	4497.8	1231	4498.3	1346	4501.1	1492
ET		9.1	9.1	9.1					600	1150
NC				.3	.5					
NH	5	.06	689	.025	789	.045	1031	.025	1086	.06
NH	1377									
X1	52.292	39	689	1086	620	750	660			
X4	11	4498.3	840	4498.3	852	4503.3	853	4503.3	938	4500.8
X4	939	4500.8	948	4498.3	949	4498.3	969	4494.7	971	4494.7
X4	980	4490	981							
GR	4501	0	4501	99	4500.2	165	4499.3	306	4498.4	425
GR	4497.4	568	4497.4	619	4497.8	627	4497.9	660	4497.3	689
GR	4482.4	694	4482.2	702	4480.2	703	4479.2	706	4479.2	708
GR	4478.3	709	4481.6	713	4480.7	738	4482.2	750	4482.4	779
GR	4490.3	789	4491.1	839	4490.7	1031	4485.8	1036	4485.8	1082
GR	4492	1086	4496	1136	4498	1196	4500	1206	4502	1241
GR	4504	1251	4506	1255	4508	1261	4510	1267	4512	1287
GR	4514	1297	4516	1307	4518	1322	4520	1377		

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NH      5      .06      110      .025      232      .045      542.1      .025      539.2      .06
NH    629
X1  52.301       35      110     589.2       50       50         50
X3     10
X4      3   4503.3      320    4503.3      370   4493.2        371
GR 4496.8       70   4486.8      110    4489.4    110.1     4483.1      131    4480.2      132
GR 4480.9      140   4480.9      152    4496.7    152.1     4496.7    153.9    4480.9      154
GR 4480.9      160   4483.4      180    4484.8      192     4496.7    192.1    4496.7    193.9
GR 4484.9      194   4486.4      215    4485.5      232     4497.2    232.1    4497.3    238.1
GR 4496.8      279   4494.4    336.2    4493.2    386.6     4492.7    437.0    4493.2    488.6
GR 4494.6    539.8   4494.9    542.1    4481.2    542.2     4481.0    552.1    4480.6    562.1
GR 4480.2    572.1   4481.5    582.1    4482.6    589.1     4494.9    589.2    4494.9      629

SB      .9      1.5      2.8                480       340.0      1950         1    4480.2    4480.2
NH      5      .06      110      .025      232       .045      542.1      .025      589.2      .06
NH    629
X1  52.317       35      110     589.2       80         80         80
X2                    1    4492.7    4492.7
X3     10
BT    -19        0   4496.8                .1    4499.8                110.0    4499.8
BT          128.1   4499.8              232.0    4499.8                232.1    4497.2
BT          238.1   4497.3              279.0    4496.8                336.2    4494.4
BT          386.5   4492.7              437.0    4493.2                488.6    4493.2
BT          539.8   4494.6              542.1    4494.9                543.0    4495.2
BT          543.4   4497.5              589.2    4497.5                590.0    4494.9
BT          629.0   4494.9
GR 4496.8       70   4496.8      110    4489.4    110.1     4483.1      131    4480.2      132
GR 4480.9      140   4480.9      152    4496.7    152.1     4496.7    153.9    4480.9      154
GR 4480.9      160   4483.4      180    4484.8      192     4496.7    192.1    4496.7    193.9
GR 4484.9      194   4486.4      215    4485.5      232     4497.2    232.1    4497.3    238.1
GR 4496.8      279   4494.4    336.2    4493.2    386.6     4492.7    437.0    4493.2    488.6
GR 4494.6    539.8   4494.9    542.1    4481.2    542.2     4481.0    552.1    4480.6    562.1
GR 4480.2    572.1   4481.5    582.1    4482.6    589.1     4494.9    589.2    4494.9      629

NH  5.000     .060   674.000     .025   794.000     .045   1041.000     .025  1096.000     .060
NH 1670.0
BT              9.1       9.1       9.1                                 9.1   610.000  1260.000
X1  52.326   36.000   674.000  1096.000    75.000    65.000    50.000
GR 4503.2    0.000  4502.300   111.000  4501.900   135.000  4501.600   166.000  4501.600   207.000
GR 4500.2  325.000  4498.200   463.000  4497.300   612.000  4497.100   658.000  4496.700   674.000
GR 4484.1  707.000  4483.6     714.000  4483.6     731.000  4483.5     732.000  4483.5     756.000
GR 4483.6  768.000  4484.100   793.000  4492.300   794.000  4492.700   832.000  4492.300   874.000
GR 4491.5  975.000  4492.400  1041.000  4485.800  1046.000  4485.300  1092.000  4492.000  1096.000
GR 4494.0 1150.000  4496.000  1260.000  4498.000  1267.000  4500.000  1269.000  4502.000  1277.000
GR 4504.0 1280.000  4506.000  1285.000  4508.000  1290.000  4510.000  1300.000  4512.000  1480.000
GR 4514.0 1670.000

NC    .060      .060     .0348         0         0
X1  52.335        34       231       602        41        88        45         0         0         0
GR    4499         0      4498        55      4497       142      4496       176      4496       182
GR    4496       199      4496       210      4496       218    4496.1       220      4495       221
GR  4496.4       231    4487.3       231    4487.2       251    4487.1       280    4487.1       327
GR  4493.7       334    4495.3       346    4492.3       347      4492       350      4492       459
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GR	4491.4	527	4492.4	527	4492.4	528	4487	528	4487.5	600
GR	4494.4	602	4494.4	603	4492.9	604	4493	616	4493.8	654
GR	4494.3	654	4495	833	4500	861	4505	887		
ET		9.1	9.1	9.1					500	1100
NC	.060	.060	.03	.1	.3					
X1	52.381	33	628.300	844	320	150	295			
GR	4503.9	0	4503.2	32	4503.8	54	4503.2	89	4503.3	138
GR	4500.4	246	4498.3	371	4498.2	505	4497.3	512	4498.3	522
GR	4498.3	548	4498.2	579	4498.3	602	4498.3	628	4491.7	651
GR	4488	636	4487.35	670	4486	715	4489	724	4489	755
GR	4488	772	4488	817	4489	831	4490	836	4494	844
GR	4495	922	4495.8	922	4496	970	4496	1043	4495	1052
GR	4495	1137	4500	1159	4505	1179				
NC	.06	.06	.025							
ET		9.1	9.1	9.1					600.00	1000.000
X1	52.489	45.000	655.000	834.000	550	470	520			
GR	4508.3	0.000	4506.200	113.000	4504.100	146.000	4502.100	206.000	4501.400	229.000
GR	4500.2	261.000	4499.800	270.000	4500.300	280.00	4500.300	321.000	4499.800	336.000
GR	4498.5	488.000	4498.300	614.000	4498.800	628.000	4498.600	646.000	4498.300	655.000
GR	4490.2	678.000	4490.200	689.000	4489.500	694.000	4489.100	713.000	4488.000	719.000
GR	4488.3	746.000	4489.200	790.000	4489.300	829.000	4490.200	830.000	4490.200	831.000
GR	4496.3	834.000	4496.700	840.000	4496.700	878.000	4498.200	958.000	4500.100	998.000
GR	4510.1	1020.000	4530.200	1050.000	4532.000	1061.000	4534.100	1087.000	4536.000	1111.000
GR	4538.3	1136.000	4538.300	1163.000	4536.400	1219.000	4536.400	1248.000	4536.400	1272.000
GR	4534.1	1315.000	4532.400	1356.000	4530.700	1423.000	4528.400	1442.000	4526.000	1485.000
NC	.06	.06	.025							
ET		9.1	9.1	9.1					600	1000
X1	52.594	55	661	873	570	540	550	0	0	0
GR	4510	0	4509.9	30	4509.9	40	4510.3	64	4509.9	90
GR	4508.1	120	4505.7	135	4503.9	190	4502.1	215	4502.1	234
GR	4501	297	4500.5	376	4500	438	4499.5	447	4499.5	467
GR	4500.3	520	4500.6	539	4500	583	4499.4	620	4499.4	658
GR	4499	661	4498.4	665	4497.3	668	4494.3	669	4490.1	672
GR	4491.7	687	4491.7	696	4490.7	702	4490.4	711	4490.3	766
GR	4489.7	791	4489.5	812	4490.1	823	4491.7	834	4492.2	835
GR	4497.9	838	4500	857	4509.9	873	4520.2	889	4530.1	897
GR	4540	906	4548	929	4549.9	947	4549.9	969	4550	1004
GR	4547.9	1071	4546.6	1105	4546.3	1120	4543.3	1193	4542.2	1268
GR	4541.4	1292	4540.2	1348	4540	1363	4538.8	1419	4538.1	1461
ET		9.1	9.1	9.1	9.1	9.1	9.1	9.1	550	900
X1	52.692	50	687	832	500	570	520	0	0	0
GR	4507.6	0	4506.3	57	4506.3	74	4504.1	120	4502.5	146
GR	4502.5	193	4502.5	327	4502.5	370	4502.1	565	4500.3	572
GR	4499.7	579	4499.7	606	4500.3	611	4501.7	635	4500.2	665
GR	4499.8	670	4499.3	676	4498.7	680	4498.4	683	4498.4	687

GR	4492.4	691	4491.7	695	4490.6	717	4490.2	741	4490.2	753
GR	4489.4	783	4490	789	4491.5	795	4492.4	798	4492.9	799
GR	4500.1	814	4510	832	4520	854	4530	865	4539.9	881
GR	4549.9	891	4553.8	899	4555.1	919	4554	1027	4552.1	1073
GR	4550.2	1145	4548.8	1221	4549.2	1238	4548.6	1277	4548.6	1341
GR	4548.3	1433	4547.2	1454	4546.6	1483	4546.2	1495	4546.2	1505

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

*PROF 1

CCHV= .300 CEHV= .500
*SECNO 51.945

3470 ENCROACHMENT STATIONS= 683.0 1080.0 TYPE= 1 TARGET= 397.000

51.945	17.40	4490.00	.00	.00	4490.64	.64	.00	.00	4490.10
14000.0	.0	13744.3	255.7	.0	2127.3	311.2	.0	.0	4486.10
.00	.00	6.46	.82	.000	.025	.060	.000	4472.60	683.12
.000379	40.	40.	40.	0	0	0	.00	332.22	1015.34

*SECNO 52.000

3470 ENCROACHMENT STATIONS= 590.0 839.0 TYPE= 1 TARGET= 249.000

52.000	15.85	4490.25	.00	.00	4490.77	.52	.10	.04	4490.40
14000.0	.0	14000.0	.0	.0	2424.1	.0	16.4	1.8	100000.00
.01	.00	5.78	.00	.000	.025	.000	.000	4474.40	665.07
.000316	250.	290.	340.	2	0	0	.00	173.92	839.00

*SECNO 52.005

52.005	15.22	4490.22	.00	.00	4490.82	.60	.01	.04	4491.00
14000.0	.0	14000.0	.0	.0	2255.4	.0	17.7	1.9	4491.00
.02	.00	6.21	.00	.000	.025	.000	.000	4475.00	5.00
.000372	25.	25.	25.	2	0	0	.00	149.00	154.00

SPECIAL BRIDGE

SB XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.00	1.50	2.50	.00	151.00	.00	1900.00	.00	4475.50	4475.50

*SECNO 52.017
PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4491.49	4491.28	.00	121.	13864.	1900.	2069.	4489.20	4491.00	154.

52.017	15.92	4490.92	.00	.00	4491.46	.55	.64	.00	4491.00
14000.0	.0	14000.0	.0	.0	2358.9	.0	21.2	2.1	4491.00
.02	.00	5.94	.00	.000	.025	.000	.000	4475.00	5.00
.000324	65.	65.	65.	2	0	3	.00	149.00	154.00

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

*SECNO 52.021

3470 ENCROACHMENT STATIONS= 575.0 890.0 TYPE= 1 TARGET= 315.000

52.021	15.92	4490.92	.00	.00	4491.47	.55	.01	.00	4490.30
14000.0	18.8	13981.2	.0	56.7	2349.1	.0	22.2	2.2	4492.00
.02	.33	5.55	.00	.060	.025	.000	.000	4475.00	575.00
.000337	20.	20.	20.	0	0	0	.00	256.62	831.62

*SECNO 52.072

3470 ENCROACHMENT STATIONS= 670.0 890.0 TYPE= 1 TARGET= 220.000

52.072	16.26	4490.96	.00	.00	4491.64	.68	.10	.07	4491.30
14000.0	.0	14000.0	.0	.0	2115.2	.0	36.3	3.5	4494.00
.03	.00	6.62	.00	.000	.025	.000	.000	4474.70	670.32
.000429	280.	270.	250.	2	0	0	.00	151.49	821.81

*SECNO 52.078

52.078	15.76	4490.96	.00	.00	4491.66	.69	.01	.01	4493.80
14000.0	.0	14000.0	.0	.0	2093.2	.0	37.7	3.6	4493.80
.03	.00	6.69	.00	.000	.025	.000	.000	4475.20	5.00
.000437	30.	30.	30.	0	0	0	.00	140.00	145.00

SPECIAL BRIDGE

SB XK	XKOR	COPQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.00	1.50	2.50	.00	100.00	.00	1520.00	.00	4475.20	4475.20

*SECNO 52.093
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4492.94	4491.66	.00	0.	14000.	1520.	1520.	4490.40	4493.80	0.

52.093	17.16	4492.36	.00	.00	4492.94	.58	1.28	.00	4493.80
14000.0	.0	14000.0	.0	.0	2287.7	.0	41.7	3.8	4493.80
.04	.00	6.12	.00	.000	.030	.000	.000	4475.20	5.00
.000479	80.	80.	80.	2	0	0	.00	140.00	145.00

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

*SECNO 52.097

3470 ENCROACHMENT STATIONS= 682.0 890.0 TYPE= 1 TARGET= 208.000

52.097	15.81	4492.31	.00	.00	4493.02	.71	.01	.06	4494.90
14000.0	.0	13999.4	.6	.0	2068.9	2.2	42.7	3.9	4490.40
.04	.00	6.77	.26	.000	.030	.060	.000	4476.50	683.27
.000607	20.	20.	20.	2	0	0	.00	150.78	834.05

*SECNO 52.142

3470 ENCROACHMENT STATIONS= 665.0 870.0 TYPE= 1 TARGET= 205.000

52.142	16.17	4492.37	.00	.00	4493.28	.91	.17	.10	4494.30
14000.0	.0	13928.8	71.2	.0	1815.7	77.4	53.6	4.8	4490.50
.04	.00	7.67	.92	.000	.030	.060	.000	4476.20	691.15
.000815	260.	240.	200.	2	0	0	.00	178.85	870.00

*SECNO 52.148

52.148	16.90	4492.40	.00	.00	4493.32	.92	.03	.01	4493.00
14000.0	.0	14000.0	.0	.0	1819.5	.0	54.9	4.9	4493.00
.05	.00	7.69	.00	.000	.030	.000	.000	4475.50	100.00
.001258	30.	30.	30.	0	0	0	.00	125.00	225.00

SPECIAL BRIDGE

SB XK	XKOR	CDFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.90	1.50	2.50	.00	106.00	12.00	1430.00	.00	4475.50	4475.50

*SECNO 52.159
3280 CROSS SECTION 52.16 EXTENDED .60 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4494.63	4493.46	.16	904.	13160.	1430.	1344.	4489.80	4493.00	225.

52.159	18.09	4493.59	.00	.00	4494.37	.78	1.05	.00	4493.00
14000.0	20.4	13959.2	20.4	29.8	1969.6	29.8	57.6	5.1	4493.00
.05	.69	7.99	.69	.060	.038	.060	.000	4475.50	50.00
.001554	61.	61.	61.	2	0	2	.00	225.00	275.00

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

*SECNO 52.167

3470 ENCROACHMENT STATIONS= 670.0 850.0 TYPE= 1 TARGET= 180.000

52.167	18.57	4493.67	.00	.00	4494.43	.76	.05	.01	4492.00
14000.0	20.7	13813.4	159.9	21.9	1963.2	105.1	59.6	5.3	4490.40
.05	.95	7.04	1.52	.060	.038	.060	.000	4475.10	670.00
.000362	42.	42.	42.	1	0	0	.00	180.00	850.00

CCHV= .300 CEHV= .500
1490 NH CARD USED
*SECNO 52.292

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 600.0 1150.0 TYPE= 1 TARGET= 550.000

52.292	15.39	4494.29	.00	.00	4495.04	.76	.62	.00	4497.30
14000.0	.0	13973.4	26.6	.0	1999.7	32.7	90.9	8.9	4492.00
.08	.00	6.99	.81	.000	.024	.060	.000	4478.90	690.01
.000901	620.	660.	750.	2	0	0	.00	283.95	1114.60

1490 NH CARD USED
*SECNO 52.301

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 4496.80 ELREA= 4494.90

52.301	14.17	4494.37	.00	.00	4495.10	.73	.05	.01	4496.80
14000.0	.0	14000.0	.0	.0	2037.1	.0	93.3	9.2	4494.90
.08	.00	6.87	.00	.000	.020	.000	.000	4480.20	110.03
.001030	50.	50.	50.	2	0	0	.00	325.81	589.20

SPECIAL BRIDGE

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

SB	XK	XKOR	COPQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.80	.00	480.00	340.00	1950.00	1.00	4480.20	4480.20

1490 NH CARD USED
*SECNO 52.317
PRESS FLOW BECAUSE EGLWC OF 4499.47 EXCEEDS 1.5 DEPTH

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4495.57	4499.47	4.37	1572.	12404.	1950.	1906.	4492.70	4492.70	268.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 4496.80 ELREA= 4494.90

52.317	14.46	4494.66	.00	.00	4495.31	.65	.21	.00	4496.80
14000.0	.0	14000.0	.0	.0	2171.1	.0	97.1	9.9	4494.90
.08	.00	6.45	.00	.000	.020	.000	.000	4480.20	110.03
.000939	80.	80.	80.	2	0	3	.00	376.12	589.20

1490 NH CARD USED
*SECNO 52.326

3470 ENCROACHMENT STATIONS= 610.0 1260.0 TYPE= 1 TARGET= 650.000

52.326	11.28	4494.76	.00	.00	4495.37	.59	.05	.02	4496.70
14000.0	.0	13880.6	119.4	.0	2238.6	113.2	99.8	10.4	4492.00
.08	.00	6.20	1.05	.000	.023	.060	.000	4483.50	679.02
.001925	75.	50.	65.	2	0	0	.00	514.06	1133.08

*SECNO 52.335

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .50

52.335	7.71	4494.71	.00	.00	4495.61	.89	.08	.15	4496.40
14000.0	.0	13843.4	156.6	.0	1817.4	94.5	102.1	11.1	4494.40
.09	.00	7.62	1.66	.000	.035	.060	.000	4487.00	231.00
.004036	41.	45.	88.	2	0	0	.00	524.39	759.98

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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
   FIM2     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST

CCHV=    .100 CEHV=    .300
*SECNO 52.391

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     500.0    1100.0  TYPE=     1  TARGET=     600.000
    52.391     8.02   4495.37      .00      .00   4496.71     1.33      .97      .13   4498.30
  14000.0       .0   13909.4     30.6       .0   1497.8      35.6     113.6     13.5   4494.00
      .09      .00      9.29     1.06     .000      .030     .060     .000   4487.35   629.33
  .002714     320.     295.      150.        0         0        0      .00    343.95   1100.00


*SECNO 52.489

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     600.0    1000.0  TYPE=     1  TARGET=     400.000
    52.489     8.31   4496.31      .00      .00   4498.49     2.18     1.53      .25   4498.30
  14000.0       .0   14000.0       .0       .0   1182.5       .0     130.1     16.6   4496.30
      .11      .00     11.84      .00     .000      .025     .000     .000   4488.00   660.65
  .003193     550.     520.      470.        3         0        0      .00    173.51   834.16


*SECNO 52.594

3470 ENCROACHMENT STATIONS=     600.0    1000.0  TYPE=     1  TARGET=     400.000
    52.594     8.76   4498.26      .00      .00   4500.02     1.75     1.49      .04   4499.00
  14000.0       .0   14000.0       .0       .0   1318.6       .0     145.8     18.8   4509.90
      .12      .00     10.62      .00     .000      .025     .000     .000   4489.50   665.36
  .002315     570.     550.      540.        2         0        0      .00    175.98   841.34


*SECNO 52.692

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     550.0     900.0  TYPE=     1  TARGET=     350.000
    52.692     9.30   4498.70   4498.45      .00   4502.16     3.46     1.63      .51   4498.40
  14000.0      1.1   13998.3       .0       1.7    937.2       .0     159.3     20.6   4510.00
      .13      .67     14.94      .00      .060      .025     .000     .000   4489.40   680.00
  .004496     530.     520.      570.        6         8        0      .00    131.08   811.08
```

T1 TRUCKEE RIVER - Center St. to Arlington
T2 File : RENODT18.DAT modified from File : RENO2.802
T3 Bridges in place, Peak Flow = 18,000 cfs

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3	0	0	.00063	0	0	0	4486	0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2	0	-1							15

SECNO	DEPTH	CWSEL	CRTWS	WSELK	EG	HV	HL	CLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	KLOBL	KLCH	KLOBR	ITRIAL	ISC	ICONT	CORAR	TOPWID	ENDST

*PROF 3

DCRT= .000 DERV= .000
*SECNO 51.345

0470 ENCROACHMENT STATIONS= 683.0 1080.0 TYPE= 1 TARGET= 897.000

51.345	17.40	4490.00	.00	4490.00	4491.05	1.05	.00	.00	4490.10
18000.0	.0	17671.0	328.7	.0	2127.3	311.2	.0	.0	4486.10
.00	.00	8.31	1.26	.000	.025	.060	.000	4472.60	683.12
.000626	40.	40.	40.	0	0	2	.00	332.22	1015.34

FLOW DISTRIBUTION FOR SECNO= 51.34 CWSEL= 4490.00

STA=	683.	867.	328.	1015.
PER Q=	98.2	1.6	.2	
AREA=	2127.3	245.7	65.5	
VEL=	8.3	1.2	.5	
DEPTH=	13.8	2.7	.8	

*SECNO 52.000

0470 ENCROACHMENT STATIONS= 590.0 833.0 TYPE= 1 TARGET= 249.000

52.000	16.05	4490.45	.00	4490.25	4491.28	.83	.16	.07	4490.40
18000.0	.0	18000.0	.0	.2	2457.6	.0	16.5	1.8	100000.00
.01	.01	7.32	.00	.060	.025	.000	.000	4474.40	660.63
.000501	250.	290.	340.	2	0	0	.00	178.37	836.00

FLOW DISTRIBUTION FOR SECNO= 52.00 CWSEL= 4490.45

STA=	661.	839.
PER Q=	100.0	
AREA=	2457.6	
VEL=	7.3	
DEPTH=	14.1	

*SECNO 52.005

52.005	15.89	4490.39	.00	4490.22	4491.08	.97	.01	.07	4491.30
18000.0	.0	18000.0	.0	.0	2230.3	.0	17.8	1.9	4491.00
.01	.00	7.89	.00	.000	.025	.000	.000	4475.00	5.00
.000594	25.	25.	25.	2	0	0	.00	149.00	154.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	KNL	KNCH	KNR	WTN	ELMIN	SSTA
SLOPE	KLOBL	KLCH	KLOBR	ITRIAL	IBC	ICONT	CORAR	TOPWID	ENLOSS

FLOW DISTRIBUTION FOR SECNO= 52.01 CWSEL= 4490.69

STA= 5. 154.
PER Q= 100.0
AREA= 2230.3
VEL= 7.3
DEPTH= 15.3

SPECIAL BRIDGE

SB	XK	XKCR	COPQ	KDLTN	ENC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.50	.00	151.00	.00	1900.00	.00	4475.50	4475.50

*SECNO 52.017
3220 CROSS SECTION 52.02 EXTENDED .53 FEET

PRESSURE AND WEIR FLOW. Weir Submergence Based on TRAPEZOIDAL Shape

SGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WRTELN
4492.48	4491.80	.00	616.	17496.	1900.	2069.	4489.20	4491.00	154.

52.017	16.56	4491.56	.00	4490.92	4492.37	.34	1.01	.00	4491.00
18000.0	.9	17394.3	4.9	2.7	2450.9	13.9	21.4	2.1	4491.00
.01	.33	7.34	.35	.060	.025	.060	.000	4475.00	.00
.000471	65.	65.	65.	2	0	2	.00	180.00	180.00

FLOW DISTRIBUTION FOR SECNO= 52.02 CWSEL= 4491.53

STA=	0.	5.	154.	180.
PER Q=	.0	100.0	.0	
AREA=	2.7	2450.9	13.9	
VEL=	.3	7.3	.3	
DEPTH=	.5	16.4	.5	

*SECNO 52.021

3470 ENCROACHMENT STATIONS= 575.0 890.0 TYPE= 1 TARGET= 315.000

52.021	16.56	4491.56	.00	4490.92	4492.38	.33	.01	.00	4490.30
18000.0	71.9	17928.1	.0	113.7	2453.7	.0	22.5	2.2	4492.00
.02	.63	7.31	.00	.060	.025	.000	.000	4475.00	575.00
.000491	20.	20.	20.	1	0	0	.00	259.74	834.74

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

FLOW DISTRIBUTION FOR SECNO=    52.02        CWSEL=  4491.56

STA=    575.    591.    608.    635.    652.    666.    837.
  PER Q=     .1      .1      .1      .1      .1    99.6
   AREA=   20.0    21.2    33.7    21.2    17.5  2453.7
    VEL=     .6      .6      .6      .6      .6     7.3
  DEPTH=    1.2     1.2     1.2     1.2     1.2    14.5

*SECNO 52.072

3470 ENCROACHMENT STATIONS=     670.0    890.0 TYPE=     1 TARGET=     220.000
   52.072    16.90  4491.60      .00  4490.96  4492.63     1.03      .15      .10  4491.30
  18000.0       .0 18000.0       .0       .0   2213.0       .0     37.4      3.5  4494.00
     .02       .00     8.13      .00     .000     .025     .000     .000  4474.70   670.00
  .000616     280.     270.     250.       2        0        0      .00   151.85   821.85


FLOW DISTRIBUTION FOR SECNO=    52.07        CWSEL=  4491.60

STA=    670.    822.
  PER Q=   100.0
   AREA=  2213.0
    VEL=     8.1
  DEPTH=    14.6

*SECNO 52.078
   52.078    16.41  4491.61      .00  4490.96  4492.66     1.06      .02      .01  4493.80
  18000.0       .0 18000.0       .0       .0   2183.3       .0     38.9      3.6  4493.80
     .03       .00     8.24      .00     .000     .025     .000     .000  4475.20     5.00
  .000635     30.      30.      30.        1        0        0      .00   140.00   145.00


FLOW DISTRIBUTION FOR SECNO=    52.08        CWSEL=  4491.61

STA=      5.    145.
  PER Q=   100.0
   AREA=  2183.3
    VEL=     8.2
  DEPTH=    15.6
```

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

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.50	.00	100.00	.00	1520.00	.00	4475.20	4475.20

*SECNO 52.093
3280 CROSS SECTION 52.09 EXTENDED .15 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4494.87	4492.66	.00	369.	17647.	1520.	1520.	4490.40	4493.80	160.

52.093	18.75	4493.95	.00	4492.36	4494.75	.80	2.08	.00	4493.80
18000.0	.1	17999.5	.4	.8	2510.4	2.3	43.2	3.9	4493.80
.03	.17	7.17	.17	.060	.030	.060	.000	4475.20	.00
.000594	80.	80.	80.	2	0	2	.00	160.00	160.00

FLOW DISTRIBUTION FOR SECNO= 52.09 CWSEL= 4493.95

STA=	0.	5.	145.	160.
PER Q=	.0	100.0	.0	
AREA=	.8	2510.4	2.3	
VEL=	.2	7.2	.2	
DEPTH=	.2	17.9	.2	

*SECNO 52.097

3470 ENCROACHMENT STATIONS= 682.0 890.0 TYPE= 1 TARGET= 208.000

52.097	17.39	4493.89	.00	4492.31	4494.84	.95	.01	.08	4494.90
18000.0	.0	17940.6	59.4	.0	2288.9	80.7	44.3	4.0	4490.40
.03	.00	7.84	.74	.000	.030	.060	.000	4476.50	682.49
.000723	20.	20.	20.	2	0	0	.00	207.50	890.00

FLOW DISTRIBUTION FOR SECNO= 52.10 CWSEL= 4493.89

STA=	682.	822.	823.	890.
PER Q=	99.7	.0	.3	
AREA=	2288.9	2.6	78.1	
VEL=	7.8	.8	.7	
DEPTH=	16.4	2.6	1.2	

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


*SECNO 52.142

3470 ENCROACHMENT STATIONS=     665.0    870.0  TYPE=     1  TARGET=     205.000
   52.142    17.77  4493.97      .00  4492.37  4495.15     1.18      .20      .12  4494.30
  18000.0       .0  17751.0    249.0       .0   2021.0    158.7     56.7      5.0  4490.50
      .04      .00     8.78     1.57     .000     .030     .060     .000  4476.20   689.37
  .000947     260.     240.     200.        2        0        0      .00   180.63   870.00


FLOW DISTRIBUTION FOR SECNO=    52.14        CWSEL=   4493.97

STA=     689.     819.     870.
  PER Q=    98.6      1.4
  AREA=   2021.0    158.7
   VEL=      8.8      1.6
 DEPTH=     15.6      3.1

*SECNO 52.148
3280 CROSS SECTION     52.15 EXTENDED      .99 FEET

   52.148    18.49  4493.99      .00  4492.40  4495.20     1.22      .03      .02  4493.00
  18000.0     46.2  17907.5     46.2     49.6   2019.2     49.6     58.2      5.1  4493.00
      .04      .93     8.87      .93     .060     .030     .060     .000  4475.50    50.00
  .001467     30.      30.      30.        0        0        0      .00   225.00   275.00


FLOW DISTRIBUTION FOR SECNO=    52.15        CWSEL=   4493.99

STA=      50.     100.     225.     275.
  PER Q=      .3     99.5      .3
  AREA=    49.6   2019.2    49.6
   VEL=      .9      8.9      .9
 DEPTH=     1.0     16.2     1.0


SPECIAL BRIDGE

SB  XK       XKOR     COEQ     RDLEN    BWC      BWP      BAREA    SS       ELCHU    ELCHD
      .30     1.50     2.50      .00   106.00    12.00  1430.00      .00  4475.50  4475.50

*SECNO 52.159
3280 CROSS SECTION     52.16 EXTENDED     2.43 FEET
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4497.83	4495.44	.24	3515.	14536.	1430.	1344.	4489.80	4493.00	225.
52.159	19.92	4495.42	.00	4493.59	4496.39	.97	1.19	.00	4493.00
18000.0	217.6	17564.8	217.6	121.5	2198.9	121.5	61.4	5.5	4493.00
.04	1.79	7.99	1.79	.060	.038	.060	.000	4475.50	50.00
.001704	61.	61.	61.	2	0	2	.00	225.00	275.00

FLOW DISTRIBUTION FOR SECNO= 52.16 CWSEL= 4495.42

STA=	50.	100.	225.	275.
PER Q=	1.2	97.6	1.2	
AREA=	121.5	2198.9	121.5	
VEL=	1.8	8.0	1.8	
DEPTH=	2.4	17.6	2.4	

*SECNO 52.167

3470 ENCROACHMENT STATIONS= 670.0 850.0 TYPE= 1 TARGET= 180.000

52.167	20.38	4495.48	.00	4493.67	4496.45	.97	.06	.00	4492.00
18000.0	80.3	17560.1	359.6	49.4	2201.2	169.2	63.8	5.7	4490.40
.04	1.63	7.98	2.13	.060	.038	.060	.000	4475.10	670.00
.001061	42.	42.	42.	0	0	0	.00	180.00	850.00

FLOW DISTRIBUTION FOR SECNO= 52.17 CWSEL= 4495.48

STA=	670.	675.	685.	815.	850.
PER Q=	.1	.3	97.6	2.0	
AREA=	16.0	33.4	2201.2	169.2	
VEL=	1.3	1.3	8.0	2.1	
DEPTH=	3.2	3.3	16.9	4.8	

CCHV= .300 CEHV= .500

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

1490 NH CARD USED
*SECNO 52.232

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 600.0 1150.0 TYPE= 1 TARGET= 550.000

52.232	17.45	4496.35	.00	4494.29	4497.11	.76	.60	.06	4497.30
18000.0	.0	17855.7	144.3	.0	2543.4	119.4	102.5	9.6	4492.00
.07	.00	7.02	1.21	.000	.025	.060	.000	4478.90	689.32
.000784	620.	660.	750.	2	0	0	.00	326.87	1146.54

FLOW DISTRIBUTION FOR SECNO= 52.29 CWSEL= 4496.35

STA=	689.	789.	1031.	1086.	1136.	1147.
PER Q=	67.8	8.9	22.6	.8	.0	
AREA=	1391.0	596.7	555.7	117.6	1.9	
VEL=	8.8	2.7	7.3	1.2	.2	
DEPTH=	14.0	5.3	10.1	2.4	.2	

1490 NH CARD USED
*SECNO 52.301

3265 DIVIDED FLOW

3280 CROSS SECTION 52.30 EXTENDED 1.66 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 4496.80 ELREA= 4494.90

52.301	16.36	4496.56	.00	4494.37	4497.19	.63	.04	.04	4496.80
18000.0	.0	17933.1	66.9	.0	2805.2	66.0	105.7	10.0	4494.90
.07	.00	6.39	1.31	.000	.023	.060	.000	4480.20	110.00
.000899	50.	50.	50.	2	0	0	.00	405.35	629.00

FLOW DISTRIBUTION FOR SECNO= 52.30 CWSEL= 4496.56

STA=	110.	232.	542.	589.	629.
PER Q=	59.7	6.2	33.7	.4	
AREA=	1490.4	582.3	732.5	66.0	
VEL=	7.2	1.9	8.3	1.0	
DEPTH=	12.6	2.9	15.6	1.7	

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

SPECIAL BRIDGE

BE	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.50	2.80	.00	480.00	340.00	1950.00	1.00	4480.20	4480.20

1480 NH CARD USED
*SECNO 52.317
PRESS FLOW BECAUSE EGLWC OF 4500.31 EXCEEDS 1.5 DEPTH

3265 DIVIDED FLOW

3280 CROSS SECTION 52.32 EXTENDED 2.07 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4498.54	4500.31	3.12	5646.	12291.	1950.	1906.	4492.70	4492.70	351.

52.317	16.77	4496.97	.00	4494.66	4497.48	.51	.29	.00	4496.80
18000.0	1.5	17908.4	90.1	6.9	3104.9	82.5	111.3	10.9	4494.90
.07	.21	5.77	1.09	.060	.023	.050	.000	4480.20	70.00
.000789	80.	80.	80.	2	0	2	.00	526.16	629.00

FLOW DISTRIBUTION FOR SECNO= 52.32 CWSEL= 4496.97

STA=	70.	110.	232.	542.	589.	629.
PER Q=	.0	58.2	8.3	33.0	.5	
AREA=	6.9	1540.3	812.7	751.9	82.5	
VEL=	.2	6.8	1.8	7.9	1.1	
DEPTH=	.2	12.6	2.9	16.0	2.1	

1490 NH CARD USED
*SECNO 52.326

3470 ENCROACHMENT STATIONS= 610.0 1260.0 TYPE= 1 TARGET= 650.000

52.326	13.60	4497.10	.00	4494.78	4497.54	.44	.04	.02	4496.70
18000.0	.7	17399.7	599.6	3.2	3211.7	452.5	115.3	11.6	4492.00
.08	.22	5.42	1.33	.060	.027	.060	.000	4483.50	657.89
.000659	75.	50.	65.	2	0	0	.00	602.11	1260.00

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


FLOW DISTRIBUTION FOR SECNO=     52.33        CWSEL=   4497.10

STA=     858.     874.     784.    1041.    1096.    1260.
  PER Q=      .0     57.0     17.0     22.7      3.3
   AREA=      3.2   1385.3   1233.3    592.6    452.5
    VEL=      .2      7.4      2.5      6.9      1.3
  DEPTH=      .2     11.5      5.0     10.8      2.8

*SECNO 52.335

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

    52.335    10.09   4497.09      .00   4494.71   4497.64      .55      .05      .05   4496.40
  18000.0      83.3   16645.3   1271.4     83.7   2697.9     645.4    119.5     12.4   4494.40
      .08       .99      6.17     1.97      .060     .035     .060     .000   4487.00    134.06
  .001619     41.      45.      88.         2        0        0        .00    710.66    844.71


FLOW DISTRIBUTION FOR SECNO=     52.33        CWSEL=   4497.09

STA=     134.     231.     602.     833.     845.
  PER Q=      .5     92.5      7.0      .1
   AREA=     83.7   2697.9    533.1     12.2
    VEL=     1.0      6.2      2.0     1.0
  DEPTH=      .9      7.3      2.7     1.0

CCHV=     .100 CEHV=     .300
*SECNO 52.391

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     500.0    1100.0  TYPE=      1  TARGET=     600.000
    52.391     9.76   4497.11      .00   4495.37   4498.37     1.25      .51      .21   4498.30
  18000.0       .0   17203.2    796.8       .0   1874.2     459.9    137.2     15.6   4494.00
      .09       .00      9.18     1.73      .000     .030     .060     .000   4487.35    628.54
  .001989     320.     235.     150.         2        0        0        .00    471.46   1100.00


FLOW DISTRIBUTION FOR SECNO=     52.39        CWSEL=   4497.11
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	XNDST

STA=	829.	844.	922.	970.	1043.	1052.	1100.
PER Q=	95.6	2.4	.4	.5	.1	1.0	
AREA=	1874.2	204.0	58.4	81.4	14.5	101.6	
VEL=	9.2	2.1	1.3	1.2	1.5	1.8	
DEPTH=	8.7	2.6	1.2	1.1	1.6	2.1	

*SECNO 52.489

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=			600.0	1000.0	TYPE=	1	TARGET=	400.000	
52.489	9.45	4497.45	4496.39	4496.31	4500.06	2.61	1.29	.41	4498.30
18000.0	.0	17947.9	52.1	.0	1382.6	49.5	159.4	19.8	4496.30
.10	.00	12.98	1.05	.000	.025	.060	.000	4488.00	657.40
.003197	550.	520.	470.	6	11	0	.00	260.81	918.21

FLOW DISTRIBUTION FOR SECNO= 52.49 CWSEL= 4497.45

STA=	657.	834.	840.	878.	918.
PER Q=	99.7	.0	.2	.1	
AREA=	1382.6	5.7	28.6	15.2	
VEL=	13.0	1.4	1.2	.7	
DEPTH=	7.8	1.0	.8	.4	

*SECNO 52.594

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=			600.0	1000.0	TYPE=	1	TARGET=	400.000	
52.594	10.09	4499.59	.00	4498.26	4501.65	2.06	1.53	.05	4499.00
18000.0	3.8	17996.2	.0	9.2	1561.8	.0	178.3	23.0	4509.90
.11	.41	11.52	.00	.060	.025	.000	.000	4489.50	608.64
.002437	570.	550.	540.	3	0	0	.00	244.59	853.24

FLOW DISTRIBUTION FOR SECNO= 52.59 CWSEL= 4499.59

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

STA= 609. 658. 661. 873.
PER Q= .0 .0 100.0
AREA= 8.0 1.2 1561.8
VEL= .4 .6 11.5
DEPTH= .2 .4 8.1

*SECNO 52.692

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 550.0 900.0 TYPE= 1 TARGET= 350.000

52.692	10.59	4499.99	4499.99	4498.70	4504.13	4.14	1.68	.62	4498.40
18000.0	38.9	17961.1	.0	26.4	1099.4	.0	194.4	25.5	4510.00
.12	1.48	16.34	.00	.060	.025	.000	.000	4489.40	575.57
.004482	500.	520.	570.	3	8	0	.00	179.07	813.78

FLOW DISTRIBUTION FOR SECNO= 52.69 CWSEL= 4499.99

STA= 576. 606. 676. 680. 683. 687. 832.
PER Q= .0 .0 .0 .1 .1 99.8
AREA= 8.4 3.3 4.0 4.3 6.4 1099.4
VEL= .7 .9 1.6 2.1 2.3 16.3
DEPTH= .3 .0 1.0 1.4 1.6 8.7

T1 TRUCKEE RIVER - Center St. to Arlington
T2 File : RENO3T13.DAT modified from File : RENO2.302
T3 Bridges in place, Peak Flow = 18,500 cfs

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	4	0	0	.00063	0	0	0	4488	0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15	0	-1							

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

*PROF 3

CCHV= .300 CEHV= .500
*SECNO 51.945

3470 ENCROACHMENT STATIONS= 683.0 1080.0 TYPE= 1 TARGET= 397.000

51.945	17.62	4490.22	.00	4490.00	4491.28	1.07	.00	.00	4490.10
18500.0	.0	18116.2	383.8	.0	2160.5	351.3	.0	.0	4486.10
.30	.00	8.39	1.09	.000	.025	.060	.000	4472.60	683.00
.000627	40.	40.	40.	0	0	3	.00	364.65	1047.65

*SECNO 52.000

3470 ENCROACHMENT STATIONS= 590.0 839.0 TYPE= 1 TARGET= 249.000

52.000	16.26	4490.66	.00	4490.25	4491.51	.85	.16	.06	4490.40
18500.0	.4	18499.6	.0	2.2	2494.3	.0	16.9	2.0	100000.00
.01	.16	7.42	.00	.060	.025	.000	.000	4474.40	650.09
.000504	250.	290.	340.	2	0	0	.00	188.91	839.00

*SECNO 52.005

52.005	15.60	4490.60	.00	4490.22	4491.60	.99	.01	.07	4491.00
18500.0	.0	18500.0	.0	.0	2311.9	.0	18.3	2.1	4491.00
.01	.00	8.00	.00	.000	.025	.000	.000	4475.00	5.00
.000601	25.	25.	25.	2	0	0	.00	149.00	154.00

SPECIAL BRIDGE

SB XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.00	1.50	2.50	.00	151.00	.00	1900.00	.00	4475.50	4475.50

*SECNO 52.017
3280 CROSS SECTION 52.02 EXTENDED .79 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4492.31	4492.10	.00	811.	17786.	1900.	2069.	4489.20	4491.00	154.

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
52.017	16.79	4491.79	.00	4490.92	4492.64	.86	1.05	.00	4491.00
18500.0	1.6	18489.1	9.3	3.9	2438.9	20.5	21.9	2.3	4491.00
.01	.42	7.43	.45	.060	.025	.060	.000	4475.00	.00
.000472	65.	65.	65.	2	0	2	.00	180.00	180.00

*SECNO 52.021

3470 ENCROACHMENT STATIONS= 575.0 890.0 TYPE= 1 TARGET= 315.000

52.021	16.82	4491.82	.00	4490.92	4492.66	.84	.01	.01	4490.30
18500.0	99.9	18400.1	.0	138.6	2500.1	.0	23.0	2.4	4492.00
.01	.72	7.36	.00	.060	.025	.000	.000	4475.00	575.00
.000490	20.	20.	20.	2	0	0	.00	261.11	836.11

*SECNO 52.072

3470 ENCROACHMENT STATIONS= 670.0 890.0 TYPE= 1 TARGET= 220.000

52.072	17.16	4491.86	.00	4490.96	4492.91	1.05	.15	.11	4491.30
18500.0	.0	18500.0	.0	.0	2252.7	.0	38.2	3.7	4494.00
.02	.00	8.21	.00	.000	.025	.000	.000	4474.70	670.00
.000616	280.	270.	250.	2	0	0	.00	151.86	821.86

*SECNO 52.078

52.078	16.67	4491.87	.00	4490.96	4492.35	1.08	.02	.02	4493.80
18500.0	.0	18500.0	.0	.0	2219.8	.0	39.7	3.8	4493.80
.03	.00	8.33	.00	.000	.025	.000	.000	4475.20	5.00
.000637	30.	30.	30.	1	0	0	.00	140.00	145.00

SPECIAL BRIDGE

SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.50	.00	100.00	.00	1520.00	.00	4475.20	4475.20

*SECNO 52.093
3230 CROSS SECTION 52.09 EXTENDED .50 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

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

XGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4495.32	4492.95	.00	598.	17924.	1520.	1520.	4490.40	4493.80	160.
52.093	19.10	4494.30	.00	4492.36	4495.11	.81	2.16	.00	4493.30
18500.0	.9	18496.4	2.8	2.5	2559.0	7.5	44.1	4.1	4493.80
.03	.35	7.23	.37	.060	.030	.060	.000	4475.20	.00
.000588	80.	80.	80.	2	0	2	.00	160.00	160.00

*SECNO 52.097

3470 ENCROACHMENT STATIONS= 682.0 890.0 TYPE= 1 TARGET= 208.000

52.097	17.73	4494.23	.00	4492.31	4495.19	.96	.01	.07	4494.90
18500.0	.0	18409.8	90.2	.0	2337.5	104.4	45.3	4.2	4490.40
.03	.00	7.88	.86	.000	.030	.060	.000	4476.50	682.32
.000712	20.	20.	20.	2	0	0	.00	207.67	890.00

*SECNO 52.142

3470 ENCROACHMENT STATIONS= 665.0 870.0 TYPE= 1 TARGET= 205.000

52.142	18.11	4494.31	.00	4492.37	4495.50	1.19	.19	.11	4494.30
18500.0	.0	18207.1	292.9	.3	2065.9	176.4	58.1	5.2	4490.50
.04	.04	8.81	1.66	.060	.030	.060	.000	4476.20	665.00
.000931	260.	240.	200.	2	0	0	.00	205.00	870.00

*SECNO 52.148
3280 CROSS SECTION 52.15 EXTENDED 1.34 FEET

52.148	18.83	4494.33	.00	4492.40	4495.55	1.22	.03	.02	4493.00
18500.0	75.0	18350.1	75.0	66.9	2062.5	66.9	59.6	5.4	4493.00
.04	1.12	8.90	1.12	.060	.030	.060	.000	4475.50	50.00
.001435	30.	30.	30.	0	0	0	.00	225.00	275.00

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

SPECIAL BRIDGE

SE	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.50	2.50	.00	106.00	12.00	1430.00	.00	4475.50	4475.50

*SECNO 52.159
3280 CROSS SECTION 52.16 EXTENDED 2.76 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4498.23	4495.79	.24	4049.	14501.	1430.	1344.	4489.80	4493.00	225.

52.159	20.26	4495.76	.00	4493.59	4496.73	.97	1.18	.00	4493.00
18500.0	266.1	17967.9	266.1	138.2	2240.5	138.2	62.9	5.7	4493.00
.04	1.33	8.02	1.93	.060	.038	.060	.000	4475.50	50.00
.001675	61.	61.	61.	2	0	2	.00	225.00	275.00

*SECNO 52.167

3470 ENCROACHMENT STATIONS= 670.0 850.0 TYPE= 1 TARGET= 180.000

52.167	20.71	4495.81	.00	4493.67	4496.79	.98	.05	.00	4492.00
18500.0	92.7	18011.3	396.1	54.2	2243.4	180.6	65.3	5.9	4490.40
.04	1.71	8.03	2.19	.060	.038	.060	.000	4475.10	670.00
.001048	42.	42.	42.	1	0	0	.00	180.00	850.00

CCHV= .300 CEHV= .500
1490 NH CARD USED
*SECNO 52.292

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 600.0 1150.0 TYPE= 1 TARGET= 550.000

52.292	17.79	4496.69	.00	4494.29	4497.44	.74	.58	.07	4497.30
18500.0	.0	18321.1	178.9	.0	2634.1	141.0	105.4	9.9	4492.00
.07	.00	6.96	1.27	.000	.025	.060	.000	4478.90	689.20
.000750	620.	660.	750.	2	0	0	.00	330.68	1150.00

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

1490 NH CARD USED
*SECNO 52.301

3265 DIVIDED FLOW

3280 CROSS SECTION 52.30 EXTENDED 2.01 FEET

52.301	16.71	4496.91	.00	4494.37	4497.52	.61	.04	.04	4496.80
18500.0	.7	18409.0	90.3	4.4	2936.0	80.0	108.7	10.3	4494.90
.07	.17	6.27	1.13	.060	.023	.060	.000	4480.20	70.00
.000873	50.	50.	50.	2	0	0	.00	463.54	629.00

SPECIAL BRIDGE

SB XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.90	1.50	2.80	.00	480.00	340.00	1950.00	1.00	4480.20	4480.20

1490 NH CARD USED
*SECNO 52.317
PRESS FLOW BECAUSE EGLWC OF 4500.40 EXCEEDS 1.5 DEPTH
3280 CROSS SECTION 52.32 EXTENDED 2.42 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
4499.01	4500.40	2.89	6461.	12063.	1950.	1906.	4492.70	4492.70	397.

52.317	17.11	4497.31	.00	4494.66	4497.30	.49	.28	.00	4496.80
18500.0	9.0	18377.6	113.3	20.7	3265.0	96.3	114.6	11.3	4494.90
.07	.43	5.63	1.18	.060	.023	.060	.000	4480.20	70.00
.000753	80.	80.	80.	2	0	3	.00	559.00	629.00

1490 NH CARD USED
*SECNO 52.326

3470 ENCROACHMENT STATIONS= 610.0 1260.0 TYPE= 1 TARGET= 650.000

52.326	13.94	4497.44	.00	4494.78	4497.36	.42	.03	.02	4496.70
18500.0	6.0	17803.2	690.7	19.7	3353.1	507.4	118.9	12.0	4492.00
.08	.31	5.31	1.36	.060	.027	.060	.000	4483.50	610.00
.000612	75.	50.	65.	2	0	0	.00	650.00	1260.00

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

*SECNO 52.335

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .65

   52.335    10.43  4497.43     .00  4494.71  4497.95     .51     .04     .05  4496.40
  18500.0    131.2  16916.9  1452.0    121.8   2824.1    728.3   123.4    12.9  4494.40
     .08      1.08     5.99    1.99     .060     .035     .060    .000 4487.00   104.45
 .001436       41.      45.     88.        2        0        0     .00   742.17   846.62


CCHV=    .100 CEHV=    .300
*SECNO 52.391

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     500.0   1100.0  TYPE=     1  TARGET=     600.000
   52.391    10.06  4497.41     .00  4495.37  4498.62     1.21     .46     .21  4498.30
  18500.0       .0  17525.9   974.1       .0   1938.5    536.3   142.2    16.2  4494.00
     .09      .00     9.04    1.82     .000     .030     .060    .000 4487.35   628.40
 .001849      320.     295.     150.        2        0        0     .00   471.60  1100.00


*SECNO 52.489

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     600.0   1000.0  TYPE=     1  TARGET=     400.000
   52.489     9.65  4497.65  4496.54  4496.31  4500.26     2.61    1.22     .42  4498.30
  18500.0       .0  18421.1     78.9       .0   1417.2     67.0   165.4    20.5  4496.30
     .10      .00    13.00    1.18     .000     .025     .060    .000 4488.00   656.85
 .003114      550.     520.     470.        6       11        0     .00   271.81   928.65


*SECNO 52.594

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     600.0   1000.0  TYPE=     1  TARGET=     400.000
   52.594    10.23  4499.73     .00  4498.26  4501.83     2.10    1.51     .05  4499.00
  18500.0       9.6  18490.4       .0     17.2   1589.1       .0   185.0    23.8  4509.90
     .11       .56    11.64     .00     .060     .025     .900    .000 4489.50   600.00
 .002450      570.     550.     540.        3        0        0     .00   254.51   854.51
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 52.692

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 550.0 900.0 TYPE= 1 TARGET= 350.000

52.692	10.30	4500.20	4500.20	4498.70	4504.35	4.16	1.67	.62	4498.40
18500.0	58.5	18441.5	.0	37.8	1125.6	.0	201.5	26.4	4510.00
.12	1.55	16.38	.00	.060	.025	.000	.000	4489.40	573.17
.004388	500.	520.	570.	4	8	0	.00	186.17	814.18

THIS RUN EXECUTED 31JAN91 15:11:48

****
HEC2 RELEASE DATED SEP 88 UPDATED JUN 1990

ERROR CORR - 01,02,03,04
MODIFICATION -
****

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

OWN RENO (AMPHFISB.DAT)

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
51.945	.00	.00	.00	4472.60	14000.00	4490.00	.00	4490.64	3.79	6.46	2438.51	7192.85
51.945	.00	.00	.00	4472.60	18000.00	4490.00	.00	4491.05	6.26	8.31	2438.51	7192.85
51.945	.00	.00	.00	4472.60	18500.00	4490.22	.00	4491.28	6.27	8.39	2511.72	7391.08
52.000	290.00	.00	.00	4474.40	14000.00	4490.25	.00	4490.77	3.16	5.78	2424.15	7872.59
52.000	290.00	.00	.00	4474.40	18000.00	4490.45	.00	4491.28	5.01	7.32	2457.77	8044.54
52.000	290.00	.00	.00	4474.40	18500.00	4490.66	.00	4491.51	5.04	7.42	2496.50	8239.84
52.005	25.00	.00	.00	4475.00	14000.00	4490.22	.00	4490.82	3.72	6.21	2255.43	7260.17
52.005	25.00	.00	.00	4475.00	18000.00	4490.39	.00	4491.36	5.94	7.89	2280.89	7387.90
52.005	25.00	.00	.00	4475.00	18500.00	4490.60	.00	4491.60	6.01	8.00	2311.88	7544.31
52.017	65.00	4491.00	4489.20	4475.00	14000.00	4490.92	.00	4491.46	3.24	5.94	2358.38	7783.46
52.017	65.00	4491.00	4489.20	4475.00	18000.00	4491.53	.00	4492.37	4.71	7.34	2467.49	8293.71
52.017	65.00	4491.00	4489.20	4475.00	18500.00	4491.79	.00	4492.64	4.72	7.43	2513.37	8511.31
52.021	20.00	.00	.00	4475.00	14000.00	4490.92	.00	4491.47	3.37	5.95	2405.88	7624.35
52.021	20.00	.00	.00	4475.00	18000.00	4491.56	.00	4492.38	4.91	7.31	2567.37	6126.82
52.021	20.00	.00	.00	4475.00	18500.00	4491.82	.00	4492.66	4.90	7.36	2638.71	8355.10
52.072	270.00	.00	.00	4474.70	14000.00	4490.96	.00	4491.64	4.29	6.62	2115.21	6761.25
52.072	270.00	.00	.00	4474.70	18000.00	4491.60	.00	4492.63	6.16	8.13	2213.01	7250.08
52.072	270.00	.00	.00	4474.70	18500.00	4491.86	.00	4492.91	6.16	8.21	2252.68	7452.79
52.078	30.00	.00	.00	4475.20	14000.00	4490.96	.00	4491.66	4.37	6.69	2093.15	6694.63
52.078	30.00	.00	.00	4475.20	18000.00	4491.61	.00	4492.66	6.35	8.24	2183.25	7145.26
52.078	30.00	.00	.00	4475.20	18500.00	4491.87	.00	4492.95	6.37	8.33	2219.75	7330.41
52.093	80.00	4493.80	4490.40	4475.20	14000.00	4492.36	.00	4492.94	4.79	6.12	2287.70	6399.10
52.093	80.00	4493.80	4490.40	4475.20	18000.00	4493.95	.00	4494.75	5.94	7.17	2513.45	7338.03
52.093	80.00	4493.80	4490.40	4475.20	18500.00	4494.30	.00	4495.11	5.88	7.23	2568.91	7628.91

SECNO	XLCH	ELTRO	XLLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
52.097	20.00	.00	.00	4476.50	14000.00	4492.31	.00	4493.02	6.07	6.77	2071.03	5660.47
52.097	20.00	.00	.00	4476.50	18000.00	4493.89	.00	4494.84	7.23	7.84	2369.57	6694.63
52.097	20.00	.00	.00	4476.50	18500.00	4494.23	.00	4495.19	7.12	7.88	2441.94	6933.56
52.142	240.00	.00	.00	4476.20	14000.00	4492.37	.00	4493.08	8.15	7.67	1893.17	4992.75
52.142	240.00	.00	.00	4476.20	18000.00	4493.97	.00	4495.15	9.47	8.78	2179.71	5848.06
52.142	240.00	.00	.00	4476.20	18500.00	4494.31	.00	4495.50	9.31	8.81	2242.56	6084.88
52.148	30.00	.00	.00	4475.50	14000.00	4492.40	.00	4493.32	12.56	7.59	1819.54	3947.98
52.148	30.00	.00	.00	4475.50	18000.00	4493.99	.00	4495.20	14.67	8.57	2118.45	4790.10
52.148	30.00	.00	.00	4475.50	18500.00	4494.33	.00	4495.55	14.35	8.90	2186.84	4993.75
52.159	61.00	4493.00	4489.30	4475.50	14000.00	4493.59	.00	4494.37	15.54	7.09	2029.13	3551.35
52.159	61.00	4493.00	4489.80	4475.50	18000.00	4495.42	.00	4496.39	17.04	7.99	2442.00	4360.30
52.159	61.00	4493.00	4489.30	4475.50	18500.00	4495.76	.00	4496.73	16.75	8.02	2516.81	4520.28
52.167	42.00	.00	.00	4475.10	14000.00	4493.67	.00	4494.43	9.62	7.04	2090.18	4512.35
52.167	42.00	.00	.00	4475.10	18000.00	4495.48	.00	4496.45	10.61	7.98	2419.77	5525.36
52.167	42.00	.00	.00	4475.10	18500.00	4495.81	.00	4496.73	10.48	8.03	2478.22	5715.31
52.292	660.00	.00	.00	4478.90	14000.00	4494.29	.00	4495.04	9.01	6.99	2032.46	4663.26
52.292	660.00	.00	.00	4478.90	18000.00	4496.35	.00	4497.11	7.84	7.02	2662.86	6429.68
52.292	660.00	.00	.00	4478.90	18500.00	4496.69	.00	4497.44	7.50	6.96	2775.14	6754.41
52.301	50.00	.00	.00	4480.20	14000.00	4494.37	.00	4495.10	10.30	6.87	2037.09	4362.05
52.301	50.00	.00	.00	4480.20	18000.00	4496.56	.00	4497.19	8.99	6.39	2871.23	6002.73
52.301	50.00	.00	.00	4480.20	18500.00	4496.91	.00	4497.52	8.73	6.27	3020.43	6260.23
52.317	80.00	4492.70	4492.70	4480.20	14000.00	4494.66	.00	4495.31	9.39	6.45	2171.10	4567.81
52.317	80.00	4492.70	4492.70	4480.20	18000.00	4496.97	.00	4497.48	7.89	5.77	3194.26	6409.30
52.317	80.00	4492.70	4492.70	4480.20	18500.00	4497.31	.00	4497.80	7.53	5.63	3381.98	6740.96
52.326	50.00	.00	.00	4483.50	14000.00	4494.78	.00	4495.37	10.25	6.20	2351.75	4373.47
52.326	50.00	.00	.00	4483.50	18000.00	4497.10	.00	4497.54	6.59	5.42	3667.41	7014.35
52.326	50.00	.00	.00	4483.50	18500.00	4497.44	.00	4497.86	6.12	5.31	3880.15	7476.47
* 52.335	45.00	.00	.00	4487.00	14000.00	4494.71	.00	4495.61	40.86	7.62	1911.83	2190.17
* 52.335	45.00	.00	.00	4487.00	18000.00	4497.09	.00	4497.64	16.19	6.17	3426.97	4472.36
* 52.335	45.00	.00	.00	4487.00	18500.00	4497.43	.00	4497.95	14.36	5.99	3674.19	4881.63
52.391	235.00	.00	.00	4487.35	14000.00	4495.37	.00	4496.71	27.14	9.29	1583.39	2637.20
52.391	235.00	.00	.00	4487.35	18000.00	4497.11	.00	4498.37	19.89	9.13	2334.16	4035.72
52.391	235.00	.00	.00	4487.35	18500.00	4497.41	.00	4498.62	18.49	9.04	2474.84	4302.65
52.489	520.00	.00	.00	4488.00	14000.00	4496.31	.00	4498.49	31.33	11.84	1182.50	2477.56
52.489	520.00	.00	.00	4488.00	18000.00	4497.45	4496.39	4500.06	31.97	12.98	1432.13	3183.56
52.489	520.00	.00	.00	4488.00	18500.00	4497.65	4496.54	4500.26	31.14	13.00	1484.27	3315.00
52.594	550.00	.00	.00	4489.50	14000.00	4498.26	.00	4500.02	23.15	10.62	1318.63	2909.73
52.594	550.00	.00	.00	4489.50	18000.00	4499.59	.00	4501.65	24.37	11.52	1571.04	3645.89
52.594	550.00	.00	.00	4489.50	18500.00	4499.73	.00	4501.83	24.50	11.64	1606.26	3737.63

	SECHO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	52.692	520.00	.00	.00	4489.40	14000.00	4498.70	4498.45	4502.16	44.96	14.94	938.81	2087.83
*	52.692	520.00	.00	.00	4489.40	18000.00	4499.99	4499.99	4504.13	44.82	16.34	1125.76	2688.74
*	52.692	520.00	.00	.00	4489.40	18500.00	4500.20	4500.20	4504.35	43.88	16.38	1163.39	2792.68

OWN RENO (AMPHIES3.DAT)

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
51.945	14000.00	4490.00	.00	.00	.00	332.22	.00
51.945	18000.00	4490.00	.00	.00	.00	332.22	.00
51.945	18500.00	4490.22	.22	.00	.22	364.65	.00
52.000	14000.00	4490.25	.00	.25	.00	173.92	290.00
52.000	18000.00	4490.45	.19	.45	.13	178.37	290.00
52.000	18500.00	4490.66	.21	.44	.40	188.91	290.00
52.005	14000.00	4490.22	.00	-.03	.00	149.00	25.00
52.005	18000.00	4490.39	.17	-.05	.17	149.00	25.00
52.005	18500.00	4490.60	.21	-.06	.38	149.00	25.00
52.017	14000.00	4490.92	.00	.69	.00	149.00	65.00
52.017	18000.00	4491.53	.62	1.14	.62	180.00	65.00
52.017	18500.00	4491.79	.25	1.18	.87	180.00	65.00
52.021	14000.00	4490.92	.00	.01	.00	256.62	20.00
52.021	18000.00	4491.56	.63	.02	.63	259.74	20.00
52.021	18500.00	4491.82	.27	.04	.90	261.11	20.00
52.072	14000.00	4490.96	.00	.04	.00	151.49	270.00
52.072	18000.00	4491.60	.64	.05	.64	151.85	270.00
52.072	18500.00	4491.86	.26	.04	.91	151.86	270.00
52.078	14000.00	4490.36	.00	.01	.00	140.00	30.00
52.078	18000.00	4491.61	.64	.00	.64	140.00	30.00
52.078	18500.00	4491.87	.26	.00	.90	140.00	30.00
52.093	14000.00	4492.36	.00	1.39	.00	140.00	80.00
52.093	18000.00	4493.35	1.59	2.34	1.59	160.00	80.00
52.093	18500.00	4494.30	.35	2.43	1.94	160.00	80.00
52.097	14000.00	4492.31	.00	-.05	.00	150.78	20.00
52.097	18000.00	4493.89	1.58	-.06	1.58	207.50	20.00
52.097	18500.00	4494.23	.35	-.06	1.93	207.67	20.00
52.142	14000.00	4492.37	.00	.07	.00	178.35	240.00
52.142	18000.00	4493.97	1.59	.08	1.59	180.63	240.00
52.142	18500.00	4494.31	.35	.08	1.94	205.00	240.00
52.148	14000.00	4492.40	.00	.02	.00	125.00	30.00
52.148	18000.00	4493.99	1.59	.02	1.59	225.00	30.00
52.148	18500.00	4494.33	.35	.02	1.93	225.00	30.00
52.159	14000.00	4493.53	.00	1.19	.00	225.00	61.00
52.159	18000.00	4495.42	1.83	1.44	1.83	225.00	61.00
52.159	18500.00	4495.76	.33	1.42	2.16	225.00	61.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	52.167	14000.00	4493.67	.00	.07	.00	180.00	42.00
	52.167	18000.00	4495.48	1.82	.06	1.82	180.00	42.00
	52.167	18500.00	4495.81	.33	.05	2.14	180.00	42.00
	52.292	14000.00	4494.23	.00	.62	.00	283.35	660.00
	52.292	18000.00	4496.35	2.06	.87	2.06	325.37	660.00
	52.292	18500.00	4496.69	.34	.88	2.41	330.68	660.00
	52.301	14000.00	4494.37	.00	.06	.00	325.31	50.00
	52.301	18000.00	4496.56	2.19	.21	2.19	466.35	50.00
	52.301	18500.00	4496.91	.35	.22	2.55	468.54	50.00
	52.317	14000.00	4494.66	.00	.30	.00	376.12	80.00
	52.317	18000.00	4496.97	2.31	.41	2.31	526.16	80.00
	52.317	18500.00	4497.31	.35	.40	2.65	559.00	80.00
	52.326	14000.00	4494.76	.00	.12	.00	514.06	50.00
	52.326	18000.00	4497.10	2.32	.13	2.32	602.11	50.00
	52.326	18500.00	4497.44	.33	.12	2.65	650.00	50.00
*	52.335	14000.00	4494.71	.00	-.07	.00	524.39	45.00
*	52.335	18000.00	4497.09	2.38	-.01	2.38	710.66	45.00
*	52.335	18500.00	4497.43	.34	.00	2.72	742.17	45.00
	52.391	14000.00	4495.37	.00	.66	.00	343.95	295.00
	52.391	18000.00	4497.11	1.74	.02	1.74	471.46	295.00
	52.391	18500.00	4497.41	.30	-.02	2.04	471.60	295.00
	52.489	14000.00	4496.31	.00	.94	.00	173.51	520.00
	52.489	18000.00	4497.45	1.14	.34	1.14	260.31	520.00
	52.489	18500.00	4497.65	.20	.24	1.34	271.31	520.00
	52.594	14000.00	4498.26	.00	1.95	.00	175.98	550.00
	52.594	18000.00	4499.58	1.32	2.13	1.32	244.59	550.00
	52.594	18500.00	4499.73	.14	2.08	1.46	254.51	550.00
	52.692	14000.00	4498.70	.00	.43	.00	131.08	520.00
*	52.692	18000.00	4499.99	1.30	.41	1.30	179.07	520.00
*	52.692	18500.00	4500.20	.21	.47	1.50	186.17	520.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 52.335 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 52.335 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 52.335 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 52.692 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 52.692 PROFILE= 2 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 52.692 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 52.692 PROFILE= 3 MINIMUM SPECIFIC ENERGY